

Maternity DMA Report

Digital Maturity Assessment of Maternity Services in England 2018

Published October 2018

Foreword

The National Maternity Review, Better Births, emphasised the importance of the whole system that delivers coordinated care from different providers such as midwives, GP's, and obstetricians over the course of a pregnancy and afterwards and the different places such as surgeries, midwife led units and hospitals which are part of the system; thus, the concept of Local Maternity Systems or LMSs. A similar concept underlies the development of Sustainability and Transformation Partnerships or STPs that are part of the new NHS. Indeed, the NHS is a system not just a service.

A system requires everyone to work together and care needs to be coordinated. Nowhere is this more important than in maternity services. For this to work everyone needs to share information and for years this has been recognised by the Mother holding the paper record that she takes with her to wherever care or treatment is being provided. But the process is cumbersome, much information that is relevant is held by different providers and not readily available to the Mother, the midwife, the GP or even the hospital never mind others who may be involved such as social services the voluntary sector or mental health services. As Vice-Chair of National Maternity Review and the Stakeholder Council of the Maternity Transformation Programme Board, I am clear that the better use of technology and data is essential if we are to meet women's expectations around choice and personalisation and also free up professional time to practice, leading to safer and more effective care.

The Digital Maturity Assessment (DMA) has been completed by 100% of maternity services, with the majority of returns being completed by clinicians. For the first time, we have a complete picture of the digital maternity landscape across England - a baseline for improvement at both a national and local level. It shows us how developed the foundations are for maternity care to be at the forefront of a digital NHS. This has been a necessary first step to achieve our ambition.

Alongside this national report every Local Maternity System (LMS) has also been issued with a local report to help guide planning. This will facilitate joined up working on digital solutions which provides clinicians the information that they need to deliver high quality care, reduces the reporting burden and delivers rich data for insight and improvement. All this is now technically possible, it is our ambition to ensure that maternity is first in line to benefit from opportunities created by new digital developments.

National networks such as the LMS Digital Leader's Forum and Digital Midwives Expert Reference Group have played an important role. We should continue to build this community - connecting the people responsible for digital technology in maternity services across the country.

**Sir Cyril Chantler, Vice-Chair,
Maternity Transformation Programme Board**



Statement from the RCM and RCOG

There is no doubt that digital technology is fundamental to the way women receive maternity care. Digital technology is evolving quickly, and so are the expectations of pregnant women and their families. RCM and RCOG welcome this comprehensive and honest report as it sets the benchmark across England, shining a light on good practice and highlighting the opportunities for development. Better use of technology and ability to share data not only helps us to meet women's expectations around choice and personalised care but can also free up professional time to practice; providing even safer and more effective care.

The vast majority of the maternity digital maturity assessments were completed by clinicians closest to the women within maternity services. This provides us with another great opportunity to hear the voices of the maternity staff, especially as midwives and obstetricians play such a pivotal role in driving the uptake and successful adoption of digital initiatives.

Every maternity service in England submitted a maturity assessment. This overwhelming engagement from maternity services demonstrates the growing appetite for making best use of digital healthcare. The opportunities presented by the emergence of new technologies has the potential to transform the relationship between a woman and her care providers. These changes are a means to enhance the care we give and interactions we have with women, it should not be seen as a barrier. RCM and RCOG are certain that clinicians will embrace innovations which seek to enhance relationship-based care and drive up the quality and safety for all women and families.

Moving forward, we see the findings of this report as an opportunity to build upon our Partnership working and continue to strengthen our networks and digital collaboration across the country. We plan to see a rise in digital maturity amongst maternity services that will ensure a sustainable and collaborative digital future benefitting services, clinicians and pregnant women.

Mandy Forrester, Head of Quality and Standards
The Royal College of Midwives

Mr Edward Morris MD FRCOG, Vice President, Clinical Quality
Royal College of Obstetricians and Gynaecologists

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Quick links: click to jump to the emerging theme

Digital leadership within maternity services



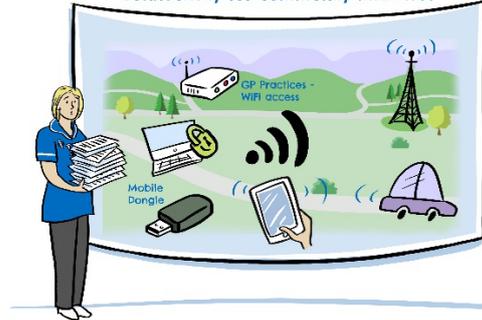
Maternity Voices Partnership Research



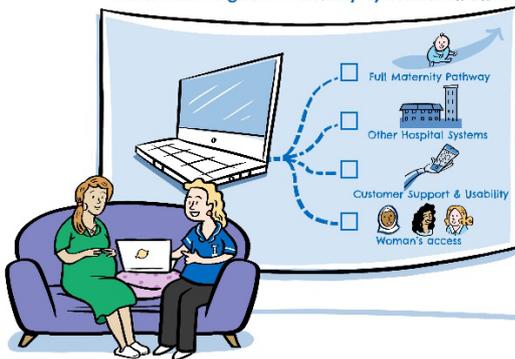
Mapping the maternity pathway and understanding technology touch points



Connectivity for community midwives



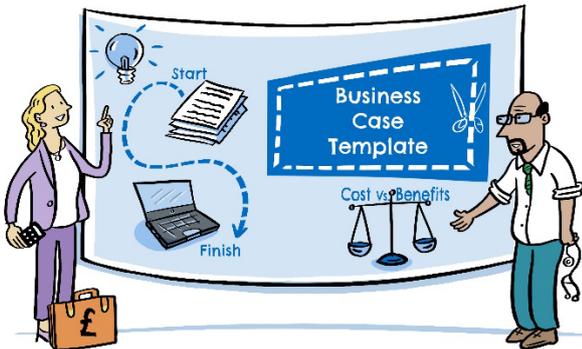
What does a good Maternity System look like?



Data driven improvements in Maternity Services



Business cases and Business change: Maternity Digital hardware



Myth busting & Quick wins for Digital Maternity



Maternity Services, Our Digital Future



Introduction

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What digital maturity means for maternity services

The Maternity DMA allows us for the first time to measure how well maternity services in England are making use of digital technology. The outputs of the Self-Assessment will help individual organisations to identify key strengths and gaps in their provision of digital services. The analysis contained in this report provides an overview across the country of the progress maternity services are making in obtaining the benefits associated with adopting digital technology.

The diagram below shows a high-level distribution of maternity services in England in terms of how well they are using digital technology. Level 4 is the highest level of digital maturity and Level 1 is the lowest.

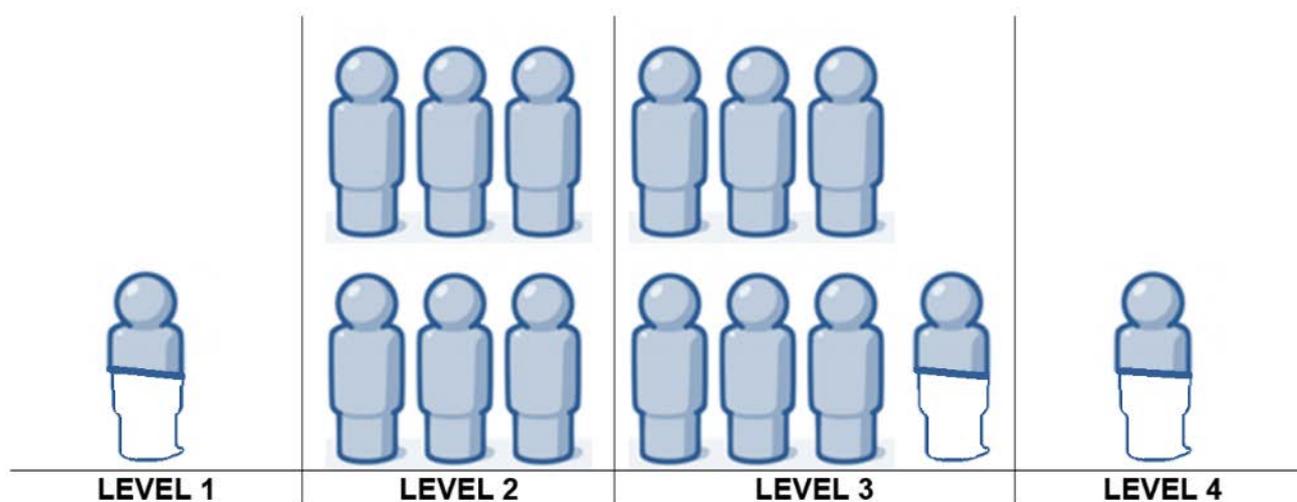


Figure 1: Maternity services categorised based on their overall scores in the 2018 DMA. Each 'figure' represents approx. 10 trusts and 'half figures' approx. 5 trusts (this scoring approach is explained in the **calculating scores** section)

Defining 'digital maturity'

Digital maturity is not only an indicator of how well a maternity service is currently using digital technology, but also a measure of how well prepared the people, processes and technology are for adopting new digital transformation initiatives. In order to build a sustainable thriving digital service for the future, we need successful adoption of these change initiatives. This requires alignment of digital maternity strategy, leadership and culture to match with women's needs and expectations.

The reality for women experiencing care at each 'Level'

The application of digital technology has a real impact on the experiences for pregnant women accessing maternity services. Each of the four levels reflect a different experience for women and clinicians. Below, each of those levels is outlined in terms of what a woman is likely to experience:

Table 1 DMA 'Level' outlines – the service user perspective

DMA Level	Typical experience of using this service
Level 1	Almost all my notes are in a paper format, I was given lots of paper leaflets. The midwives seemed busy typing information into PCs at every appointment, but I'm repeatedly asked the same questions. During my pregnancy I never accessed the Trust website for guidance and my midwife never referred me to any online resources.
Level 2	I might be able to access some online resources from the maternity service, but this doesn't cover me throughout the full pregnancy pathway. It's unlikely that I can access my maternity notes digitally. Some maternity staff have mobile devices such as tablets, however paper notes are still a major part of my experience.
Level 3	I'm likely to have access to some online resources with a few maternity services enabling me to view my maternity record digitally but not interact with it. Most maternity staff have mobile devices such as tablets, which allow them to access information about my pregnancy more easily. Paper plays a smaller role.
Level 4	I'm offered a suite of online tools which cover my whole pathway. I am able to interact with my maternity record in a way that is useful to me. All the supporting information I need is online, but I'm able to contact my midwife through several channels, including digital means, should I need to. It's likely that I completed an integrated online booking form, which allows maternity staff to digitally access all the information they need to support me. I feel supported as part of an online community with other expectant parents. I don't have to keep re-telling my personal circumstances unless I choose to.

The benefits of having high digital maturity

As well as providing benefits directly to the women using the maternity services, digital technology offers huge opportunities to enhance the working practices of maternity staff. Behind the scenes, technology when applied well should enable clinicians, enhancing their practice and freeing up their time to care. However, digital tools often aren't used to their full potential and can end up becoming barriers or even created additional burden.

The [Wachter Report](#) highlights the important role that clinicians must play in making new digital initiatives a success. The report also highlights the barriers that must be overcome. In order for clinicians to feel the benefits of such initiatives, they need to be done for the right reasons. Digital solutions are about enhancing existing process and practices not replacing them.

This report ultimately aims to baseline digital maturity and help drive-up the use of technology in the future. Higher levels of digital technology will help maternity staff and

maternity services to deliver against the triple aim of better health, better care and better value.

Is there a potential link between digital maturity and the improvement of safety for both women and babies? One of the main drivers behind many digital initiatives is an objective of improving safety, therefore it is possible that there could be a correlation between digital maturity and safety. This is something that will require further research and robust evidence to prove. However, if a causal link is demonstrated then this could become a strong incentive for maternity providers to invest in driving up their digital maturity.

Potential for driving up digital maturity in the future

“the future’s here it’s just not evenly distributed” – Anon

At a glance, the majority of maternity providers in England are spread across levels 2 and 3. This largest group of trusts are making a good start in adopting digital technologies; later in the report we will investigate the different hurdles trusts must overcome to progress in driving up their digital maturity. However, there is a great opportunity for us to share learning across the system so that those more digitally mature maternity providers can share their learning with others. Only a minority of maternity providers have very low digital maturity, and these are the organisations who stand to gain the most from the recommendations made in this report.

Working with maternity services

Background

Better Births established the important role technology plays in transforming maternity services. Recommendations included electronic health records, sharing information digitally, online resources, understanding the digitally 'savvy consumers' as well as investing in the right software, equipment and infrastructure.

The Maternity DMA was commissioned at the end of 2017 with an aim to conduct a national assessment during 2018. The Maternity DMA would create a baseline to help evidence the current state of digital maturity across England and to ensure that the required level of leadership, infrastructure and capabilities exist to enable the Better Births recommendations around digital technologies to be delivered.

The questions in the Maternity DMA attempt to capture the unique challenges facing maternity services and the issues raised in Better Births, whilst remaining aligned to the NHS England methodology for assessment. The Assessment measures maturity against the following key themes:

- **Readiness:** are providers able to plan and deploy digital services?
- **Capabilities:** do providers have staff with the digital skills they need?
- **Infrastructure:** do providers have the right technology in place?

High engagement allows for LMS driven approach and outputs valuable for maternity providers

The Maternity DMA closed in July 2018 with input from 135 maternity providers in England. (including two [independent providers](#)) The information has been analysed and the outputs have been published following approval at the MTP Board on the 17th October.

The fact that 100% of the maternity providers approached completed the assessment indicates that engagement around this area is high. There is an appetite at both provider and LMS level to identify and overcome any barriers around implementing new technologies.

This report is intended to provide recommendations that are useful to individual maternity providers and at a wider LMS level, a collaborative approach to regional issues is likely to be the best way to drive up digital maturity going forward.

Maternity DMA snapshot: LMS wide planning

BLMK LMS (Bedfordshire, Luton and Milton Keynes): *are a great example of this kind of approach to collaborative working. The LMS ran a joint planning session to feed the Maternity DMA data from each maternity provider into wider regional planning.*

Maternity DMA outputs

The Maternity DMA aimed to deliver five key outputs:

- **National Maternity DMA report:** a single report showing the ‘state of the nation’, high level findings and first recommendations from the DMA data.
- **LMS DMA reports:** reflecting the ‘national report’, each of the 44 LMSs will receive a report containing focused analysis and recommendations relevant to the Maternity Services in their geography. (LMS DMA reports are stored on the NHS England MTP site, for a copy of your report contact England.maternitytransformation@nhs.net).
- **Maternity DMA data:** this data source will be available to support certain national initiatives and will be stored so that future repetitions of the Maternity DMA can track the progress of maternity providers and help evidence their improvements.
- **Maternity DMA toolkit:** a website sharing actionable resources for stakeholders to begin improving their digital maturity. This will be an evolving resource building upon the areas of development identified in the national report.

Establishing powerful networks:

- **Creation of a network for regional digital leaders:** known as the LMS Digital Leader’s Forum, NHS Digital has identified and brought together a digital leader from each of the 44 LMSs to form a peer network, to collaborate on DMA matters such as identifying common challenges, co-authoring guidance and sharing best practice. This group will be useful going forward in efforts to drive up digital maturity.
- **Creation of a network for digital midwives:** known as the Expert Reference Group for midwives. Formed of digital midwives from across the country, the group acted as a two-way conversation allowing the maternity DMA to feed in requirements from front line clinicians.

Scope of the Maternity DMA project

This Maternity DMA project was initiated in December 2017. The platform and questions were developed and tested over the subsequent months until the assessment went live in April 2018. Information was collected from maternity providers between April and the end of June. Subsequently the information was analysed until the reports were ready to be approved and published in October 2018. The final report was approved 17 October by the MTPB and published the following day, 18 October. The aim was to turn the analysis around quickly in order to ensure the information was still up to date and relevant.

Key Milestones:



Next steps for the Maternity DMA project team

For more information about the 'Driving up digital maturity phase' please see [Digital Maturity](#) section.

Key stakeholders and resources

The structure for the Maternity DMA questions were based upon previous pieces of work by NHS England. The project team maintained strong links with teams at NHS England, including the Maternity Transformation Programme and its various workstreams. Other groups engaged with during this piece of work include:

- **Professional bodies:** Royal College of Midwives, Royal College of Obstetricians and Gynaecologists.
- **Representative groups:** Senior MVP engagement, surveys with women and face-to-face representatives.
- **Other national organisations and initiatives:** NHS England, NHS Improvement, NHS Digital (Services, Projects and Programmes).
- **Regional and local engagement with clinicians:** Digital leaders appointed in all 44 LMSs (75% of the Maternity DMA's were completed by midwives within the 135 services).

How to use this report

This national maternity DMA report aims to provide maternity services with the insight and resources to aid local planning and support national planning for the adoption of digital technologies. The report is supported by 44 LMS reports, designed to be used in conjunction with one another (LMS DMA reports are stored on the NHS England MTP site, for a copy of your report contact England.maternitytransformation@nhs.net). The LMS reports show the detailed analysis at maternity provider level and compare it to LMS and national averages.

In [Appendix A](#), each of the 14 sections of the DMA is explored in detail, a format mirrored in the LMS reports. The detail in the appendix of this report is not intended to be read end-to-end, rather to be used as a resource to build on the specific topics identified as strengths and weakness in this LMS DMA report.

The raw maternity DMA data for all maternity providers is available as an embedded file within their respective LMS report should they wish to do any further analysis.



Figure 2: Maternity DMA data – available in three forms: raw data, LMS reports and National Maternity DMA report

What can I expect to find in this report?

The report is broken down into four sections:

Link to section	Description
Introduction	Details the scope of the project and gives a brief explanation of the Maternity DMA, providing background, detailing the process and project drivers.
National analysis	The scores from the 135 providers have been analysed and broken down geographically and into the 14 different sections of the Maternity DMA. The analysis explains why particular themes were explored and reviews the scores for individual questions. The analysis tries to showcase particular maternity providers who have high levels of digital maturity and begins to suggest potential actions which may help overcome certain digital maturity issues in maternity services.
9 emerging themes	9 emerging themes have been identified which represent the common challenges faced by a significant number of maternity providers. The themes are also aimed at addressing the root cause of wider digital maturity issues. Each theme aims to signpost to potential resources and solutions which may help maternity services start to address their digital maturity challenges. The themes are supported by evidence from the national analysis.
Additional resources	A number of other topics have been explored within this report. The resources collected in this section are useful tools to boost digital maturity, however, it's possible that many of them will be relevant to a smaller group of maternity providers.

National analysis

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Overall digital maturity

As per the '4 levels of digital maturity', maternity providers across the country are at a range of different levels of digital maturity. The analysis in the coming section looks at data both at a maternity provider level and LMS level. Where the questions have been converted into a score out of 100, an explanation of how this was achieved follows in this section.

The following key statements help set the national scene:

- **Overall average score was 51 out of a potential 100:** This is a great test of whether the right questions were asked in the Maternity DMA, an average score of close to 50 shows that the self-assessment was well designed. The intention was for the questions to cover both the basic building blocks and more aspirational topics. 51 is a good starting point, we can now aspire to move the national picture towards the 100.
- **Some trusts scored 0 on sections whilst others scored 100:** The variation across the country is significant, against the same set of questions some providers score themselves as close to full digital maturity whilst others are scoring 0. A great opportunity to share learning.
- **The highest scoring 'DMA section' averaged 77, the lowest 23:** The sections are detailed later in this analysis; however, it would appear the maternity providers are often doing well on the same elements but are also encountering challenges in the same areas. This allows a great opportunity for the national teams and networks to focus on solving those common issues.
- **Low and high areas of digital maturity are distributed across the country:** The Maternity DMA proves that there is little to no North/South divide in terms of digital maternity. Each region has leaders and followers, providing the opportunity for trusts to develop by partnering with the digital leaders in their local areas.

Overview of the country by LMS

There are 44 LMSs in England. Figure 2 shows a national picture of digital maturity by Local Maternity System (LMS). Those LMSs within the lowest scoring quartile (the bottom 11) for overall digital maturity are shown in white with the highest scoring quartile (the top 11) shown in dark blue. An interesting observation is how widely distributed by geography the different levels of maturity are, to the point where all low maturity LMS share a border with a high maturity LMS.

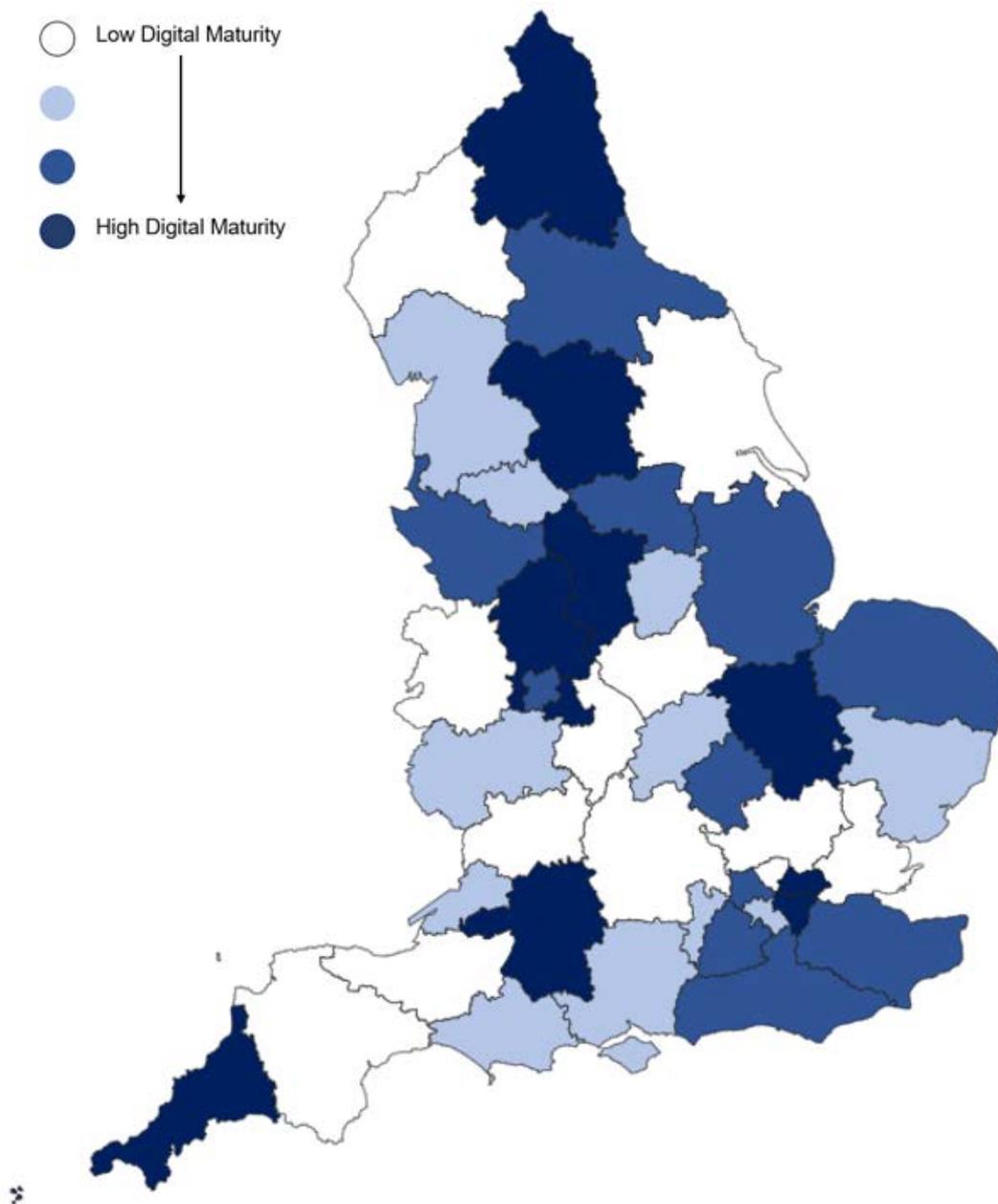


Figure 3: Overall digital maturity in England (LMS comparative data has not been published at this time)

Maternity DMA questions and data caveat

The Maternity DMA consisted of more than 200 questions formulated by clinicians and spans both the acute and community setting. The framework adopted was taken from the [National Digital Maturity Assessments](#) for trusts run by NHS England and is structured to represent 'good practice'. Analysis at national level of each section and the questions it contained are available in [Appendix A](#), along with an explanation as to why each topic is important to digital maturity and what steps can be taken to improve in this area.

Types of questions used in the assessment

A range of question styles were used in the assessment, including:

- Questions asking providers to assess themselves on a five-point scale from 'agree completely' to 'disagree completely' (known as the Likert scale) against a range of statements that refer to the readiness, capability and infrastructure when considering digital technology.
- Quantitative questions requiring a response against a numeric range (the 'what proportion' type questions). These were used to provide a better insight into the current digital maturity landscape.
- Explicit questions about the maternity providers, to better understand some of the specifics e.g. what system supplier is used, do you provide a digital version of the hand-held record, etc.
- Free text questions, which allowed the users to add further detail and context where appropriate.

It should also be noted that the Maternity DMA is a 'self-assessment' and reflects a point in time. This means that it is mainly based on the opinions of those who complete it, rather than demonstrable fact. As time passes, the answers provided in the Maternity DMA will become out-dated.

Calculating scores

The responses were then converted into scores, with 100 being the most digitally mature and 0 being the lowest, to allow comparative analysis to be carried out and an overall 'digital maturity score' to be calculated. Please see the [calculating scores](#) section for further detail. Some important points to note regarding the analysis:

- **The Maternity DMA is a 'self-assessment'** – This means that it is mainly based on the opinions of those who complete it, rather than pure fact. As a result of this, there may be inaccuracies or inconsistencies compared with what actually happens.
- **Handing of 'N/A' values** – All questions in the Maternity DMA have 'N/A' offered as a potential response. Where this value has been selected, this question has been excluded when calculating national averages, i.e. it is excluded from the denominator. This ensures that where a question is not relevant to a particular provider, the national

average is not distorted by including these responses. Where a question has been left blank, the response has also been treated the same way.

- **Handling of ‘Don’t know’ values** – All questions in the Maternity DMA have ‘Don’t know’ offered as a potential response. Where this value has been selected, unlike the ‘N/A’ responses, these values have been included in the national average calculations, as not knowing something implies a lack of digital maturity.
- **Calculating ‘proportional’ averages** – A number of questions in the Maternity DMA ask for a quantitative response (i.e. ‘what proportion’ of something happens). In terms of the aggregated analysis of these questions, it is important to understand that this is an average provider score based on all the responses. There has been no weighting here depending on the size of the provider or the number of women birthed.

Categories and sections

The Maternity DMA is split into three categories:

- **Readiness** considers whether providers have high level strategic and leadership structure in place to deliver paper-free care
- **Capabilities** considers whether the digital technologies and capabilities are in place to deliver paper-free care
- **Infrastructure** considers whether the technical enablers are in place to deliver paper-free care

Each of the themes are broken down by section. The figure below shows each of the sections by themes with a short summary of what each section focuses on.

CATEGORIES



READINESS:

Are providers set up effectively to deliver paper-free at the point of care?



CAPABILITIES:

Do providers have the digital capabilities they need to deliver paper-free at the point of care?



INFRASTRUCTURE:

Are the underpinning technical enablers in place to deliver paper-free at the point of care?

SECTIONS

Strategic Alignment

How digital technology supports your maternity provider's strategic priorities.

Leadership

How your maternity provider's leadership is driving the digital agenda forward.

Resourcing

How your maternity provider has the resources it needs to deliver your digital priorities.

Governance

The governance arrangements in place to deliver digital priorities successfully.

Infrastructure

The underlying infrastructure that enable the digital capabilities covered in this assessment.

Records, Assessments & Plans

The use of digital care records to ensure healthcare professionals have access to the information they need.

Orders & Results Management

How your maternity provider uses digital technology to manage clinical orders and results accurately and efficiently.

Transfers of Care

How your maternity provider uses digital technology to transfer information within and between care settings.

Medicines Optimisation

The use of digital systems to ensure people receive the right combination of medicines every time.

Decision Support

The use of digital technology to support healthcare professionals in making the right decisions.

Remote & Assistive Care

The use of remote, mobile and assistive technologies to support the provision of care.

Asset & Resource Optimisation

The use of digital technologies that can improve the quality, safety and efficiency of care.

Standards

The use of core national standards relating to digital capabilities.

Business & Clinical Intelligence

How business and clinical intelligence are used to support operations at your maternity provider.

Figure 4: Maternity DMA categories

Overview of sections

Figure 5 shows the national average of scores by section. The highest scoring section was ‘Governance’, with a score of 77, whilst the lowest scoring section was ‘Remote & Assistive Care’ which scored 23. However, it’s important to note that each section had a different number of questions contained within them and some of the topics explored within certain sections were considered to be ‘aspirations’. Therefore, variation between the different section was expected and it may not always be useful to directly compare their scores.

The ‘Readiness’ category of the Maternity DMA contained the highest scoring sections, as a national average. This implies that maternity providers are making good progress in addressing the fundamental elements required for digital maturity, though there is still significant opportunity for digital developments within maternity services across England.

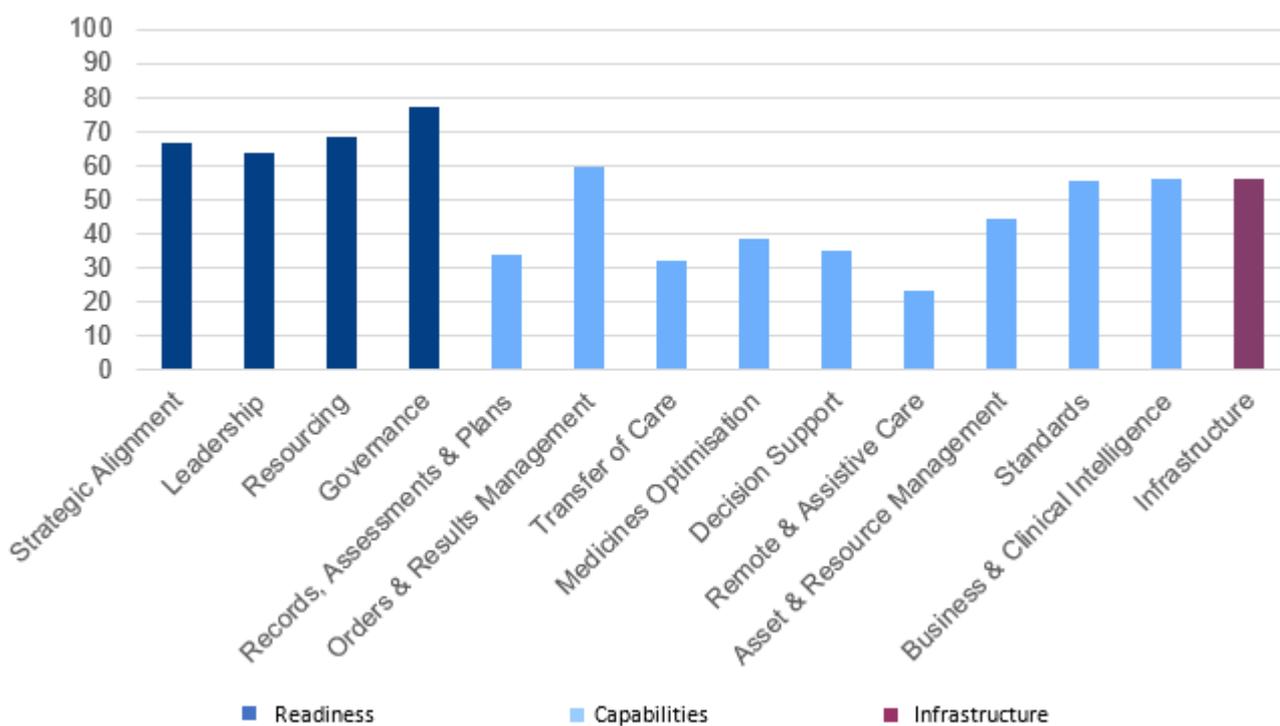


Figure 5: National score by section

To understand how these 14 sections link to the 9 emerging themes, see the [links between themes and sections](#) table.

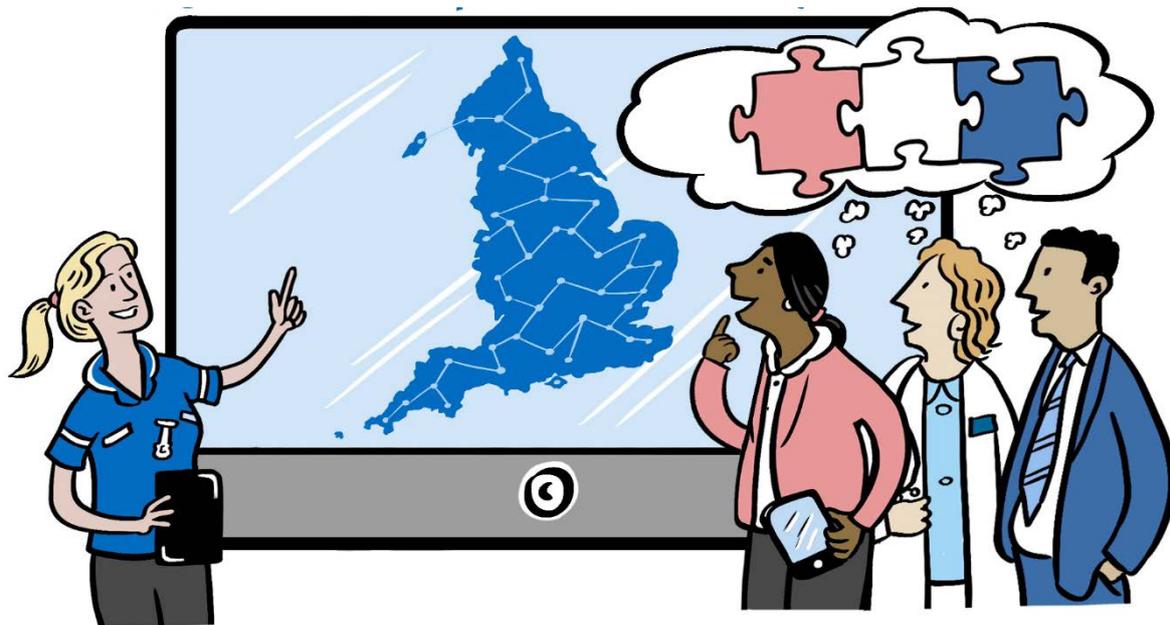
Detailed analysis of national scores

A detailed analysis of each section and the questions it contained at a national level are available in [Appendix A](#), along with an explanation as to why each topic is important to digital maturity and what steps can be taken to improve in this area.

9 Emerging Themes

1. Digital leadership	25
2. Maternity Voices Partnership	32
3. Process mapping the maternity pathway	41
4. Connectivity for community midwives	46
5. What does a good system supplier look like?	51
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1. Digital leadership



“Technology is nothing. What's important is that you have a faith in people, that they're basically good and smart, and if you give them tools, they'll do wonderful things with them.”

Steve Jobs

Introduction: The role of the digital midwife

The transformation of technologies bringing together physical, digital and biological science is set to transform healthcare and maternity is no exception. It is therefore imperative, if maternity services are to keep up with advances in technology, that consideration is given to the workforce incorporating digital leaders who can innovate, drive change and enthuse their colleagues.

The specialist sphere of clinical informatics has seen a number of pioneering nurses, midwives and allied health professionals move into these roles; or as part of their existing roles, they lead on the implementation of innovative digital health and care systems to benefit patients.

Digital maternity leadership, often developed because of a local technology project where midwifery input is required, is often sparse and thinly spread with little specific midwifery focus. To address this, services have appointed a midwife to lead on such initiatives. The “digital midwife” role appears to have evolved over the past 10 years and is also referred to as the “lead midwife for I.T.”, “information lead midwife”, “specialist midwife – maternity information system”, or “clinical systems midwife”. These posts have developed to reflect the demand of the service, and whilst most trusts (76%) recognise they have a digital leader in post, there is little national unified guidance on what this role may entail. A review of current job descriptions identified a bias towards task-based activities with little focus on leadership qualities.

Having considered multiple job descriptions, two consistent themes derive from the post outline: the postholder is a midwife, and they are responsible for anything digital. This section will therefore refer to the role as the “digital midwife”.

Some maternity services have employed a junior midwife to work alongside and support the digital midwife. This role does not necessarily require the post holder to be a Registered Midwife and would support developing the role of the Maternity Support Worker, however we were unable to identify services that have done this.

What the evidence says

The interim report of the [Topol Review](#) commissioned by the Secretary of State recognises that digital technologies are transforming our ability to empower patients to participate actively in their own care, with a greater focus on well-being, prevention and personalised management of long-term conditions. It also reflects the digital recommendations from [Better Births](#) (2016). The Topol Review Panel are using a 3-staged approach to timeframes when considering workforce development, education programmes and curricula.

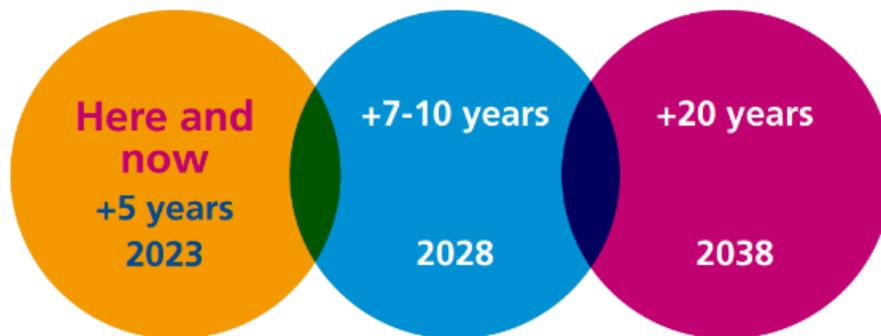


Figure 6: Topol Review Panel 3-staged approach to timeframes

The 2016 [Wachter Report](#), ‘Making IT Work’, assessed the state of NHS IT services and made recommendations for what was needed to facilitate a digital healthcare future. It advocated that all trusts should aim to achieve a high level of digital maturity within five years. Recommendation 3 stated efforts should be made to ‘develop a workforce of trained clinician-informaticists at the trusts and give them appropriate resources and authority’. To date, there has not been a baseline measurement of nurses’ and midwives’ digital capabilities and no specific action plan to normalise or mainstream digitisation. Whilst hard hitting, suggesting an almost unrecognisable future, all require digital leadership to enable change to happen.

Upskilling the workforce

Health Education England (HEE) recognise every health and care professional will need to develop their digital and informatics awareness and capabilities both at pre-registration and during their development and practice, as many clinical processes move towards a more digital and online means of delivery. They have created a digital capabilities framework providing a generic overview of the capabilities that all staff should be expected to acquire and maintain at different levels depending on their role.

The Career Framework can be read in detail within the digital midwife resource below.

HEE generalist skills

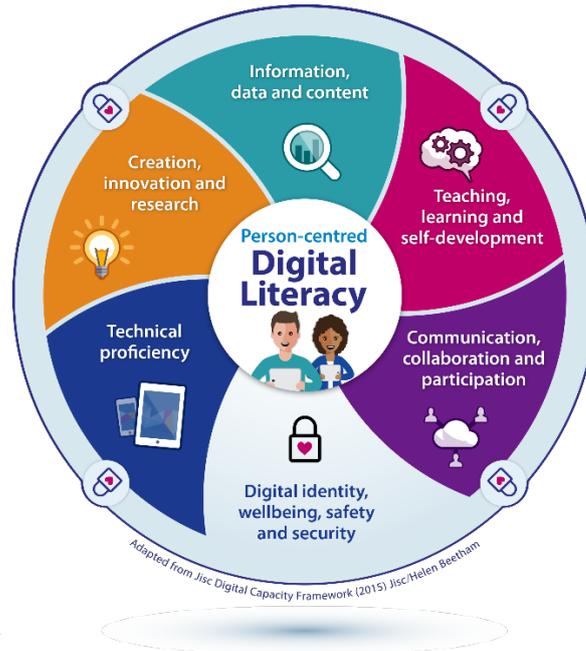


Figure 7: HEE generalist skills

The Royal College of Nursing (RCN) in conjunction with Health Education England (HEE) recently launched the [Every Nurse an E-Nurse](#) initiative. The focus includes involving nursing and midwifery staff in the design and implementation of information technology, increasing access to education and training, and using data to improve care. The first output from this work is a joint publication between Health Education England and the Royal College of Nursing; [Improving Digital Literacy](#).

The next phase of their work will be to:

- Examine the specific digital literacy needs of nursing and midwifery staff.
- Signpost resources, tools and strategies in use to help improve digital capability.
- Highlight the contribution of nursing staff to this agenda.

The NMC have published their [pre-registration education standards for nursing and midwifery](#) (May 2018) which will take effect from January 2019. There is minimal reference to growing digital practice at pre-registration level within the new standards. In England some local initiatives have evolved to support learning and development for nurses, midwives and AHPs, but only on a small-scale.

The RCM recognise that digital approaches need to be normalised, understood and valued across practice, education and research. They will continue to focus on enabling a digital ready workforce, working collaboratively with other professional bodies and including the RCOG, to ensure midwives and maternity support workers are “digital natives” equipped to direct, contribute and innovate practice daily. The RCM acknowledges and supports the Maternity Transformation Programme and recognises that the role of the digital midwife will be pivotal in the transformation process. As a result, they have actively contributed towards this work and plan to continue with this agenda post publication of the national report.

Barriers to success

Digital systems within organisations are often not fit for purpose or evenly distributed in the appropriate place. In addition to these barriers, lack of trust, poor previous experience, fear of the pace of change and the feeling of being unprepared to engage with new technology resonates across maternity services in England. Evidence from the RCN suggests some nurses and midwives still do not have an email account/ digital identity.

The [State of Maternity Services Report](#) (RCM, 2018) identified an aging workforce within midwifery with over one third of midwives being over the age of 50+. With an already depleted workforce and a large number of midwives reaching retirement age, the profession is under pressure to fulfil the role requirements. Research undertaken by [Statista](#) identified people over the age of 55 are less likely to use smart phones, therefore suggesting less digital confidence:

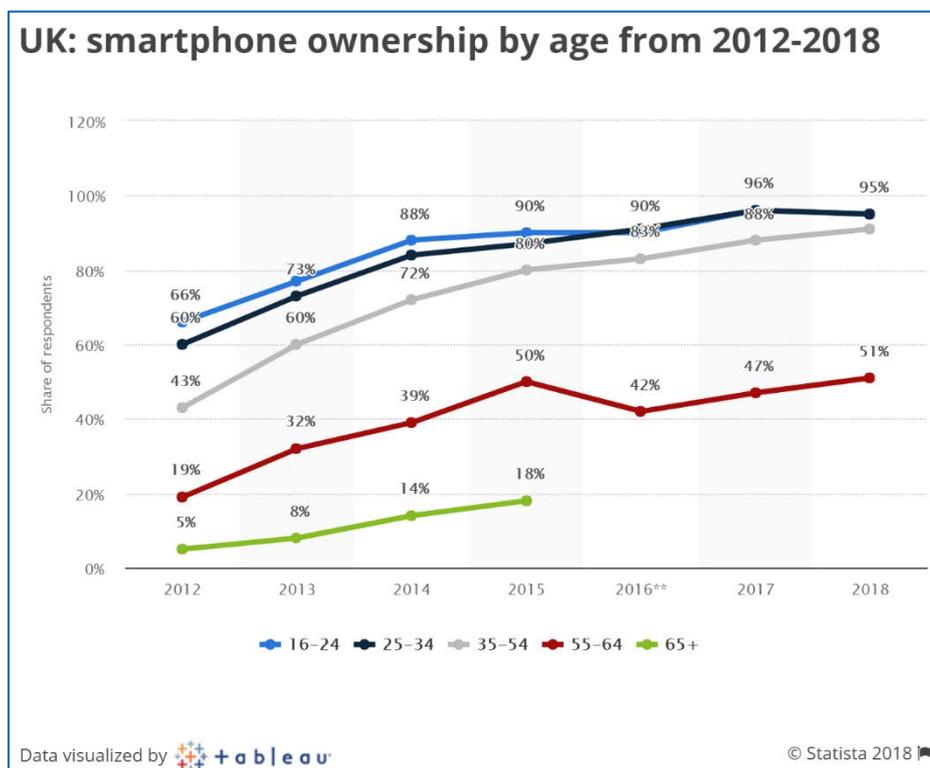


Figure 8: UK smartphone ownership by age from 2012-2018

In addition to this workforce challenge there is the increasing birth rate, growing complexity within a workload and a current estimated workforce shortage of around 3500 midwives. Therefore, as maternity services face huge service challenges there has never been a greater reason to implement digital technology.

Resources and next steps

Designating and empowering a digital midwife is the first step to increased digital maturity. Even if you have an established role we suggest you review the job description against the resource provided below to support your service delivery and help establish a consistent national framework for maternity services.

Clarity, willingness and enthusiasm is the starting point for other elements leading to digital maturity. The Maternity DMA identified most trusts had a dedicated digital midwife, however the role was inconsistent and grossly under-resourced, with 27% of trusts identifying there weren't enough hours assigned to the role and the digital midwife was regularly needed to support demand within the service elsewhere. However, the digital midwife leadership role is pivotal in the digital transformation of maternity services.

- **Digital midwives are the champions of digital change** – Every project needs respected leaders to guide, coordinate and communicate its activities while capturing and celebrating its successes.
- **Aligning the digital vision and identifying local digital initiatives** – Once in post a digital midwife can start mapping pathways and working with staff to identify gaps and potential areas for improvement, quick wins and longer-term projects. By having a strategic vision, they can ensure proposals for changes within the maternity service align with the organisation strategy and the LMS digital road map.
- **Understanding benefits for the service, women and staff** – Clarifying how the future will be different from the past and understanding how they can make the future a reality through initiatives linked directly to the vision. Being able to relate this back to safer maternity care is key to engagement and success.
- **Engaging the wider maternity service staff in change initiatives** – Successful change within a service requires a group effort from lots of engaged staff who believe in the benefits of digital technology. It is therefore imperative that the person who leads them is recognised for their expertise and has their respect.
- **Flagging and removing local barriers** – Removing barriers such as historical practice, inefficient processes and hierarchies provides the freedom necessary to break down silos and generate impact to support interoperable working in the future.
- **Networking with other digital midwives** – To draw in best practices from across the country, joining the national Digital Midwives Expert Reference Group or other networks will discourage silo working and encourage learning from each other.
- **Recognise, collect and communicate the achievements and impact of digital initiatives** – This will increase credibility and help embed the changes into the services' culture.

What does a good digital midwife job description look like?

Facilitated feedback identified the digital midwife to be the “go-to person” for all things digital within maternity services. However, whilst the roles vary enormously across the country, the single most consistent message observed in every job description we reviewed was that the post holder must demonstrate clinical midwifery expertise.

The LMS Digital Leaders Forum were asked to consider whether being a midwife was a necessary specification of the role and whilst it was not a unanimous conclusion, the majority of those participating concluded it was. Examples were shared where other professional roles were appointed to the post and failed, with the trusts reverting to the post holder being

a midwife. Further exploration suggested it was not clinical expertise that enhanced the role but the ability to engage with the hearts and minds of the workforce, being aware of the intensity of the workload and attitudes of staff when asked to adopt new ways of working.

The group challenged the role and concluded other multiple external factors impacted the role specification. Key to this were systems administration support, training and development and Chief Clinical Information's Officer (CCIO) roles undertaken by people with a nursing/ midwifery background.

There is significant diversity around the country and a range of approaches to the implementation of information technology. Whole systems have been introduced across trusts and/or services in some areas, and in others, incremental approaches which aim to build staff confidence and interest step by step. It is not uncommon for neighbouring areas to be at very different stages of using technology in practice and this is reflected in the national survey findings. It is therefore evident the digital midwife role will be different for each organisation whilst incorporating key "change management" qualities and strategic vision.

The DMA findings demonstrated that around a quarter of maternity providers didn't have a dedicated digital leader and overwhelmingly two thirds of maternity providers felt that they didn't have adequate hours assigned to the digital role to meet the service needs.

With no clearly defined role recognised nationally or professionally, many felt that whilst funding for a digital midwife post was potentially possible, the actual remit of the role was too much of a challenge to define. The LMS digital leaders have asked for clarity and definition to support them going forward.

Developing the role of the digital midwife

In addition to the group facilitated feedback, the Digital Maternity Programme at NHS Digital have considered a variety of tasks, skills and responsibilities. This was supported by 7 trusts sharing their current digital midwife job descriptions and merging the roles to create a resource that service leaders can use to create their own bespoke job description to meet their service needs.

Whilst the job description templates were similar, they were not consistent and therefore broad headings have been used to provide a framework to build your existing needs. The resource has been broken down into 3 specific sections:

1. **Role descriptor** – Phrases that can be used to describe the post outline
2. **Roles and responsibilities** – Provides key themes and optional phrases to consider when formulating the role
3. **Person specification** – Key attributes when considering the utilities required to fulfil the role

The framework has been reviewed by a number of clinicians working in digital health and areas identified as key to a generic digital midwife role have been highlighted in green. These recommendations complement the Health Education England framework and are supported by the Royal College of Midwives.

It is imperative that maternity services invest in digital leadership to ensure that their digital maturity advances at a pace that supports staff and meets women's expectations. The role of the digital midwife is pivotal to this success.



Role of the Digital Midwife

2. Maternity Voices Partnership



Introduction: The importance of engaging users

Engaging with the service user is essential. Where the service users' needs are understood, the chances of meeting those needs and improving your service are increased as a result. Within the maternity space there are numerous opportunities to engage with service users, with a view to enhancing service design, such as via the [Maternity Voices Partnership](#) (MVP) and enhancing digital technology is no exception.

The Better Births report sets out the importance of data and asserts that if teams, organisations and systems are to improve, they must know where they are, how they compare to others and to the best, and how they are improving over time. As part of its examination of data and information sharing, Better Births found that the appropriate, regular and accurate capturing of outcomes of care reported by women and families is currently proving to be a challenge.

As identified through responses to the Maternity DMA, there is still much room for improvement in this area, with a considerable number of providers scoring themselves low at digitally collecting patient feedback for example. The survey highlighted that not enough maternity providers engaged with women regarding digital technology.

This section of the report will detail areas for development highlighted by service user engagement and potential means to improve.

What does good service user engagement look like?

Studies have shown that user participation and involvement in most cases will have a positive effect on system quality, use, user satisfaction and organisational impact. As such, any means of engagement that incorporates user participation, digital or otherwise, should

be seen as an opportunity to progress and enhance. However, there may be some barriers to collecting feedback from women accessing maternity services. Recent research into this topic, commissioned NHS England and conducted by Ipsos MORI (UK based market research company), highlighted the following findings:

- Women in the focus groups suggested that they were less likely to give feedback if it was considered to be time consuming. For example, having to post back a paper survey, as they would have to fill out the questionnaire and find a post box.
- They wanted to give feedback through more convenient approaches, such as text message surveys.
- But women in the focus groups also wanted the option of providing feedback in multiple ways so they could choose how they provide feedback.

Further finding of the Ipsos MORI research can be found on their [website](#).

Within the Maternity DMA, the following statement was posed for consideration:

“Patient feedback is collected digitally and used to support ongoing service improvement”

While 63% of maternity providers rated themselves as 75 or above in this area, only 25% of providers actually listed “locally devised digital feedback facility” as one of their methods of patient feedback. This contradiction could just be because a number of providers have digitised their Friends and Family Test. [Data from NHS England’s FFT team \(2018\)](#) suggests otherwise, highlighting that the vast majority of FFTs were completed on paper.

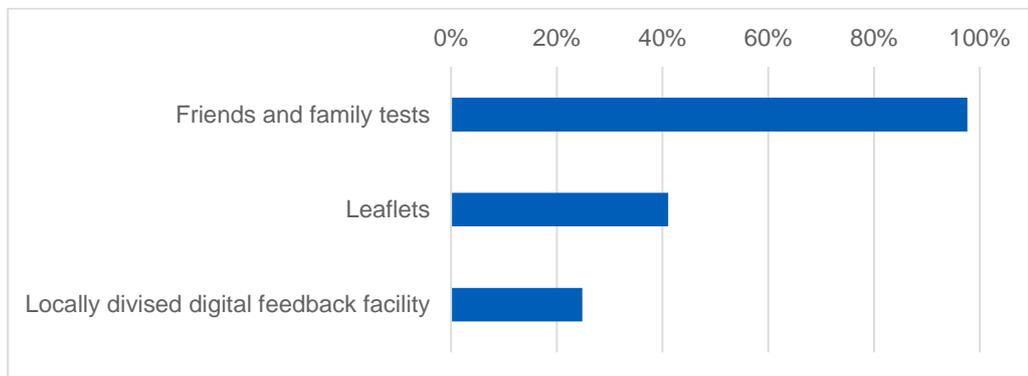


Figure 9: Patient feedback tools

NHS Digital’s Digital Maternity programme recently worked alongside the MVP to obtain feedback around digital tools and services, via an online survey, engaging with antenatal women, women who had recently given birth, family members and those with involvement in their local MVP.

Maternity Voices Partnership Survey: Overview

Completion Statistics: 63% completion rate. Of the 541 respondents, 343 fully completed the survey. A broad range of postcode areas across England were represented, across a wider geographic area.

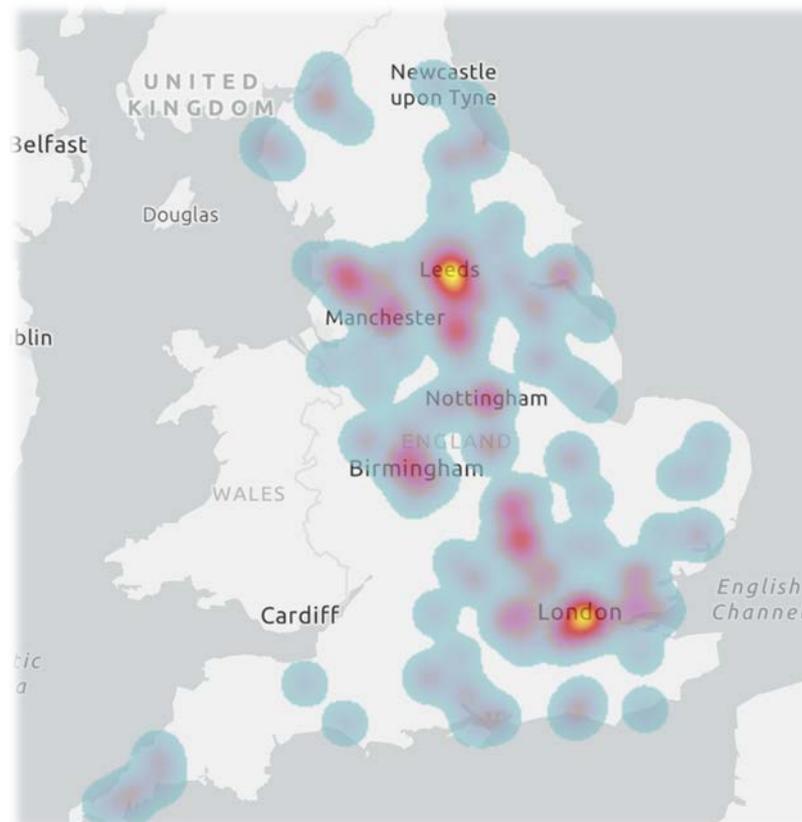


Figure 10: Heat map of MVP survey respondent locations

Almost **60%** of respondents were aged between 25 and 34. **33%** were aged between 35 and 44. (Please note the ONS states for 2016 demonstrates that close to 60% of mothers were aged 25 – 34).

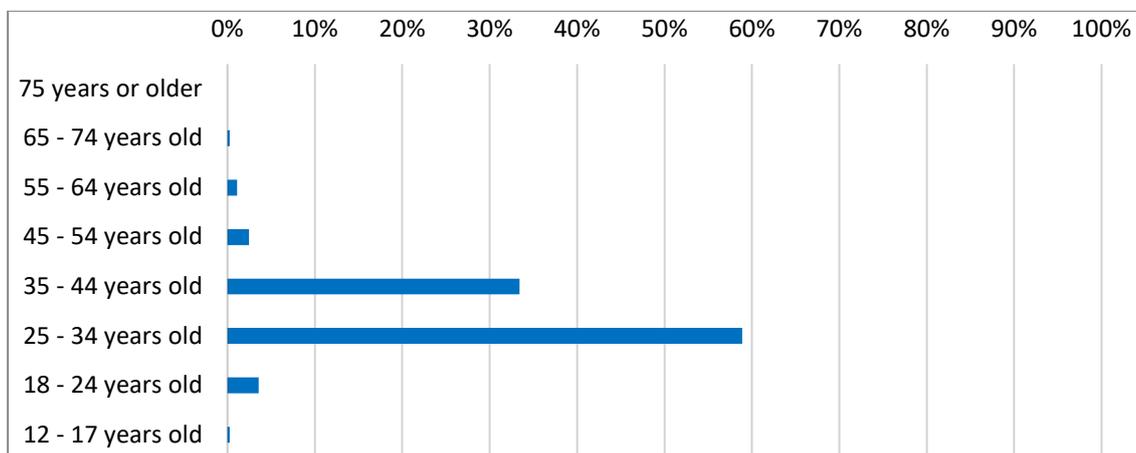


Figure 11: Percentage of respondents by age range

82% of respondents had recently had a baby or were pregnant.

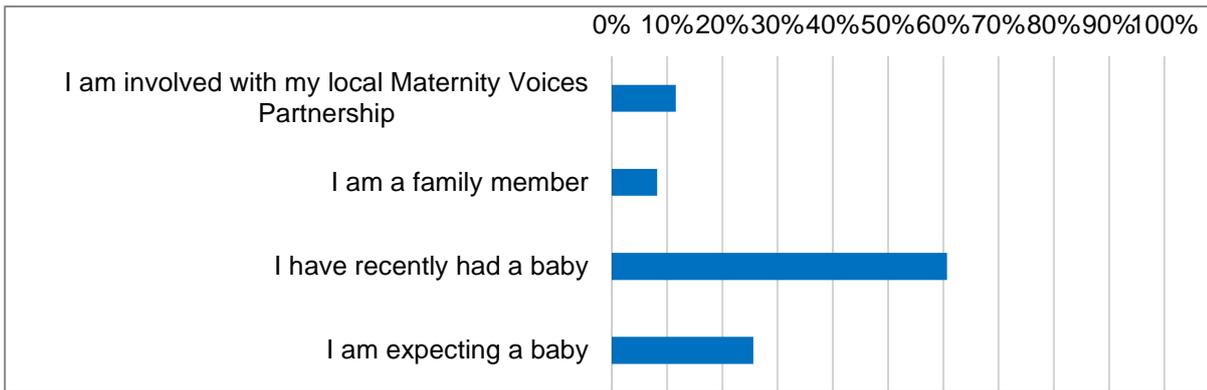


Figure 12: Percentage of respondents by parent status

Of the respondents who identified as expecting or having recently had a baby, there was an almost even split of those who were referring to their first baby and those who were referring to a subsequent baby.

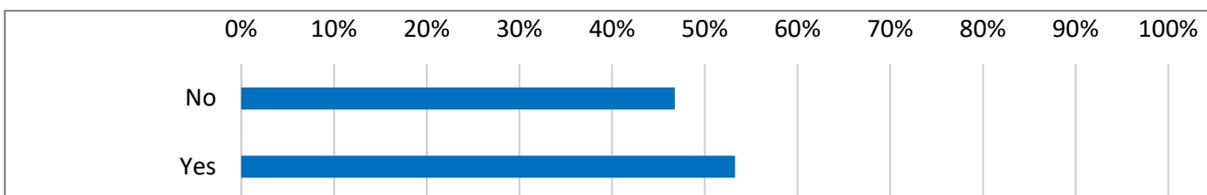


Figure 13: Percentage of respondents who answered Yes or No to the question "Is this your first baby?"

The respondent cohort were unfortunately not ethnically diverse; with around 90% identifying as White English / Welsh / Scottish / Northern Irish / British Irish.

Maternity Voices Partnership Survey: Key findings

Of the four key areas identified for digital improvement within the Better Births report, all four were perceived to be important by the majority of respondents. Connecting with others digitally to share and learn from experiences was seen as slightly less important in comparison to the other three areas; however, this was still over 70%.

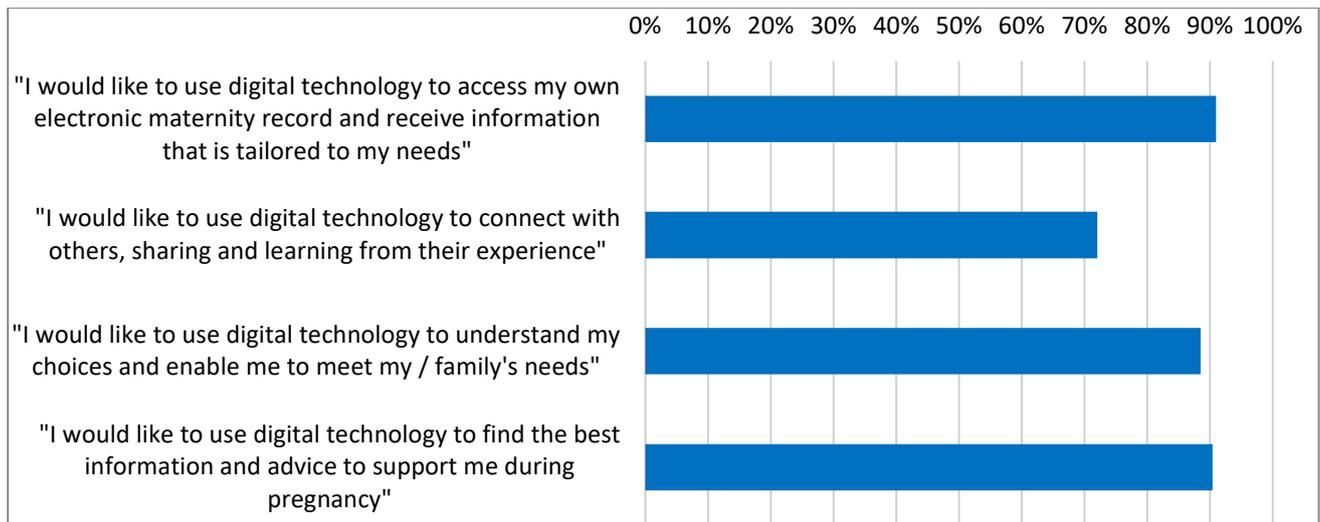


Figure 14: Perceived importance of the four key areas for digital improvement by percentage of respondents rating each area positively

When ranked in order of importance, electronic access to maternity records was the only area seen as important by a majority of respondents. All other areas fell below **50%**.

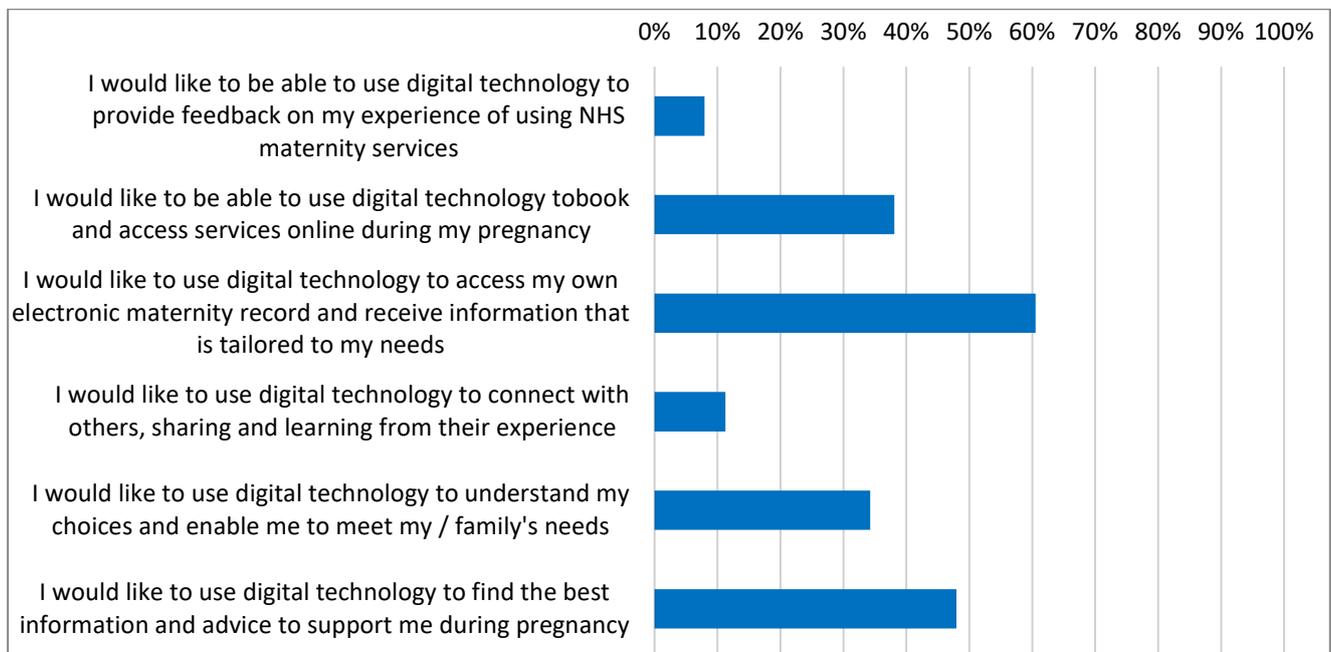


Figure 15: Perceived importance of the four key areas for digital improvement, as ranked by respondents, by percentage of positive ratings

In response to the question “Do you feel that there is anything missing from the list above, in terms of digital technology, that could improve the maternity experience for women and families?” the most common suggestion was:

- Real-time digital communication with providers for advice e.g. through live chats.

Almost **56%** of respondents showed a preference for having access to a digital version of their maternity notes via an app as well as a paper version. A small minority showed a preference for only paper notes.

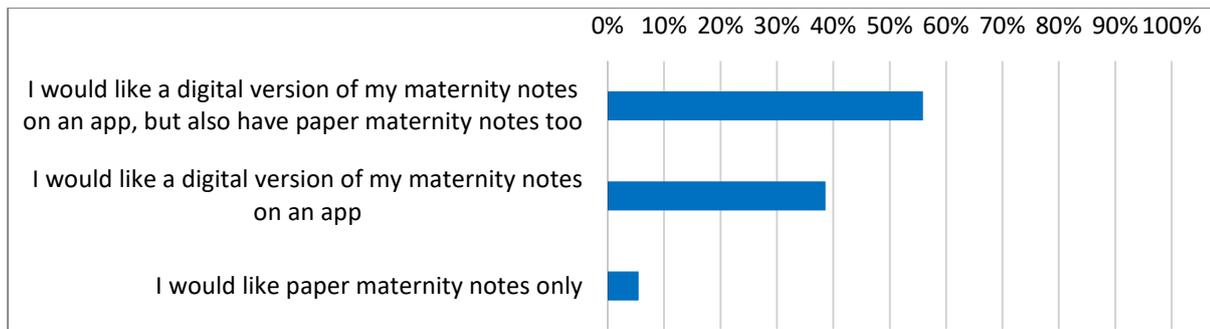


Figure 16: Percentage of respondents by preferred maternity notes format

Over **95%** of respondents identified that they would be happy for their midwife to use their Wi-Fi during a home visit, where there was otherwise no mobile reception.

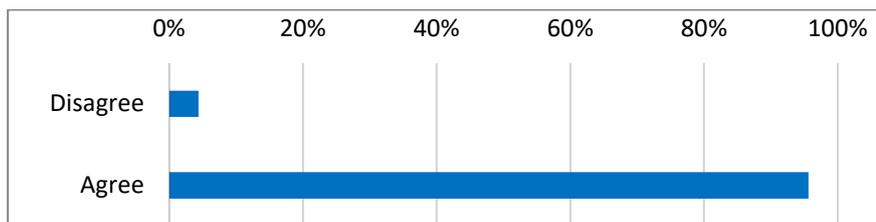


Figure 17: Percentage of respondents who agree or disagree with the statement "If there was no mobile reception in my area I would feel happy letting my midwife use my Wi-Fi when visiting me at home to enable her to update my maternity record in real time"

Over **75%** of respondents were under the impression that all health care professionals they have contact with have digital access to their pregnancy health information.

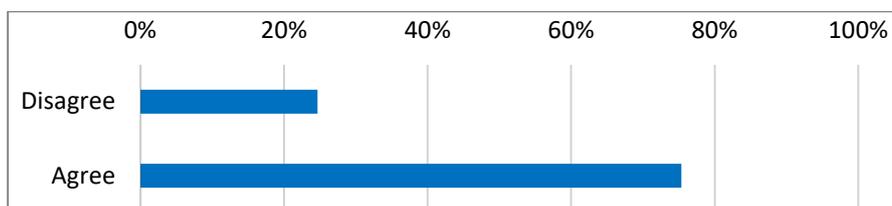


Figure 18: Percentage of respondents who agree or disagree with the statement "I believe that every health care professional I have contact with has digital access to my pregnancy health information to enable them to provide me with personalised and safe care"

Over **86%** of respondents stated that they frequently had to repeat information to different health care professionals.

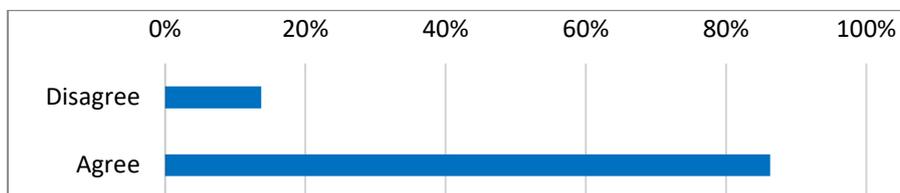


Figure 19: Percentage of respondents who agree or disagree with the statement "I have to repeat my story / information about me frequently with health care professionals"

Over **68%** of respondents stated that their midwife did not recommend a specific app or website for additional support.

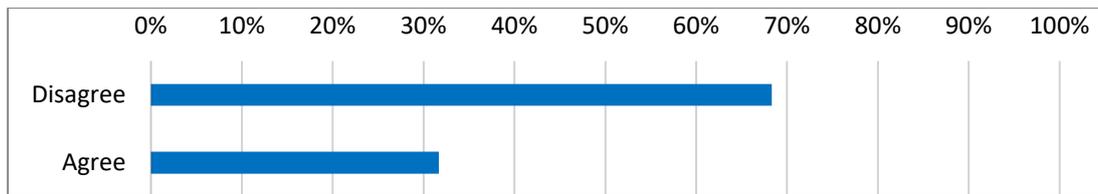


Figure 20: Percentage of respondents who agree or disagree with the statement "During my pregnancy, my midwife recommended I use a specific app or website to gain additional pregnancy information to support me"

In response to the questions "If recommended, which apps/websites were suggested?" Where apps or websites were suggested by the respondent's midwife, the most common recommendations were:

- NHS Choices
- Baby Buddy
- Bounty

When the MVP survey asked, "Did you use other digital resources that you found useful?" Beyond the above three, other useful digital resources included:

- Baby Centre
- Emma's Diary
- Google

In response to the questions "If there is anything else you want to tell us regarding pregnancy, birth and early parenting and the use of technology please record it here" Some of the common themes raised in the additional comments were around:

- The NHS promoting/ highlighting more evidence-based and useful sources of information to help people avoid incorrect or out of date advice.
- Further highlighting that maternity services should be embracing technology and reducing paper records.
- Emphasis that while digital tools are beneficial, this shouldn't mean a lack of personal interaction.

Interesting quotes include in response to the MVP survey:

"I think things need to move on with technology and stop relying on paper copies. If they were forgotten or in an emergency, health professionals wouldn't have full history. I sometimes felt my first pregnancy wasn't looked at for [my] second pregnancy as health professionals didn't have those notes therefore not getting a full view of me and my circumstances."

"I found a lot of contradictory information on the NHS website with regards to pregnancy and babies, with what some midwives and health professionals would tell me, so this needs to be addressed if there is going to be another information source out there."

In essence, by reaching out to service users through the MVP it was possible to gain a greater understanding of user needs and perceptions reaffirming the findings within the Better Births report.

The approaches to service user engagement

As detailed by recent [Ipsos MORI research](#), potential approaches to gaining feedback in maternity services include:



Figure 21: Source – Ipsos MORI

The optimal method will depend on the point in the pathway feedback is being asked for, what the feedback will be used for, and other practical issues. While the focus of this section is around improving digital services, one must bear in mind that each mode of engagement is still valid, as women with varying levels of IT literacy will need to be engaged. Tailor your methods depending on your target audience.

Resources and next steps

In terms of how a provider would seek to engage with its user base for digital service enhancement, the key recommendation is to liaise with your local MVP. As highlighted above, the MVP is an incredibly useful resource which enables direct, critically analysed feedback and engagement. The Digital Maternity Programme's engagement via the MVP resulted in a much greater understanding of the digital maternity landscape, as perceived by the women themselves. And most importantly, as raised elsewhere in this report, it quashed certain preconceptions that would otherwise inhibit growth in digital maturity (e.g. the use of women's personal Wi-Fi during home visits).

Making the most of MVPs

Ipsos MORI research highlights the following as considerations for making the most of your local MVP:

- Develop close working relationships between trusts/ LMSs and MVPs and share more information.
- Make use of MVPs when triangulating the data from different sources of feedback. For example, sharing and discussing the CQC National Maternity Survey data with MVPs can identify correlations with their own knowledge and help to prioritise areas for further investigation.

- As they are independent, MVPs are able to gather feedback from women that midwives and trust staff themselves may not be able to elicit e.g. through 'Walk the Patch' initiatives when they visit the ward and report back.
- The funding for MVPs is variable so those working with MVPs can bear this in mind to use their resource in a way that will be most impactful, also avoiding duplication.
- MVPs need to be maintained over the long term, with support for the lay chair and succession planning, as well as continuous recruitment and support of volunteers and the staff members within the MVP.

The types of engagement MVPs are doing include:

- **Outreach**, including seldom heard groups – visiting parent and baby groups and groups specifically aimed at seldom heard groups (e.g. teenagers, people who do not speak English).
- **“Walk the Patch”** – visiting wards, observing what was happening and talking to women and their families to gather feedback 'in the moment' as independent volunteers.
- **'Deep dive' into specific issues** – MVPs can employ a range of approaches to understand in more detail the underlying issues, to diagnose where the problems are and where improvements can be made; this may include focus groups with women and their families or engaging with women through Facebook groups.

Overall, although there is much room for improvement within this remit, the opportunities to grow and enhance are numerous. Considering the importance of service user feedback as a tool to improve upon a provider's existing service, is an initial step in the right direction. From there, devising an appropriate means of engagement depending on your user base is key.

Additional resource for engaging seldom heard groups

For further guidance on how to improve digital inclusion within your maternity service, please see the [Digital inclusion guide for health and social care](#).

Information on the National Maternity Survey Programme

The CQC runs the NHS Patient Survey Programme, that includes a National Maternity Survey, aimed at women who have given birth within a given time period. Please see the [National Maternity Survey Programme section](#)

3. Process mapping the maternity pathway



Introduction: Process mapping

Analysis of the Maternity DMA data found the root cause of many areas of low digital maturity to be linked to issues with how technology is currently being used throughout the maternity pathway, and potential missed opportunities. One way to address this issue would be for maternity providers to fully ‘process map’ the various stages where digital technology intersects the maternity pathways: See [Example Process Map from Birmingham Women’s Hospitals for the Obstetrics Pathway Day Assessment Unit](#).

Low digital maturity sites should first aim to secure a digital leader and have an aligned digital vision in place, then process mapping can be used to help identify opportunities to improve the use of technology (see [digital leadership](#) section). Once the process mapping has been completed, it’s likely it will highlight a number of challenges and provide an understanding of the service ‘baseline’. This evidence will be useful for the next stages of implementing business change.

Even for those providers with higher levels of digital maturity, undertaking process mapping can be a useful opportunity to identify areas to improve services, identifying the bottlenecks which may be slowing down the uptake of improvements and new digital ways of working.

The ‘root cause’

The Maternity DMA questions suggest a lack of stakeholder understanding of the importance of having fully mapped digital processes (in particular the Maternity DMA questions from 5. Records, assessments and plans and 9. Decision support sections).

Without a well mapped baseline, improvement initiatives often struggle to evidence the benefits they are generating. This can lead to reduced credibility and lower strategic prioritisation, which in turn can cause a lack of senior buy-in for new digital initiatives. Lower

buy-in commonly results in lower success rates and more difficulty in obtaining funding for future initiatives.

For maternity services attempting to implement business change without strong evidence and backing, new initiatives are likely to be underfunded. In some situations, there may also be difficulty with the provision of software tools, allocating time, the upskilling of digital midwives around the process of business change and, often, process mapping itself. There is therefore a strong case for the investment of time and effort in process mapping.

What is process mapping?

“Process mapping enables you to create a visual picture of how the pathway currently works, capturing the reality of the process, exposing areas of duplication, waste, unhelpful variation and unnecessary steps.” – **NHS Improvement**

Process mapping is a tool used to support business change in most industries, including the business of providing health and care services. The methodology usually involves conducting a series of workshops that produce a number of ‘maps’ as outcomes. ‘process maps’ are represented as a flowchart consisting of symbols such as arrows, circles, diamonds, boxes, ovals, or rectangles.

The type of flowchart just described is sometimes referred to as a "detailed" flowchart, because it includes detailed information about the inputs, activities, decision points, and outputs of any process. ‘Process modelling’ is where facilitators focus more on how efficient the processes are using healthcare, business, and clinical best practices. Although both methods depict the processes graphically, process modelling is a deeper dive into the relationship between the people and systems that produce the services and outcomes.

Often a range of stakeholders are engaged in the end-to-end mapping of a service’s processes, as the exercise itself is often valuable in that it encourages staff and stakeholders to share each other’s perspectives. New ideas and solutions can form more easily as staff are offered a new perspective from the point of view of colleagues and patients. The end results can help build stronger relationships across functions, organisational boundaries and within the maternity team, as well as surfacing issues and opportunities for better use of digital technologies.

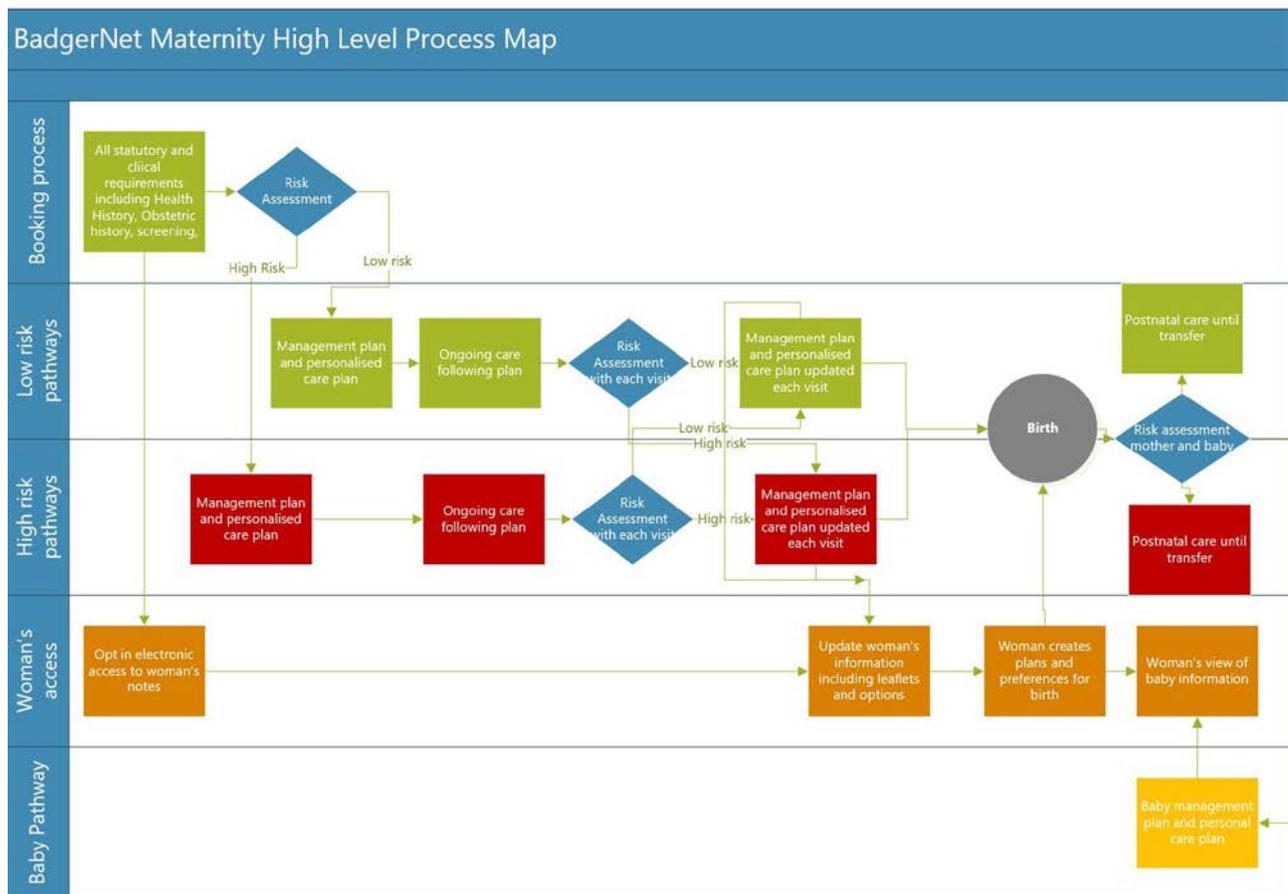


Figure 22: Example process map (provided by BadgerNet)

Why is it important?

The main purpose behind process mapping is to assist maternity services in becoming more effective. They help measure and compare the objective of the department/ service and ensure that all processes are aligned with the maternity service's values and capabilities. Mapping processes helps provide oversight of the steps required to provide maternity care. It provides the bigger picture, inclusive of all roles involved, and helps identify any gaps in workflow. It assists the understanding of impact from the gaps and enables the ability to prioritise solutions to close those gaps.

Maps that are created as part of a change programme can be used to standardise the process. They can also be used as a baseline against which comparisons can be made and improvement monitored and incorporated into Standard Operating Procedure (SOPs) documentation, to share expectations and encourage compliance that contribute to providing quality care. Process maps should be easy to assimilate and can be used to support training. Where technology is deployed as part of a change programme, they can form the basis of testing scripts for the technology.

How is mapping usually conducted?

“Frustrations and challenges will be aired, and it is crucial to consider how to address these frustrations and generate ideas for service improvement.” – **NHS Improvement**

Normally a facilitator will lead a series of mapping workshops; this is often an independent person with appropriate engagement/ mapping skills. The workshops should be interactive and involve a diverse range of roles and teams. Attendees should be encouraged to be honest and share 'what they DO do, not just what they SHOULD do'.

Through the mapping process the group will highlight gaps, priorities, and suggestions for how to streamline the processes. The outputs of the workshops will be written up and analysed to create the 'current state'. Process mapping is commonly performed to support business change, with or without the use of technology as the enabler. The ideal outcomes of this business change are also recorded as a process map, known as the 'future state'. The gap between these two maps forms the basis of a change initiative.



Figure 23: Example process mapping session

How will process mapping help drive-up digital maturity?

One benefit of having mapped processes is that you can easily identify opportunities where technology could be used to enable more efficient and effective care. Process mapping can also be used to identify potential 'bottle necks' where modifications to existing digital processes could lead to realising benefits for patients and staff.

Overcoming 'business culture' issues

If process mapping has previously been undertaken in your organisation it's likely there will be a preconception about its value. There may be a cultural resistance to performing the process, especially if previous attempts at process mapping weren't properly supported or rigor around making improvements wasn't maintained.

The recommendations made at the end of this section highlight the importance of senior buy-in from start to finish. This is particularly the case in order to obtain the time and resources required to see changes through, collect the evidence and release the benefits which will have a positive impact on clinicians and women.

Resources and next steps

1. **Gain senior management buy-in** – Any proposal should include the end-to-end mapping process, including some to undertake improvements. Support for facilitation support, training and tools are also essential for success.
2. **Investigate local capabilities** – Your organisation may have a dedicated improvement team with access to skills and resources which could help support you undertake process mapping within your maternity services.
3. **Utilise national resources** – NHS Improvement provide a number of free resources online which can be helpful in understanding and undertaking [process mapping](#) and [service improvement](#).

You may also find the [business change](#) section of this report helpful.

4. **Develop and use templates across your LMS** – Once a process map template has been adapted to reflect the maternity pathway that can be shared across different providers within the LMS, this will save time and help share ways of working.
5. **Share best practice nationally** – Use of existing networks will allow for templates, lessons learned and different approaches to be shared and showcased nationally between different maternity providers.
6. **Allocate funds to invest in cash and non-cash releasing improvements** – Though not an option for all maternity providers, investment in providing dedicated support, upskilling individuals and providing specific tools i.e. process mapping software and APMG training, can reap long-term benefits and prove to be an effective method of improving digital maturity.
7. **Implement a process for periodic reviews** – Capturing a picture of your progress at certain intervals can be useful for tracking benefits and maintaining senior/ wider engagement with ‘good news’ stories.

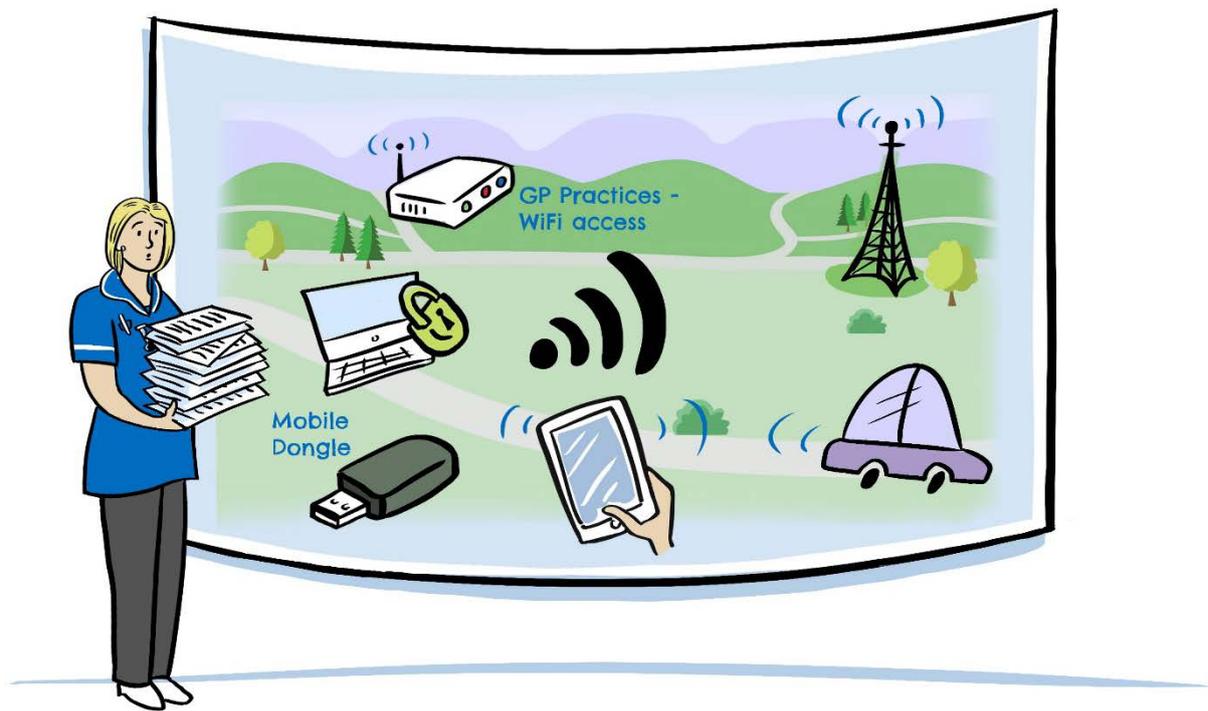
Supporting process mapping in the future

There is scope for a future piece of work to focus on providing support and resources to maternity providers around process mapping; a future session of the national network for Digital Midwives could focus on how to best overcome the barriers preventing processes from being mapped.

Follow on activities

Once the process mapping has been completed, it’s likely that a series of challenges will have been identified, along with an understanding of the service baseline. This evidence will be a useful foundation for creating business cases and driving forward business change.

4. Connectivity for community midwives



Introduction: Digital gap between hospital and community care

Findings from the Maternity DMA identified that there is a disparity in digital maturity levels between the different settings within which maternity care is given. Maternity DMA questions about digital maturity out in the community scored on average much lower than the same questions in a hospital setting. For example, when asked ‘what proportion of laboratory test results are available to healthcare professionals digitally?’ for hospital settings, 127 trusts responded that all tests were available digitally. This number dropped to 64 trusts for community settings. Only 35 trusts agreed that there is free Wi-Fi available at the point of care in community settings, as opposed to 111 trusts in hospital settings.

This issue is wide spread enough to earn an emerging topic. It is important that we ensure that digital technology supports all parts of the maternity pathway regardless of the location. Especially with the introduction of the community hub model.

The Maternity DMA told us that some community midwives are already experiencing the benefits from using digital technology. However, a great number still need help to get there.

Addressing the issues impacting digital service in the community

Because of evidence from the Maternity DMA showing a disparity in connectivity in community settings, we investigated this issue further at the LMS Digital Leaders Forum. The detail behind many issues regarding connectivity were surfaced at this forum. From the analysis of the maternity DMA data and further stakeholder engagement we identified several common problems:

Getting online

A main reason for community settings being less digitally mature is lack of online connection. This isn't just a problem in rural settings but throughout many community settings. It is linked to a larger national infrastructure issue. The research we conducted surfaced the following issues regarding 'getting online':

- Mobile internet access through channels such as **4G** (the fourth generation of data technology for cellular networks) prove to be a challenge for many community services. Without connectivity to servers via the internet a number of maternity IT systems fail to function well, in certain circumstances community midwives are forced to revert to paper when they don't have internet access.
- Some maternity services have invested in digital solutions to boost their connectivity to the internet such as the use of **dongles** and **mobile hotspots**. These act as wireless access points to share the network connection with other devices. Internet access is facilitated via the mobile device or plug-in dongle. Feedback from users on these tools vary, some users found that they frequently lose connection along with the work they have completed. This in part is due to issues with their maternity IT system. As explored later in this document, many maternity services struggle to obtain hardware such as mobile phones and new laptops therefore they are unable to take advantage of these mobile technologies to improve connectivity.

Wi-Fi

Wi-Fi is an alternative method for computers, smartphones, or other devices to connect to the internet. Due to the amount of travel undertaken by community midwives, Wi-Fi is often seen as a less-practical means of accessing maternity IT systems:

- **Free public Wi-Fi in NHS sites in England.** NHS Digital is working to make sure that everyone can access free Wi-Fi across NHS sites in England. [NHS Wi-Fi in GP practices](#) provides a secure, stable, and reliable Wi-Fi capability, consistent across all NHS settings. It enables patients and the public to download health apps, browse the internet and access health and care information. As Wi-Fi in NHS sites become more wide spread there is a growing opportunity for community-based maternity staff to get online at these locations. See the paragraph in this section about 'supported working locations'.
- As part of the Maternity DMA work, a survey was conducted amongst parents, in association with the Maternity Voices Partnership, to canvas women's views on the use of digital technology within maternity services. 96% of respondents said they would feel happy **letting their midwife use their Wi-Fi when visiting their home**, if it enabled them to access digital maternity records and update it in real time. Whilst accessing women's Wi-Fi is common practice in some maternity services, many services don't undertake this approach. In light of this research some services may wish to revisit their stance on this.

- Connections via public Wi-Fi will need to be secure – see the paragraph later in the section.

Offline working

Whilst some maternity IT systems offer an off-line functionality this is not necessarily wide spread:

- **Inability of system supplier to work offline.** As a result of this, midwives have limited access to women's records at the point of care and the inability to record information electronically results in information being captured multiple times. This impacts on the midwife's time and increases the risk of mistakes being made.

Suitable hardware

In the Maternity DMA just over half of maternity services (55%) agreed that staff were equipped with mobile devices to access clinical applications and information at the point of care. Further investigation found that appropriate hardware is a particular problem for community staff:

- **Limited resource, e.g. laptops for community staff.** Some maternity staff expressed concerns that they struggle to obtain funding to support digital community working. Some stated that their existing technology is outdated, with no approved funding in place to replace them. It is hoped that the Maternity DMA analysis within the LMS reports coupled with the example business cases (in the [business cases and business change](#) section) could help to bring together the evidence needed for a compelling hardware business case.
- **The impact of staff travel time.** Time spent having to return to a base when digital equipment breaks and needs to be taken to IT support was also raised as a concern by community maternity staff.

Software and usability issue

63% of maternity providers expressed concerns about the usability of their software. Investigation into how this may relate to connectivity in the community revealed the following statement:

- "Laptops which are not regularly connected to the server are not always receiving updates. This leads to **extended log in times** for the midwife when they are finally connected."

Lack of IT service support

Maternity services have raised concerns that their trust IT departments may not fully appreciate the digital requirements of community midwives and as a result they may not be able to provide the best IT services support possible:

- Trusts often forget that maternity services are delivered within the community whilst under their remit and as a result fail to provide adequate **support when implementing IT digital systems**.
- Further research uncovered a potential digital '**language barrier**' between clinicians and IT staff. As a result, community midwives can perceive this as not getting the support they need.
- Some maternity services expressed concerns that the **IT support available to them is operated between office hours** for a service that runs 24/7. Lack of support outside of these hours means midwives rely on colleagues to help (e.g. password unlocks).

Supported working locations

If the adoption of the community hub model is to be successful, infrastructure for midwives in the community will need to be a priority. Geography and location are an important element in connectivity issues for community staff. For example, if staff had a variety of spaces in their region to work or hot desk from that were digitally enabled and secure then many of their connectivity issues would be resolved:

- GPs will have in place secure networks for staff, but the Maternity DMA survey suggested that midwives are sometimes restricted from using this. However, as the roll out of free public Wi-Fi in NHS sites increases, there will be an increase in the number of places where community-based staff can log on. To establish the public Wi-Fi connectivity within your area [click here](#). This site provides updates every 24 hours on which CCGs have facilitated public Wi-Fi within their GP practices. Community staff should be able to access public Wi-Fi in a practice that is deemed to have freely available public Wi-Fi.

Access to data and information governance (IG)

There are concerns over data security when connecting remotely. IG is not designed to 'get in the way', block or hinder sharing of information for delivery of care. It is a set of legal and technical frameworks, regulations, codes of practice and standards that ensure such information is shared appropriately. Further concerns around the use of Wi-Fi have been individually addressed in the [myth busting and quick wins](#) section.

- **Virtual private networks:** Wi-Fi does not necessarily provide a secure means of sharing information. However, a virtual private network connection gives you online privacy by creating a private network. For those that are using Windows 10, a VPN may not be necessary as your system may incorporate a feature called 'Always On VPN'. Maternity services should investigate the details of their hardware and software further.

Case studies

Norfolk and Norwich University Hospitals NHS Foundation Trust: *“It has become recently recognised and supported within the Trust that enabling a mobile solution within the community setting is essential to provide safe, timely and efficient care. The Proof of Concept pilot for community midwifery IT and subsequent roll-out has facilitated this recognition and change. Invested in Community off-line module and patient portal.”*

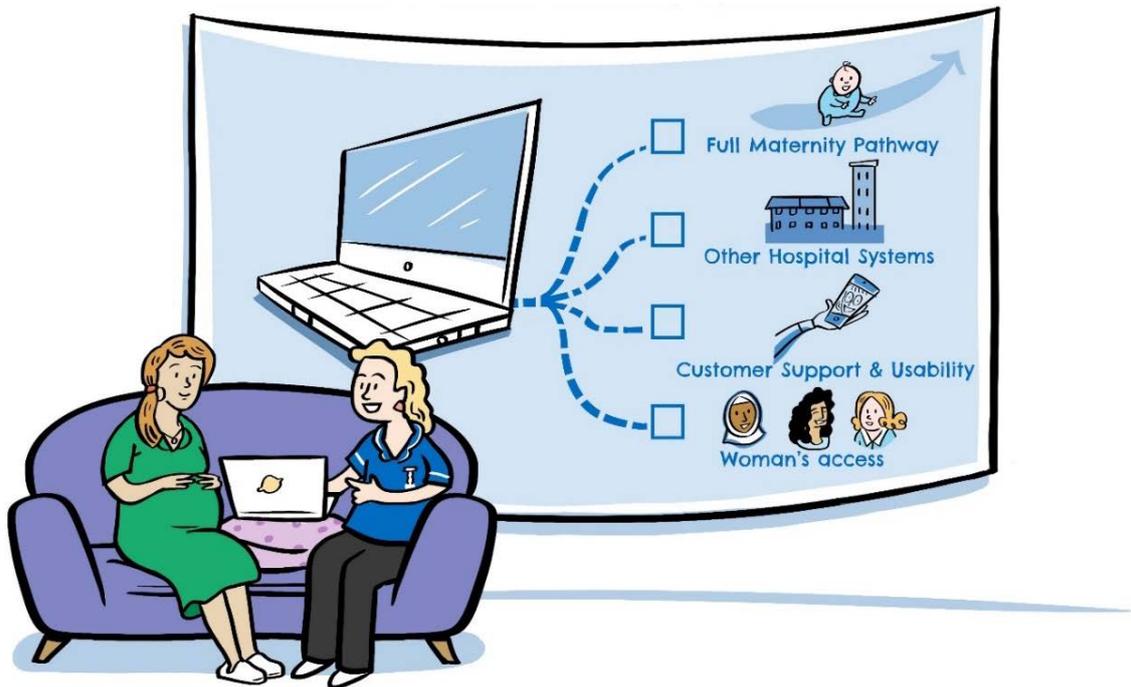
Resources and next steps

The research undertaken into ‘[connectivity for community midwives](#)’ shows that there is variation on this topic across the country. This subject is being considered for investigation in future digital maternity work at NHS Digital.

A summary of the action points below may help some maternity services start to address their connectivity issues, though these actions may not be valid for all services:

1. Check your LMS DMA report to understand if this is a problem for your maternity services.
2. Consider which NHS sites/GP practices in your area have rolled out Public Wi-Fi, could building a relationship with them benefit your community-based staff? (To check your nearest site, [click here](#)).
3. Using a process mapping approach: focus on the community services and consider the geographical area covered by the LMS, review the connectivity opportunities presented by introducing new digital solutions (hardware and software).
4. If you identify any gaps in your digital service, it is hoped that the Maternity DMA analysis within the LMS reports coupled with the example business cases (in the [business cases and business change](#) section) could help to bring together the evidence needed for a compelling hardware/software business case.
5. Forging new relationships with the IT department: review your processes around reporting IT/connectivity issues and consult with your IT leads about address the issues and expanding the IT support service. (See [service management](#) section).
6. When procuring a new maternity IT system, ensure that the requirements of your community staff are fully addressed (i.e. functionality to work off-line).
7. Consider innovative new ways to support community midwives once connectivity issues have been solved (e.g. Skype, Apps etc.).
8. Digital Leadership: do you need to appoint a digital representative for community staff to ensure their voices are heard in future digital planning?

5. What does a good system supplier look like?



Introduction: The current picture of maternity IT systems

The Maternity DMA tells us that a number of maternity providers across England face challenges with their digital maternity IT systems. Close to a quarter of maternity providers are considering re-procuring their IT system in the next 12 months. The maternity system supplier market is diverse, with a broad range of products and suppliers available. These have evolved across maternity services in different ways. Some through the expansion and utilisation of large hospital-based systems and others are more bespoke tailored products developed with clinicians.

The variation in what these systems offer, the stage in which they are intended for use and their application over the maternity care pathway again varies widely. In this section we will look at:

- Maternity systems marketplace
- Maternity pathway and variation in system usage and access
- What a good maternity system should offer
- What NHS Digital and others are doing to work with suppliers

There are 20 systems suppliers identified as providing maternity systems to trusts across the country at the time the DMA was completed. A breakdown of these suppliers is set out in [breakdown of system supplier by maternity provider](#) section.

Maternity pathway and variation in system usage and access

Maternity services utilise maternity IT systems across the pathway of care, however there is significant variation in which stages systems are used for and in what care settings they can be used. In addition to this the maternity pathway can be complex with multiple factors impacting on care delivery, requiring the maternity system to be flexible. NICE define maternity pathways of care and may help when considering what a maternity IT system needs to do.

At the end of this section you will find a detailed tick list of useful pointers you may wish to consider when procuring a new system however there is fundamental key functionality expected of all systems.

Pregnancy

Used as a single source for clinicians to capture information supporting the antenatal pathway and includes booking history, obstetric history, medical/social/mental health/safeguarding etc. Some systems will capture fetal growth and be able to interface with other systems supporting the pregnancy. Data can be gathered for audit purposes.

Intrapartum and birth

Some systems provide fetal monitoring functionality and support CTG archiving. Intrapartum digital records also provide fail safe frameworks that prompt the user to record information pertaining to an event in a logical step by step approach to support record keeping standards e.g. capturing manoeuvres during a shoulder dystocia.

Systems also support the birth registration process and allocation of an NHS number for a newborn.

Neonatal (when applicable)

Neo-natal services across the country primarily use BadgerNet to record the management of the baby requiring additional care on the neonatal unit.

Postnatal

Systems are used to record postnatal care for mother and baby whilst in-patients and within the community. The ability to create an electronic discharge ensures timely information sharing with GPs whilst supporting a seamless transfer of care between named care providers. Data may also be gathered for audit purposes.

One thing that all systems currently struggle to do is effectively support the hand-over or transfer of care between community-based midwifery and health visiting due to a lack of interoperability and communication with the family's GP in some areas. This is something that NHS Digital are working to change as part of their programme of work.

What a good maternity system should look to offer

Procurement of digital systems for maternity must be considered at a local level so that the system meets the service needs. Whilst requested by LMS digital leaders it is not possible for NHS Digital to advocate a single maternity IT system over another. Our aim is to provide

information to support informed choice and therefore all the requirements and benefits of the product are discussed.

This section will cover considerations in choosing a system supplier in the following sections:

- Clinical efficacy and safety
- User interface and design
- Data integration, reporting and security
- Paper integration
- Cost and contractual terms/ 'menu'
- Access and application across the community hub
- Women's access and information services
- Data security and information governance
- Customer support and user communities/ development

A check list of the key features is available in [system supplier check list](#).

Clinical efficacy and safety

First and foremost, maternity IT systems should enhance and contribute towards the delivery of safe maternity care. Systems can provide huge value in supporting clinical management and providing failsafe to ensure aspects of care are provided by staff, system do not replace care givers but can enhance.

Considerations that relate to the choice of supplier for clinical functionality:

- Designed with the clinician in mind and aligned to the clinical pathway adopted by the LMS.
- Simple and effective reporting capability – with ready-made reporting tools and the ability to customise reporting. This would include for clinical/safety and business audits.
- Decision support tools and failsafe alerting (monitoring adherence to a defined pathway).
- Support business effectiveness and process (i.e. system reflects the clinical process rather than the clinical process being adapted to suit the system).
- Provides and supports continuity of carer initiatives.
- Offline capability and high system reliability. This meets several requirements to support service continuity in the event of system connectivity issues.
- System reliability/ availability should be in the high 90% where connectivity is not the issue. All system users should have continuity plans in place in the event of denial of access to the system. The supplier should be able to evidence their uptime and their arrangements for continuity of service and where this fails, adequate disaster recovery.
- Supports postnatal recording of data for both the postnatal woman and the newborn infant, including the extraction of appropriate data relevant to the child and separation of the records.
- Is compliant and provides direct access to the latest national good practice guidelines and regulatory instruments.

User interface and design

A major part of feedback from the national DMA is that some system users are dissatisfied because their maternity systems are perceived as slow, clunky and hard to navigate. This again can be a reason why system usage leaves parts of the record incomplete and only partial usage of the system. Systems have been technology led, rather than meeting the end user's needs in a way that is convenient. Many suppliers have now commenced a review of their products, with more user-centric design focused on the desired business process engineering. Some products have been developed with a focus on usability. Having a live demonstration of a product is essential to understanding whether it is suited to your working practice. Some basic principles of user design should include:

- Simple to use and intuitive systems with user friendly functionality.
- Single sign-on and proportionate security to suit ease of use.
- Ability to customisation the design of the 'full product' to narrow down on actively used system functionality within the maternity service. This should not result in additional costs for ensuring a bespoke view.
- Summary dashboard and timeline of interactions in line with NICE pathway.
- The time taken to navigate on and between pages of the system interface should be rapid. There is evidence that several systems are slow to navigate, with delay or 'lag' to the entry of data, moving between fields or updates between pages.
- Meets accessible information standards where applicable (this would not apply to clinical terminology that overrides the need for plain English).

Data integration, reporting and security

Utilisation of data to make better informed decisions around the planning and delivery of care has been recognised as critical to the delivery of Better Births service improvement targets. Business Reporting and Management Information in real time and with tools that support analysis should be a standard feature and function. Important considerations should include:

- Works to other data standards around demographics (PDS) and Maternity Services Data Set (MSDS).
- Data entered in the system is pulled through to other relevant sections without the need for duplication.
- Data entered should be 'understood' by the system to prevent unnecessary questions for the clinician to answer. Standard pathway logic must be evident e.g. entering Caesarean Section as 'mode of delivery' should prevent the question "Was the baby born under water?"
- Ensures the safety and protection of vulnerable women through the inclusion but secure management of sensitive data, including issues relating to domestic issues, substance abuse or previous social care interventions.
- Has the ability, based upon user requirement, to include Child Protection-Information Sharing functionality (CP-IS).

Paper integration

Although there is a strong desire to support a 'paper free' NHS and convenient management of information for women, it is recognised that some settings will continue to require access to paper-based records for some time. All systems should recognise this need and support the ability to extract and print record information in a convenient format for the intended use. Further, systems should also recognise the need to support the ability to integrate paper documents into the record and index them appropriately. This links closely to the need for appropriate and convenient 'report' tools.

Cost and contractual terms

Contracts should provide both parties with clarity on what is included when procuring or re-procuring a system. Typically, it is the contractual terms and costs that tend to create the most frustration in customer relationships. The length and complexity of these documents do not support LMS or trusts in making fair comparisons between system supplier offerings. Moving forwards, LMS and trusts are now in a position of having greater understanding of the functional requirements and business needs that suppliers need to meet. The formation of LMS and the expansion of 'footprints' created by this undoubtedly means that many services will be looking at and evaluating their current supplier offer compared against the wider market place. Suppliers have made significant investments in the development and usability of their products and recognise that an evolving product that meets the needs of their customers is of mutual benefit in a healthy competitive market place.

Two variable business models currently exist, meaning it is often hard to do easy comparisons between suppliers. As set out in the introduction, suppliers may charge for licensing, maintenance and updates separately. They may provide a 'flat fee' based upon the numbers of births. Some suppliers for example include access for women to their record as part of the standard contract, whereas others will charge this as a 'bolt-on' product. Transparency of costs and either an inclusive total cost or a 'menu' option with costs should be available and something that is not provided at the very end of the procurement exercise once commitments may already have been made to a preferred supplier. These different business models have their merits and it will largely come down to overall cost for the features identified as important.

When re-procuring, this section should support trusts and LMS in considering what it is they want out of the products available. In addition, we are providing guidance when re-procuring that will become available in support of this report and is more focused on good practice procurement. Local trust procurement departments will also have defined processes for undertaking this process, which should be considered in advance of the existing contractual period, with the incumbent supplier, coming to an end.

Contracts should set out the minimum service level agreement to manage expectations for all parties.

Access and application across the community hub

Through adoption and compliance with the interoperable maternity record data standard, systems will have the ability to interface with other systems in use that provide direct care to the woman. These systems will be relevant and applicable across the community hub.

Systems should be capable of providing data such as results and scans in the community setting. This may include the provision of health care professional portals that give access to non-system subscribers that need to view the data to fulfil their roles. Clearly, we would want to see expansion of access into community settings, providing read/ write access rather than view only type solutions. It is recognised that this situation will sustain whilst individual trusts within an LMS will have separate procurement exercises.

Systems should also support full handovers and transfers of care between settings, including between the stages of antenatal, intrapartum and postnatal.

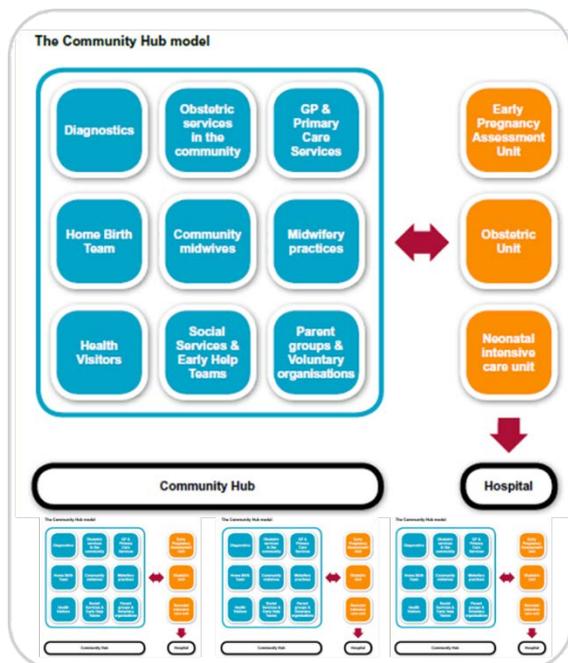


Figure 24: The community hub model

Systems should seek to support the Community hub model through provision of offline capability with the ability to synchronise and update either using Wi-Fi, 3/4G or network connectivity either directly into the system or through the service VPN.

Interoperability is not the task for suppliers to fix. However, working towards compliance with the maternity record standards supports interoperability. System suppliers should be working to provide an Open Standard API (application programming interface) which enables other systems and national or local architecture to extract information and support the import of information over time.

Women's access and information services

Women currently have limited access to some of their records and associated notes throughout the duration of their maternity experience. Moving to a digital solution could improve this access using 'portals' and dedicated Personal Health Record apps. PHRs and Women's Digital Care Records are covered in the [women's digital care record](#) section in more detail. Access to information should in summary provide the opportunity for a woman to feed into her record and access it when it is convenient and suited to her needs. It should present her with the information she wants and ideally be done in such a way that it is relevant to her condition, with personalisation and choice preferences.

Contextualisation of health information will be a growing area for development of health record access to citizens. Several systems now provide the functionality for women to input information prior to their booking appointment. This 'pre-booking' functionality empowers the woman and aids the health care professional. It has the potential to highlight, at an earlier stage, existing conditions or factors that may result in poorer outcomes. It also helps to ensure the booking appointment is focused on the relevant issues and creates the capacity to either deliver more effective care within the midwifery unit or conduct more personal and engaging interactions with the woman. This might, for example, reduce the time taken at booking to capture general personal data. Time saved could be used to focus on more developed discussions around personal maternity budgets, personal care plans and supporting continuity of carer.

Data security and information governance

Suppliers typically manage and are familiar with the issues that trusts and LMSs encounter around data security, data sharing, ownership and storage. The types of issues that will be important to IT professionals, cybersecurity experts, CIOs, CCIOs, IG specialists and Caldicott Guardians have typically been encountered elsewhere with successful resolution. All systems suppliers should have a standard policy and commitment to how they provide assurance and control of data security and IG. It would be unusual to find a supplier currently active in the maternity marketplace that had insufficient controls or policies in place to manage these issues effectively. Concerns regarding GDPR and IG are covered further in the [myth busting and quick wins](#) section.

Customer support and user communities/ development

Good system suppliers support the input and inclusion of all end users, staff and women, in the development of the system where appropriate or relevant. Digital technologies can drive and underpin care that is truly integrated around the needs of women however it needs to be user led to be effective. Most suppliers facilitate active national user groups to enable this productive blended approach.

The supplier must be able to evidence a product development and improvement pipeline as part of their core contractual obligations for all system users.

Resources and next steps

What NHS Digital and others are doing to work with suppliers

NHS Digital's Maternity Programme has been working with suppliers across a variety of projects, in particular:

- Consultation with suppliers in developing the Interoperable Maternity Record Standard. This has been through workshops and formal reviews via the Professional Records Standards Body.
- An innovation project with a limited number of suppliers that provide 'portal' based access to the Women's Digital Care Record.

- Forging relationships with suppliers and women (through the Maternity Voices Partnership) to advocate women-led design.

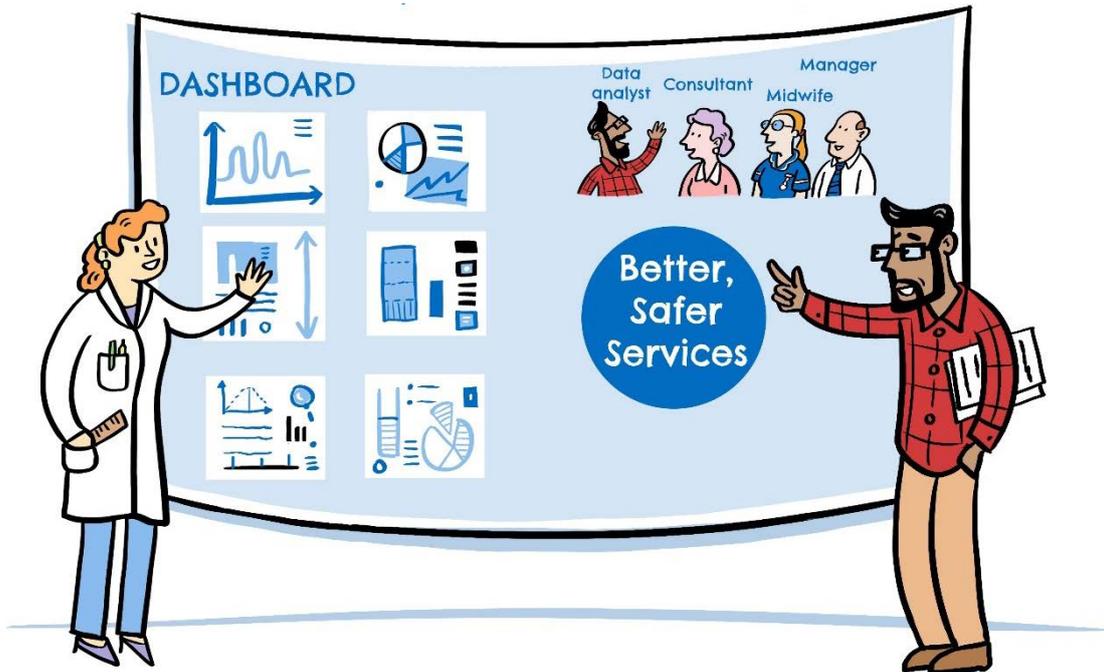
Looking forward, NHS Digital will work with suppliers through [InterOPEN](#) (seeking to develop open standards for interoperability in health and care) and [Tech UK](#) supplier engagement and briefings.

NHS Digital has made a commitment to work with maternity system suppliers and, where necessary, act as a voice for individual trusts and LMS areas. NHS Digital seeks to support change and innovation with system suppliers through understanding needs from our LMS Digital leaders Forum and Digital Midwives Expert Reference Group. A healthy customer-supplier relationship is often facilitated through both face to face engagement and the dedicated system improvement user groups which most suppliers facilitate.

Also See:

- [Interoperable records](#)
- [PRSB maternity record standard & implementation guidance](#)
- [Women's Digital Care Record](#)
- [Local Health Care Record Exemplars](#)
- [System supplier check list](#)

6. Data driven improvements in maternity services



Introduction: The benefits of using data well

The Maternity DMA highlights how digital technology can supply information in new ways to benefit maternity services. Better use of data is essential to reveal an accurate picture, guide continuous improvements and measure the benefits being realised from change initiatives.

The National Maternity Review Report (Better Births, 2016) sets out the importance of data. It concludes that if teams, organisations and systems are to improve, they must benchmark where they are, how they compare to others and how they are improving over time.

To be able to manage services daily and develop robust strategic plans, you need access to high-quality and timely data. It's also important to understand your current activity and performance compared with other organisations and be able to measure the potential impact of proposed service changes. We should always consider how data can help us to make the best choices.

The diagram below demonstrates how data can be transformed into the relevant information and provide healthcare professionals with the knowledge to make evidence-based decisions.



When trying to understand how data can help with driving improvement in maternity services, it is important to be clear on some of the terminology used:

- **Information** – this is the data that is recorded, analysed and in some cases used for other purposes. Types of data may include patient data and service information to aid

strategic and operational planning. In a maternity service, data can range from the demographic information recorded in a woman's record, to new born screening and maternity care plans. This data can be used for a variety of purposes such as decision support, MSDS submissions, planning within the maternity service, forecasting, optimising existing processes, etc.

- **Data quality** – this refers to the accuracy of this information being recorded.
- **Data sharing** – as part of its examination of data and information sharing, Better Births finds that the appropriate, regular and accurate capturing of outcomes of care reported by women and families is currently proving to be a challenge.

The Maternity DMA data has shown that some trusts are starting to use data they have collected for improving care and managing their maternity service. 28% of providers disagreed that data collected as part of caring activities is used to plan and support service delivery. These providers had an average digital maturity score of 43, less than the national average of 51, showing that increased digital maturity can improve data collection and data-driven planning.

Steps for improving the use of data

Once data is collected digitally, in more detail and in higher volumes over time, it will be more robust and useful for helping women, midwives and the maternity service. Without using data, ongoing problems within a service may not be identified, potentially causing issues for women and midwives. Also, midwives and other staff could miss out on opportunities to improve their services. As data is used more effectively, this will build a culture of confidence in the use of electronic data and create an ongoing cycle of collecting and using data accurately and digitally.

Building up data as an asset

- **Role of the data analysts:** Data-driven improvement is a multidisciplinary task to which analysts can bring a lot of value. Data analysts can take data from existing system within the maternity service, analyse it and present it back to the maternity service in a way that can be useful to front line staff.
 - **Data quality check:** They can also analyse the data currently collected and perform data quality checks, providing assurance that the information can be trusted by the maternity service. This allows clinicians to be confident in the data they're using to drive improvement.
 - **Evidence benefits of a change:** By using service data to create a baseline, benefits from digital changes and initiatives can be tracked and, over time, evidence whether change initiatives have had the intended positive impact upon services (see [business change](#) section).
 - **Utilise the resources available:** Data analysts are experts in their field and can be a real asset to the team, especially in uncovering new ways of using data and information to benefit the maternity services.

- **Data confidence and the robust collections of data:** For data to be used most effectively, there needs to be confidence in the data's quality. Maternity services can't use data effectively until they trust the data they collect is accurate. By increasing digital maturity, trusts can increase the accuracy of the data and the confidence in the data, so that it can be used for other purposes outlined in this section.

Data becomes more robust (and more useful) the more it is collected. If data is collected over longer periods of time, in more detail, a more complete picture of what is happening in a maternity service can be gained. Analysis of robust data gives maternity services the information they need to understand the trends and processes in that service. For data to be used for analysis most efficiently, it needs to be collected digitally.

- **Collecting information digitally first time:** The importance of collecting and utilising high-quality data – The results from the Maternity DMA suggested that only 10% of providers offer women an electronic patient record showing that in the majority of services, data is still collected on paper at the point of care. When this data comes to be used for other purposes, the data would have to be entered into a digital system. This not only wastes time because of [dual data entry](#), but also creates opportunity for mistakes to happen when transferring the data from paper to digital. If data were collected digitally at the point of care, it is more likely to be accurate. This data can then be transferred digitally to other systems for analysis, leaving less room for human error.

Because of the possibility of errors when collecting data at the point of care, it is important the quality of data is monitored. 55 of 135 providers strongly agreed that data quality information is actively monitored and fed back to clinical teams, however 10 providers strongly disagreed. Knowing that data quality is being monitored will allow midwives to be more confident in the data they are collecting and using.

- **Building maternity data as an asset:** Data is a very important asset to a maternity service. A risk of collecting and storing data on paper is that it could be lost or damaged. Storing data digitally means that it is more secure and can always be referred to, analysed or seen easily, whenever it is required. It also provides services with a digital footprint, reflecting accurately timing of record keeping and iterations / changes made. This can support with root cause analysis and investigations.

As long as it is hosted by a system supplier on a reliable system, storing data digitally reduces the risk of it being lost or damaged and reduces the amount of physical space needed to store it. Ways of collecting data digitally include a maternity system, an electronic patient record, digital order system, digital medications systems, etc. Some trusts now use data warehouses to store their data. This is a system which integrates and stores data from multiple areas. It is also used for reporting and data analysis.

Investment in improved clinical systems may be required. Chesterfield Royal Hospital has recently worked closely with the maternity system supplier to improve and roll out the IT system, which has enabled us to collect data in a timely and relevant manner,

submitting the MSDS and NMPA data, as well as being able to provide local intelligence which is making it possible to recognise areas requiring improvement and/or investment.

Getting the most from data

- **Supporting clinical decisions:** Data collected by trusts can be used primarily to help women, such as decision support. Trusts have been using this in various ways, for example, alerts about safeguarding, 'things to do' prompts and allergy alerts. If trusts have accurate data recorded about the woman, they will be provided with accurate decision support, ultimately meaning they can provide safer and better care. From the Maternity DMA data, a lot of trusts seem to be using this to some extent through their system supplier or an electronic patient record.
- **Dashboards and forecasting:** The feedback from the Maternity DMA showed business intelligence (BI) in some trusts has grown with the increased use of electronic systems and are now moving to maternity systems that allow electronic data capture. Some trusts have started to use BI tools for reporting and submissions of data. BI tools are designed to retrieve, analyse and report on large amounts of data. These can be used to submit data collections (e.g. [Maternity Service Data Set \(MSDS\)](#)) and also to identify opportunities for improvement.

Maternity Dashboards are a tool that can be used to monitor activity in a maternity service and benchmark it against clinical governance and local standards. The dashboard can detect when performance in the trust is deviating from standards, this can include clinical outcomes, incidents/complaints, workforce, etc. If an issue is identified (e.g. a high rate of caesarean sections) the service can investigate what is causing the issue and then find ways of improving it.

More examples of how maternity dashboards can be used are available on the [RCOG website](#).

Within Calderdale and Huddersfield NHS Foundation Trust, business and clinical intelligence has grown with the use of the electronic system. All data is directly extracted from the system and used to massive effect. It continues to influence quality of records and care, data for maternity data set; Key Performance Indicators (KPIs); maternity dashboard - allowing us to not only review local statistics but to benchmark against other local and national Trusts.

- **Statistical process control (SPC):** Root cause analysis & optimising processes data can also be used to solve problems and optimise processes within maternity services. Systems that use data to identify issues rely on the data being recorded digitally and it being accurate. If data is recorded digitally, tools can be used to notice trends and improve processes. There are multiple tools and techniques maternity services can use to improve their processes. Comparison to national averages and understanding variation within the maternity service can be a useful method for identifying areas where change initiatives will have a big impact on the service (see [Process mapping the maternity pathway](#)).

Statistical process control (SPC) is a way of measuring and observing performance in a maternity service. The process works by finding an average from data inputted into the system and plotting this onto a chart, the chart then displays performance over time against this average and identifies any variation. This is a simple way of noticing trends in a maternity service and knowing what the average performance is. Once these are plotted, noticeable variation can be seen, and causes can be identified. SPC charts can be created manually or can be created using software. Guides on how to create SPC charts are outlined in the following places:

- SPC on the [NHS England](#) site
- SPC on the [NHS Improvement](#) site
- **Sharing information between settings:** Sharing information across services can provide huge benefits. Only 17% of maternity providers agreed with the fact that they access 111 and 999 service data to support triaging, service planning and intervention. This suggests that there is a missed opportunity to work collaboratively with other support services to gain information on service delivery and pathways.

Resources and next steps

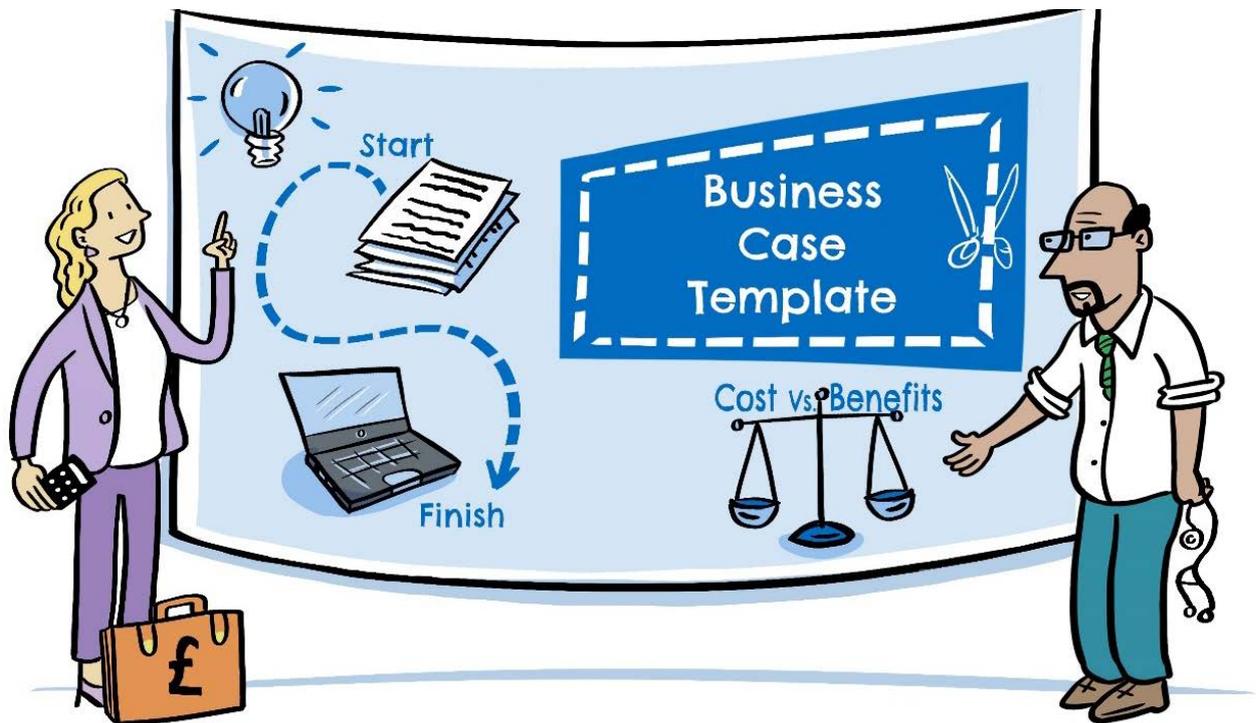
The research undertaken into ‘[data driven improvement in maternity services](#)’ shows that there is variation on this topic across the country. This subject is being considered for investigation in future digital maternity work at NHS Digital.

The points below have been identified as some of the next steps being taken by some services focused on driving up their use of data:

- **Preparing to adopt future technology:** Technology is constantly developing at a fast pace. Advances in genomics, artificial intelligence, digital medicines and robotics will no doubt play a part in the collection and analysis of data. One example of a potential application for Artificial Intelligence is in analysis and monitoring of EPHR activity, supported by developments in home monitoring technologies (e.g. urine testing, blood pressure monitoring, smart weighing scales) which could enable targeted early intervention by maternity staff and GPs to benefit women.
- **Building robust assets:** The quality and richness of data collected improves over time so the earlier this process starts, the sooner the benefits can be realised.
- **Making greater use of data collected by the woman:** Studies suggest that women welcome electronic personal health records and digital apps that record information about themselves, so considerations need to be made about how this can potentially be utilised. The Kings Fund report, ‘[What Will New Technology Mean for the NHS and it's Patients](#)’ considers remote and assistive care. The study found (for example) that most people said they would use video consultations to consult their GP about minor ailments and ongoing conditions and more than half of respondents would be willing to share data with the NHS via a personal lifestyle app or fitness tracker. Other ways in which maternity services can support the data collected by the woman include:

- Better utilisation of email and text facilities are also options worth exploring. Refer to the [myth busting and quick wins](#) section for further information.
- Consider implementing digital patient feedback, as described in other sections. Digital patient feedback is another useful source for data to help guide improvements to the maternity service.
- Several trusts have been exploring app solutions such as ‘Gestational Diabetes’ apps. These apps receive input from both clinicians and patients (downloading data from medical devices used in their own home). Results are visible to women, and clinicians are able to view analysed dashboards and alerts about the women under their care.
- **Keep networked:** Building up a network with other maternity providers across the country to share best practices and experiences is an invaluable resource with countless benefits. Keep building up existing networks such as the Digital Leaders forum and the Digital Midwives Expert Reference Group to share different approach across the country.

7. Business cases and business change: maternity digital hardware



Introduction: Making change stick and steps towards obtaining hardware

The Maternity DMA findings tell us that a number of maternity services struggle with delivering end to end business transformation when it comes to implementing digital change initiatives. The purpose of this section is to showcase some examples of successful changes and outline some different change methodologies and tools. This includes addressing topics such as benefits management and business cases.

Resources in the section

Please note that this section contains a number of resources and templates intended for use by maternity providers. I.e. 'example business cases for obtaining hardware within maternity services. It's essential to note that these recourses are intended as a rough guide around content and functoriality, you will most likely be expected to use organisational templates from your trust and follow their local process and guidance.

Before you start a new change initiative

The first port of call when undertaking a digital change project is to understand what can be learned from past experiences. The following points are worth bearing in mind before getting started.

Common causes of failure across maternity projects are:

- Lack of clear links between the local maternity project and the organisation's key strategic priorities, including agreed measures of success. (see [digital strategies](#) section)
- Lack of appropriate management ownership and leadership within the maternity team (see [digital leadership](#) section).
- Lack of effective engagement with stakeholders; including managers, clinicians and services users
- Project risks not adequately assessed and managed.
- Too little attention to breaking down development and implementation into manageable steps.
- Evaluation of proposals driven by initial price rather than long-term value for money (especially when securing delivery of business benefits).
- Lack of understanding of, and contact with, the supply industry.
- Lack of effective project team integration between users, the supplier and the supply chain.

For these reasons, it is worth investigating whether any other projects of a similar ilk have been carried out across your organisation/s or in different departments and speaking to those involved for any lessons learned and tips. Have other areas, for example, procured laptops, tablets, mobile phones etc recently? Could they share any materials with you such as business cases which would contain benefits and costs etc, as a starting point?

Managing a digital change project

It is prudent to consider investment in project management resource to manage your change project and write the project business case. It should also be noted that NHS Digital runs an LMS Digital Leaders Forum, where experiences can be shared between different regions.

The diagram below shows the key stages of the change model and some of the associated products to consider:

Change Management Model

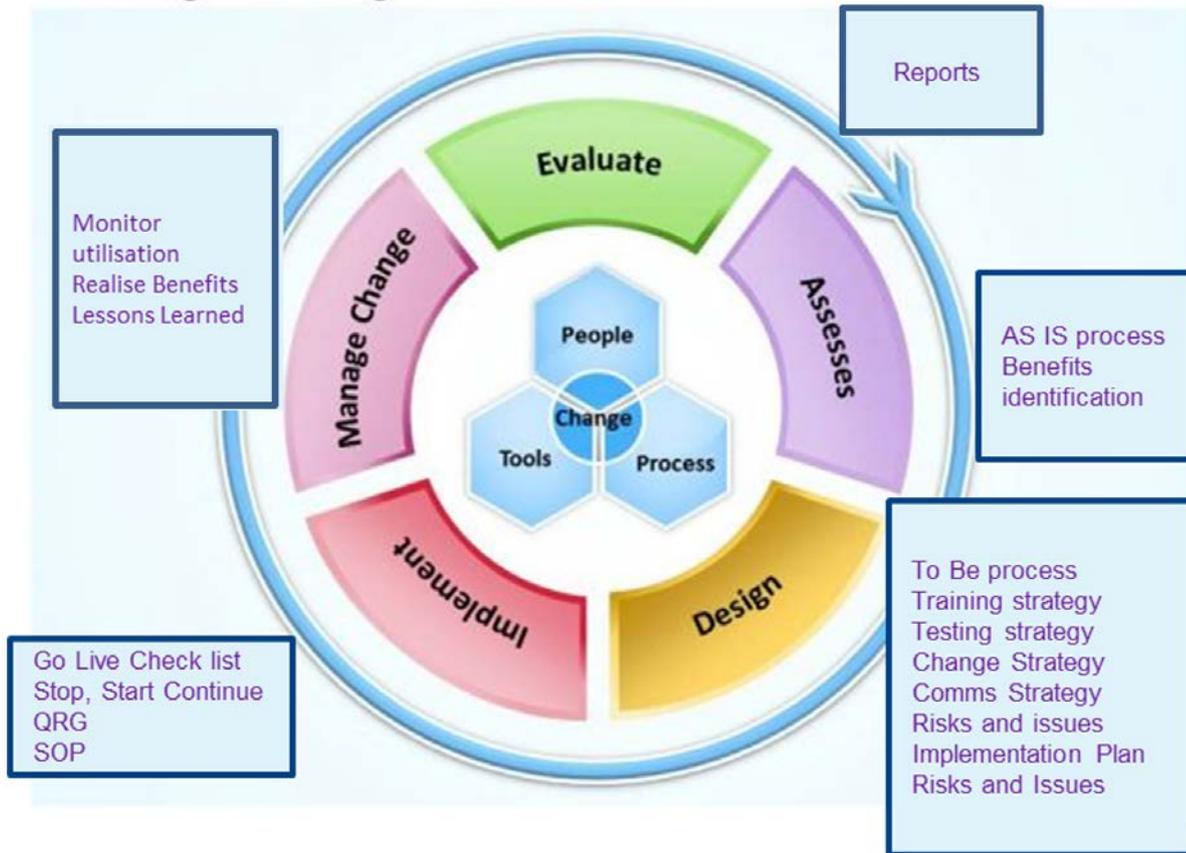


Figure 25: Change management model

Assess

When managing digital change, the first part of the change cycle is to **'Assess'** what currently happens and where improvement is needed.

Identifying and understanding the problem/s with the current 'as is' state is the first step. The problem needs to be fully understood before proposing any solution, therefore writing a **problem statement** is a good starting point.

Key elements of an effective problem statement include:

- Gap: Identify the gap that exists
- Description: Describe the gap and provide the context
- Impact: Quantify the gap (cost, time, quality, environmental, personal, etc.)
- Importance: To the organisation, the individual, etc. to better understand the urgency

Once the problem is understood, the current processes should be mapped (see [process mapping the maternity pathway](#) section). This provides the big picture, identifies the gaps and helps prioritise solutions to close the gaps and can help inform your requirements. At this stage you would start identifying the benefits of closing these gaps.

Please see [business cases](#) for a Business Change Strategy template.

Benefits

The feedback from Maternity Providers at engagements event highlighted the challenges faced in identifying and realising benefits. It is important to consider the benefits to be realised by the change you are proposing. Benefits are defined as ‘the measurable improvement resulting from an outcome perceived as an advantage by one or more stakeholders, which contributes to one or more organisational objectives’ (Cabinet Office). Analysis of the Maternity DMA data shows that for digital changes, 73% of Maternity Services evaluate the benefits using a consistent approach.

APMG (Managing Benefits, 2nd Edition, 2014) define the seven key benefits principles as:

1. Align with the organisational strategy
2. Start with the end in mind
3. Use effective change management methods.
4. Integrate benefits with performance
5. Link initiatives together to prevent double counting of benefits
6. Apply effective governance
7. Develop a value culture

For further guidance on how to record identified benefits or explain the benefits-led approach that your change proposal will take, please refer to the templates in [business cases](#). The Benefits Strategy provides a clear overview of things to consider when managing the benefits to be realised by a change initiative.

Benefits Management Training

NHS Digital are also offering LMS's the opportunity to attend free Benefits Management Training courses – please contact brmtraining@nhs.net for further details.

Design

The next phase is the ‘Design’ stage, this is where we are thinking about the end point – what does the future look like and how are our gaps addressed? The ‘to-be’ processes are mapped (again, see the [process mapping the maternity pathway](#) section); this should inform the requirements and how the benefits will be realised.

The key documentation supporting your change proposal should be developed at this stage. These materials will collectively ensure the business change is appropriately planned and managed to enable the most benefit to be derived from the solution. It is therefore important to spend the appropriate amount of time on this stage. If this stage is planned appropriately, there are far fewer problems with implementing and sustaining the change and thus deriving the maximum benefits.

The following things should be considered:

- Who are the key stakeholders?
- How will we communicate with our stakeholders?
- What are the key risks and issues?

- How will we implement the change?
- What training will be required?

For guidance on how to complete any relevant documentation that may be required at this stage, see the external links below:

- [Stakeholder analysis](#)
- [Communications planning](#)
- [Risks and issues](#)

The need for the change can be logged using a risk register (See [business cases](#)). What is the risk of continuing ‘as is’ vs the ‘to be’? This can be a powerful way to escalate the need for the project to senior management and make the problem more visible.

Benefits map – works in both directions

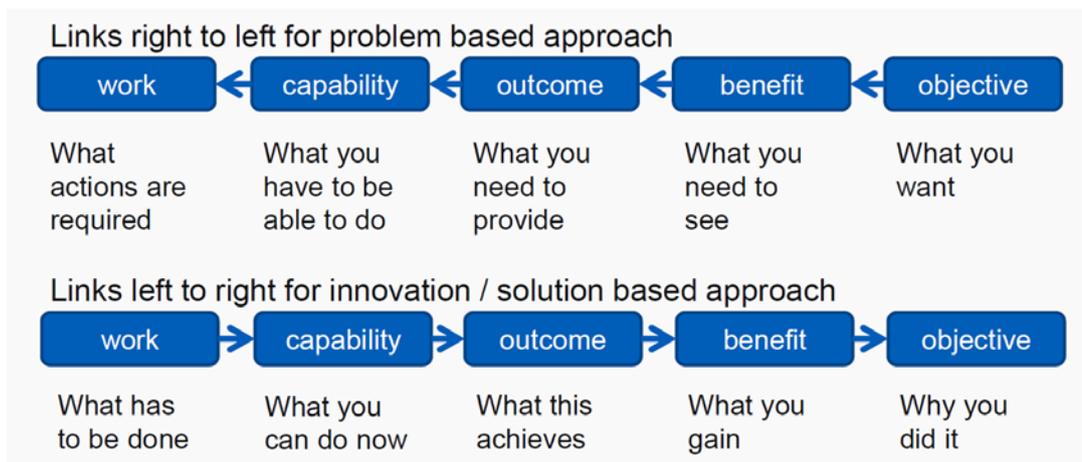


Figure 26: Benefits Mapping

Implement

Following the ‘Design’ phase is the ‘Implement’ phase. This is where your solution is rolled out and is in the hands of users.

A Go Live checklist should be developed (see template provided) to ensure everything required is in place for go live - this can include readiness of the people, processes and tools.

Please see [business cases](#) for a template Go Live check list. This will need to be tailored to your organisation and project accordingly:

A “Stop, Start, Continue” list should also be developed to look at the following aspects during implementation:

STOP – things that have proved impractical/impeding; have not had the desired outcome/benefit; or just not working for the team

START – New ideas that have come up/ not been considered before; things the group are not doing but feel they should; addressing new situations that have arisen; or experimenting for better results.

CONTINUE – What has worked well, and the team thinks has been successful; the things we want to keep; what is worth continuing to see if it's worthwhile; and things that are needed.

In this phase, and on top of the relevant training materials and training sessions, Quick Reference Guides (QRG) should be considered and Standard Operating Procedures (SOP) tailored to the area in which the solution is being implemented. This makes the change more easily digestible, acts as a quick reminder and makes the change 'real' and specific to the users in that department/trust.

Manage

The next phase 'Manage Change' is concerned with monitoring utilisation, benefits realisation, reporting and lessons learned.

There should be checks in place to ensure the solution is being used and deriving the benefits expected. Management of the benefits realisation tracker and analysis of trends should continue to ensure utilisation problems are identified and addressed, and any additional benefits arising are captured.

Benefits should be integrated with performance management as follows:

- Linking benefits to organisational KPIs where possible.
- Accounting for benefits in budgets, costs and performance targets.
- Aligning responsibilities for benefits management with individuals' performance objectives; and integrating into reward and recognition processes.

All parties involved should input into the lessons learned to support future learning/ other areas of the organisation. This could also be shared with your LMS Digital Leader to allow national sharing for wider benefit. See [business cases](#) for lessons learned template.

Evaluate

The final phase is 'Evaluate' and includes project review/s and creation of the necessary reports for your organisation, according to your governance requirements.

This phase is important to show what the project has delivered compared with what was set out as part of the original problem statement; and to celebrate the benefits brought about from the change and to thank those involved.

Business Case

Once it has been established that funding is required, a business case will need to be developed. It is vitally important that any requests for equipment, hardware or software/ functionality is aligned with the organisational IT/Digital Strategy and the LMS' Digital Strategy and Plans.

It is also important to ensure a holistic approach is taken to any IT change. Is the change required in one department, several departments or the whole organisation? Having these early conversations can help avoid the procurement of silos of technology which may or may not connect to each other.

As mentioned in the [business cases and business change](#) section above, initially it is worth establishing whether any other departments have developed similar types of business case requests in the past; and whether there are any lessons learned from developing previous business cases of a similar nature.

The Maternity DMA data shows that 82% of maternity providers currently have a digital maternity project taking place and of these, 80% agree that their digital maternity projects are supported with a valid business case and have fully engaged business owners.

Developing a business case will ensure the request has strategic alignment, affordable costs, is value for money and is commercially appropriate, as well as presenting how the change will be managed to ensure success.

There have been countless examples of organisations procuring hardware or software which is either: not fit for purpose; not future proof; implemented but not used (due to lack of business change management); poor value for money; or only addresses a small part of the problem. In this section there is guidance for developing successful business cases along with some examples.

Structure

Business cases can be broken down into 5 different aspects which are interconnected but distinct. For further information around this approach please see the link below. The business case should enable stakeholders to ascertain that proposals:

The HM Treasury guidance summarised below is provided from the following website: [Green Book Appraisal and Evaluation in Central Government](#)

Elements for a business case can include:

- **Delivery plan** with clear milestones which relate to. The management plan applies to any programme or projects required by the proposal. Programme and project plans must include business assurance arrangements.
- **Change management and stakeholder management plan** where significant change management is involved.
- **Clearly set out review arrangements.**
- **Benefit realisation plan.**
- **Benefit register.**
- **Contract management plan** plus arrangements where contracts are required.
- **Contingency plan** with arrangements and plans for risk management and a risk register.

You should also consider whether the business case has been appropriately **signed-off within the organisation**. For example, have relevant business owners and professionals (Economists, Finance, Procurement, HR, IS, IG, delivery professionals) approved the case?

Evaluation of the effects of the intervention after it has been implemented is a key element which is sometimes overlooked in preparation of a business case, but it is vital to the evolution of evidence-based policy and must be included in all proposals.

Resources and next steps

The research undertaken into 'Business Cases and Business Change: Maternity Digital Hardware' shows that there is variation on this topic across the country. This subject is being considered for investigation in future digital maternity work at NHS Digital. For example, NHS Digital are considering the possibility of offering Business Case Training to LMS staff in future financial years.

There are also plans for STP and LMS wide Regional Better Business Cases Networks, which we will communicate out via the LMS Digital Leaders Forum when more information is available.

Examples and resources:

Here is a Business Case from a Trust who have kindly allowed us to share it as part of this report. The Business Case may provide a useful template, though this would need to be tailored for your own project and governance processes. It should be noted that some of the details have been redacted as denoted by 'X'.



Maternity ERP Business Case



Business Case Submission Example

(Special thanks to Birmingham Women's and Children's NHS Foundation Trust and Gateshead Health NHS Foundation Trust)

Further Guidance regarding business change/ business cases:

- [Business Case template](#)
- [Interoperability case studies](#)
- [Building a Business Case](#)
- [Business Case approval guidance](#)
- [e-Prescribing Toolkit Business Case guidance](#)
- [e-Prescribing Toolkit drafting a Business Case](#)

8. Myth busting and quick wins



Introduction: First steps towards addressing a wider range of topics

The questions asked in the Maternity DMA uncovered a number of smaller topics relating to digital technology, which are either enabling or blocking the uptake of new initiatives. These topics have been categorised into three areas:

- **Myths and blockers** – Misconceptions or persistent issues which block the successful adoption of technology, despite often having been already resolved in other sectors or services.
- **Quick wins** – Solutions already in place in some maternity services, which could be low cost, high impact changes that enable relatively large benefits using digital technology.
- **The Wishlist** – Areas of development which have been flagged as having high potential for application of digital solutions in the future.

Please note that this section of the report is more eclectic than other chapters; many of the topics raised in the section have been flagged by stakeholders, either in their answers to the Maternity DMA, at stakeholder events, or at different stages of the project. This section draws upon those sources and paraphrases the statements in an attempt to address some of the issues, however many of these topics will need further investigation. Many of the topics explored in this section relate to information governance.

The topics in the section will be fed into the requirements for future phases of the Digital Maternity Programme, including being discussed at future network events.

Myths and blockers:

Misconceptions or persistent issues which block the successful adoption of technology, despite often having been already resolved in other sectors or services.

Many of these myths link to questions about Information Governance (IG). Whilst addressing issues relating to IG it's important to bear in mind the [Caldicott Principles](#), in particular the 7th principle, which states that 'The duty to share information can be as important as the duty to protect patient confidentiality'.

Physical, electronic and procedural safeguards still need to be employed to support any technological tools, and it is essential that only those with a legitimate right to access can see the data (including patients themselves). Documented patient consent is recommended and privacy notices meeting GDPR requirements must be made available.

While local policies and procedures will determine approach, a number of examples, guidance and other resources are available to support potential engagement on implementation of new technologies to communicate and share information. These include references to IG and GDPR materials.

The tools maternity services use to communicate with their women:

1. Statement: "Is it okay to email women's personal email accounts, especially with clinical information?"

Response:

Email can be used, please see the guidance below:

[Faster, better, safer communications Using email in health and social care \(in England\) For patients and healthcare professionals \(PRSB, March 2015\)](#)

Important to note that this guidance will need reviewing in light of General Data Protection Regulation (GDPR) and general accuracy (secure domains and networks have changed). It shouldn't be cited as definitive until then. The guidance in its current form does flag the important role consent plays: "Only use email with patients and service users who have given their informed consent for using email to communicate with them. This consent should be clearly recorded in the care record."

2. Statement: "Is it okay to text message women, especially with clinical information?"

Response:

Please note that SMS messaging is considered less secure than email. Therefore, it may be safer to limit text communications to non-clinical information. Any usage of this channel for clinical information requires careful consideration.

Some maternity providers are already using text messaging as a support method of communication with their women. Other departments within NHS trusts and primary care have been making use of text messaging for some time.

A project run in General Practice was able to reduce DNA rates ('did not attend') by up to 10% by using text message reminders. These reminders included a note about how to cancel the appointment if it was no longer wanted. Reducing DNAs is just one potential benefit of using text messaging, as in some cases it can be useful for improving access to services and helping services make best use of clinicians' time (See [link](#)).

Some maternity provider sites have also expanded the texting services over time to include information about monitoring fetal movements, keeping a new baby warm and links to local digital resources (Poole Hospital NHS Foundation Trust).

Please note that, as with the emailing guidance above, consent is an essential factor to be considered. This information will need to be kept up to date to be GDPR compliant and to ensure that women aren't receiving communications when no longer appropriate.

3. Statement: "Can we use Skype, is the video feed streamed via United States (US) servers? Is it compliant?"

Response:

This guidance is about the Information Governance issues associated with remote consultations using free video conferencing applications such as FaceTime® and/or Skype®. It contains sections aimed at care professionals, information governance and informatics staff. Click [here](#).

However, it doesn't fully address the issue of data moving outside the EU area. This is still a serious concern for certain software and was addressed in recent new guidance on Cloud storage [here](#).

Please note that: 'Skype For Business' and 'Skype' are different products and may have different security features.

Systems used within maternity services:

4. Statement: "Excessive time is spent by clinicians logging onto different systems"

Response:

Results from the Maternity DMA suggest significant variation in the amount of time clinicians spend doing paperwork between different maternity services. This 'documentation time' is often dependant on the types of systems in place within the care settings (software) and the types of resources in use (hardware).

Often, the usability of a system is dependent upon how the system was originally implemented and how it has developed over time. A clinically led business change can be effective in setting up a maternity system in a way which reduces the documentation time, in comparison to those changes that weren't delivered end-to-end or with leadership from clinicians.

Innovations such as Smart cards, single sign-on and use of biometrics (i.e. finger print scanners) can also be useful in reducing the documentation time, by cutting the time clinicians spend logging onto different systems.

Below is an example of some of the potential benefits associated with a single sign-on system used in the maternity service:

“Single Sign On (SSO) allows users to tap on using their ID badge with a Radio-frequency identification (RFID) tag...” Please note that dual-factor authentication is considered best practice, in conjunction with digital solutions to aid access to systems.

“below are benefits that have been realised as a result of implementing Single Sign On...”

- *The system allows the user to authenticate themselves only once and the initial authentication method is quicker*
- *The system is compatible with existing technologies and software*
- *The system has a desktop environment that is easier to manage and maintain*
- *The system allows the Trust to utilise new technologies while maintaining a secure network*
- *A reduction of ‘Shared’ user names and passwords with the removal of almost all generic accounts*
- *The increase in IG compliance with individuals having their own accounts*
- *The system allows users to manage their credentials without the need to contact the service desk or out of hours support*
- *System contributes to the reduction of the following: logon times, system faults resulting in downtime, password management complexities”*

[\(Article about SSO\)](#)

Trusts with systems that don’t require data re-entry at every stage throughout the maternity pathway are also likely to have reduced documentation time for clinicians. This time can instead be spent focusing on providing care to women and their families.

See:

- [Dual data entry](#)
- [What does a good system supplier look like?](#)
- [Business cases and business change](#)

5. Statement: “Some staff and women still have questions about GDPR”

Response:

The [guidance](#) from the National GDPR working group and Information Governance Alliance (IGA) was designed to help the NHS, social care and partner organisations

prepare for the EU General Data Protection Regulation (GDPR), which came into force in May 2018.

6. Statement: “Will GDPR limit our ability to launch ‘Maternity Digital Care Records for women’ (aka PHRs)?”

Response:

Both your trust and the supplier providing your digital care record should already be GDPR compliant. Consult the guidance above and your local IG contact to ensure that the requirements of GDPR have been met. (Compliance with [DSP Toolkit standards](#) would be the initial benchmark for health and care organisations and suppliers alongside GDPR).

If the correct process has been followed there should be no reason why GDPR would prevent you from providing maternity digital care records to women.

7. Statement: “Are we [clinicians] able to use our own devices for work?”

Response:

Your trust will have made decisions about whether it supports the ‘Bring Your Own Devices’ (BYOD) policy, which is where the organisation permits employees to bring their personally owned devices (laptops, tablets, and smart phones) into the workplace, and to use those devices to access certain organisational information and applications.

The link below is to the ‘Bring Your Own Devices (BYOD) Information Governance Guidance’ which your organisation will have referred to when making its decision.

“[BYOD](#) keeping information safe when health care staff may be using their own smartphones or tablets”.

On a broader note, guidance is available on the general use of mobile devices in care settings pertaining to staff, patients and visitors. The link below is to a short guidance note aimed at hospitals where there are concerns about the appropriate use of mobile devices, particularly cameras, within premises where care is provided: [Mobile Devices](#).

The [guidance](#) may also be useful when considering the BYOD/ Mobile Devices (please note, it was written with GDPR in mind, however is likely to be updated by NHS England now that GDPR is in effect).

Once again, each organisation is responsible for developing their own policy in reference to this guidance (and GDPR must also be considered in this application). Your local IG team will be able to provide definitive guidance.

The Culture of maternity services and relationship with other stakeholders:

8. Statement: “Often Maternity Service staff are too busy to adopt new ways of working, they aren’t interested in new technology”

Response:

The NCT review of maternity services [Support Overdue: Women’s experiences \(NCT, 2017\)](#) highlights many of the pressures facing maternity staff, such as chronic shortage of midwives.

Within the national DMA report there is a section exploring [the role of the digital midwife](#) which also discusses the organisational culture and demographic factors at play within the maternity service workforce. Consideration of these factors, alongside advice provided in the [business cases and business change](#) section, could be useful in taking the first steps towards gaining engagement from staff on new digital transformation projects.

9. Statement: “We need to engage more with GPs to ensure they understand and are aligned with our digital aspirations for maternity services. At present, data sharing issues with certain GPs may be preventing holistic care”

Response:

Building upon the response to Statement 8, achieving buy-in and engagement from internal and external staff can be challenging. One powerful tool for engaging with external stakeholders can be the use of a well-articulated vision supported by clear benefits, especially if those benefits show how all parties stand to gain from the outcomes of a project. The [business cases and business change](#) section of this report refers to some tools and methods for capturing such benefits.

One example of a situation where a shared vision between maternity providers and GPs could be beneficial is the use of digital discharge summaries and digital booking summaries. In many places around the country this process is still paper based, making use of the postal system, even though both GPs and maternity systems are currently using electronic record systems.

Future cross organisational ways of working may allow these messages to be sent electronically, via PDFs at first then later via interoperable systems. An electronic solution for sending information between maternity services and GPs would be faster, safer and cheaper. Costs would also be lower as postage and data entry efforts would be reduced for both the hospitals and GPs.

10. Statement: “Our culture of ‘defensive practice’ sometimes makes it hard for new digital processes to succeed.”

Response:

As in the examples provided in response to previous statements, digital solutions often provide a number of advantages over existing paper processes.

For example, electronic record systems tend to contain a ‘digital footprint’ of each time a record is accessed or information within it is updated. Compared with paper records, audit and analysis of electronic records is much easier.

Electronic records may require an upfront investment and ongoing expenditure on maintenance. However once staff are trained and records are in full use, accessibility, clarity, accuracy and timeliness of information available for clinicians improves. Information contained in electronic records is also more difficult to lose, destroy or alter.

These facts build confidence in the data within electronic records, and over time this confidence could help reduce the pressure of operating ‘defensive practice’, especially when compared with previous paper-based methods.

11. Statement: “How can I feel confident that the rules and processes around data are being followed every time, I need this assurance before I use it for planning”

Response:

Once you have confidence in the data you’re working with, it’s possible to use the data to achieve a range of benefits for planning your maternity services operationally and strategically. Analysis of existing information quality can help provide you with an understanding of its current value. Please see the sections below for further detail on the benefits available (using data), skills required (role of digital midwife) and systems needed to support you (good system supplier).

See:

- [Data driven improvements in maternity services](#)
- [The role of the digital midwife](#)
- [What does a good system supplier look like?](#)

12. Statement: “Our mandatory IG training reinforces the risk adverse culture around data and technology”

Response:

Information governance is a key enabler which supports effective sharing and management of information in the NHS so that safe, effective and efficient health and social care services can be provided.

While IG is largely about managing risk, clinicians need to feel comfortable and confident knowing what they CAN share rather than just SHOULD. (For more information about the Caldicott principles click [here](#)).

The more awareness you have around how IG is applied locally within your trust and nationally, the more confident you can be when it comes to sharing information and adopting new technologies. NHS Digital design and publish guidance on information governance in health and care. They collect and link to useful resources from other organisations. If you still have IG queries, even after having spoken with your local

support function, it is possible to escalate questions and concerns to a national level using the [‘IGA Contact Form’](#)

Further reading: [‘Information: To share or not to share?’](#)

Quick wins

These are solutions already in place in some maternity services, which could be low cost, high impact changes that enable relatively large benefits using digital technology.

The tools maternity services use to communicate with their women:

Roll out apps that work already on a small scale, some example apps include:

- ‘Gestational diabetes’ apps: Gestational diabetes affects between 5 -16% of all pregnancies in the UK. Several trusts have been exploring app solutions which receive input from both clinicians and patients (downloading data from medical devices used in their own home). The results are visible to women, and clinicians are able to view analysed dashboards and alerts about the women under their care.
- ‘Maternity exemption certificate’ apps: Several trusts have been exploring the options for digitising this process. Creating a faster, easy digital certificate for pregnant women to get free prescriptions.
- Cross organisational apps for professionals: There are examples of apps being developed to help cross organisational working for professionals, both within the same LMS and across different LMSs. A patient discharge app which uses London postcodes is a good example of this.
- Virtual triage & apps linking women and clinicians: Several trusts are exploring the possibility of digital tools aimed at reducing inappropriate admission, such as apps linking midwives and women, so women can be directed to the best available care, whether that be home or hospital as early as possible.

The NHS apps library has been focussing on growing its offer to the maternity sector as a priority. Apps such as ‘Kicks count’ are already showcased on the library. A section of this report has been dedicated to [digital maternity apps](#).

Maternity services currently using social media:

- Facebook – Trust comms department manage and promote maternity event and materials.
- Social media is being used to support specialist caseloads.
- Trusts using WhatsApp and Facebook to engage with Maternity Voices Partnership (MVP).

Other questions about the use of social media:

We have received requests for further advice and guidance on the use of social media within maternity services, as well as any examples of trusts currently using the medium effectively. A section of this report has therefore been dedicated to [social media](#).

Creating online resources to support the face-to-face meetings between women and maternity professionals:

- YouTube videos & Postnatal DVDs: A number of trusts have already created support videos which women watch either at home or in the hospital whilst waiting for an appointment (topics such as the discharge conversation and births options like Hypno births - See example from Colchester Hospital University Maternity [here](#)). These videos are beneficial as they reduce the appointment times and midwives are able to personalise the care they provide women.
- Online antenatal classes: Online resources, webinars and groups can provide great support for women when set alongside the option of face-to-face support. (for example, [Chesterfield Royal](#))
- Digitising leaflets and resources: In some trusts, women are provided with links and QR codes to enable them to access online resources. This benefits women as the resources are more readily available, whilst also reducing print costs for maternity providers.
- Virtual tours of the maternity unit: Trusts providing the service already feel that it saves staff time and results in a better experience for women (for example [Royal Cornwall](#))

Video conference/ consultation:

- Several maternity providers are already providing online sessions for women, alongside other services such as breastfeeding support.

The ways in which maternity services function:

Teams use digital tools / messenger apps to coordinate and communicate with each other:

- The NHS has recognised the value of such tools and is beginning to more widely invest in developing new solutions, please click [here](#) for article.

The Wishlist

Areas of development which have been flagged as having high potential for application of digital solutions in the future. The following statements and suggestions have been received from stakeholders:

13. Statement: *“We could start sharing the digital analysis tools and approaches that we’re currently taking across the country for analysing Maternity Service data”*

We have received enquires as to the different methods and tools available to help reduce variation, and smart use of stats and data. The [data driven improvements in maternity services](#) section of this report contains some support in this area.

14. Statement: *“Would be useful if we could get example templates and support for producing business cases, for things like mobile devices and guidance on how to make the business change stick”*

The [business cases and business change](#) section of this report contains support in this area

15. Statement: *“Would it be possible for my Maternity Service to create a single form for women, which allows them to give consent to all the digital communications channels within my Maternity service?”*

As per the advice on earlier pages, if a form was developed locally each channel in question would need to be explained thoroughly and an ‘opt-in/out option’ provided. Such a form would need to be compliant with local and national IG guidance and women would need the option to withdraw at any time.

The Digital Maternity programme will consider exploring ways in which they can support this work in the future.

16. Statement: *“Guidance on what is going on at a national level for Digital records for women”*

The [our digital future](#) section of this report describes the work already being undertaken in this area by NHS digital.

17. Statement: *““Creation of a Collaboration platform for digital leaders across the country”*

This will be added to consideration for future work. Future sessions of the Digital Leaders Forum may also wish to explore the different platforms available for collaboration.

Resources and next steps

This ‘myths and quick wins’ section was aimed at addressing common concerns and queries raised in the Maternity DMA and at stakeholder events. It covered the first steps towards addressing these issues, however many of these topics will need further investigation. The topics in the section will be fed into the requirements for future phases of the digital maternity programme. For the requirements being considered for future phases of work, aimed at driving up digital maturity, please see [Additional Resource](#).

- For the latest advice and guidance on information governance from NHS Digital please click [here](#). For information about Cyber Security please click [here](#).
- The [Additional Resource](#) Section of this report covers a number of smaller topic which may be of interest, for example [Online Booking Forms](#)

9. Our digital future



Introduction: Digital Maternity Programme overview

The Digital Maternity Programme originated from a request from NHS England in August 2016 to support the National Maternity Review (NMR) 'Better Births' with a digital enablement programme. NHS England established a programme to drive transformation into the health and care system called the Maternity Transformation Programme (MTP). The MTP has an extensive stakeholder community and is driving nine work streams, one of which is 'Harnessing Digital Technology', which underpins many of the other work streams. This is being delivered by NHS Digital as the Digital Maternity programme.

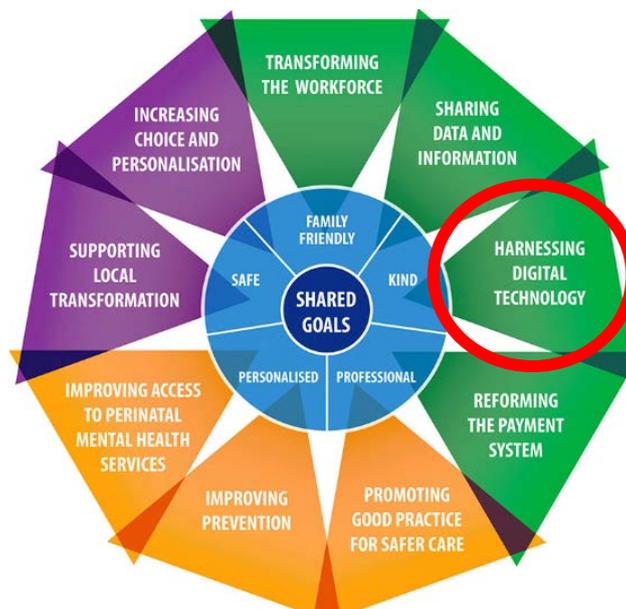


Figure 27: Maternity Transformation Programme workstreams

The National Maternity Review identified that maternity services in England needed, in the next 5 years, to:

'become safer, more personalised, kinder, professional and more family friendly; where every woman has access to information to enable her to make decisions about her care'.

The Maternity Review made 4 key recommendations:

- Investment should be made in electronic, interoperable maternity records to reduce the administrative burden of information recording and sharing.
- All women to have access to comprehensive digital sources of information via a digital tool or personal health record.
- The digital tool or personal health record must interface with professionally held electronic maternity records so that the woman can access her own records and receive personalised information.
- The technological solutions must be accessible to women, families and professionals, particularly outside of the hospital setting.

The Digital Maternity Programme will focus on implementing the recommendations of the National Maternity Review by:

1. Enabling access to comprehensive digital sources of information via a digital tool.
2. Providing a foundation for women-held digital maternity records, ensuring they can access their health information.
3. Ensuring information exchange is possible between professional records and personal records.
4. Enabling electronic, interoperable professional maternity records.
5. Supporting the adoption of technology in maternity services and supporting service improvement through digital maturity.

These reflect the programme deliverables.

It is important to understand the challenges the NHS and Maternity Services face. Some of the key challenges are listed below:

NHS challenge:

- Maternity services cost £5Bn annually, rising to £7Bn by 2020/21
- Obstetric claims equate to approximately 41% of the £1.1bn paid out annually in litigation
- Target to reduce stillbirth, neonatal death and harm by 20% by 2020, 50% by 2025

Maternity service challenge:

- Acute shortage of midwives

- Managing the projected increase in numbers of births
- A changing profile in users of maternity services
- Changes in service usage and access
- Increasing demand for personalisation of care
- Wide variation in maternity pathways and their effectiveness
- Recognition of a lack of access to mental health services
- Missed opportunities relating to still birth and appropriate interventions

Key delivery projects

As the national information and technology partner to the health and social care systems, NHS Digital are using digital technology to transform the NHS and social care. As part of the Digital Maternity Programme, NHS Digital are delivering the below projects:

- **Digital Maturity:** Making life easier through appropriate adoption and uptake of technology. Creating a supportive framework for growing digital maturity and capability in maternity services.
- **Women's Digital Care Record:** A digital tool that enables the personalisation of information, providing an interface with the woman's electronic maternity record, so that she can access her own record and receive information that is tailored to her needs.
- **Interoperable Records:** Replacing repeated paper processes with point-of-care accessible electronic maternity records. The enabler for consistent capture and movement of maternity pathway information between and within local maternity systems, professionals and with women.
- **Digital Toolset:** To improve personalisation and choice by enabling access to unbiased, evidence based and locally specific information about their own circumstances, choices available and their own personal care plans.

Digital Maturity

Digital technology plays an increasingly important role in addressing the challenges faced by health services around the world. The Maternity DMA project was undertaken by NHS Digital, as an important part of the Digital Maternity Programme, to help meet the objectives of the National Maternity Review 'Better Births' and the Maternity Transformation Programme (MTP). The data collected by the Maternity DMA project creates, for the first time, a national baseline of the state of digital maturity across maternity services within England.

The defined outputs of this project are required to evidence the current state of digital maturity in maternity care settings and to ensure that the required level of Leadership, infrastructure and capabilities exist, to enable the Better Births recommendations to be delivered. The Digital Maturity Project will benefit women by enabling LMSs and their maternity provider organisation to drive up digital maturity and build the required capabilities necessary to deliver the NHS ambitions to halve perinatal mortality and stillbirth.

The DMA opened in April 2018 for completion by maternity providers within each LMS in England. The assessment closed on 30 June 2018 with 100% completion.

Key products from the project include:

- **National Maternity DMA Report:** a single report showing the 'state of the nation', high level findings and first recommendations from the DMA data.
- **Maternity DMA Toolkit:** a website showing actionable resources for stakeholders to begin improving their digital maturity. This will be an evolving resource building upon the areas of development identified in the national report.
- **LMS DMA Reports:** reflecting the 'national report', each of the 44 LMSs will receive a report containing focused analysis and recommendations relevant to the maternity services in their geography.
- **Maternity DMA data:** this data source will be available to support certain national initiatives and will be stored so that future repetitions of the Maternity DMA can track the progress of Maternity Providers and help evidence their improvements.

The [introduction](#) section of this report provides more detail on how this project was undertaken.

Future state:

Next steps: 'driving digital maturity phase'

Overall, the Maternity DMA results showed that the maternity landscape is very varied with some areas of low digital maturity and some pockets of excellence.

There is scope for future work to drive up the baseline for digital maturity across maternity providers in England.

Below are some potential areas of future activities identified, however the formal plans of future work are still in development:

- **Engagement activities:** To drive the awareness and utilisation of the products developed as part of the Maternity DMA project (including increased awareness of maternity digital challenges in STP plans and LDRs, as well as encouraging LMS level planning).
- **Sharing and analysing the data in different ways:** Exploring potential new uses and benefits that could be gained from the Maternity DMA data, for example an interactive 'maturity map' that allows maternity providers to compare and cut the data in different ways.
- **Developing the Maternity DMA Toolkit:** The toolkit site has the potential to host materials and case studies from maternity providers, detailing pieces of work undertaken to improve their digital maturity. The digital maturity team at NHS Digital could potentially partner with local organisations on focused pieces of work to share the materials produced more widely.
- **Repetition of the Maternity DMA:** Repeating the Maternity DMA data collection in the future allows the dataset to build and a rich picture of how maternity services are progressing and can be developed.
- **Continue to expand stakeholder networks:** Both the LMS Digital Leader's Forum & the Expert Reference Group for midwives could be continued and expanded. Wider support could be provided to digital maternity leaders and the platforms they use to collaborate could be further developed.

The Maternity DMA team would continue to work as part of Workstream 7 of the MTP, actioning work based upon their priorities and would continue the approach of building strong working relationships with maternity professionals and parents.

Women's Digital Care Record

The majority of women in England currently carry a copy of their maternity notes with them from appointment to appointment, these are often referred to as 'women-held maternity records or hand-held notes. These are a professional health record carried by the women rather than being a true personal health record or a collaborative health record. They are usually returned to the organisation following discharge.

Currently there is no dedicated national NHS channel for trusted maternity and new born information encapsulating the entire maternity pathway and reflecting the voice of the midwife, making women over-reliant on midwives for advice and the paper leaflets distributed during the maternity episode.

In January 2018, Simon Stevens (NHS England Chief Executive) undertook a 'deep dive review' of the potential activities associated with the ambition to provide women with access to their electronic maternity records. This supports the need to give women better understanding and control of their care, and an opportunity to contribute. A new priority and expectation was given for NHS Digital and NHS England to progress with the implementation of electronic personal records for women, as a demonstrator for wider citizen enablement.

An ePHR is defined as an electronic personal health record (tethered patient portal) which might have varying degrees of information sharing and/or shared control, access and participation by the woman and her healthcare professionals (Personal Health Record Interoperability Handbook V1 Jan 18).

The Digital Maternity Programme, NHS Digital, were asked to coordinate the delivery of a pilot project for maternity electronic personal health records (ePHR) in England. The project would seek to rapidly bolster the existing provision of digital personal health records over a period of 12-18 months. This would be in localities where the current provision is such that a limited amount of capital funding could enable a significant proportion of women to access a digital maternity health record.

Selection of areas for the pilot project was based upon criteria that result in the best prospect of success in supporting women, therefore, considered current usage of the maternity system across the pregnancy pathway and the maternity services' demonstrable commitment to digital technology to enhance care. We are currently working with small number of suppliers; Euroking, Badgernet and K2 to roll out electronic maternity personal health records, now being referred to as 'women's digital care record', within 19 trusts. Funding will support the activation or expansion of existing electronic record access activity in LMS areas.

An additional programme of work led by NHS England is called 'Local Health and Care Record Exemplars' (LHCRES) The central funding for the LHCRES is focused on the creation of the longitudinal record. The applications that use this data (be it clinical decision support, analytics, PHRs) are not covered by this project as the relevant applications would vary based on service priorities.

Outcomes:

The Women - Access to their personal maternity record online, giving them greater visibility, control and understanding of their health and related information. Access to trusted information about pregnancy (PHR) with increased ownership and improved outcomes around safety and maternity experience. It will reduce the barrier between the HCP and the woman relating to clinical or professional jargon. It also has the potential to include critical reminders around screening, immunisations and appointments during pregnancy.

The healthcare professional - Reducing the administrative burden on HCPs and reducing the risk of missing important clinical information for mothers. Reducing burden of repeated questions from mothers. Interact via more pro-active, convenient and efficient channels. Safer, better care and better value.

Provider and NHS efficiency - Reducing the cost to organisations of capturing and sharing information whilst improving data quality. Supporting necessary interactions and interventions. Supporting new models of care to generate efficiencies and service improvement.

Future State:

- Women and families will have access to an online maternity record.
- Women and families can set their own preferences for information sharing and can see who subscribes to their information.
- Women and families can publish their own goals for health and wellbeing and share these with professionals, empowering them to manage their care in a collaborative partnership.
- It becomes possible to deliver personalised health promotion materials to people and enter into dialogue with them as women and families, begin to use personal health records routinely.

Interoperable Records

Women should not have to explain their situation to every new healthcare professional they meet. Women want the healthcare professional to have read their notes before meeting with them, so they are aware of key information such as history of health conditions, stillbirths, miscarriages or complications.

To support the sharing of data and information between professionals and organisations, the use of an interoperable electronic maternity record will be rolled out nationally. This will:

- Be accessible to providers of maternity related care within the Local Maternity System (LMS) and between LMS'
- Be accessible by staff at the community hub and hospital services
- Support NHS staff including midwives
- Be accessible by the women

This project supports the 'Tell it once. Capture it once' mantra and supports the safer care agenda.

The following diagram shows the different project phases to achieve national interoperability:

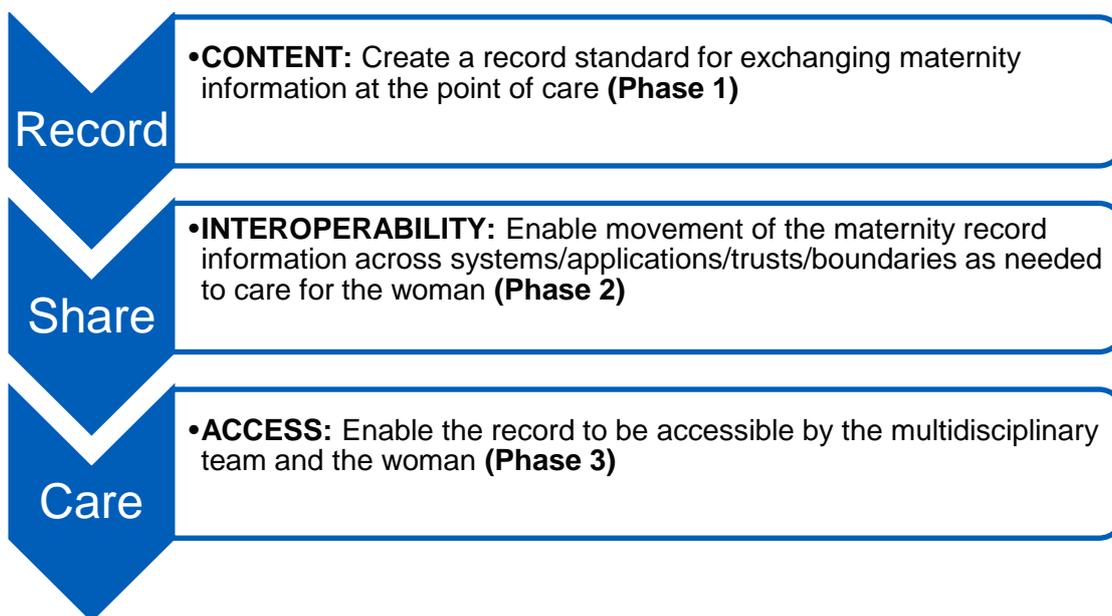


Figure 28: The different phases to achieve interoperability

Phase 1 involves creating a Maternity Record Standard. This will mean that the maternity record information can be understood by all maternity clinical IT systems in use across the country; and will enable the seamless exchange of information between these systems, regardless of Local Maternity System boundary in future.

Phase 2 is concerned with ensuring the appropriate information can be shared securely so that everyone involved in the women's maternity care, including the women themselves, will have access to a standardised set of paperless, digital maternity records.

Phase 3 will be achieved once the interoperability solution is assured and implemented nationwide. The standardised digital maternity records will save time for health care professionals and women by ensuring they have the necessary information, in the right place at the right time, to allow more informed care and decisions for safer care.

Future State:

- Professionals will have access to a woman's maternity record at the point of care to improve decision making.
- Professionals will only have to record information about a woman once as that information can then be shared to those in the extended network of maternity care.
- Professionals will have real time access to key events occurring for that woman in other organisations, where it is appropriate.
- Women will have access to their maternity record digitally rather than having to carry their paper notes to each appointment.
- Women will have a better experience during their maternity episode, with more informed professionals and without having to repeat information at each appointment.
- The amount of paper used in Maternity Services will be vastly reduced, saving money for each organisation involved.
- It will be easier to determine where other maternity care episodes have taken place and therefore easier to track payments between organisations.

Maternity Digital Toolset Project

Research found that pregnant women felt that the pregnancy and baby pages on NHS.UK (formerly known as Choices) required improvements in relation to the content, structure, presentation and site navigation.

Research also found that women planning a pregnancy, and pregnant women in the early stages of pregnancy (0-9 weeks), wanted an overview of the maternity pathway. Women in the early stages of pregnancy, prior to their booking appointment, didn't know what to expect from the NHS and wanted to know more about the maternity pathway and often sought information online from a variety of sources.

The NHS Website Maternity Team began Phase 1 to address the problems with the pregnancy and baby pages on the NHS.UK website in March 2018. The aim was to provide women and their families with more easily accessible, trusted information and advice. This piece of work has already delivered a number of key improvements to the NHS Website as outlined below:

- Pregnancy due date calculator
 - 573,000 visits in the last 3 months.
 - New sign-posting links allow users to get straight to the content they want – Visits to the "4-8 weeks pregnant page" have tripled by enabling users direct access from the pregnancy due date calculator page and therefore providing early pregnancy information previously they may have missed
- Symptom alert boxes
 - Highlights important information on a page.
 - Helps to make it clearer for pregnant women when they need to seek help and who they should contact.
- Baby movements in pregnancy
 - 15,300 visits in the last 3 months and climbing.
 - Women want to know 'what's normal' in relation to baby movements during pregnancy.
 - This information has now moved from a page about preventing stillbirth which made women feel uncomfortable.
 - Page now links to the Kicks Count app in the NHS apps library.
 - New standalone page helps users find the information they're looking for, provides reassurance and allow users to make an informed decision about their next steps.
- Stomach pain in pregnancy

- 85,800 visits in the last 3 months and climbing.
- New page allows users to make an informed choice about their next steps – self-care or getting medical help.
- Pregnancy week by week
 - Pregnant women wanted information about how their bodies are changing and the development of their baby in a week by week format.
 - We have separated our previously grouped pregnancy content into week by week content.
 - We now display week by week information about the changes to the mother's body and the development of the baby on the same page, as this information was on different pages. We have also added information on what women should start thinking about at each stage of pregnancy.

The latest phase of work on the maternity pathway started in August and will continue over the coming months. The NHS Choices Apps Library continues to expand its maternity app section, further apps will be added to the library throughout the year. The Apps Library will bring together the best existing digital services, apps/tools and online information from the NHS and from other organisations to support high quality access to information and resources.

Future Work:

- Improvement of the structure and labelling of the antenatal pages, to make it easy for users to navigate around the antenatal content.
- Maternity pathway overview to provide users with a clear overview of the NHS service offering through the maternity pathway.

Digital Maternity Programme milestones

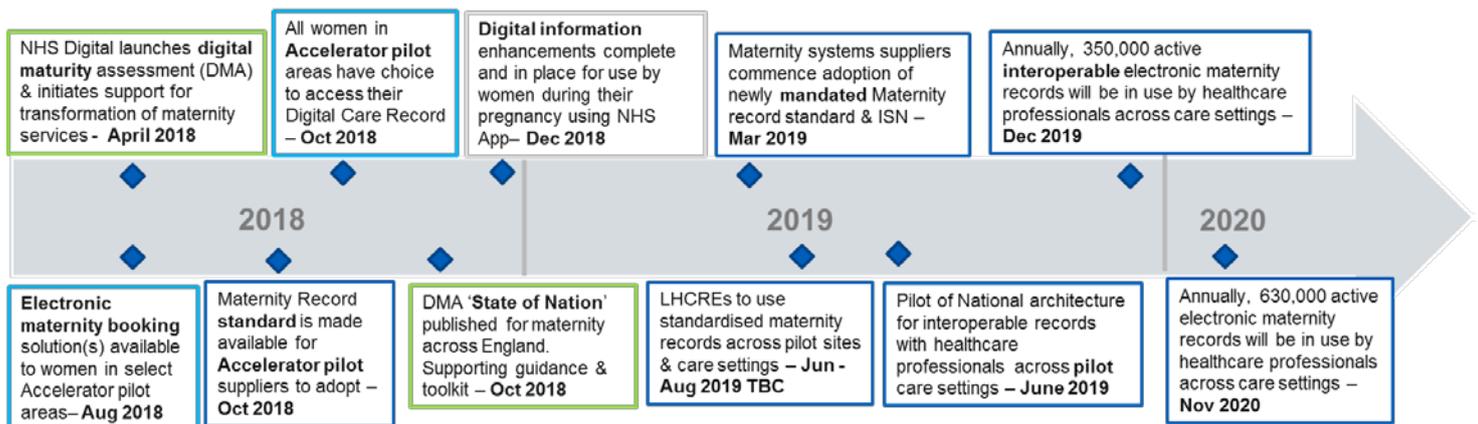


Figure 29: Digital Maternity programme milestones

Leadership and stakeholder engagement

LMS Digital Leaders Forum

The LMS Digital Leaders Forum brings together digital leaders from each of the 44 LMS' to form a peer network, to collaborate on DMA matters such as identifying common challenges, co-authoring guidance and sharing best practice. The group meets every three months.

The Digital Midwife Expert Reference Group

The Digital Midwives Expert Reference Group was formulated with support from the RCM and meet 4 times per year.



Figure 30: Distribution of Digital Midwife Expert Reference Group Members across England



The broad purpose of the group is to visualise and support the recommendations within Better Births relating to digital technology as an enabler for safer, more personalised, kinder, professional and more family friendly care and collectively support the scale of ambition.

The group aims to:

- Provide a National overview of the current digital landscape within maternity services.
- Support understanding and evaluation of local digital services within maternity.
- Encourage peer support through networking amongst Digital Midwife members and outside organisations invited by the group and asked to present.
- Provide an environment that supports confirm and challenge of clinical expertise to enable a critical representation of the end user.
- Facilitate a pathway to co-creation and co-design of future digital maternity initiatives.

It is envisaged that collectively this will empower the role of the midwife in the digital space, enable the sharing of best practice, unite and align future maternity initiatives and as a result is committed to breaking down silo working practices.

More information about the digital maternity programme

For the latest update on any of the activities or projects mentioned in this section, please visit the [digital maternity programme site](#) or email our mailbox: digitalmaternity@nhs.net

Closing Remarks

This report marks an important step forward in helping demystify the role technology and data can play in driving up safety, quality and efficiency within maternity services. The enthusiasm demonstrated by Maternity Services was reflected in the 100% completion rate of the Maternity DMA across England and represents the true appetite amongst maternity providers to engage with new digital initiatives. Now for the first time we have a complete picture, representing a snap shot in time of our digital maternity landscape across England.

Role of NHS Digital

NHS Digital plays a pivotal role in reducing the gap between the digital aspirations of *Better Births* and the challenges posed by digital immaturity on the frontline currently. By using the 'Digital maternity toolkit' and forums such as the Digital Midwives Expert Reference Group and the LMS Digital Leaders Forum, NHS Digital will continue to harness and encourage the innovative ideas developing in this space. The LMS report and national report are invaluable resources for ensuring we all move in the same direction and will help to transform the maternity landscape over the coming years. Local services can now begin to take actions to drive up their digital maturity, work which will be further supported by a wider piece of work by NHS Digital post October 2018.

MVP Research

Digital expectations of women and their families are high. There is a notable appetite for new technologies to improve the experiences encountered on a woman's journey throughout the maternity pathway. Using this digitally savvy group of service users to shape our digital future will be key to its success

Changing role of Clinicians

As technology advances at an exponential pace it is acknowledged that it has the ability to enhance and transform maternity services, however the key to its success will always be the end users. Clinicians will need to ensure that the technology they adopt makes a positive difference and ensure there are no unintended consequences. Co-production and digital literacy will build on the digital future.

Building a digital team for a journey to high digital maturity

Whilst we recognise that technology has already radically transformed the way we work as clinicians, we need to understand and accept that this will continue at a rapid pace. Current approaches to working practice focus on a multidisciplinary team and our digital future will see new roles joining that team. Untapped potential such as the role of the data analyst or project manager will provide fresh eyes, new perspectives and collaborative working; sharing the workload and tapping in to expertise fosters success.

Our digital future

All around us we are experiencing change as a result of digital technology. However, we can speak to relatives on the other side of the world but fail to engage with our women, we can transfer money from our mobile phones but are unable to transfer information to a local GP. Now is the time to change and you told us you were ready to do so. Small steps can have a big impact. Women, technology and maternity services can work together to drive better health, better care and better value.

Julia Gudgeon, Digital Midwife
NHS Digital, Digital Maternity Programme



Appendix A - Analysis by section: Content

The following section contains a breakdown of the national analysis of each section of the assessment, along with an explanation as to why each topic is important to digital maturity.

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Maternity DMA 14 Sections: defined and grouped by category

Readiness:

1. **Strategic alignment-** This section focuses on the extent to which digital technology supports your maternity provider's strategic priorities.
2. **Leadership-** This section focusses on the extent to which your maternity provider's leadership is driving the digital agenda forward.
3. **Resourcing-** This section focuses on the extent to which your maternity provider has the resources it needs to deliver your digital priorities.
4. **Governance-** This section focuses on the extent to which governance arrangements are in place to deliver your digital priorities successfully.

Capabilities:

5. **Records, assessments and plans-** This section focuses on your use of digital care records to ensure healthcare professionals within and outside your maternity provider have access to the information they need.
6. **Orders and results management-** This section focuses on how your maternity provider uses digital technology to manage clinical orders and results accurately and efficiently.
7. **Transfers of care-** This section focuses on how your maternity provider uses digital technology to transfer information seamlessly within and between care settings.
8. **Medicines optimisation-** This section focuses on your maternity provider's use of digital systems to ensure people receive the right combination of medicines every time.
9. **Decision support-** This section focuses on how your maternity provider uses digital technology to support healthcare professionals in making the right decisions.
10. **Remote and assistive care-** This section focuses on your maternity provider's use of remote, mobile and assistive technologies to support the provision of care.
11. **Asset and resource optimisation-** This section focuses on your maternity provider's use of digital technologies that can improve the quality, safety and efficiency of care.
12. **Standards-** This section focuses on your maternity provider's use of core national standards that relate specifically to the digital capabilities covered in this assessment.
13. **Business and clinical intelligence-** This section focuses on the extent to which business and clinical intelligence are used to support operations at your maternity provider.

Infrastructure:

14. **Enabling infrastructure-** This section focuses on the underlying infrastructure that enables the digital capabilities covered in this assessment.

1. Strategic alignment

This section focuses on the extent to which digital technology supports your maternity provider's strategic priorities.

Background

Whilst most people focus on infrastructure and resources when considering implementing digital technology a significant focus must be on the aligned purpose. The goal of digitisation of health systems is to promote what has become widely known as healthcare's Triple Aim: better health, better healthcare, and lower cost ([Five Year Forward View](#)). It is therefore imperative that any digital strategy adopted should seek an appropriate balance between local / regional control and engagement.

'there's no such thing as digital transformation, there is only transformation with digital enablement' – Anon

The [Wachter Report](#) identified 10 key findings and principals to consider when adopting new technology to improve care. Within these recommendations are areas that, at first glance, may be overlooked. Wachter explained that installing computers without altering the work and workforce does not allow the system and its people to reach the potential and often technology can get in the way. Getting it right requires a new approach, one that may appear contradictory, digitising effectively is not simply about the technology, it is mostly about the people. It acknowledges the importance of recognising the challenges during implementation, educating the stakeholders, long term engagement of women and staff (end users) and cocreation of systems and strategies.

The report [New Care Models: Harnessing Technology](#), a collaboration aimed at spreading learning from the new care models programme, highlights that new technological solutions need to be considered within the context of local needs and anchored to wider change programmes across organisations and whole health care systems. In isolation, small scale technology projects will not bring about the fundamental shift envisioned in the Forward View.

Building-up digital maturity

- **At the highest levels of digital maturity;** the digital plans and strategies of maternity service are aligned to both the trust level strategy and the LMS wide plans. Staff within the service also have a good awareness of what the vision is for their services' digital ambitions.
- **Building stronger relationships with IT procurement processes/dept.** Having a named key contact within the support department is an important first step to building a relationship and working together to drive up digital maturity.

- **Partner with other providers within your LMS**, using the data within your LMS report as the basis of that conversation.

‘Strategic alignment’ national key findings:

Please note this section contains analysis of the DMA scores. If you want more information on how these were calculated, please see [caveat on data quality](#).

As part of the exercise, maternity services were asked a number of questions to ascertain whether their local maternity digital plans aligned with their trusts strategy and LMS focus.

- Strategic alignment was the third highest scoring section out of the 14 listed within the DMA, with 66% of maternity providers overall agreeing with the statements posed.
- There is a link between achieving strategic alignment and having a high level of digital maturity.
 - 12 maternity providers had extremely low overall scores for strategic alignment. Their overall digital maturity score (incorporating all Maternity DMA sections) averaged a score of 33, significantly lower the national average of 54.
 - Further analysis of the 12 maternity providers revealed that their average score for having a recognised digital leader was also lower, 25 compared to a national average of 74. This also implies a connection between strategic alignment and leadership.
- The overall lowest scoring question for this section was: ‘The maternity component of your organisational digital strategy is fully aligned to, and supported by, the latest submitted LMS plan.’
 - Whilst 52% agreed with this statement, 20% neither agreed or disagreed with the statement and 28% disagreed.
- The highest scoring question was: ‘As a maternity service you are fully engaged in the evaluation process of investment opportunities in digital technology within your organisation’.
 - 24% of maternity providers (out of 135 trusts responding) disagreed with this statement. The average digital maturity score overall for these providers averaged 38 compared to a national average of 54.
- There was a recognised disparity in some of the responses for this section. 70% of maternity providers identified they were actively participating within their LMS to achieve digital maternity record sharing, however, 52% align the organisational strategy with their LMS plan.

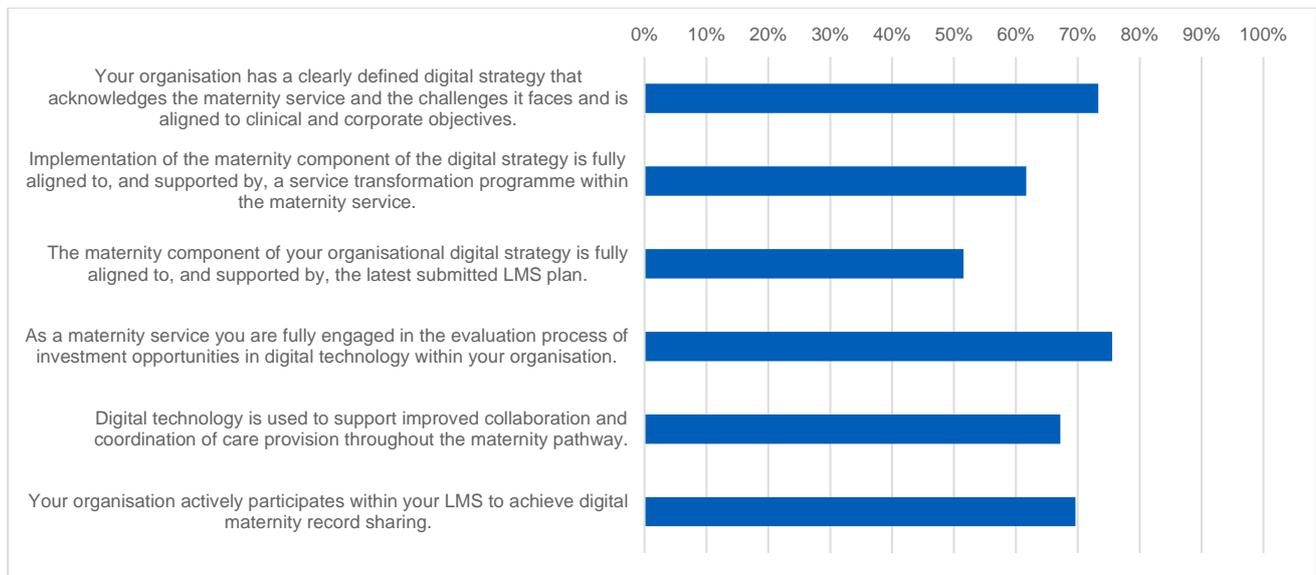


Figure 31: Percentage of maternity providers who answered either agree completely or somewhat agree by the question for strategic alignment

Please see Appendix C – Average Score by Question for further information.

Maternity DMA quotes, what you told us:

- Kent and Medway:** *“We have established a digital maternity group which feeds into the transformation board, maternity challenges are now being considered fully and solutions sought.”*
- Lancashire and South Cumbria:** *“In line with our current strategic direction we actively contribute to the LMS digital group. Our Divisional Director of Midwifery and Neonatal Nursing sits on the local LMS board. Our Service Development midwife actively contributes to the regional digital maternity group and the national digital expert reference group.”*

Call to action

This section demonstrated an overall positive approach to digital maturity. However, there was a significant correlation between strategic direction at an organisational level within the LMS and the overall digital leadership. There was also a suggestion that engagement may not always be captured formally, which could be a risk to achieving full alignment.

For Maternity Providers who have achieved lower scores in this area we suggest considering the following questions:

- Do you have adequate digital leadership?
- Are your strategies and plans aligned?
- Are you formally capturing your engagement between the maternity service and senior stakeholders?

It is a possibility that the following resource may also be of use in driving up digital maternity for those trusts or LMSs struggling with 'strategic alignment':

- Digital strategies
- Digital leadership
- Business cases and business change
- Myth busting and quick wins
- Our digital future
- Sharing records

2. Leadership

This section focusses on the extent to which your maternity provider's leadership is driving the digital agenda forward.

Background

“Establishing the right culture needs leadership and commitment from everyone” – Better Births, 2016

The emergence and development of digital leaders is fast growing in response to the explosion of digital technology within health. Wachter recognised Health IT systems need to evolve and mature, and the workforce and leadership must be appropriate to enable this.

“Delivering the positive impact that these new technologies could have on the NHS will require digital leadership across the health and social care system, with a willingness to embrace new technologies.” - Topol Interim report.

Dr Harpreet Sood (NHS England’s Associate Chief Clinical Information Officer and a practicing NHS doctor) recognises in his blog, the NHS in England currently lacks clinicians with the necessary skills in healthcare improvement, and redesign of care enabled by digital health and informatics; the [Topol Review Interim Report](#) reiterates this. Sood advocates that the NHS needs to develop such leaders to help realise the full potential of modern digital technology and avoid the high-profile failures of the past (Dr Soods blog can be found [here](#)).

Leaders in this arena are commonly referred to as chief clinical information officers (CCIOs). This is an emerging role in health systems globally, including the NHS. Both the responsibilities of the role, and the scope of practice, vary across the system and remain defined by local context.

Whilst this report is not suggesting that CCIOs must be from a maternity specialty, it is evident that as the digital leadership grows at a senior level, maternity services need to consider the digital leadership they have in place to ensure that the CCIOs have a sustained and proactive link with maternity digital leaders.

Health education England have developed a capabilities framework that explores the various roles and responsibilities. These factors have been considered within the [role of the digital midwife](#) section.

Building-up digital maturity

- **Within a maternity service**, it is essential for digital maturity to have a dedicated digital leader, ideally, a clinical leader. This individual will need to be supported with adequate training and resources. This person will need to ensure the digital changes are run as projects and that there is senior buy-in.
- **Networking as a digital leader**, networking across the LMS and nationally can prove an effective way of reaching higher levels of digital maturity. NHS Digital has established a number of networks focused around improving collaborative working for digital maternity services:

- **The Digital Midwives Expert Reference Group** was formulated with support from the RCM and meets four times per year.
- **The LMS Digital Leaders Forum**, evolved to provide digital guidance, engagement and networking opportunities for LMSs. Each LMS has a nominated a digital leader to represent their region.

Digital 'Leadership' national key findings:

- Despite three quarters of maternity providers in England having a dedicated digital leader, less than 30% felt they had sufficient time to fulfil the role:
 - 76% of maternity services agreed with the statement regarding having “a recognised digital leader within their maternity service”
 - Only 29% of maternity providers agreed with the statement ‘The hours assigned to digital technology are adequate to meet the service needs’ suggesting that around 71% felt the digital leader role was under resourced.
- Leadership was the fourth highest scoring section on the Maternity DMA. At a national level:
 - The four top scoring sections for the DMA were Governance, Resourcing, Strategic alignment and Leadership, suggesting that the fundamental elements of digital maturity, the ‘readiness’ sections, are taking priority.
 - 64% of maternity providers agreed to the statements posed within the Leadership section. However, across England there is still significant room for improvement in this section.
- Digital leaders play an important role within the maternity service, but digital maternity initiatives may also need representation amongst the wider organisation. Only 62% of maternity providers agreed that they were “providing regular updates regarding digital progress to the executive board”.
- Maternity services scored very highly when it came to involving staff in digital projects (82% agreed with the statement), however they scored much lower when it came to involving women in these digital projects (only 56% agreed):
 - Despite this fact, 72% of maternity services still took a role in ‘educating women on the digital resources available to support’ them. This fact suggests that there is potential for misalignment between what women want and the digital tools being delivered by maternity services, in certain situations.

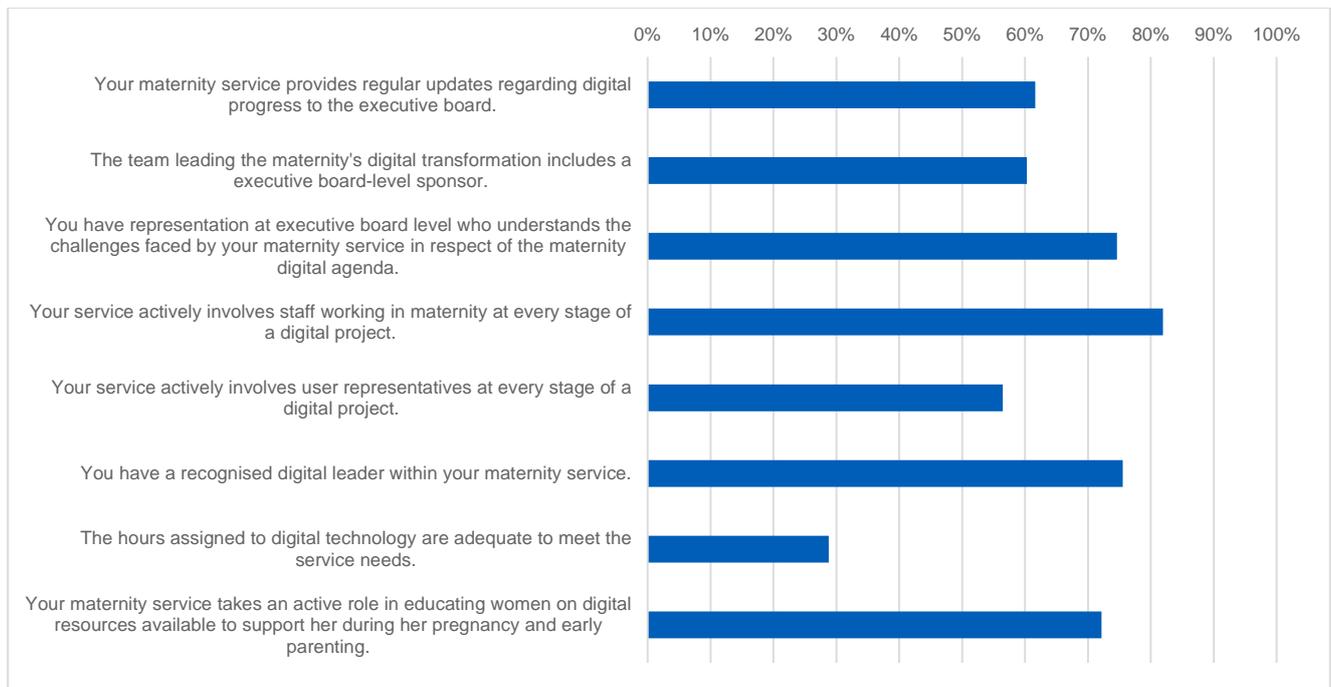


Figure 32: Percentage of maternity providers who answered either agree completely or somewhat agree by question for leadership

For a full list of the questions asked in this section please see the [Appendix C – Average Score by Question](#)

Maternity DMA quotes, what you told us:

- Dorset County Hospital NHS Foundation Trust:** *“Recognised need for improvement to our digital agenda in January 2018 following a midwife attending an NHS Digital Maternity Expert Conference. Saw need to move from heavily paper-based workflow to a paper-lite system. There has been no digital midwife or direct links with IT services previously.”*
- Great Western Hospitals NHS Foundation Trust:** *“Dedicated midwife resource to support the delivery of the digital agenda, dedicated steering group and attendance at divisional board to update on digital agenda progress. The need for embedding of digital technology throughout maternity care has now highlighted and raised awareness throughout the service and up to divisional board level.”*

Call to action

The Maternity DMA analysis has flagged digital leadership as one of the most fundamental issues to be addressed. If efforts to drive up digital maturity in maternity services are to be successful, the first step is to ensure the right people are in place and they have the proper skills and resources at their disposal.

This section clearly demonstrates that maternity services are increasingly aware of the benefits presented by the advent of new digital technologies. However, new digital initiatives are unlikely to deliver the expected benefits without a digital leader coordinating the project.

Please see the section on the [role of the digital midwife](#) for advice and guidance.

Where maternity providers scored low on this 'Leadership' section, you may also wish to consider the following areas:

- [Digital leadership](#)
- [Business cases and business change](#)

3. Resourcing

This section focuses on the extent to which your maternity provider has the resources it needs to deliver your digital priorities.

Background

This section focuses on the steps you should take after you've understood any gap you have in terms of digital resources for your maternity service. The questions in this section are to ensure that you have the right processes and relationships in place to be supported in closing any resource gaps you may have.

Stakeholder engagement workshops undertaken as part of the Maternity DMA project, found that digital leaders felt they could benefit from additional support and guidance around the procurement of digital resources, systems and staff with specific digital skills. This was in part due to the infrequency with which certain procurement takes place (i.e. some system supplier contracts have previously last for up to 4 years).

Stakeholders at engagement events have shared common stories around resources being purchased and later discovering they are not fit for purpose, or additional items were required to enable its use. Services recognise they do not have the ability to identify the resources needed but can articulate the problem needing to be solved.

There is a feeling that Procurement and I.T. departments often have limited resource and time to consider specialty specific requests. As a result, the process is often seen as drawn out and time consuming, resulting in products that do not meet the end users' needs and additional or wasted costs.

Building-up digital maturity

- **Building stronger relationships with IT procurement processes/dept** – Having a named key contact within the support department is an important first step to building a relationship and working together to drive up digital maturity.
- **Involvement of the clinical safety officer in procurement of digital resources** – The Clinical Safety Officer provides a clinical safety assurance service, across the whole of the organisation. It is crucial that your maternity provider actively engages with your organisations Clinical Safety Officer as they are responsible for managing and overseeing the assurance of safety related health IT software, ensuring suppliers and other organisations meet the required safety standards.
- **Use 'LMS DMA Report' data to help gain alignment with financial strategy** – Each LMS will receive a tailored maternity DMA report, which breaks down information to a provider level. The analysis in that report may prove to be useful evidence for engaging with the local financial strategy.
- **Robust articulations of digital needs and anticipated benefits** – Once the steps above have been completed, it could be easier to gather the evidence and gain

approval for new digital initiatives (as per the [business cases and business change](#) and [strategic alignment](#) sections).

Digital ‘Resourcing’ national key findings:

- Resourcing was the second highest scoring section on the Maternity DMA at a national level with 69% of maternity providers agreeing with the statements posed.
- Nearly 60% of maternity providers in England stated they did NOT have a financial strategy to support the investment in digital technology over the next 2-3 years (a strategy that they are engaged with or are aware of).
 - A significant proportion of those providers, without a financial strategy, also identified that they did not have a clearly defined digital strategy in place.
 - A number of maternity services are strongly considering re-procuring their maternity IT system within the next 18 months. Without the adequate support in place from a financial strategy and digital strategy there is a significant risk that these new systems will fail to be successfully delivered.
- *“Your maternity service actively engages with the organisation's clinical safety officer with regards to the undertaking of assessments of clinical safety and risk for maternity clinical systems.”* 80% of maternity providers agreed with this statement.
- *“Your maternity service is fully engaged with IT procurement processes/dept. and IT contract management, to support any required changes to the maternity clinical IT system.”* 84% of maternity providers agreed with this statement.

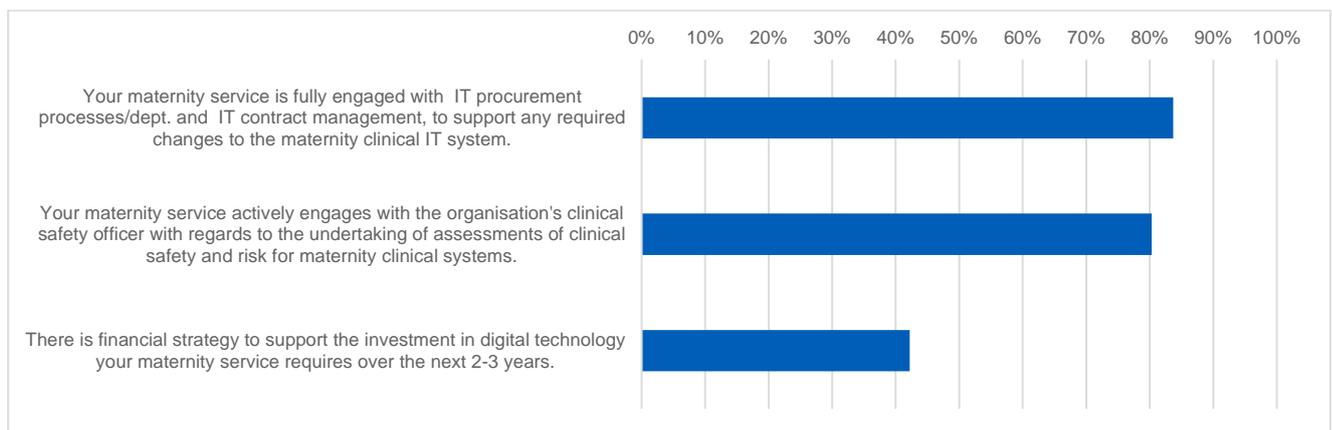


Figure 33: Percentage of maternity providers who answered either agree completely or somewhat agree by question for resourcing

Maternity DMA quotes, what you told us:

- **Mid and South Essex:** *“Barrier to change is that we have been fighting to get the business case through for a new maternity IT system for two years. Business case submitted for a replacement maternity IT system. Business case has been approved providing funding for a new maternity IT system. Resource support from the Maternity Clinical Networks have enabled the LMS to take forward the Maternity App. Initially it was difficult to get the maternity business case for a new IT system on the table. Other departments were deemed as greater priority. We have had no potential for development with our current system, which has affected the quality of our reporting, the Maternity Services Data Set (MSDS) and Payment by Results (PBR). Planned new IT system to commence September 18. 1-year implementation project. Following go live we will be working towards going paper light. This will also give us greater interoperability both with internal systems and external agencies i.e. child health and GP surgeries.”*

Call to action

From anecdotal stories shared at the engagement events and feedback within the Maternity DMA there is some evidence that resources are potentially being wasted due to inappropriate and unsupported decisions being made, often due to lack of knowledge. There are also plenty of positive examples of where maternity services at first felt like obtaining digital resources was a struggle. However, once they began to engage key stakeholders and other departments early in the process then new initiatives became a lot more straightforward to deliver. These lessons point to the importance of having good evidence and strong relationships in place to help gain approval and deliver on new digital initiatives.

Where maternity providers scored low on this ‘resourcing’ section, you may wish to consider the following areas:

- [Clinical Safety Officer](#)
- [Business cases and business change](#)

4. Governance

This section focuses on the extent to which governance arrangements are in place to deliver your digital priorities successfully.

Background

Clinical governance is “a system through which NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care, by creating an environment in which excellence in clinical care will flourish.” (Wag, Scally and Donaldson 1998, p.61).

Clinical governance encompasses quality assurance, quality improvement and risk and incident management. As digital technology becomes the integral enabler to safe care it is fundamental that all digital technology projects follow the same pathway. Technology has the potential to reduce errors and boost efficiency, providing digital systems are fully compliant and utilised correctly.

The [CQC](#) recognise that governance includes the quality of the experience for people using the service. As part of their governance, providers must seek and act on feedback from people using the service, those acting on their behalf, staff and other stakeholders, so that they can continually evaluate the service and drive improvement.

Using a systematic approach to maintain and improve services drives standards and quality, this must be the same approach for every aspect of care delivery enabled by digital technology.

With 95% of 16-34 year olds and 91% of 35-54 year olds using smart phones ([Statista 2018](#)) both NHS England and the CQC are considering using digital technology to gain patient feedback. The opportunity to use this approach at local level lends itself to its digitally savvy users and supports the governance processes that improve safety.

Building-up digital maturity

- **Any digital changes should ideally be run as a project:** The advantages following a standardised project methodology include; the allocation of dedicated resources (including project managers), ease of tracking progress and delays, as well as having clear routes of escalation to resolve blockers and barriers impacting upon the project. Digital projects should be aligned with organisational strategy, local governance processes and ideally should be an enabler to an ongoing business change project (see [strategic alignment](#)).
- **Obtaining Senior ownership and commitment:** Running digital change initiatives as projects with valid business cases increases the likelihood that the project will realise the intended benefits. With a dedicated business owner engaged from the start, digital initiatives are more likely to maintain rigor and prioritisation and the end outputs are more likely to be delivered in line with existing governance processes (See [business cases and business change](#) section).

- **Engaging a Clinical Safety Officer thought out the process:** To increase the likelihood that clinical governance is embedded throughout the lifecycle of maternity services digital technology changes, it is recommended that a local Clinical Safety Officer is involved in the project.
- **Importance of collecting and utilising high-quality data:** Once the steps above have been completed, there should be scope to improve your governance score for this section. Improvements can be gained by collecting and using data in new ways, such as collecting digital feedback from women and utilising existing data such as MSDS (see the [data driven improvements in maternity services](#) section).

‘Governance’ national key findings:

- Governance was the highest scoring section within the Maternity DMA at a national level with 80% of maternity providers agreeing to the statements posed within this section.
 - However, 10 maternity providers scored very low for Governance. These maternity services not only scored lower than the national average on the overall Maternity DMA, but struggled with the Strategic alignment, Leadership, Resourcing and Governance sections. These findings reinforce the importance of addressing the first four sections holistically to ensure ‘readiness’ for building up digital maturity.
- The lowest scoring question was ‘For digital changes, your maternity service evaluates the benefits using a consistent approach’. Over 25% of maternity providers didn’t agree with this statement.
- The highest scoring question was ‘Clinical governance is embedded throughout the lifecycle of maternity services digital technology changes’ with 85% of maternity providers either agreeing completely or somewhat agreeing with this statement.

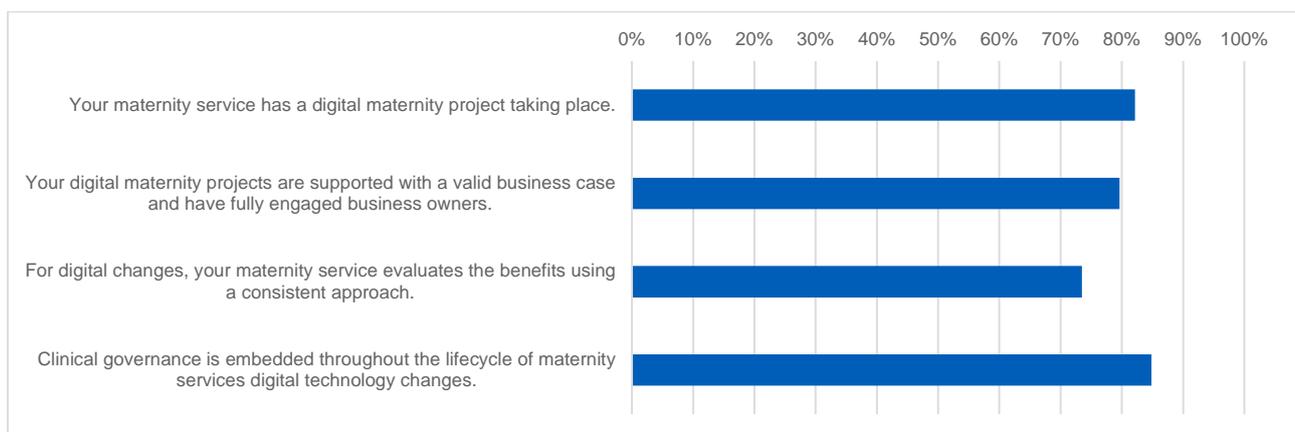


Figure 34: Percentage of maternity providers who answered either agree completely or somewhat agree by question for governance

For a full list of the score questions asked in this section please see [Appendix C – Average Score by Question](#).

Maternity DMA quotes, what you told us:

Calderdale and Huddersfield NHS Foundation Trust: *“Business and Clinical Intelligence has grown with the use of the electronic system. All data is directly extracted from the system and used to massive effect. It continues to influence quality of records and care, data for maternity data set; KPI's; maternity dashboard allowing us to not only review local statistics but to benchmark against other local and national Trusts.”*

Call to action

Results demonstrate that the majority of maternity providers have digital projects in place. Governance around digital technology must be viewed with the same level of importance given to direct clinical care. Reassuringly this was the highest scoring section reflecting how governance is embedded in digital maternity care provision.

Maternity providers may wish to consider how they capture benefits, an area that is often overlooked. Capturing the benefits experienced as a result of digital projects will enable maternity providers to gain the credibility they deserve, having a positive impact on the workforce and service users. Captured benefits support further funding opportunities, whilst providing the project team with the assurance that they are making the right service improvement choices and having an impact on quality of care (see the [business cases and business change](#) section).

Where maternity providers scored low on this ‘Governance’ section, you may wish to consider the following areas:

- [Business cases and business change](#)
- [Clinical Safety Officer](#)
- [Feedback in maternity services](#)
- [Data driven improvements in maternity services](#)
- [Strategic alignment](#)

5. Records, assessments and plans

This section focuses on the use of digital care records to ensure healthcare professionals within and outside your maternity provider have access to the information they need.

Background

“You assess need and deliver or advise on treatment or give help (including preventative or rehabilitative care) without too much delay and to the best of your abilities, on the basis of the best evidence available and best practice. You communicate effectively, keeping clear and accurate records and sharing skills, knowledge and experience where appropriate.” -

NMC Code

Digital solutions around records, assessments and plans when used well support the NMC code. The questions in this section explore how well digital records are being utilised and assess if the benefits intended from data sharing between care settings are being achieved. Usually digital records carry many benefits over paper solutions. Records used in maternity services have been slow to evolve, with paper hand held records being the primary antenatal record for the past 2 decades, complemented by hospital medical records. Over the last 10 years there has been an increase in the use of digital records, however, there is still a disparity between an NHS trust's overall ability to use digital records compared to the capabilities of their maternity services.

As a result, record keeping throughout the different stages of the maternity pathway fluctuates between paper records, hospital systems and the woman's hand-held records. This in turn increases the risk of mistakes occurring due to incomplete history or duplication. This section focuses on the use of digital care records to ensure healthcare professionals within and outside of the maternity provider have access to the information they need to meet safety standards.

Building-up digital maturity

- **Within your maternity service:** Consider conducting a process mapping exercise for the maternity pathway end-to-end, focusing on the capabilities of the various IT systems involved and potential solutions to reduce dual entry and opportunities to share records in the future. Flowing information both in and out of the maternity service. See [process mapping](#) section.
- **Working with other departments and organisations:** Joint working across different parts of the maternity service, organisation and between different care providers can present potential opportunities to share digital access to information. Sharing of information digitally between care settings has the potential to reduce costs whilst improving care and the experiences of women.
- **Aligning with other national initiatives:** The [our digital future](#) section of this report highlights some of the national projects currently taking place to facilitate data sharing (for example interoperability and maternity PHRs for women).

‘Records, assessments and plans’ national key findings:

- Records, assessments and plans was the lowest scoring section on the Maternity DMA at a national level. Further analysis considered the scores for the digital exemplar sites to establish whether additional support impacts the digital maturity of maternity providers. Whilst their overall digital maturity average score was 57% this is only slightly higher than the national average of 51%.
- Digital exemplar maternity sites scored slightly higher, achieving 39% for the section compared to the overall national score for the section which was 34%.

Data caveat:

This section contains a number of questions asking for a quantitative response (i.e. ‘what proportion’ of something happens). In terms of the aggregated analysis of these questions, it is important to understand that this is an average provider score based on all the responses. There has been no weighting here depending on the size of the provider or the number of women birthed. Please refer to the ‘Calculating scores’ section for further information.

Key findings for record, assessments and plans have been broken down into the following headings:

- Digital records throughout the maternity pathway
- Sharing digital information between maternity services
- Sharing digital information between different types of care setting
- Personal Demographics Service (PDS)
- Dual entry of information
- Personal health records for women

Digital records throughout the maternity pathway

- 41 maternity providers (30%) currently capture all 100% of the pregnancy and early parenting pathway digitally. This was seen to be a positive picture of the digital landscape, demonstrating that there is an appetite for digital solutions amongst maternity providers and this can be achieved.
 - However, 27 maternity providers (20%) do not capture any of the pregnancy or early parenting pathway digitally. Though it is worth noting that 10 of these maternity providers have stated they are currently planning to move to a new maternity IT system.

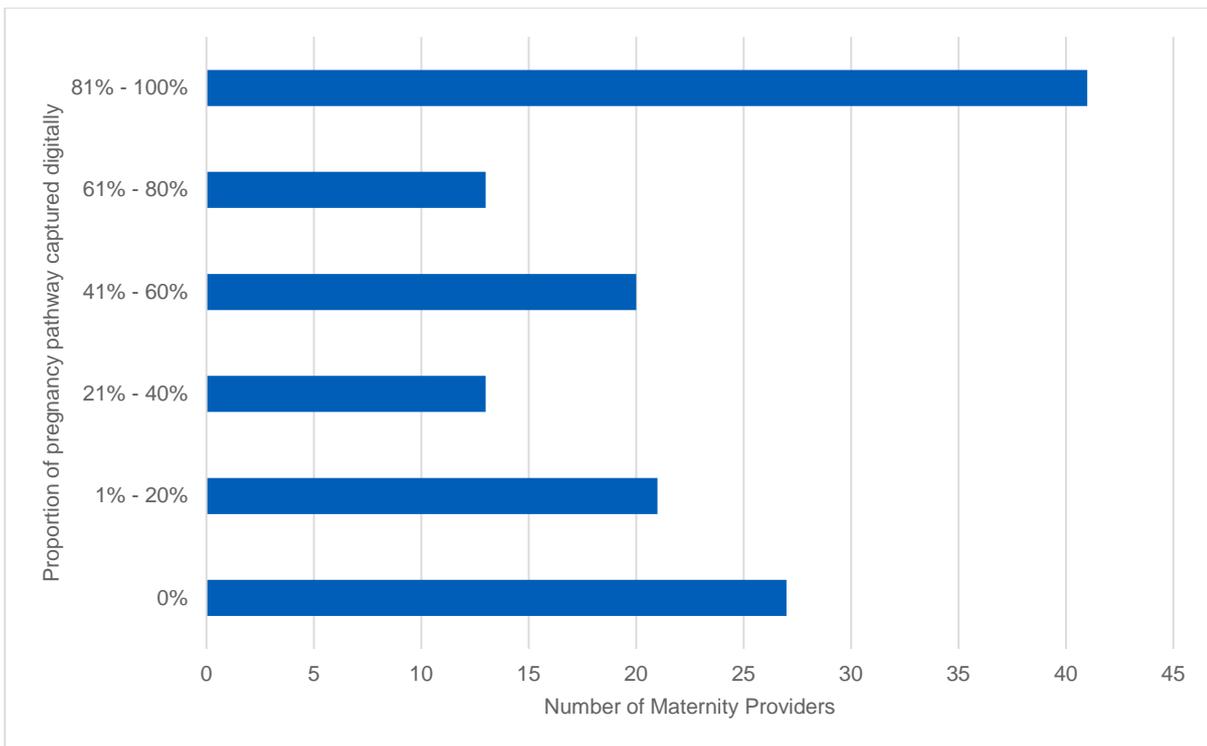


Figure 35: Proportion of pregnancy pathway captured digitally

- Just over half of the maternity providers (56%) agreed their maternity healthcare professionals can access digital records (or relevant components of them) at the point of need as part of their regular day-to-day routine, throughout the pregnancy pathway, regardless of geographical care delivery.
- “When providing care, maternity healthcare professionals can find digitally what they need quickly and easily to support their practice.” Similarly, just over half of the maternity providers (56%) agreed with this statement.

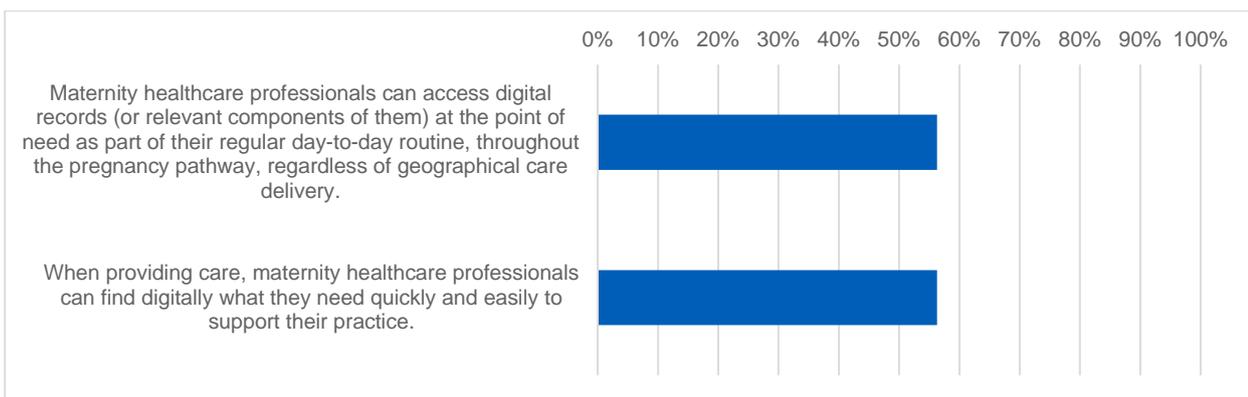


Figure 36: Accessibility of digital records at point of need

Sharing digital information between maternity services

“Within your provider”

- 51% of maternity services stated that they were able to share digital records with other maternity services within their provider.

- This figure dropped to 44% when maternity services were asked about accessing records from other maternity services within their provider.

“Within your LMS”

- 17% of maternity providers stated that they were able to share digital records with other providers within their LMS.
- This figure dropped to 11% when maternity services were asked about accessing records from other maternity services within their LMS.

“Outside your LMS”

- 10% of maternity providers stated that they were able to share digital records with other providers outside their LMS.
- This figure dropped to 6% when maternity services were asked about accessing records from other maternity services outside their LMS.

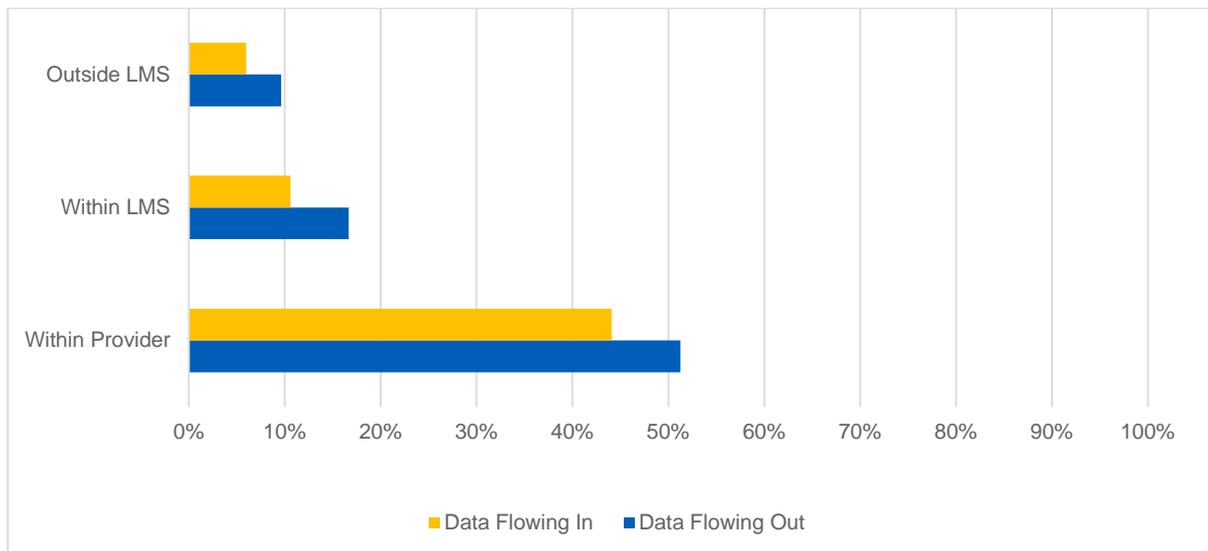


Figure 37: Sharing digital records within provider, within LMS and outside LMS

Sharing digital information between different types of care setting

- “What proportion of records, assessments and plans are generated in real time and shared digitally with other relevant care providers as soon as completed?” The national average for this answer was 37% across maternity providers.
 - Only 20 maternity providers identified that they generate digital care records in real time and share digitally straight away 100% of the time.
 - 16 maternity providers acknowledged that they achieved this 80% of the time and 12 said they achieved this 60% of the time.
 - 47 maternity providers identified that they were unable to achieve this at any point during the care pathway.

- The main reasons for this not being achieved are lack of equipment and historic working practices.

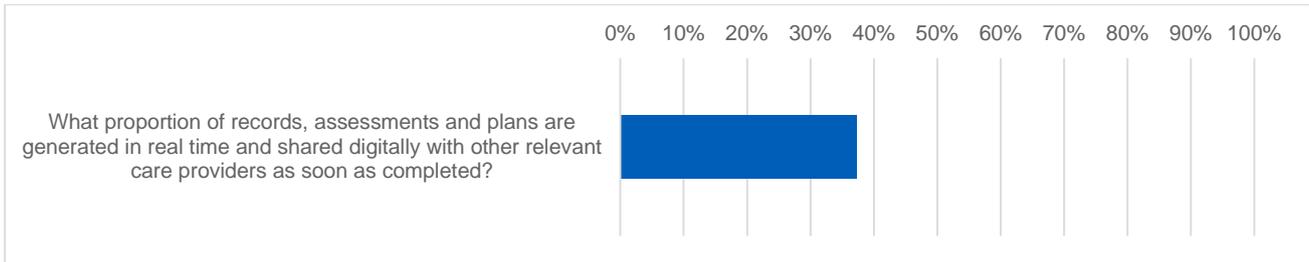


Figure 38: Proportion of records, assessments and plans generated in real time and shared digitally

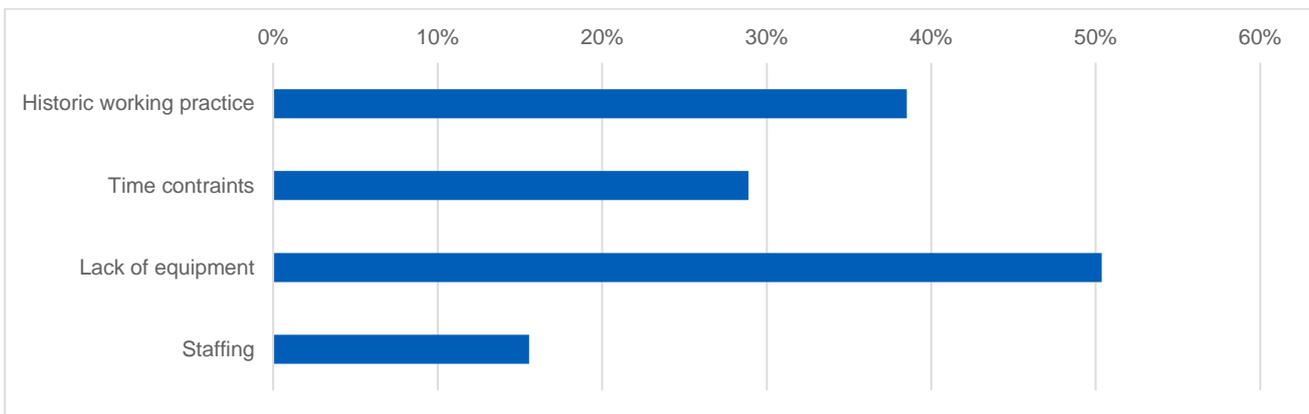


Figure 39: Reasons why maternity providers fail to generate records, assessments and plans in real time and share digitally

Summary Care Record

- 44% of maternity providers agreed that once the woman is identified, healthcare professionals have access to the Summary Care Record.
 - However, this implies that 56% of maternity providers do not have access to information within the Summary Care Record and as a result the information is likely to be repeated unnecessarily.
 - Please note this topic is explored further in the [Summary Care Record](#) section of this report.

Local social care providers

- Only 13% of maternity providers agreed they had digital access to the information from local social care providers that they needed
- Only 8% of maternity providers stated that local social care providers have digital access to the maternity service information from their organisation.

Other local healthcare providers

- 21% of maternity providers agreed they had digital access to the information from other local healthcare providers that they needed.

- 17% of maternity providers stated that other local healthcare providers have digital access to the maternity service information from their organisation.

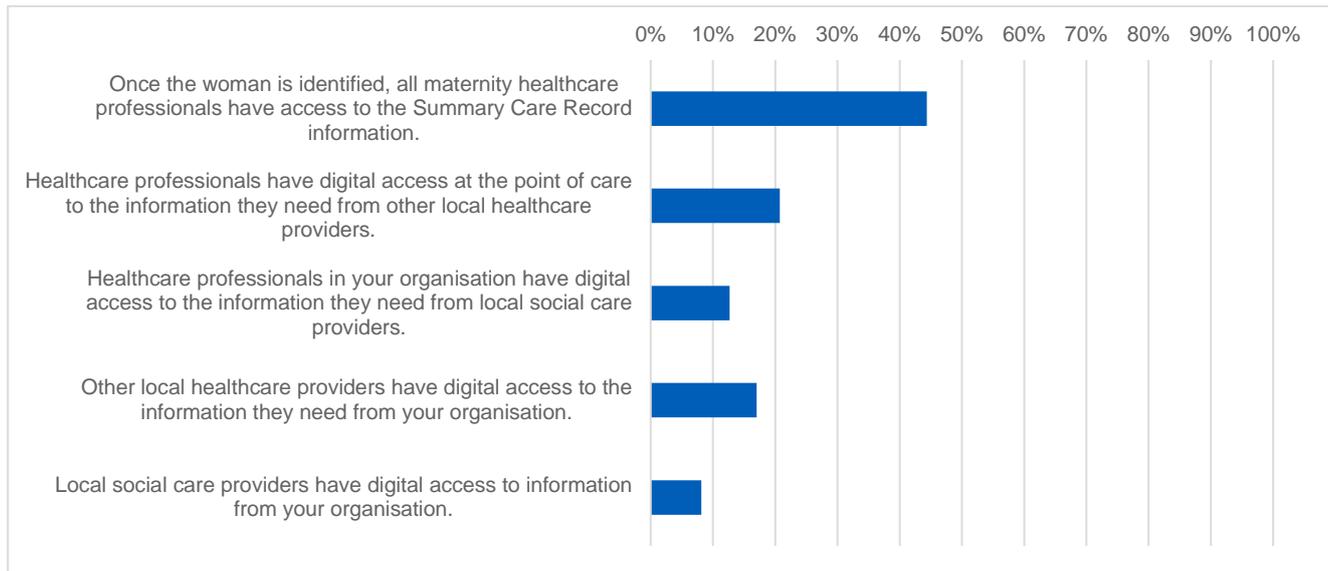


Figure 40: Sharing information with other providers

Personal Demographics Service (PDS)

The Personal Demographics Service (PDS) is the national electronic database of NHS patient details such as name, address, date of birth and NHS Number (known as demographic information). The PDS helps healthcare professionals to identify patients and match them to their health records. It also allows them to contact and communicate with patients. 58% of maternity providers agree that healthcare professionals within their provider use the Personal Demographics Service (PDS) to trace a woman's NHS number automatically. 69% of maternity systems have their personal demographic data aligned to the data held on the PDS within the NHS Spine. The NHS Spine supports the IT infrastructure for health and social care in England, joining together over 23,000 healthcare IT systems in 20,500 organisations.

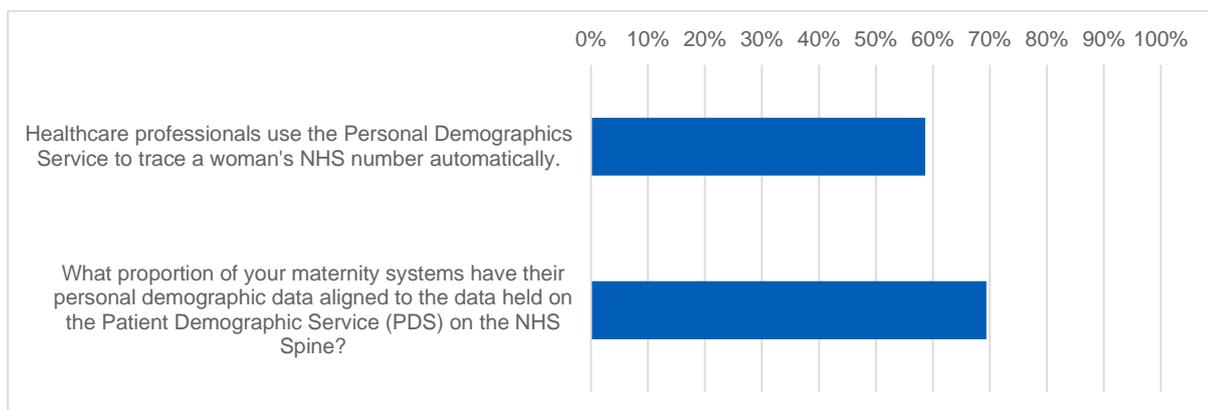


Figure 41: Personal Demographics Service and data usage

Dual entry of information

For this assessment the reference to dual/ multiple entries of data was defined by the tool tip as: "Maternity healthcare professionals do not have to copy or re-enter information from one

system to another.” Please note this topic is explored further in the [dual data entry](#) section of this report.

- Only 13 maternity providers (10%) of the 135 completing the DMA were confident their staff did not have to re-enter or copy information.
 - 23% of maternity providers in England carry out dual data entry at every stage of the maternity pathway.
 - Findings suggest that over 90% of maternity providers undertake dual entry of data at some point during the maternity pathway, due to the setup of their processes and maternity IT systems.
- Maternity providers were asked to identify where dual entry of data occurred most frequently. The table below highlights this, with ‘Birth details’ being the most common stage for dual entry followed by appointments booking.

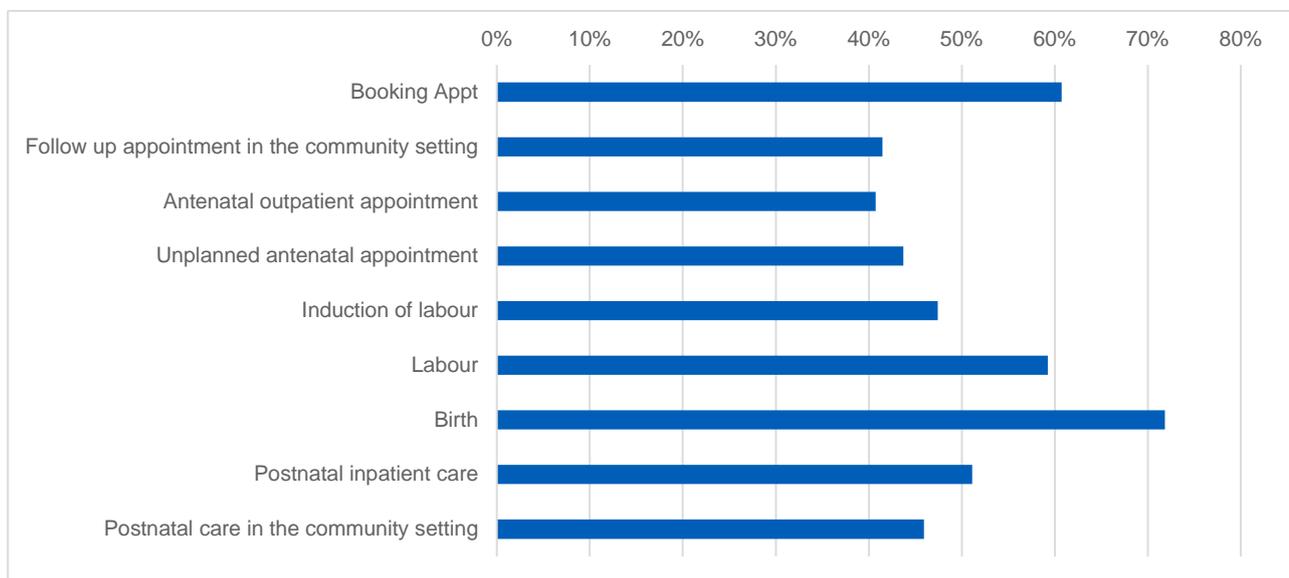


Figure 42: Percentage of providers performing dual data entry at each stage of the maternity pathway

Personal Health Records for Women

- Whilst the recommendation from Better Births was that women should have access to a comprehensive ‘digital tool’ during their maternity pathway, only 10% of maternity providers in England currently offer a digital version of the hand-held record.
 - This equates to 14 maternity providers, with only 3 offering the ability for women to personalise their information (equating to around 2% of all maternity providers).
- Around half of the maternity providers (46%) stated that they plan to introduce Personal Health Records for Women within the next 18 months.

Please note that the topic of Personal Health Records for women is explored further in the [our digital future](#) section of this report.

Maternity DMA quotes, what you told us:

- **Birmingham Women's and Children's NHS Foundation Trust:** 'We are implementing a new EPR that will run from the very start of pregnancy through to the end with transfer of care to the health visitor. This will also allow us to share patient information within different health trusts.... The work of BUMP (Birmingham United Maternity project).'
- **The Royal Wolverhampton NHS Trust:** 'We went live with our Badger IT system for all NEW bookings on the 1st April 2018. For anyone booked prior to this, they remain on paper until they deliver, so we have a mixed economy of records until about October of this year, when everyone should then be on the electronic system.'
- **Sandwell and West Birmingham Hospitals NHS Trust:** 'For those women who receive AN and PN care from SWBH but birth elsewhere, it completely depends on which system the birth unit uses as to what information is recorded electronically and accessible by SWBH - this is the same for those women who birth at SWBH but receive AN and PN care elsewhere (however still have an electronic record for SWBH care).'

Call to action

Analysis of the Maternity DMA findings suggest that there is still a lot of work required before records are being recorded and shared fully across the different professionals involved in the maternity pathway. However, there are some positive stories of maternity providers who have made good progress in this area. Though many providers aren't recording the full maternity pathway digitally and a significant number struggle to share information within their provider and with other care settings, a small group have started to pave the way in having higher digital maturity for this section.

There is a strong case for recording information digitally

Electronic records may require an upfront investment and ongoing expenditure on maintenance. However, once staff are trained and electronic records are in full use, the accessibility, clarity, accuracy and timeliness of information available to clinicians should improve. This will improve maternity practice, ultimately benefiting women and clinicians.

Information contained in electronic records is also more difficult to lose, destroy or alter. For example, electronic record systems tend to contain a 'digital footprint' of each time a record is accessed or information within it is updated. Therefore, compared with paper records, audit and analysis of electronic records is far easier.

There is also a strong case for sharing information digitally

Sharing of information digitally between care settings has the potential to reduce costs whilst improving care and the experiences of women. Importantly, digital technology helps to ensure key information is available to clinicians when they need to make decisions.

Next steps

For those maternity services aspiring to improve their digital maturity in this area, undertaking process mapping would be a useful first step towards understanding potential parts of the maternity pathway where information sharing could be improved, and dual entry reduced.

The outputs of a mapping experience may lead to relationship and data sharing agreements with other organisations being revisited, especially if there is a strong case for change which benefits all parties. It is also beneficial to remain aligned with any initiatives ongoing or upcoming within your organisation, LMS and nationally which may benefit efforts to improve data sharing (for example [Women's Digital Care Record](#) and [interoperable records](#)).

Further to the list below, the [myth busting and quick wins](#) section of this report also explores the topics of data sharing, IG and building cross-organisation relationships.

Where maternity providers scored low on the 'Records, assessments and plans' section, you may wish to consider the following areas:

- [Process mapping the maternity pathway](#)
- [Dual data entry](#)
- [Summary Care Record](#)
- [Our digital future](#) (see sections on [Women's Digital Care Record](#) and [interoperability](#))
- [Myth busting and quick wins](#)
- [Digital Maternity Record](#)

6. Orders and results management

This section focuses on how your maternity provider uses digital technology to manage clinical orders and results accurately and efficiently.

Background

Screening in pregnancy is defined within the NICE [antenatal care for uncomplicated pregnancies](#) pathway.

Screening is an important clinical intervention routinely required and predominantly, although not exclusively, involves blood testing in the laboratory. However, inappropriate or unnecessary laboratory test ordering is frequently reported, resulting in a poor service user experience and unnecessary burden and cost to the service. In addition, inappropriate tests may also result in false-positive results and potentially cause excessive unnecessary clinical burden further along the care pathway.

Gap between hospital and community settings

The questions in this section also offer us the opportunity to assess the difference in digital maturity between hospital and community-based care settings. For example, most hospitals offer the ability to order and view blood tests digitally, however, often this service does not extend to staff working in the community. As a result, delays, inconsistencies or omissions can occur, impacting on care and safety.

Order Sets

The questions in this section will also explore the use of digital technologies to support Order Sets. Order Sets are groupings of blood tests commonly placed together; they often also include links to reference materials, such as formularies or clinical evidence. Order Sets are widely used within acute hospital services but often lack the computerised clinical decision-making support. In some circumstances, Digital Clinical Decision Support Systems (CDSS) support the clinician with artificial intelligence to aid their clinical decision making. Benefits of using Order Sets include an increased positive user experience, the ability to ensure correct samples have been taken, and cost and efficiency savings.

Clinical Decision Support System (CDSS)

The questions in this section also offer us the opportunity to assess how widely applied CDSS are. A CDSS is a health information technology system that is designed to provide clinicians with decision support. This means that clinicians interact with a CDSS to help analyse and reach a diagnosis based on a patient's data. An example of this is the digital use of calculating a Venous Thromboembolism Event (VTE).

Building-up digital maturity

- **Within your organisation**, investigate what foundations are in place for your maternity service to be able to benefit from Order Sets and CDSS.
- **Support the LMS community hub model**, by closing the gap on digital maturity between hospital and community settings. Learn from those who have already addressed these issues and review the [connectivity for community midwives](#) section of this report.
- **Use LMS Report data**, to increase the profile of the challenges facing your digital maternity service. Each LMS will receive a tailored maternity DMA report, which breaks down information to a provider level. Even if the steps needed to develop 'orders and results management' are outside of the direct control of the maternity service, the LMS report will likely contain useful evidence to help escalate the digital needs of your service.

'Orders and results management' national key findings:

- Orders and results management was the fifth highest scoring section on the Maternity DMA at a national level, however, it is acknowledged that this was a short section with limiting questions, focusing the ability to share best practice within maternity providers rather than question trust-wide systems in place.
- The digital management of orders and results score was significantly higher in the hospital setting than in the community. This fact poses a challenge for those adopting a community hub model.

Data caveat:

This section contains a number of questions asking for a quantitative response (i.e. 'what proportion' of something happens). In terms of the aggregated analysis of these questions, it is important to understand that this is an average provider score based on all the responses. There has been no weighting here depending on the size of the provider or the number of women birthed. Please refer to the [calculating scores](#) section for further information.

Further analysis of this section has been broken down into two subsections:

- Lab Results
- Order Sets

Lab Results

- 98% of laboratory test results are available to healthcare professionals digitally in a hospital setting. This was the highest scoring question in the Maternity DMA.
- A third of maternity services in the community are currently requesting laboratory tests through a digital order system. This presents a great learning opportunity nationally,

lessons learnt from these maternity services might help address the barriers preventing the other two thirds of Trusts from utilising digital order systems.

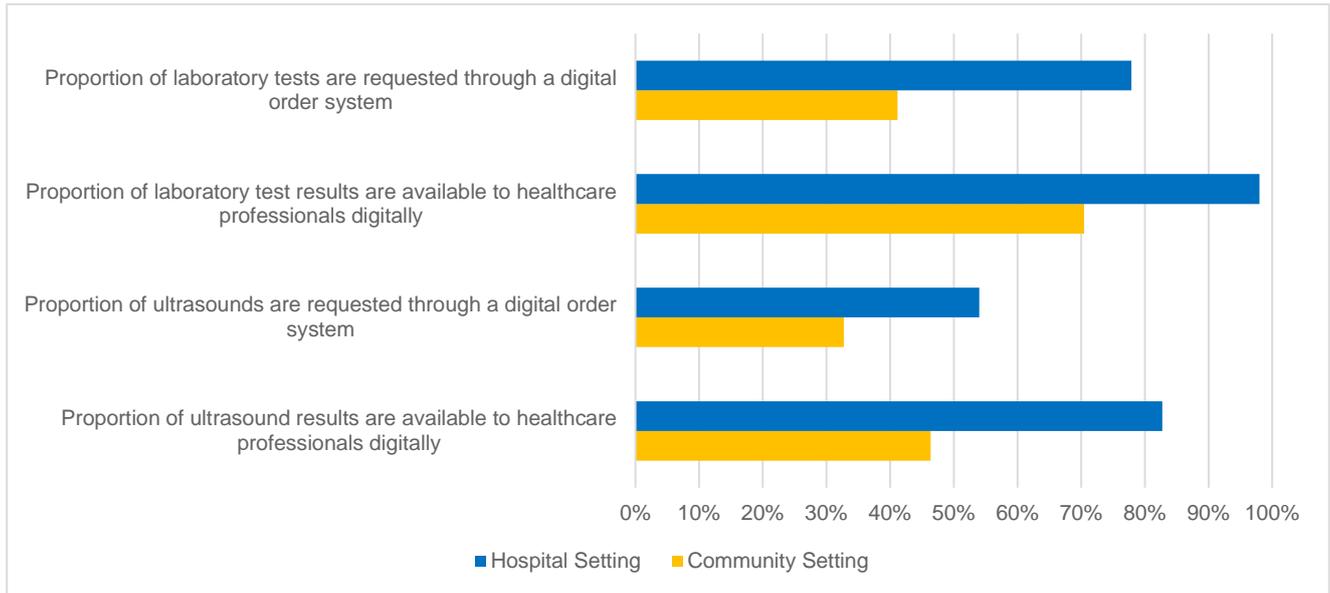


Figure 43: Proportion of laboratory tests and ultrasounds managed digitally across hospital and community settings

Order Sets

- Once again there was a gap between the hospital setting and community; “When making diagnostic test requests... healthcare professionals have access to maternity level request/order sets.” 75% of maternity providers in a hospital setting agreed compared to 47% in the community.
 - 34 maternity providers scored high (strongly agreed) for Order Sets both in the hospital and the community. A sample of these maternity services are listed at the end of this section.
- “Healthcare professionals are alerted of duplicate test requests in a hospital setting.” 59% of maternity providers agreed with this statement.

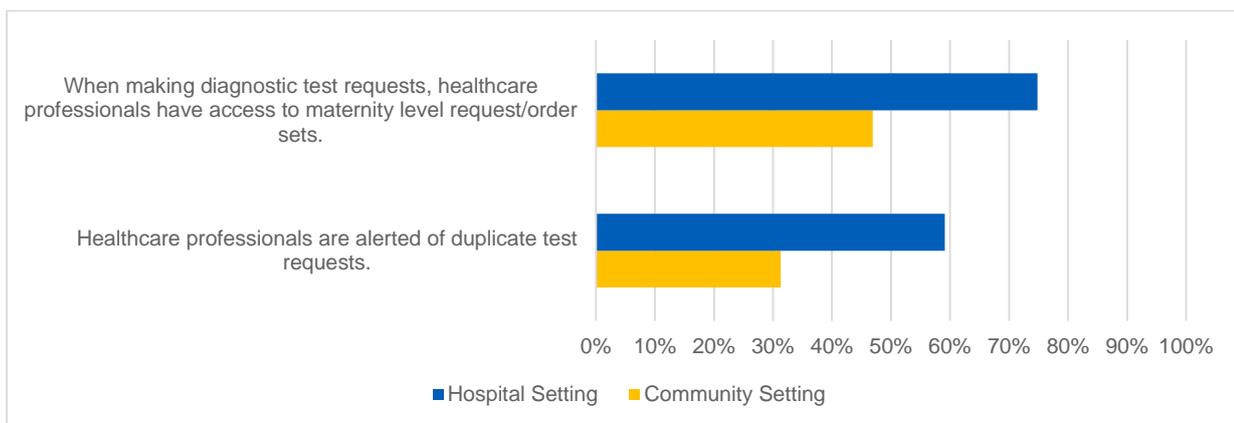


Figure 44: Percentage of maternity providers either agree completely or somewhat agree for order sets and alerts

Maternity DMA quotes, what you told us:

- **East Kent Hospitals University NHS Foundation Trust:** *“All midwives, whether hospital or community based, order digitally as they have laptops in the community to do this from. All scans are also available on E3 for them to see as well. This has been a big piece of work to get in place in terms of resources, changing work practices etc. the results that need actioning will be available electronically on our electronic whiteboards in the near future.”*
- **Airedale NHS Foundation Trust:** *“Rolled out order comms through system integration into ICE system for all professionals within the service. Rolled out integrated health record due to complete November 2018. Good utilisation of the interoperability between the IHR and pathology requesting and results system. As an organisation we are looking at SystmOne order comms within the next 18 months.”*

Call to action

Failure to support community maternity care will have a negative impact on the community hub model of care proposed in Better Births. However, a number of maternity services have already been able to implement systems, such as digital order systems in the community. Those maternity services who are currently encountering barriers may wish to speak to those who have overcome this. A sample of the organisations scoring highly for Order Sets both in the hospital and the community include:

- Whittington Health
- Weston Area Health NHS Trust
- The Hillingdon Hospitals NHS Foundation Trust
- Frimley Health NHS Foundation Trust
- Blackpool Teaching Hospitals NHS Foundation Trust

Order Sets save time, money and increase positive patient experience. Even without the availability of the digital intelligence, Order Sets add value and increase safety for women. Maternity services currently not taking advantage of this approach may wish to investigate the plans within their organisation to rollout such solutions, speaking with laboratory staff to establish what can be done to support safe care, using examples of good practice as support.

Where maternity providers scored low on this ‘orders and results management’ section, you may wish to consider the following areas:

- [Connectivity for community midwives](#)
- [Data driven improvements in maternity services](#)
- [What does a good system supplier look like?](#)

7. Transfers of care

This section focuses on how your maternity provider uses digital technology to transfer information seamlessly within and between care settings.

Background

The Transfers of care section of the Maternity DMA focuses on how digital technology supports referrals, bookings and discharges. Questions in this section also cover the digital transfer of information between care settings and different care providers such as the woman's GP and A&E.

Within maternity services, transferring of information does not necessarily refer to a discharge from care process. Consideration needs to be given when a woman is transferred from one care setting to another. For example, a transfer to a maternity unit from a planned home birth, transfers due to complex history requiring specialist care, in-utero transfers for specialist neonatal services or unit transfers due to ward closures.

The [Providing Quality Patient Care Maternity Standards - A Framework For Maternity Service Standards](#) (RCOG 2016) contains the standards for 'transfer of care' within maternity settings. The application of digital technology can assist these standards:

- 1.2.3. There should be protocols on the content and format of written communication, in particular about transfer of care between professionals (may include text messages and emails).
- 9.1.8. Where a woman remains in hospital following delivery, her postnatal care plan should be reviewed on a daily basis until her transfer home, and then reviewed at each subsequent contact.
- 9.2.2. There should be local protocols about written communication, in particular about the transfer of care between clinical services and healthcare professionals.

Whilst NICE have produced guidance on the transition between inpatient hospital settings and community services, their guidance does not necessarily reflect the challenges faced by maternity services. However, their overarching principle of accurate and timely sharing of information driving safety is relevant to maternity services.

Both maternity I.T. systems and those used hospital-wide frequently have the functionality to support the seamless transition between care settings and handover of care between clinicians. However, this automated process is often not fully enabled due to the complexity of the multiple systems in use (the section on interoperability explores this further) Improving safety, transforming maternity services by encouraging the adoption of a community hub model of care, and relieving the increasing demand on clinicians' time, are all issues which can be addressed by the efficient use of digital system functionality.

Building-up digital maturity

- **Undertake process mapping to ensure the full functionality of your Maternity IT system is being utilised:** [process mapping the maternity pathway](#) may prove to be useful for establishing any areas where information isn't being transferred within and between care settings. It's possible there may be some easy solutions available to join up these areas.
- **Establish what a good system looks like for your needs**, especially regarding transfers of care: When considering re-procuring a maternity IT system in the future you may wish to include transfer of care amongst your key requirements. (See [what does a good system supplier look like?](#))
- **Learn from other maternity services and areas that have overcome this problem and could offer lessons:** Each LMS will receive a report regarding digital maturity of the providers within its region. It's possible that maternity services could learn from other providers within their LMS, particularly those with high scores in the Transfers of Care section. Alternatively, the LMS Digital Leader's Forum or Expert Reference Group may provide a useful forum to engage with other maternity services.

'Transfers of care' national key findings:

- Transfer of care was the weakest of all sections scored, an alarming discovery given the number of various locations a woman may receive care during her pregnancy, labour and postnatal period alongside the number of healthcare professionals involved for both the woman and her baby.
- The average national score was 32% for this section.
 - Only 33 maternity providers scored over 50% for this section.
 - Whilst 22 maternity providers scored under 10% for this section.

Data caveat:

This section contains a number of questions asking for a quantitative response (i.e. 'what proportion' of something happens). In terms of the aggregated analysis of these questions, it is important to understand that this is an average provider score based on all the responses. There has been no weighting here depending on the size of the provider or the number of women birthed. Please refer to the [calculating scores](#) section for further information.

Analysis of this section has been broken down into three subsections:

- Referrals
- Discharge summaries
- Sharing summaries / notifications with other care settings

Referrals

- 44% of routine referrals (including bookings) and 32% of urgent referrals are automatically integrated into digital clinical workflows.
- 50% of transfers of care are supported digitally when a woman moves through the services within the organisation, however, this percentage significantly drops when moving outside of the organisation.

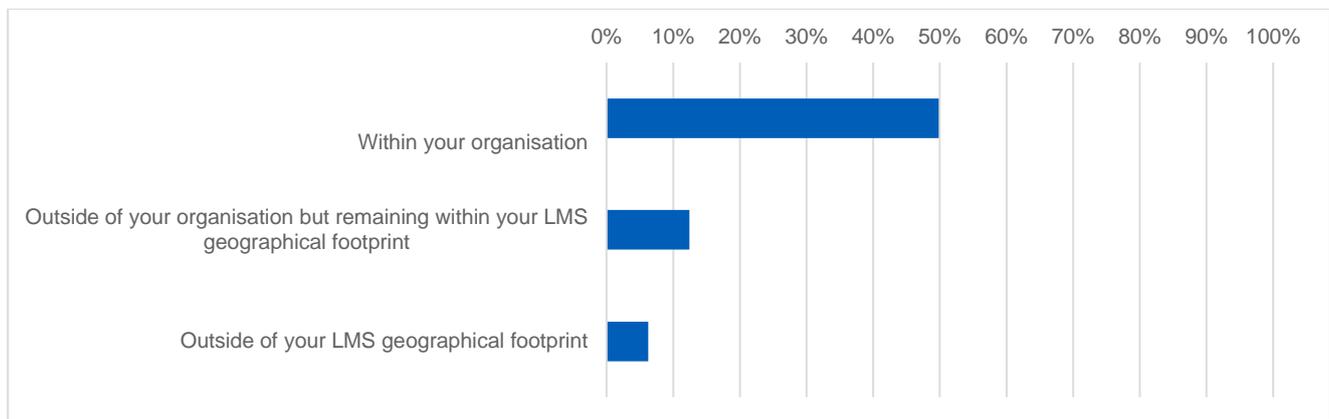


Figure 45: Proportion of transfers of care supported digitally when a woman moves between services

Discharge summaries and transfer of care

- “What proportion of routine referrals, including booking, are automatically integrated into digital clinical workflows?” On average the national response to this question was 46%.
- “What proportion of urgent referrals are automatically integrated into digital clinical workflows?” On average the national response to this question was 34%.

Discharge summaries

- 50% of maternity providers agreed that discharge summaries are routinely sent digitally to GPs within their LMS footprint.
- However, this figure dropped to 25% when considering discharge summaries outside their LMS footprint.

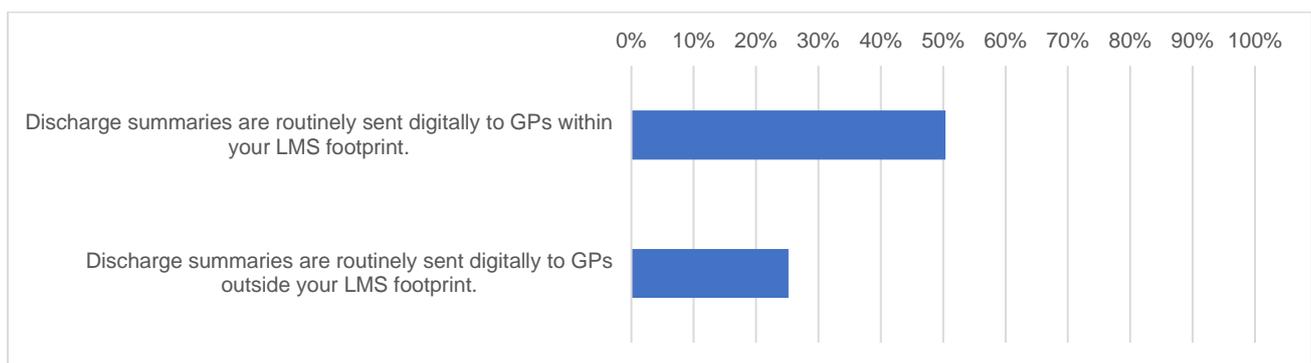


Figure 46: Percentage of discharge summaries sent to GPs digitally within and outside of LMS

- 78% of maternity providers agreed that the information held in a woman's records is used to pre-populate discharge summaries and letters. This suggests that only 22% of maternity providers are not currently undertaking this practice.
- On average across the country, maternity providers felt that around half of discharge summaries are generated in real time and shared digitally with other relevant care providers as soon as completed. The main reasons for this not being achieved are lack of equipment and historical working practices.

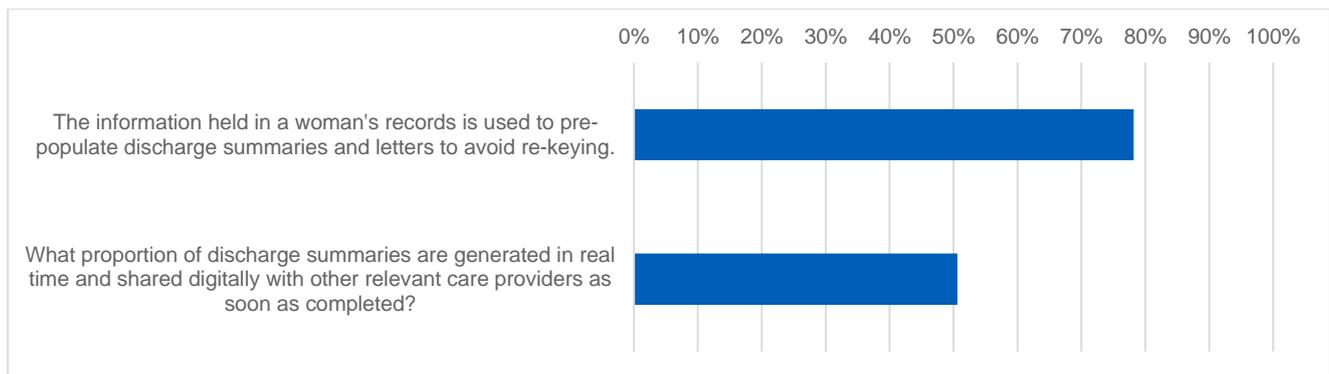


Figure 47: Percentage of maternity providers that prepopulate discharge summaries and those that generate in real time

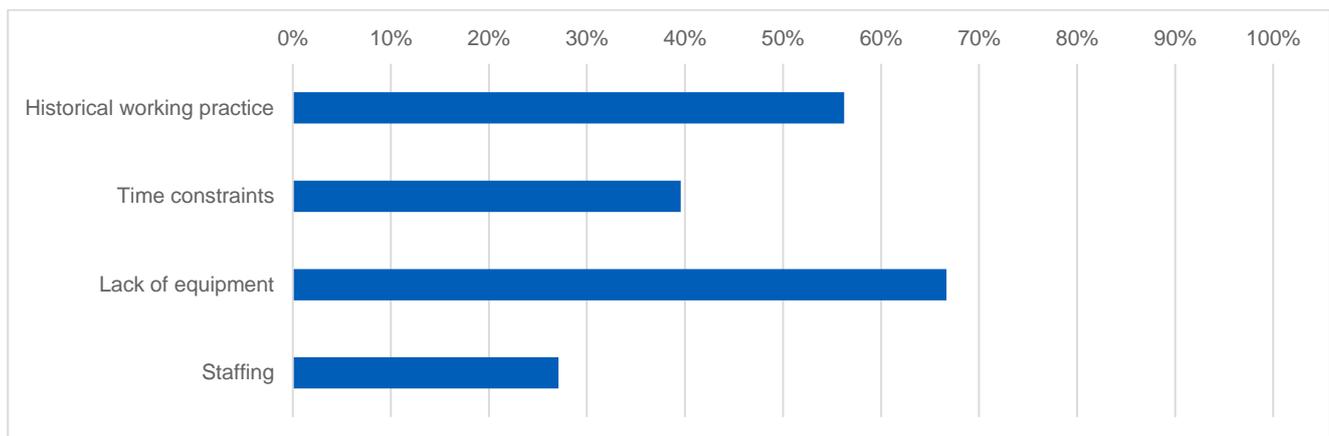


Figure 48: Reasons why real time generation of discharge summaries is not achieved

Sharing summaries/ notifications with other care settings

- On average across the country, maternity providers stated that close to 20% of summaries/ notifications are shared digitally with GPs at an outpatient clinic.
- “At an appointment within a community setting, what proportion of summaries / notifications are shared digitally with the woman's GP?” On average maternity providers stated these are available digitally at 23% of appointments.
- “Following an A&E attendance, what proportion of A&E summaries/notifications are shared digitally with the woman's maternity service provider, during a pregnancy pathway and immediate post-natal period?” On average maternity providers stated these are available digitally 28% of the time.

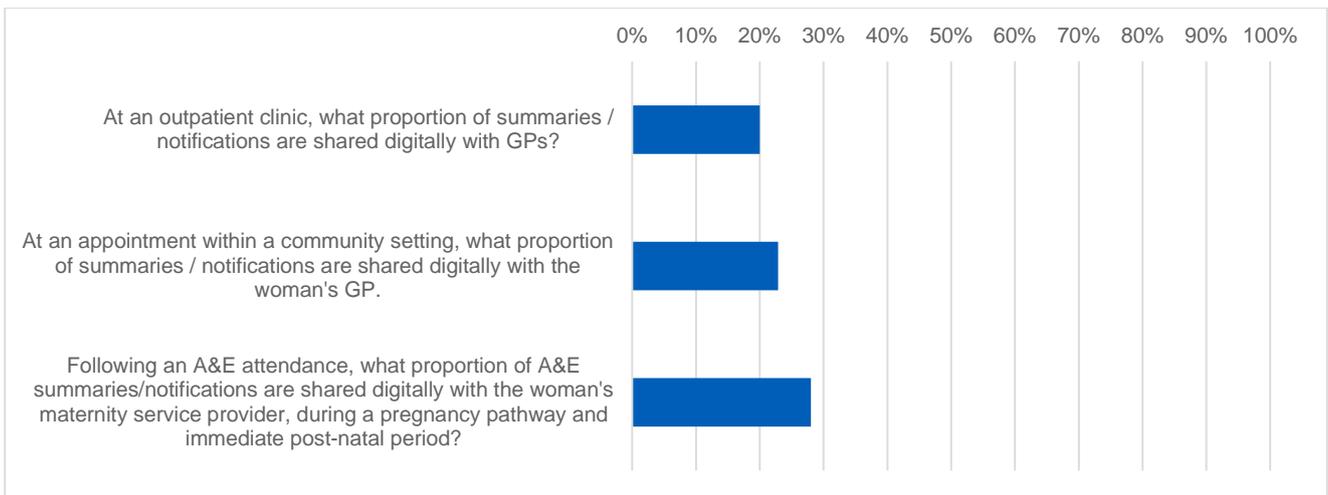


Figure 49: Percentage of maternity providers that share summaries / notifications with other care settings

- “What proportion of referrals to tertiary care are completed digitally?” Digital technology can support a referral process and ensure that appropriate care is received in a timely manner, however evidence suggests this is not being utilised as none of the three questions regarding tertiary care achieved higher than 30%.

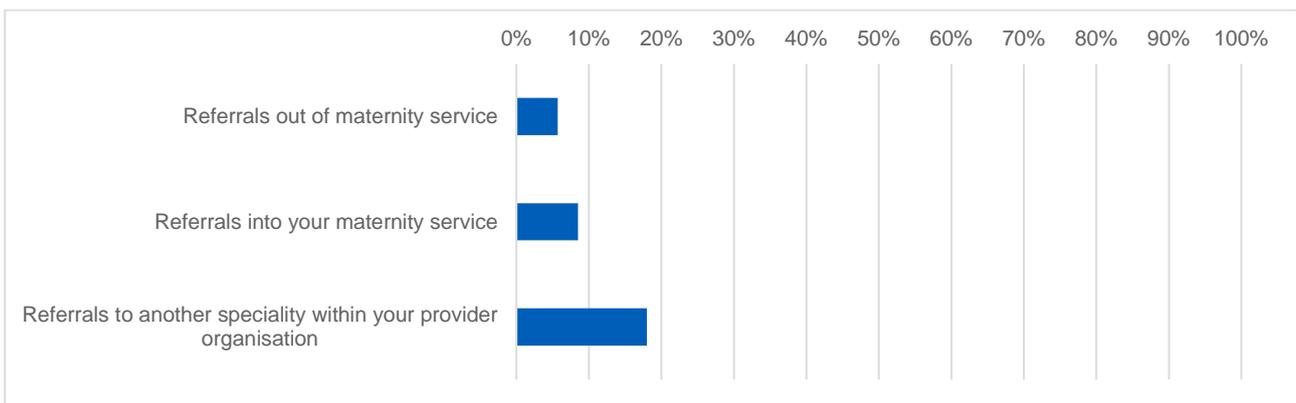


Figure 50: Percentage of referrals completed digitally within and out of maternity service

Maternity DMA quotes, what you told us:

- University Hospitals of the North Midlands:** *“end to end maternity system has enabled us to send digital copies of discharges, for example, to GPs via our existing system (interface between Medisec and Athena), we do ANC referrals electronically, health visitors receive info electronically, daily visits for PN women all scheduled via Athena, we plan to make the specialist manage their own referrals as an ongoing development.”*

Poole Hospital NHS Foundation Trust: *“The increase in community midwives electronically recording in community clinics has led to an increase in the transfer of information to other health care providers, therefore to the transfer of care. Emailing and transferring documents directly into other systems has increased. The transfer of care from the neighbouring midwifery led unit has greatly improved as they have the same maternity system and are now using it more effectively making the transfer process much quicker and safer. We are planning to add all AN summaries to EPR, not just discharge summaries, so they can be seen by GPs and other HCP in the trust and neighbouring trust. This will enable us to stop printing documents for those who do not have access to Medway. Again, the introduction of the DCR will greatly improve transfer of care.”*

Call to action

Connecting with GPs

Analysis of the Maternity DMA data suggests there is a delay in information sharing between GPs and many maternity providers. Improving this transfer of care could impact upon safety, efficiency and user experience. Previous research conducted by NHS Digital found that GPs do have an appetite to receive more data from maternity services:

“I want to be proactively informed of any new conditions/problems diagnosed/recorded by a midwife” “... procedures performed and recorded by a midwife” & “...informed of a summary of the pregnancy outcome and birth recorded by a midwife”.

The [myth busting and quick wins](#) section of the report also address some of the issues raised in cross-organisational working.

Support for maternity IT systems

It's important to identify that the maternity IT systems are enabling the transfer of care and not acting as a blocker. If processes are fully mapped, then it should be understood where the system functionality needs enabling. Transfer of care should be factored into the procurement requirements for any new maternity IT system.

Transfer of Care Initiative & interoperability

Using the standards in electronic healthcare records allows clinical information to be recorded, exchanged and accessed consistently to deliver high quality care to patients. The Transfer of Care Initiative aims to improve patient care by promoting and encouraging the use of professional and technical document standards.

The Maternity Interoperability Project being run by NHS Digital will also enable transfer of care in the future (see [our digital future](#)).

Other digital solutions

Stakeholders have also shared examples of online discharge videos being used to support transfer of care, though these videos are intended to educate the women about their discharge, they provide the added benefit of releasing staff time to care. (See example from Colchester Hospital Maternity [here](#))

Where maternity providers scored low on this 'Transfers of care' section, you may wish to consider the following areas:

- [What does a good system supplier look like?](#)
- [Interoperable records](#)
- [Myth busting and quick wins](#)

8. Medicines optimisation

This section focuses on your maternity provider's use of digital systems to ensure people receive the right combination of medicines every time.

Background

'a person-centred approach to safe and effective medicines use, to ensure people obtain the best possible outcomes from their medicines'.

NICE Medicines Optimisation

Whilst it is recognised that medicines optimisation is usually incorporated within a wider trust approach, the Maternity DMA set out to establish whether the use of digital systems were supporting medicines management of women accessing maternity services, considering the different touch points associated with care.

The outcomes of this section are not aimed at resolving issues regarding medicines optimisation, but to highlight and provide evidence that enables services to consider escalation to senior stakeholders.

It is widely acknowledged that the majority of women accessing care will require minimal medication during pregnancy and the postnatal period, however, with recognition that women with complex medical conditions are now accessing maternity care, medicines optimisation standards are more relevant than ever before.

The [Saving Lives, Improving Mothers Care 2017](#) report from MBRRACE acknowledged that two thirds of women who died during pregnancy (2015 – 16) had pre-existing physical or mental health problems. Recommendations around appropriate medication with specialist input was key with additional consideration and planning for labour and birth. Additional review during the postpartum period and drug effects are also recommended.

Their report concluded that the provision of appropriate advice and optimisation of medication prior to pregnancy, referral early in pregnancy for the appropriate specialist advice and planning of antenatal, intrapartum and postnatal care, including effective postnatal provision of advice concerning risks and planning for future pregnancies, are the key improvements needed to prevent women dying or having severe complications in the future.

Building-up digital maturity

- **Within a trust**, obtaining good [strategic alignment](#) is an essential step towards improving your score for digital 'medicines optimisation'. If maternity services are considered a priority within your organisation's digital strategy, then medicines optimisation is likely to improve faster in-line with any new organisation wide initiatives.

- **The RCM** offer an [online resource for midwives](#) who are RCM members. Encouraging the use of these resources may impact on safe practice, providing underpinning knowledge that supports digital medicines management. Their module on 'Medicines Management in Maternity' provides an overview for midwives and students and gives an understanding of their role in medicines management in midwifery and obstetrics.

'Medicines optimisation' national key findings:

- Across the country 52% of discharge medications are prescribed digitally within a Maternity hospital setting, whereas the proportion of maternity inpatient medications and maternity outpatient medications prescribed digitally is much lower (30% and 18% respectively). The [E-Prescribing Service](#) launched 3 years ago has identified £130 million in savings over 3 years, and whilst the service is directed at GP services there are identifiable savings for dispensers, patients and prescribers that are transferable benefits for maternity services.

Data caveat:

This section contains a number of questions asking for a quantitative response (i.e. 'what proportion' of something happens). In terms of the aggregated analysis of these questions, it is important to understand that this is an average provider score based on all the responses. There has been no weighting here depending on the size of the provider or the number of women birthed. Please refer to the [calculating scores](#) section for further information.

Digital medicines optimisation:

- Though maternity providers acknowledge the value and importance of undertaking Medicines optimisation digitally there are still a significant number of providers who are yet to achieve it:
 - The majority of maternity providers agreed that completion of a digital patient risk assessment for maternity for Venous Thrombo-Embolism offers best practice guidance and prompts prescription of appropriate medications.
 - 56% of maternity providers agreed that when prescribing digitally, maternity healthcare professionals are alerted to certain clinical decision support categories including drug interactions, allergy intolerance, duplication of therapeutic class of drug and out of range doses.
 - 39% of maternity providers stated that decisions and information regarding the administration of medicines is digitally recorded within the acute setting.

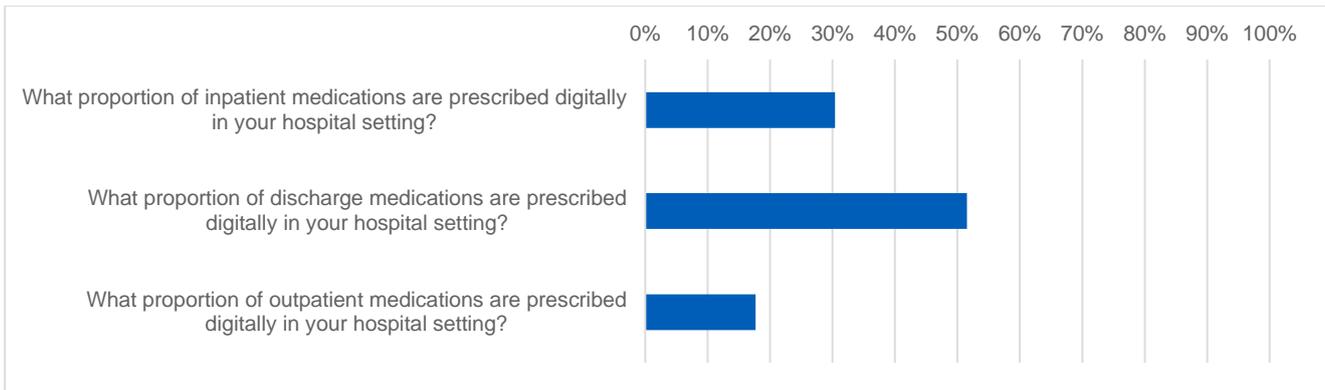


Figure 51: Medications prescribed in a hospital setting

For a full list of the questions asked in this section please see [Appendix C – average score by question](#).

Maternity DMA quotes, what you told us:

- **Calderdale and Huddersfield NHS Foundation Trust:** *“With the implementation of the wider Trust EPR system - all prescriptions and dispensary are managed digitally”.*
- **James Paget University Hospitals NHS Foundation Trust:** *“The introduction of the electronic medicines prescribing system has been introduced to replace paper-based drug charts. Reluctance by some clinicians to utilise the electronic system”.*

Call to action

Consider whether your IT system within your organisation has the digital functionality to support e-prescribing during the pregnancy and early parenting pathway regardless of location. You could question whether it can be adopted within your service.

Future plans for [interoperable records](#) regarding the sharing of information, will support medicines optimisation, however, current working practice needs to capture this information for it to be shared.

Where maternity providers scored low on this ‘Medicines Optimisation’ section, you may wish to consider the following areas:

- [e-Prescribing and exemptions](#)
- [Interoperable records](#)

9. Decision support

This section focuses on support tools available to support and enhance care within maternity services.

Background

“Advice on how technological and other developments (including in genomics, artificial intelligence, digital and robotics) are likely to change the roles and functions of clinical staff in all professions over the next two decades to ensure safer, more productive, more effective and more personal care for patients.” - **Topol Review, Board Terms of Reference.**

The advent of new technologies provides a huge opportunity for maternity services. Those services with the right levels of digital maturity in place will be able to benefit quickly from new developments in digital technologies as they become available.

Some maternity services have already adopted IT systems and tools which support clinical decision making. These digital processes, when implemented properly, will support clinicians to improve safety and enhance their face-to-face interaction with women.

‘Genomics, Artificial Intelligence, digital medicine and robotics’

‘Artificial Intelligence (AI) refers to a broad field of science encompassing not only computer science but also psychology, philosophy, linguistics and other areas. AI is concerned with getting computers to do tasks that would normally require human intelligence’ (van Duin and Bakshi, 2017).

The Topol Review recognises that whilst it is hard to predict the future, genomics, digital medicine, artificial intelligence and robotics will have an enormous impact on patients and the workforce over the next two decades.

The questions in this assessment are based upon research into the decision support tools in use in some maternity services and are aimed at testing how wide spread the applications of these tools are across England.

Whilst the wider digital industry increasingly highlights the potential future use of AI, this section focuses on how maternity services are currently using the technology to support clinical decision making. (Examples of AI use within maternity include the use of electronic e-observations, a digital solution to record vital signs and [Dawes Redman](#) criteria for CTG interpretation or failsafe prompts to support practice.)

It’s likely that this section of the Maternity DMA will be expanded in any future interactions of the assessment, as emerging technologies (i.e. AI) become a more essential part of the care pathway.

Building-up digital maturity

- **Ensure basic elements of digital maturity are in place for your maternity service:** This will improve the likelihood of any new digital initiatives being successful and can be achieved by reviewing the LMS report for your area and addressing any weak areas in the Readiness and Infrastructure sections (i.e. ensure you have a digital leader in place to champion new initiatives and manage any existing cultural factors concerning decision support tools).
- **Conduct process mapping and consider using SPC tools (Statistical Process Control) within your service:** New decision support tools will help eliminate unacceptable variation, conducting process mapping and looking into SPC tools first will help you create an accurate service baseline. This includes understanding the capabilities of your system supplier (see [process mapping the maternity pathway](#), [data driven improvements in maternity services](#), [what does a good system supplier look like?](#)).
- **Link in with any ongoing initiatives in your organisation, LMS and nationally:** Identify potential integration and inclusion with any upcoming or ongoing digital initiatives which may benefit this section and wider digital maturity. For example, MSDS, Interoperability and EPR implementation will lay important ground work for some future digital decision support tools and emerging technologies.

'Decision support' national key findings:

- Decision support was one of the lowest scoring sections in the Maternity DMA at a national level. 32% of maternity providers agreed to the statements posed within this section.

Further analysis of this section has been broken down into five subsections:

- Digital alerts to specific risks
- Modified Early Obstetric Warning Score (MEOWS)
- Evidence-based practice
- Automatic prompts from digital systems
- Support for woman's discharge

Digital alerts to specific risks

- The highest scoring question was 'Maternity healthcare professions received digital alerts to specific women's risks' with 69% of maternity providers agreeing with this statement.
 - The maternity services who responded positively to this statement used a very wide range of different maternity systems, which suggests that most maternity system suppliers currently operating in the market provide this functionality.

Therefore, it is recommended that the 21% of maternity services who don't have alerts in place may wish to revisit the benefits of including this in their processes. (This can be achieved by process mapping and having a conversation with your maternity system supplier).

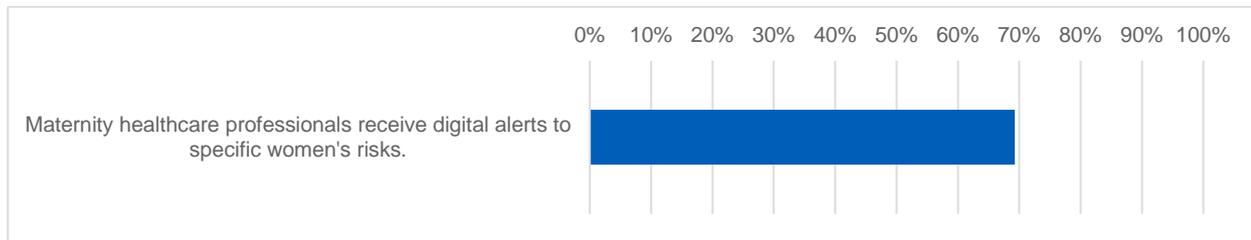


Figure 52: Percentage of Maternity Providers who answered either agree completely or somewhat agree by question for decision support

Modified Early Obstetric Warning Score (MEOWS)

- Digital support for clinical observations was one of the low scoring questions and it is recognised that this is probably due to maternity services being dependant on whole hospital initiatives rather than within the scope of the maternity provider.
- Digital systems alert maternity healthcare professionals and provide timely recognition of the deteriorating patients; within hospitals 29% of maternity providers agreed. In the community this figure reduced to 15% amongst maternity providers.
- “Maternity healthcare professionals caring for women whose clinical observations or Modified Early Obstetric Warning Score (MEOWS) are deteriorating and need review.” 3 hospitals in particular stood out as strongly agreeing with this statement
 - Calderdale and Huddersfield NHS Foundation Trust
 - University Hospitals of North Midlands NHS Trust
 - Wirral University Teaching Hospital NHS Foundation Trust

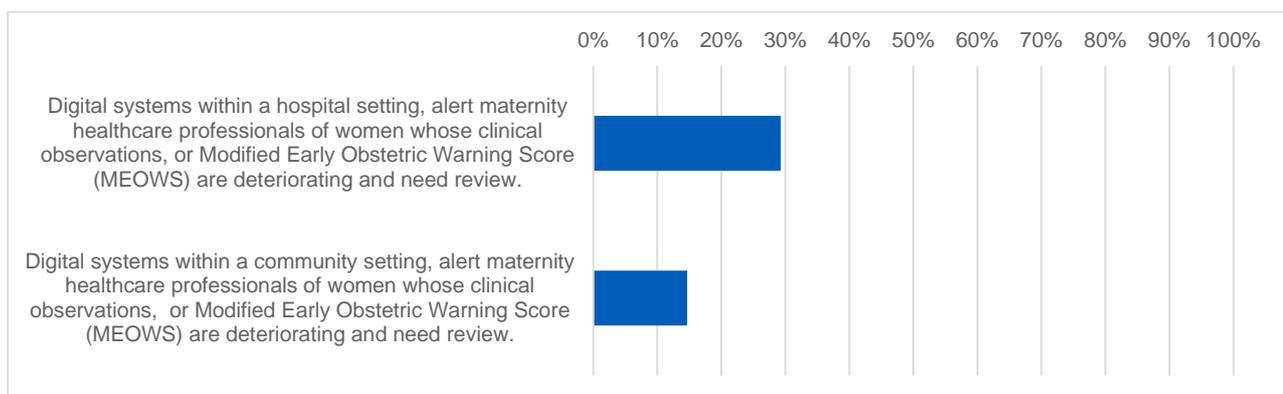


Figure 53: Percentage of maternity providers whose digital systems alert healthcare professionals and provide timely recognition of deteriorating patients within hospitals and in the community

Evidence-based practice

- “All healthcare professionals, at point of care are directed to relevant, up to date and evidence-based reference material as part of digital clinical workflows and care pathways.” 31% of maternity providers agreed with this statement. This score is likely to be lower if maternity providers aren’t using a single system across the maternity pathway. Also, some maternity services could have disabled this functionality if their existing suppliers were slow and costly in keeping the evidence up to date.

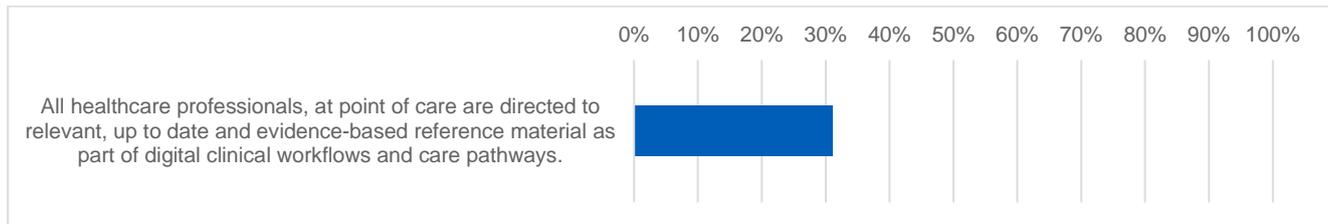


Figure 54: Percentage of maternity providers that are directed to relevant, up to date and evidence-based reference materials as part of digital clinical workflows and care pathways

Automatic prompts from digital systems

- “Digital systems provide automatic prompts for the next action required by multi-step care plans, pathways or protocols.” 35% of maternity providers agreed with this statement. Of those maternity providers responding positively to this statement, some of the following IT systems were in place: Athena, Badgernet, E3, Evolution, Meditech, Medway, Millennium (please note, this list is based on Maternity DMA responses and might not reflect the current offer from IT system suppliers in the market).
- “Healthcare professionals are prompted to complete or remind women about overdue care actions and/or missing information”. 36% of maternity providers agreed with this statement. Of those maternity providers responding positively to this statement, some of the following IT systems were in place: Athena, Badgernet, CMiS, E3, EPIC, Evolution, Meditech, Medway, Millennium, TrakCare (please note, this list is based on Maternity DMA responses and might not reflect the current offer from IT system suppliers in the market).

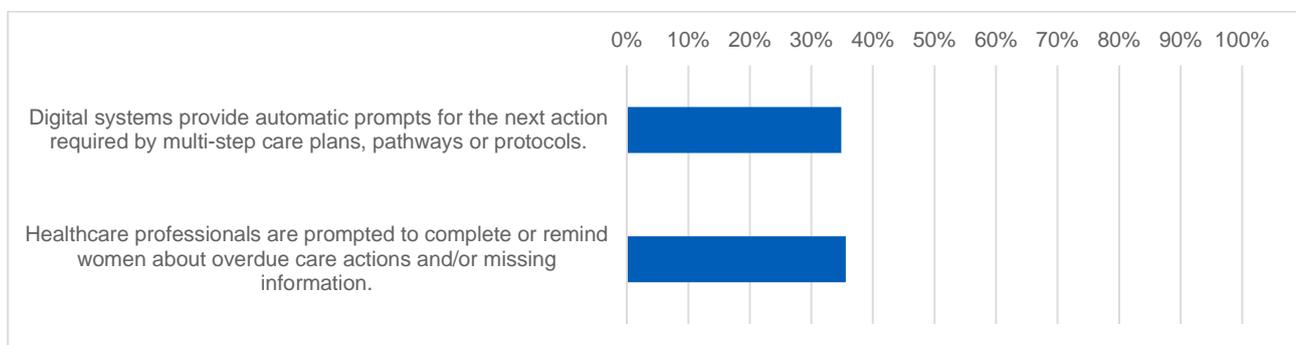


Figure 55: Automatic prompts from digital systems

Support for woman's discharge

- 54% of maternity services reported that their maternity system supported digital planning of the woman's discharge. It was noted that some of those that did not have this functionality used the same supplier as those that did. This would suggest that they are not using the maximum functionality of their IT system, which prevents digital planning of a woman's discharge.

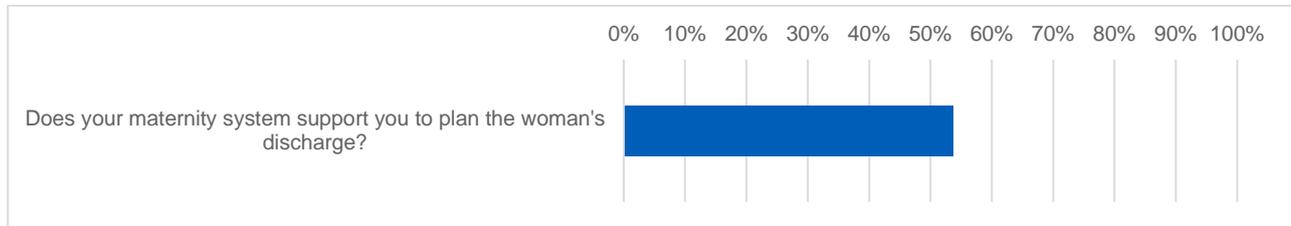


Figure 56: Does your maternity system support you to plan the woman's discharge?

Maternity DMA quotes, what you told us:

- **Gateshead Health NHS Foundation Trust:** *“The introduction of our electronic clinical system Badger has enabled alerts to be triggered for women with particular risks. For example, safeguarding alert, FGM, Group B Strep, Allergies. This allows the health care professional to immediately recognise current risks/alerts in relation to that specific patient and plan appropriate care. Additionally, the MEOWS observation has been configured within our electronic system to prompt health care professionals of required actions in relation to the MEOWS score so that relevant people can be informed immediately. Also our electronic system has a 'things to do' reminder section that prompts healthcare professionals of actions that are outstanding or haven't yet been completed. For example reminds health care professionals to complete blood results, complete MEOWS observations, Anti D required. Additionally, there are alerts within ICE, Medway and JAC.”*

Call to action

Current picture and benefits

The finding of the Maternity DMA revealed that the majority of maternity services are yet to take full advantage of the benefits offered by decision support tools. For most of the questions in the section less than a third of trusts responded positively to the statements. This suggests that there are opportunities across the country for decision support tools to be more widely adopted. Benefits of implementing these initiatives include increased safety, increased evidence-based care and improved prompts for overdue care actions (i.e. flu jabs / immunisations uptake / fail safe).

Ready for new technology to support clinicians

The pace of change for new decision support tools and emerging technologies has been fast over recent years, therefore maternity services should be prepared and ready to adopt new initiatives and drive-up their digital maturity in this area.

One example of a potential application for Artificial Intelligence is in analysis and monitoring of EPHR activity, supported by developments in home monitoring technologies (e.g. urine testing, blood pressure monitoring, smart weighing scales) which could enable targeted early intervention by maternity staff and GPs to benefit women.

Ready for new technology to support women

As technologies develop, maternity services could have an increasing role in signposting women to technology inventions such as Apps, at specific points in the Pathway (i.e. Diabetes in pregnancy, smoking cessation, contraception service and fertility treatment support for women antenatally).

An ongoing example would be the work undertaken in partnership with HEE, the [Breastfeeding Friend app](#) encourages parents to adopt healthy behaviours, now available as a skill for Amazon Alexa's voice service. Mothers can ask Alexa a variety of questions about breastfeeding and get helpful advice even when 'their hands are full'. The Breastfeeding Friend is available as an interactive [Facebook Messenger 'chatbot'](#) (the [maternity apps research](#) section of this report explores some of these topics further).

Where maternity providers scored low on this 'Decision Support' section, you may wish to consider the following areas:

- [What does a good system supplier look like?](#)
- [Process mapping the maternity pathway](#)
- [Maternity apps research](#)
- [Myth busting and quick wins](#)

10. Remote and assistive care

This section focuses on your maternity provider's use of remote, mobile and assistive technologies to support the provision of care.

Background

The remote and assistive care section of the Maternity DMA is supportive of NHS England ambitions around empowering people: *“Our new digital services and support are empowering people to take control of their health and care through secure online access to clinicians, personalised health information, digital tools and advice that helps them to better manage their conditions.”*

Remote and assistive care – an ‘emerging’ section of the assessment

This section is one of the shorter sections of the assessment, the questions are focused on obtaining a baseline for the digital tools and services currently in use in maternity services, for engaging women. It's likely that future iterations of the Maternity DMA would expand this section as remote and assistive care will be more established within services. Remote and assistive care encompasses the use of digital technology to support service users such as via social media or text messaging.

“The future is here – it’s just not evenly distributed yet!”

The digital landscape is changing at a fast pace, the findings of the Maternity DMA highlight the variation across the country in how maternity services are adopting new technology. This fact points to a great opportunity for maternity services across the country to share and learn from each other's application of remote and assistive care.

Women's expectations are changing quickly, with the development of digital technology

Women are embracing new technology and increasingly expect their care to be supported by it. Given that maternity services are providing care for digitally savvy, healthy women, this research suggests that remote and assistive care is becoming increasingly welcome and has the potential to support alternative ways of working without challenging the quality of care given. The implementation of digital technology isn't just about keeping up with women's expectations, there is a significant opportunity for efficiency and cost savings.

The Kings Fund report, [What Will New Technology Mean for the NHS and its Patients](#) considers remote and assistive care. The study found for example, that most people said they would use video consultations to consult their GP about minor ailments and ongoing conditions and more than half of respondents would be willing to share data with the NHS via a personal lifestyle app or fitness tracker.

Getting ready for remote and assistive care in the future

Once the other elements of digital maturity are in place, then maternity services will have greater confidence and capability to adopt new digital technologies in the field of remote and assistive care as they develop.

Building-up digital maturity

- **Within maternity services**, referring to your LMS report can allow you to better understand the barriers preventing you from adopting new technologies around remote and assistive care.
- **Engaging with national networks:** Engaging with existing networks such as the LMS Digital Leaders Forum or the Digital midwives Expert Reference Group can allow for existing digital solutions to be shared, along with lessons learnt from implementing these solutions.
- **Explorations of LMS and regional solutions:** Examples exist of where maternity services have collaborated in implementing solutions across an LMS or wider region, i.e. LMS maternity telephone helpline. These collaborated solutions can prove cheaper and more impactful than previous siloed ways of working.
- **Addressing any perceived information governance (IG) barriers:** The section of this report focused on ([myth busting and quick wins](#)) captures lessons from a number of maternity services who overcame IG concerns and were successful in implementing innovative digital solutions.
- **Engagement of women in designing digital solutions:** Fully understanding the needs and wants of users will greatly increase the chances of new remote and assistive care solutions being successful (this idea is explored further in the [Maternity Voices Partnership](#) section).

'Remote and assistive care' national key findings:

- It was recognised that there was very little evidence to suggest that remote and assistive care was being used to its full potential to support maternity care, and as expected it was the lowest scoring section for the DMA.
- 23% of maternity services agreed that remote/virtual support is available for women deemed to be low risk.
- Maternity services were asked to describe their service offer available to women regarding remote and assistive care. Analysis of these results identified the following common methods of engaging with women (please note that some of the channels are focused specifically on non-urgent discussions).
 - Telephone - Many maternity services offer a 24/7 triage department that answer all calls from women during pregnancy

- Text messaging - for both one way and two-way communication
- Email
- Private messaging using social media
- Social Media (public facing) – e.g. Twitter, Facebook.
- Pregnancy related Apps - both national and local information such as guidelines, advice and patient leaflets
- Electronic Patient Record (EPR) - information which is visual and interactive
- Trust website - maternity service pages and resources online
- Telehealth & Skype
- Virtual tours of the maternity unit
- Electronic self-referrals

Please see the [myth busting and quick wins](#) section where some of these channels are explored in more detail.

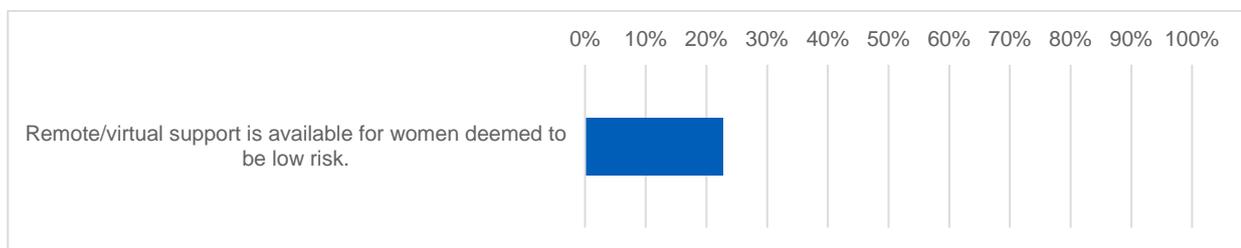


Figure 56: Percentage of maternity providers that provide remote/virtual support for women deemed to be low risk

Maternity DMA quotes, what you told us:

- **Surrey and Sussex Healthcare NHS Trust:** *“Sasha’ the e-Midwife, women can ask any question and get an answer”.*
- **University College London Hospitals NHS Foundation Trusts:** *“We offer text messaging - appointment reminders including reminding women to monitor fetal movements, Introduction of skype clinics - the growth in service demand has led to this innovation”.*

Call to action

Remote and assistive care was a low scoring section of the Maternity DMA, this is in part due to the low number of questions and the fact this section is seen as aspirational.

However, there are some great examples of work ongoing in maternity services, as evidenced in the list of analysed descriptions.

Another great example is the award winning [Maternity Direct](#), set up by midwives at Basildon and Thurrock University Hospitals NHS Trust. In addition to the provision of information, Maternity Direct provides women with a direct link to an NHS midwife. The women can ask non-urgent questions privately, and a midwife will reply giving appropriate advice. This service is open 7 days a week from 07:00-21:00. The trust has designed 4 posters which it displays in public areas advertising the service it provides and so far, the Facebook page has 5.5k followers. The midwife who created this page won the British Journal of Midwifery 2018 Practice Award for the use of technology in midwifery. Maternity Direct also has a Twitter page which provides families with useful information and contains a useful link to their Facebook page.

Other maternity services who stated they have remote and assistive care solutions in place include:

- Homerton University Hospital NHS Foundation Trust
- City Hospitals Sunderland NHS Foundation Trust
- Birmingham Women's and Children's NHS Foundation Trust
- Surrey and Sussex Healthcare NHS Trust
- South Tyneside NHS Foundation Trust
- East Cheshire NHS Trust
- Neighbourhood Midwives
- One to One North West LTD

Adopting new ways of engaging women

The interim [Topol Report](#) highlighted an example of maternity services using new digital solutions to engage with women, via a Gestational diabetes apps. Similar Apps and digital solutions which receive input from both clinicians and patients have already started to make a positive impact on the way clinicians interact with the women under their care (other similar examples are showcased in the [myth busting and quick wins](#) section). In the future its very likely the application of these types of digital tools will increase in maternity services.

Where maternity providers scored low on this 'remote and assistive care' section, you may wish to consider the following areas:

- [Myth busting and quick wins](#)
- [Social media in maternity services](#)

11. Asset and resource optimisation

This section focuses on your maternity provider's use of digital technologies that can improve the quality, safety and efficiency of care.

Background

Assets are items of value utilised by a maternity service, however our digital maturity definition also extends to include the workforce and data as assets.

For the purpose of the 'Asset and resource optimisation' section we focus on the processes, tools and devices supported by digital technology to assess whether assets are being utilised as effectively as possible and full functionality is enabled.

This section considers the service user, tracking and using equipment, supporting and utilising staff and utilisation of data assets (i.e. patient flow and medical information) and how digital technology currently supports these assets to drive up efficiency, cost and quality.

Building-up digital maturity

- **Within your maternity service:** To be able to make the most of the digital assets within the maternity service a basic level of digital maternity needs to be met, especially around 'readiness' and 'infrastructure'. Meeting these requirements will lay the foundations to ensure you have the right devices, connectivity and skills in place to enable the more advanced elements of Asset and resource optimisation (you may wish to refer to your 'LMS DMA Report' to help identify these areas).
- **Process mapping to help understand where assets can be developed:** Undertaking process mapping may prove to be useful for understanding which areas of the maternity pathway could benefit from using digital assets differently (see [process mapping the maternity pathway](#)). The mapping process may uncover areas where not all the functionality of an IT system is being used to full potential or it could uncover a wider issue (i.e. [connectivity for community midwives](#)).
- **Using data to manage your services:** Data is one of the assets explored within this section. Some of the key building blocks for making data useful are raised in these questions. The [data driven improvements in maternity services](#) section explores this further.

'Asset and resource optimisation' national key findings:

- 46% of maternity providers agree that in-patient flow is tracked digitally in real time to identify bottlenecks and delays within your organisation.
- 34% of maternity providers agree that their maternity service uses a digital system to record and track its clinical assets, in line with a whole trust initiative. Given that equipment needs to be tracked to ensure that it is maintained and fit to use, it can be

assumed that all other maternity providers are using a paper-based system to capture and track its clinical assets.

- Nationally, 98% of nursing and midwifery staff and 93% of allied healthcare workers in maternity services use digital systems to manage rostering. Digital rostering of medical staff in maternity services is significantly lower (34%).

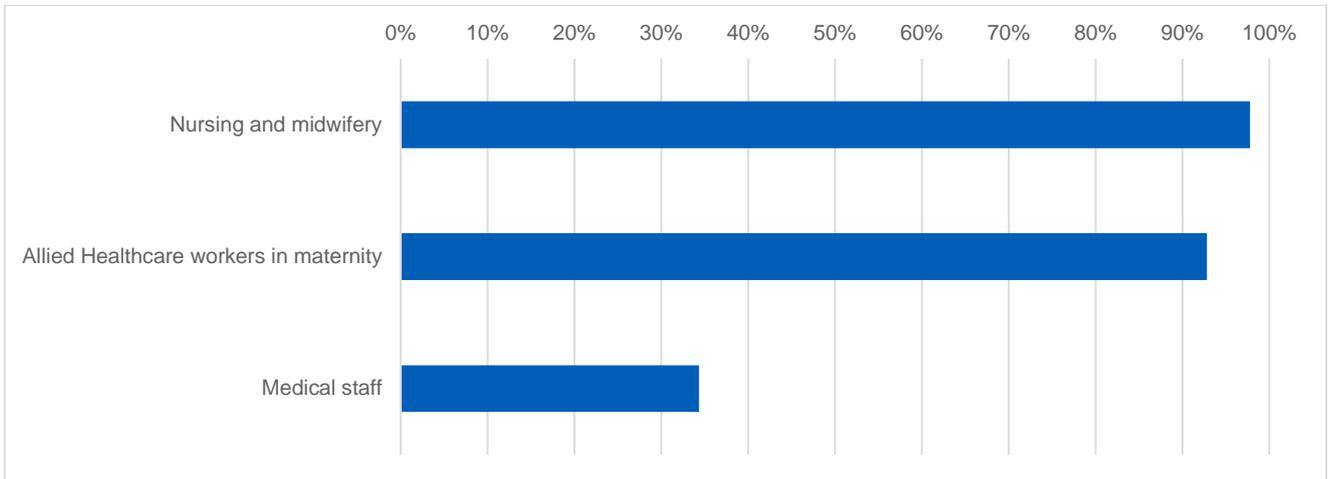


Figure 57: Use of digital systems to manage rostering

- 16% of maternity providers agree that relevant data from clinical monitoring devices is uploaded into women's records or charts automatically.
- 36% of maternity providers agree that staff working in the community can perform all care tasks remotely without returning to base.
- 8% of maternity providers agree that digital location tracking supports effective time management of staff working in the community.

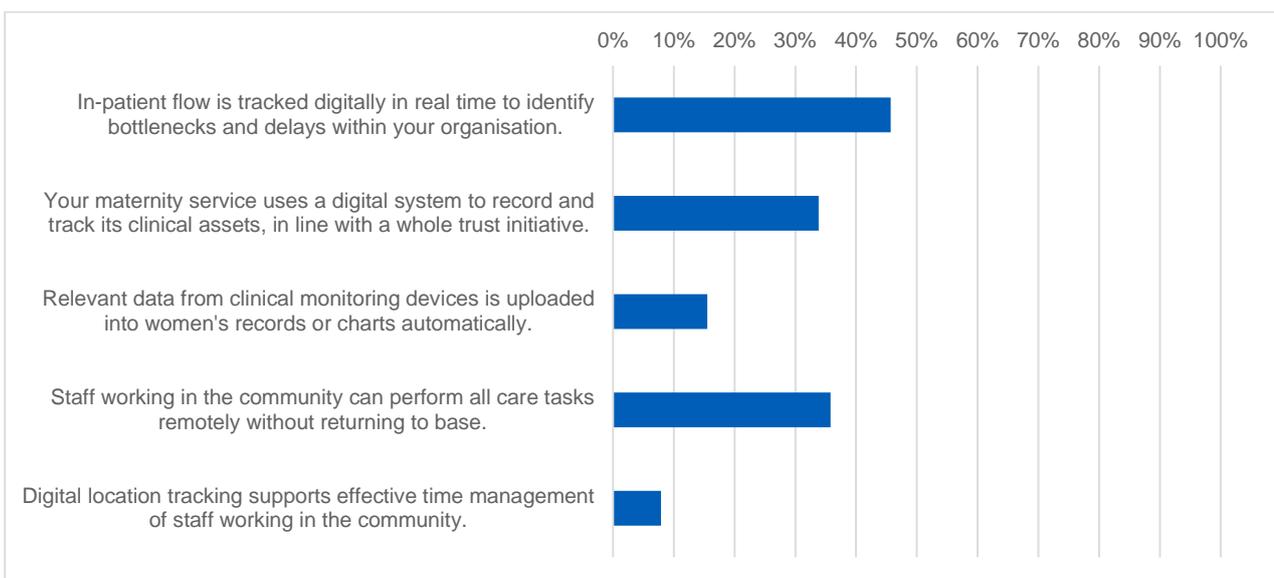


Figure 58: Use of clinical monitoring devices

Maternity DMA quotes, what you told us:

- **The stakeholder engagement event run as part of the Maternity DMA project** uncovered various examples of Maternity Services who had been able to obtain assets, such as hardware, but without the funding and resources needed to support the wider business change and were unable to use the asset properly and realise the intended benefit. For example, an organisation might have purchased a number of laptops however the IT and project support were not supplied, later it was concluded that many of the laptops were never used. The [business cases and business change](#) section of this report expresses the importance of end to end business change.

Call to action

Implement tracking for your equipment

The Care Quality Commission (CQC), established to regulate and inspect health and social care services in England provides organisations with care certificates based on 15 standards. The CQC's regulation of [standards no 15](#) references "all equipment must be used, stored and maintained in line with manufacturers' instructions". These standards draw the link between maintenance of equipment and patient safety. In turn the ability to track your equipment's location and status is an important part of being able to ensure maintenance is upheld. Scoring low on this section poses potential risk to patient safety due to the reliance on people to monitor compliance and highlight when assessment and maintenance is due. This is particularly relevant for equipment in the community setting (i.e. regular calibration of CTG machines).

Supporting and utilising staff

The Maternity DMA findings show that tools such as eRostering are already widely in use across the country. Having these systems in place is beneficial for staff and maternity services, and their women. For example, eRostering can be used effectively to manage the annual leave taken by staff whilst helping to ensure the right skill mix of staff is in place working across the pregnancy pathway.

Only a minority of maternity services are currently using digital location tracking (i.e. GPS) to support staff working in the community. There may be scope to roll this capability out more widely in the future. If implemented correctly, this technology could support community staff to plan out their work loads and travel and understand women's risk factors in real time. However, there may be digital maturity barriers preventing the adoption of new initiatives such as these. Some of these barriers are explored further in the [connectivity for community midwives](#) section.

Using data well

Data is an asset which is becoming increasingly utilised within maternity services. Automatic upload of data from devices will also remove barriers and reduce cost associated with collecting this information in a useful format. As devices and connectivity improve, maternity services will have access to even more useful services data to inform decision making. Increasingly Digital systems will have an important role to play in managing patient flow for resources optimisation, to avoid bottlenecks and help optimise the service. The idea of how data can be used within maternity services is explored further within the [data driven improvements in maternity services](#) section of this report.

Where maternity providers scored low on this 'asset and resource optimisation' section, you may wish to consider the following areas:

- [Connectivity for community midwives](#)
- [Data driven improvements in maternity services](#)
- [Remote and assistive care](#)
- [Business cases and business change](#)

12. Standards

This section focuses on your maternity provider's use of core national standards that relate specifically to the digital capabilities covered in this assessment.

Background

This section focuses on two specific digital standards, SNOMED CT coding and the Maternity Service Data Set (MSDS), both being driven by digital technology to improve and standardise.

- SNOMED - [SNOMED CT](#) is a structured clinical vocabulary for use in an electronic health record. It is the most comprehensive and precise clinical health terminology product in the world. It forms an integral part of the electronic care records as it supports the use of information in a clear, consistent, and comprehensive manner.
- Maternity Service Data Set - The MSDS collects information on each stage of care for women as they go through pregnancy. It provides a national standard for gathering data from maternity healthcare providers in England. It covers key information captured from NHS-funded maternity services.

SNOMED

The move to a single terminology, SNOMED CT, for the direct management of care of an individual, across all care settings in England, is recommended by the National Information Board (NIB) in '[Personalised Health and Care 2020: A Framework for Action](#)'.

The benefits of using SNOMED CT in electronic care records are:

- Vital information can be shared consistently within and across health and care settings.
- Comprehensive coverage and greater depth of details and content for all clinical specialities and professionals.
- Includes diagnosis and procedures, symptoms, family history, allergies, assessment tools, observations, devices.
- Clinical decision making is supported.
- Facilitates analysis to support more extensive clinical audit and research.
- Reduced risk of misinterpretations of the record in different care settings.

In England SNOMED CT must be implemented across primary care and will be deployed to GP practices in a phased approach from April 2018. Systems used by GP service providers must adopt SNOMED CT. Secondary care, acute care, mental health, community systems, dentistry and other systems used in direct patient care must use SNOMED CT as the clinical terminology, before 1 April 2020. Some system suppliers are using SNOMED CT within their maternity systems to comply.

Maternity Service Data Set

The [Maternity Services Data Set](#) collects information on each stage of care for women throughout the pregnancy pathway providing reliable information for:

- Local and national monitoring
- Reporting for effective commissioning
- Monitoring outcomes
- Addressing health inequalities
- Payment of Maternity Services

An Information Standards Notice (ISN) mandates the national collection of the MSDS. The ISN requires that maternity information systems must be fully conformant with the standard from 1st November 2014.

Version 2.0 of the MSDS is currently in development and the ISN is due to be published in September 2018, with go live planned for April 2019 (dates subject to change based on approval timeframes). Updates regarding this are circulated via the MSDS newsletter.

Building-up digital maturity

- **The data collected is an invaluable source of information** that enables maternity services at a local and national level to monitor, improve and drive safety. It is envisaged that alongside the interoperable record sharing, clinicians will be able to input information once, enabling it to be used multiple times. Therefore, it is worth considering how compliance with MSDS and the use of SNOMED CT can facilitate the benefits associated with a maternity driven service (see [data driven improvements in maternity services](#) section).

Digital 'Standards' national key findings:

- 18% of maternity providers either 'somewhat agree' or 'agree completely' that healthcare professionals in their organisation use SNOMED CT to record clinical information at the point of collection in maternity digital systems. However, comments suggest that there was an overall lack of awareness regarding SNOMED CT coding.
- On an extremely positive note, 96% of maternity providers submit their Maternity Service Data Set to the required standard, a marked increase in submissions over the past 18 months. This suggests that maternity providers are engaging with this requirement and further comments acknowledge how it's being used to drive service improvement.

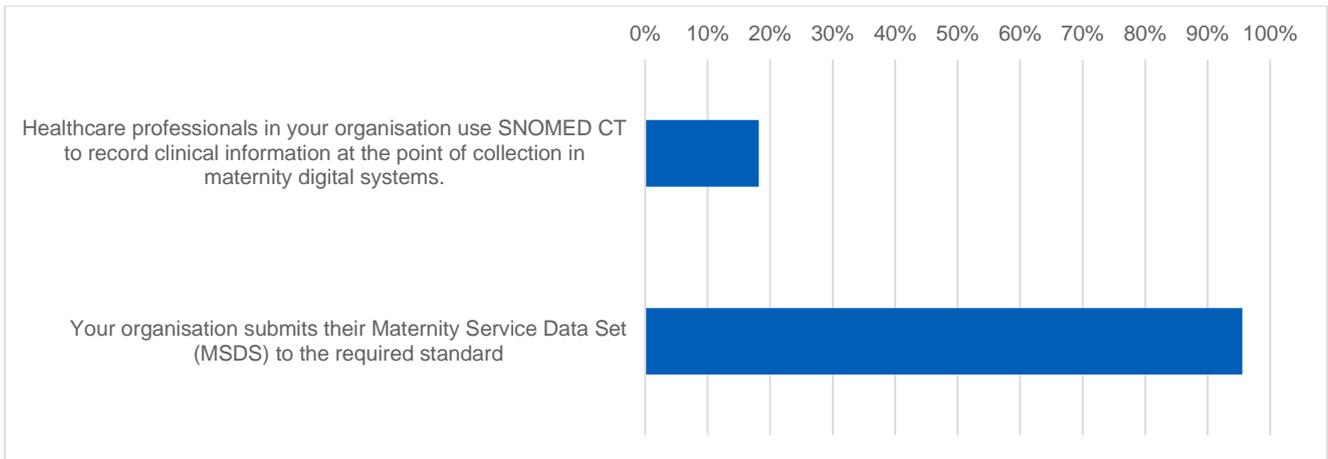


Figure 57: Use of SNOMED CT and MSDS to record and submit data

Maternity DMA quotes, what you told us:

- United Lincolnshire Hospitals NHS Trust:** *“Submission of MSDS data where previously nothing being submitted. Data quality is improving month on month and working closely with the Information Team to continue this trend. Medway Maternity doesn't use SNOMED coding. BI data extraction from the maternity system provides data for all elements of the MSDS returns.”*

Call to action

For more information regarding MSDS or SNOMED please visit these external weblinks:

- [SNOMED CT](#)
- [Maternity Services Data Set \(MSDS\)](#)

Where maternity providers scored low on this ‘standards’ section, you may wish to consider the following areas:

- [Maternity Services Data Set \(MSDS\)](#)

13. Business and clinical intelligence

This section focuses on the extent to which business and clinical intelligence are used to support operations at your maternity provider.

Background

To be able to manage services on a daily basis and develop robust strategic plans, you need access to high-quality and timely data. It's also important to understand your current activity and performance compared with other organisations and be able to measure the potential impact of proposed service changes.

The National Maternity Review Report (Better Births, 2016) sets out the importance of data and concludes that if teams, organisations and systems are to improve, they must benchmark where they are, how they compare to others and how they are improving over time. As part of its examination of data and information sharing, Better Births finds that the appropriate, regular and accurate capturing of outcomes of care reported by women and families is currently proving to be a challenge.

Building-up digital maturity

- **Using service data to create a baseline:** Key Performance Indicators (KPI) and other service data are important for tracking benefits from digital changes, initiatives, and measuring if change initiatives have had the intended positive impact upon services (see [business cases and business change](#)).
- **Using data to identify areas for improvements:** comparison to national averages and understanding variation within the maternity service can be a useful method for identifying areas where change initiatives will have a big impact on the service (see [process mapping the maternity pathway](#) section).
- **Consider implementing digital patient feedback,** as described in other sections, digital patient feedback is another useful source for data to help guide improvements to the maternity service.

'Business and clinical intelligence' national key findings:

This section focuses on service data collection and feedback from service users and how this is used and shared. Analysis of this section has been broken down into three subsections:

- Service Feedback
- Patient Data
- Using Information

Service feedback

- The most common patient feedback tool is the Friend and Family Test (FFT) which is used by 98% of maternity providers. An independent review of feedback in maternity services commissioned by NHS England concluded that women are more likely to give feedback if it's easy and quick to do so (see [feedback in maternity services](#)).
- “Patient feedback is collected digitally and used to support ongoing service improvement” 63% of maternity services identified that they collected feedback digitally to support ongoing service improvement.

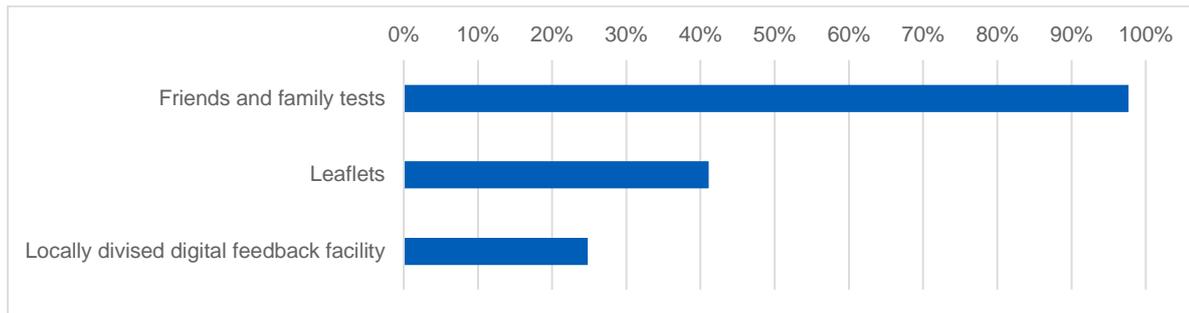


Figure 58: The most common patient feedback tool (including digital and paper means)

Patient data

- 73% of maternity providers agreed that maternity care professionals based in hospitals have access to real time or near real time information about their caseload/women under their care, versus 55% in the community.
 - At first glance this statistic may seem positive, however it suggests that 27% maternity services don't have access to live information in hospitals and 45% don't have access in the community.

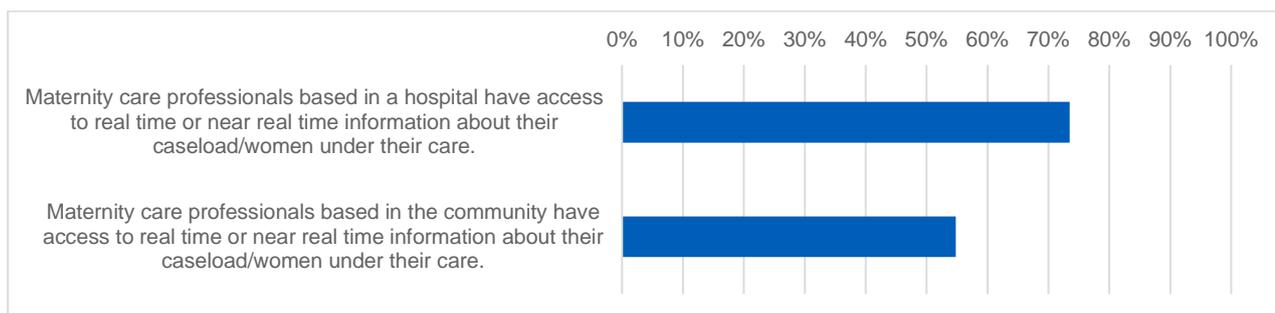


Figure 59: Access to real time information about caseload in hospital and community settings

Using information

- Survey findings indicate that maternity providers are gathering and sharing data to be used for service improvement and clinical intelligence (81% agree). However, automated digital population of dashboards is low (29% agree) and therefore data quality may be inhibited.
 - “The data collected as part of caring activities is routinely used for clinical audits.” 87% of maternity providers agreed with this statement.

- “Data collected as part of caring activities is used to build capacity and demand forecasting models” nearly two thirds of maternity providers agreed with this statement (64% agreed).
- “Your organisation accesses 111 and 999 services data to support triaging, service planning and intervention.” Only 17% of maternity providers agreed with this statement. which suggests that there is a missed opportunity to work collaboratively with other support services to gain information on service delivery and pathways.

Maternity DMA quotes, what you told us:

- **Calderdale and Huddersfield NHS Foundation Trust:** *“Business and Clinical Intelligence has grown with the use of the electronic system. All data is directly extracted from the system and used to massive effect. It continues to influence quality of records and care, data for maternity data set; KPI's; maternity dashboard allowing us to not only review local statistics but to benchmark against other local and national Trusts.”*

Call to action

When used well data can become a real asset for any service. Providing that there is confidence in using the information, and the quality of the data, then positive changes can be made using the analysis. Data collected via digital systems tend to provide more accurate and useful information than a paper-based approach.

One great example of using service data well is a service called [Labour Line](#), developed by Hampshire Hospitals NHS Foundation Trust (HHFT) and South Central Ambulance Service (SCAS) in collaboration. This has proven to be a useful resource for women and has impacted on both the admissions to the labour suite and also call out of ambulances. Using data from 999 and 111 may provide insight into areas where small changes may have an impact on service delivery. This achievement is in contrast to the fact that, currently, only 17% of maternity services access 111 and 999 services data to support service planning.

Business and clinical intelligence can also be a useful means for comparison and collaboration with other organisations and for making data driven improvements within a service, these topics are explored further in the [data driven improvements in maternity services](#) section.

Where maternity providers scored low on this ‘business and clinical intelligence’ section, you may wish to consider the following areas:

- [Data driven improvements in maternity services](#)
- [Feedback in maternity services](#)
- [Maternity Services Data Set \(MSDS\)](#)

14. Enabling infrastructure

This section focuses on the underlying infrastructure that enables the digital capabilities covered in this assessment.

Background

Many sections of the Maternity DMA are focused on measuring the readiness and capability of maternity services to adopt new and emerging technologies. However, this infrastructure section is more concerned with assessing the basic building blocks of digital maturity. Areas explored in this section include the fundamentals of infrastructure, usability of system and links outside the maternity service needed to support the clinicians using the systems. Higher levels of digital maturity will be more easily achieved by those maternity services that have these elements working well.

Infrastructure is something that maternity services and LMSs should be fully aware of and factor into transformation plans. Stakeholder engagement events, run as part of the Maternity DMA development, anecdotally flagged issues around infrastructure, and the results of the maturity assessment support those findings.

Infrastructure links the care pathway together, regardless of location, and enables information to move and be accessed securely from different settings. This includes connectivity and use of wi-fi, adequate resources such as mobile devices and security. Therefore, infrastructure is a matter that needs to be considered in conjunction with Trust wider planning and across LMS's.

Building-up digital maturity

- **Within a maternity service**, it's important that adequate hardware is supplied, and that support and usability meet the requirements of staff. A compelling business case will be required to close the gap on any hardware shortfall (please see the hardware section of the [business cases and business change](#) section).
- **Building a relationship with your local IT department:** Establishing a relationship with a named individual is the first step towards taking a collaborative approach toward planning the digital support your maternity services will need. It's possible that the appropriate person was involved already, in providing answers for the Maternity DMA submission.
- **Designing user friendly digital systems:** Systems are more likely to be user friendly for clinicians when digital change initiatives have clinical leadership.
- **Connectivity for community staff:** If the ambitions for the community hub model are to be successfully delivered then fundamental infrastructure issues must be addressed, especially regarding connectivity for community staff (see [connectivity for community midwives](#) section).

‘Enabling infrastructure’ national key findings:

Analysis of this section has been broken down into three subsections:

- Assessing infrastructure
- Usability
- Links outside the maternity service

Assessing infrastructure

- There is a huge difference in the availability of free Wi-Fi within the hospital setting (86% of maternity providers agreed) when compared to the availability of free Wi-Fi in the community (26% of maternity providers agreed).
- 55% of maternity providers agreed that healthcare professionals are equipped with mobile devices to access clinical applications and information at the point of care.

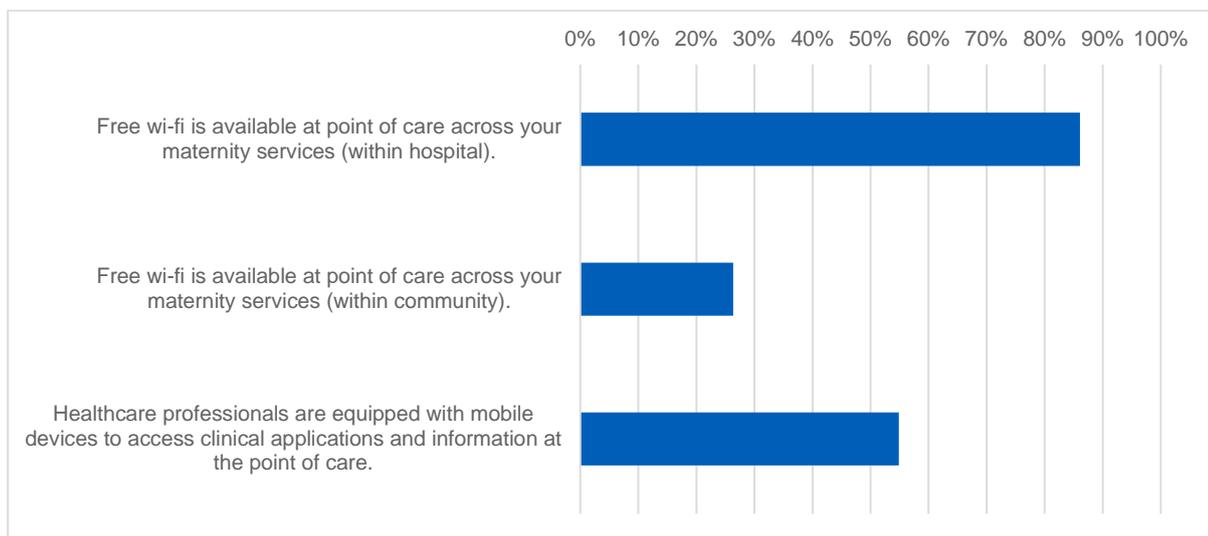


Figure 60: Access to free Wi-Fi in hospital and community settings

Usability

- 63% of maternity providers agreed that healthcare professionals have single sign-on access and authentication to clinical applications.
- 37% of maternity providers agree that digital systems meet users' expectations regarding the time it takes to log-in to clinical applications and update/retrieve information which implies that 63% of digital systems are taking too long to log on or retrieve information.
- 84% of maternity providers agree that maternity services are supported by documented disaster recovery processes, with clear roles and responsibilities assigned, with respect to business-critical digital systems.
- 42% of maternity providers agree that digital systems meet users' expectations regarding repair and substitution times.

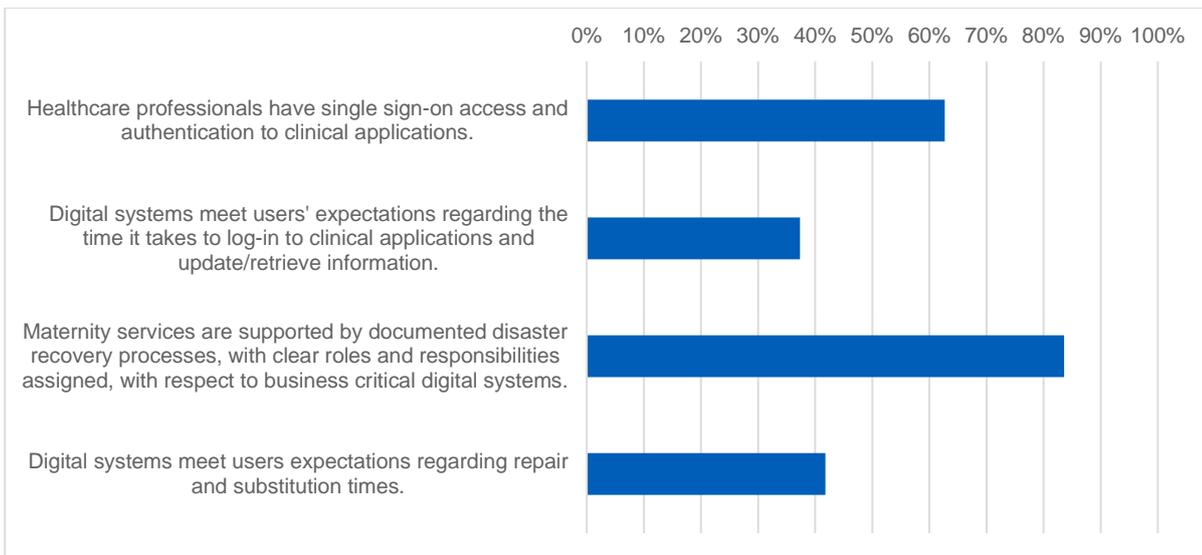


Figure 61: Usability of clinical applications

Links outside the maternity service

- 45% of maternity providers agree that there is a named individual within the IT. Dept that addresses maternity specific issues.
- 29% of maternity providers agree with the statement “clinical data within your maternity system is accessible to other systems as structured information through any Application Programming Interfaces (APIs)”.

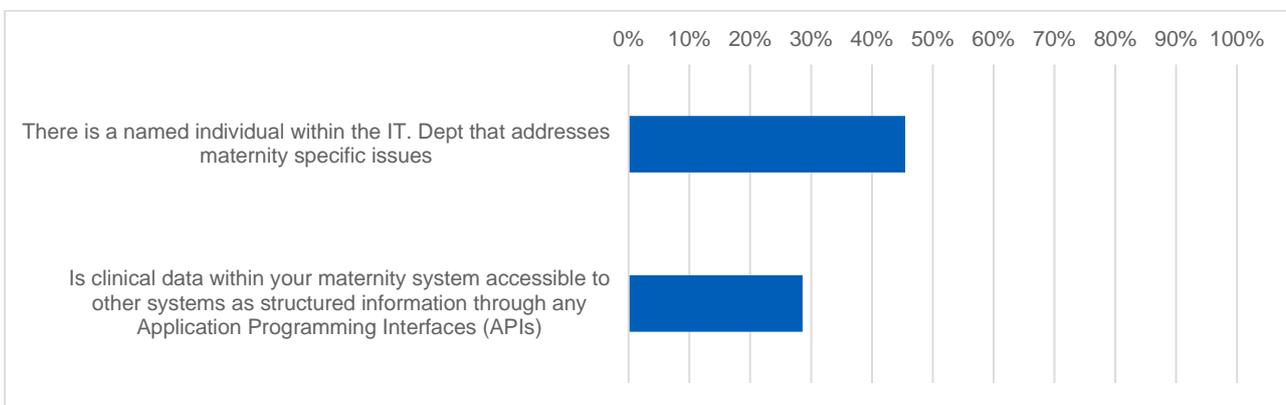


Figure 62: Accessibility of clinical data within maternity system

Maternity DMA quotes, what you told us:

- **Birmingham Women's and Children's NHS Foundation Trust:** “New Wi-Fi within the Trust building. New Wi-Fi within GP surgeries. New community laptops with 4G connection. The need to implement the new EPR has contributed to the change.”
- **Warrington and Halton Hospitals NHS Foundation Trust:** “Access to VDI (Virtual Desktop) to the community for primary care areas, an increase of the primary HSCN bandwidth from 200MB to 500MB”.

Call to action

The answers provided in this section highlight some issues regarding infrastructure across maternity services. Some services suffer a shortage of supply in hardware and the adequate support and connectivity to make use the resources they have. Resolving infrastructure problems is fundamental for achieving higher levels of digital maturity.

If the adoption of the community hub model is to be successful, infrastructure for midwives in the community will need to be a priority (see [connectivity for community midwives](#)). Future ways of working will likely see stronger links between maternity services and the IT department which support them. Clinically lead digital transformation will also lead to increases in the usability of systems and increased application of solutions, (such as Single Sign-On; see the [myth busting and quick wins](#) section for more detail on this topic).

Where maternity providers scored low on this 'enabling infrastructure' section, you may wish to consider the following areas:

- [Connectivity for community midwives](#)
- [Myth busting and quick wins](#)
- [What does a good system supplier look like?](#)
- [Business cases and business change](#)

Appendix B – Additional Resource

The Maternity DMA highlighted a large number of topics that could be explored as part of digital maturity. The emerging themes and additional resources listed below are the first efforts to address some of these digital topics.

The longer list of topics not covered as part of this report will be considered as part of the 'driving up digital maturity' phase. As details emerge on these topics, they will be included on the Digital Maturity Toolkit website. However, these topics are not currently within the scope of the project. The additional resources listed below have been explored in a small amount of detail and may be expanded on the future.

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1. Clinical Safety Officer

Role of the Clinical Safety Officer within digital transformation of maternity services

Clinical Safety Officers are a key resource in digital transformation in maternity services. In the Maternity DMA, 66 out of 135 providers strongly agreed that *'the maternity service engages with the organisation's Clinical Safety Officer with regards to the undertaking of assessments of clinical safety and risk for maternity clinical systems.'* 19 providers somewhat disagreed or completely disagreed with this statement.

It is essential that maternity providers engage with their trust's Clinical Safety Officer when taking on digital projects, for compliance with the DCB0160 Standard. More information about the DCB0160 standard can be found [here](#).

More information on the DCB0129 standard can be found [here](#).

These digital projects include the whole digital lifecycle, deployment, subsequent system changes and decommissioning. The Clinical Safety Officer role is fundamentally about reducing patient harm by proactively managing health IT system's risk.

In the 'governance' and 'resourcing' sections of this report, having a Clinical Safety Officer has been recommended as a way of helping to ensure safety standards are met when making digital technology changes.

The role of a Clinical Safety Officer can vary in different trusts. However, below are some example roles and competencies a Clinical Safety Officer may have:

- A Clinical Safety Officer needs to be suitably trained and qualified in risk management or have an understanding in principles of risk and safety as applied to Health IT Systems.
- It would be beneficial for a Clinical Safety Officer to also have experience of conducting clinical risk management activities in an appropriate clinical setting.

Activities a Clinical Safety Officer may take responsibility for:

- Approval of the Clinical Risk Management Plan to confirm that the plan is appropriate and achievable in the context of the Health IT System deployment, modification and decommissioning.
- Ensure that clinical risk management activities are completed in accordance with the Clinical Risk Management Plan.
- Review and approval of all safety documentation including Clinical Safety Case Reports and Hazard Logs.
- Review of evidence in the Clinical Risk Management File to ensure it is complete and supports the Clinical Safety Case Report.

- Provide a recommendation to top management regarding whether the Health IT System is safe to deploy.
- Raise any unacceptable safety risks to top management.

Example key competencies:

- In-depth knowledge of the practice of related healthcare, clinical workflow and supporting business processes is required to understand how and why adverse outcomes occur in patients and to pre-empt potential hazards associated with the Health IT System.
- A thorough understanding of why and how errors occur in the development, deployment and subsequent use of Health IT Systems and how these can result in patient harm. Knowledge is required of measures that can be effectively applied to reduce associated clinical risk.
- Able to independently recognise potential defects in the inherent design of a system, how unintentional errors may occur and how the system impacts existing business processes, etc.
- Needs to be able to critically analyse recommendations made by other representatives.
- Will have to make calculated decisions on whether proposed solutions are warranted and cost-effective.
- For reported defects, able to identify root causes and propose practical and effective solutions from a clinical perspective.
- Able to consider and review differing opinions and broker the optimum solution between involved stakeholders.

Training

Whilst suitable training is provided by NHS Digital in partnership with other bodies, it is recognised that there are other methods to acquire relevant skills, e.g. master's modules in Patient Safety.

Details of the training offered by NHS Digital can be found [here](#).

2. National Maternity Survey Programme

The Care Quality Commission (CQC) is the independent regulator of health and social care in England. Its purpose is to make sure health and social care services provide people with safe, effective, compassionate, high quality care and to encourage care services to improve. To deliver this, CQC monitor, inspect and regulate services to make sure they meet fundamental standards of quality and safety, and publish what they find, including performance ratings, to help people make care choices.

CQC collects, analyses and uses a range of intelligence that can inform us about people's experiences of care. Part of that information comes from people who have recently used specific NHS services and are asked about their experiences as part of an NHS Patient Survey Programme delivered by CQC.

The CQC National Maternity Survey Programme is designed to capture the views of representative samples of participants in a systematic way, from all eligible NHS trusts in England. Each survey contains a set of questions that is designed and tested to provide insight into people's experiences and to highlight areas where individual providers could improve services.

The CQC runs the NHS Patient Survey Programme, that includes a National Maternity Survey, aimed at women who have given birth within a given time period. Most trusts providing maternity services implement the survey with a specified cohort of women via a small number of approved contractors and according to a specific set of instructions. A small number of trusts opt to implement the survey in-house but must similarly adhere to published guidance materials. This means that the survey data can be compared across trusts. Findings are reported back to individual trusts with benchmarking data. The survey is conducted at a minimum every two years and will be conducted annually from 2017- 2019. It is currently conducted as a paper survey, with initial questionnaires sent to women's homes approximately six weeks after birth. The most recently published [survey](#) received responses from just under 18,500 women who gave birth during February 2017. The 2018 Maternity Survey is currently in the fieldwork phase, with national results provisionally scheduled for publication January 2019.

The NHS Patient Survey Programme has a new strategic direction for 2018-2021, which includes the development of a digital method of survey delivery utilising mobile phones and email addresses. Results of the Maternity DMA show that at a national level, 91% of women provide a mobile phone contact number, where only 23% provide a contact email address. Therefore, measures to ensure this information is more widely collected may need to be put in place in order for this to happen.

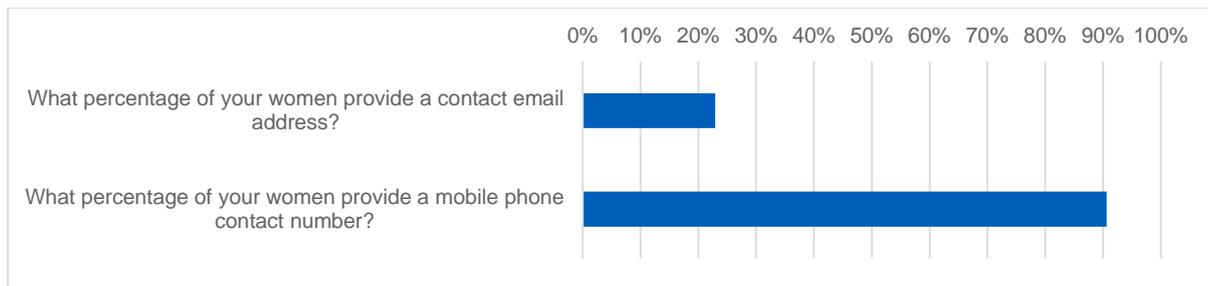


Figure 63: Percentage of women providing a contact email address and mobile phone contact number

To date the programme has distributed paper questionnaires using a postal methodology only. The proposed digital solution will form part of a mixed methods (paper and digital) approach to surveys, which aims to reduce the costs of running the programme for trusts and allow CQC to, potentially, increase frequency and sample sizes with minimal cost impact.

In adopting a mixed methods approach, CQC will be able to design and utilise an optimal delivery method for maximising survey response rates and improving responder representation. Early work in this area has already begun, with a small number of pilot interventions exploring the use of SMS reminders, online surveys distributed via SMS and links to online surveys being provided on paper. The learning from these pilots will be incorporated into future iterations, with the Maternity Survey anticipated to include a digital completion method within the next two years.

CQC's corporate strategy '[Shaping the Future: CQC's strategy for 2016 – 2021](#)' sets out the organisation's aim of transforming the way that they use knowledge and information to deliver the purpose stated above.

This includes an acknowledgement that:

- Behavioural changes to technology have made it easier for people to leave instant feedback about services, and new tools to analyse data across the health and care system. As a result, CQC will do more to improve how they use and capture the views and experiences of people as part of an intelligence-driven approach to regulation.
- Improving the use of information from the public to help spot problems quickly, can prevent poor care and abuse happening to others in the future, and celebrate improvements.

There is clear benefit of using the data from the CQC National Maternity Survey to find examples of best practice and generate new ideas and ways of improving services. Not only does the CQC National Maternity Survey allow for benchmarking to compare against other Maternity Services but it offers a useful resource for monitoring patient feedback. This could be useful to identify and target which groups of women are particularly under-represented. Some services are looking in more detail at issues raised by women in the CQC National Maternity Survey (such as Luton and Dunstable NHS Foundation Trust, who run a quarterly survey based on the CQC survey). By transitioning services such as the CQC National Maternity Survey to a digital platform get feedback quicker and monitor patient experience over time.

3. Maternity apps research

Background

Currently, women are provided a variety of information as part of their maternity care throughout their pregnancy in a variety of formats, including face-to-face appointments, through leaflets, over the phone and online. We now live in a world where young people rely on obtaining information online and expect information instantly. People want to be able to access information to help inform their opinion as to what best approach to take. In line with this trend, there are a number of digital apps and websites available within maternity care for sharing information and supporting decisions, as well as interaction through social media. Several websites and apps have already been developed by public, private and third sector organisations to help women manage their pregnancy.

The [Ofcom report \(2015\)](#) on the use of and attitudes to media in the UK compared trends over the last ten years across different adult age groups. It was found that six out of ten adults go online using their mobile phones or tablet devices and the most accessed websites were Google, YouTube and Facebook. These were also consistent across younger and older age groups. It is important to recognise this shift in culture and embrace digital technology and utilise the benefits it can offer to support improved collaboration and coordination of care throughout the maternity pathway. This is also consistent with research conducted by the NHS Digital Apps Library Team, which highlighted that digital attitudes towards technology have changed with women now using a variety of digital tools throughout their pregnancy for support and to monitor their baby's development. The evidence is clear that there is now a demand for an increase for health information to be available online. This aligns to a series of recommendations made in Better Births:

'Unbiased information should be made available to all women to help them make their decisions and develop their care plan This should be through their own digital maternity tool, which enables them to access their own health records and information that is appropriate to them, including the latest evidence and what services are available locally'.

The capability of being able to personalise and for women to receive a tailored, personal service which is easily accessible is also a desirable requirement.

Research commissioned by the Department of Health and Social Care confirms that women and healthcare professionals see the potential value in an interoperable record and digital tool or app if the products or systems can free up staff time to provide care and offer the woman unbiased, reliable information. It is important that the information offered digitally to women has a level of clinical assurance. Indeed, this was a recommendation in Better Births, that a digital tool should observe a series of principles and *'bring together the best existing digital services, apps/tools and online information from the NHS and from other organisations to support high quality access to information and resources.'* Midwives currently prefer to mainly direct patients to NHS.UK and charities for trusted information in the absence of a definitive place where reliable information is available. A key ambition of the Maternity Transformation Programme in England is therefore to develop a digital maternity tool and work towards the implementation of women-held digital maternity records.

What are the challenges faced?

The ability to access digital tools and solutions that meet the needs of the users, while also providing unbiased and reliable clinical information, is a challenge. Giving mothers the confidence and reassurance that the information they access has the value and trust of the NHS brand and has been through a thorough assurance process by healthcare professionals is essential. There are so many digital apps and online resources out there, but it is unclear which meet the needs of women, as well as there being evidence that they are tried, tested, recommended and endorsed by clinicians and/or professional bodies. The problem at present is that there is a lot of information online which contradicts the advice given by midwives, health visitors, GP's, specialists, friends and family. Surfacing the right apps for women during pregnancy and for new mothers is difficult. The volume and inconsistencies of information online and within apps can mean women are unable to filter what is right for them and what is correct medically speaking. As such, they will resort to experimenting with a myriad of different apps through trial and error until they are confident they have found something that meets their needs.

The key barriers to the use of apps centres around usability, correct information and level of engagement. Other barriers to recommending apps are often down to an individual's lack of awareness or trust in app. A lack of any clear national guidelines means many midwives instead look to The National Institute for Health and Care Excellence (NICE) and The Royal College of Obstetricians and Gynaecologists (RCOG) for guidance. Midwives are not always aware of apps available and in some cases, they may be told by their trust not to recommend apps at all. Some maternity providers promote apps such as Baby Buddy and Bounty due to agreements they hold with them.

As part of a Digital Maternity App Survey completed by NHS Digital in August 2017, we asked what existing apps trusts currently recommend to women and their families. Responses were received from 36 (64%) of the trusts. The results were dominated by 2 existing apps; Baby Buddy and Bounty. Other apps mentioned were My Birth Place, Bumps and Calm Harm. Some of the respondents stated that they don't currently recommend an app. This may further suggest that some trusts are not confident in recommending existing products. However, it could also indicate a lack of awareness of what is available.

Another problem which has an impact on the use of digital apps is the confidence of women who often rely too heavily on contacting the midwife for reassurance. If women were able to have more confidence in apps and online resources, then this could potentially reduce the burden on midwives. If they could be directed to information or recommended an app by their midwife, this could assist in instilling confidence in women to find answers to non-urgent queries elsewhere. Digital tools could supplement the support offered by midwives and offer a platform for women for advice and reassurance when hitting different milestones. Maternity providers do use digital technology to support improved collaboration and coordination of care provision throughout the maternity pathway.

Feedback from the Maternity DMA illustrated that 36% of maternity providers 'agreed completely' and 31% 'somewhat agreed' that digital technology is effectively used to support this. Further feedback from the Maternity DMA indicated that little virtual support is offered to

women deemed to be low risk, with only 6% completely agreeing with this and 16% somewhat agreeing. Some of the virtual support identified included:

- Low risk women being directed to the trust's website
- 24/7 triage telephone support
- Online leaflets
- Remote blood pressure monitoring
- Women may contact their midwife by telephone call, skype, text messages or WhatsApp
- Tele-health available for certain clinical pathways
- An e-midwife offering virtual support
- Breastfeeding Facebook page offering support to breastfeeding mothers
- Baby Buddy
- Mobile phone App supported by "Bounty" with local information uploaded and updated regularly
- Mobile platform applications and Facebook groups

A lot of information given to women throughout the maternity episode currently exists on paper. This is not ideal as there are numerous initiatives for organisations to become paperless and make resources available electronically. Based on feedback from the Digital Maternity App Survey, the average number of leaflets was 53.5 with a total of 2944 leaflets across all trusts. Two trusts have 200 leaflets. This gives an indication of leaflets that the app will need to support in total and per trust. Additionally, 100% of respondents said they would use the ability to host local information leaflets within the maternity app if the facility was available. By having the option to direct women to information presented in a digital format (hosted by the trust on a website or through an app) would result in financial savings for those trusts currently printing leaflets.

Future of digital maternity apps?

Maternity providers should recognise the clear feedback and evidence that women would prefer to use digital technology to help them access the information they require through pregnancy. Not only would this benefit women but there are clear advantages for maternity providers too.

Feedback from the Maternity DMA suggests that providers are using digital technology in different ways. For example, on average, 62% of maternity providers collect patient feedback digitally and use this to support ongoing service improvement. 25% of maternity providers are using a locally-devised digital feedback facility, with 41% using this for leaflets. Feedback from the NHS Digital Maternity App Survey also supports the fact that providers are developing digital solutions. Six of the respondents (16%) stated that they are currently in the

process of developing a local app. Of these six, two were in collaboration with an existing 3rd party supplier (Bounty and Badgernet) while the other four are locally developed apps. A further 10 respondents (27%) stated that they are considering developing a local app. All respondents in the NHS Digital survey concurred that the ability to receive feedback via a national app would be valuable.

The role of the NHS and the Apps Library in determining the content is also crucial. The feedback from midwives highlights a desire for a more consistent, uniform and personal service for both pregnancy and beyond, but they need to be confident that the clinical content is assured. Having this will give both healthcare professionals and patients trust and reassurance. Having all trusted apps and recommended digital resources which make best use of video, email, and interact with local apps, Facebook pages, twitter and website in one place is a good, quick solution. All providers and suppliers looking to create or recommend an app should consider the recommendations and best practice principles from Better Births.

4. NHS Apps Library

The [NHS Apps Library](#) is the only place expectant mothers can find maternity apps and digital tools that have been assessed by the NHS.

The Apps and Wearables programme has developed a set of Digital Assessment Questions (DAQ) that are used to gauge the quality of apps already in use by the public. The questions have been created by experts in fields such as clinical safety, security and usability, and are designed to reassure anyone wishing to use or recommend an app that the products listed in the library meet the required standards and are safe to use.

Maternity is one of the programme's priority health themes, so apps submitted by developers that address a need in this area take precedence for assessment. Once they have successfully completed the process they are published on the library. The programme is currently refining the assessment process to make it easier to navigate for app developers, but without diluting the standards the DAQ demands. This will help bring more maternity apps in to the library and give increased choice to users.

Links to the Pregnancy and Baby category of the library can now be found across 10 of the 20 most popular maternity pages on the NHS.UK website. This is to help visitors find apps that can be used throughout pregnancy.

As well as providing a reliable source of maternity apps to expectant mothers, the library is also intended as a resource for healthcare professionals. The thorough nature of the assessment process is designed to give midwives and GPs confidence to recommend the maternity apps published in the library.

User research conducted by the programme has found that expectant mothers use a large number of maternity apps during pregnancy. The main purposes are to monitor their baby, manage their health and find advice and guidance. They said that any maternity app assessed by the NHS would give them confidence it was fit for purpose and safe to use.

The majority of midwives we spoke to said they do not recommend apps to their patients due to a lack of knowledge of what apps are available or which ones can be trusted. They felt the library would provide a solution to these concerns and give them an important resource to help improve maternity care for their patients.

By bringing together maternity apps that expectant mothers and healthcare professionals can trust, the programme is helping individuals take increased control of their care and wellbeing.

Supporting information

We cannot give details of how much the NHS Apps Library assessment process will cost to complete for developers as this depends on the type of app that is submitted.

A timeframe for completing the assessment process cannot be given as this depends on how each individual app performs against the assessment criteria. However, we are currently refining the assessment questions and building a Digital Assessment Portal that

developers can use to submit their apps and answer the DAQs. This will help to substantially reduce the time taken to complete the process in the majority of cases.

For further information about maternity apps currently on the NHS Apps Library, please see:

- [GDm-Health](#)
- [Kicks Count](#)
- [Squeezy](#)

5. Digital strategies

Background

Leading Change, Adding Value (LCAV) is a mantra for all nursing and midwifery staff wherever they work and whatever their role. Launched in 2016, the framework was developed to support nursing, midwifery and care colleagues to consider the outcomes of their work and question what impact their actions are having by evidencing a measurable difference to experience, outcomes and the use of resources. Focussing on these aims, linking them to the recommendations in Better Births, the Five Year Forward View reports and Wachter report, the use and need of technology and data is a core theme in all frameworks enabling healthcare to move forward in the digital era and achieve these aims.

A recent survey published by the Royal College of Nursing (RCN) '[Every Nurse and E-Nurse](#)' demonstrates that nurses fully understand and support that a digitally enabled health and social care system improves patient outcomes, enhances working lives and makes services more efficient. This can be applied to midwives. What is key is the illustration that nurses/ midwives are positive about a digital future. The report also highlights the challenges to making the vision a reality, and that many organisations do not prioritise the voices of nurses in providing digital leadership, or for engaging clinical systems suited to midwifery practice. These are common themes presented within the Maternity DMA responses and at the Digital Midwives Expert Reference Group events hosted quarterly by NHS Digital.

Midwives have always been at the forefront of sharing information with pregnant women via the shared maternity paper record, however recent changes to data collection have led to serious issues in relation to data management and information use. Midwives are frustrated that they are expected to produce ever more detailed information about their services and analysis of their performance with little support.

A Maternity-focussed digital strategy could help overcome some of these frustrations. This could involve a series of actions the organisation takes to help achieve the overarching goal. The digital strategy ensures goals are clear and helps the organisation put the right technology and processes in place to support these goals. For a strategy to evolve the organisation needs to consider:

- What the goals are
- What obstacles or challenges do they face
- What the maternity priorities against those of the wider trust are

Why is a digital strategy important?

Using technology to help health and care professionals communicate better and enable people to access the care they need quickly and easily when it suits them is paramount in providing high quality and safe care. To achieve this and improve smarter working processes a digital strategy is required to align activities with business goals in a constantly changing health and social care environment.

Despite the benefits that having a good digital strategy can bring, the evidence contained within the Maternity DMA still demonstrates that 27% of maternity providers report that their organisation does not have a clearly defined digital strategy that acknowledges the Maternity service and the challenges it faces and is aligned to clinical and corporate objectives. The overall average digital maturity score of this group of maternity providers is somewhat lower (41) than those who do have a clearly defined maternity digital strategy (54) indicating that having a good digital strategy in place is fundamental to increasing digital maturity.

Further analysis reveals that only 50% of maternity providers advise the maternity component of their organisational digital strategy is fully aligned to, and supported by, the latest submitted LMS plan. This indicates that maternity services are often overlooked or underrepresented when Trust-wide digital strategies are developed and put in place.

If this doesn't change, maternity providers will get left behind and failing IT systems will be unable to keep up to date with national requirements standards and, over time, the risks associated with this will heighten. Healthcare professionals involved in the maternity pathway will be unable to access the information they need at the point of care, ultimately putting women and babies at a risk.

What makes a good digital strategy?

Digital strategies usually refer to a shared, agreed direction that an organisation is taking in relation to digital products or services. They ensure that goals are clear and help put the right technology and processes in place to support these goals.

The goals stated in your digital strategy should be 'SMART', meaning they are Specific, Measurable, Attainable, Realistic and Time-bound.

As the results of the Maternity DMA demonstrate, having a good digital strategy is key to driving up digital maturity and, amongst other things, will help your organisation to:

- Provide online services for women e.g. Women's Personal Healthcare Record
- Improve the women's experience during the maternity pathway
- Improve data quality and control
- Expand digital services and grow

The Wachter Review (2016) '[Making IT Work](#)' made recommendations to trusts on what was required to facilitate a digital health future within five years and concluded that establishing a National Programme to train Chief Clinical Information Officers (CCIOs) could encourage strategies from all specialities.

Things to consider

As well as the trust having a digital strategy in place at an organisational level, it is essential for maternity providers that maternity services are considered as part of it. Maternity services being repeatedly overlooked, resulting in them lagging further and further behind. Challenges specifically faced by maternity providers, such as working in the community, are often forgotten about at an organisational level.

If your maternity service is not acknowledged within the organisation's digital strategy, consider finding out when the next review date is, approach the author and offer support and insight into the challenges and opportunities faced by your maternity service. Ensure you are aware of the service transformation programmes which are available to you locally and what resources are available. Review your digital strategy in collaboration with your LMS Digital Leader with consideration to local and regional risks. Ideally, the maternity element of the digital strategy should be co-created and ratified in partnership.

6. Maternity Service Data Set (MSDS)

Introduction

The Maternity Services Data Set (MSDS) is a patient-level data set that captures key information at each stage of the maternity care pathway including:

- Routine booking appointment activities
- Maternity care plan
- Dating scan
- Antenatal screening tests
- Structural fetal anomaly screening
- Labour & delivery
- Newborn screening
- Maternal or neonatal death

As a secondary uses data set it re-uses clinical and operational data for purposes other than direct patient care. It defines the data items, definitions and associated value sets extracted or derived from local information systems.

MSDS was developed as a key driver to achieving better outcomes of care for mothers, babies and children. The MSDS provides comparative, mother and child-centric data that includes information on incidence and care that can be used to improve clinical quality and service efficiency; and to commission services in a way that improves health and reduces inequalities. The MSDS must be implemented by all NHS-commissioned maternity services in England who have electronic data collection systems, including acute trusts, foundation trusts and private services commissioned by the NHS. Systems must be conformant with this standard.

Currently, the MSDS is submitted to NHS Digital using the Maternity Services Data Set XML Schema. The XML schema has been developed along with an optional conversion tool, which enables providers to load or copy their data into the provided table structure. For each reporting period, data providers should populate their XML schema file with data collected from their own local systems and upload this to the central system, using a secure online submission portal. Data submissions are required monthly, the schedule of which can be found on the Maternity Services Data Set section of the NHS Digital [website](#). Following the submission, NHS Digital is responsible for publishing several statistics based on the information captured throughout the maternity service care pathway in NHS-funded maternity services. An example of this includes the body mass index of the woman recorded at the booking appointment. Further examples of the types of statistics and links to the published monthly reports based on data submitted to the MSDS can be found on the NHS Digital [website](#).

Submitting data to the MSDS

Not all NHS-commissioned maternity services in England currently submit MSDS data to the required standards. As part of the current Maternity Services Data Set, the Information Standards Notice (ISN) specification clarifies that information recorded and held on paper does not need to be submitted within the MSDS. This paper-based exemption relates to providers who use paper records to collect maternity information for primary purposes. However, this exemption will be removed as part of MSDS (v2.0) as the vast majority (if not all) providers now have suitable electronic systems and any that do not should be encouraged to do so.

Based on the analysis undertaken from the results obtained from the Maternity DMA, of the 44 Local Maternity Systems, 34% 'completely agreed' that they submit their MSDS data to the required standard. This breaks down by provider as 71% completely agreeing that they submit their MSDS data to the required standard. 4% of providers disagreed completely with the remaining 25% neither agreeing or disagreeing.

Feedback from the Maternity DMA highlighted a variety of reasons why providers fail to submit data. These include:

- Lack of staff training.
- Ability to bypass mandatory fields.
- System not capable of meeting MSDS requirements.
- Not wanting to duplicate data captured on paper.
- Time taken to collate and submit data is manually intensive.
- Connectivity issues where data not captured through pathway.
- New system implementation issues.
- Poor integration between systems.
- Data not recorded.
- Data not pulled from legacy system extracts.
- Paper based system so unable to, and not required to, submit
- Lack of end to end system.
- Lack of resource and funding for additional staff or ability to purchase a compliant system.

It is important to ensure that these issues listed above are addressed. This will ensure maternity providers can implement the specification for reliable information to be provided for local and national monitoring, reporting for effective commissioning, monitoring outcomes and addressing health inequalities.

There are several resources listed on the NHS Digital website that can aid maternity providers, including organisational assessment and planning tools, guidance documents and useful contact information for further queries. The feedback obtained from the Maternity DMA clearly identified maternity providers who were satisfied that they were submitting the MSDS data to the required standard. Approaching these maternity providers might be a useful first step in understanding good practice and could be beneficial in helping other providers to improve. Engagement with other maternity providers may also inform those looking to improve as to what systems are effective and demonstrate what processes should be followed to conform to the MSDS standards.

For maternity providers having existing issues with their suppliers not conforming to the MSDS standard, they should remind the supplier that there is an ISN that requires that maternity information systems must be fully conformant with the standard. All providers should be discussing the MSDS with their system suppliers to make sure that any required upgrades have been made in accordance with the timescales in the ISN (ISB 1513 Amd 45/2012). Care providers may also wish to draw their supplier's attention to any contractual obligations to conform to information standards that may be written into local contracts between providers and their suppliers. If necessary, and where possible, providers should be making business changes to data collection processes to ensure that all data items are recorded and can be extracted. Any problems that cannot be resolved between the provider and supplier should be escalated to NHS Digital. Care providers may also wish to bring the MSDS to the attention of their commissioners, to ensure that they are aware of the availability of data in the form of extracts and to request any support required.

The future of MSDS

The upcoming release of the MSDS (v2.0) represents a significant change to the existing structure and brings the data set in line with the core structures of other national data sets managed by NHS Digital, including the Community Services Data Set (CSDS) and the Mental Health Services Data Set (MHSDS).

A number of requirements have resulted from the National Maternity Review, which led to the publication of the Better Births report in February 2016. One of the most significant changes is the capture of SNOMED CT, which is a standardised clinical terminology used across the care system. The use of clinical terminology, including SNOMED CT, supports the Personalised Health and Care 2020 policy, which requires local systems to move to using SNOMED CT as the single standard for holding data locally for primary use in all care settings by April 2020. This is also set out in the SCCI0034: SNOMED CT Information Standard. The use of SNOMED CT will allow specific conditions which trigger intermediate or intensive payment pathways to be collected as coded diagnoses and findings within the data set structure and allow more detailed data to be collected for analysis purposes. MSDS v2.0 will also capture data relating to Better Births initiatives such as continuity of carer and personalised care plans, as well as updated data about intended and actual place of delivery.

An ISN for MSDS v2.0 is expected to be published in September 2018, and submissions of v2.0 data are due to begin in May 2019 (for April 2019 data).

The changes to the MSDS align with the work NHS Digital have been involved with in creating a maternity record standard. The maternity record standard will be published on the Professional Records Standards Body (PRSB) website in September 2018. The use of SNOMED CT in both the maternity record standard and the MSDS will ensure data captured clinically can be extracted and used for secondary use purposes without the need for it to be transformed and submitted in a different way as part of a data collection. This will ensure information captured and shared by Maternity Services will meet the clinical needs of the professionals capturing the data and serve as a more comprehensive data set for secondary purposes.

Further information

- [Maternity Services Data Set](#)
 - Data for submission will be formatted into an XML file as per [Technology Reference Data Update Distribution \(TRUD\)](#)
 - If you an enquiry about MSDS, queries regarding the XML Schema or would like to suggest how NHS Digital can improve their web content and support material, please contact the NHS Digital Contact Centre on 0300 303 5678 or by email to enquiries@nhsdigital.nhs.uk
- [Child and Mental Health Statistics](#)
- [NHS Digital NSDS Reports](#)
- [Interoperable records](#)

7. Service management

Information Technology Service Management (ITSM) is the process of aligning enterprise IT services to business needs with a primary focus on delivering the best services to the end user. It deals with how IT resources and business practices together, are delivered in such a way that the end user experiences, the most desired result from the accessed IT resource, application, business process or an entire solution. This section of the report gives advice and guidance on areas that could help improve the overall delivery and support of ITSM within maternity services. It also looks at the results from specific sections of the Maternity DMA which could help to illustrate areas which may need to be focused on, to better define the level of service required to achieve business goals.

A strategy with clear objectives and direction supported, and endorsed by the Executive Management Team, will drive the business to succeed. Without a clear strategy, Information System (IS) development is unstructured or often retrospectively based on trends or emerging technology. 46 providers scored 100 and 'agree completely' when answering 'Your organisation has a clearly defined digital strategy that acknowledges the maternity service and the challenges it faces and is aligned to clinical and corporate objectives'. However, 13 providers scored 0 and 'disagree completely'.

IT infrastructure is essential to high quality modern healthcare. 67 providers scored lower than the national average overall score of 56 within this section. This problem could perhaps be explained by the fact that 44 providers scored 0 when answering whether they believed they had a named individual within the IT department that addresses maternity specific issues. 16 providers scored 0 in response to the question 'Digital systems meet users' expectations regarding the time it takes to log-in to clinical applications and update/retrieve information'. One of the key barriers included the lack of single sign on access, wasting valuable clinical time. Some providers commented that this was something that had changed for the maternity service, with regards to infrastructure, over the past year, whereas, others stated that investment in single sign on access was planned for the next 18 months.

Understanding your technology, its dependencies, age and profile is a significant enabler to incident resolution, strategy and development, and finance. Without understanding what assets an organisation has and how they are used, strategy development will fail. Only 16 providers 'agree completely' that their maternity service uses a digital system to record and track its clinical assets, in line with a whole trust initiative. 67 providers 'disagree completely' with this statement and listed typical barriers which included:

- No Interface with PAS System
- Lack of financial resource
- Insufficient hardware/ existing hardware now out dated
- Limited resources
- Lack of IT infrastructure

Resourcing and asset management is also something that should be considered. Knowing what you have, how, where and why it's used, supports effective decision making and provides valuable input to any future strategies. It is important that the end users who use the systems regularly and depend on IT for services are engaged and their views are not only heard but valued. A good relationship between the end users and the IT department is vital. Interestingly, the DMA results suggests that the majority of providers (80 providers) 'agree completely' that their maternity service is fully engaged with IT procurement processes/dept. and IT contract management, to support any required changes to the maternity clinical IT system. Only a very small proportion (6 providers) stated that they 'disagree completely' with this statement.

An organisation can never truly identify the costs of running a service until it understands the cost of incident management. The goal of incident management is restoration of a potential interruption of service, identifying and resolving the root cause and preventing the incident from occurring again. Furthermore, the real costs of resolution (software design, build, test and deployment for example) could outweigh the benefits achieved. It is therefore critical that effective and timely incident management becomes the norm and feeds into other process areas become standard practice. A review of the end to end incident management process from an end user perspective is a must. Making the process easier will encourage more incidents to be logged which in turn has the advantage of allowing for effective planning for releases and upgrades. A support organisation that isn't responsive and effective adds little benefit. Whilst prevention is better than cure, reactive resolution to incidents is an integral part of a high-quality service.

It is important that there is an awareness amongst all staff of the business continuity plan in the event of a disruptive incident. An example of a disruptive incident could include a cyber-attack, loss of connection, or server failure. The business continuity plan should detail the capability of the organisation to continue to deliver service at an acceptable predefined level following an incident with as little disruption as possible. The importance of considering when to go back to the system following a disruptive incident in consideration of care continuity and patient safety is also something that needs to be factored in. Further guidance and supporting material can be found on the NHS England [website](#). Analysis from the Maternity DMA showed that 64 of providers 'agree completely' that their maternity service is supported by documented disaster recovery processes, with clear roles and responsibilities assigned, with respect to business-critical digital systems. 11 providers responded that they 'disagree completely' with this.

This section has illustrated how ITSM can help a healthcare organisation, when implemented to a high standard. There are several benefits which include:

- Increasing the speed, cost-efficiency and effectiveness of IT service
- Reducing IT incidents
- By improving IT performance and robustness, ITSM enables employees to be more productive

8. Summary Care Record

The Summary Care Record (SCR) is an electronic summary of information from a patient's GP record, containing a minimum of: allergies, adverse reactions, acute medication, repeat medication and discontinued repeat medications. Patients can choose to have additional information shared through their SCR by providing explicit consent to their GP practice. This additional information can include: reason for medication, significant diagnoses/problems, significant procedures, anticipatory care information (e.g. management of long-term conditions), communication preferences, end of life care information and immunisations.

The information is updated in real time from the patient's detailed GP record and is stored centrally on the Spine. The SCR is accessed via a web link to the Spine Portal (which allows a quick, easy and free installation) and requires a Smartcard with appropriate access rights/permissions to access the information. Support for implementation and training is available from the SCR implementation team: scr.comms@nhs.net

Access to SCR is available 24 hours a day, 7 days a week and negates the need to request the information from GP practices directly. SCRs reduce prescribing errors and reduce delays in urgent care. As a result, they save time and money.

Across England, more than 96% of the population now have an SCR which allows authorised clinicians quick and easy access to key information for both local patients and out of area patients. In the Maternity DMA data, 59 out of 135 trusts strongly agreed or somewhat agreed that all maternity healthcare professionals in their organisation have access to a woman's SCR information. However, 40 providers strongly disagreed with this statement.

Information on how to set up your organisation so that staff can view SCRs can be found [here](#).

Further information about Summary Care Records is available on the NHS Digital Website [here](#).

For help with implementation please contact the Summary Care Record Implementation Team: scr.comms@nhs.net

9. e-Prescribing and exemptions

The main aim of Electronic prescribing (e-Prescribing) and Electronic Prescribing and Medicines Administration (EPMA) systems is to improve patient safety by reducing prescribing and administration errors that could result in medication errors and adverse drug events. e-Prescribing systems are where the ordering, administration and supply of medicines is supported by electronic systems. These systems offer the opportunity to address such problems, as well as to support a robust audit trail and enable potential innovations in the medicines use process. An aim of any e-Prescribing system should be to promote, and enforce where necessary, known best practices for the safe and effective use of medicines.

Standards

The NHS dictionary of medicines and devices (NHS dm+d) was developed and delivered through the UK Clinical Products Reference Source (UKCPRS) programme - a partnership between NHS Digital and the NHS Business Services Authority (NHSBSA). The primary purpose is to support interoperability, in order for electronic systems to successfully exchange and share information about medicines, relating directly to a patient's care in a defined standard using dm+d identifiers and descriptions when transferring information. The implementation of dm+d started with the release of the Primary Care Drug Dictionary component and this was then extended into secondary care with the inclusion of the Secondary Care Drug Dictionary component.

The [dm+d](#) is a dictionary of descriptions and codes which represent medicines and devices in use across the NHS. The dm+d contains a huge variety of information, including:

- Whether a product will be reimbursed by the NHSBSA if submitted for reimbursement by a dispensing contractor.
- The indicative price of each pack of a product (where a price is maintained by the NHSBSA).
- Current and discontinued products and packs available from manufacturers and suppliers.

The Electronic Prescription Service (EPS) is widely used in primary care settings and allows prescribers to send prescriptions electronically to a dispenser (such as a pharmacy) of the patient's choice. This makes the prescribing and dispensing process more efficient and convenient for patients and staff. The benefits include:

- Prescribers can process prescriptions more efficiently and spend less time dealing with prescription queries.
- Dispensers can reduce use of paper, have improved stock control, and provide a more efficient service to patients.
- Patients can collect repeat prescriptions from a pharmacy without visiting their GP and won't have a paper prescription to lose.

e-Prescribing systems are widely used in primary care settings throughout England, and almost all GP generated prescriptions come from a computer system. However, in secondary care e-Prescribing is, as yet, less widespread though the number of systems in use is growing. This focus has perhaps been given an increased focus in recent months. This being largely in part to the former Health and Social Care Secretary Jeremy Hunt announcing in February 2018 a £75 million investment to help increase the uptake of e-Prescribing in secondary care.

e-Prescribing in maternity

An important part of a midwife's role is an understanding of medicines management, particularly what a midwife can and cannot supply and administer. Further guidance can be found in the standards for medicines management on the NMC [website](#). Midwives may supply and administer, on their own initiative, any of the substances specified in medicines legislation under 'Midwives exemptions' (ME), provided it is in the course of their professional Midwifery practice (NMC 2012). [The Code](#) covers prescribing at paragraph 18 and requires that all midwife prescribers follow 'appropriate guidelines' in prescribing and act only within the limits of their training and competence. It is the responsibility of individual midwives to ensure that they remain up to date with any change to legislation, to the British National Formulary and best practice in prescribing.

Midwives can and do supply and/ or administer medicines by means of the midwives' exemptions. It is important to distinguish midwives' exemptions (an exemption from the provisions of identified pieces of medicines legislation), from an authorisation to prescribe (a separate qualification). It is the responsibility of any midwife relying on an exemption to ensure that they understand the scope of the limitation and practise within the scope of their qualifications and expertise.

A number of maternity suppliers currently offer an inbuilt integrated e-Prescribing medication module whereas other providers use separate medicine management applications such as the One:MedicinesPlatform developed by JAC.

Maternity Exemption Certificates

Pregnant women are exempt from paying for NHS prescriptions. The NHS Business Services Authority (NHSBSA) is responsible for administering the maternity exemption certificate, which entitles pregnant women and new mothers to free NHS prescriptions until their baby's first birthday. NHSBSA are currently in the process of piloting digital maternity exemption certificates with a small group of midwives, GPs and their patients and have developed a secure online alternative to the FW8 application form and a digital version of the maternity exemption certificate that patients can receive by email. It can be shown to pharmacy staff on a mobile device to prove entitlement to free prescriptions. Early [feedback](#) has been positive and there are a number of benefits associated by moving this which are highlighted in Figure 64 below.

965,625

FW8 forms were issued in 2016, which cost

£10,593

Over **460,000** plastic cards are issued each year, which cost the NHS

£194,522

in 2016

It can take up to **2 weeks**

for patients to receive a plastic card once the FW8 form has been processed - and many women will wait for it to arrive before getting the medication they need

It takes up to

500 years for a plastic card to degrade



75%

of patients receive their digital certificates within

24 hours

of beginning their application

£0

the cost of using the online application instead of the FW8 form

Figure 64: Digital Maternity Exemption Service Infographic

NHS Digital have been involved in work aimed at improving the sharing of information with regards to prescription exemption checking. This work is aimed at having an exemption status set on the Spine and therefore available to the dispensing system which means that the exemption is visible and pre-populated in the electronic reimbursement claim message.

Analysis of Maternity DMA

Medicines optimisation was one of the lowest scoring sections in the Maternity DMA. The national average for this section was 39 with 58% of maternity providers scoring under this total. 25% of maternity providers scored 0. On analysing the data further, only 15 providers scored 100 when answering what proportion of discharge, inpatient and outpatient medication is prescribed digitally. The breakdown of the supplier systems used by these providers is shown in Figure 65 below.

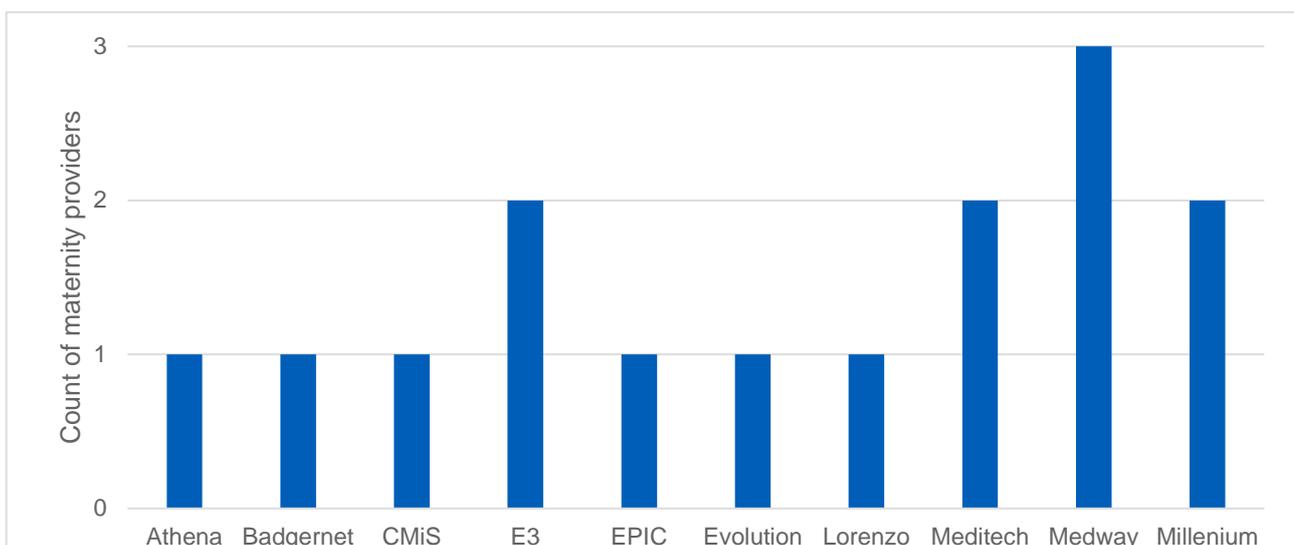


Figure 65: Maternity providers scoring 100 for medications to be prescribed digitally for inpatient, outpatient and discharge by system supplier

The main barriers to uptake of e-Prescribing in addition to cost, interoperability issues, and the fact some organisations are still largely paper-based were highlighted in the feedback in the Maternity DMA. These reasons included:

- Challenges with connectivity and hardware
- Rolled out across other specialties but not maternity
- Trusts competing demands
- System unable to provide Midwives Exemptions
- Non-integrated systems - maternity system not integrated with the trust system
- Getting electronic prescribing off the ground has been a challenge and with the implementation of the new maternity IT system, this has had to take a back seat

National figures have long argued that the implementation of e-Prescribing would significantly bolster patient safety. The first tech fund, announced in 2013, was initially explicitly intended to increase use of such systems across the NHS. But take-up remains slow. [Data](#) from Digital Health Intelligences Clinical Digital Maturity Index shows more than half of acute trusts still do not have inpatient e-prescribing in place.

e-Prescribing systems can also provide various degrees of clinical decision support (CDS), to help prescribers create orders based on full information about the patient and about the medicines in use. For example, a prescriber can be informed about a patient's allergies, or about potential drug-drug interactions. An effective EPMA system can give prescribers evidence-based advice which allows for improved consistency of care and an ability to personalise treatment.

Feedback from the Maternity DMA suggest that a number of maternity services are currently looking at, or are in the process of rolling out, an EPMA system or other digital electronic prescribing application. For those providers looking at the possibility of moving to a new supplier, it is worth considering whether the supplier offers an inbuilt integrated medicines management module.

There are clear benefits of implementing EPMA systems in terms of safety and quality of services provided for patients, and quantitative and qualitative efficiencies. The greatest benefits to be derived from implementing an EPMA system are those related to improving the safe provision of care to patients. EPMA systems can support mobile and collaborative working practices, but they cannot do so without the right kind of devices and infrastructure. Before making any decision and investing in an EPMA system, maternity providers should look at other trusts who have already moved and look at any lessons learned. A useful resource worth considering is the ePrescribing Toolkit for the NHS [website](#) which is designed to support NHS hospitals in the planning, implementation and use of ePrescribing and Medicines Administration systems.

Further information about e-Prescribing including the latest statistics and deployment figures can be found on the [Electronic Prescription Service](#) section of the NHS Digital website.

10. Feedback in maternity services

Better Births set out the importance of data and collecting patient feedback in improving services. Patient feedback can help a provider improve by allowing them to identify problems and see how they compare to other providers. As part of their review, Better Births also found that consistent and accurate collection of this data is a challenge for maternity services.

In the Maternity DMA, 28 out of 135 maternity providers strongly agreed that patient feedback is collected digitally and is used to support ongoing service improvement. 25 strongly disagreed with this statement.

There is a variety of ways maternity services can collect feedback from women. Some are paper surveys that can be completed at the service or sent home after the appointment. Digital methods include online surveys, SMS/text message surveys, tablets used in the service or surveys on an app.

The Ipsos MORI report was created to provide recommendations on how to improve digital collection of women's feedback on their experiences of using a maternity service. It covers a range of information about collecting feedback, including current feedback collection, considerations when collecting feedback and use of women's feedback. It also assesses how providers can use this data to benchmark themselves against other providers to drive improvement within their maternity service. The Ipsos MORI report can be found on their [website](#).

11. Dual data entry

Background

The heavy burden of data gathering and the search for clinical systems suited to midwifery practice are common themes presented within the Maternity DMA responses.

Midwives have always been at the forefront of sharing information with pregnant women via the shared maternity paper record, however recent changes to data collection have led to serious issues in relation to midwifery data management and information use. Midwives are frustrated that they are expected to produce ever more detailed information about their services and analysis of their performance with little support to enable them to do so.

Clinical staff on the front-line maternity services find themselves dealing with multiple systems many of which do not talk to each other, this is especially common in larger acute teaching hospitals and in community settings. The outcome of this is perpetuated by cumbersome duplication of data entry, see-saw between systems which fundamentally creates increased workload and significant delays.

What do we mean by 'dual data entry'?

Information will always have to be recorded at least once, so when considering 'dual' or 'multiple' data entry we are talking about repeatedly entering the same data or information into multiple systems, from paper to system and from system to paper the time it takes to carry out this repeated activity.

Why is dual data entry a problem?

Incompatible systems or the lack of electronic systems results in:

- Increased workloads for maternity healthcare professionals
- Greater operational difficulties, therefore greater cost to the Trust
- Increased risk of data entry errors
- Lower productivity for the midwives
- The potential for a reduction in patient safety and satisfaction

Evidence of this is apparent in the Maternity DMA. Maternity providers were asked at what points along the maternity pathway, dual data entry occurred (see Table 3).

Analysis shows that 90% of maternity providers perform dual or multiple data entry at least one stage of the maternity pathway and that nearly one quarter (23%) of maternity providers in England perform dual data entry at all nine stages.

Only 10% of trusts completely agreed that information in their maternity provider is collected/recorded once and that maternity healthcare professionals do not have to copy or re-enter it from paper to digital or from one system to another. Whilst encouraging progress is being

made, it appears slow and the impact of doing nothing to resolve this issue heightens the risk to both women and babies by less time to care.

The cost to the NHS

Dual data entry is undoubtedly a huge problem. The time taken by high skilled maternity healthcare professionals in performing dual data entry activities incurs a cost not only in monetary terms to the NHS but by taking away valuable time which could be better spent on the women and babies in their care.

Further analysis was carried out to try and establish how much time is spent on dual data entry and each stage of the maternity pathway. Figure 66 below shows the average times taken to perform dual data entry at each of the nine predefined stages of the maternity pathway from the feedback received. It is important to remember that this will vary from provider to provider and is very dependent on the individual local processes which are in place. Timings may also vary depending on whether 'single sign on' is available as it takes time logging in and out of multiple systems.

Stage	Time spent on dual data entry
Booking Appointment	15 mins
Follow up appointment in the community setting	5 mins
Antenatal outpatient appointment	10 mins
Unplanned antenatal appointment	10 mins
Induction of labour	20 mins
Labour	30 mins
Birth	15 mins
Postnatal inpatient care	20 mins
Postnatal care in the community setting	10 mins

Figure 66: Time taken on dual data entry at each stage of the maternity pathway

Based on the results of the Maternity DMA the estimated amount of time spent on dual data entry activities at a national level equates annually to:

- the equivalent of 462 WTE
- at a cost of £14,391,998 per year*

*Please note that this is purely a rough estimate to demonstrate the impact of the volume of dual data entry which takes place, based on the feedback from the DMA. This calculation is based on the annual number of women birthed at each provider and the stages indicated where dual data entry occurs. WTE are based on a 37.5-hour week at 45 weeks. Costs are calculated based on a mid-point Band 6.

Reducing the burden

The problems surrounding dual data entry are not easily solved. Investment in new systems or improvements to existing ones may be required. Incompatibility across system suppliers, a lack of funding, changes to local processes, resistance by local staff and maternity services being of low priority across the trust's digital strategy as a whole are also contributing factors.

So, what can be done? Understanding and mapping out your business processes is a good place to start. Doing this will provide a clear view of how data flows across the various stages of the maternity pathway and can often identify some quick wins as well as highlight problem areas. Refer to the [process mapping](#) section for further information.

Ensuring there is the right representation at Board level is also key. Having a representative who understands the challenges faced by your maternity service in respect of the maternity digital agenda means that the issues arising from dual data entry can be addressed and, over time, plans can be put in place to reduce the impact. Refer to the [digital leadership](#) section for further information.

12. Social media in maternity services

44 million people in the UK use social media, 66% of the total population, the most popular being YouTube, Twitter, Instagram, Facebook and Snapchat. Looking at the breakdown down by age suggests that 95% of 16 – 34-year olds and 86% of 35 – 44 years olds have a social media account. It is therefore unsurprising that some maternity providers have started to use this as an opportunity to communicate with their service users.

As part of this review we considered maternity service presence within the world of social media. The details of which are summarised below.

YouTube

Several trusts have produced videos to showcase their maternity units and the services they offer and housed them on the YouTube platform. The functionality enables the video to be public facing or by access following a link only.

Epsom and St Helier University Hospitals NHS Trust had uploaded the most recent video, a tour of their unit, when conducting this review (view [here](#)). This video has been viewed 1,200 times to date. Frimley Park Hospital NHS Foundation Trust showcased their unit via video 6 years ago and it has been viewed 575,000 times (view [here](#)). Ten other maternity units were identified when searching YouTube, however others may use it with managed viewing rules.

Within YouTube there is functionality to comment. In all cases viewed there was no disclaimer discouraging women to leave a comment and on occasion where women have tried to interact, there is often no response from staff, leading to missed opportunities. Additionally, the videos can very quickly become 'out of date' due to changes that occur within each maternity unit over time and therefore would benefit from acknowledged review dates so that people watching can be confident that the video represents the service with up to date information.

Twitter

Many more maternity providers are using Twitter to communicate with women and their families. Large amounts of information can be shared widely across this particular platform, largely due to the 'retweet' facility.

Nottingham's NUH Maternity Twitter account (@NottmMaternity) currently has over 1000 followers. The account provides a link to the trust's main Twitter account (@NottmHospitals) but not to its Facebook Maternity page. United Lincolnshire Hospital Trust currently has 2 separate Twitter accounts for maternity. The first is @ULHT_Maternity and appears to be directed more towards staff and provides a link to its Better Births Lincolnshire website. The second account is @betterbirthslinc which provides useful information for families but does not provide a link to its highly informative Better Births website. The social media work undertaken by Better births Lincs featured in the Better births 2 Years On event held earlier this year.

Twitter provides a direct communication with service users and many of the Maternity Voices Partnership local groups actively tweet, along with @whoseshoes who has 26,000 followers.

Professional organisations such as The Royal College of Midwives (RCM), The Royal College of Obstetricians and Gynaecologists (RCOG), The Nursing and Midwifery Council (NMC), and most arms-length NHS bodies also tweet updates and showcase resources for clinicians.

Instagram

Instagram is a simple way of sharing images and information to a wide audience and is recognised as the primary platform at a global level, although not at UK level. Of the 5 NHS maternity units using Instagram, Lincolnshire is leading the way. There are 2 Instagram accounts; 'NHS Lincoln Maternity' and 'Better Births Lincolnshire'. Both accounts share useful images and allow comments and discussion with their service users. The Better Births Instagram account provides a useful link to the Better Births Lincolnshire website.

Instagram appears to be the least favoured means of communication.

Facebook

Facebook still appears to be a popular social media platform for communicating with pregnant women and new mothers. Most of the maternity units that use Facebook put the name of the trust and NHS in their title page making them easy to find for the service user. Each maternity unit uses their page to communicate information such as general health promotion and trust specific information, such as parking information. One particular maternity provider stands out in the Facebook arena; Basildon and Thurrock University Hospitals NHS Foundation Trust. They have set up a Facebook page called 'Maternity Direct' which, in addition to the provision of information, provides a direct link to communicate with a midwife. The women are able to ask non-urgent questions, privately, and a midwife will give appropriate advice. This service is open 7 days a week from 07.00-21.00. The Trust has designed 4 posters which it displays in public areas advertising the service it provides and to date the Facebook page has 5.5k followers. The midwife who created this page won the British Journal of Midwifery 2018 Practice Award for the use of technology in midwifery. Maternity Direct also has a Twitter page which provides families with useful information and contains a useful link to their Facebook page.

Snapchat

There are currently no NHS Maternity Units using Snapchat as a method of communicating information to women and families. Emarketer, a market research company specialising in the digital space forecast a rise in the use of snapchat and decline in the use of Facebook amongst 18 – 24-year olds in 2018. It would therefore suggest that this platform would be an untapped opportunity for the future.

In 2017, a group of NHS doctors were in the news for using Snapchat to send patient scans to each other. Sharing sensitive data such as this on a non-secure public platform is unacceptable and must not be advocated however sharing public health information to a wide audience has proven to be beneficial.

NMC Guidance

Guidance on the use of social media, which is underpinned by the Code, covers the need to use social media and social networking sites responsibly. It is not intended to cover every social media situation that a midwife may face, however it sets out broad principles to enable them to think through issues and act professionally, ensuring public protection at all times.

Linking Accounts

Social networking isn't easy but there are courses, online guides/blogs and training widely available. With so many pages and profiles to manage on a regular basis, things can get confusing and time-consuming. Fortunately, there are a variety of social media tools to help make things a little easier. Functionality varies and also cost therefore researching your requirements and reading feedback reviews can help with your choice.

It is important to consider consistency when linking all the NHS social media pages together. The service users may not know what to search for when trying to find their local Maternity Unit on social media, however, simply having uniformity in the name could overcome this. For example, Kings College Hospital NHS Maternity, Nottingham NHS Maternity and United Lincolnshire Hospitals NHS Maternity. Using the same name across Facebook, Instagram and Twitter would make it easier for service users to find what they are looking for.

Success of Social Media

A good case study of how social media can be used effectively to communicate can be found by looking at Lincolnshire LMS. Lincolnshire LMS carried out surveys aimed at families asking for the best ways to engage and spread their messages. The feedback they received from families informed them that organising face to face meeting would not work, due to transport issues, time commitments and the diversity of the population. The majority of families informed them that the use social media would get the engagement they needed. As a result, they set up Facebook and Twitter, followed shortly by Instagram and a standalone website, all at the suggestion of the families. Their [website](#) has had over 5000 views and more people are now visiting the site and then navigating around it. Their Facebook page now has 1,285 followers and an overall audience on Facebook audience reach was 68,019. Their most popular post was a video of how our community hubs are progressing successfully and fetched an audience of 10,156 alone. Their Twitter account now has 605 followers; our largest audience reach was a strong 91,000 largely because of figure boosting community hub launch events in Skegness and Boston in January. Their Instagram account now has 364 followers developed recently at the request of families.

Conclusion

This review has demonstrated that there is no consistent platform that has been used across Maternity Units in England and there is no consistent method of communication. In addition, each Trust could provide a link to each social media page that they are using to communicate with users and where possible provide a forum to encourage discussion and dialogue. The reach of social media is something that should be embraced but equally needs to be something that maternity services need to be wary of. It is important that it is effectively managed and monitored.

13. Online booking forms

Online booking forms are forms that a woman can complete digitally before an appointment with a midwife. They can be used to book the appointment itself and provide the midwife with details such as demographic information and previous pregnancies information before the appointment. The midwife can then confirm the details quickly at the appointment and have more time to talk to discuss the woman's pregnancy.

The main benefit of using online booking forms is saving time in the appointment. In the first appointment in a woman's pregnancy, a midwife may have to spend a lot of time recording demographic information (e.g. age and occupation) and other details that could have been recorded before the appointment. If this information were collected before the appointment, the midwife would have more time to discuss other aspects of the pregnancy or answer any questions the woman may have.

A simple way of implementing this is to create a word document booking form that can be emailed to the woman before the appointment. She can then complete the form and email it back to the midwife. Although this will create some dual data entry for the midwife when entering this information into the system, it can save time in the appointment. An example of this type of booking form can be found [here](#).

Providers can also create an online system to do this. A woman can be directed to this through a web link to an online system where she can complete the form and the midwife would have access to this electronically. Creating a system like this would require discussions with your IT department. An example of this can be found [here](#).

14. Independent providers

Independent Maternity Providers (IMP) are social enterprises who are not part of a hospital but work in partnership with the NHS and other healthcare providers (e.g. GPs). There are only two in England: 'One to One North West LTD' in Cheshire and Merseyside LMS and 'Neighbourhood Midwives' in North East London LMS. These independent providers are based around giving women as much choice and personalisation as possible when it comes to their maternity care, following guidance from Better Births and NICE.

Midwives at 'One to One' work in the community and have provided a service to over 10,000 women since they started 7 years ago. They work in partnership with NHS organisations including GPs and the local hospital while providing individual care for the woman.

'Neighbourhood Midwives' is an employee-owned midwifery service who also offer personalised care packages for women throughout pregnancy and birth. As reported in Better Births, in 2013/14, almost all women using this service knew their midwife at birth. The organisation also reports high numbers of babies breastfeeding at birth (95%).

These services promote continuity of carer throughout pregnancy and birth, offering a named midwife for the woman to contact.

More information about independent providers can be found in the Better Births review please click [here](#).

15. Digital maternity records

A digital maternity record, or electronic health record (EHR), is a digital version of a woman's paper health record. EHRs are real-time, patient-centred records that make information available instantly and securely to authorised users. While an EHR does contain the medical and treatment histories of patients, an EHR system is also built to go beyond standard clinical data collected by clinicians and can be inclusive of a broader view of a patient's care.

EHRs may contain a patient's medical history, diagnoses, medications, care plans, immunisation dates, allergies, radiology images, and laboratory and test results. They might also allow access to evidence-based tools that clinicians can use to support decision making processes about a patient's care.

As healthcare and technology have advanced, the delivery of sophisticated, high-quality patient care has come to require teams of healthcare providers - primary care physicians, midwives, nurses, technicians, and other clinicians. Each member of the team often has specific, limited interactions with the patient and, depending on the team member's area of expertise, a somewhat different view of the patient.

Reliable access to complete patient health information is essential for safe and effective care. EHRs place accurate and complete information about patients' health and medical history at clinicians' fingertips. With EHRs, clinicians are enabled to provide higher quality and safer care, at the point of care. Which can lead to better patient experience and, most importantly, better health outcomes.

With EHRs, patients' health information is available, when and where it is needed. Clinicians have access to all available information, at the time they need it to make a decision. Every clinician can have the same accurate and up-to-date information about a patient. This is especially important with patients who might be:

- Seeing multiple specialists.
- Receiving treatment in emergency settings.
- Making transitions between care settings.

In the Maternity DMA, 41 out of 135 trusts said that 100% of the pregnancy and early parenting pathway are captured using a digital maternity record. 24 trusts said 0% of this data is captured using a digital maternity record. In trusts where this data isn't recorded digitally, this seems to commonly be because of lack of access to a digital maternity record in the community. Information on connectivity for community midwives can be found in the [connectivity for community midwives](#) section of this report and information on how to implement EHRs can be found [here](#).

Better availability of patient information can reduce medical errors and unnecessary tests. It can also reduce the chance that one specialist will not know about an unrelated (but relevant) condition being managed by another specialist. These improvements to care coordination can lead to better quality of care and improved health outcomes.

Sharing records

Some systems have been developed with the ability to share digital maternity records across systems. This could be between systems in a trust, between maternity systems in an LMS, or sometimes outside of the LMS.

In the Maternity DMA data, 37 out of 135 trusts strongly agreed that their maternity service can share digital records with other maternity services within the provider. 6 trusts strongly agreed that they are able to share digital records with other maternity providers within the LMS. Only 2 trusts strongly agreed that they can share digital records with providers outside of the LMS. However, these trusts strongly disagreed that providers outside the LMS can share digital records with their IT system. 45 out of 135 trusts strongly disagreed to being able to share their digital record or have digital records shared with them in any of the above scenarios.

The ability to share records has many benefits. With transfers of care, women who change provider during their pregnancy can have their records shared with the new provider, without having to take their own record with them on paper.

More information on electronic health records and shared care records can be found [here](#).

Personal Health Records

Personal health records are digital records where the patient can access and sometimes maintain their own record. For example, in maternity, a woman could update her own birth plan etc.

In the Maternity DMA, 14 out of 135 trusts said their maternity service offers women a digital version of the maternity record. Of those 14, 3 offer women read-access and the ability to update the record. The other 11 offer read-only access. However, 62 trusts said their maternity service has plans to implement an electronic personal health record over the next 18 months.

More information on maternity personal health records can be found in the [our digital future](#) section of this report.

16. Cyber security

Cyber security is the protection of internet-connected systems from theft of or damage to their hardware, software or electronic data. The cyber security field has become more and more significant with the growth in use of technology and Wi-fi. In healthcare, technology is being used an increasing amount, especially for storing data. It is important that trusts follow guidance on how to keep their technology safe as effective cyber security reduces the risk of cyber-attacks on this data.

There are many effective and affordable ways organisations can protect themselves against threats on their cyber security. Some examples are:

- Malware protection
- Patches (to patch known vulnerabilities)
- Password policies (ensuring passwords are secure and updated regularly)

Staff can also be trained and given awareness of what to look out for when reporting threats. A 'data security basics' training course can be found [here](#).

NHS Digital have published guidance on cyber security. Links to these guides can be found [here](#).

Appendix C – Average score by question

Strategic alignment

Question	Score
Your organisation has a clearly defined digital strategy that acknowledges the Maternity Service and the challenges it faces and is aligned to clinical and corporate objectives.	69
Implementation of the maternity component of the digital strategy is fully aligned to, and supported by, a service transformation programme within the maternity service.	63
The maternity component of your organisational digital strategy is fully aligned to, and supported by, the latest submitted LMS plan.	57
As a Maternity Service you are fully engaged in the evaluation process of investment opportunities in digital technology within your organisation.	74
Digital technology is used to support improved collaboration and coordination of care provision throughout the maternity pathway.	66
Your organisation actively participates within your LMS to achieve digital maternity record sharing.	69

Leadership

Question	Score
Your Maternity Service provides regular updates regarding digital progress to the executive board.	62
The team leading the maternity's digital transformation includes a executive board-level sponsor.	60
You have representation at executive board level who understands the challenges faced by your Maternity Service in respect of the maternity digital agenda.	72
Your service actively involves staff working in maternity at every stage of a digital project.	80
Your service actively involves user representatives at every stage of a digital project.	59
You have a recognised digital leader within your maternity service.	74
The hours assigned to digital technology are adequate to meet the service needs.	38

Your Maternity Service takes an active role in educating women on digital resources available to support her during her pregnancy and early parenting.	65
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Resourcing

Question	Score
Your Maternity Service is fully engaged with IT procurement processes/dept. and IT contract management, to support any required changes to the maternity clinical IT system.	82
Your Maternity Service actively engages with the organisation's clinical safety officer with regards to the undertaking of assessments of clinical safety and risk for maternity clinical systems.	77
There is financial strategy to support the investment in digital technology your Maternity Service requires over the next 2-3 years.	47

Governance

Question	Score
Your Maternity Service has a digital maternity project taking place.	79
Your digital maternity projects are supported with a valid business case and have fully engaged business owners.	80
For digital changes, your Maternity Service evaluates the benefits using a consistent approach.	75
Clinical governance is embedded throughout the lifecycle of Maternity Services digital technology changes.	85

Records, assessments and plans

Question	Score
What proportion of the pregnancy and early parenting pathway is captured using a digital maternity record?	55
Healthcare professionals are able to share digital records with other Maternity Services within your provider.	48
Other Maternity Services within your provider are able to share digital records with your maternity IT system.	43
Healthcare professionals are able to share digital records with other providers within your LMS.	17
Other providers within your LMS are able to share digital records with your maternity IT system.	11

Healthcare professionals are able to share digital records with other providers outside your LMS.	11
Other providers outside your LMS are able to share digital records with your maternity IT system.	8
Healthcare professionals use the Personal Demographics Service to trace a woman's NHS number automatically.	59
What proportion of your maternity systems have their personal demographic data aligned to the data held on the Patient Demographic Service (PDS) on the NHS Spine?	69
Maternity healthcare professionals can access digital records (or relevant components of them) at the point of need as part of their regular day-to-day routine, throughout the pregnancy pathway, regardless of geographical care delivery.	53
When providing care, maternity healthcare professionals can find digitally what they need quickly and easily to support their practice.	56
Information is collected/recorded once; maternity healthcare professionals do not have to copy or re-enter it from paper to digital or from one system to another.	29
What proportion of records, assessments and plans are generated in real time and shared digitally with other relevant care providers as soon as completed?	37
Once the woman is identified, all maternity healthcare professionals have access to the Summary Care Record information.	48
Healthcare professionals have digital access at the point of care to the information they need from other local healthcare providers.	22
Healthcare professionals in your organisation have digital access to the information they need from local social care providers.	16
Other local healthcare providers have digital access to the information they need from your organisation.	19
Local social care providers have digital access to information from your organisation.	10

Orders and results management

Question	Score
What proportion of laboratory tests are requested through a digital order system, within a hospital setting?	78
What proportion of laboratory tests are requested through a digital order system, within a community setting?	41

What proportion of ultrasounds are requested through a digital order system within a hospital setting?	54
What proportion of ultrasounds are requested through a digital order system within a community setting?	33
When making diagnostic test requests in the hospital setting, healthcare professionals have access to maternity level request/order sets.	73
When making diagnostic test requests in the community setting, healthcare professionals have access to maternity level request/order sets.	46
Healthcare professionals are alerted of duplicate test requests in a hospital setting.	58
Healthcare professionals are alerted of duplicate test requests in a community setting.	32
What proportion of laboratory test results are available to healthcare professionals digitally within a hospital setting?	98
What proportion of laboratory test results are available to healthcare professionals digitally within the community setting at point of care?	70
What proportion of ultrasound results are available to healthcare professionals digitally within a hospital setting?	83
What proportion of ultrasound results are available to healthcare professionals digitally within a community setting at point of care?	46

Transfer of Care

Question	Score
What proportion of routine referrals, including booking, are automatically integrated into digital clinical workflows?	46
What proportion of urgent referrals are automatically integrated into digital clinical workflows?	34
What proportion of transfers of care are supported digitally when a woman moves between services?	50
- Within your organisation	
- Outside of your organisation but remaining within your LMS geographical footprint	12
- Outside of your LMS geographical footprint	6
Discharge summaries are routinely sent digitally to GPs within your LMS footprint.	51
Discharge summaries are routinely sent digitally to GPs outside your LMS footprint.	27

The information held in a woman's records is used to pre-populate discharge summaries and letters to avoid re-keying.	76
What proportion of discharge summaries are generated in real time and shared digitally with other relevant care providers as soon as completed?	51
At an outpatient clinic, what proportion of summaries / notifications are shared digitally with GPs?	20
At an appointment within a community setting, what proportion of summaries / notifications are shared digitally with the woman's GP.	23
Following an A&E attendance, what proportion of A&E summaries/notifications are shared digitally with the woman's Maternity Service provider, during a pregnancy pathway and immediate post-natal period?	28
What proportion of referrals to tertiary care are completed digitally?	13
- Referrals out of maternity service	
- Referrals into your maternity service	15
- Referrals to another speciality within your provider organisation	28

Medicines optimisation

Question	Score
What proportion of inpatient medications are prescribed digitally in your hospital setting?	30
What proportion of discharge medications are prescribed digitally in your hospital setting?	52
What proportion of outpatient medications are prescribed digitally in your hospital setting?	18
When prescribing digitally, maternity healthcare professionals are alerted of all of the following CDS categories: drug: drug interactions, allergy intolerance, duplication of therapeutic class of drug, out of range doses (for at least a selection of medicines).	56
Completion of a digital patient risk assessment for maternity for Venous Thromboembolism offers best practice guidance and prompts prescription of appropriate medications.	66
The decision and information regarding the administration of medicines is digitally recorded within the acute setting	40

Decision support

Question	Score
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Maternity healthcare professionals receive digital alerts to specific women's risks.	64
Digital systems within a hospital setting, alert maternity healthcare professionals of women whose clinical observations, or Modified Early Obstetric Warning Score (MEOWS) are deteriorating and need review.	30
Digital systems within a Freestanding Midwifery Unit setting, alert maternity healthcare professionals of women whose clinical observations, or Modified Early Obstetric Warning Score (MEOWS) are deteriorating and need review.	15
Digital systems within a community setting, alert maternity healthcare professionals of women whose clinical observations, or Modified Early Obstetric Warning Score (MEOWS) are deteriorating and need review.	16
All healthcare professionals, at point of care are directed to relevant, up to date and evidence-based reference material as part of digital clinical workflows and care pathways.	32
Digital systems provide automatic prompts for the next action required by multi-step care plans, pathways or protocols.	34
Healthcare professionals are prompted to complete or remind women about overdue care actions and/or missing information.	35

Remote and assistive care

Question	Score
Remote/virtual support is available for women deemed to be low risk.	23

Asset and resource management

Question	Score
In-patient flow is tracked digitally in real time to identify bottlenecks and delays within your organisation.	46
Your Maternity Service uses a digital system to record and track its clinical assets, in line with a whole trust initiative.	34
Your Maternity Service uses digital systems to manage rostering for the following staff groups:	95
- Nursing and midwifery	89
- Allied Healthcare workers in maternity	38
- Medical staff	15
Relevant data from clinical monitoring devices is uploaded into women's records or charts automatically.	34
Staff working in the community can perform all care tasks remotely without returning to base.	15

Digital location tracking supports effective time management of staff working in the community.	8
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Standards

Question	Score
Healthcare professionals in your organisation use SNOMED CT to record clinical information at the point of collection in maternity digital systems.	20
Your organisation submits their Maternity Service Data Set (MSDS) to the required standard	89

Business and clinical intelligence

Question	Score
Patient feedback is collected digitally and used to support ongoing service improvement	58
Maternity care professionals based in a hospital have access to real time or near real time information about their caseload/women under their care.	70
Maternity care professionals based in the community have access to real time or near real time information about their caseload/women under their care.	53
Data quality information is actively monitored and fed back to clinical teams.	76
Data collected as part of caring activities is used to build capacity and demand forecasting models.	63
The data collected as part of caring activities is routinely used for clinical audits.	83
The data collected as part of caring activities is routinely used for revalidation.	53
Your organisation accesses 111 and 999 services data to support triaging, service planning and intervention.	19
Your maternity system automatically pre-populates your local maternity dashboard.	29

Infrastructure

Question	Score
Free wi-fi is available at point of care across your Maternity Services (within hospital).	84

Free wi-fi is available at point of care across your Maternity Services (within community).	31
Healthcare professionals are equipped with mobile devices to access clinical applications and information at the point of care.	53
Healthcare professionals have single sign-on access and authentication to clinical applications.	60
Digital systems meet users' expectations regarding the time it takes to log-in to clinical applications and update/retrieve information.	46
Maternity Services are supported by documented disaster recovery processes, with clear roles and responsibilities assigned, with respect to business-critical digital systems.	77
Digital systems meet users' expectations regarding repair and substitution times.	49
There is a named individual within the IT. Dept that addresses maternity specific issues	48

Appendix D – Business cases templates

Business Change Strategy:



Please note that this is an NHS Digital Template and will need modifying to suit your individual organisation's needs and branding.

Go-Live Checklist:



Lessons Learned:



Benefits Strategy:



Benefits Realisation Plan:



Risk Register:



Implementation Plan:



Training Plan:



Appendix E – Example process map for the obstetrics pathway

Example Process Map from Birmingham Women's Hospitals for the Obstetrics Pathway Day Assessment Unit



Appendix F – Breakdown of system supplier by maternity provider

Maternity system	Number of maternity providers
Allscripts Sunrise - Maternity module	1
Athena	10
BadgerNet	13
CMiS	8
Core Patient Database - Maternity module	1
Cosmic	1
E3	30
EPIC	1
Evolution	8
Hospital Integrated Clinical Support System (HICSS)	1
Jessop Maternity Information System (JMIS)	1
Lorenzo	8
Meditech	5
Medway	22
Millennium	11
Orion	1
Silverlink	3
Stork	2
TPP SystemOne	2

TrakCare	4
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**Independent providers are excluded from this list. We are also mindful that since compiling this list further changes have occurred.*

The systems in use include those that are no longer supported or maintained. We refer to these as ‘legacy systems’. As the table demonstrates, some of the smaller suppliers have been acquired over time by larger IT suppliers but retain the ‘maternity system’ name for familiarity.

The attachment below outlines system supplier by maternity provider.



Appendix G – Calculating scores

The responses were then converted into scores, with 100 being the most digitally mature and 0 being the lowest, to allow comparative analysis to be carried out and an overall ‘digital maturity score’ to be calculated. Some important points to note regarding the analysis:

- **The Maternity DMA is a ‘self-assessment’**– This means that it is mainly based on the opinions of those who complete it, rather than pure fact. As a result of this, there may be inaccuracies or inconsistencies compared with what actually happens.
- **Handling of ‘N/A’ values** – All questions in the Maternity DMA have ‘N/A’ offered as a potential response. Where this value has been selected, this question has been excluded when calculating national averages, i.e. it is excluded from the denominator. This ensures that where a question is not relevant to a particular provider, the national average is not distorted by including these responses. Where a question has been left blank, the response has also been treated the same way.
- **Handling of ‘Don’t know’ values** – All questions in the Maternity DMA have ‘Don’t know’ offered as a potential response. Where this value has been selected, unlike the ‘N/A’ responses, these values have been included in the national average calculations, as not knowing something implies a lack of digital maturity.
- **Calculating ‘proportional’ averages** – A number of questions in the Maternity DMA ask for a quantitative response (i.e. ‘what proportion’ of something happens). In terms of the aggregated analysis of these questions, it is important to understand that this is an average provider score based on all the responses. There has been no weighting here depending on the size of the provider or the number of women birthed.

Scores for the ‘Agree/ Disagree’ style questions were converted as follows:

Response	Score
Strongly Disagree	0

Somewhat Disagree	25
Neither Agree or Disagree	50
Somewhat Agree	75
Strongly Agree	100
Don't Know	0
Not Applicable	Not scored
Blank	Not scored

Scores for the quantitative style questions were converted as follows:

Response	Score
0%	0
1% - 20%	20
21% - 40%	40
41% - 60%	60
61% - 80%	80
81% - 100%	100
Don't Know	0
Not Applicable	Not scored
Blank	Not scored

Appendix H – System supplier check list



Appendix I – Linking the emerging themes and the 14 sections



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