



**Liverpool
Public Health
Observatory**

Merseyside Mental Health Equity Audit

Interim report on Deaths from Suicide and Injury Undetermined

Janet Ubido

Observatory Report Series No 58

PROVIDING INTELLIGENCE FOR THE PUBLIC HEALTH

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**Janet Ubido
Liverpool Public Health Observatory
April 2004**

A report for the Directors of Public Health, Merseyside PCTs.

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Deaths from Suicide and Injury Undetermined

Key points

- The government's target is to reduce suicide rates by at least one-fifth by 2010. Mortality rates from suicide and injury undetermined rose between 1995-97 and 1999 & 2001 in all four Mersey districts, except amongst females in Wirral, where they decreased by around one-fifth.
- There were large differences between Merseyside PCTs in mortality rates from suicide and injury undetermined, ranging from 5.80 in St.Helens, to 15.24 in Birkenhead and Wallasey (2000-02).
- Although young males had high rates, there were parts of Merseyside where older people and females are at high risk. For example in Wirral in 1999 & 2001, the rate was highest amongst those aged 75+ (20.6). The rate for females in Liverpool (8.94) was significantly higher than that for females in England (4.38) and Cheshire and Merseyside (5.07).
- With the exception of North Liverpool PCT, male rates were significantly higher than female rates, - almost seven times higher in South Sefton PCT (2000-02).
- Female rates showed a highly significant correlation with deprivation (Pearson Correlation 0.82, $p < 0.01$, 2000-02).
- Within Merseyside, 3 of the 4 districts had rates higher than England (9.37), with rates in Liverpool (15.14) and Wirral (12.95) significantly higher (1999 & 2001).
- The highest rates in Merseyside were found amongst males in Birkenhead and Wallasey PCT (26.6) and Central Liverpool PCT (19.27) (2000-02).

Background

Merseyside Mental Health Equity Audit

A Mental Health Equity Profile is being compiled for the Directors of Public Health of Primary Care Trusts (PCTs) within Merseyside. The profile forms the early stage of a baseline mental health equity audit. It aims to examine equity in access to and provision of services for mental health needs of residents of Merseyside PCTs. Liverpool Public Health Observatory is compiling the profile, under the guidance of a steering group made up of representatives of the Merseyside PCTs and the Observatory. Part of the profile includes an examination of data on mortality from suicide and injury undetermined. This paper aims to describe the epidemiology of suicide in Merseyside.

Suicide rates

Suicide rates are considered by the government to be a useful indicator of the success or failure of mental health policy. Suicide rates are one of the specified indicators used to monitor progress under the National Service Framework (NSF) for Mental Health. They have also been selected as one of the three high-level performance indicators that relate to mental health, as specified by the NHS Executive in February 2002 (DoH 2002). The aim is to ensure health and social services play their full part in the achievement of the target 'to reduce the suicide rate by at least one fifth by 2010' (Saving Lives: Our Healthier Nation", DoH May 2001).

With suicide statistics, there is a problem of definition. One coroner may view a death as deliberate suicide, while another may regard the same death as more accidental, and record it as 'injury undetermined'. In an attempt to capture all deaths from suicide, the Department of Health (DoH) uses the category of '*mortality from suicide and injury undetermined*'. The latest statistics are found in the Compendium of Clinical and Health Indicators and cover the period 1999 and 2001¹ (DoH 2003).

PCT level data

The Compendium contains PCT rates. However, it has recently been revealed that misleading population estimates were used. PCT population denominators used to calculate suicide and other mortality rates were based on the age and sex structure at local authority level (i.e. the same age and sex structure for the whole local authority was applied to the total populations for each PCT sitting within the local authority boundary). The DoH has now advised that we should '*exercise caution in interpretation of PCT mortality rates and ratios*'. Analysis by Central Liverpool PCT has estimated that the difference between DoH estimates and actual populations could be as much as 12% (in South Liverpool PCT: 5% in Central Liverpool, and 8% in North Liverpool PCTs). The DoH hope to bring out corrected PCT level rates later on in 2004. In the meantime, the nine PCTs on Merseyside have collaborated with each other to each calculate comparable rates for the three year period 2000-02. With the exception of St.Helens and Knowsley, the PCTs have also collaborated to produce a rate for the former health authority areas (Liverpool, Sefton and Wirral).

Geography

Life expectancy for males and females is low in parts of the North West. In Merseyside, it is particularly low in Liverpool and Knowsley for males, and in Liverpool for females (Hennell 2003) (see Appendices 1 and 2).

Merseyside districts: Figure 1 shows the variations in age standardised mortality rates for suicide and injury undetermined for the former health authority areas within Merseyside, 1999 & 2001 (pooled data). The Compendium includes confidence intervals for these rates (see Appendix 3), and national and Strategic Health Authority (SHA) rates for comparison. It was not possible to present 2000-02 data here, as rates for St.Helens and Knowsley were not available, and there were no national or SHA rates available for comparison.

For the combined years 1999 and 2001¹, the mortality rate from suicide and injury undetermined in England was 9.37 per 100,000. The rate in Cheshire and Merseyside was significantly higher (10.87). Within Merseyside, 3 of the 4 districts had rates higher than England, with rates in Liverpool (15.14) and Wirral (12.95) significantly higher than in England. The Liverpool rate was also significantly higher than that for Cheshire and Merseyside. Rates in Liverpool and Wirral were significantly higher than in St.Helens and Knowsley, which had a rate of 7.52 (in Liverpool they were more than double). Actual numbers were fairly small – ranging from 49 in St.Helens and Knowsley to 135 in Liverpool.

PCTs: The nine Merseyside PCTs have each calculated suicide rates for the three-year period 2000-02. There are no national rates available for comparison for this period. There is more variation in rates between PCTs than there is between districts. Figure 2 shows that rates were highest in Birkenhead and Wallasey, where the rate of 15.24 was significantly higher than the rates for South Liverpool, South Sefton, St.Helens and Bebington & West Wirral (see

¹ 1999 data was dual coded to include ICD 10, so it was possible to combine this with the 2001 data. 2000 data wasn't coded for ICD 10, so is not included in the Compendium of Clinical & Health Indicators.

Figure 1

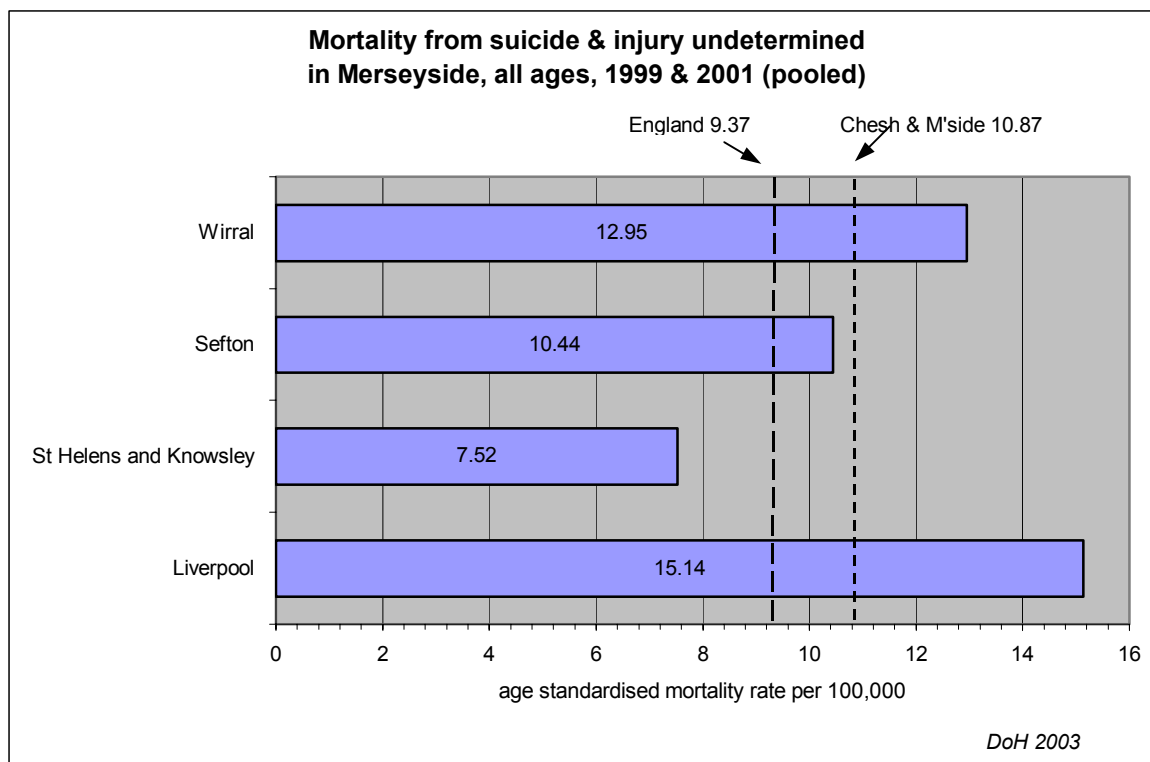
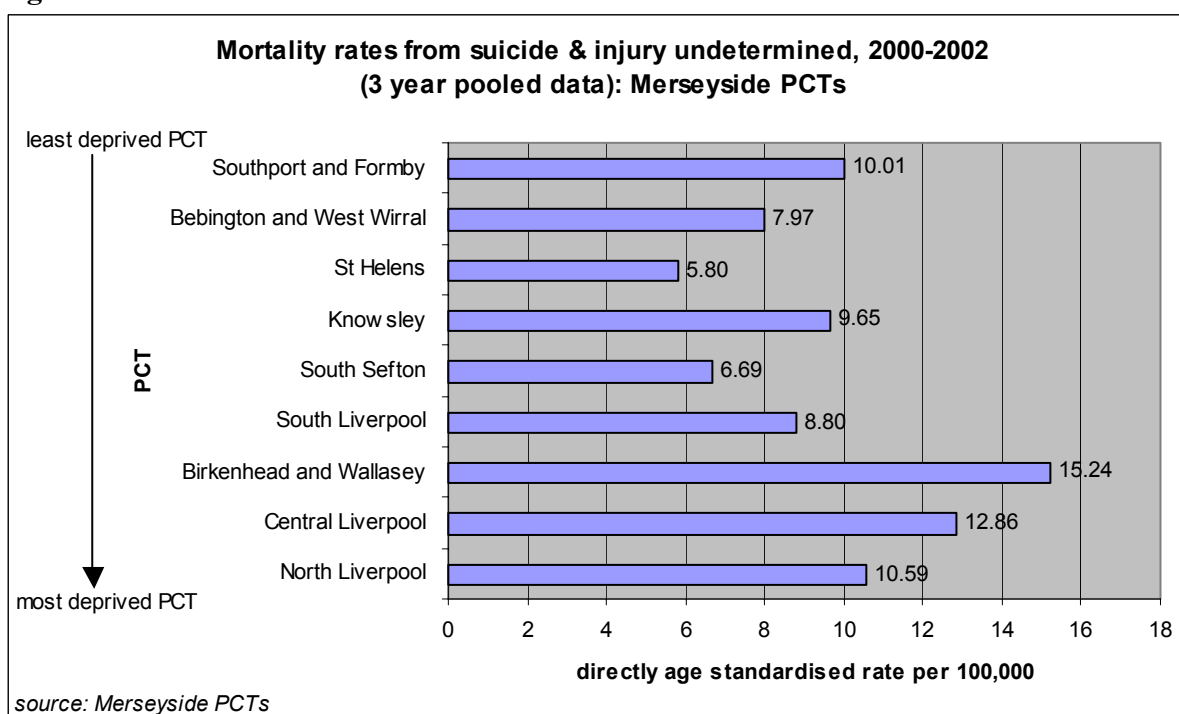


Figure 2



Appendix 4 for rates and confidence intervals). Central Liverpool and North Liverpool had the next highest rates. St.Helens had the lowest rate – three times lower than the rate in Birkenhead & Wallasey. Actual numbers ranged from 25 in South Liverpool, to 92 in Central Liverpool over the three-year period.

Trends

The Compendium also provided rates for the old health authority districts for the period 1995 to 1997, making it possible to observe changes from this period to 1999 & 2001. Information analysts in the Merseyside PCTs have collaborated to produce comparable rates for 2000-02 (Appendix 3). However, data by old health authority district is not available for St.Helens & Knowsley for 2000-02.

When comparing these time periods, it should be noted that because of the small numbers of suicide and injury undetermined events, the variation between two and three year pooled periods can be high, due to year on year fluctuations.

The government's target is to reduce suicide rates by at least one-fifth by 2010 (DoH May 2001). However, rates from suicide and injury undetermined rose between 1995-97 and 1999 & 2001 in all four Mersey districts, except amongst females in Wirral, where they decreased by around one-fifth. Rates in 2000-02, although consistently lower than in 1991 & 2001, were higher than in 1995-97 in all Merseyside districts, except for females in Sefton and Wirral (but not counting St.Helens & Knowsley). (See Figures 3 and 4).

Males: Amongst males, rates of death from suicide and injury undetermined rose in all four Merseyside districts between 1995-97 and 1999 & 2001 (Figure 3). In Liverpool, the male rate was exceptionally and unusually high in 1999 & 2001, showing a significant increase from 1995-97 of 40%, from 15.70 to 21.95 ($p < 0.05$). During the period 2000-02, there was a lower rate of 16.69. Similarly, rates amongst males in Sefton and Wirral were highest in 1999 & 2001, but rates in 2000-02 were still higher than in 1995-97.

Females: Between 1995-97 and 1999 & 2001, rates amongst females rose in all districts except Wirral, where they fell by around one-fifth, from 6.52 to 5.05 (Figure 4). The increase in Liverpool was most notable, but not statistically significant. Rates in 2000-02 were lower than those in 1995-97 amongst females in Wirral and Sefton. In Liverpool, they were higher, but not as high as in 1999 & 2001.

For each time period, for males and females, Liverpool and Wirral have had higher rates than other districts on Merseyside (note: 2000-02 data not available for St.Helens & Knowsley).

Figure 3

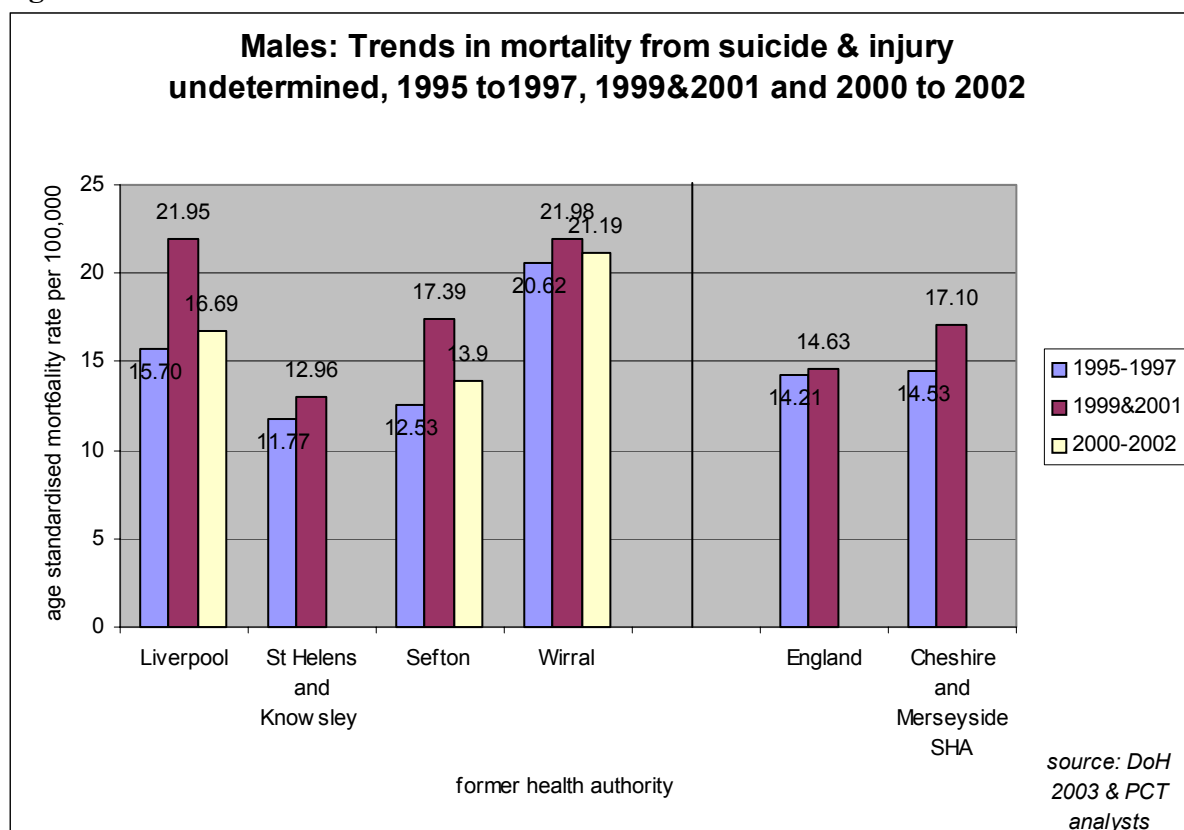
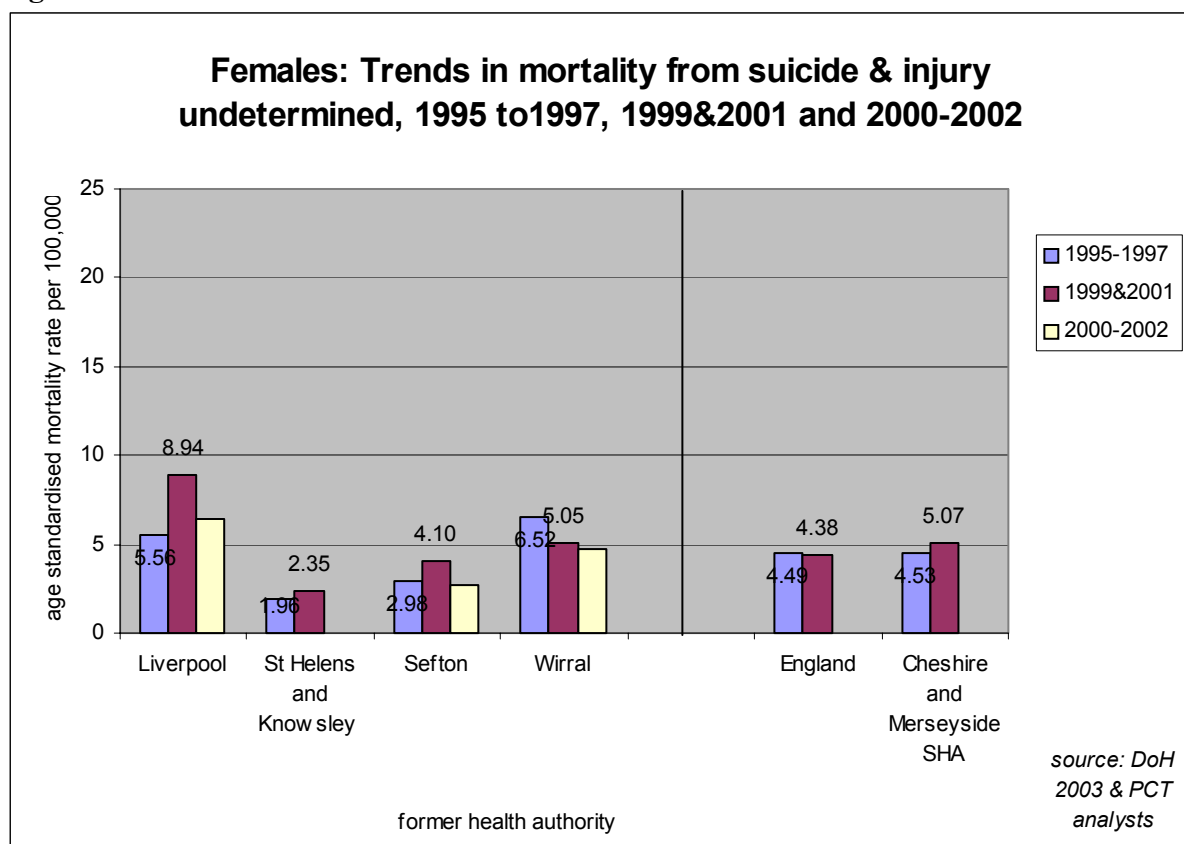


Figure 4



N.B 2000-02 data not available for St.Helens & Knowsley.

Fig.s 2 & 3 caution in interpretation: with the small numbers of suicide and injury undetermined events – the variation between two and three year pooled periods can be high (year on year fluctuations).

Age

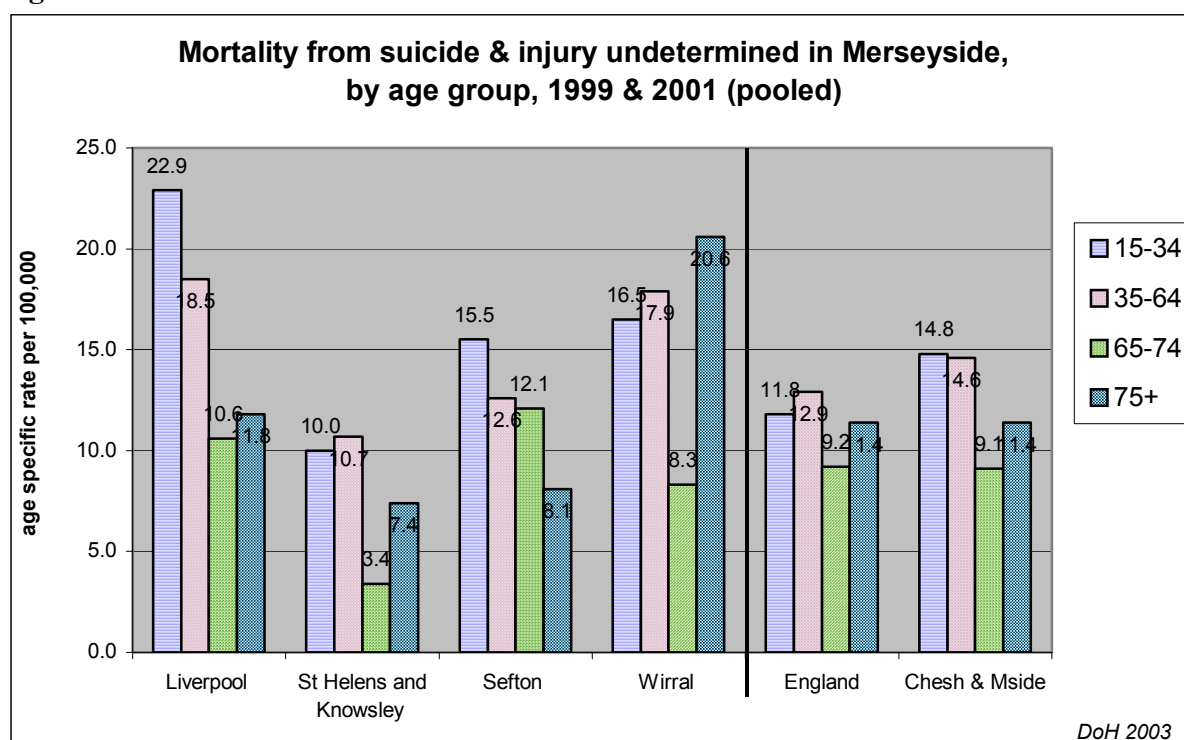
Numbers of suicides and deaths by injury undetermined for the different age groups in each district are very small. As an example, the Compendium gives actual numbers for 2001, where numbers in each district ranged from 9 to 25 for persons aged 15-34, but ranged from as little as 1 to 5 for the 75+ age group. Even for the combined years 1999 and 2001, it was felt that numbers would be too small for analysis by age broken down by sex (although the Compendium did include this analysis - see Appendix 6 for rates by age and sex). Confidence intervals were not given in this section of the Compendium.

The 2000-02 district rates were not available by age. Figure 5 shows that in Cheshire & Merseyside in 1999 and 2001, mortality rates from suicide and injury undetermined were highest amongst persons aged 15-34 (14.8 per 100,000). The same is true in Liverpool (22.9) and Sefton (15.5). But in St.Helens & Knowsley, rates were highest in ages 35-64 (10.7). In Wirral, those aged 75+ had the highest rate (20.6). However, actual numbers may be very small in this age group.

Liverpool had higher rates than England and Cheshire & Merseyside in each age group. St.Helens rates were lower in each case.

There was no data available by age group at PCT level.

Figure 5



Sex

Merseyside districts: For the combined years of 1999 and 2001, national and SHA rates were available in the Compendium for comparison. The highest rates in Merseyside in this period amongst males were found in Liverpool (21.95) and Wirral (21.98). These rates were significantly higher than the rate for England, and in Liverpool, the rate was significantly higher than St.Helens & Knowsley (Figure 3).

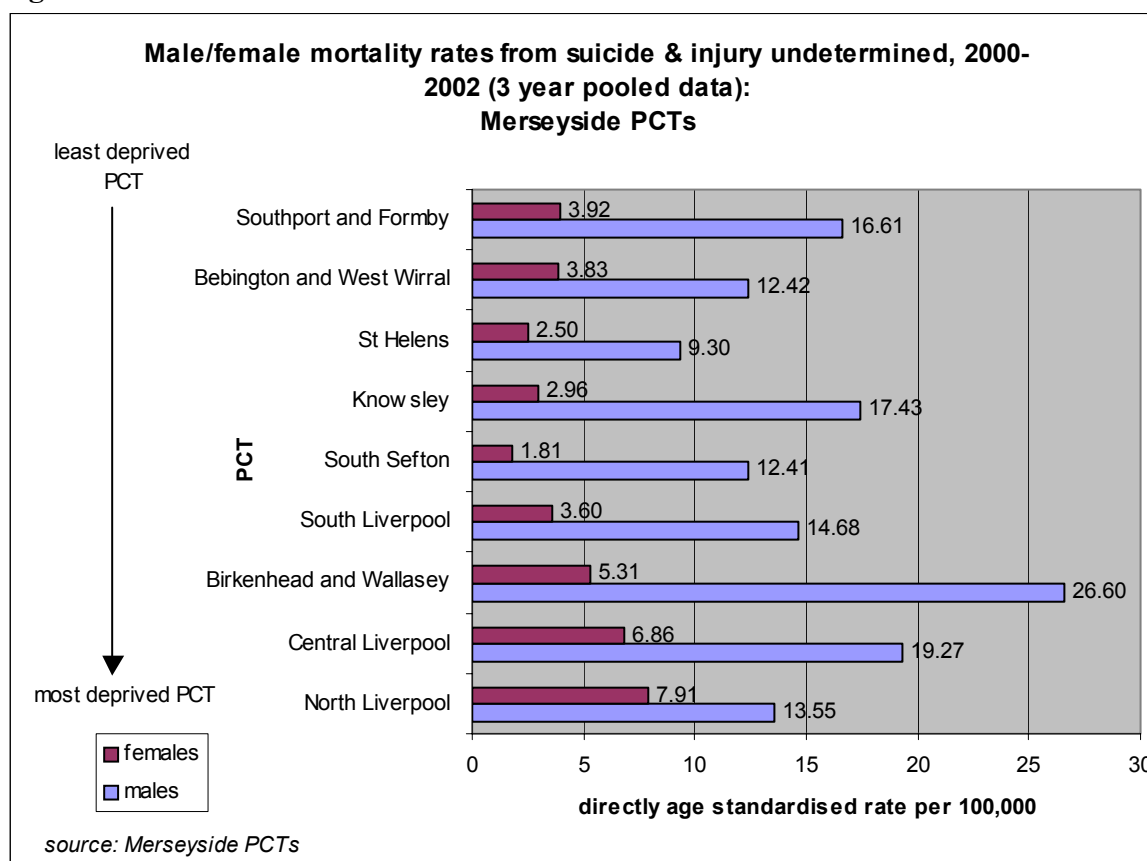
Liverpool also had the highest female rate (8.94) which was significantly higher and more than double the rate for England, and significantly higher than Cheshire & Merseyside (Figure 4). The female rate in Wirral was also higher than England, but in Sefton and St.Helens & Knowsley, rates were lower than both Cheshire & Merseyside and England (*see Appendix 3 for full table with confidence intervals*).

Male rates were significantly higher than female rates. In Sefton and Wirral, they were four times higher. In St.Helens and Knowsley, where the female rate was very low, the male rate was five times higher.

As noted on p.4 above, rates in 2000-02 were higher than in 1995-97 in all Merseyside districts, except for females in Sefton and Wirral (but not counting St.Helens & Knowsley).

PCTs: For males in Merseyside PCTs, Figure 6 shows that the highest rates were in Birkenhead & Wallasey (26.60) and Central Liverpool (19.27), where the rates were significantly higher than St.Helens, which had the lowest rate (9.30). The rate in Birkenhead & Wallasey was also significantly higher than rates in North Liverpool, South Sefton and Bebington & West Wirral (see Appendix 4 for rates with confidence intervals).

Figure 6



Amongst females, the highest rates were in North Liverpool (7.91) and Central Liverpool (6.86). The rate in Central Liverpool was significantly higher than that in South Sefton, which had the lowest rate (1.81) (see Appendix 4 for rates with confidence intervals).

With the exception of North Liverpool, male rates were significantly higher than female rates. There were larger differences between male and female rates at PCT level than there were at district level. In South Sefton, where the female rate was very low, male rates were almost

seven times higher. In Knowsley, they were nearly six times higher, and in Birkenhead & Wallasey, male rates were five times higher.

Self-harm: Around thirty per cent of deaths by self-harm are classified as being of undetermined intent (Hennell 2003). The chart in Appendix 5 shows male and female excess death rates for self-harm for PCTs, compared to England and Wales, during 2000-02. St.Helens, Knowsley and Bebington & West Wirral all have lower excess death rates for males and for females compared to the national average. Birkenhead & Wallasey has a much higher rate for males, and the rate in North Liverpool is much higher for females.

Deprivation

There are wide variations in deprivation amongst the PCTs in Merseyside, with North Liverpool having a deprivation score more than three times higher than that of Southport and Formby (Box 1).

In Figures 2 and 6, PCTs are presented in order of deprivation, with the least deprived at the top. Amongst females, mortality rates from suicide and injury undetermined show a highly significant correlation with deprivation score (Pearson Correlation 0.82, $p < 0.01$). For males, the correlation is weak (Pearson Correlation 0.27). The correlation for males and females combined is 0.52 (not significant).

Box 1 Index of Multiple Deprivation scores: two Mersey extremes

North Liverpool PCT	149.41
Southport & Formby PCT	41.28

Source:
mean weighted IMD scores,
NWPFO 2003

Mode of death and place of occurrence

The North West Public Health Team have compiled statistics on modes and place of occurrence of deaths by self-harm in Cheshire and Merseyside (Hennell 2003).

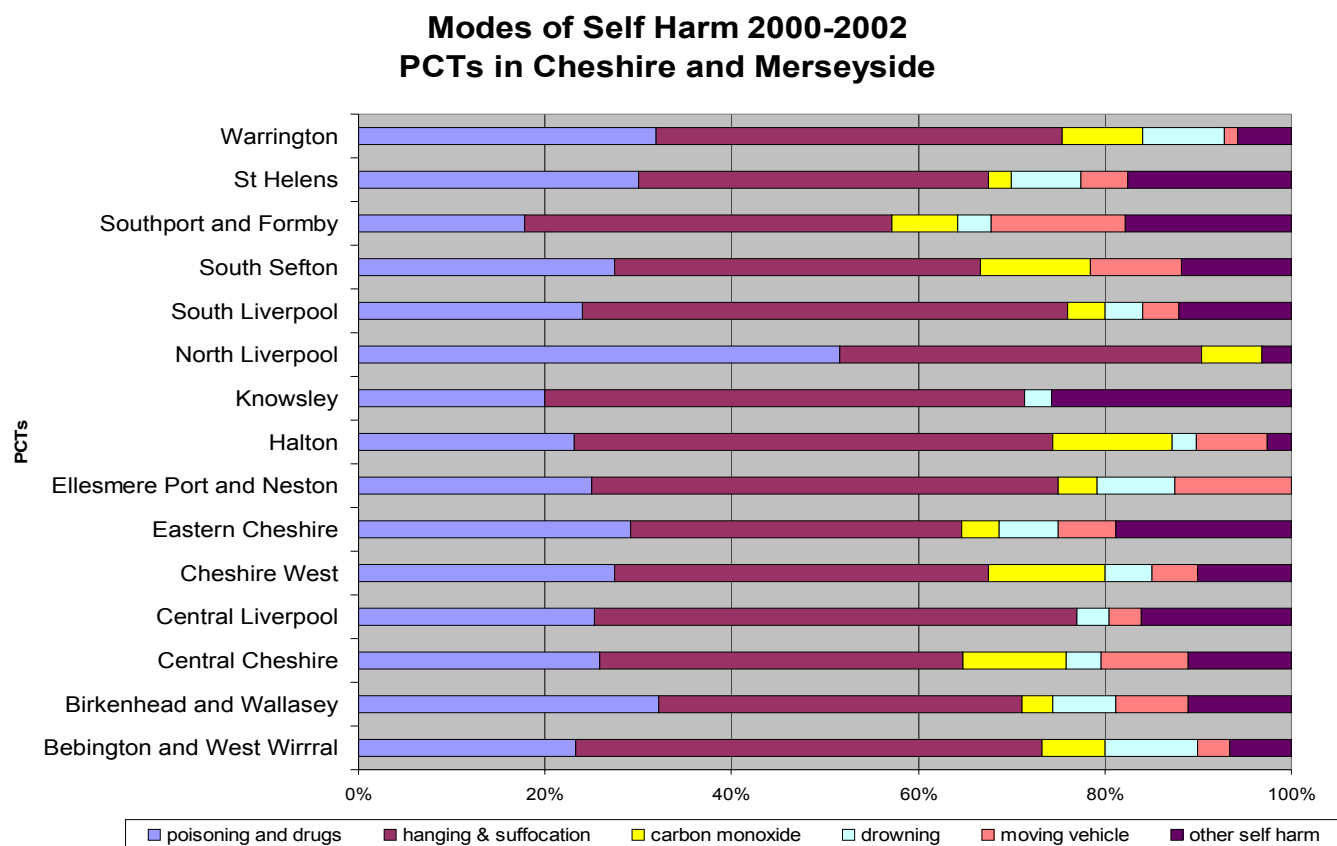
Mode of death: (Figure 7)

- In 2000-02, the proportion of deaths by poisoning and drugs was much greater in North Liverpool PCT (more than 50% of all deaths by self harm) than in any other PCT in Cheshire and Merseyside.
- St.Helens, Birkenhead & Wallasey, and Bebington & West Wirral PCTs all had high proportions of deaths by drowning, compared to the rest of Merseyside.
- Southport and Formby PCT had the highest proportion of deaths by moving vehicle in Cheshire and Merseyside, and relatively fewest deaths by poisoning and drugs.

Place of occurrence: (Figure 8)

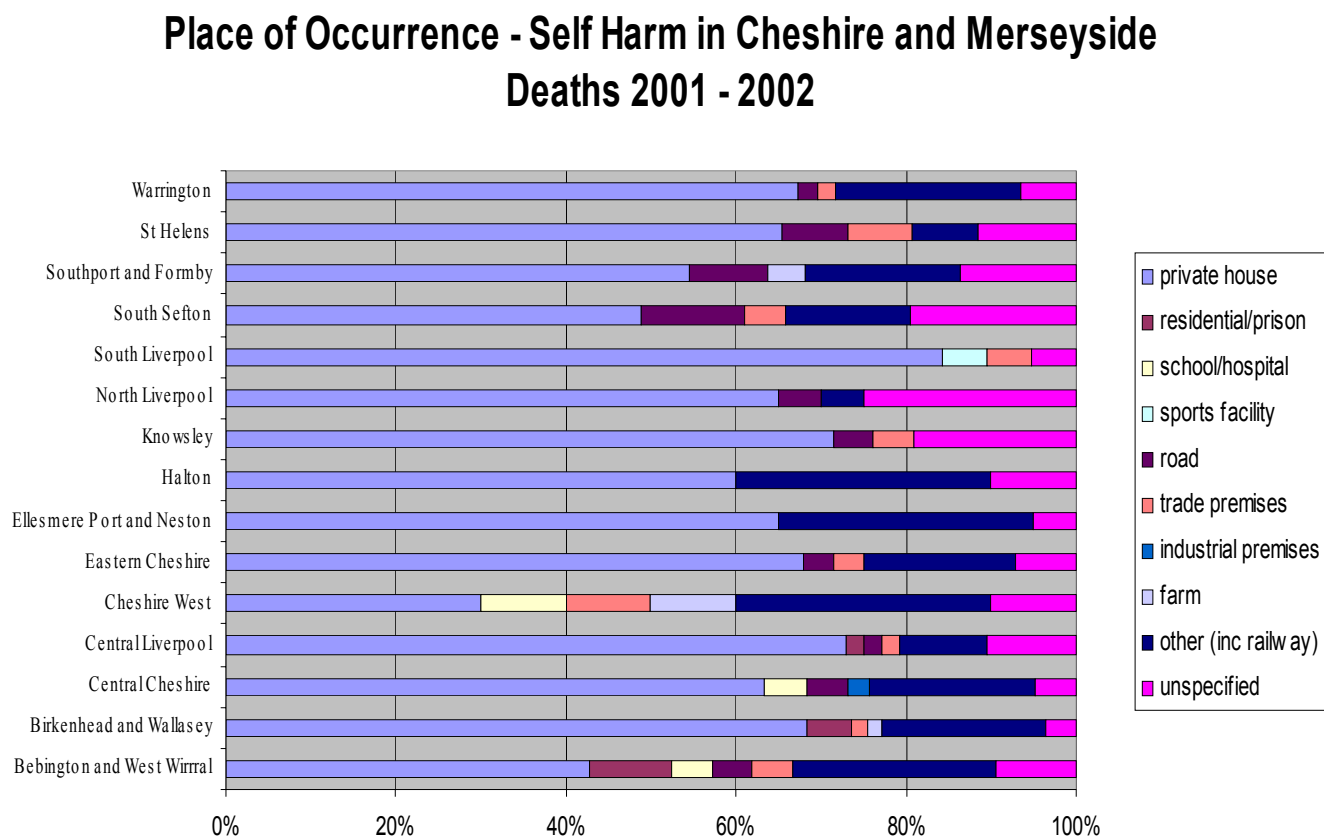
- In Cheshire and Merseyside, South Liverpool, Central Liverpool and Knowsley PCTs had the highest proportions of deaths by self-harm at home. In South Liverpool, this was more than 80%.
- South Sefton, Southport & Formby and St.Helens PCTs had the highest proportion of deaths by self-harm on the road.
- The highest proportion of deaths in a sports facility were found in South Liverpool, where there were no road deaths.
- In Bebington and West Wirral and Birkenhead & Wallasey, the proportions of deaths in residential/prison settings were the highest in Cheshire & Merseyside.
- St.Helens (with Cheshire West) had the highest proportion of deaths on trade premises

Figure 7



Source for Figures 7 & 8: Hennell 2003

Figure 8



Ethnic group

There is no data available on ethnic group.

References

DoH (2001) *NHS Performance Indicators : A Consultation*. Department of Health May.

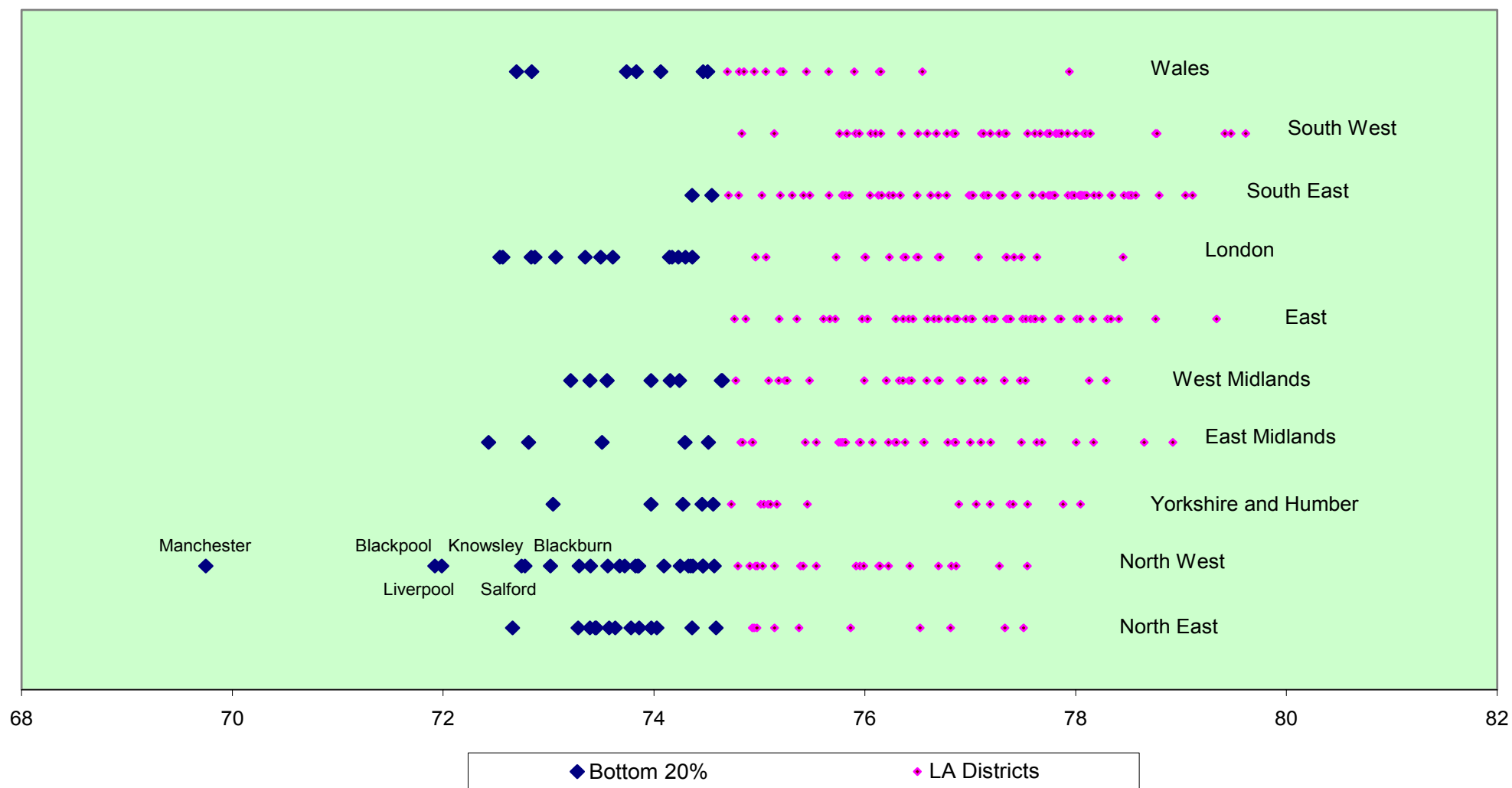
DoH (2002) Website, listing high level NHS Performance Indicators, updated Feb.:
<http://www.doh.gov.uk/nhsperformanceindicators/2002/ha.html>.

DoH (2003) *Compendium of Clinical and Health Indicators 2002*. Department of Health, June.

Hennell T (2003) *Suicides in the North West - epidemiology update: Developing Suicide Prevention in Primary Care Trusts*. Scoping Event for PCTs in Cheshire and Merseyside, 1st December.

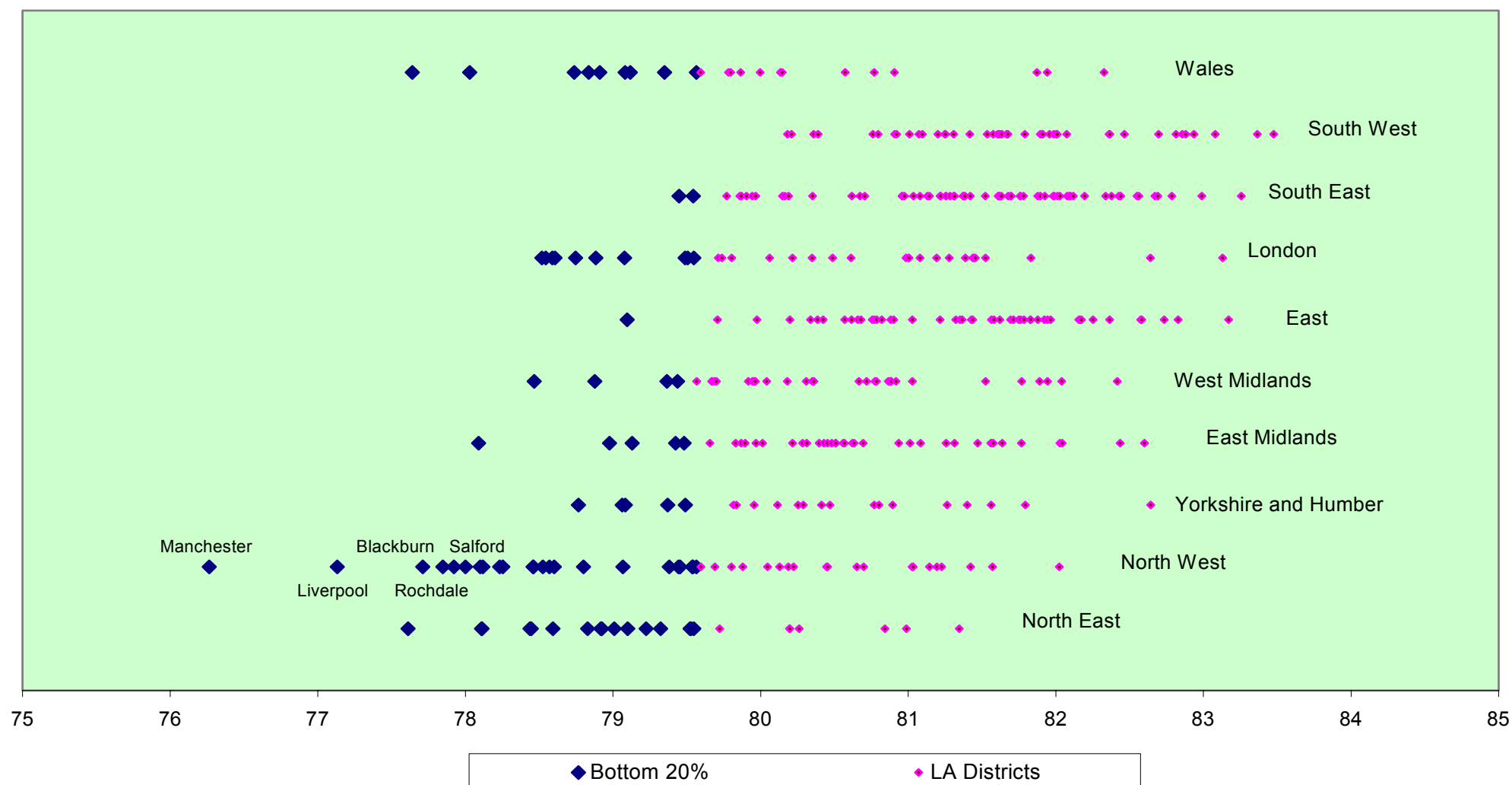
Appendix 1. *Source: NW Public Health Team (Hennell 2003).*

Male Life Expectancy at Birth 1999-2001 (population denominators revised 2001)
Local Authority Districts and in England and Wales (mean = 75.75 years)



Appendix 2. Source: *NW Public Health Team (Hennell 2003).*

Female Life Expectancy at Birth 1999-2001 (population denominators revised 2001)
Local Authority Districts and in England and Wales (mean = 80.42 years)



Appendix 3

Mortality from suicide and injury undetermined. Old Health Authority. Directly standardised rates (and 95% confidence intervals), **1999 & 2001; and 1995 to 1997 all ages.** (Age-standardised mortality rates per 100,000). Compendium of Clinical and Health Indicators 2002 / Clinical and Health Outcomes Knowledge Base (nww.nchod.nhs.uk). Source of data: National Statistics Department of Health. © Crown Copyright. June 2003. (Extracts may only be reproduced by permission.)

Also 2000-2002; data source: Information Analysts, Merseyside PCTs

Old Health Authority district	MALES				FEMALES				PERSONS			
	OBS	DSR	LL	UL	OBS	DSR	LL	UL	OBS	DSR	LL	UL
<u>2000 to 20002</u>												
Liverpool	106	16.69	13.49	19.89	43	6.42	4.48	8.37	149	11.34	9.50	13.17
St Helens and Knowsley	Not available				Not available				Not available			
Sefton	55	13.91	10.14	17.68	12	2.71	1.13	4.30	67	7.97	6.00	9.95
Wirral	93	21.19	16.81	25.58	27	4.70	2.78	6.61	120	12.51	10.20	14.82
<u>1999 and 2001</u>												
Liverpool	93	21.95	17.46	26.44	42	8.94	6.18	11.70	135	15.14	12.56	17.73
St Helens and Knowsley	40	12.96	8.92	17.01	9	2.35	0.76	3.95	49	7.52	5.39	9.65
Sefton	46	17.39	12.23	22.54	13	4.10	1.80	6.41	59	10.44	7.69	13.19
Wirral	66	21.98	16.58	27.39	18	5.05	2.61	7.50	84	12.95	10.10	15.80
ENGLAND	7184	14.63	14.29	14.97	2372	4.38	4.20	4.56	9556	9.37	9.17	9.56
Cheshire and Merseyside SHA	392	17.10	15.39	18.80	130	5.07	4.17	5.97	522	10.87	9.93	11.82
<u>1995 to 1997</u>												
Liverpool	103	15.70	12.64	18.77	38	5.56	3.76	7.37	141	10.32	8.59	12.05
St Helens and Knowsley	57	11.77	8.69	14.84	10	1.96	0.73	3.20	67	6.71	5.09	8.33
Sefton	50	12.53	9.03	16.04	14	2.98	1.38	4.59	64	7.60	5.71	9.50
Wirral	93	20.62	16.38	24.85	33	6.52	4.23	8.80	126	13.27	10.91	15.63
ENGLAND	10336	14.21	13.93	14.48	3585	4.49	4.34	4.65	13921	9.22	9.06	9.37
Cheshire and Merseyside SHA	507	14.53	13.26	15.80	170	4.53	3.84	5.23	677	9.37	8.66	10.08

Appendix 4

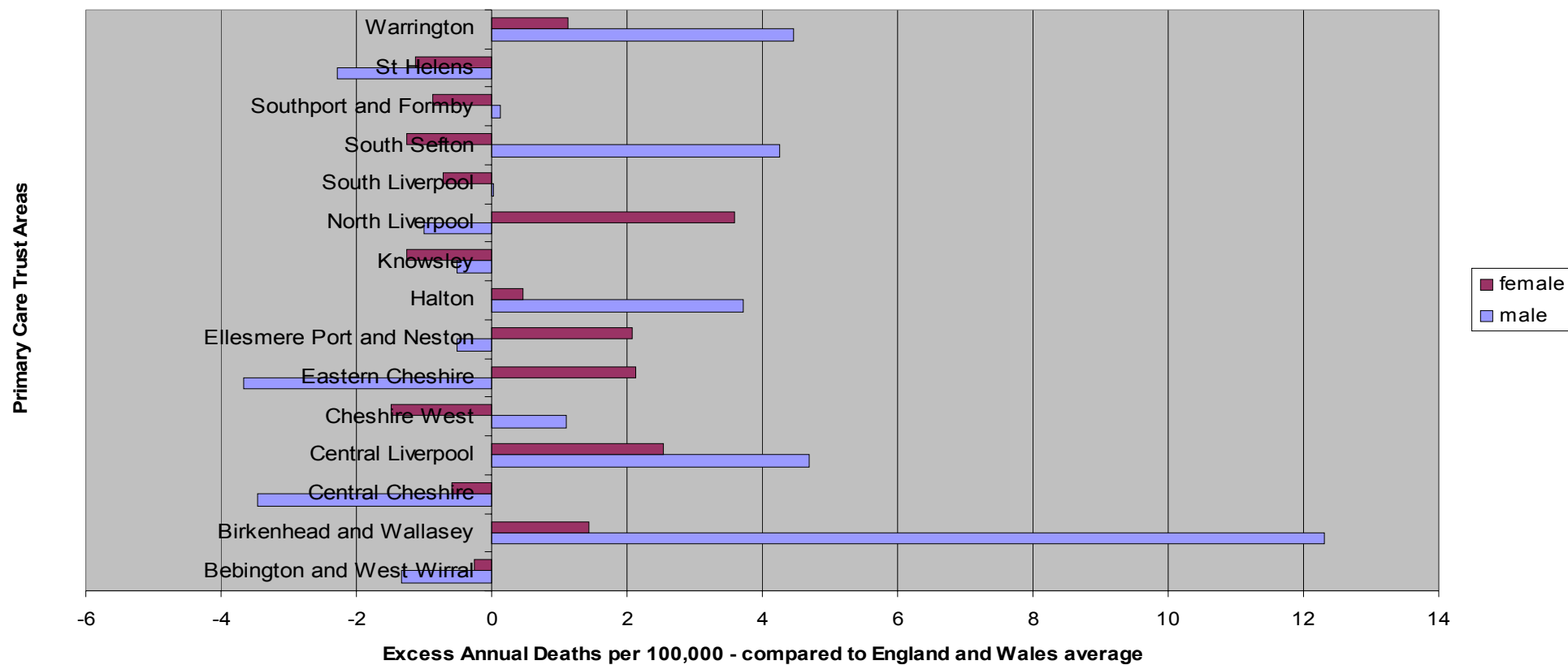
Directly Age Standardised Mortality Rates per 100,000 for Suicide and Injury Undetermined, Three Year Pooled Rate 2000-2002.
Merseyside PCTs

PCT	Males				Females				Persons			
	OBS	DSR	95% conf.interval		OBS	DSR	95% conf.interval		OBS	DSR	95% conf.interval	
			LL	UL			LL	UL			LL	UL
North Liverpool	20	13.55	7.56	19.53	12	7.91	3.41	12.42	32	10.59	6.89	14.29
Central Liverpool	66	19.27	14.59	23.96	26	6.86	4.16	9.56	92	12.86	10.20	16
Birkenhead and Wallasey	71	26.60	20.32	32.89	19	5.31	2.76	7.85	90	15.24	12.01	18.47
South Liverpool	20	14.68	8.18	21.19	5	3.60	0.44	6.76	25	8.80	5.31	12
South Sefton	30	12.41	7.90	16.92	5	1.81	0.14	3.48	35	6.69	4.41	8.97
Knowsley	36	17.43	11.74	23.12	8	2.96	0.91	5.01	44	9.65	6.80	12.50
St Helens	24	9.30	5.58	13.02	7	2.50	0.65	4.35	31	5.80	3.76	7.84
Bebington and West Wirral	22	12.42	7.17	17.68	8	3.83	0.90	6.75	30	7.97	5.03	10.90
Southport and Formby	25	16.61	9.82	23.40	7	3.92	0.95	6.90	32	10.01	6.39	13.63

Source: Information analysts, Merseyside PCTs

Appendix 5. *Source: Tom Hennell - Senior Analyst, NW Public Health Team (Hennell 2003).*

**Directly Standardised Excess Death Rate by Cause, compared to England & Wales:
Deaths by self harm - 2000-2002: PCTs in Cheshire and Mersey**



Appendix 6

Mortality from suicide and injury undetermined (ICD10 X60-X84, Y10-Y34 exc. Y33.9):

Old Health Authority age specific death rates (per 100,000), 1999 and 2001 pooled.

Compendium of Clinical and Health Indicators 2002 / Clinical and Health Outcomes Knowledge Base (nww.nchod.nhs.uk). Source of data: National Statistics Department of Health.

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	MALES				FEMALES				PERSONS			
	15-34	35-64	65-74	75+	15-34	35-64	65-74	75+	15-34	35-64	65-74	75+
Liverpool HA	32.6	27.3	14.3	24.4	14.0	10.4	7.4	5.2	22.9	18.5	10.6	11.8
St Helens and Knowsley HA	15.8	19.6	7.5	7.2	4.6	2.3	0.0	7.5	10.0	10.7	3.4	7.4
Sefton HA	25.3	20.7	19.2	17.9	6.1	5.2	6.3	3.1	15.5	12.6	12.1	8.1
Wirral HA	27.3	29.6	18.5	38.2	6.6	7.0	0.0	11.4	16.5	17.9	8.3	20.6
ENGLAND	19.1	19.6	13.2	19.2	4.5	6.3	5.8	6.8	11.8	12.9	9.2	11.4
Cheshire and Merseyside SHA	23.3	22.9	15.5	17.4	6.7	6.6	3.5	8.1	14.8	14.6	9.1	11.4

Note: actual numbers were not given here, but may be very small, e.g. females aged 65-74 in St.Helens and Knowsley