The Burden of Mortality in Wisconsin: Annual Excess Deaths

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Introduction

• Measures of risk alone may not provide a complete picture of the magnitude of mortality burden across groups.

• Excess deaths, a measure which combines both risk and population size, can provide additional needed information for the distribution of resources to improve population health.

Methods

Data

• Wisconsin Interactive Statistics on Health (WISH)

• Wisconsin Assessment Information Manager (AIM)

• Data gathered by county for 1995-2004

• All deaths under 75 years of age included

Target rates

• Chosen as the lowest reliable mortality rates observed among Wisconsin counties for each age group

• **Calculating excess deaths**

• *Excess deaths = risk difference* x *population size*

• The *risk difference* was calculated as the difference between the observed age-specific county death rate and the target rate.

• Multiplying the excess risk in a county by the size of the *population* living with this risk provides the number of excess deaths.

• Because mortality rates vary greatly with age, excess deaths were first calculated for each age group in each county and then summed across counties and ages to present group-level excess death totals.

Table 1. Target rates and excess deaths by age group (1995-2004).

Age group	Best county	Best rate (per 100,000 population)	Average annual # of excess deaths	Average annual # of total deaths	Percent of WI deaths which are excess
< 1 year	Wood	346.1	230	465	49%
1-14 years	Waukesha	11.7	105	226	46%
15-24 years	Eau Claire	38.9	261	560	47%
25-34 years	Waukesha	53.3	232	612	38%
35-44 years	Calumet	91.0	541	1326	41%
45-54 years	Washington	228.8	817	2462	33%
55-64 years	Waukesha	635.8	1070	4038	26%
65-74 years	Pepin	1824.0	1526	8004	19%
All ages	N/A	N/A	4782	17692	27%

Results

Statewide distribution

• 4,782 annual excess deaths in Wisconsin from 1995-2004

• Counties with the most excess deaths

  • Milwaukee County – 1650

  • Racine County – 210

  • Rock County – 183

• Counties with the fewest excess deaths

  • Calumet County – 3

  • Pepin County – 3

  • Florence County – 6

• The majority of the deaths occurring in Menominee County (63%) and the City of Milwaukee (51%) could be avoided through drastically improving mortality rates.

Milwaukee City and County

• Milwaukee County contains approximately 18% of the state's population but accounts for 35% of the state's excess deaths.

• The City of Milwaukee has 1,330 excess deaths compared to only 320 in the remaining areas of the county, a larger burden of avoidable deaths than would be expected by population distribution alone.

Rural and urban counties

• Urban counties bear less of the excess death burden in relation to their population and the City of Milwaukee bears much more than would be expected based on population size.

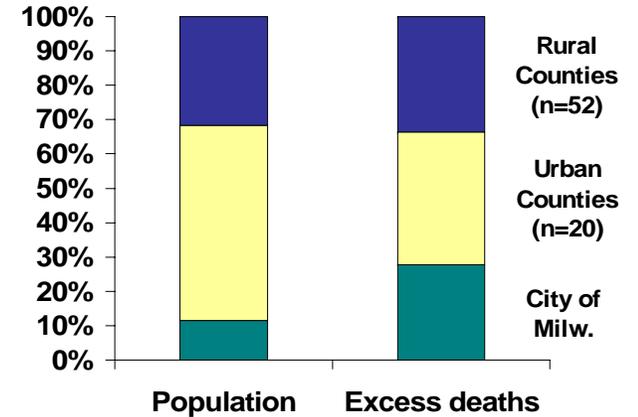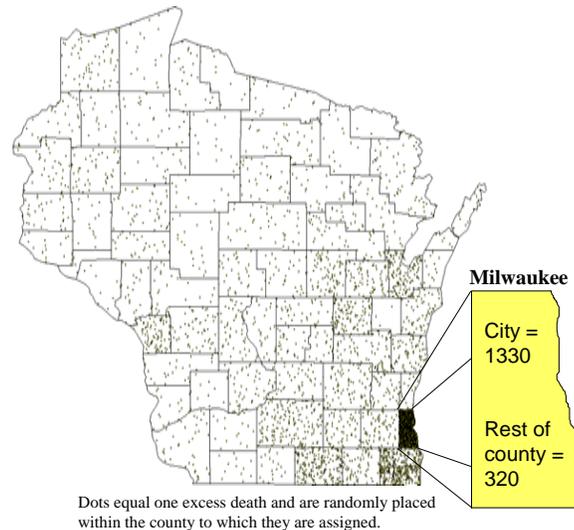### Figure 1. Distribution of annual excess deaths in Wisconsin (total = 4782).

Milwaukee
City = 1330
Rest of county = 320

Dots equal one excess death and are randomly placed within the county to which they are assigned.

Figure 2. Distribution of population and excess deaths in Wisconsin.

Rural Counties (n=52)
Urban Counties (n=20)
City of Milw.

Conclusion

• Over one-quarter of all Wisconsin deaths under age 75 years could be avoided if every county achieved the rates observed in the healthiest counties.

• Examining the distribution of excess deaths across Wisconsin can assist in

  • program planning,

  • allocation of resources,

  • and targeting approaches for reaching state and local health goals such as those included in *Healthiest Wisconsin 2010*.

• The use of a measure such as excess deaths does not imply that areas with high death rates and small populations do not require attention.

• However, an examination of excess deaths can help to identify where the mortality burden falls in terms of the absolute number of excess deaths and to identify concentrated areas of the state which may need added attention.

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