

CALCULATING GRADES AND RANKS

- **How were the life stage grades for health assigned?**

In order to give Wisconsin and its residents grades for the health outcomes of mortality and unhealthy days, we created grading scales. We looked at the distribution of health within each life stage for each of the 50 states to see how spread out each state's rate was from the average for the life stage (see figure below for an example for working-age adult mortality). We then assigned cutoff points for grades based on distance from the average (i.e., based on standard deviations from the mean). Rates that were closest to the average (between 0.5 standard deviations below the mean to 0.5 standard deviations above the mean) were assigned a C. Rates that were further away above and below the average were assigned a D (0.5 to 1.5 standard deviations above the mean) or a B (1.5 to 0.5 standard deviations below the mean) respectively. The highest (worst) rates were assigned Fs (more than 1.5 standard deviations above the mean) and the lowest (best rates) were assigned As (more than 1.5 standard deviations below the mean). The grading scales are listed in the table below. For the working-age and older adult life stages, the life stage health grades are an average of the grades for mortality and unhealthy days.

- **What scales were used for the life stage grades for health?**

Age group	2005 WI Population (%)	Outcome	A	B	C	D	F
Infants	69,856 (1.3%)	Mortality	<5.0	5.0-6.3	6.3-7.7	7.7-9.1	>9.1
Child/Young Adults	1,813,574 (32.5%)	Mortality	<31.9	31.9-42.3	42.3-52.7	52.7-63.1	>63.1
Working-Age Adults	2,970,814 (53.2%)	Mortality	<259	259-324	324-390	390-455	>455
		Unhealthy Days	<4.8	4.8-5.5	5.5-6.2	6.2-6.9	>6.9
Older Adults	727,595 (13.0%)	Mortality	<4278	4278-4710	4710-5142	5142-5574	>5574
		Unhealthy Days	<5.5	5.5-6.3	6.3-7.0	7.0-7.8	>7.8

- **How was the state grade for health assigned?**

To determine Wisconsin's health grade, we averaged the four life stage health grades to calculate an overall GPA. We then converted the overall GPA back to a grade.

- **What scale did you use to convert GPA scores back to grades?**

GPA range	Grade
3.75 – 4.0	A
3.50 – 3.74	A-
3.26 – 3.49	B+
2.75 – 3.25	B
2.50 – 2.74	B-
2.26 – 2.49	C+
1.75 – 2.25	C
1.50 – 1.74	C-
1.26 – 1.49	D+
0.75 – 1.25	D
< 0.75	F



▪ **How are all of the grades for different outcomes and life stages weighted in order to combine all of these measures into an overall grade for health?**

The health grades from the four life stages are equally weighted when they are averaged to calculate the overall grade for health, so each life stage grade contributes one-fourth of the final health grade. However, the working-age adult and older adult life stage health grades are created by equally combining the life stage health grades for mortality and unhealthy days, while the infant and children/young adult health grades are based solely on mortality rates. The unhealthy days measure only contributes to the overall health grade through these life stages, making the overall health grade effectively based 75% on mortality rates and 25% on unhealthy days.

▪ **How were the subgroup grades for health assigned within each life stage?**

The outcome/life stage grading scales constructed to assign each state a life stage grade for health were also used to assign grades for each population subgroup within that outcome and life stage.

▪ **How were the life stage grades for health disparity assigned?**

The life stage health disparity grades are based on a weighted proportion of subgroup grades that were less than the best grade achieved by any subgroup. The method is based on an approach recommended by the U.S. Department of Health and Human Services (Keppel K, Pamuk E, Lynch J, et al. Methodological issues in measuring health disparities. National Center for Health Statistics. Vital Health Stat 2(141. 2005). This approach is being used to monitor progress towards the Healthy People 2010 goals to eliminate health disparities by assessing disparity across multiple subgroups using an index of disparity.

To calculate life stage health disparity scores, we assigned a score of 4 for an A, 3 for a B, 2 for a C, 1 for a D, and 0 for an F to each subgroup's grade for mortality, and where applicable, unhealthy days. We then summed the differences between the best subgroup grade and each subgroup score, divided this sum by the number of subgroups minus one, and converted this score to a percent scale by dividing by four. The resulting disparity score can range from a value of zero percent disparity when all subgroups have the same grade to 100% disparity where one subgroup grade is an A and all other subgroup grades are Fs. (For the two younger life stages, the disparity score was based solely on available mortality rates for subgroups, whereas the disparity score for the two older life stages was based on an average of the scores for mortality and unhealthy days.) We then assigned grades to these scores.

▪ **What scale was used grading the life stage health disparity scores?**

Grade	Disparity score	Interpretation
A	(0-15%)	Very Good
B	(15-30%)	Good
C	(30-45%)	Fair
D	(45-60%)	Poor
F	(> 60%)	Failing

• **How was the state grade for health disparity assigned?**

To determine Wisconsin's health disparity grade, we averaged the four life stage health disparity grades to calculate an overall GPA. We then converted the overall GPA back to a grade.



- **How are all of the different subgroups, outcomes, and life stages weighted in order to combine all of these measures into an overall grade for health disparity?**

Within every life stage, each subgroup with available data contributed equally to the calculation of the life stage disparity grade. However, because there were not equal numbers of subgroups within each domain (gender, education, type of county, race/ethnicity), the domains are not given equal weight in the life stage disparity grade. For example, for infants there are four subgroups under “type of county” and only two subgroups under “gender,” so the domain of type of county contributes twice as much to the calculation of the life stage disparity grade as the domain of gender. In addition, subgroup data are not available for some racial/ethnic groups in every life stage and for the education domain for children and young adults; only the subgroups with available data were included in the life stage health disparity calculations. In calculating the overall health disparity grade for Wisconsin, the four life stage health disparity grades were given equal weight.

- **How were the life stage ranks for health and health disparity that are included in the Report Card calculated?**

For health, mean state values were used to assign ranks. The average of the two outcomes ranks was used for working-age and older adults. Life stage health disparities ranks were based on the state disparity scores described above. Because the ranks were constructed in a slightly different manner for working-age and older adults than the grades were constructed, the ranks displayed below do not necessarily reflect a ranked order of the grades received by each state.

The health and health disparity ranks for all 50 states for each life stage ([infants](#), [children and young adults](#), [working-age adults](#), and [older adults](#)) are available on the UWPHI web site.

