

Methodology Used to Risk-Adjust Data

WHA Information Center, LLC (WHAIC) uses computer software (3M™ Core Grouping Software which includes 3M™ APR- DRG Software) to assign the APR-DRG to each hospitalization.

The APR-DRGs are an expansion of DRGs, a patient classification system used by the Centers for Medicare and Medicaid Services to relate hospital case mix to cost, or hospital resources consumed. The APR-DRGs were developed in response to the demand for a patient classification system with applicability beyond assessments of resource use - one that can be used to evaluate differences in outcomes such as inpatient mortality.

APR-DRGs expand basic DRGs through the addition of four subclasses that address distinct patient attributes related to severity of illness and risk of mortality.

Severity of illness denotes the extent of physiologic de-compensation or organ-system loss of function experienced by the patient, while risk of mortality refers to the likelihood of dying. The four severity-of-illness subclasses and four risk-of-mortality subclasses denote minor, moderate, major and extreme severity of illness and risk of mortality. Patients with the highest severity of illness and/or risk of mortality are characterized by the presence of multiple serious diseases.¹

Assignment to APR-DRG severity-of-illness and risk-of-mortality subclasses takes into consideration principal diagnosis, secondary diagnoses and their combinations (comorbidities), patient age and sex, and the presence of certain OR (operating room) and non-OR procedures.

The 3M™ Core Grouping Software uses patient attributes to calculate a severity-of-illness score and a risk-of-mortality score for each relevant patient data record in a hospital inpatient data file. These scores are added to the record and are used as variables in the calculation of risk-adjusted mortality and utilization rates for hospitals.

To calculate the risk adjusted value the following methodology was used. The Actual Average Charge for each APR-DRG statewide is calculated using the four severity-of-illness levels. Then the Actual Average Charge and the Expected Average Charge are calculated using the four severity-of-illness levels for each APR-DRG for three groups; 1) each hospital, 2) each Analysis Area, and 3) each Volume Group. Then the Actual Average value for each APR-DRG for each of the three groups is divided by the Expected Average Charge for that APR-DRG/group, then multiplied by the Statewide Actual Average Charge for that APR-DRG. This produces a Risk Adjusted Charge for each of the APR-DRG/groups.

Comparison of these values will point out variations due to factors other than differences in patient risk. Groups of patients, such as those in different hospitals, may be compared as if they were all like the average patient in their APR-DRG.

Technical Notes

The total for Firearms, Assault in Table 13 differs from the total for Firearms & Explosives in Table 24 because Table 13 includes all Assaults by Firearms including those that were due to Legal Intervention (police action). Table 24 includes Assaults by Firearms excluding those that were due to Legal Intervention and also includes Assaults by Explosion.

¹ Averill RF, et al.. Development of the All Patient Refined DRGs (APR-DRGs). 3M Health Information Systems Research Report. 1997.

U.S. Census Population

Population rates throughout this report were calculated from U.S. Census Bureau Information.

Table 1: CO-EST2025-POP-55 2025 Population Estimates for Wisconsin Counties

Source: Population Division, U.S. Census Bureau <https://www.census.gov>

Release Date: June 2026

County	Analysis Area Code	Analysis Area Description	Population Census	Analysis Area Total
Columbia	1	Southern	58,132	
Dane	1	Southern	590,375	
Dodge	1	Southern	89,097	
Grant	1	Southern	52,446	
Green	1	Southern	37,227	
Iowa	1	Southern	23,951	
Jefferson	1	Southern	86,505	
Lafayette	1	Southern	17,478	
Richland	1	Southern	17,036	
Rock	1	Southern	166,472	
Sauk	1	Southern	66,652	
		Southern		1,205,371
Kenosha	2A	Southeastern	168,448	
Ozaukee	2A	Southeastern	94,346	
Racine	2A	Southeastern	198,919	
Walworth	2A	Southeastern	106,127	
Washington	2A	Southeastern	139,238	
Waukesha	2A	Southeastern	417,210	
		Southeastern		1,124,288
Milwaukee	2B	Milwaukee County	924,216	
		Milwaukee County		924,216
Calumet	3	Lake Winnebago	53,982	
Fond du Lac	3	Lake Winnebago	104,669	
Green Lake	3	Lake Winnebago	19,305	
Marquette	3	Lake Winnebago	15,927	
Outagamie	3	Lake Winnebago	195,894	
Waupaca	3	Lake Winnebago	51,461	
Waushara	3	Lake Winnebago	25,223	
Winnebago	3	Lake Winnebago	174,218	
		Lake Winnebago		640,679
Brown	4	Northeastern	275,803	
Door	4	Northeastern	30,616	
Kewaunee	4	Northeastern	20,758	
Manitowoc	4	Northeastern	81,710	
Marinette	4	Northeastern	42,574	
Menominee	4	Northeastern	4,199	
Oconto	4	Northeastern	40,195	
Shawano	4	Northeastern	41,560	
Sheboygan	4	Northeastern	118,047	
		Northeastern		655,462

County	Analysis Area Code	Analysis Area Description	Population Census	Analysis Area Total
Barron	5A	West Central	46,484	
Chippewa	5A	West Central	67,614	
Clark	5A	West Central	35,052	
Dunn	5A	West Central	46,223	
Eau Claire	5A	West Central	109,033	
Pepin	5A	West Central	7,513	
Pierce	5A	West Central	43,519	
Polk	5A	West Central	45,803	
Rusk	5A	West Central	14,146	
St. Croix	5A	West Central	98,276	
		West Central		513,663
Buffalo	5B	Southwestern	13,318	
Crawford	5B	Southwestern	15,910	
Jackson	5B	Southwestern	20,999	
La Crosse	5B	Southwestern	121,339	
Monroe	5B	Southwestern	46,572	
Trempealeau	5B	Southwestern	31,171	
Vernon	5B	Southwestern	31,443	
		Southwestern		280,752
Adams	6	North Central	21,752	
Florence	6	North Central	4,748	
Forest	6	North Central	9,574	
Juneau	6	North Central	26,649	
Langlade	6	North Central	19,534	
Lincoln	6	North Central	28,403	
Marathon	6	North Central	139,432	
Oneida	6	North Central	38,131	
Portage	6	North Central	71,943	
Taylor	6	North Central	20,118	
Vilas	6	North Central	23,761	
Wood	6	North Central	74,060	
		North Central		478,105
Ashland	7	Western Lake Superior	16,203	
Bayfield	7	Western Lake Superior	16,787	
Burnett	7	Western Lake Superior	17,223	
Douglas	7	Western Lake Superior	43,990	
Iron	7	Western Lake Superior	6,127	
Price	7	Western Lake Superior	13,988	
Sawyer	7	Western Lake Superior	18,846	
Washburn	7	Western Lake Superior	17,087	
		Western Lake Superior		150,251
			5,972,787	5,972,787

Table 2: CC-EST2025-AGESEX-55 2025 Age/Sex Population Estimates for Wisconsin
Source: Population Division, U.S. Census Bureau <https://www.census.gov>
Release Date: June 2026

<u>Both Sexes</u>				
Age Group	Population Estimate	Inpatient Age Group Total	Ambulatory Surgery Data Age Group Total	Emergency Department Data Age Group Total
Under 5 years	302,899			
5 to 9 years	335,163			
10 to 14 years	355,723	993,785	993,785	993,785
15 to 19 years	389,049	389,049		
20 to 24 years	406,636	406,636		795,685
25 to 29 years	363,670			
30 to 34 years	371,481	735,151		
35 to 39 years	383,907			
40 to 44 years	378,503	762,410	2,293,246	1,497,561
45 to 49 years	347,261			
50 to 54 years	330,359	677,620		
55 to 59 years	360,234			
60 to 64 years	406,355	766,589	1,444,209	1,444,209
65 to 69 years	391,782			
70 to 74 years	327,656	719,438		719,438
75 to 79 years	242,094			
80 to 84 years	146,279	388,373		
85 years and over	133,736	133,736	1,241,547	522,109
	5,972,787	5,972,787	5,972,787	5,972,787

<u>Male</u>				
Age Group	Population Estimate	Inpatient Age Group Total	Ambulatory Surgery Data Age Group Total	Emergency Department Data Age Group Total
Under 5 years	154,923			
5 to 9 years	171,626			
10 to 14 years	182,177	508,726	508,726	508,726
15 to 19 years	199,814	199,814		
20 to 24 years	207,773	207,773		407,587
25 to 29 years	187,878			
30 to 34 years	188,609	376,487		
35 to 39 years	194,030			
40 to 44 years	190,445	384,475	1,168,549	760,962
45 to 49 years	175,320			
50 to 54 years	165,659	340,979		
55 to 59 years	178,920			
60 to 64 years	198,825	377,745	718,724	718,724
65 to 69 years	190,678			
70 to 74 years	157,252	347,930		347,930
75 to 79 years	112,959			
80 to 84 years	64,256	177,215		
85 years and over	50,491	50,491	575,636	227,706
	2,971,635	2,971,635	2,971,635	2,971,635

<u>Female</u>				
Age Group	Population Estimate	Inpatient Age Group Total	Ambulatory Surgery Data Age Group Total	Emergency Department Data Age Group Total
Under 5 years	147,976			
5 to 9 years	163,537			
10 to 14 years	173,546	485,059	485,059	485,059
15 to 19 years	189,235	189,235		
20 to 24 years	198,863	198,863		388,098
25 to 29 years	175,792			
30 to 34 years	182,872	358,664		
35 to 39 years	189,877			
40 to 44 years	188,058	377,935	1,124,697	736,599
45 to 49 years	171,941			
50 to 54 years	164,700	336,641		
55 to 59 years	181,314			
60 to 64 years	207,530	388,844	725,485	725,485
65 to 69 years	201,104			
70 to 74 years	170,404	371,508		371,508
75 to 79 years	129,135			
80 to 84 years	82,023	211,158		
85 years and over	83,245	83,245	665,911	294,403
	3,001,152	3,001,152	3,001,152	3,001,152

External Cause Code Category Assignment

Categories and subcategories were assigned in the following manner:

1. The code ranges used in prior years were evaluated for additions, changes and deletions.
2. The descriptions of the external cause codes currently in use were scrutinized at the category grouping levels to verify accurate grouping.
3. Subcategories were assigned to delineate the differences in intent: Accidental, Self-Inflicted, Assault, or Undetermined.
4. Category assignment of external cause codes fell into the following categories/subcategories for purposes of this report:

Category	Subcategory
Assault, not elsewhere classified	Assault
Caught/Crush, not elsewhere classified	Accidental
Cut/Pierce	Accidental Self-Inflicted Assault Undetermined
Drown/Submersion	Accidental Self-Inflicted Assault Undetermined
Electric Current	Accidental Undetermined
Explosion	Accidental Self-Inflicted Assault
Falls	Accidental Self-Inflicted Assault Undetermined
Fire/Flames	Accidental Self-inflicted Assault Undetermined
Firearms	Accidental Self-Inflicted Assault Undetermined
Hot Objects/Scalds	Accidental Self-Inflicted Assault Undetermined
Jumping	Undetermined
Legal Intervention	Legal
Machinery	Accidental

Category	Subcategory
Motor Vehicle Traffic	Accidental Self-Inflicted Assault Undetermined
Natural/Environmental	Accidental Self-Inflicted Undetermined
Other Motor Vehicle Non-traffic	Accidental
Other Pedal Cycle	Accidental
Other Transport	Accidental Self-inflicted Undetermined
Other Injury, not elsewhere classified	Undetermined
Overexertion	Accidental
Poisoning	Accidental Self-Inflicted Assault Undetermined
Radiation	Accidental
Self-Inflicted, not elsewhere classified	Self-Inflicted
Striking/Struck by	Accidental Assault
Terrorism	Terrorism
War	War

Diagnostic Category Assignment – Rehabilitation Services

Source: Department of Health & Human Services (DHHS), Centers for Medicare & Medicaid Services (CMS).

<https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/InpatientRehabFacPPS/index.html>