

Heat-Related Illness (HRI) Emergency Department & Inpatient Admissions (Hospitalizations) 2020-2024, Arizona Residents and Non-Residents

Table Of Contents	Page Number
Summary	1
HRI by Year	2
HRI by Resident Status	3
HRI Emergency Department Visits by Sex and Age Group	4
HRI Inpatient Admissions (Hospitalizations) by Sex and Age Group	5
HRI Emergency Department Visits by Race/Ethnicity	6
HRI Inpatient Admissions (Hospitalizations) by Race/Ethnicity	7
HRI Emergency Department Visits by Month	8
HRI Inpatient Admissions (Hospitalizations) by Month	9
HRI Emergency Department Visits by County	10
HRI Emergency Department Visits Rates by County	11
HRI Inpatient Admissions (Hospitalizations) by County	12
HRI Inpatient Admissions (Hospitalizations) Rates by County	13
HRI Emergency Department Visits by Comorbidity and Substance Use	14
HRI Inpatient Admissions (Hospitalizations) by Comorbidity and Substance Use	15
HRI Emergency Department Visits by Place of Injury and Preceding Activity	16
HRI Inpatient Admissions (Hospitalizations) by Place of Injury and Preceding Activity	17
ICD codes related to HRI Illness	18
ICD codes related to selected comorbidities	19

SUMMARY REPORT OF HEAT-RELATED ILLNESS (HRI) CASES IN 2024

Emergency Department Visits

Total number of heat-related illness emergency department visits in Arizona during 2024 is **5,285**

Approximately **67%** of the heat-related illness emergency department visits by males

Most of the heat-related emergency department visits occurred in Maricopa, Pima and Pinal counties

The rate of ED visits among Arizona residents per 100,000 population is highest in La Paz, Mohave and Yuma counties

58% of heat-related cases occurred among Non-Hispanic Whites & **26%** among Hispanics

42% of the heat-related illness cases are seen in 20-44 years of age group

Over **24%** of heat-related illness cases had cardiovascular disease as a comorbidity

Among the listed activities, over **51%** of the heat-related illness cases involved engaging in recreational activities



Inpatient Admissions (Hospitalizations)

Total number of heat-related illness Inpatient admissions in Arizona during 2024 is **1,578**

Around **76%** of the heat related illness Inpatient admissions are males

Most of the heat-related hospitalizations occurred in Maricopa, Pima and Mohave counties

The rate of hospitalizations among Arizona residents per 100,000 population is highest in La Paz, Mohave and Maricopa counties

63% of heat-related cases occurred among Non-Hispanic Whites & **19%** among Hispanics

35% of the heat-related illness cases are seen in 45-64 years of age group

Over **64%** of heat-related illness cases had cardiovascular disease as a comorbidity

Among the listed activities, **44%** of the heat-related illness cases involved engaging in recreational activities

Heat-Related Illness by Year

VisitYear	Emergency Department Visit	Inpatient Admission (Hospitalization)
2020	2,467 Of those, 1,435 were heat-caused [†] (58.2%)	990 Of those, 403 were heat-caused [†] (40.7%)
2021	2,941 Of those, 1,848 were heat-caused [†] (62.8%)	997 Of those, 446 were heat-caused [†] (44.7%)
2022	3,335 Of those, 2,005 were heat-caused [†] (60.1%)	1,155 Of those, 544 were heat-caused [†] (47.1%)
2023	4,392 Of those, 2,552 were heat-caused [†] (58.1%)	1,434 Of those, 691 were heat-caused [†] (48.2%)
2024	5,285 Of those, 3,140 were heat-caused [†] (59.4%)	1,578 Of those, 736 were heat-caused [†] (46.6%)

[†]Heat-caused emergency department and inpatient visits (hospitalizations) are visits where the primary diagnosis is listed as exposure to excessive natural heat. Heat-related visits are where exposure to excessive natural heat is listed anywhere in the diagnoses and include those that were heat-caused.

Heat-Related Illness Emergency Department Visits and Inpatient Admissions (Hospitalizations) by Resident Status

Resident Status	2020	2021	2022	2023	2024
AZ Resident Emergency Department Visit	2,132	2,573	2,886	3,823	4,642
AZ Resident Inpatient Admission (Hospitalization)	826	834	1,007	1,197	1,297
Non-Resident Emergency Department Visit	335	368	449	569	643
Non-Resident Inpatient Admission (Hospitalization)	164	163	148	237	281

Heat-Related Emergency Department Visits by Sex and Age Group, Arizona Residents and Non-Residents

Sex	2020	2021	2022	2023	2024
Female	734	906	1,036	1,413	1,712
Male	1,733	2,035	2,299	2,975	3,569

Age Group	2020	2021	2022	2023	2024
Infants <1	7	10	10	15	25
Children 1-14	54	114	134	144	185
Adolescents 15-19	123	147	155	200	246
Young Adults 20-44	1,102	1,317	1,381	1,982	2,222
Middle-Aged Adults 45-64	732	826	1,015	1,315	1,632
Elderly 65+	449	527	640	736	975

*Number of visits related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Heat-Related Inpatient Admissions (Hospitalizations) by Sex and Age Group, Arizona Residents and Non-Residents

Sex	2020	2021	2022	2023	2024
Female	195	231	298	327	364
Male	795	766	857	1,104	1,208

Age Group	2020	2021	2022	2023	2024
Infants <1	6	7	9	<6*	7
Children 1-14	6	8	<6*	7	<6*
Adolescents 15-19	11	18	10	13	12
Young Adults 20-44	293	316	374	473	512
Middle-Aged Adults 45-64	387	344	402	494	560
Elderly 65+	287	304	358	444	484

*Number of visits related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Heat-Related Illness Emergency Department Visits by Race/Ethnicity, Arizona Residents and Non-Residents

Race/Ethnicity	2020	2021	2022	2023	2024
American Indian/Alaskan Native	96	120	132	191	210
Asian or Pacific Islander	24	32	36	43	61
Black or African American	169	218	294	383	483
Hispanic	581	734	824	1,122	1,385
White	1,566	1,785	2,014	2,593	3,070
Other	31	52	35	60	76

Heat-Related Illness Inpatient Admissions (Hospitalizations) by Race/Ethnicity, Arizona Residents and Non-Residents

Race/Ethnicity	2020	2021	2022	2023	2024
American Indian/Alaskan Native	37	42	45	74	84
Asian or Pacific Islander	11	8	19	11	15
Black or African American	91	78	90	133	144
Hispanic	187	233	262	285	296
White	647	625	718	895	998
Other	17	11	21	36	41

Heat-Related Illness Emergency Department Visits by Month, Arizona Residents and Non-Residents

Month	2020	2021	2022	2023	2024
January	<6*	<6*	<6*	<6*	<6*
February	10	<6*	10	8	6
March	12	20	75	20	10
April	61	104	107	154	118
May	295	198	266	214	254
June	387	915	811	382	1,167
July	633	809	1,034	2,088	1,936
August	734	552	591	1,095	1,033
September	252	290	382	317	529
October	63	29	50	91	224
November	16	16	7	12	<6*
December	<6*	<6*	0	6	<6*

*Number of visits related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Heat-Related Illness Inpatient Admissions (Hospitalizations) by Month, Arizona Residents and Non-Residents

Month	2020	2021	2022	2023	2024
January	<6*	<6*	0	0	<6*
February	<6*	<6*	0	<6*	<6*
March	<6*	6	7	<6*	<6*
April	22	22	24	25	19
May	65	48	57	41	49
June	115	311	244	110	322
July	341	271	454	792	614
August	333	209	193	331	367
September	87	110	161	101	142
October	20	11	14	27	58
November	<6*	<6*	0	<6*	0
December	<6*	0	<6*	<6*	<6*

*Number of visits related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Heat-Related Illness Emergency Department Visits by County, Arizona Residents only

County Residence	2020	2021	2022	2023	2024
Apache	6	9	8	6	12
Cochise	29	36	33	62	53
Coconino	25	22	25	24	23
Gila	24	18	24	22	36
Graham	19	11	11	26	22
Greenlee	<6*	<6*	<6*	<6*	<6*
La Paz	24	37	38	32	59
Maricopa	1,255	1,528	1,845	2,492	3,031
Mohave	160	182	164	179	297
Navajo	17	23	22	30	28
Pima	221	251	237	369	388
Pinal	190	193	244	314	342
Santa Cruz	6	14	6	6	10
Yavapai	39	61	49	57	70
Yuma	106	179	165	194	257

*Number of visits related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Heat-Related Illness Emergency Department Visits Rates by County, Arizona Residents only

County Residence	2020	2021	2022	2023	2024
Apache	*	13.6	12.0	*	18.0
Cochise	23.1	28.5	26.1	48.7	41.3
Coconino	17.2	14.9	16.7	15.9	15.3
Gila	45.0	33.6	44.6	40.9	66.7
Graham	49.2	28.2	28.2	65.6	54.9
Greenlee	*	*	*	*	*
La Paz	144.7	220.0	225.4	189.5	344.5
Maricopa	28.3	33.9	40.2	53.4	64.1
Mohave	74.8	84.1	74.2	79.8	130.2
Navajo	15.9	21.3	20.3	27.3	25.3
Pima	21.1	23.7	22.1	34.2	35.7
Pinal	44.4	44.0	53.8	67.2	70.7
Santa Cruz	*	28.9	*	*	19.8
Yavapai	16.5	25.3	20.0	22.9	27.8
Yuma	51.8	86.3	78.6	90.5	117.9

Note: Crude rates are calculated per 100,000 population. Rate calculations utilize the official population estimates from Arizona Department of Health Services: vital statistics - <https://pub.azdhs.gov/health-stats/menu/info/pop/index.php>. *Number of visits related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Heat-Related Illness Inpatient Admissions (Hospitalizations) by County, Arizona Residents only

County Residence	2020	2021	2022	2023	2024
Apache	<6*	<6*	<6*	<6*	9
Cochise	<6*	<6*	7	9	6
Coconino	<6*	<6*	6	<6*	<6*
Gila	0	<6*	<6*	14	8
Graham	<6*	<6*	<6*	<6*	0
Greenlee	<6*	0	0	<6*	<6*
La Paz	<6*	6	<6*	<6*	12
Maricopa	594	536	719	807	885
Mohave	42	54	36	43	78
Navajo	<6*	7	<6*	7	6
Pima	88	104	91	172	157
Pinal	52	53	61	65	64
Santa Cruz	<6*	0	<6*	<6*	6
Yavapai	<6*	9	8	14	13
Yuma	23	48	51	38	35

*Number of visits related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Heat-Related Illness Inpatient Admissions (Hospitalizations) Rates by County, Arizona Residents only

County Residence	2020	2021	2022	2023	2024
Apache	*	*	*	*	13.5
Cochise	*	*	5.5	7.1	*
Coconino	*	*	*	*	*
Gila	0.0	*	*	26.0	14.8
Graham	*	*	*	*	0.0
Greenlee	*	0.0	0.0	*	*
La Paz	*	*	*	*	70.1
Maricopa	13.4	11.9	15.7	17.3	18.7
Mohave	19.6	24.9	16.3	19.2	34.2
Navajo	*	6.5	*	6.4	*
Pima	8.4	9.8	8.5	15.9	14.4
Pinal	12.1	12.1	13.4	13.9	13.2
Santa Cruz	*	0.0	*	*	*
Yavapai	*	3.7	3.3	5.6	5.2
Yuma	11.2	23.2	24.3	17.7	16.1

Note: Crude rates are calculated per 100,000 population. Rate calculations utilize the official population estimates from Arizona Department of Health Services: vital statistics - <https://pub.azdhs.gov/health-stats/menu/info/pop/index.php> . *Number of visits related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Heat-Related Illness Emergency Department Visits by Comorbidity and Substance Use, Arizona Residents and Non-Residents

Comorbidity†	2020	2021	2022	2023	2024
Obese/Overweight	44	53	52	64	80
Mental Disorders	796	852	902	1,092	1,392
Circulatory Disease	669	702	820	965	1,296
Respiratory Disease	199	222	224	265	363
No Comorbidity	1,191	1,581	1,795	2,523	2,846
Substance Use	2020	2021	2022	2023	2024
Alcohol Use	64	60	66	113	146
Drug Use	522	601	642	715	905
Combined Alcohol and Drug Use	58	31	34	61	65
No Substance Use	1,823	2,249	2,593	3,503	4,169

† More than 1 comorbidity may be listed in the visit record. All comorbidities identified in a record are represented in these yearly totals.

Heat-Related Illness Inpatient Admissions (Hospitalizations) by Comorbidity and Substance Use, Arizona Residents and Non-Residents

Comorbidity†	2020	2021	2022	2023	2024
Obese/Overweight	80	106	112	115	149
Mental Disorders	655	636	738	953	1,069
Circulatory Disease	624	659	790	949	1,023
Respiratory Disease	427	423	494	606	619
No Comorbidity	74	74	87	110	114
Substance Use	2020	2021	2022	2023	2024
Alcohol Use	59	51	56	97	94
Drug Use	415	393	477	604	742
Combined Alcohol and Drug Use	116	93	89	119	123
No Substance Use	400	460	533	614	619

† More than 1 comorbidity may be listed in the visit record. All comorbidities identified in a record are represented in these yearly totals.

Heat-Related Illness Emergency Department Visits by Place of Injury and Preceding Activity, Arizona Residents and Non-Residents

Place of Injury	2020	2021	2022	2023	2024
Industrial Site	384	445	450	596	769
Private Residence	767	972	1,163	1,590	1,994
Public Building	42	75	89	120	144
Recreational Site	66	93	101	103	151
Residential Institution	26	20	18	29	44
Street/Highway	493	523	612	876	1,068
Not Listed	689	813	902	1,074	1,111
Preceding Activity	2020	2021	2022	2023	2024
Exercise	12	8	<6*	7	9
Household Activities	14	29	21	26	27
Occupational	116	129	108	98	152
Recreational	276	281	293	262	341
Sports/Athletics	77	95	99	113	134
Not Listed	1,972	2,399	2,810	3,886	4,622

Heat-Related Illness Inpatient Admissions (Hospitalizations) by Place of Injury and Preceding Activity, Arizona Residents and Non-Residents

Place of Injury	2020	2021	2022	2023	2024
Industrial Site	100	87	124	155	152
Private Residence	303	316	364	446	524
Public Building	21	20	24	35	33
Recreational Site	13	8	10	10	13
Residential Institution	<6*	<6*	11	9	7
Street/Highway	322	321	356	498	527
Not Listed	225	239	266	278	316
Preceding Activity	2020	2021	2022	2023	2024
Exercise	<6*	<6*	0	<6*	<6*
Household Activities	<6*	<6*	<6*	6	<6*
Occupational	13	14	27	22	22
Recreational	31	24	39	27	26
Sports/Athletics	8	11	7	8	7
Not Listed	931	945	1,078	1,369	1,520

Methods

ICD-10 Codes	Description
T67.0	Heat stroke and sunstroke
T67.1	Heat syncope
T67.2	Heat cramps
T67.3	Heat exhaustion from water depletion
T67.4	Heat exhaustion from salt depletion
T67.5	Heat exhaustion, unspecified
T67.6	Heat fatigue, transient
T67.7	Heat edema
T67.8	Other specified heat effects
T67.9	Unspecified effects of heat and light
X30	Exposure to excessive natural heat

- .Criteria adapted from Council of State & Territorial Epidemiologists (CSTE)
- .Methods search entire record for ICD-10 codes
- .ICD codes related to man-made sources of heat were excluded

*Responsibility of this report has moved to the ADHS Vital Statistics Program. New methods were implemented for this year's report and applied to previous years. Previous report annual totals may not match. This new method utilizes the same inclusion and exclusion ICD-10 codes, but the search in the database uses a more flexible approach instead of exact matching. This wildcard search allows for a more accurate understanding of data entry variations among the heat-related codes.

Methods

ICD-10 Codes	Description
E66	Overweight and obesity
FXX	Mental, behavioral, and neurodevelopmental disorders
IXX	Diseases of the circulatory system
JXX	Diseases of the respiratory system

- . ICD codes related to selected comorbidities are listed here
- . Methods search entire record for ICD-10 codes
- . Substance use codes (ICD-10) for alcohol-and drug-related comorbidities are defined by [ADHS Population Health and Vital Statistics Diagnostics Categories](#)