

Heat-Related Illness Emergency Department & Inpatient Admissions (Hospitalizations) 2018-2022, Arizona Residents and Non-Residents

Heat-Related Illness by Year		
Year	Emergency Department Visit	Inpatient Admission (Hospitalization)
2018	3026	753
	<i>Of those, 1928 were heat-caused[†] (63.7%)</i>	<i>Of those, 250 were heat-caused[†] (33.2%)</i>
2019	2944	761
	<i>Of those, 1903 were heat caused[†] (64.6%)</i>	<i>Of those, 299 were heat-caused[†] (39.3%)</i>
2020	2414	894
	<i>Of those, 1401 were heat caused[†] (58.0%)</i>	<i>Of those, 360 were heat-caused[†] (40.3%)</i>
2021	2873	920
	<i>Of those, 1813 were heat caused[†] (63.1%)</i>	<i>Of those, 412 were heat-caused[†] (44.8%)</i>
2022	3286	1039
	<i>Of those, 2462 were heat caused[†] (74.9%)</i>	<i>Of those, 495 were heat-caused[†] (47.6%)</i>

[†]**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.



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2018-2022, Arizona Residents and Non-Residents

Heat-Related Emergency Department Visits and Inpatient Admissions (Hospitalizations) by Resident Status					
Resident Status	2018	2019	2020	2021	2022
AZ Resident Emergency Department Visit	2672	2649	2086	2514	2830
Non-Resident Emergency Department Visit	354	295	328	359	438
AZ Resident Inpatient Admission (Hospitalization)	668	648	751	772	902
Non-Resident Inpatient Admission (Hospitalization)	85	113	143	148	137



Emergency Department Visits 2018-2022, Arizona Residents and Non-Residents

Heat-Related Illness by Sex and Age Group

Sex	2018	2019	2020	2021	2022
Female	971	931	714	879	1012
Male	2055	2013	1700	1994	2256

Age Group	2018	2019	2020	2021	2022
Infants <1	11	8	6	9	10
Children 1 - 14	137	140	53	114	133
Adolescents 15-19	198	167	121	145	153
Young Adults 20-44	1358	1354	1088	1298	1361
Middle-Aged Adults 45 - 64	870	846	715	805	993
Elderly 65+	452	429	431	502	618



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Inpatient Admissions (Hospitalizations) 2018-2022, Arizona Residents and Non-Residents

Heat-Related Illness by Sex and Age Group

Sex	2018	2019	2020	2021	2022
Female	168	195	178	208	271
Male	585	566	716	712	768

Age Group	2018	2019	2020	2021	2022
Infants <1	0	<6*	6	6	8
Children 1 - 14	<6*	<6*	6	7	<6*
Adolescents 15-19	15	8	10	16	8
Young Adults 20-44	218	227	255	291	334
Middle-Aged Adults 45 - 64	281	289	360	318	360
Elderly 65+	234	233	257	282	327

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



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Emergency Department Visits 2018-2022, Arizona Residents and Non-Residents

Heat-Related Illness by Race/Ethnicity

Race/Ethnicity	2018	2019	2020	2021	2022
American Indian/Alaskan Native	99	108	94	116	130
Asian or Pacific Islander	34	40	24	32	35
Black or African American	215	213	165	215	289
Hispanic	817	765	575	721	809
White	1828	1788	1526	1738	1971
Other	33	30	30	51	34



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Inpatient Admissions (Hospitalizations) 2018-2022, Arizona Residents and Non-Residents

Heat-Related Illness by Race/Ethnicity

Race/Ethnicity	2018	2019	2020	2021	2022
American Indian/Alaskan Native	28	19	32	40	41
Asian or Pacific Islander	10	12	10	7	17
Black or African American	67	70	85	76	85
Hispanic	161	159	165	213	232
White	466	485	585	574	646
Other	21	16	17	10	18

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Emergency Department Visits 2018-2022, Arizona Residents and Non-Residents

Heat-Related Illness by Month					
Month	2018	2019	2020	2021	2022
January	6	<6*	<6*	<6*	<6*
February	10	<6*	10	<6*	10
March	30	32	12	20	74
April	115	105	61	102	104
May	238	96	283	194	262
June	603	518	377	890	790
July	941	968	620	789	1013
August	710	859	722	540	585
September	325	306	248	285	371
October	37	40	62	29	50
November	6	15	15	16	7
December	<6*	<6*	<6*	<6*	0

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Heat-Related Illness by Month					
Month	2018	2019	2020	2021	2022
January	<6*	0	<6*	<6*	0
February	<6*	0	<6*	<6*	0
March	<6*	6	<6*	<6*	7
April	23	17	20	20	17
May	47	16	56	42	47
June	124	128	101	290	213
July	271	270	310	250	423
August	193	221	304	195	173
September	80	94	80	101	147
October	<6*	8	17	10	11
November	<6*	<6*	0	<6*	0
December	0	0	<6*	0	<6*

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Emergency Department Visits 2018-2022, Arizona Residents

Heat-Related Illness by County

County Residence	2018	2019	2020	2021	2022
Apache	7	10	6	8	8
Cochise	43	47	27	32	31
Coconino	27	20	25	22	25
Gila	20	31	23	18	24
Graham	14	14	18	9	10
Greenlee	<6*	<6*	<6*	<6*	<6*
La Paz	25	10	23	37	38
Maricopa	1492	1545	1237	1504	1816
Mohave	173	136	159	180	163
Navajo	13	12	17	23	22
Pima	340	307	214	242	228
Pinal	232	224	186	189	242
Santa Cruz	6	13	<6*	13	6
Yavapai	50	46	39	60	48
Yuma	227	231	105	176	164

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Emergency Department Visits 2018-2022, Arizona Residents

Heat-Related Illness Rates by County

County Residence	2018	2019	2020	2021	2022
Apache	9.7	13.9	9.1	12.2	11.9
Cochise	34.0	36.9	21.5	25.4	24.4
Coconino	18.9	13.9	17.2	15.2	16.7
Gila	37.2	57.3	43.1	33.6	44.5
Graham	36.8	36.0	46.6	23.0	25.6
Greenlee	*	*	*	*	*
La Paz	118.9	47.0	138.7	225.5	225.3
Maricopa	33.9	34.4	27.9	33.4	39.5
Mohave	82.2	63.6	74.3	82.7	73.7
Navajo	11.8	10.8	15.9	21.3	20.2
Pima	32.8	29.3	20.5	23.0	21.2
Pinal	52.0	48.5	43.3	42.0	53.3
Santa Cruz	12.9	27.8	*	27.1	12.2
Yavapai	21.5	19.5	16.5	24.8	19.5
Yuma	107.5	107.9	51.4	85.0	78.1
Arizona	37.3	36.3	29.1	34.6	38.1

Note: Crude rates are calculated per 100,000 population. For years 2018-2019, [Vintage 2020 estimates from US Census](#) were used and for 2020-2021, [Vintage 2021 estimates from US Census](#) were used to calculate rates. Rate calculations for 2022 utilize the official population estimates from the [Arizona Office of Economic Opportunity](#) per Executive Order 2011-04.*Number of visits related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



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Inpatient Admissions (Hospitalizations) 2018-2022, Arizona Residents

Heat-Related Illness by County					
County Residence	2018	2019	2020	2021	2022
Apache	<6*	<6*	<6*	<6*	<6*
Cochise	7	<6*	<6*	<6*	<6*
Coconino	<6*	<6*	<6*	<6*	6
Gila	<6*	<6*	0	<6*	<6*
Graham	<6*	<6*	<6*	0	0
Greenlee	0	<6*	0	0	0
La Paz	<6*	<6*	<6*	<6*	<6*
Maricopa	443	433	547	504	669
Mohave	27	28	37	52	33
Navajo	<6*	<6*	<6*	7	<6*
Pima	78	83	74	94	78
Pinal	54	51	50	50	52
Santa Cruz	<6*	<6*	<6*	0	<6*
Yavapai	<6*	9	<6*	9	7
Yuma	39	24	22	41	37

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Inpatient Admissions (Hospitalizations) 2018-2022, Arizona Residents

Heat-Related Illness Rates by County

County Residence	2018	2019	2020	2021	2022
Apache	*	*	*	*	*
Cochise	5.5	*	*	*	*
Coconino	*	*	*	*	4.0
Gila	*	*	0.0	*	*
Graham	*	*	*	0.0	0.0
Greenlee	0.0	*	0.0	0.0	0.0
La Paz	*	*	*	*	*
Maricopa	10.1	9.6	12.3	11.2	14.5
Mohave	12.8	13.1	17.3	23.9	14.9
Navajo	*	*	*	6.5	*
Pima	7.5	7.9	7.1	8.9	7.2
Pinal	12.1	11.0	11.6	11.1	11.4
Santa Cruz	*	*	*	0.0	*
Yavapai	*	3.8	*	3.7	2.8
Yuma	18.5	11.2	10.8	19.8	17.6
Arizona	9.3	8.9	10.5	10.6	12.1



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Note: Crude rates are calculated per 100,000 population. For years 2018-2019, [Vintage 2020 estimates from US Census](#) were used and for 2020-2021, [Vintage 2021 estimates from US Census](#) were used to calculate rates. Rate calculations for 2022 utilize the official population estimates from the [Arizona Office of Economic Opportunity](#) per Executive Order 2011-04. *Number of visits related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Emergency Department Visits 2018-2022, Arizona Residents and Non-Residents

Heat-Related Illness by Comorbidity and Substance Use

Comorbidity [†]	2018	2019	2020	2021	2022
Obese/Overweight	53	53	43	51	51
Mental Disorders	893	956	780	830	878
Circulatory Disease	733	719	647	669	792
Respiratory Disease	243	239	189	213	216
No Comorbidity	1580	1472	1172	1556	1775
Substance Use	2018	2019	2020	2021	2022
Alcohol Use	64	56	63	57	64
Drug Use	546	610	509	589	629
Combined Alcohol and Drug Use	44	49	57	30	31
No Substance Use	2372	2229	1785	2197	2544

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



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Inpatient Admissions (Hospitalizations) 2018-2022, Arizona Residents and Non-Residents

Heat-Related Illness by Comorbidity and Substance Use

Comorbidity†	2018	2019	2020	2021	2022
Obese/Overweight	65	64	72	94	100
Mental Disorders	474	496	591	590	665
Circulatory Disease	467	468	567	602	703
Respiratory Disease	266	284	382	383	427
No Comorbidity	74	69	64	71	83
Substance Use					
Alcohol Use	38	53	49	46	48
Drug Use	280	293	377	366	432
Combined Alcohol and Drug Use	62	78	104	84	86
No Substance Use	373	337	364	424	473

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



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Emergency Department Visits 2018-2022, Arizona Residents and Non-Residents

Heat-Related Illness by Place of Injury and Preceding Activity

Place of Injury	2018	2019	2020	2021	2022
Industrial Site	408	442	380	442	445
Private Residence	1056	1005	750	950	1139
Public Building	82	94	41	74	89
Recreational Site	129	88	65	92	101
Residential Institution	30	21	26	19	16
Street/Highway	516	518	481	507	596
Not Listed	805	776	671	789	882
Preceding Activity	2018	2019	2020	2021	2022
Exercise	12	<6*	12	8	<6*
Household Activities	28	27	13	29	21
Occupational	150	129	114	128	106
Recreational	318	323	272	275	289
Sports/Athletics	127	100	76	95	98
Not Listed	2391	2360	1927	2338	2750

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Inpatient Admissions (Hospitalizations) 2018-2022, Arizona Residents and Non-Residents

Heat-Related Illness by Place of Injury and Preceding Activity

Place of Injury	2018	2019	2020	2021	2022
Industrial Site	81	79	90	80	116
Private Residence	249	238	283	293	342
Public Building	27	25	19	18	20
Recreational Site	18	7	13	8	10
Residential Institution	8	<6*	<6*	<6*	10
Street/Highway	208	226	287	299	321
Not Listed	162	182	197	219	220
Preceding Activity	2018	2019	2020	2021	2022
Exercise	<6*	0	<6*	<6*	0
Household Activities	<6*	<6*	<6*	<6*	<6*
Occupational	32	22	9	14	25
Recreational	31	28	26	24	29
Sports/Athletics	12	6	7	11	7
Not Listed	673	702	846	868	974

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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



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](#)

