

Heat-Caused & Heat-Related Deaths in Arizona by Year (2010-2020)

Deaths from Exposure to Excessive Natural Heat		
Year	Heat – Caused Deaths	Heat – Related Deaths
2010	137	186
2011	123	177
2012	97	157
2013	103	149
2014	48	91
2015	83	132
2016	146	219
2017	132	264
2018	129	251
2019	160	283
2020	313	522

Heat-caused deaths are deaths where the primary cause of death is listed as exposure to excessive natural heat. **Heat-related** deaths are deaths where exposure to excessive natural heat is listed anywhere on the death record and include those that were heat-caused.



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Heat-Caused Deaths Summary 2010-2020

		Total	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
State or Country of Residence	Arizona Resident	909	50	57	53	56	32	42	98	105	92	117	207
	Non-Arizona Resident	562	87	66	44	47	16	41	48	27	37	43	106
Geographic Region of Occurrence	Central Counties	749	48	61	55	45	27	39	69	67	76	101	161
	Northern Counties	170†	6	7	0	13	*	*	12	33	19	23	54
	Southern Counties	534	81	55	41	45	18	39	60	32	34	34	95
	Western Counties	10†	*	0	*	0	0	*	*	0	0	*	*
Race/Ethnicity	American Indian/ Alaskan Native	50†	*	*	*	6	0	0	0	11	6	6	11
	Asian or Pacific Islander	10†	0	0	*	0	0	*	*	*	*	*	*
	African American/Black	60†	6	6	*	6	*	*	*	*	7	9	20
	Hispanic/Latino	509	70	59	43	43	16	32	52	28	35	41	90
	White Non-Hispanic	732	59	53	46	48	28	44	81	77	70	74	152
	Unknown	100†	0	0	0	0	*	*	10	12	10	26	37

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Classification of geographic regions: Central = Gila, Graham, Maricopa, Pinal, and Yavapai; Eastern = Greenlee; Northern = Apache, Coconino, Mohave, and Navajo; Southern = Cochise, Pima, Santa Cruz, and Yuma; Western = La Paz.



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Heat-Related Deaths Summary 2010-2020

		Total	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
State or Country of Residence	Arizona Resident	1748	96	108	109	96	74	88	165	227	187	220	378
	Non-Arizona Resident	683	90	69	48	53	17	44	54	37	64	63	144
Geographic Region of Occurrence	Central Counties	1635	91	108	106	86	66	86	135	193	193	214	357
	Northern Counties	200†	7	10	*	16	7	*	17	34	20	25	58
	Southern Counties	573	85	57	47	47	18	40	62	36	38	41	102
	Western Counties	20†	*	*	*	0	0	*	*	*	0	*	*
Race/Ethnicity	American Indian/ Alaskan Native	100†	*	8	8	9	0	0	0	16	11	11	28
	Asian or Pacific Islander	30†	0	*	*	0	*	*	*	6	*	*	*
	African American/Black	140†	10	9	*	12	6	*	7	11	16	20	38
	Hispanic/Latino	658	78	68	54	51	20	36	62	44	56	63	126
	White Non-Hispanic	1318	94	91	88	77	57	82	134	160	140	144	251
	Unknown	195	0	0	0	0	7	6	14	27	27	40	74

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Classification of geographic regions: Central = Gila, Graham, Maricopa, Pinal, and Yavapai; Eastern = Greenlee; Northern = Apache, Coconino, Mohave, and Navajo; Southern = Cochise, Pima, Santa Cruz, and Yuma; Western = La Paz.



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Heat-Caused & Heat-Related Deaths in Arizona Residents by Year (2010-2020)

Deaths from Exposure to Excessive Natural Heat

Year	Heat – Caused Deaths		Heat – Related Deaths	
	Count	Rate (per 100,000)	Count	Rate (per 100,000)
2010	50	0.8	96	1.5
2011	57	0.9	108	1.7
2012	53	0.8	109	1.7
2013	56	0.8	96	1.4
2014	32	0.5	74	1.1
2015	42	0.6	88	1.3
2016	98	1.4	165	2.4
2017	105	1.5	227	3.2
2018	92	1.3	187	2.6
2019	117	1.6	220	3.0
2020	207	2.9	378	5.3

Heat-caused deaths are deaths where the primary cause of death is listed as exposure to excessive natural heat. **Heat-related** deaths are deaths where exposure to excessive natural heat is listed anywhere on the death record and include those that were heat-caused.

Rates calculated here use the [2020 Vintage estimates from US Census](#); 2020 rates use the 2020 Census population.



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Heat-Caused Deaths Summary 2010-2020

		Total	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Age Group (years)	Less than 1	10†	*	0	*	*	*	*	*	*	0	*	*
	1 – 4	10†	*	0	0	0	0	*	0	*	0	*	*
	5 -14	10†	*	0	0	0	0	*	*	0	*	*	*
	15 - 24	120†	22	12	*	17	*	11	11	*	7	10	24
	25 - 34	194	22	26	14	9	6	9	22	19	19	17	31
	35 – 44	194	23	22	18	12	7	14	18	9	16	16	39
	45 – 54	200†	21	17	17	19	*	10	14	20	16	17	48
	55 – 64	227	8	16	14	10	7	14	31	19	19	28	61
	65 – 74	200†	7	*	12	*	8	14	16	24	32	25	47
	75 – 84	170†	7	8	10	11	*	*	14	23	16	24	44
	85+	80†	*	10	*	6	*	*	12	7	*	14	14
	Missing Age	60†	19	7	*	12	*	*	*	*	0	*	0
	Gender	Female	349	26	26	23	20	16	18	43	41	25	37
Male		1122	111	97	74	83	32	65	103	91	104	123	239
Unknown		0	0	0	0	0	0	0	0	0	0	0	0

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



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Heat-Related Deaths Summary 2010-2020

		Total	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Age Group (years)	Less than 1	10†	*	0	*	*	*	*	*	*	0	*	*
	1 – 4	10†	*	0	*	0	0	*	0	*	0	*	*
	5 -14	10†	*	*	0	0	0	*	*	0	*	*	*
	15 - 24	140†	23	13	*	17	*	13	11	6	8	13	28
	25 - 34	261	26	27	18	9	9	15	24	31	26	26	50
	35 – 44	317	30	25	20	20	11	19	27	23	31	31	80
	45 – 54	389	35	28	26	25	14	15	25	44	40	49	88
	55 – 64	463	13	29	27	23	14	27	54	48	53	57	118
	65 – 74	344	12	15	23	17	14	24	30	42	57	43	67
	75 – 84	286	16	20	21	14	9	8	25	45	28	36	64
	85+	140†	8	12	13	10	10	*	15	17	7	18	22
	Missing Age	60†	19	7	*	13	*	*	*	*	0	*	*
	Gender	Female	581	41	41	46	27	21	35	58	77	53	66
Male		1850	145	136	111	122	70	97	161	187	198	217	406
Unknown		0	0	0	0	0	0	0	0	0	0	0	0

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



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Heat-Caused Deaths Summary 2010-2020

		Total	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Substance Use	Alcohol Use	110 [†]	6	*	10	8	*	*	16	12	13	13	22
	Drug Use	130 [†]	*	*	*	*	6	*	7	8	12	30	54
	Combined Alcohol and Drug Use	20 [†]	*	*	*	0	0	*	0	*	*	0	*
	No Substance Use	1212	125	114	83	92	39	74	123	110	101	117	234
Years in Arizona	<3 years	140 [†]	14	15	8	10	6	12	20	*	12	11	27
	3-9 years	100 [†]	7	6	6	8	*	*	12	*	16	14	21
	10-19 years	100 [†]	6	15	9	8	*	6	13	*	7	13	16
	+20 years	372	25	30	27	24	18	22	49	16	44	39	78
	Unknown/ None	759	85	57	47	53	14	39	52	108	50	83	171

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



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Heat-Related Deaths Summary 2010-2020

		Total	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Substance Use	Alcohol Use	240	16	16	18	18	10	12	28	29	25	30	38
	Drug Use	507	16	11	13	12	18	15	33	57	65	91	176
	Combined Alcohol and Drug Use	50†	*	*	*	*	*	8	*	*	9	*	9
	No Substance Use	1633	152	148	123	117	59	97	155	174	152	157	299
Years in Arizona	<3 years	205	17	19	12	15	9	15	26	14	23	20	35
	3-9 years	180†	12	9	10	12	10	11	25	*	22	27	39
	10-19 years	193	15	17	20	13	12	7	18	11	20	26	34
	+20 years	792	48	64	66	49	43	52	82	47	96	94	151
	Unknown/None	1060	94	68	49	60	17	47	68	188	90	116	263

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



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Heat-Caused Deaths Summary 2010-2020

		Total	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
County of Occurrence	Apache	0†	0	*	0	*	0	0	0	0	*	0	0
	Cochise	20†	*	0	0	*	0	*	*	*	*	*	8
	Coconino	30†	*	*	0	*	*	*	0	8	*	*	*
	Gila	10†	0	*	0	*	0	0	*	*	*	*	*
	Graham	0†	0	0	*	0	0	0	0	0	0	0	*
	Greenlee	0	0	0	0	0	0	0	0	0	0	0	0
	La Paz	10†	*	0	*	0	0	*	*	0	0	*	*
	Maricopa	654	40	54	50	35	21	32	64	59	68	88	143
	Mohave	140†	*	*	0	7	*	*	11	25	15	21	49
	Navajo	0†	0	0	0	0	0	0	*	0	0	0	*
	Pima	402	74	49	35	38	13	28	45	26	25	25	44
	Pinal	60†	6	6	*	*	*	*	*	*	*	12	11
	Santa Cruz	20†	*	*	0	*	*	*	*	0	*	0	7
	Yavapai	20†	*	0	*	*	*	*	*	*	*	0	*
	Yuma	90†	*	*	6	*	*	7	12	*	*	8	36

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



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Heat-Related Deaths Summary 2010-2020

		Total	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
County of Occurrence	Apache	0†	0	*	0	*	0	0	0	0	*	0	0
	Cochise	20†	*	0	0	*	0	*	*	*	*	*	8
	Coconino	40†	*	*	*	*	*	*	0	9	*	*	6
	Gila	10†	0	*	0	*	0	*	*	*	*	*	*
	Graham	0†	0	0	*	0	0	0	0	*	0	0	*
	Greenlee	0	0	0	0	0	0	0	0	0	0	0	0
	La Paz	20†	*	*	*	0	0	*	*	*	0	*	*
	Maricopa	1474	79	98	100	75	60	77	127	171	175	190	322
	Mohave	150†	*	*	0	8	*	*	14	25	16	21	51
	Navajo	10†	*	*	*	*	*	0	*	0	0	0	*
	Pima	430	78	50	37	39	13	29	46	28	28	32	50
	Pinal	120†	10	9	*	6	*	*	*	17	15	22	27
	Santa Cruz	20†	*	*	0	*	*	*	*	0	*	0	7
	Yavapai	20†	*	0	*	*	*	*	*	*	*	*	*
	Yuma	100†	*	6	10	*	*	7	13	7	*	8	37

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



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Heat-Caused Deaths Summary 2010-2020

	Total	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Month of Occurrence												
January	0†	0	*	0	0	0	0	0	0	0	*	0
February	0	0	0	0	0	0	0	0	0	0	0	0
March	10†	0	*	0	*	0	0	*	*	0	0	0
April	20†	*	*	*	*	*	*	*	*	*	*	*
May	70†	8	*	9	9	*	*	*	*	11	*	9
June	315	23	27	24	30	12	32	52	49	16	20	30
July	497	71	30	28	39	17	9	51	34	50	53	115
August	389	18	39	26	14	7	34	26	22	28	53	122
September	130†	12	15	6	6	*	*	8	9	20	19	26
October	30†	*	*	*	*	*	*	*	*	*	*	9
November	10†	*	*	*	*	*	*	*	*	*	0	0
December	0†	0	0	0	0	0	0	0	*	0	0	*

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



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Heat-Related Deaths Summary 2010-2020

	Total	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Month of Occurrence												
January	0†	0	*	0	0	0	0	0	0	0	*	0
February	0†	0	*	0	0	0	0	0	0	0	*	0
March	10†	0	*	0	*	*	*	*	*	0	0	0
April	30†	*	*	*	*	*	*	*	*	*	*	*
May	100†	10	*	13	10	*	*	*	9	17	7	21
June	481	37	37	32	41	20	42	80	83	28	35	46
July	910	90	48	43	67	35	27	76	92	97	110	225
August	636	25	58	52	18	17	48	42	45	68	85	178
September	201	15	20	11	8	10	7	10	17	35	32	36
October	40†	*	*	*	*	*	*	*	*	*	6	12
November	20†	*	*	*	*	*	*	*	*	*	*	0
December	10†	*	0	*	0	0	0	0	*	0	0	*

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of visits related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



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Heat-Caused Deaths Summary 2010-2020

		Total	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Place of Injury	Home	350	13	23	21	20	8	9	37	44	39	45	91	
	Industrial & Construction Area	0†	*	0	0	0	0	0	*	0	0	0	0	
	Other Specified	984	117	92	63	78	31	65	96	75	75	99	193	
	Residential Institution	10†	0	0	0	0	0	0	*	*	*	*	0	
	Sports & Athletics Area	0†	0	0	0	0	0	0	0	0	0	0	*	
	Street/Highway	40†	*	*	*	*	*	*	*	*	*	6	8	10
	Trade & Service Area	10†	*	0	0	0	0	0	0	*	*	0	*	
	Unknown	90†	*	*	10	*	7	7	8	10	7	7	16	

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Heat-Related Deaths Summary 2010-2020

		Total	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Place of Injury	Home	645	29	45	42	35	18	20	69	88	71	84	144
	Industrial & Construction Area	0†	*	0	0	*	0	0	*	0	0	0	0
	Other Specified	1474	139	112	87	96	63	88	130	131	142	173	313
	Residential Institution	10†	0	0	0	0	0	0	*	*	*	*	0
	Sports & Athletics Area	0†	0	0	0	0	0	0	0	0	0	0	*
	Street/Highway	90†	*	*	*	*	*	*	*	6	13	13	32
	Trade & Service Area	10†	*	0	0	0	0	0	0	*	*	0	*
	Unknown	208	13	17	25	14	8	20	13	36	22	12	28

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



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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 death record for ICD-10 codes
- ICD codes related to man-made sources of heat were excluded
- Substance use codes (ICD-9 and ICD-10) for alcohol-and drug-related deaths are defined by [ADHS Population Health and Vital Statistics Diagnostics Categories](#)

