



MARICOPA COUNTY DEPARTMENT OF PUBLIC HEALTH  
DIVISION OF DISEASE CONTROL  
OFFICE OF EPIDEMIOLOGY AND DATA SERVICES

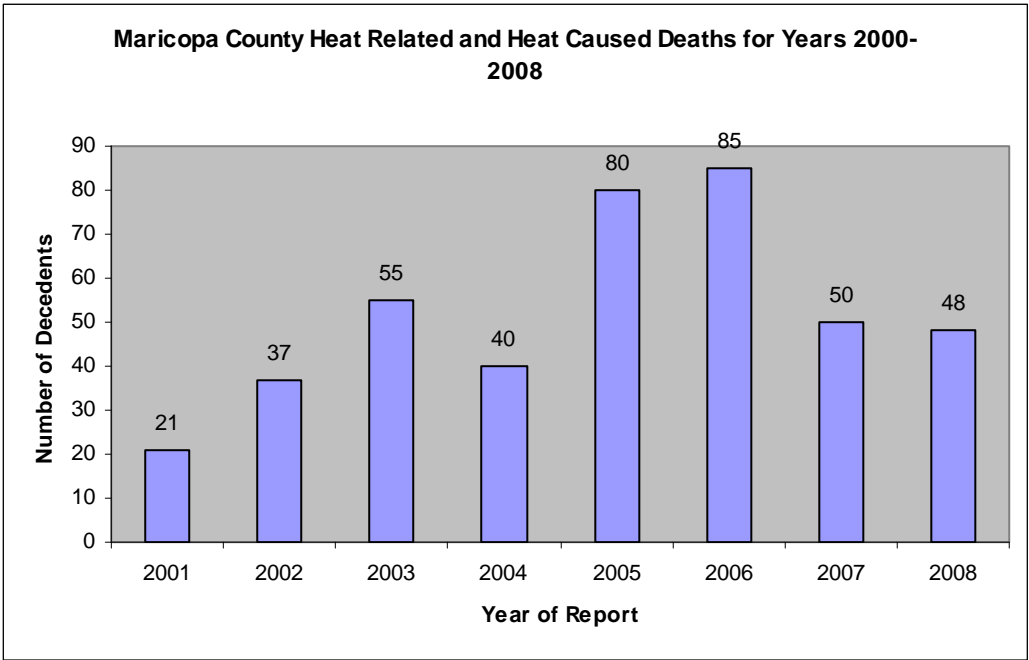
HEAT CAUSED AND HEAT RELATED DEATH OCURRENCES IN MARICOPA  
COUNTY  
2008 FINAL REPORT

May 25, 2009

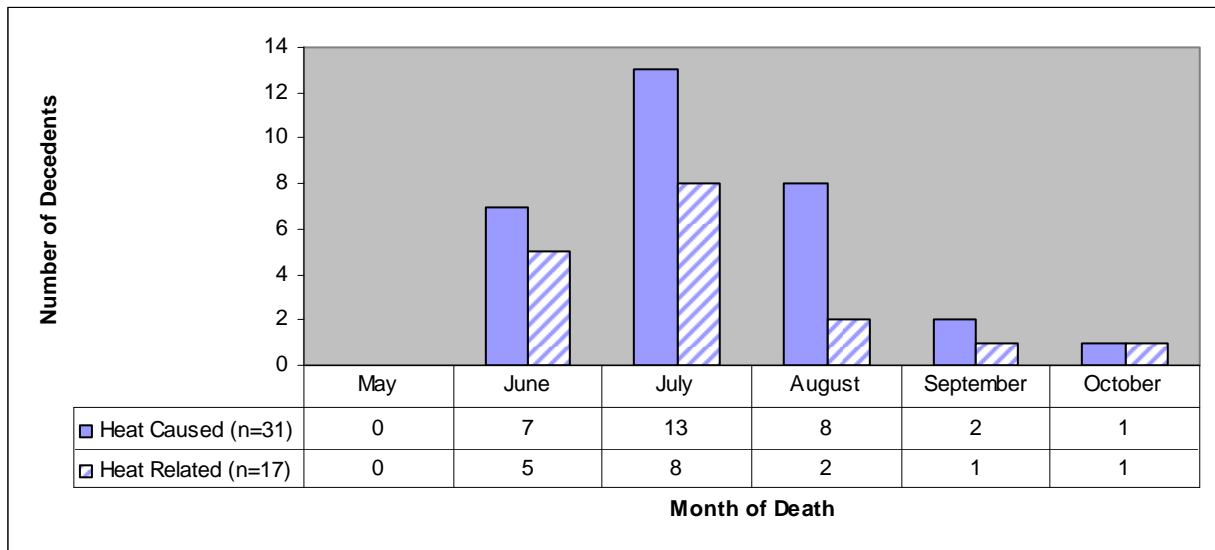
**Table1. Heat Caused and Heat Related Deaths Reported in Maricopa County: 2006 -2008**

Cases	2006	%	2007	%	2008	%	TOTAL
Total Reported	103	100	129	100	95	100	327
Confirmed	85	83	50	39	48	50.5	183
Ruled Out	18	17	79	61	47	49.5	144
Pending	0	0	0	0	0	0	0

**Graph1. Heat Caused and Related Deaths by Year, Maricopa County: 2001-2008**



**Graph2. Heat Caused and Related Deaths by Case Classification and Month  
Maricopa County: 2008**



*Data Sources: Maricopa County, Offices of Vital Registration (Public Health) and of the Medical Examiner; Arizona Department of Health Services, Office of Vital Registration.*

### **Classification Criteria**

**\*\*Heat Caused (HC):** Cases that mention heat or heat exposure in Part I of the death certificate causes of death (diseases or conditions in the direct sequence causing death), for variables *cod\_a*, *cod\_b*, *cod\_c*, or *cod\_d*. County of death: Maricopa.

**\*\*Heat Related (HR):** Cases that mention heat exposure in Part II of the death certificate causes of death (diseases and conditions contributing but not directly resulting in the death sequence), but not in any of the Part I variables (*cod\_a*, *cod\_b*, *cod\_c*, or *cod\_d*). County of death: Maricopa.

### **Part I of the death certificate:**

*cod a* – immediate cause (final disease or condition resulting in death)

*cod b*, *cod c*, *cod d* – sequentially listed conditions if any leading to the cause listed on *cod a*.

**Part II of the death certificate:** Other significant conditions contributing to death but not resulting in the underlying cause given in part I.

The International Classification of Disease Codes (ICD-10) for Heat Caused and Heat Related Illnesses are as follows:

ICD 10 Code	Corresponding Definition
X30.xx	Exposure to excessive
T67.xx	Exposure to sunlight
P810	Environmental hyperthermia of newborn

Phrases associated with the death certificate included in the search are as follows:

HEAT EXPOSURE, ENVIRONM, EXHAUSTION, EXHUASTION, SUN, HEAT STRESS, HEAT STROKE, and HYPERTHER

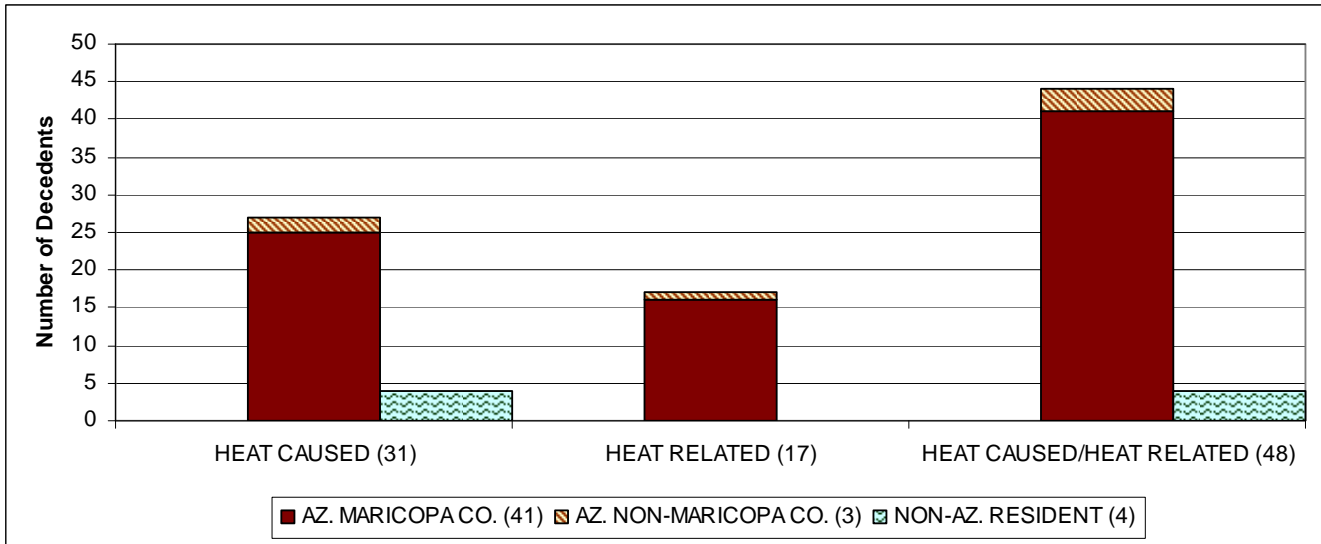
Table2. Heat Caused and Related Deaths by Residency and Classification  
Maricopa County: 2008

Classification	Residency				
<b>Heat Caused</b>	<b>Arizona Resident</b>	<b>Non-Arizona Resident*</b>	<b>Unknown</b>	<b>Total</b>	
	Maricopa County Resident	25	0	0	25
	Non-Maricopa County Resident	1	4	0	5
	Unknown	1	0	0	1
<b>Heat Caused Total</b>		<b>27</b>	<b>4</b>	<b>0</b>	<b>31</b>
Classification	Residency				
<b>Heat Related</b>	<b>Arizona Resident</b>	<b>Non-Arizona Resident*</b>	<b>Unknown</b>	<b>Total</b>	
	Maricopa County Resident	16	0	0	16
	Non-Maricopa County Resident	1	0	0	1
	Unknown	0	0	0	0
<b>Heat Related Total</b>		<b>17</b>	<b>0</b>	<b>0</b>	<b>17</b>
Classification	Residency				
<b>Heat Caused and Related</b>	<b>Arizona Resident</b>	<b>Non-Arizona Resident*</b>	<b>Unknown</b>	<b>Total</b>	
	Maricopa County Resident	41	0	0	41
	Non-Maricopa County Resident**	2	4	0	6
	Unknown	1	0	0	1
<b>Heat Caused and Related Total</b>		<b>44</b>	<b>4</b>	<b>0</b>	<b>48</b>

\*Non-Arizona Residence include Texas, Colorado, and Mexico

\*\*Non-Maricopa County Residence include: Pinal, Cochise

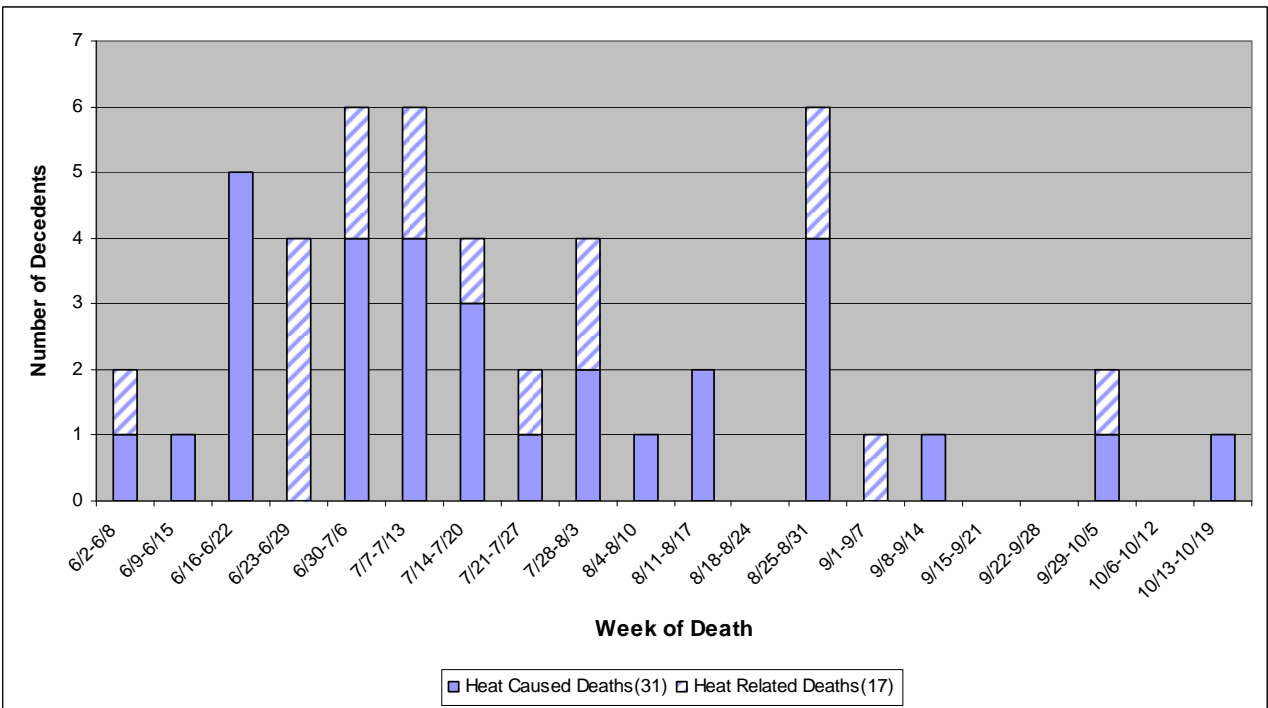
**Graph3. Heat Caused and Related Deaths by Residency and Classification  
Maricopa County: 2008**



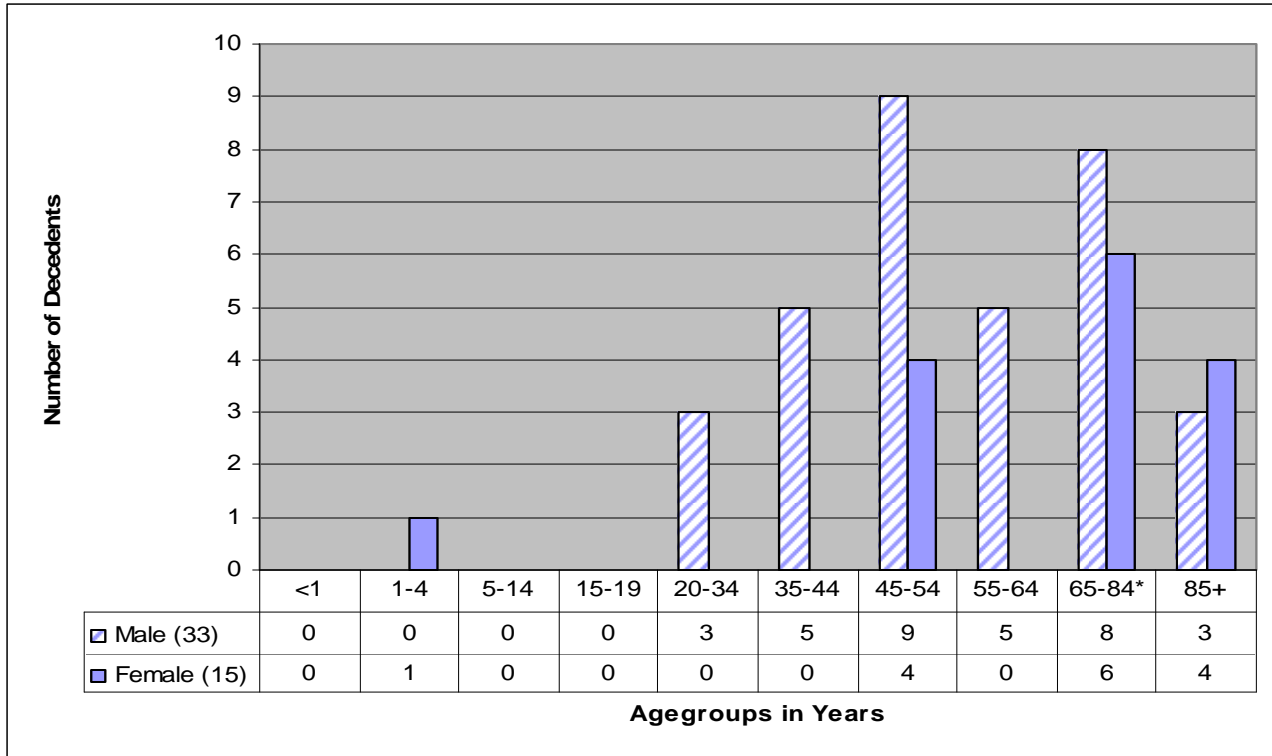
\*Non-Arizona Residence include Texas, Colorado, and Mexico

\*\*Non-Maricopa County Residence include: Pinal, Cochise and an Arizona resident with unknown county of residence

**Graph4. Heat Caused/Related Deaths by Week of Death, Maricopa County: 2008**

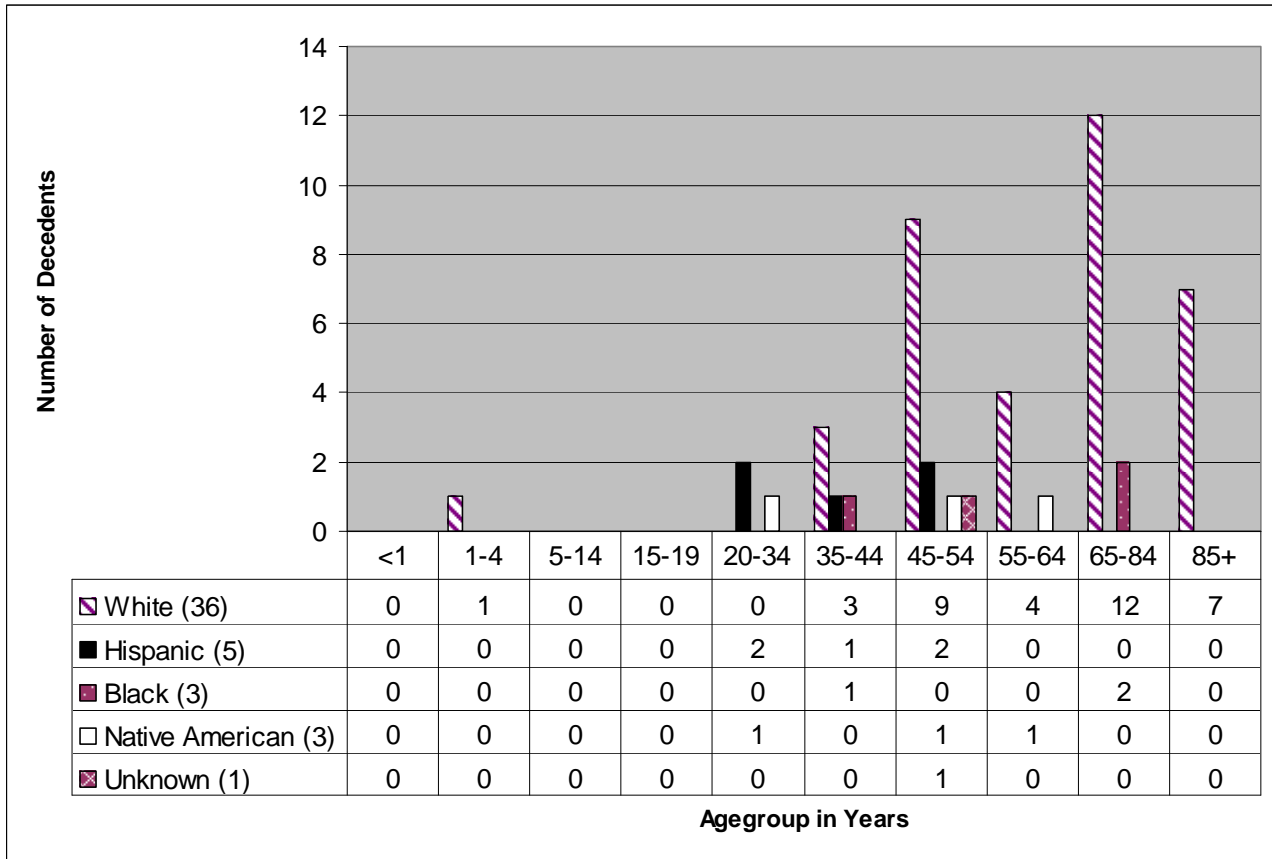


Graph5. Heat Caused/Related Deaths by Age and Gender, Maricopa County: 2008

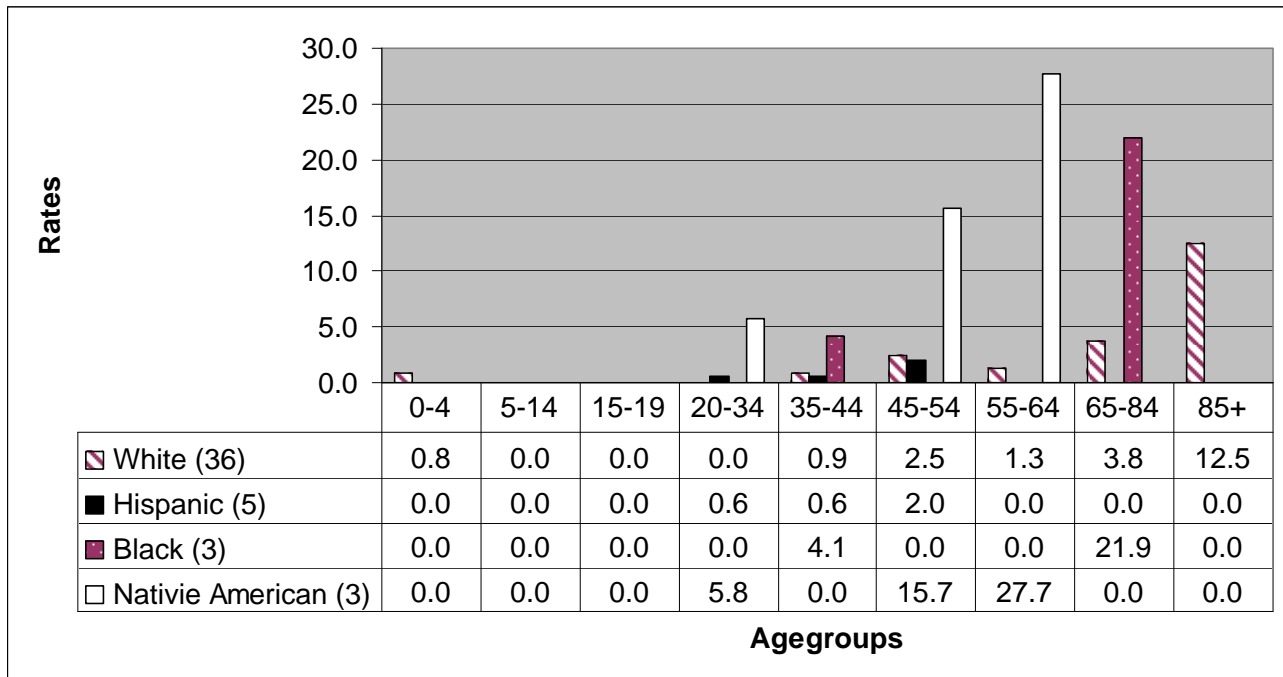


\*includes one married couple; Female 77 yrs old, Male 82 yrs old

Graph6. Heat Caused/Related Deaths by Age and Race/Ethnicity, Maricopa County: 2008



**Graph7. Heat Caused/Related Death Rates per 100,000 by Age and Race/Ethnicity Rates, Maricopa County: 2008**



\*Excludes one decedent with an unknown race

**Table3. Heat Caused/Related Deaths Associated with Occupation/Recreation Maricopa County: 2008**

Place of Injury	Type of Death					Total
	Occupational	Recreational	Unknown Occupational	Unknown Recreational	Not Occupational or Recreational	
Indoor	0	0	0	0	17	17
Outdoor	1	4	0	2	23	30
Unknown	0	0	0	0	1	1
<b>Total</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>41</b>	<b>48</b>

In 2008, one death (2.1%) was reported as occupational related and four deaths (8.3%) were reported as being associated with recreational activities.

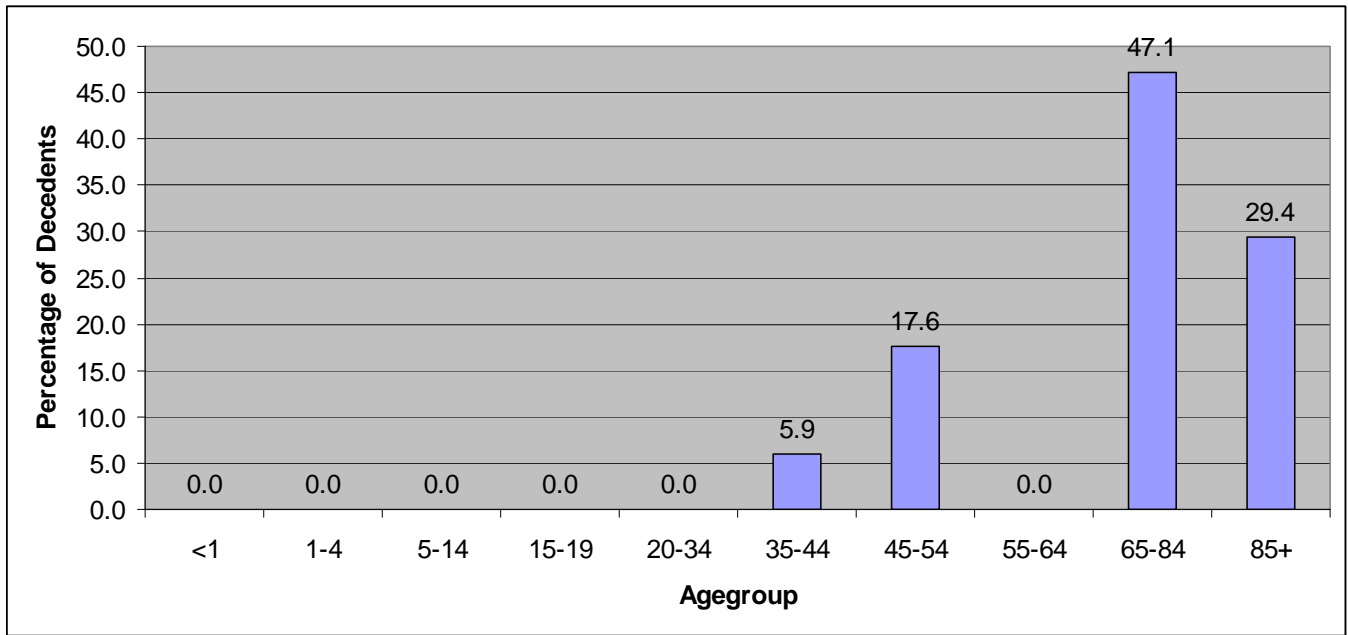
Table4. Heat Caused/Related Deaths by Environment and Location of Injury  
Maricopa County: 2008

Place of Injury (Indoor/Outdoor)				
Type of Place	Indoor	Outdoor	Unknown	Total
Private Residence	17	8	1	26
Business	0	3	0	3
Car	0	5	0	5
Desert	0	8	0	8
Alley	0	2	0	2
Street	0	4	0	4
<b>Total</b>	<b>17(35.4%)</b>	<b>30(62.5%)</b>	<b>1(2.1%)</b>	<b>48(100%)</b>

Table5. Heat Related/Heat Caused Deaths by Indoor or Outdoor Injury Occurrence  
Age, and Gender Maricopa County: 2008

Age group	2008 (n=48)								
	Indoor			Outdoor			Unknown		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
<1	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>	0 (0.0)	0 (0.0)	<b>0(0.0)</b>	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>
1-4	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>	0 (0.0)	1(16.7)	<b>1 (3.3)</b>	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>
5-14	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>
15-19	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>
20-34	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>	3 (12.5)	0 (0.0)	<b>3 (10.0)</b>	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>
35-44	1 (12.5)	0 (0.0)	<b>1 (5.9)</b>	4 (16.7)	0 (0.0)	<b>4 (13.3)</b>	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>
45-54	0 (0.0)	3 (33.3)	<b>3 (17.6)</b>	9 (37.5)	1 (16.7)	<b>10 (33.3)</b>	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>
55-64	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>	5 (20.8)	0 (0.0)	<b>5 (16.7)</b>	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>
65-84	5 (62.5)	3 (33.3)	<b>8 (47.1)</b>	2 (8.3)	3 (50.0)	<b>5 (16.7)</b>	1 (100.0)	0 (0.0)	<b>1 (100.0)</b>
85+	2 (25.0)	3 (33.3)	<b>5 (29.4)</b>	1 (4.2)	1 (16.7)	<b>2 (6.7)</b>	0 (0.0)	0 (0.0)	<b>0 (0.0)</b>
Total	8 (100.0)	9 (100.0)	<b>17 (100.0)</b>	24 (100.0)	6 (100.0)	<b>30 (100.0)</b>	1 (100.0)	0 (0.0)	<b>1 (100.0)</b>

**Graph8. Indoor Heat Caused/Related Deaths by Age Distribution, Maricopa County: 2008**  
**N=17**



**Graph9. Outdoor Heat Caused/Related Deaths by Age Distribution, Maricopa County: 2008**  
**N=30**

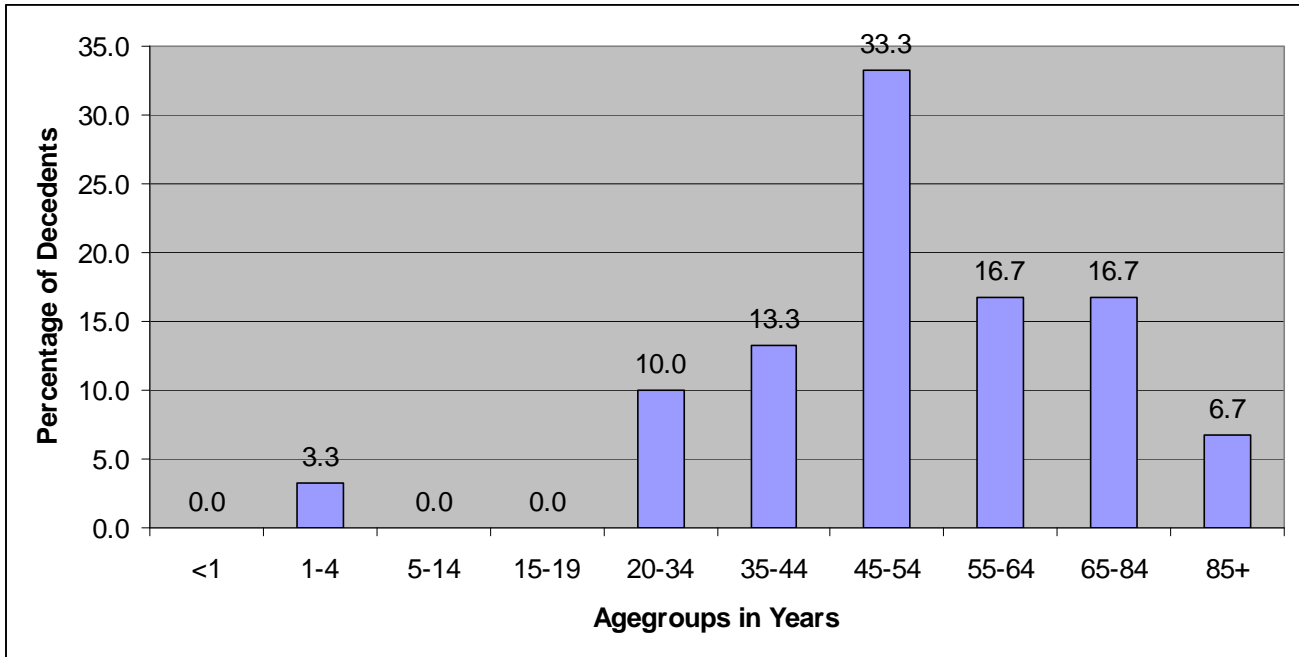


Table6. Heat Caused/Related Deaths by Use of Air Conditioning and Age Group, Maricopa County: 2008

Age group	Air conditioning not in use or broken	Unknown if working air conditioning Available	Not applicable	Total
<1	0	0	0	0
1-4	0	0	1	1
5-14	0	0	0	0
15-19	0	0	0	0
20-34	0	0	3	3
35-44	1	0	4	5
45-54	1	2	10	13
55-64	0	0	5	5
65-84	6	3	5	14
85+	3	2	2	7
<b>Total</b>	<b>11(22.9)</b>	<b>7(14.6)</b>	<b>30(62.5)</b>	<b>48</b>

Table7. Heat Caused/Related Deaths by City\* of Injury, Maricopa County: 2008

CITY	Number of Cases	%	City's % of Maricopa Co. Pop.**
BUCKEYE	1	2.2	1.0
CHANDLER	1	2.2	6.4
GILA BEND	1	2.2	.04
GILBERT	1	2.2	5.3
GLENDALE	6	13.3	6.5
MESA	4	8.9	11.7
PEORIA	1	2.2	3.8
PHOENIX	22	48.9	40.0
SCOTTSDALE	1	2.2	6.1
SUN CITY	2	4.4	1.0
SUN CITY WEST	1	2.2	1.0
SURPRISE	1	2.2	2.3
TEMPE	3	6.7	1.7
Other Cities	0	0	13.2
<b>Total</b>	<b>45</b>	<b>100.0</b>	<b>100.0</b>

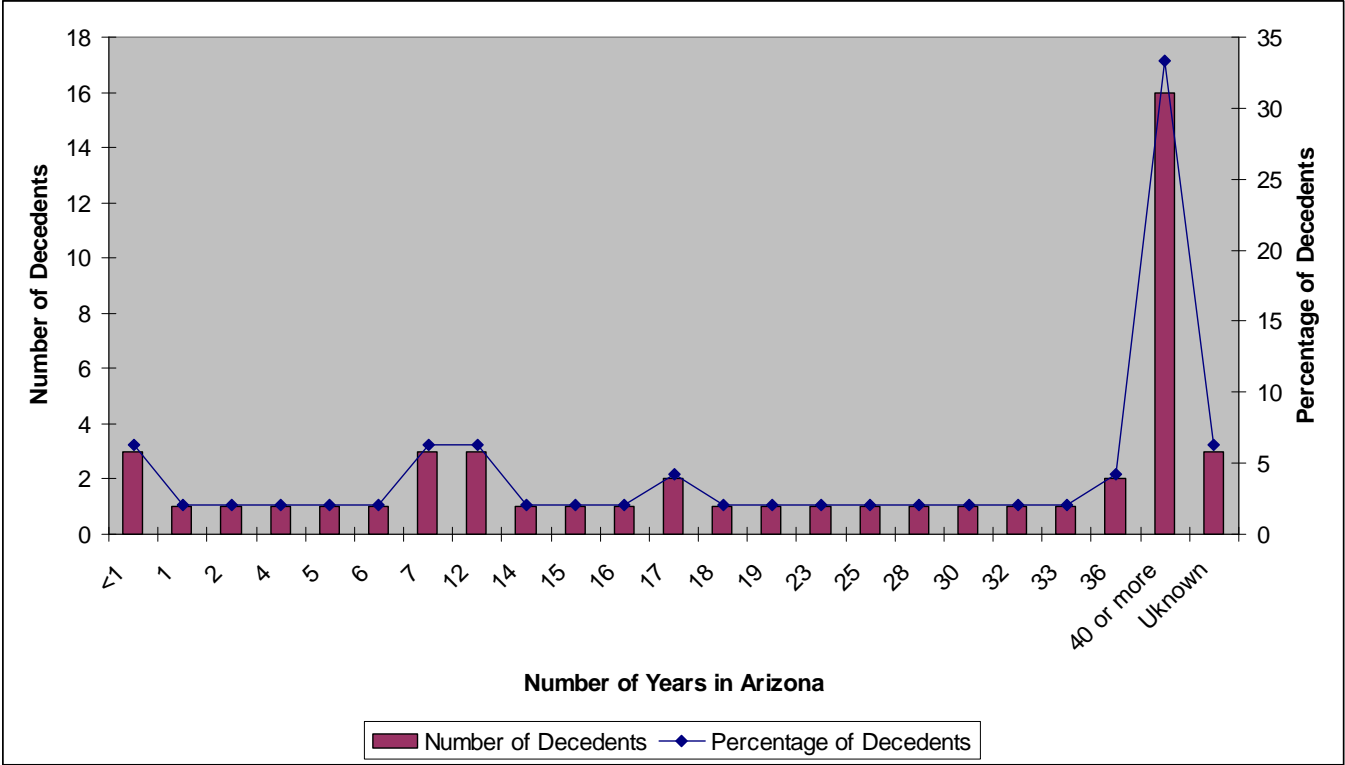
\*Excludes two cases where injury occurred out of county and one case with an unknown city of injury.

\*\*Based on the 2007 U.S. Census Population for Maricopa County

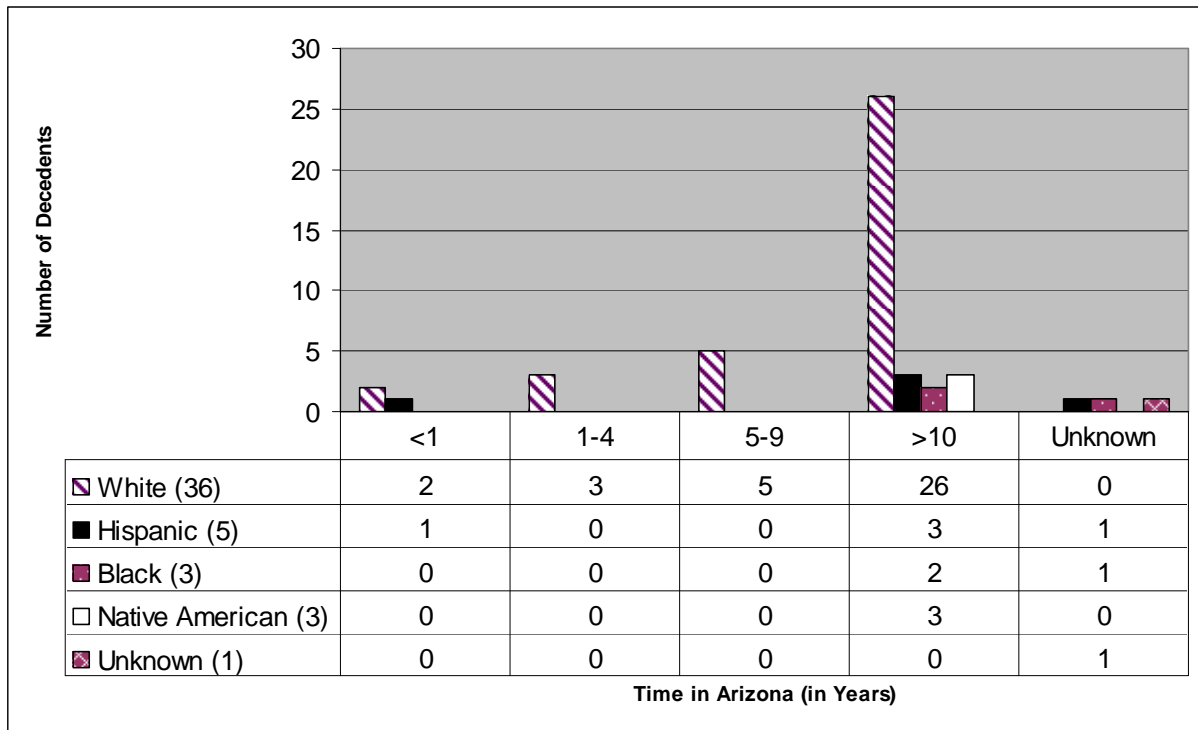
Table8. Homeless Deaths by Mention of Alcohol and Drugs, Maricopa Co. 2008

Homeless	Drug and/or Alcohol Use	No Drug or Alcohol Use
<b>Yes (6, 12.5%)</b>	<b>4 (66.7%)</b>	<b>2 (33.3%)</b>
<b>No (42, 87.5%)</b>	<b>12 (28.5%)</b>	<b>30 (71.4%)</b>
<b>Total (48, 100%)</b>	<b>16 (33.3%)</b>	<b>32 (66.6%)</b>

Graph10. Heat Caused/Related Deaths by Decedent's Time in Arizona, Maricopa Co. 2008



**Graph11. Heat Caused/Related Deaths by Decedent’s Time in Arizona and Race/Ethnicity, Maricopa County, 2008**



**Graph 12. Maricopa County 2008: Heat Caused/Related Deaths by Temperature and Date (n=48)**

