The Health Emergency of Climate Change

The Special Risks to Older Adults

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Heat waves...

“Sweat was beading on the forehead of the emergency medical technician as he wheeled in an elderly man with a reported fever, whose apparent confusion had led his wife to call 911. In the midst of a record-breaking heat wave, the pair was found in a top-floor apartment with no air conditioning and only one partially open window. The man was transferred to a bed, where a rectal thermometer registered nearly 106°F. We diagnosed heatstroke and rushed him to our highest-urgency area to begin cooling him.

Wildfires...

Coffey Park, Sonoma County
Deaths from fires in Sonoma, Mendocino counties, CA, 2017
Total 44 deaths

Kai (14) and Kressa Shepherd (17)
Christina Rose Hanson, 27
Garrett Paiz, 38 (Firefighter)
Michael Charles Grabow, 40
Michel Azarian, 41
Tamara Latrice Thomas, 47 (disabled)
Karen Sue Aycock, 56
Michael John Dornbach, 57
Carmen Berriz, 75
Arthur (95) and Suiko Grant (75)
Leroy and Donna Halbur, 80
Monte Neil Kirven, 81
Veronica Elizabeth McCombs, 67
Lynne Anderson Powell, 72
Sharon Rae Robinson, 79
Tak Fu Hung, 101
Carmen Colleen McReynolds, 82
Marilyn Carol Ress, 71
Linda May Tunis, 69
Carol Collins, 76

Daniel Martin Southard, 71
Lee Chadwick “Chad” Rogers, 72
George Chaney (89) and Edward Stone (78)
Charles (100) and Sara Rippey (98)
Sally Lewis (80) and Teresa Santos (59)

After a harrowing rescue attempt, Lewis, 90, and her caretaker, Teresa Santos, 59, were overtaken by the Atlas Peak fire.

Roy (87) and Irma Bowman (88)
Janet Costanzo (71) and Steve Stelter (56)
Jane Gardiner (83) and Elizabeth Foster (64)
Gardiner died in the fire that destroyed her home Oct. 9 and killed her longtime caregiver, Ms. Foster.
Margaret Stephenson, 86

29/40 (73%) were adults over 60

Valerie Lynn Evans, 75
Marjorie “Marnie” Schwartz, 68
Floods...

Nursing home residents in Dickinson, Texas, wait for first responders in a flooded room.

A flood at La Vita Bella Assisted Living, Dickinson, Texas
September 2017
The unknown...

Why Has Covid-19 Hit Seniors So Hard?

It's not one thing, it's everything. Older people are more likely to catch the disease, to suffer from it more severely, and to have a tougher recovery.
Extreme weather...

Katrina Took Deadly Toll on Elderly

March 5, 2006 · 12:04 PM ET
Heard on Weekend Edition Sunday

60% of the flood-related deaths were among people older than 65

Jonkman, Maaskant, Boyd, & Levitan, 2009
Outline

- What is special about older adults?

- How does climate change impact their health specifically?

What is an “older adult”?

- Or is it “senior” or “elder” or “elderly”?
- Huge variability, so age is not the only consideration
- Often people 65 and older are considered “older adults” but in some groups (such as those who are experiencing homelessness or live with HIV/AIDS, it can be 50 and older)
Important considerations about the health of older people

- Usual aging involves many physiologic changes

- Common, normal physiologic changes combined with comorbidities contribute to decreased functional reserve and increased vulnerability
Important considerations about the health of older people

- Physiologic changes
  - Decreased kidney function
  - Decreased lean body mass and bone mass
  - Decreased vital capacity and VO2 max
  - Decreased cardiac output and increased myocardial and arterial stiffness
  - Decreased recall and slowed reaction times
  - Decreased vision and hearing
Biological vulnerabilities

- Older adults have reduced thermoregulatory response to heat and cold
- Chronic conditions (and often more than one!): cardiovascular disease, chronic lung disease
- Reduced physiologic reserve (less “bounce back”)
- Sensory impairments (hearing, vision)
- Cognitive changes
  - Dementia affects 10% of people over 65, 30-50% of people 85 and older. Is is an abnormal loss of cognitive abilities
  - Slower processing associated with normal aging
- On many medications!
Social vulnerabilities

- Poverty
  - 15% of general older population (by the supplemental measure that takes out of pocket medical expenses into account)
  - Much higher as you get older, for racial minorities, and for women

- Social isolation: 1/3 of older adults live alone

- Digital divide: HUGE!

- More likely to live in congregate housing, like assisted living or nursing home

- Among those 70 and older, about 1/3 require personal care on a regular basis from another person
Climate change is an environmental stressor

- You are vulnerable to it because of:
  - **exposure**, the contact people have with the stressor
  - **sensitivity**, the degree to which people are affected by the stressor;
  - **adaptive capacity**, the ability of people to adjust to the stressor

- Older adults have heightened vulnerability for social and biophysical reasons that impact their exposure (e.g. *poor housing*), sensitivity (e.g. reduced kidney function), and adaptive capacity (e.g. *disability preventing them from searching from doing cooling measures*)

The impact may be greater in older adults because:

- Less able to thermoregulate -> more heat-related illness
- Inability to move to a cooler location or take corrective measures
- Several common medications can exacerbate heat’s effects
- Air pollution, made worse by heat, is linked to respiratory illness, and cardiovascular hospital readmissions and deaths

Common medications that impact the body’s response to heat

- Diuretics (“water pills”, such as furosemide)
- Angiotensin converting enzyme inhibitor or angiotensin II receptor blocker (for blood pressure)
- Anticholinergics (many medications! bladder medications such as oxybutynin, Benadryl, Dramamine)
- Psychotropic medication (antidepressants, such as SSRIs)

Westaway et al., Journal of Clinical Pharmacy and Therapeutics, 40(4), 363–367. 2015
The impact of extreme weather on injury/death may be great in older adults because:

- Less ability to flee or take cover quickly
- More harm from injury
- 60% of deaths in Hurricane Katrina were people 65 and older

Water-borne illness:
- Contamination of water with microbes that can cause serious illness could be more harmful to an older person, e.g. cholera.
• Again, air quality can affect hospitalization and mortality from lung and cardiovascular disease.
• Allergies can become more severe and really affect quality of life or require medications that have side effects.
Some vector borne disease have higher severity in older adults, particularly West Nile.
Additional impacts

- Mental health
  - Eco-anxiety
  - Trauma

- Caregiver health and wellbeing
  - The foundation of health of the older person
What can you do?

- Be aware of the local risks
  - A heat wave that is dangerous in Oregon is possible at lower temperatures than in Arizona
- Be aware of your risks: medications, conditions, functional needs
- Make a plan
  - Look at local resources and see how you can help create safeguards to emergency situations
  - E.g. PG&E
Take Homes

_The Health Impacts of Climate Change on Older Adults_

- We are an aging society and the impact of climate change on older adults will become a more important issue.
- A particular older person may be more vulnerable to certain outcomes of climate change for a combination of social and physical factors:
  - Where they live
  - What resources they have
  - What conditions they have and what medications they take
Thank you!

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