Leveraging Universities for Planetary Health – Smart Systems

Ann E. Kurth, PhD, CNM, MPH
Dean & Linda Koch Lorimer Professor
Yale University School of Nursing

Unite For Sight Conference
April 14, 2019
Human History

- Progress, innovation
- Strife, forced migration
- Accelerated stress on resource carrying capacity in Anthropocene era
Intergovernmental Panel on Climate Change (IPCC) Reports:

1990
1995
2001
2007
2013
2018***
(2022)

Q: How have the IPCC reports changed through time? (1990-2013)

- **1990**
  - The report did not quantify the human contribution to global warming.

- **1995**
  - "The balance of evidence suggests a discernible human influence on climate."

- **2001**
  - Human-emitted greenhouse gases are likely (67-90% chance) responsible for more than half of Earth’s temperature increase since 1951.

- **2007**
  - Human-emitted greenhouse gases are very likely (at least 90% chance) responsible for more than half of Earth’s temperature increase since 1951.

- **2013**
  - Human-emitted greenhouse gases are extremely likely (at least 95% chance) responsible for more than half of Earth’s temperature increase since 1951.

25 years of increasing certitude
How Close Are We to 1.5 Degrees C?

IPCC Special Report
(October 2018)
Nat’l US Impact Study: Climate Change Affects the Health of All Americans

The health and well-being of Americans are already affected by climate change, with adverse health consequences projected to worsen with additional climate change.”
Affects All - But Not Equally!

COMMUNITIES OF COLOR
Some communities of color living in risk-prone areas face cumulative exposure to multiple pollutants. Adaptation plans that consider these communities and improve access to healthcare help address social inequities.

OLDER ADULTS
Older adults are vulnerable to extreme events that cause power outages or require evacuation. Checking on elderly neighbors and proper emergency communication can save lives.

CHILDREN
Children have higher risk of heat stroke and illness than adults. Adults can lessen risk by monitoring exertion and hydration.

LOW INCOME COMMUNITIES
Low income families are at risk of physical and mental illnesses during flooding and in crowded shelter conditions. Comprehensive disaster management can improve resiliency for people with limited resources.
Planetary Health Effects

Environmental changes and ecosystem impairment

- Climate change
- Ozone depletion
- Deforest, land changes
- Desertification
- Wetlands loss
- Biodiversity loss
- Freshwater depletion
- Urbanization
- Coastal reefs

Examples of health impacts

1. Direct health impacts
   Floods, heatwaves, pollutants

2. Ecosystem-mediated impacts
   Infectious disease, undernutrition

3. Indirect, deferred, & displaced health impacts
   Populations displaced, conflict

Escalating human pressure on global environment

(WHO, in Corvalan 2005)
How Americans View Climate Change: 5 Year Trend

Data from 11 national surveys (n=13,103) from Nov. 2013 to Dec. 2018.
Acting on Climate Change: Health Co-Benefits

Energy Sector

**Air pollution:** 7 million premature deaths/yr (Lancet 2018)
1 in 8 of all deaths/yr (GBD, 2015)

Food Systems

Cardiovascular risk from high meat diet
(switch from beans-beef = 70% emission target)

Transportation

**Physical inactivity:** 5.3 million premature deaths/yr (Lee, 2012)

(J. Patz, Yale talk, 3/2018)
Design/Scale Climate-Smart Health Systems

Low-Carbon Healthcare Interventions

Climate-Smart Healthcare

Resilient Healthcare Interventions

(World Bank 2017, '18)
Sustainability in Health Industry

- **WHO hospitals guide** (2015)
- **Healthier Hospitals Initiative**
  - >1000 US hospitals
- **Global Green & Healthy Hospitals**
  - >750 members on 6 continents,
    >20,0000 hospitals
- **Green teams on units**
Sustainability in Health Industry

- Healthier Hospitals Initiative
  - >1000 US hospitals

- Global Green & Healthy Hospitals
  - >750 members on 6 continents, >20,000 hospitals

- Green teams on units

Seven elements of a climate-friendly hospital:

1. **Energy efficiency**
   - Reduce hospital energy consumption and costs through efficiency and conservation measures.

2. **Green building design**
   - Build hospitals that are responsive to local climate conditions and optimized for reduced energy and resource demands.

3. **Alternative energy generation**
   - Produce and/or consume clean, renewable energy onsite to ensure reliable and resilient operation.

4. **Transportation**
   - Use alternative fuels for hospital vehicle fleets; encourage walking and cycling to the facility; promote staff, patient and community use of public transport; site health-care buildings to minimize the need for staff and patient transportation.

5. **Food**
   - Provide sustainably grown local food for staff and patients.

6. **Waste**
   - Reduce, re-use, recycle, compost; employ alternatives to waste incineration.

7. **Water**
   - Conserve water; avoid bottled water when safe alternatives exist.
Sustainability in the Health Industry

- Anticipate/combat barriers to ‘greening’ your clinical site:
  - Competing investment/financial priorities
  - Inadequate staffing
  - Underfunded operations
  - Perceived higher costs
  - Time limitations

(AHE, '13)
WHO Framework

Operational framework for building climate resilient health systems

Balbus, NCEHI 2018
Resilient Health Systems
Preparing Health Systems

In face of coming planetary health drivers, is system...
Health System Resilience

capacity to respond, adapt, and strengthen when exposed to a shock...

CDC confirms: Ebola is in Texas
Have We Learned from Ebola?

Congo Declares New Ebola Outbreak After 2 Confirmed Cases

The CDC Is About Off a Funding Cliff
It's already planning to pull back on work that pandemics.
Emergence of Ebola virus in West Africa demonstrate critical need for health workers prepared to manage diseases that cross human, animal, environmental health areas.

One Health Competencies Identified in 7 domains:

- Management
- Communication and Informatics
- Values and ethics
- Leadership
- Team and collaboration
- Roles and responsibilities
- Systems thinking
Key Messages

- Educating, training, and empowering health care workers for planetary health impact
  - What is in our curriculum
  - How are we preparing health workers & systems for what’s coming
Climate damage & ecosystem strain

Rising non-communicable diseases

Global urbanization

Displaced populations

Natural & man-made disasters

Climate damage & ecosystem strain

Health Challenges

Strengthen Health Systems
The world needs more health workers
Health Workers Save Lives

( WHO, 2006)

The graph illustrates the relationship between the density of health workers and the probability of survival for different age groups. The x-axis represents the density of health workers, ranging from low to high, and the y-axis represents the probability of survival, also ranging from low to high.

- **Maternal survival** shows a high probability of survival as the density of health workers increases.
- **Child survival** indicates an intermediate probability of survival at higher densities.
- **Infant survival** exhibits the lowest probability of survival across all density levels.

The graph suggests that increasing the density of health workers significantly improves survival rates for all age groups.
Sustainable Development Goals

- All countries, goals by 2030
- Focuses on economics, environment, equity

**Goal 3 Good Health/Well-being**
- Universal health coverage
- Need trained, supported health workers
Yale Faculty SDG review

Good Health and Well-Being, 1909

Quality Education, 811

Reduce Inequality, 617

Sustainable Cities and Communities, 323

Life on Land, 313

Partnerships for the Goals, 431

Climate Action, 179

No Poverty, 155

Decent Work and Economic Growth, 302

Affordable and Clean Energy, 108

Clean Water and Sanitation, 100

Gender Equality, 352

Peace, Justice, and Strong Institutions, 772

Responsible Consumption and Production, 196

Life Below Water, 100

Zero Hunger, 78

(Goodall and Moore, Yale Office of Sustainability 2018)
GLOBAL PRIORITIES, EDUCATED SOLUTIONS:
the role of academia in advancing the Sustainable Development Goals
EDUCATING THE 20th CENTURY HEALTH PROFESSIONAL
EDUCATING THE 21st CENTURY HEALTH PROFESSIONAL

Epidemiological and demographic transitions

Health System

Technological innovation

Professional differentiation

Population demands
Resilient health systems
• Organizational structure, leadership, stakeholders, networks
• Positive practice environment
• Risk management, communications

Resilient health professionals & scholars (ICN 2016)
• Adaptability, confidence, purposefulness, social support (Cooper model)
The Solution “Space”

- Social Determinants
- Sustainable, Healthy Communities
- Built Environment Solutions
- Green Energy Solutions
- Climate Smart Health Care Facilities
- Climate Ready Health Systems
Yale Sustainability Vision

A Yale where sustainability is seamlessly integrated into the scholarship and operations of the university, contributing to its social, environmental, and financial excellence and positioning Yale as a local and global leader.
Yale Carbon Charge

Energy Savings

Buildings that were charged for carbon emissions used less energy than did those that weren’t in Yale University’s pilot scheme.

- Some buildings turned down heating; others installed occupancy sensors.

Diagram:
- Relative percentage change in energy use
- Categories: No action, Carbon pricing, Energy reporting
Green Investments

- x2 investment & 5x jobs in renewables vs. dirty fuels… 5th year in a row

- World now adds more renewable capacity annually than from all fossil fuels combined
Call to Action

Personal & Professional Action Plan (Kurth in Rosa, 2017)

▪ Educate ourselves

▪ Organize to influence policy and action, get engaged in elections, legislative agendas, civil society movements

▪ Reduce impact on ecosystem degradation in daily life…. (sustainable cities/public transport/plant-based diet/reproductive health access…)

▪ Be part of achieving security, planetary health, and well-being for generations to come
ACTION – Nurses Climate Challenge

Nurses Climate Challenge

The Nurses Climate Challenge is a national campaign to mobilize nurses to educate 5,000 health professionals on the impacts of climate change on human health.

Toolkit https://nursesclimatechallenge.org/
PLANETARY HEALTH NOW!

...advocacy & action to build resilient health systems
THANK YOU

Q & A

Yale SCHOOL OF NURSING

nursing.yale.edu