PRIMARY CARE IN THE AFTERMATH OF 21ST CENTURY DISASTERS

March 15, 2018

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Objectives

- Describe the changing nature of 21st disasters

- Identify the different actors in a disaster response and describe the role of healthcare coalitions

- Identify internal and external stakeholders to conduct disaster planning with

About then National Center for Disaster Preparedness

- Established in 2003, the National Center for Disaster Preparedness works to understand and improve the nation's capacity to **prepare** for, **respond** to and **recover** from disasters.

- Four focus areas:
  - System readiness
  - Disaster recovery
  - Citizen engagement, and
  - Vulnerable populations

- NCDP carries out **research** and **policy analysis** in these areas, and provides **education, training and technical support** to public health workers, local and regional governments, and public health, hospital, and community partners.

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NCDP Applied Functional Areas

NCDP is a Nationally Recognized "Go To" Center for Translating Science into Impact – and Practice

- **Research, Policy and Practice** mission with a focus on vulnerable populations, especially children

- **A Learning Management System** with over 40 courses offered and over 100,000 users trained domestically and internationally.

- **National Disaster Readiness Surveys** conducted annually for many years providing a detailed snapshot of U.S, population readiness for disasters

Sandy Child and Family Health Study (SCAFH)

- **Pediatric Preparedness for Disasters**, conferences of experts conducted three-times since 9/11 and designed to focus on recommendations around topics which required expert consensus, since sufficient research was not available

- **Children as Targets of Terrorism** was a year- long endeavor to analyze the history of terrorism directed at children and the risks going forward leading to a **School Preparedness** program in NYC

- Staff have served in numerous official **advisory roles** including to the Mayor of NYC, the Governor of New York, the White House, and serving as a member of the **National Commission on Children in Disasters**

- Conducting some of the largest **longitudinal cohort studies** to follow the trajectory of children's recovery after Katrina and the Deepwater Horizon Oil Spill

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Global Trends

What is Disaster Resilience?

Dozens of definitions (Ganderton 2013)
- Plodinec (2009) – 46 published definitions 1923 - 2008
- Moser (2008) – 17 definitions from social science literature
- Some emphasize resisting stressors, others on rebounding
- Others on resilience as a measure rather than a property of a system

Definitional differences matter as much as they don't matter!!!

Merriam Webster (2018)

- *An ability to recover from or adjust easily to misfortune or change*

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Emerging Frameworks

Sendai Framework

Chart of the Sendai Framework for Disaster Risk Reduction
2015-2030

UNISDR
The United Nations Office for Disaster Risk Reduction

www.preventionweb.net/go/sfdrr
www.unisdr.org
isdr@un.org

Scope and purpose

The present framework will apply to the risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters, caused by natural or manmade hazards as well as related environmental, technological and biological hazards and risks. It aims to guide the multi-hazard management of disaster risk in development at all levels as well as within and across all sectors.

Expected outcome

The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries

Goal

Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience

Targets

Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared to 2005-2015	Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015	Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030	Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030	Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020	Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030	Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030

Priorities for Action

There is a need for focused action within and across sectors by States at local, national, regional and global levels in the following four priority areas.

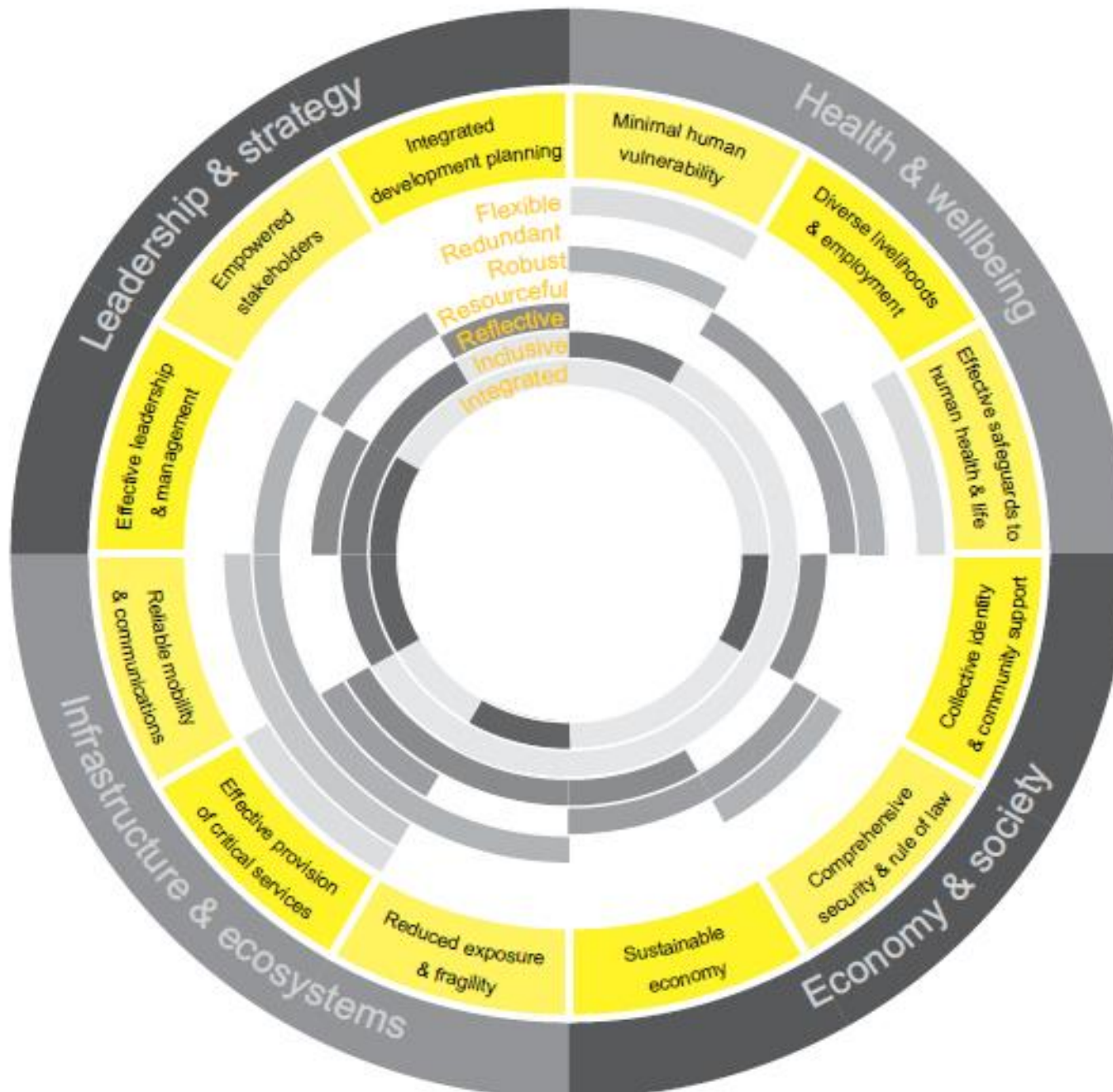| Priority 1	Priority 2	Priority 3	Priority 4
Understanding disaster risk	Strengthening disaster risk governance to manage disaster risk	Investing in disaster risk reduction for resilience	Enhancing disaster preparedness for effective response, and to «Build Back Better» in recovery, rehabilitation and reconstruction

https://www.preventionweb.net/files/44983_sendaiframeworksimplifiedchart.pdf

Arup (2014), City Resilience Index Research Report Volume 1: Desk Study

Resilience is an Ecosystem

It includes elements that are:

- Environmental/Ecological
- Economical
- Structural/Engineered
- Social/Political
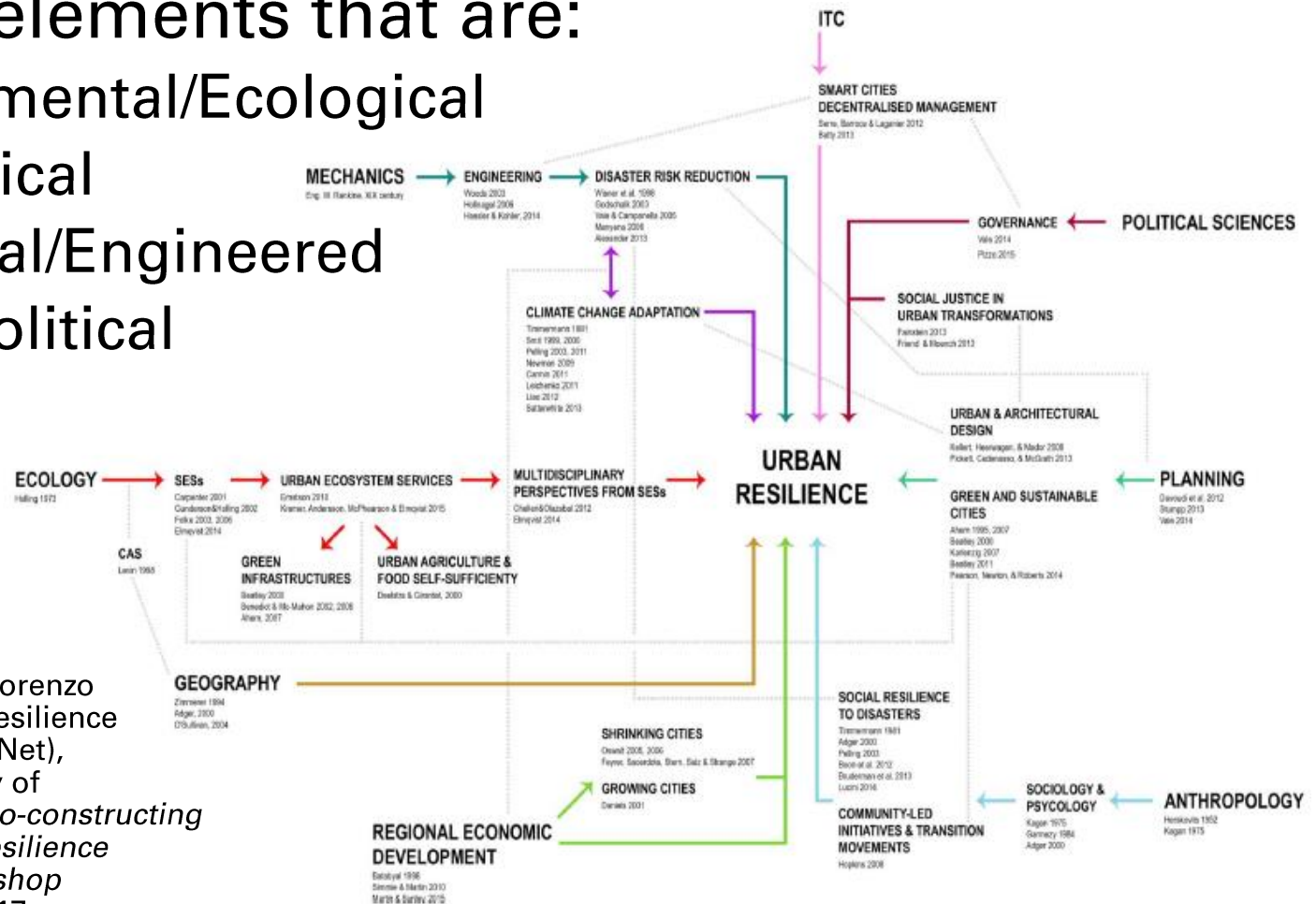
Graphic presented by Lorenzo Chelleri, Ph.D. Urban Resilience Research Network (UR-Net), International University of Catalunya(UIC) at the *Co-constructing knowledge for urban resilience implementation - Workshop* Montreal, Canada 10/2/17

The Existing Environment is Changing…

- Climate Change and Geo-politics creates a constantly evolving threat landscape
  - Historical vulnerability is not an adequate predictor of future events
- Development practices create long-term vulnerabilities or resilience
- Impacts of today's development decisions will persist for generations

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Number of Climate-related Disasters Around the World (1980-2011)

3455 **FLOODS**

2689 **STORMS**

470 **DROUGHTS**

395 **EXTREME TEMPS**
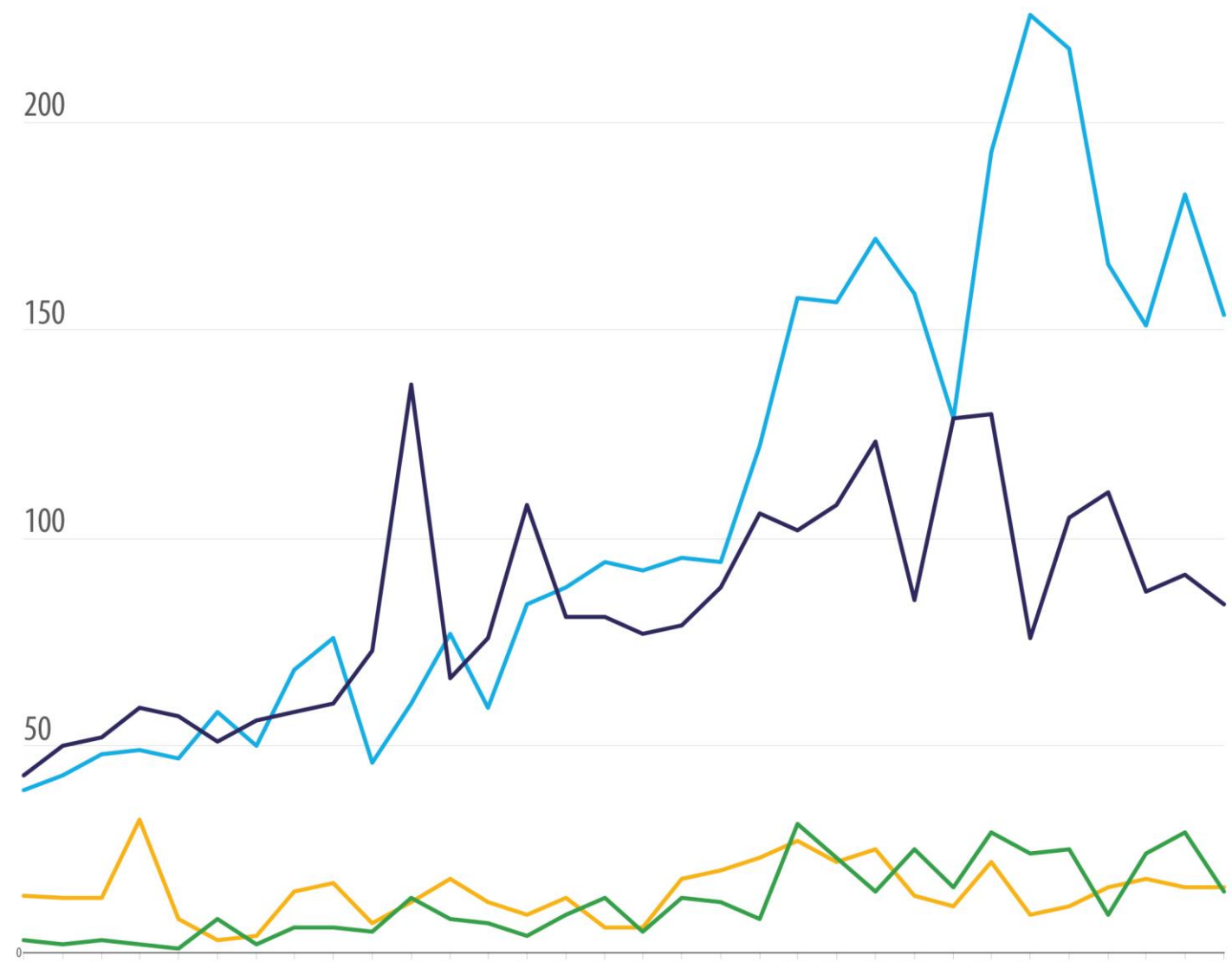
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
FLOOD	39	43	48	49	47	58	50	68	76	46	60	77	59	84	88	94	92	95	94	122	158	157	172	159	129	193	226	218	166	151	183	154
STORM	43	50	52	59	57	51	56	58	60	73	137	66	76	108	81	81	77	79	88	106	102	108	123	85	129	130	76	105	111	87	91	84
DROUGHT	14	13	13	32	8	3	4	15	17	7	12	18	12	9	13	6	6	18	20	23	27	22	25	14	11	22	9	11	16	18	16	16
EXTREME TEMPERATURE	3	2	3	2	1	8	2	6	6	5	13	8	7	4	9	13	5	13	12	8	31	23	15	25	16	29	24	25	9	24	29	15

Cost of Disasters
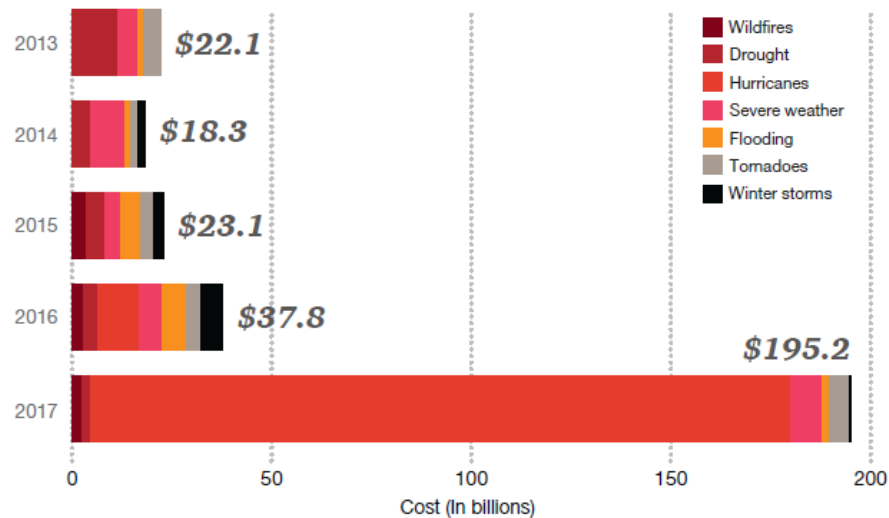
Sources: PwC Health Research Institute and NOAA; MunichRe The Year in Figures
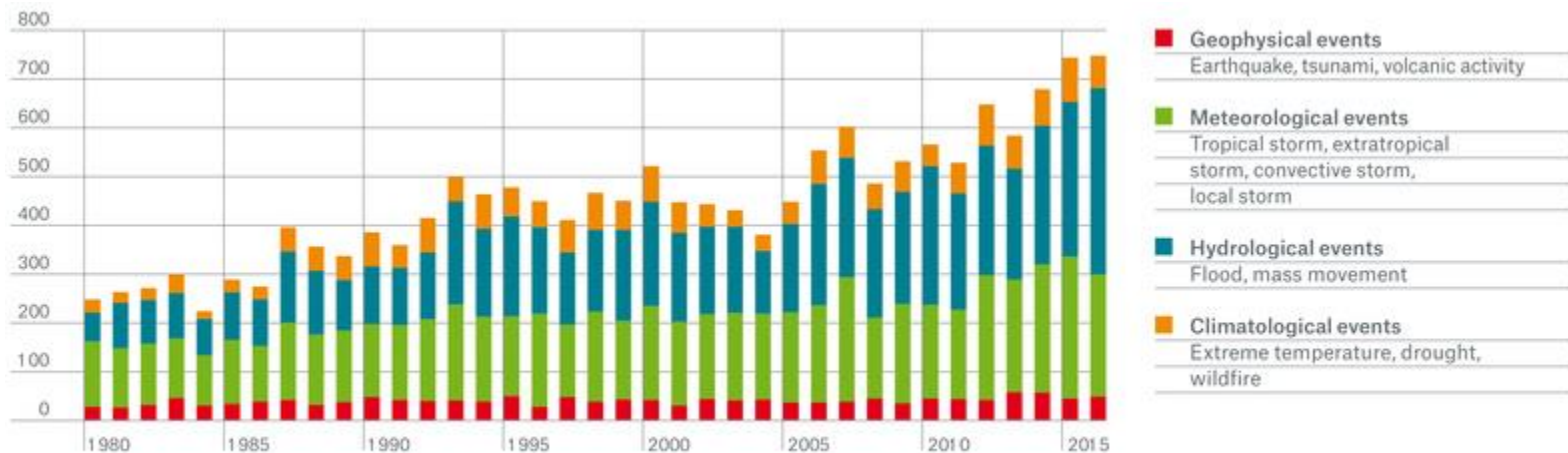
The Built Environment and Creating Vulnerabilities

- Threats versus Hazards
- Incentives tend to be for short-term gain
  - Political transition cycles
  - Quarterly earnings reports
- We build our vulnerabilities
- We blame weather and other threats for infrastructure failures
  - 2005 - Hurricane Katrina: Levee Failures
  - 2010 – Haiti Earthquake: Poor Building Practices
  - 2012 – Beijing Floods: Drainage System Failures
  - 2017 – Hurricane Harvey: Development in Flood Plains

Socialites and politics matter, perhaps more than infrastructure…

- Horizontal Connections - between people
- Vertical Connections - between levels of government
- Research on the 2011 Tsunami in Japan demonstrates:
  - Horizontal connections
    - save lives
    - Improves mental health
  - Vertical connections
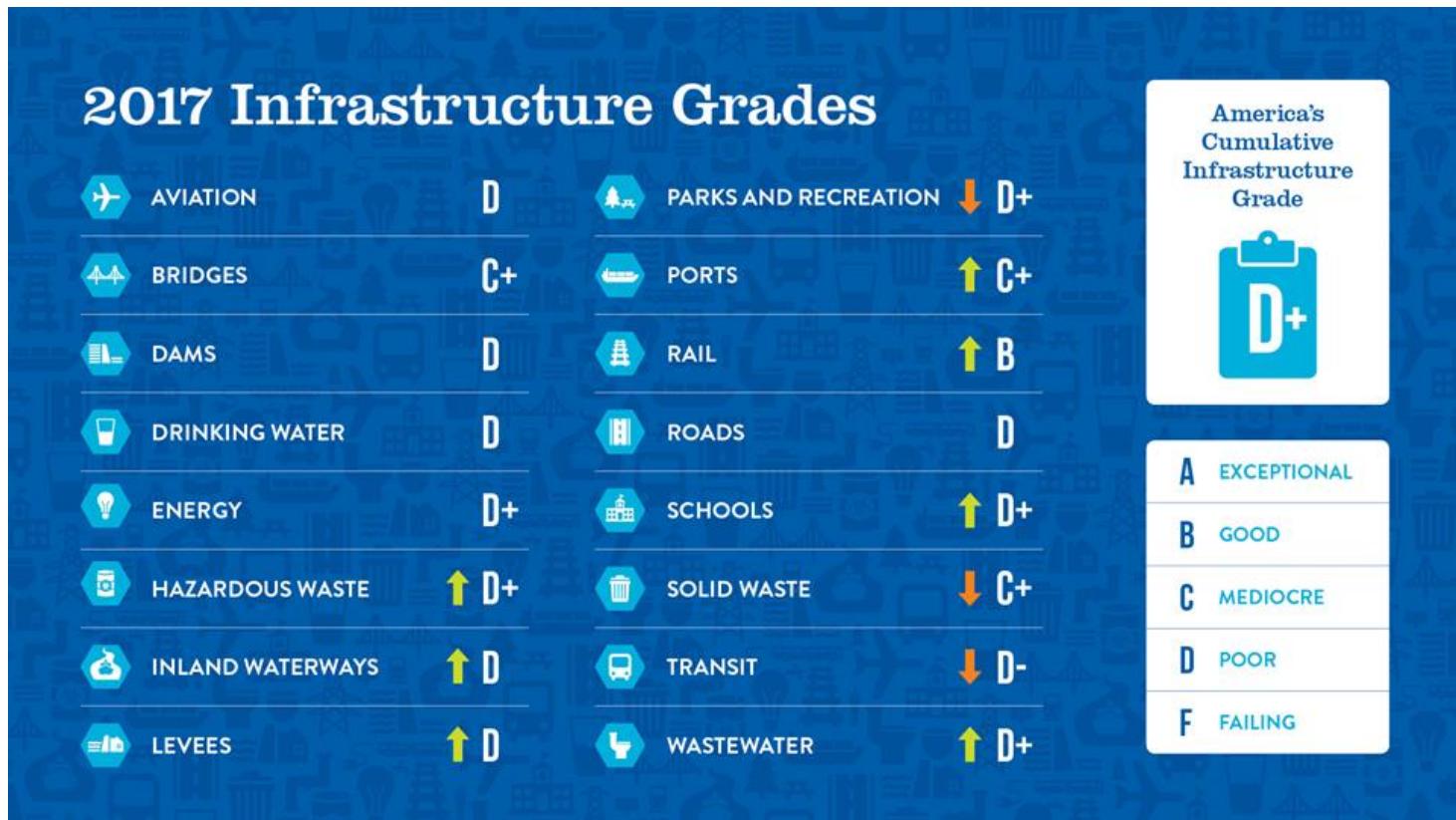   - speed up the recovery process

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Meanwhile, in the US…

Infrastructure Grades

Source: American Society for Civil Engineers 2017 Infrastructure Report Card
https://www.infrastructurereportcard.org/americas-grades/

Mitigation works, we just don't do it very often….

Benefit: $157.9 billion

43% – Casualties & PTSD: $68.1

37% – Property: $58.1

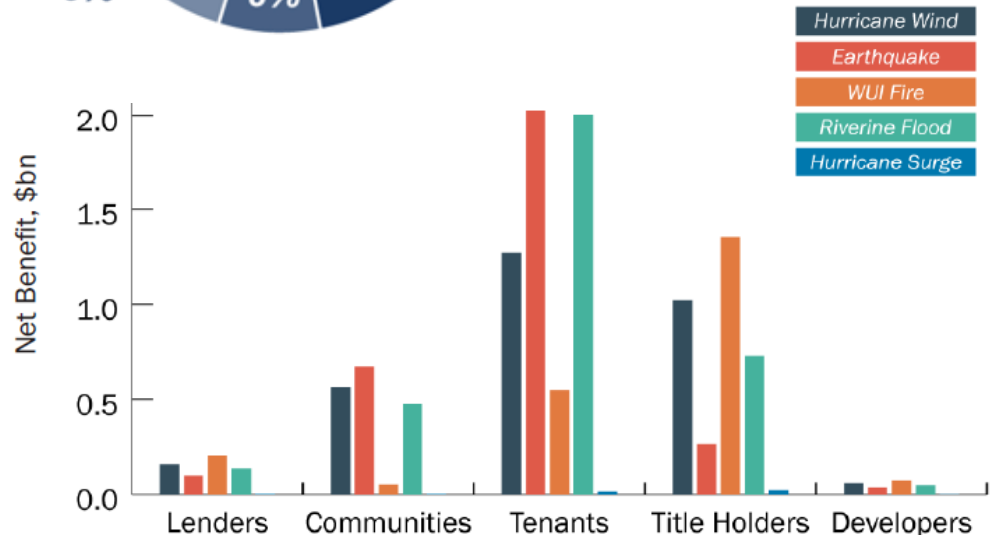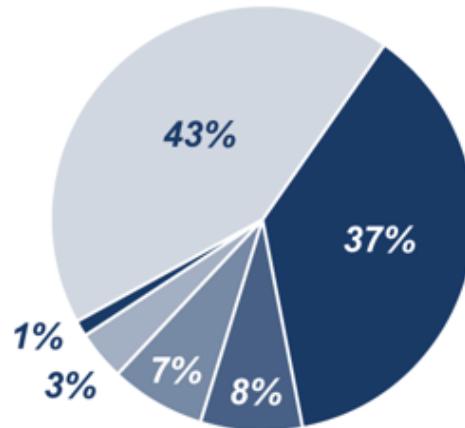8% – Additional living expenses & direct business interruption: $12.9

7% – Insurance: $10.5

4% – Indirect business interruption: $6.3

1% – Loss of service: $2.0

billions 2016 USD

Cost: $27.4 billion

Source: Natural Hazard Mitigation Saves: 2017 Interim Report, National Institute of Building Sciences

Figure 8. Stakeholder net benefits resulting from one year of constructing all new buildings to exceed select 2015 IBC and IRC requirements or to comply with 2015 IWUIC.

Healthcare Industry Consolidation

Hospital Mergers on the Rise

Health care providers may seek to blunt competition by consolidating. Over the past decade, the annual number of hospital mergers in the U.S. has doubled.
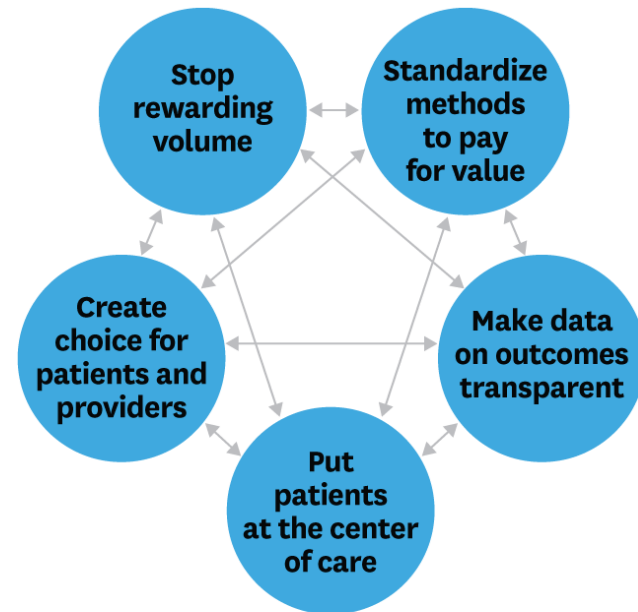

Year	Value
2005	51
'06	57
'07	58
'08	60
'09	52
'10	72
'11	90
'12	107
'13	88
'14	100
'15	102
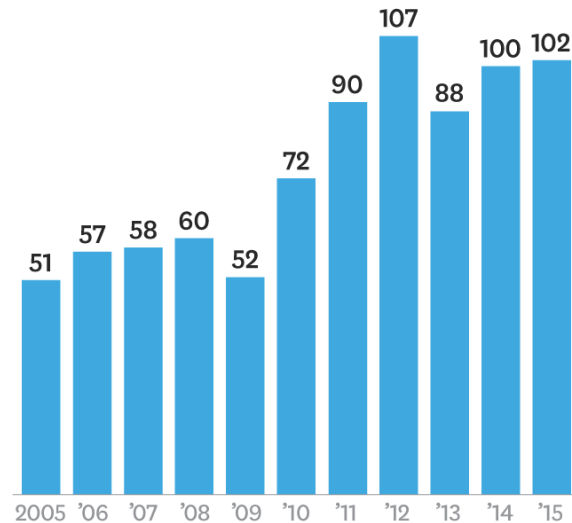
SOURCE AMERICAN HOSPITAL ASSOCIATION AND IRVING LEVIN ASSOCIATES
FROM "HEALTH CARE NEEDS REAL COMPETITION," BY LEEMORE S. DAFNY AND THOMAS H. LEE, DECEMBER 2016

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Catalysts for Competition

Five interrelated actions can spur value-based competition in health care.

- Stop rewarding volume
- Standardize methods to pay for value
- Create choice for patients and providers
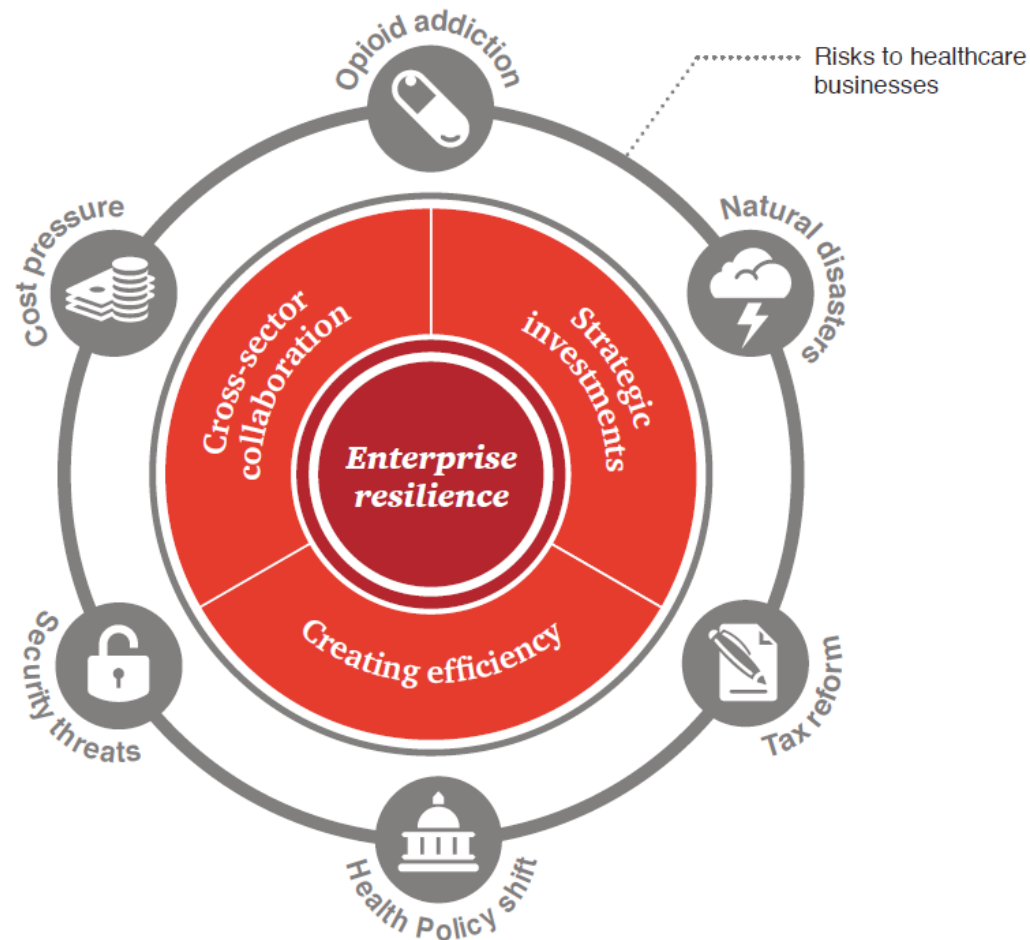- Make data on outcomes transparent
- Put patients at the center of care

FROM "HEALTH CARE NEEDS REAL COMPETITION," BY LEEMORE S. DAFNY AND THOMAS H. LEE, DECEMBER 2016

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Disasters are only one risk…

Source: PwC Health Research Institute

Chronic Diseases and Vulnerable Populations

US Demographics

- 30% of population lives below 200% of poverty line

- 24% children

- 15% elderly

- 13% w/ disability

- 8% limited English proficiency

- 60% of Americans have at least 1 chronic condition

- More than 40% have multiple chronic conditions
  - 86% of healthcare spending

- 2.7% in long-term care of some kind

Sources: Gerteis et al (2014), Buttorff & Baumann (2017), Child Trends (2015), Mather & Pollard (2015), US Census Disability Characteristics(2016), FPL (2016), Zong (2015)

An Aging Population

Figure 1

The 65 and Over Population Will More Than Double and the 85 and Over Population Will More Than Triple by 2050
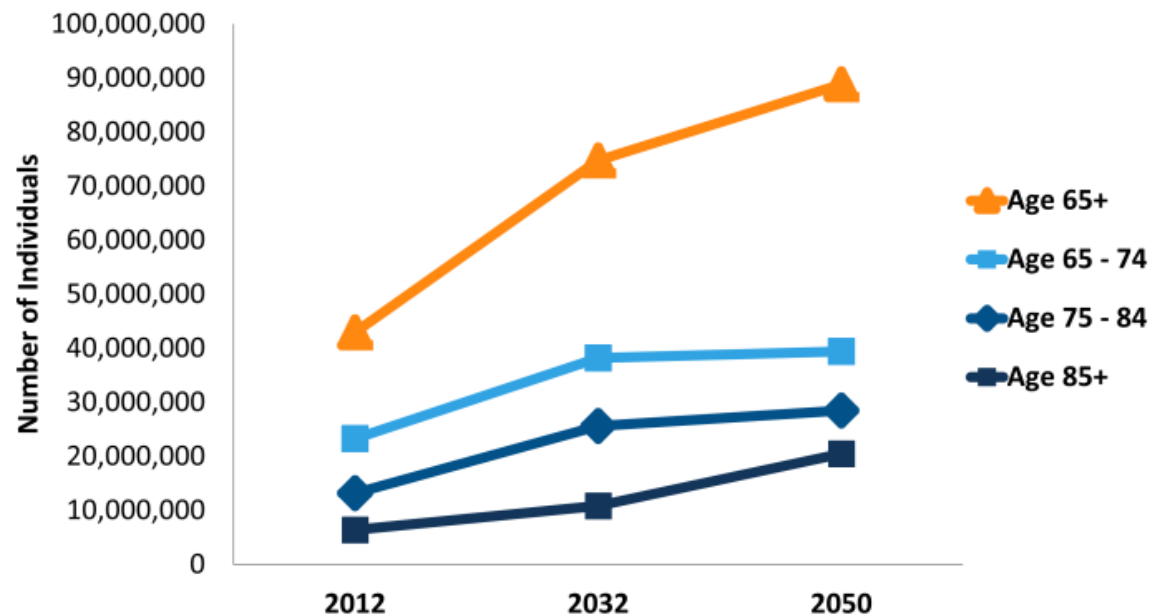
SOURCE: A. Houser, W. Fox-Grage, and K. Ujvari. *Across the States 2013: Profiles of Long-Term Services and Supports* (Washington, DC: AARP Public Policy Institute, September 2012), http://www.aarp.org/content/dam/aarp/research/public_policy_institute/ltc/2012/across-the-states-2012-full-report-AARP-ppi-ltc.pdf.

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An Increasing Chronic Disease Burden

The percentage of adults aged 45 and over with the three most common combinations of the nine selected chronic conditions increased over the 10-year period.

Figure 4. Prevalence of the three most common combinations of the nine selected chronic conditions, by age and type of chronic condition: United States, 1999–2000 and 2009–2010
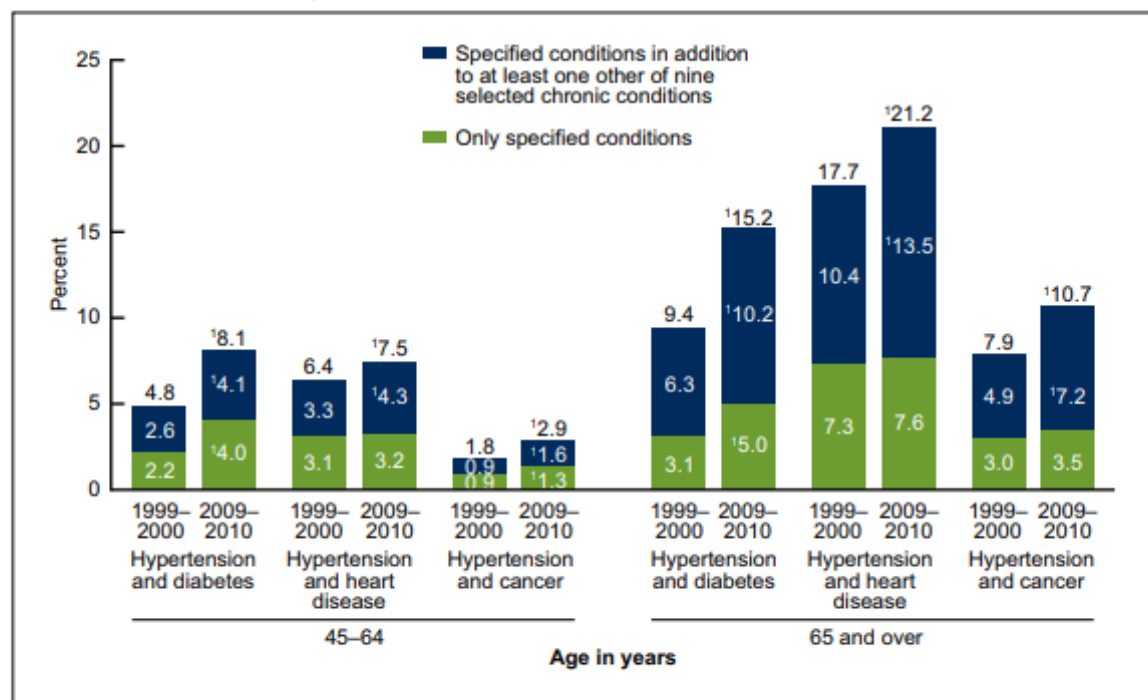
[1]Significantly different from 1999–2000, p < 0.05.
NOTES: Parts may not sum to total due to rounding. Access data table for Figure 4 at: http://www.cdc.gov/nchs/data/databriefs/db100_tables.pdf#4.
SOURCE: CDC/NCHS, National Health Interview Survey.

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Vulnerable Population Needs

Capacity decreases & Needs Increase

Post-disaster needs of vulnerable populations

Routine needs of vulnerable populations

Routine capacity of Human Service Organizations (HSO)

Post-disaster capacity of HSO's

Disaster community management capacity

Disaster   12 months   18 months

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Primary Care After Disasters

Hurricane Katrina

- 21% of patients reduced or stopped treatment for chronic conditions
  - Lack of access to physicians reported by 41%, followed by medications, insurance, transportation, competing demands
- 95% of primary care sites temporary closed or relocated

Pakistan Earthquake 2005

- 80% of those in mountain areas lost access to care
  - 40% in other areas

Other Disasters

- Repeated damage to primary care system due to disasters in Iran
- Rebuilding primary care priority after 2004 Asian Tsunami

Sources: Kessler (2007), Sood et al (2016), Chan & Griffiths (2009), Schwartz et al (2006), Ardalan et al (2013)

Structural Challenges…

The structural problem...

Role

Language

Policy and Strategic Planning & Assets — Highly specialized, national systems (e.g. policy briefs, white papers)

Operational Coordination and Implementation — Specialized across/within professions (e.g. emergency management plans, protocols)

Behavior Change — Organizational/Individual Application (e.g. SOPs, checklists)

Federal
State
Local
Community
Organizations
Families and Children

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Constitutional Conundrum

- 10th Amendment
  - The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, *are reserved to the States respectively*, or to the people.
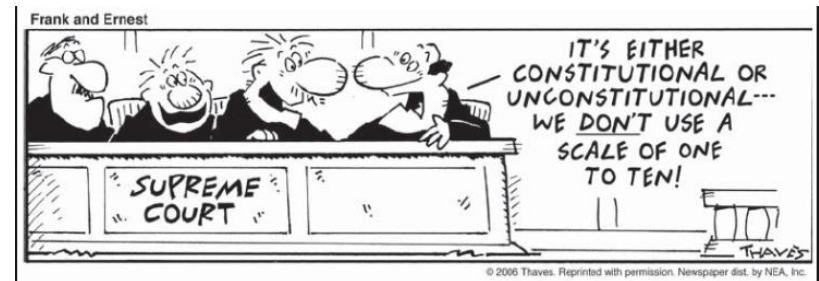
- Interstate Commerce Clause
  - "To regulate Commerce with foreign Nations, and *among the several States*, and with the Indian Tribes"

"Do you ever have one of those days when everything seems un-Constitutional?"

Frank and Ernest

IT'S EITHER CONSTITUTIONAL OR UNCONSTITUTIONAL--- WE DON'T USE A SCALE OF ONE TO TEN!

SUPREME COURT

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Disaster Response Cycle

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Healthcare Coalition Funding
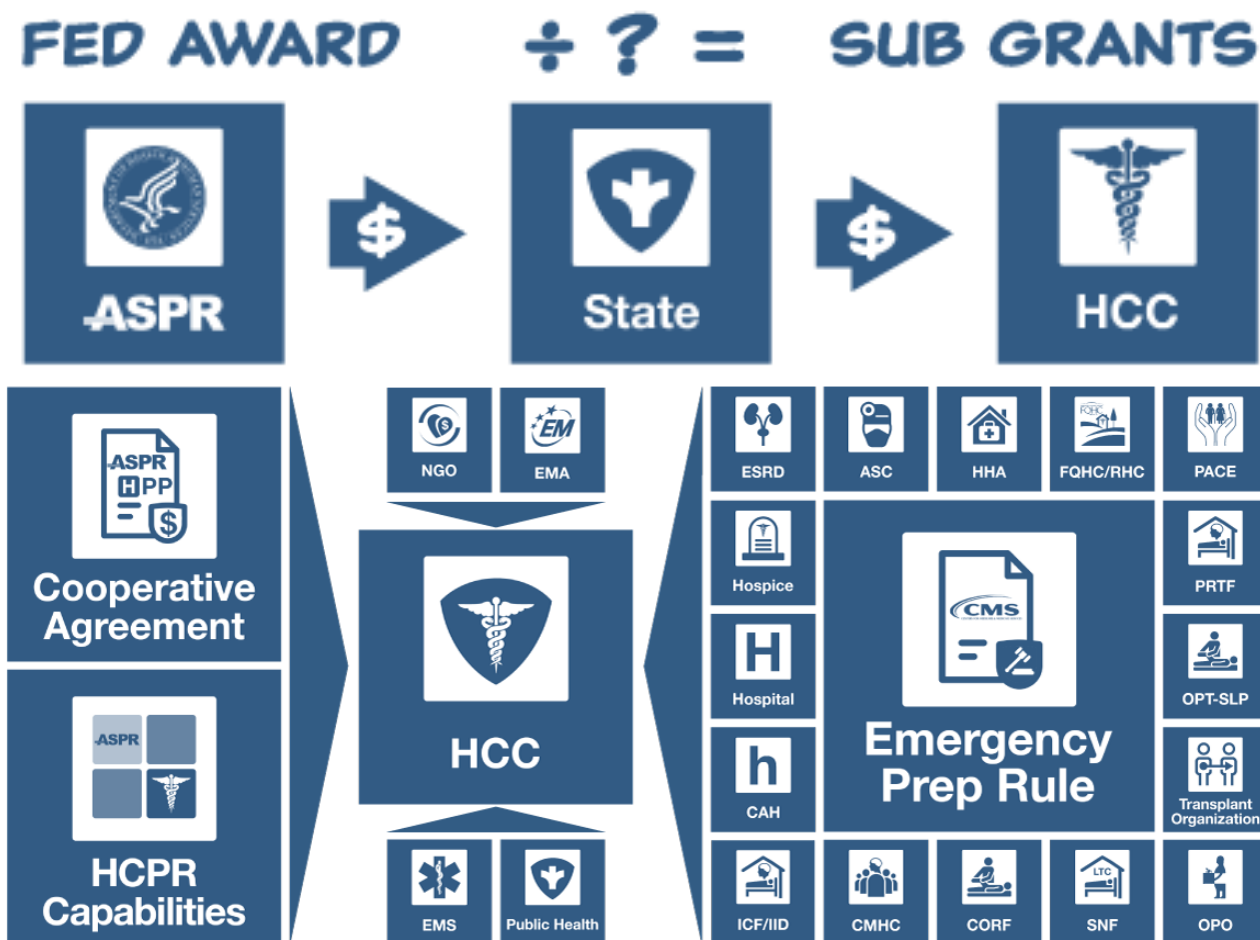
Source: http://bparati.com/

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Healthcare Coalitions

Total Healthcare Coalitions By Awardee — bParati.com infoGraphic

Separately Funded Localities: Los Angeles County • City of Chicago • District of Columbia • New York City

496 HEALTHCARE COALITIONS AT CLOSE OF BP2, 6/30/2013

Source: http://bparati.com/Full-Article/ArticleID/945

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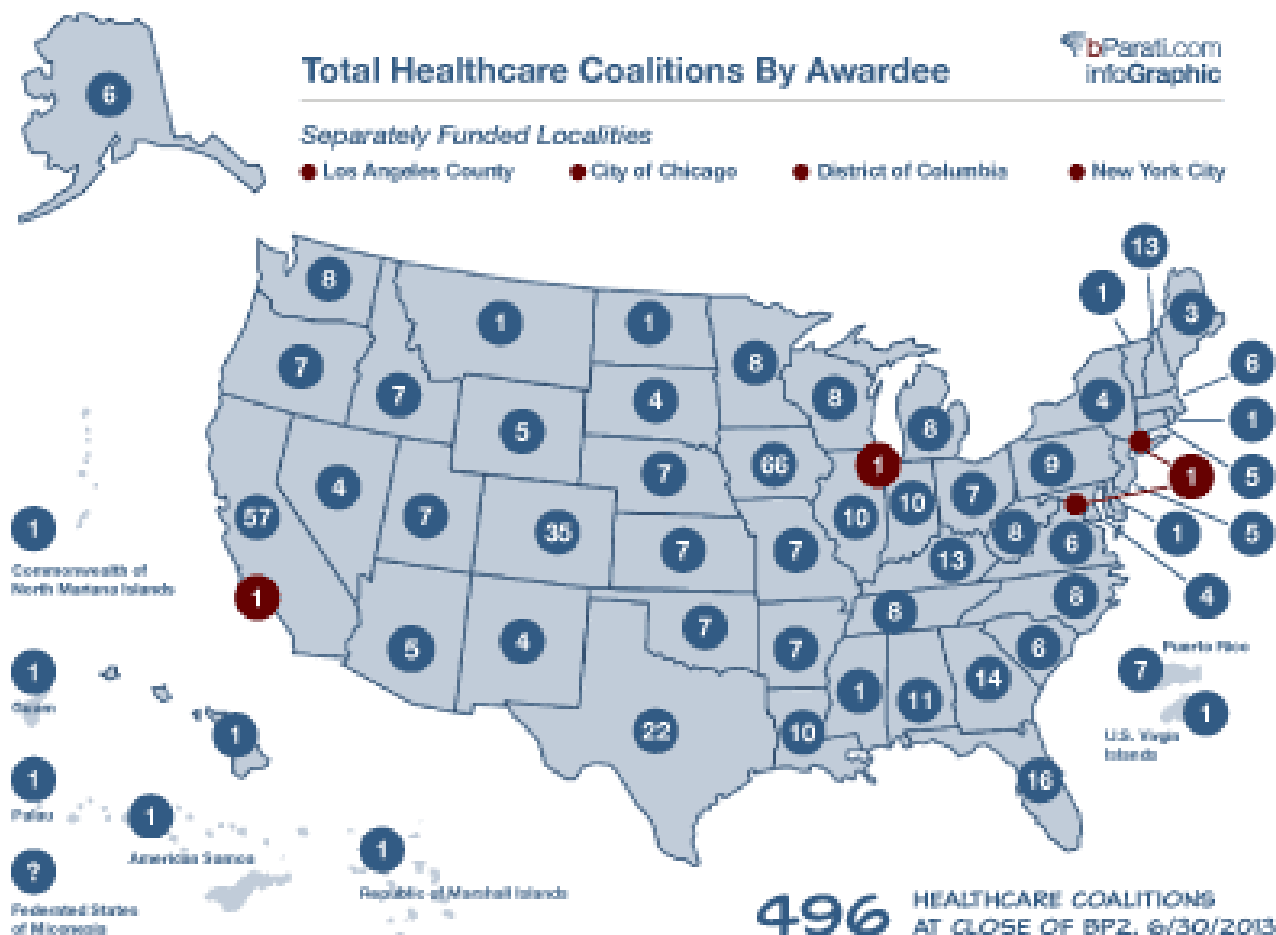
Increased responsibilities, less grant money...

Costs Shifted to Private Sector

- CMS Preparedness Rule

- World Bank Pandemic Bonds

- National Flood Insurance Program

- Etc...

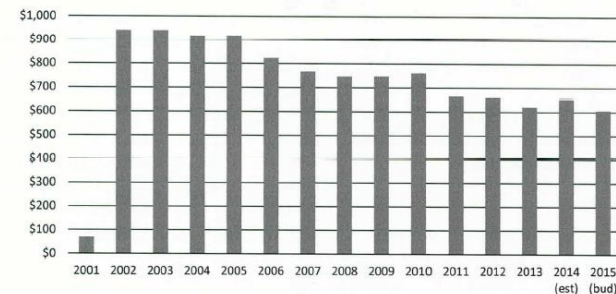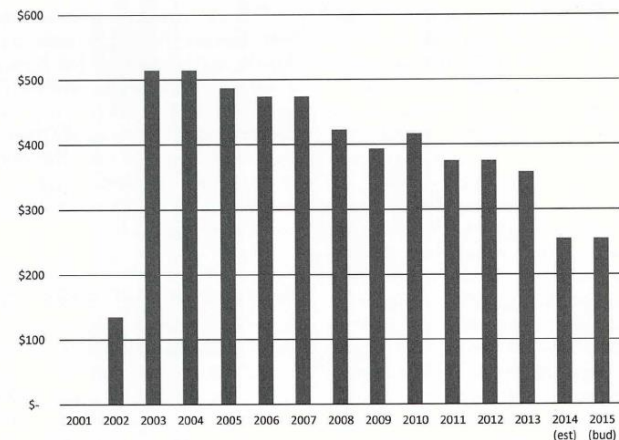## Reduced Federal Funding for HPP, PHEP, etc

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Source: Schlegelmilch, Petkova, Redlener (2015)

Landscape Summary

- Global disasters are increasing in frequency and devastation due to increased threats *and* vulnerability
  - Preparedness is increasingly *community* focused, but under funded with limited guidance
  - Limited ability for national actors to work in communities
- Healthcare industry is consolidating, some advantages and some disadvantages
  - Many threats to healthcare survival are not disaster related
- Changing demographics is increasing need for post-disaster chronic disease management
  - Reliance on a continuum of care and support services
- Resilience frameworks put more responsibility on community institutions, with less resources being provided
  - Connections matter as much as "stuff", if not more

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What Can Primary Care Do About It?

Types of Response

1. Business Continuity (Internal)

2. Surge in Services (Internal/External)

3. Deployment (External)

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Internal Response

Goals

- Sustain operations
- Meet surge demands

Key Factors

- External stressors
- Internal COOP planning
- Unit/Department level COOP planning
- Surge Capacity

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Identify Threats

- Identify threats and hazards that affect your organization as well as the surrounding community

- Research for other plans of community based child serving Organizations

- See if your local emergency management agency (city, county, or state) has a Hazard Mitigation Plan

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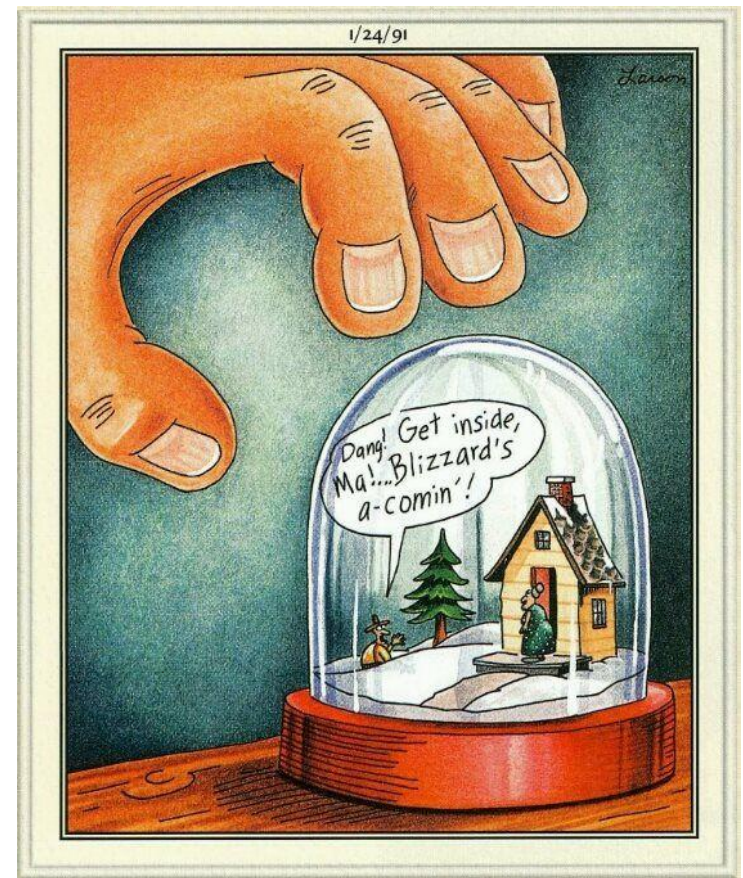
Why Develop a COOP Plan?

Staffing **Assets** **IT Systems** **Vital Records**

Benefit: Understand your organization's essential and non-essential services, functions, and dependencies

Goal: Ensure that critical services, organizational functions, and programs remain operational or are restored as soon as necessary during and following adverse events

Your recovery is critical to the recovery of the community!

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Essential and Non-Essential Functions

Fast Food Restaurant Example

Critical Functions	Non-Critical Functions
Food preparation and distribution	Children's playground area
Financial transactions	Staff training and professional growth
Sanitation (i.e., regulatory)	Guest services (e.g., birthday parties)
Vendor support (e.g., food container supplier)	

Dependencies	
Utility providers (electricity)	

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Leadership/Orders of Succession

- Who are your organization's leaders?

- What types of decisions are they responsible for?

- If one of them was incapacitated for whatever reason, to whom does those decisions and responsibilities transfer?

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Prioritization of Essential Functions

Recovery Time Objective: Duration of time to restore a essential function to avoid unacceptable consequences

Priority 1

- Functions that address immediate life/safety threats

- Regulatory or required functions

- Revenue impact; loss would lead to future business loss (e.g., a more prepared competitor)

Priorities 2+ are based on the amount of time they could be suspended without seriously jeopardizing public health or safety

- Priority 2 functions = 24 hours

- Priority 3 functions = 72 hours

- Priority 4 functions = > 72 hours

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Example of Prioritization

Fast Food Restaurant Example

Priority 1 (hours)	Priority 2 (1 day)	Priority 3 (>3 days)
Food preparation and distribution	Vendor support (e.g., food container supplier)	Children's playground area
Financial transactions		Staff training and professional growth
Sanitation (i.e., regulatory)		Guest services (e.g., birthday parties)

How does COOP differ from Emergency Response Plans?

"Connected to Each Other"

Emergency Response Plan

COOP Plan

IT Disaster Recovery

Emergency Response Plan: Coordinated response across all units within an organization to an incident with a main focus initially on public safety and asset protection

COOP Plan: Focus on restoring essential functions as soon as possible

IT Disaster Recovery Plan: Focus on restoring critical IT applications, databases, software, and data servers

Key Questions

- What is your organization's mission?

- List your organization's essential functions

  Hint: Review the list of impacts mentioned during introductions

- Develop RTOs for each function

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External Response

Goals
- Sustain operations
- Reduce impact of disaster on community

Key Factors
- Internal COOP planning
- Organizational resources
- Community needs
- Organization of response entities
  - Assistance available from other entities

Deployment Plan

- What can you provide?
  - Services?
  - Resources?
- Where can you go?
  - In-state? In-catchment area?
- What is the tipping point of additional resources?
  - Financial?
  - Human?
  - Equipment?
- Who makes the decision?
  - For most facilities this is within the facility
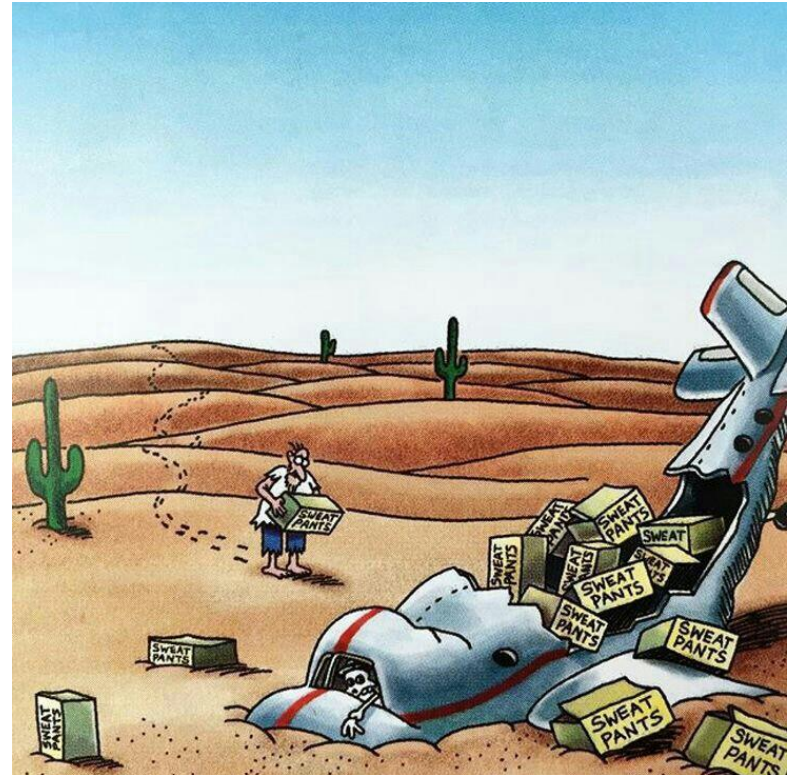
Who do you need to coordinate with?

- Internal
  - Leadership?
  - Legal?
  - Finance?
  - Risk Management?
  - Emergency Management?
- Local:
  - Healthcare Coalition?
    - Local Health Department?
    - Local Emergency Managers?
    - Other Healthcare Providers?

- State
  - Regulators?
  - Emergency Managers?
  - Healthcare Association?
- Federal
  - HHS Assets
  - FEMA Assets
  - Federal Coordinating Official?

Conclusions

- Primary care requires the support of healthcare coalition
  - Healthcare coalition requires support of primary care

- Primary care centers require internal continuity of operations plans
  - External response plans further support community response/recovery

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