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# Crisis Standards of Care: A Review of the IOM Report [And Reflections from Haiti]

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February 4, 2010

# Learning Objectives

- Provide context for development of national discussion on standards of care in disaster situations
- Understand stratification of care model for healthcare delivery in disaster events
- Review IOM Crisis Standards of Care report (September 2009) key concepts
- Reflections on application of crisis standards of care in setting of Haiti catastrophe

# Catastrophic Disasters in United States

1865	Steamship <i>Sultana</i>	Mississippi River	1,547
1871	Forest fire	deaths	
1889	Flash flood	Peshtigo, WI	1,182
1900	Hurricane	Johnstown, PA	2,200+
1904	Steamship <i>General</i>	Galveston, TX	5,000+
	<i>Slocum</i>	East River, NY	1,021+
1928	Hurricane	Okeechobee, FL	2,000+
2001	Al-Qaeda Attacks	NYC/Wash DC	3,000
2005	Hurricane Katrina	Gulf Coast/MS/LA	1,000+

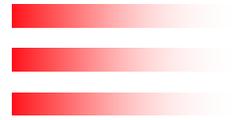
June 2008

# EMERGENCY PREPAREDNESS

States Are Planning  
for Medical Surge, but  
Could Benefit from  
Shared Guidance for  
Allocating Scarce  
Medical Resources



# Stratification of Care Model



Echelons of Care

HCF

ACF

“Main St.  
Triage”

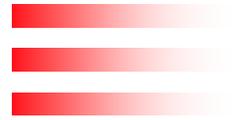
Home

p2p networks

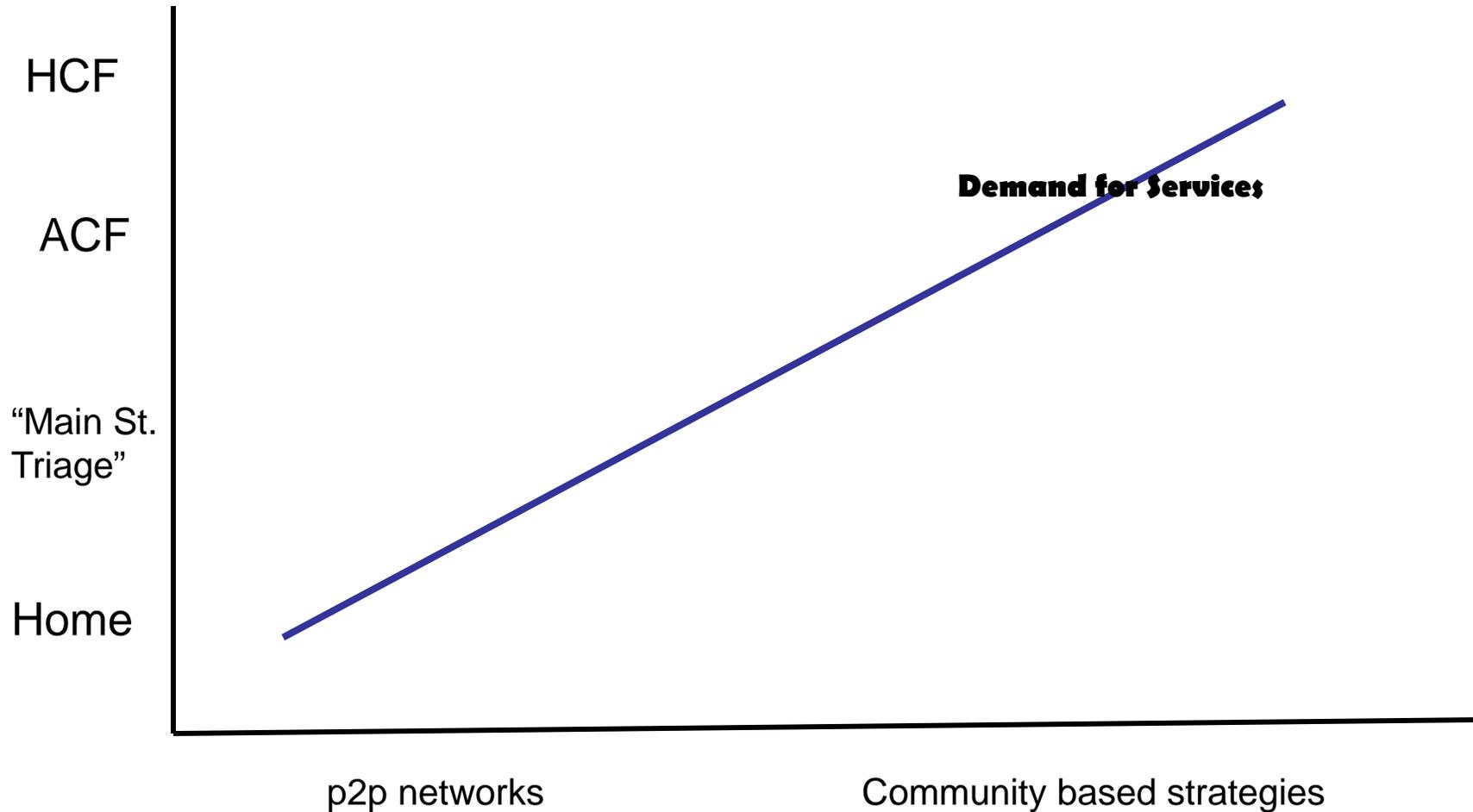
Community based strategies

Influences on Demand Management

# Stratification of Care Model

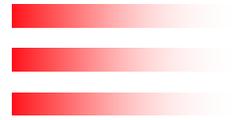


Echelons of Care

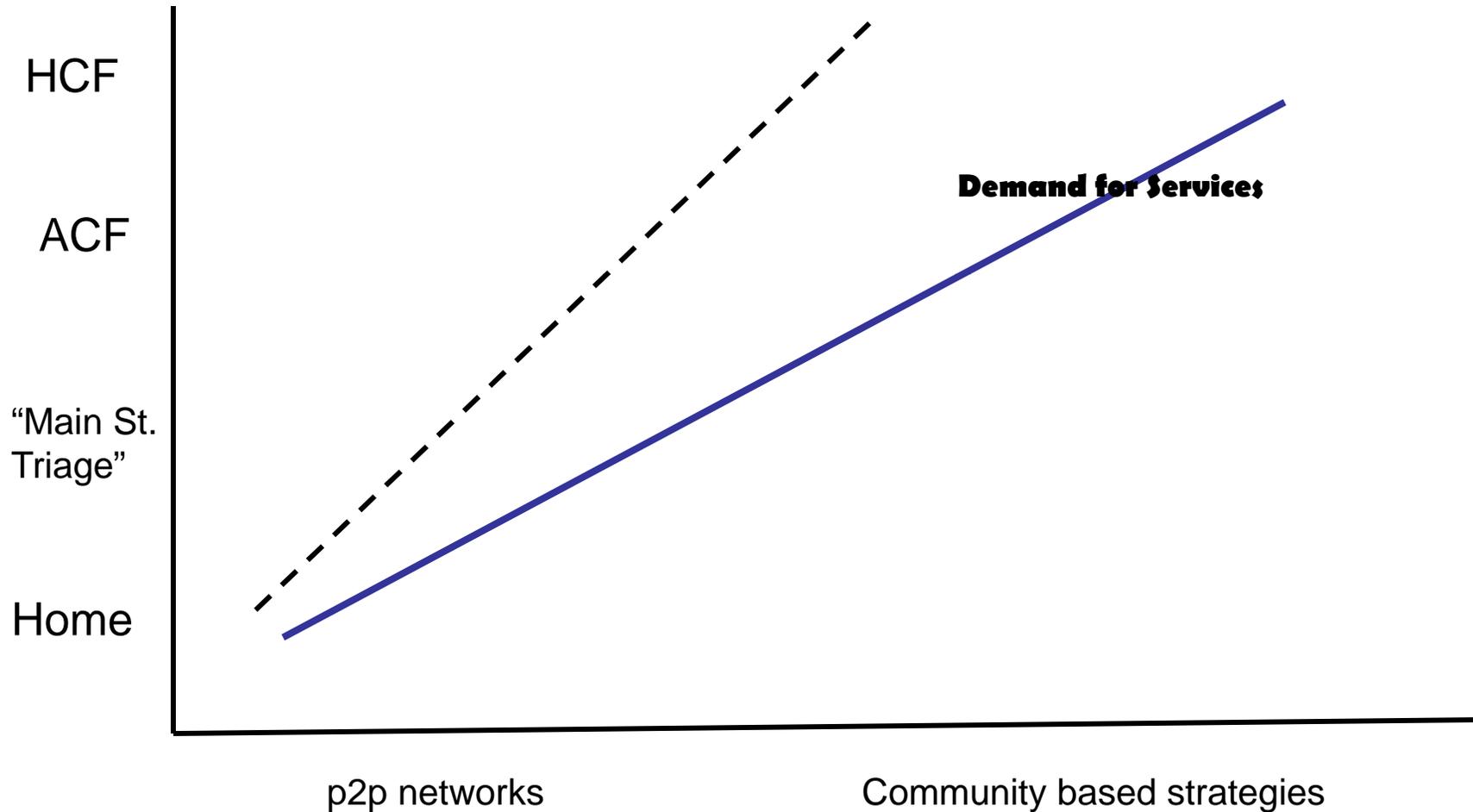


Influences on Demand Management

# Stratification of Care Model

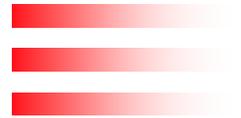


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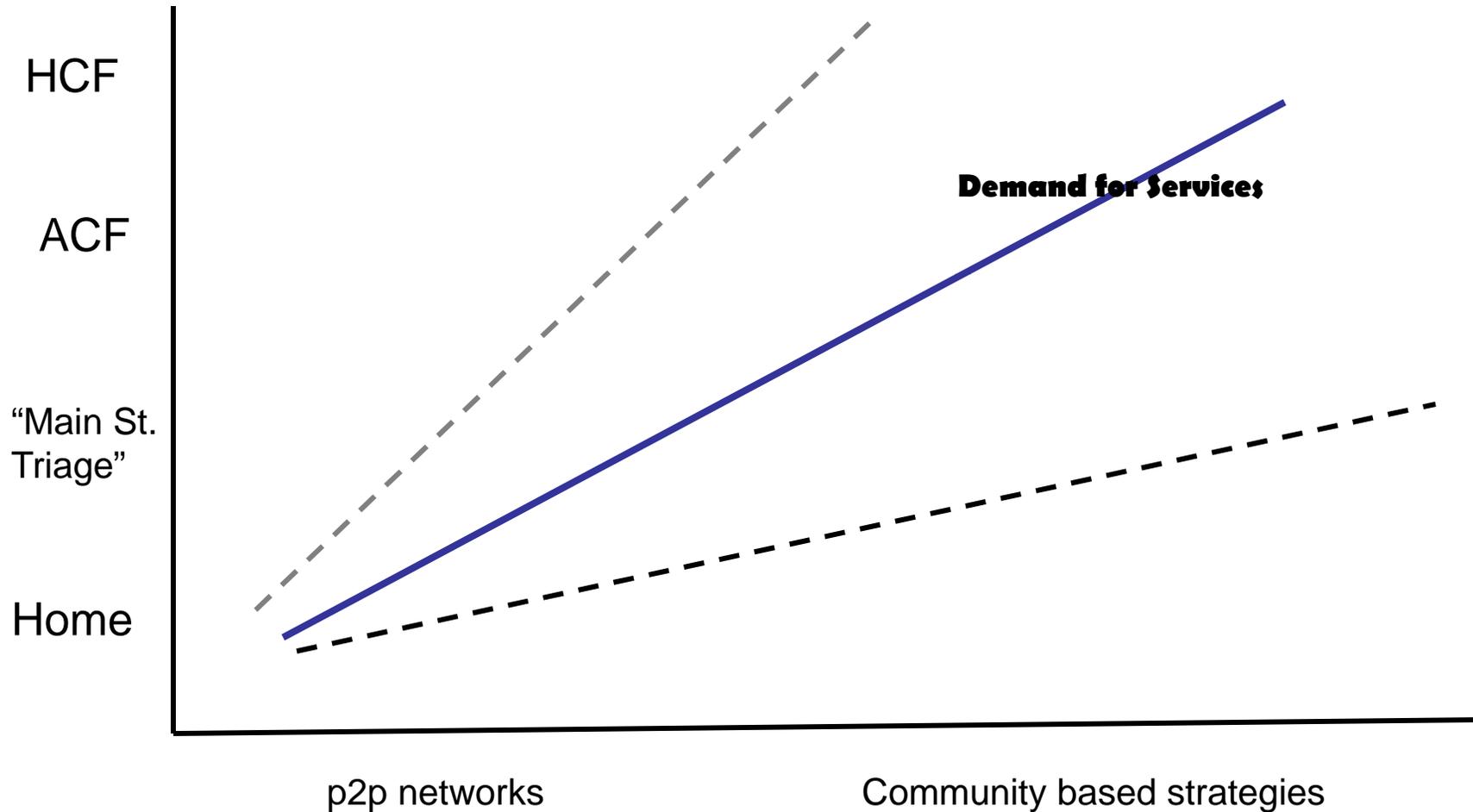


Influences on Demand Management

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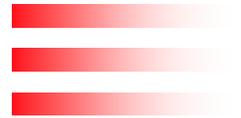


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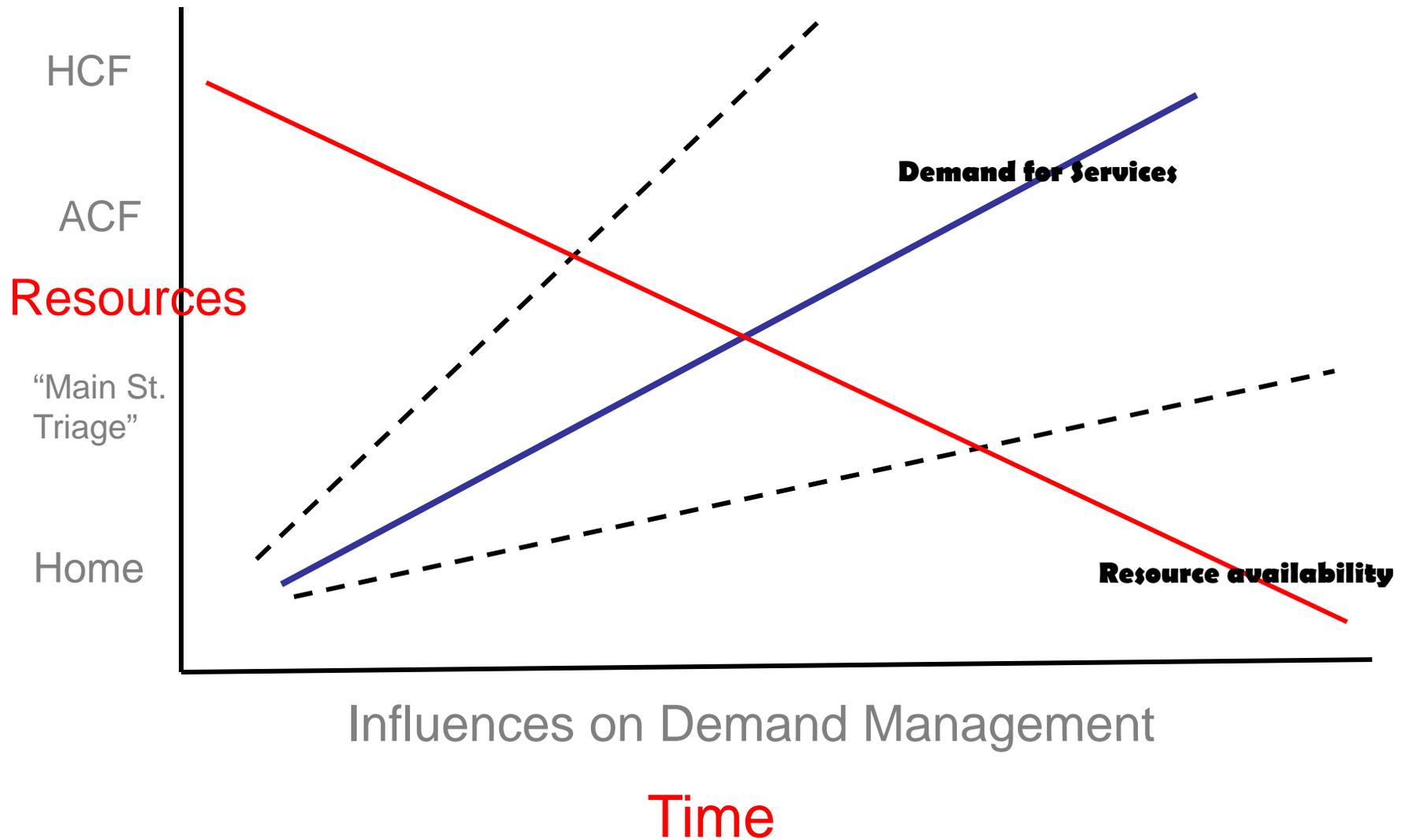


Influences on Demand Management

# Stratification of Care Model



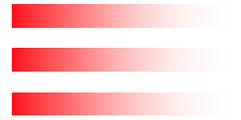
Echelons of Care



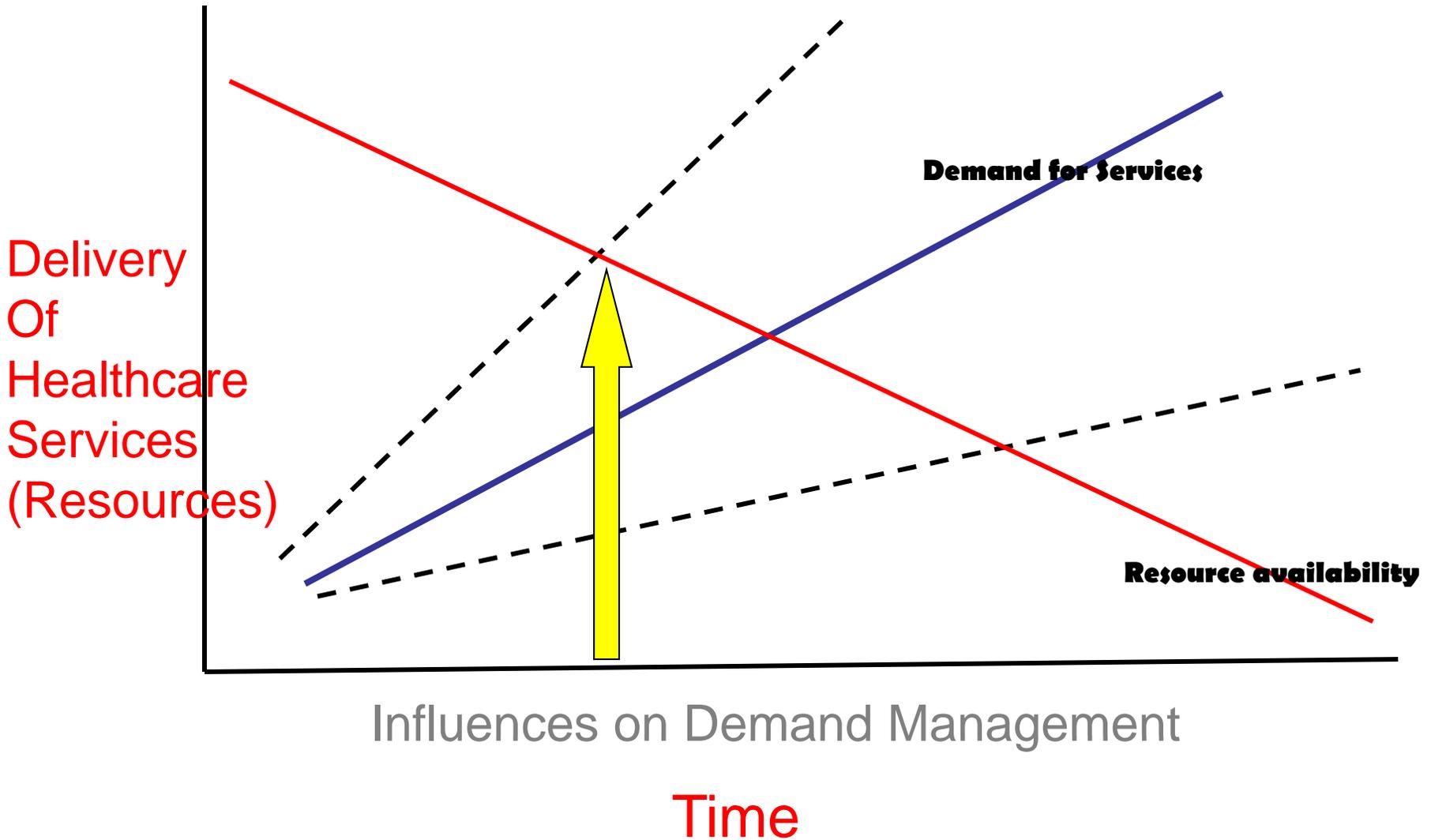
Influences on Demand Management

Time

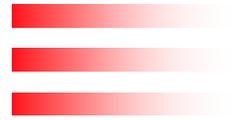
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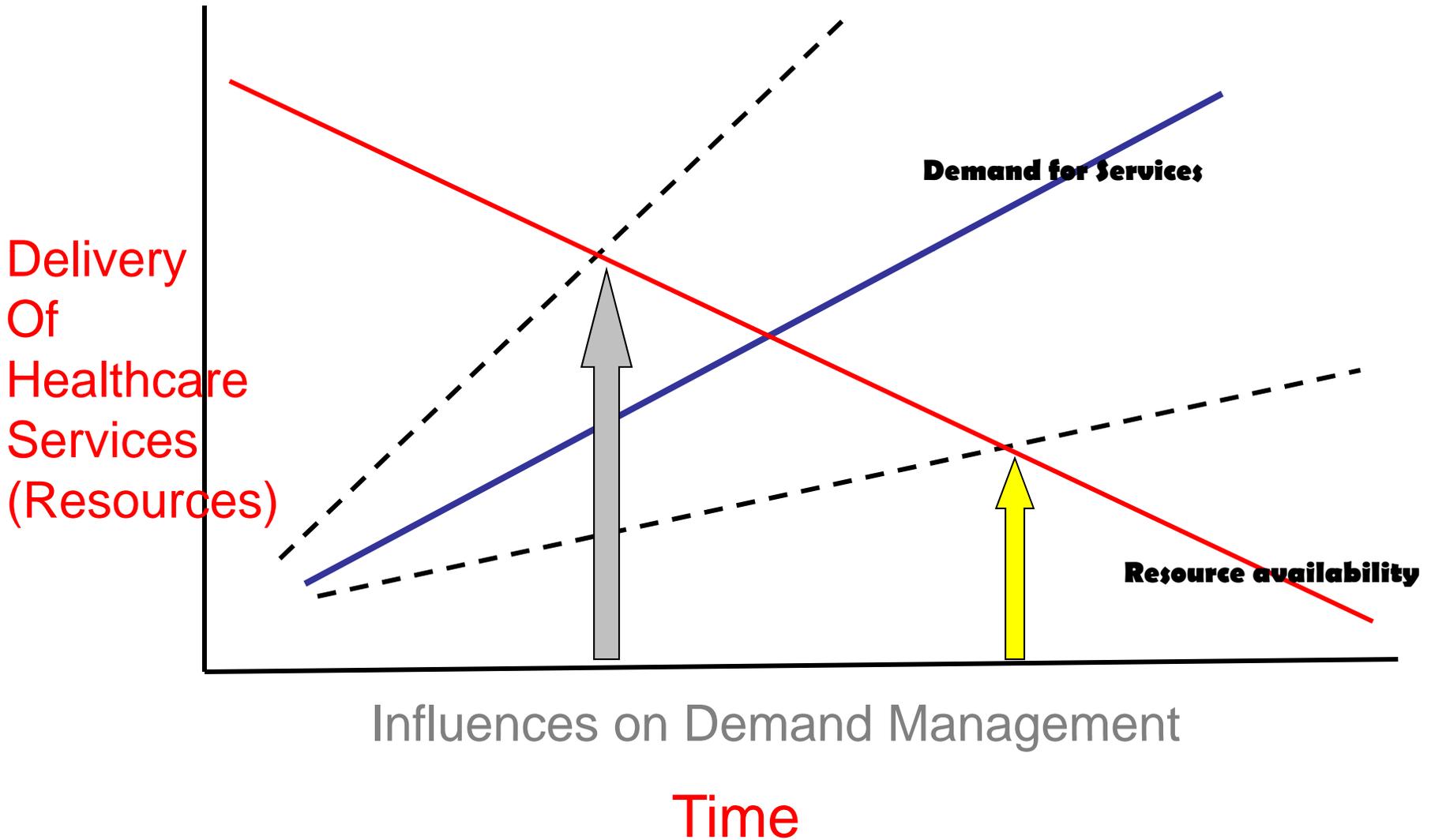
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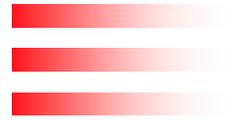
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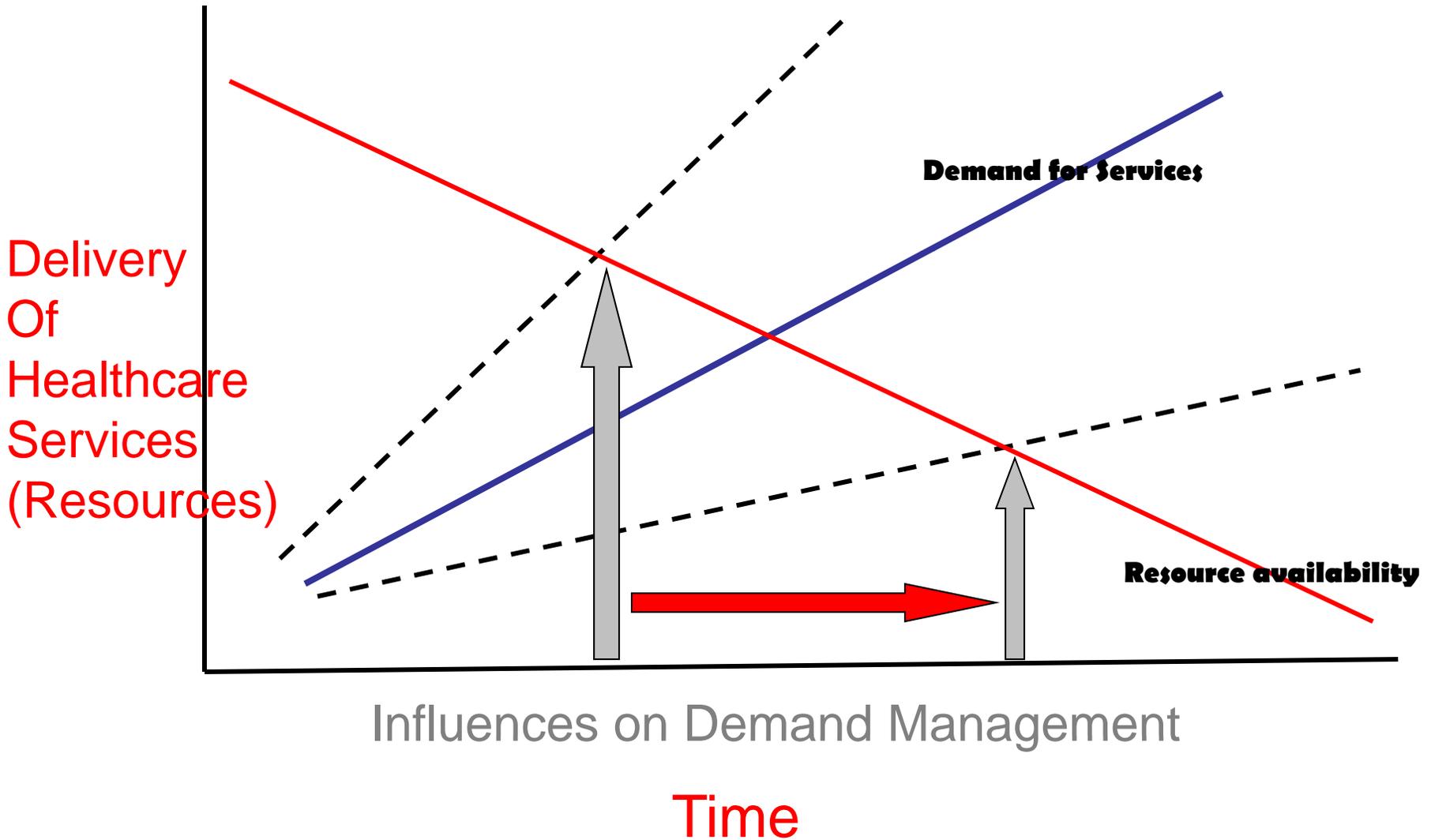
Echelons of Care



# Stratification of Care Model



Echelons of Care



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# Concept of Operations for Triage of Mechanical Ventilation in an Epidemic

John L. Hick, MD, Daniel T. O'Laughlin, MD

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## Abstract

The recent outbreak of severe acute respiratory syndrome and the growing potential of an influenza pandemic force us to consider the fact that despite great advances in critical care medicine, we lack the capacity to provide intensive care to the large number of patients that may be generated in an epidemic or multisite bioterrorism event. Because many epidemic and bioterrorist agent illnesses involve respiratory failure, me-

*Academic Emergency Medicine* 2006; Volume 13, Number 2: 223-229

# RESEARCH

## Development of a triage protocol for critical care during an influenza pandemic

Michael D. Christian, Laura Hawryluck, Randy S. Wax, Tim Cook, Neil M. Lazar, Margaret S. Herridge, Matthew P. Muller, Douglas R. Gowans, Wendy Fortier, Frederick M. Burkle, Jr.

∞ See related article page 1393

### ABSTRACT

**Background:** The recent outbreaks of avian influenza (H<sub>5</sub>N<sub>1</sub>) have placed a renewed emphasis on preparing for an influenza pandemic in humans. Of particular concern in this planning is the allocation of resources, such as ventilators and antiviral medications, which will likely become scarce during a pandemic.

**Methods:** We applied a collaborative process using best evidence, expert panels, stakeholder consultations and ethical principles to develop a triage protocol for prioritizing access to critical care resources, including mechanical ventilation, during a pandemic.

**Results:** The triage protocol uses the Sequential Organ Failure Assessment score and has 4 main components: inclusion criteria, exclusion criteria, minimum qualifications for survival and a prioritization tool.

**Interpretation:** This protocol is intended to provide guidance for making triage decisions during the initial days to weeks of an influenza pandemic if the critical care system becomes overwhelmed. Although we designed this protocol for use during an influenza pandemic, the triage protocol would apply to patients both with and without influenza, since all patients must share a single pool of critical care resources.

CMAJ 2006;175(11):1377-81

mand for intensive care unit (ICU) resources, solely for patients with influenza, would peak at 171% of current ICU bed capacity and 118% of the ventilator capacity. These figures do not take into account the current usage rate of critical care for patients without influenza, which is nearly at 100%. Nor does this model factor in the availability of human resources. Surge response strategies<sup>10</sup> (e.g., scaling back elective procedures, opening additional critical care areas and implementing the use of “mass critical care”<sup>11,12</sup>) will partially mitigate the sudden demand for medical care during an influenza pandemic; however, these strategies will be inadequate to fully address the demands on the health care system.

When resource scarcities occur, the tenets of biomedical ethics and international law dictate that triage protocols be used to guide resource allocation.<sup>13-15</sup> International law requires a triage plan that will equitably provide every person the “opportunity” to survive. However, such a law does not guarantee either treatment or survival.<sup>16</sup> We have developed this triage protocol in an effort to ensure the equitable and efficient use of critical care resources if scarcities occur during an influenza pandemic.

### Methods

In December 2004, at the request of the steering committee of the Ontario Health Plan for an Influenza Pandemic (OHP-IP), a group of clinicians with expertise in critical care, in-

**DRAFT FOR PUBLIC COMMENT  
MARCH 15, 2007**

**Allocation of Ventilators in an Influenza Pandemic:  
Planning Document**

**NYS Workgroup on Ventilator Allocation in an Influenza Pandemic  
NYS DOH/ NYS Task Force on Life & the Law**

Executive Summary:

A powerful strain of avian influenza has generated concern about a possible pandemic, though scientists do not know with certainty whether or when a pandemic will occur. However, the better-prepared New York State is, the greater its chances of

Powell, Tia, Christ, Kelly C., Birkhead, Guthrie S. **Allocation of Ventilators in a Public Health Disaster**  
DISASTER MEDICINE AND PUBLIC HEALTH PREPAREDNESS 2008 2: 20-26



### **DEFINITIVE CARE FOR THE CRITICALLY ILL DURING A DISASTER**

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- Summary of Suggestions From the Task Force for Mass Critical Care Summit, January 26–27, 2007 15  
*Asha Devereaux; Michael D. Christian; Jeffrey R. Dichter; James A. Geiling; Lewis Rubinson*
- Definitive Care for the Critically Ill During a Disaster: Current Capabilities and Limitations: From a Task Force for Mass Critical Care Summit Meeting, January 26–27, 2007, Chicago, IL 85  
*Michael D. Christian; Asha V. Devereaux; Jeffrey R. Dichter; James A. Geiling; Lewis Rubinson*
- Definitive Care for the Critically Ill During a Disaster: A Framework for Optimizing Critical Care Surge Capacity: From a Task Force for Mass Critical Care Summit Meeting, January 26–27, 2007, Chicago, IL 185  
*Lewis Rubinson; John L. Hick; Dan G. Hanfling; Asha V. Devereaux; Jeffrey R. Dichter; Michael D. Christian; Daniel Talmor; Justine Medina; J. Randall Curtis; James A. Geiling*
- Definitive Care for the Critically Ill During a Disaster: Medical Resources for Surge Capacity: From a Task Force for Mass Critical Care Summit Meeting, January 26–27, 2007, Chicago, IL 325  
*Lewis Rubinson; John L. Hick; J. Randall Curtis; Richard D. Branson; Suzi Burns; Michael D. Christian; Asha V. Devereaux; Jeffrey R. Dichter; Daniel Talmor; Brian Erstad; Justine Medina; James A. Geiling*
- Definitive Care for the Critically Ill During a Disaster: A Framework for Allocation of Scarce Resources in Mass Critical Care: From a Task Force for Mass Critical Care Summit Meeting, January 26–27, 2007, Chicago, IL 515  
*Asha V. Devereaux; Jeffrey R. Dichter; Michael D. Christian; Nancy N. Dubler; Christian E. Sandrock; John L. Hick; Tia Powell; James A. Geiling; Dennis E. Amundson; Tom E. Baudendistel; Dana A. Braner; Mike A. Klein; Kenneth A. Berkowitz; J. Randall Curtis; Lewis Rubinson*

# Who Should Get Influenza Vaccine When Not All Can?

Emanuel, Wertheimer

12 May 2006 *Science* 312 (5775), 584.

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“save the most lives” [burning building/emergency]

“women and children first” [Titanic]

“first come, first serve” [ICU/emergency]

“save most quality life years” [cost effectiveness rationing]

“save the worst-off” [organ transplant]

“save those most likely to recover” [PCN for syphilis in WWII]

“save those contributing to the well being of others”

“save those most likely to make society flourish”

*The* NEW ENGLAND  
JOURNAL *of* MEDICINE

ESTABLISHED IN 1812

JUNE 18, 2009

VOL. 360 NO. 25

Emergence of a Novel Swine-Origin Influenza A (H1N1)  
Virus in Humans

Novel Swine-Origin Influenza A (H1N1) Virus Investigation Team\*



# Driving Considerations

- Which patients should receive limited resources, and who decides?
- Should professional standards of care change? And what are the indicators leading to such change? What are the triggers for implementation?
- Should the law grant civil or criminal immunity to professionals acting in good faith?



**INSTITUTE OF MEDICINE**  
*OF THE NATIONAL ACADEMIES*

September 24, 2009

Nicole Lurie, M.D., M.S.P.H.  
Assistant Secretary for Preparedness  
and Response  
Office of the Assistant Secretary for  
Preparedness and Response  
Department of Health and Human Services  
200 Independence Ave., S.W.  
Washington, DC 20201

Dear Dr. Lurie:

On behalf of the Institute of Medicine (IOM) Committee on Guidance for Establishing Standards of Care for Use in Disaster Situations, we are pleased to report our conclusions and recommendations. At the request of the Office of the Assistant Secretary for Preparedness and Response, Department of Health and Human Services, the IOM convened this committee to develop guidance that state and local public health officials and health-sector agencies and institutions can use to establish and implement standards of care that should apply in disaster situations—

# Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations



# When To Adopt Crisis Standards of Care?

If contingency plans do not accommodate incident demands, healthcare practitioners will be faced with:

- severe shortages of equipment, supplies, and pharmaceuticals
- an insufficient number of qualified healthcare providers
- overwhelming demand for services
- lack of suitable resources

Under these circumstances, it may be impossible to provide care according to the conventional standards of care used in non-disaster situations, and, under the most extreme circumstances, it may not even be possible to provide the most basic life-sustaining interventions to all patients who need them.



## Duty to Plan

“Note that in an important ethical sense, entering a crisis standard of care mode is not optional – it is a forced choice, based on the emerging situation. Under such circumstances, failing to make substantive adjustments to care operations – i.e., not to adopt crisis standards of care – is very likely to result in greater death, injury or illness.”



## The Vision

*Fairness*

*Equitable processes*

*Transparency*

*Consistency*

*Proportionality*

*Accountability*

*Community and provider engagement,  
education, and communication*

*The rule of law*

*Authority*

*Environment*



# Crisis Standards of Care

A substantial change in usual healthcare operations and the level of care it is possible to deliver, which is made necessary by a pervasive (e.g., pandemic influenza) or catastrophic (e.g., earthquake, hurricane) disaster.



# Crisis Standards of Care

This change in the level of care delivered is justified by specific circumstances and is formally declared by a state government, in recognition that crisis operations will be in effect for a sustained period.



# Crisis Standards of Care

The formal declaration that crisis standards of care are in operation enables specific legal/regulatory powers and protections for healthcare providers in the necessary tasks of allocating and using scarce medical resources and implementing alternate care facility operations.



# Recommendations

1. Develop Consistent State Crisis Standards of Care Protocols with Five Key Elements
2. Seek Community and Provider Engagement
3. Adhere to Ethical Norms during Crisis Standards of Care
4. Provide Necessary Legal Protections for Healthcare Practitioners and Institutions Implementing Crisis Standards of Care
5. Ensure Consistency in Crisis Standards of Care Implementation
6. Ensure Intrastate and Interstate Consistency Among Neighboring Jurisdictions



**THE CONTINUUM OF CARE: CONVENTIONAL, CONTINGENCY AND CRISIS**

	<b>Altered Standard of Care</b>	<b>Resource Constrained</b>	<b>Practicing Outside Experience</b>	<b>Focus of Care</b>
<b>Conventional</b>	No	No	No	<i>Patient</i>
<b>Contingency</b>	Slightly	Slightly	No	<i>Patient</i>
<b>Crisis</b>	Yes	Yes	Yes	<i>Population</i>

# WHAT TO 'EFFECT' WHEN YOU ARE EXPECTING (the worst)



# SIR.....WE HAVE A PROBLEM

Conventional Capacity/ Standard of Care



# VANISHING RESOURCES

Contingency Capacity/Standard of Care

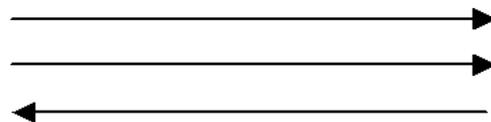


# THERE ARE NO MORE.....

Crisis Capacity/Standard of Care



Incident demand / resource imbalance increases  
 Risk of morbidity / mortality to patient increases



	Conventional	Contingency	Crisis
Space	Usual patient care space fully utilized	Patient care areas re-purposed (PACU, monitored units for ICU-level care)	Facility damaged / unsafe or non-patient care areas (classrooms, etc) used for patient care
Staff	Usual staff called in and utilized	Staff extension (brief deferrals of non-emergent service, supervision of broader group of patients, change in responsibilities, documentation, etc)	Trained staff unavailable or unable to adequately care for volume of patients even with extension techniques
Supplies	Cached and usual supplies used	Conservation, adaptation, and substitution of supplies with occasional re-use of select supplies	Critical supplies lacking, possible re-allocation of life-sustaining resources
Standard of care	Usual care	Functionally equivalent care	Crisis standards of care <sup>1</sup>

Usual operating conditions

Indicator: potential for crisis standards<sup>2</sup>

Trigger: crisis standards of care<sup>3</sup>

Austere operating conditions

- 1) Unless temporary, requires state empowerment, clinical guidance, and protection for triage decisions and authorization for alternate care sites / techniques. Once situational awareness achieved, triage decisions should be as systematic and integrated into institutional process, review, and documentation as possible.
- 2) Institutions consider impact on the community of resource utilization (consider 'greatest good' vs. individual patient needs – for example, conserve resources when possible) but patient-centered decision-making is still the focus
- 3) Institutions (and providers) must make triage decisions balancing the availability of resources to others and the individual patient's needs – shift to community-centered decision-making

<b>Sample Strategies to Address Resource Shortages</b>			
	<b>Conventional Capacity</b>	<b>Contingency Capacity</b>	<b>Crisis Capacity</b>
<b>Prepare</b>	Stockpile supplies used		
<b>Substitute</b>	Equivalent medications used (narcotic substitution)		
<b>Conserve</b>	Oxygen flow rates titrated to minimum required, discontinued for saturations > 95%	Oxygen only for saturations <90%	Oxygen only for respiratory failure
<b>Adapt</b>		Anesthesia machine for mechanical ventilation	Bag valve manual ventilation
<b>Reuse</b>	Reuse cervical collars after surface disinfection	Reuse nasogastric tubes and ventilator circuits after appropriate disinfection	Reuse invasive lines after appropriate sterilization
<b>Reallocate</b>		Reallocate oxygen saturation monitors, cardiac monitors, only to those with critical illness	Reallocate ventilators to those with the best chance of a good outcome

SOURCE: Adapted from Hick et al. (2009).

# Haiti- Earthquake

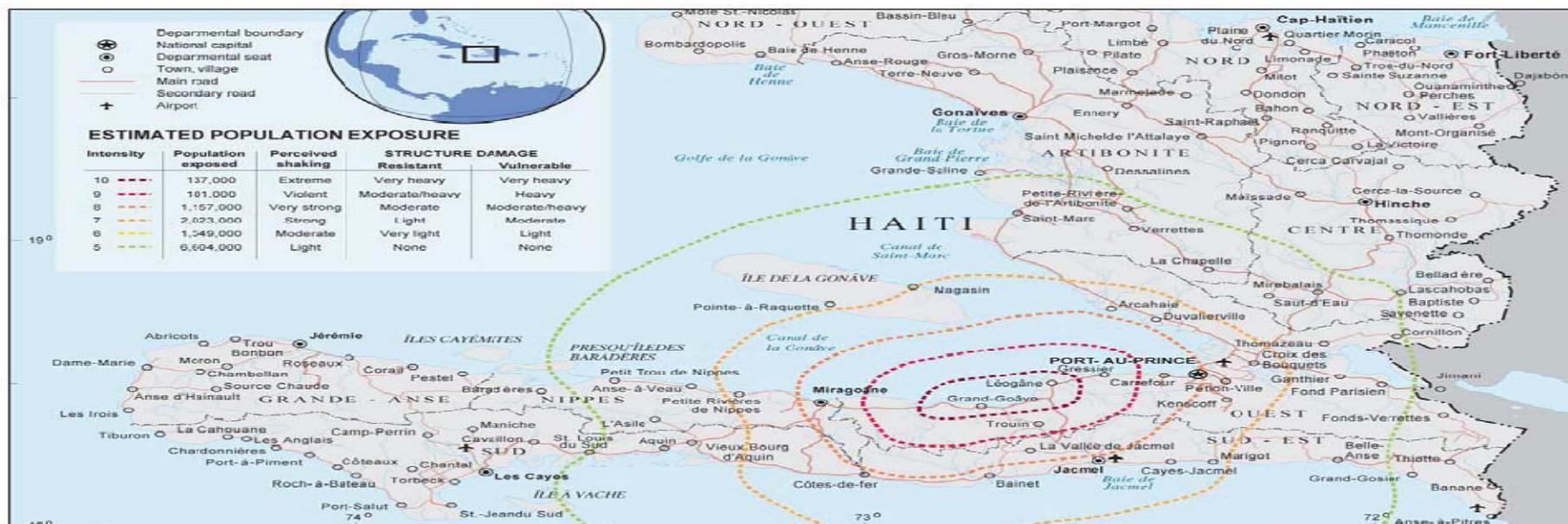
## Situation Report #1

### 12 January 2010

*This report was issued by the Office of the Coordination for Humanitarian Affairs in New York. The next report will be issued on or around 13 January 2010.*

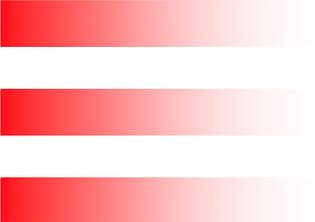
## I. HIGHLIGHTS/KEY PRIORITIES

- A powerful earthquake of 7.0 magnitude (USGS) on the Richter Scale affected Haiti on 12 January, at 16.53hrs local time (GMT 21.53hrs). The earthquake happened 17km south-west of Port-au-Prince, the capital of Haiti (18.45N, 72.45W).
- Initial reports suggest a high number of casualties and widespread damage, with an urgent need for Search and Rescue.
- A United Nations Disaster and Assessment Coordination Team (UNDAC) is being mobilized.



## HAITI PHOTOS

Hanfling D, Llewellyn C, Burkle, F, *International Disaster Response* in Disaster Medicine, 1st Edition, ed. Greg Ciottone, Mosby, 2006, pp. 102-107.



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