

**PACER**



A HOMELAND SECURITY  
CENTER OF EXCELLENCE

National Center for the Study of  
PREPAREDNESS AND CATASTROPHIC EVENT RESPONSE

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# PACER

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A HOMELAND SECURITY  
CENTER OF EXCELLENCE

**Resilience  
Two Projects**

# Employee Absenteeism Due to Pan Flu

- Continuity of Operations
- Published Absenteeism rates: 10%-40%
  - 10%: HHS, *Pandemic Influenza Plan*
  - 40%: OSHA: *Preparing Workplace....Pandemic*
  - 40%: HSC: *National Strategy for Pandemic Influenza...*
- Different Methods, different models, different assumptions
- Overall rates not of value for planning
  - need daily rates and trend

[CDC en Español](#)

Department of Health and Human Services  
 Centers for Disease Control and Prevention

Search:

## Pandemic Influenza Resources

**Influenza (Flu)**

- > Pandemic Influenza Resources
- > [Software: FluAid 2.0](#)
- > [Software: FluSurge 2.0](#)
- > [Software: FluWorkLoss](#)
- > [FluSurge & FluAid Q & A](#)
- > [CDC OPLAN](#)
- > [Seasonal Flu](#)
- > [Pandemic Flu](#)
- > [Swine Flu](#)

### FluWorkLoss 1.0

**With case study (blood donor supply)**

**The Official U.S. Government Website for Pandemic Influenza**

One-stop access to U.S. Government avian and pandemic flu information. Managed by the Department of Health and Human Services.

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[Printer-friendly version](#)

Pandemic influenza can overwhelm a community, causing very serious public health, social, and economic problems. Approximately 36,000 deaths and 220,000 hospitalizations per year are related to seasonal influenza in the U.S. However, because illness rates during a pandemic are likely to be 2-5 times higher than a typical influenza season, special planning for work loss during pandemics is critical to maintain continuity of operations in a severe pandemic.

FluWorkLoss estimates the potential number of days lost from work due to an influenza pandemic. Users can change almost any input value, such as the number of workdays assumed lost when a worker becomes ill or the number of workdays lost due to a worker staying home to care for a family member. Users can also change the length and virulence of the pandemic so that a range of possible impacts can be estimated. FluWorkLoss provides a range of estimates of total workdays lost, as well as graphic illustrations of the workdays lost by week and percentage of total workdays lost to influenza-related illnesses. An example of the results produced by FluWorkLoss is given below.

**[Download FluWorkLoss Software now](#)**

# Input (Hopkins) Data

## Number of Employees

0-19 y.o.	510
20-64 y.o.	33,586
65+ y.o.	930
Total	35,026

## Employment Rate

100%

Cohabit Rate	100
Work Days/Wk	5

## Days Lost Caring for Family Members Due to

Death	10
Hospitalization	7
Outpatient Visits	3
Self Care	1

## Days Lost Due to Own Illness

Death	40
Hospitalization	7
Outpatient Visits	3
Self Care	1

# Work Loss Results

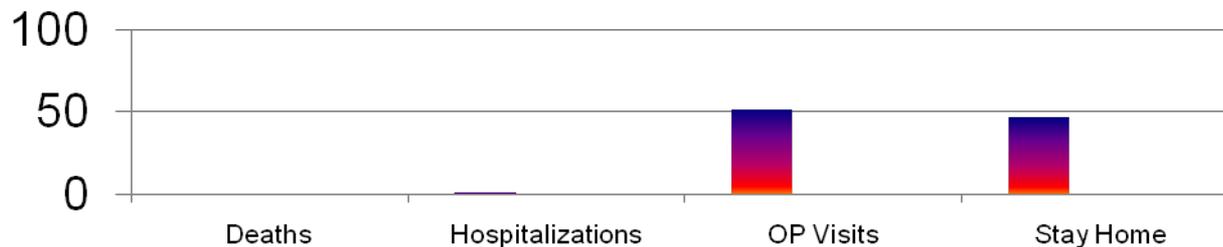
## 8-wk duration; 35% Hit Rate

Work Days Lost	47,270
Deaths	29 (0.2%)
Hospitalizations	154 (1.3%)
OP Visits	6,321 (51.6%)
Stay Home	5,755 (47.0%)

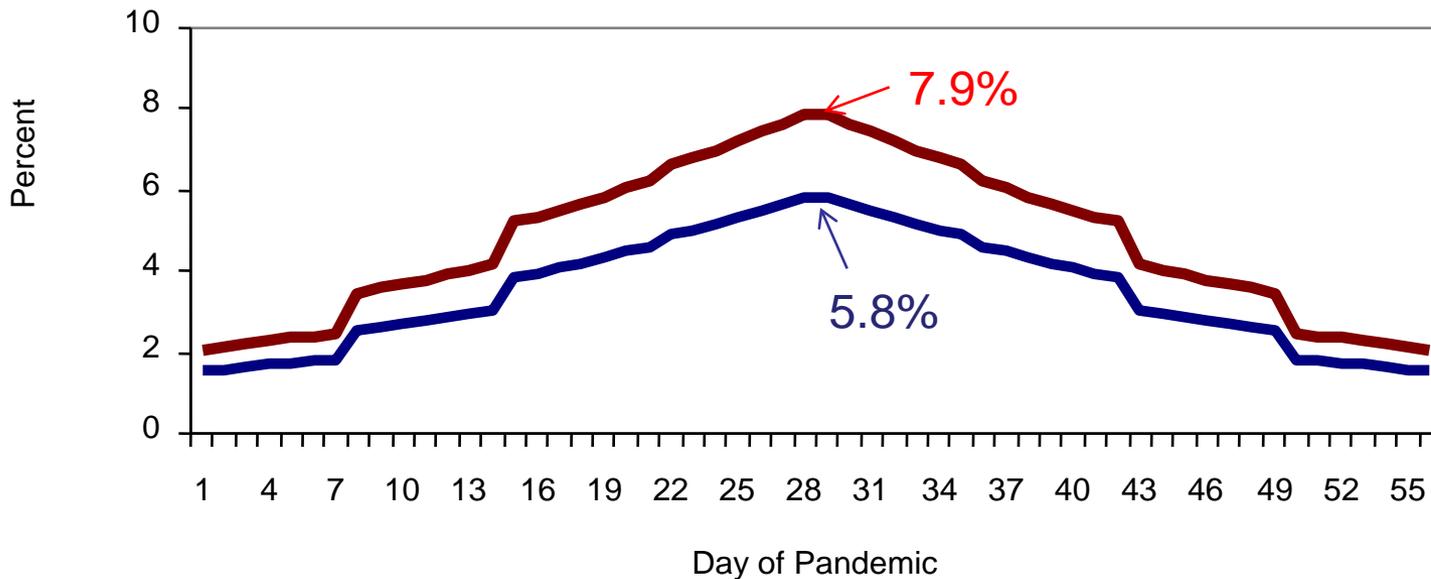
(%) = % of all employee illnesses

# Work Loss Results

Work Days Lost	47,270	CDC Predictions (1958/68)
Deaths	29 (0.2%)	(0.2%)
Hospitalizations	154 (1.3%)	(1.0%)
OP Visits	6,321 (51.6%)	(50%)
Stay Home	5,755 (47.0%)	



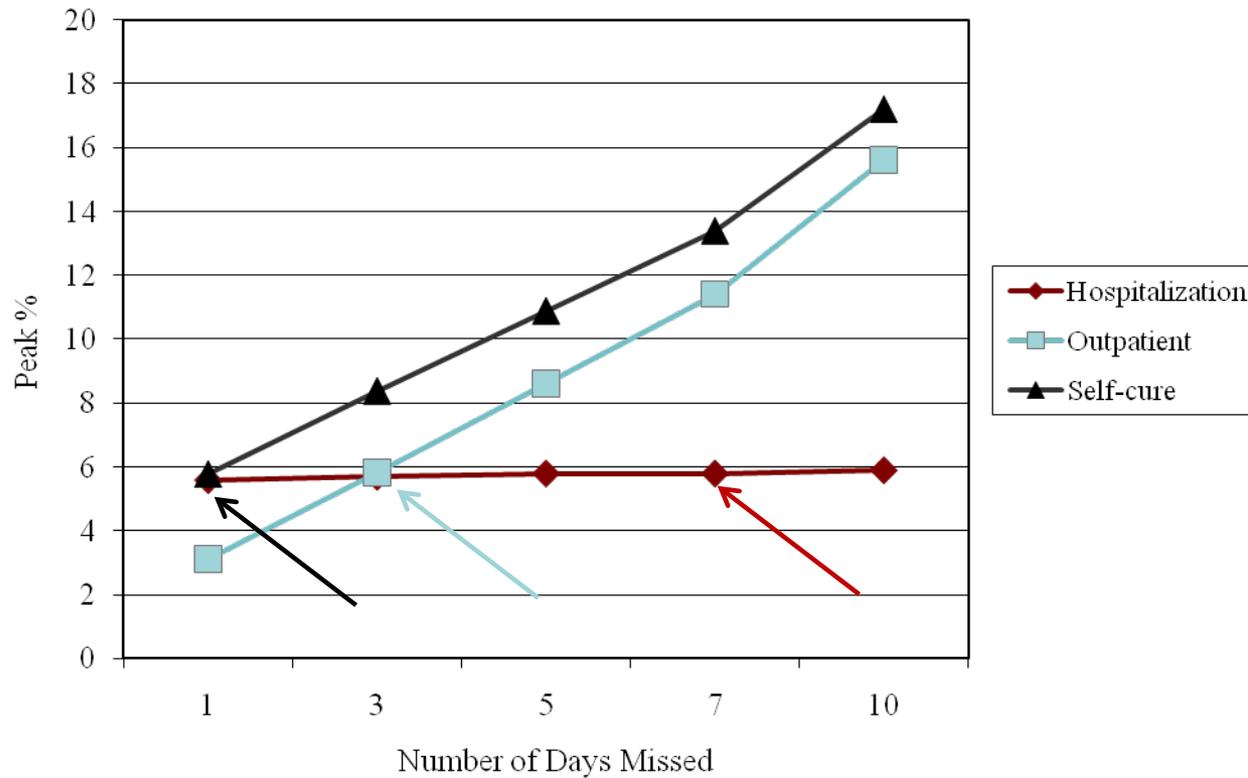
## Distribution of work-days lost and proportion of work-force ill



— proportion of total work days lost

— proportion of total employees ill

# Sensitivity Analysis



# Limitations

- Program is not sensitive for our situation
  - Cohabitation (200% increases loss to 9.6% WD)
  - Kids (ages, attack rates)
- Doesn't distinguish between individual illness and home illness
- Does distinguish FT, from PT

**CDC** Department of Health and Human Services  
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### FluWorkLoss 1.0

With case study (blood donor supply)

This version of FluWorkLoss is a beta test version. It has not been officially cleared by the funding agency. The use of this version is for testing purposes only. The methodology used in, findings and conclusions produced from, this software are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

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# Creation of Surge Capacity by Early Discharge of Hospitalized Patients at Low Risk for Untoward Events

## Creation of Surge Capacity by Early Discharge of Hospitalized Patients at Low Risk for Untoward Events

- TJC: Stand Alone Plans—96 hrs
- Medical Surge Capacity—Assumed Low
- Solutions Offered
  - Increase Staff
  - Open Beds
  - Open Cafeterias
  - Tx to other facilities

## Reverse Triage

Risk of consequential medical event	Basis	Mean upper limit of tolerance for consequential medical events (IQR)
1 (minimum)	Minimum to no anticipated medical events during next 72 h	3-8% (2-5)
2 (low)	Calculated risk of non-fatal medical event. Transfer to low acuity facility appropriate. Consider early discharge when effects of disaster exceed risks of remaining in hospital—eg, risk of biothreat transmission, effects of resource constraints	11-7% (8-15)
3 (moderate)	Consequential medical event quite likely without critical intervention Discharge to home not advisable Transfer to facility of moderate capabilities appropriate	33-1% (25-50)
4 (high)	Patient care cannot be interrupted without virtually assured morbidity or mortality. Highly skilled care required Transfer to major acute-care facility only	61% (45-80)
5 (very high)	Patient cannot be moved or readily transferred Generally unstable for transport Consider ICU-capable transport only	92-3% (95-100)

ICU=intensive-care unit.

Table 1: Consensus disposition classification and tolerance for rate of consequential medical events

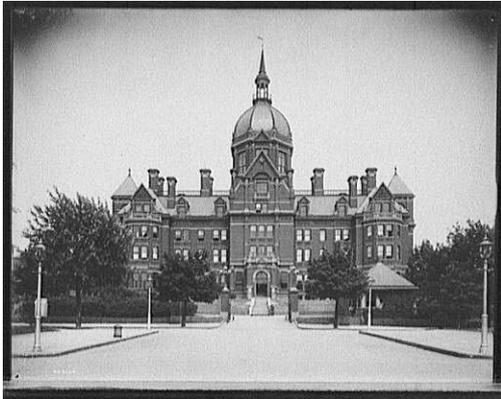
## Purpose

- Estimate potential of surge capacity in U.S. Hospitals

## Definition of Surge Capacity

The maximum potential augmentation of resources available to care for the influx of an unexpectedly large number of patients.

## Methods



Major Teaching Hosp  
Beds=1017



Teaching Affiliate  
Beds=355



Community Hospital  
Beds=260

## Methods

- Simulated Disaster on 50 Services
  - Randomized over 19 wks
  - 3-12 X sampling
- Pts followed for 4 days for occurrence of a **“Critical Intervention”**
- If no CI—OK to d/c into community

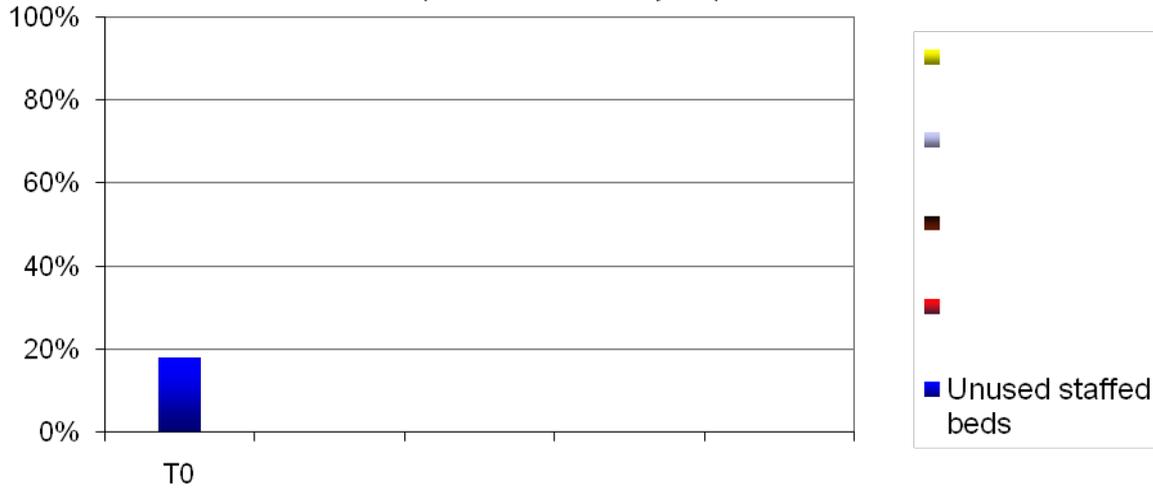
# Surge Capacity

<b><i>Major Interventions</i></b>	
10	CPR or Defibrillation
10	Intubation/Airway Management
9	Major Surgery
9	Caesarian Section
8	IV medication/pressors/fluids#
8	Oxygen Requirement
8	Burn Care
8	Cerebral Bolt Placement/Monitoring
7	Dialysis
7	Thoracostomy Tube Placement/Requirement
7	Non-Invasive PPV
7	Thrombolytic Administration
<b><i>Moderate Interventions</i></b>	
6	Blood or Blood Product Administration
6	Other Invasive Procedure
6	Psychiatric Monitoring
6	Cardiac Catheterization
5	Thoracentesis
5	Wound Care
5	Central Line Placement/Requirement
5	Minor Surgery: Incision and Drainage
5	Parenteral Nutrition Requirement
5	Paracentesis
5	Vaginal Delivery
<b><i>Less Critical Interventions</i></b>	
4	Arterial Line Requirement
4	Lumbar Puncture
3	Cardiac EKG Monitoring
3	Parenteral Pain Medication Requirement
3	Support for ADLs

## Critical Interventions

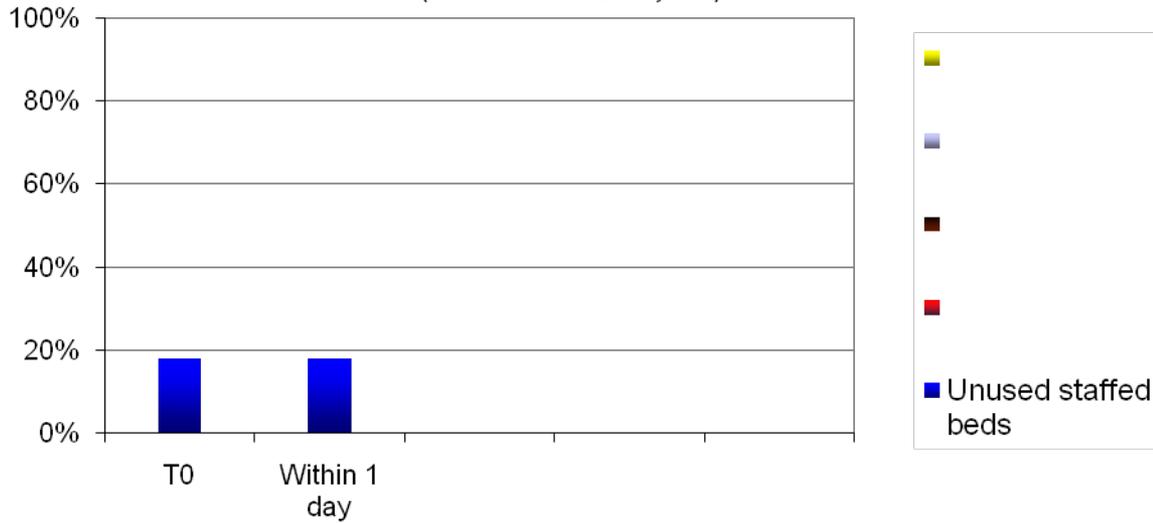
# Surge Capacity

**Figure 1a. Potential Surge Capacity**  
Academic Center (N=658 total licensed study beds)



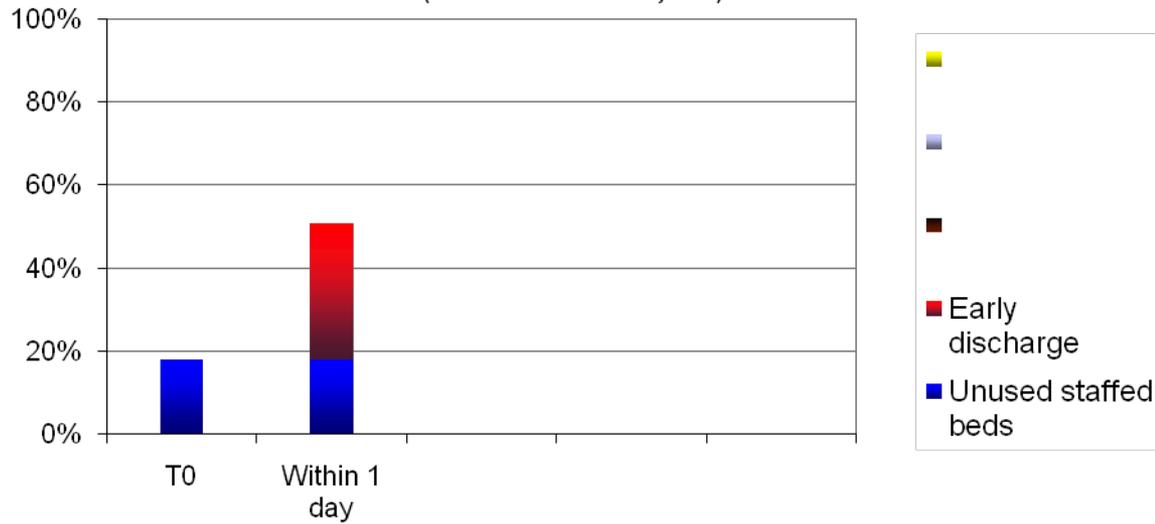
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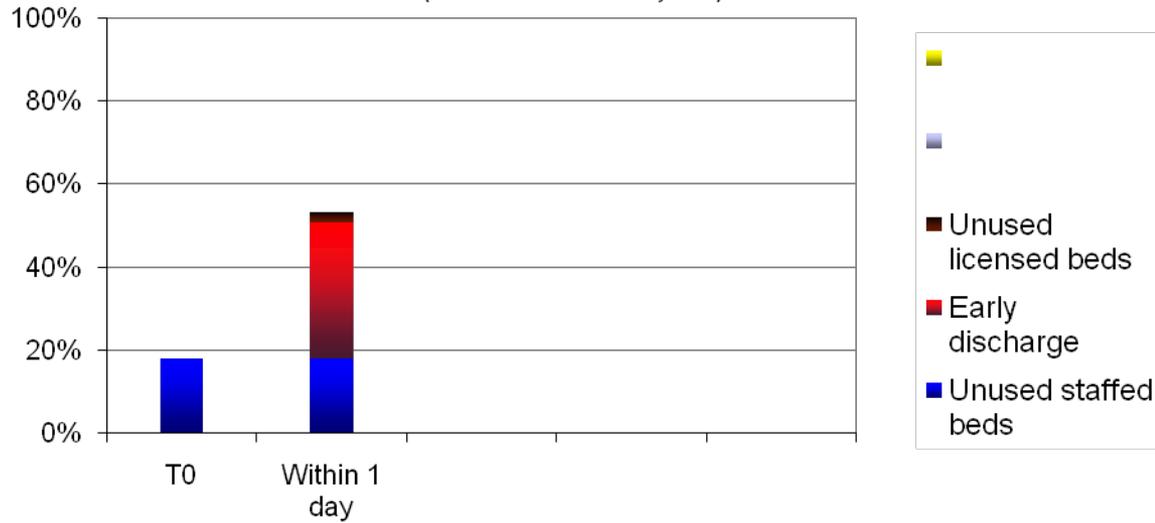
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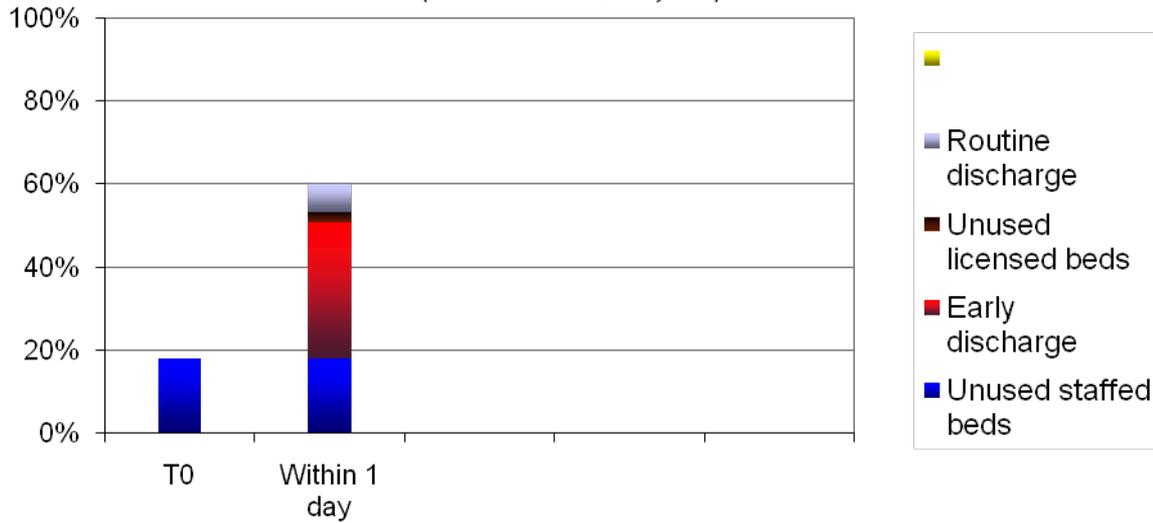
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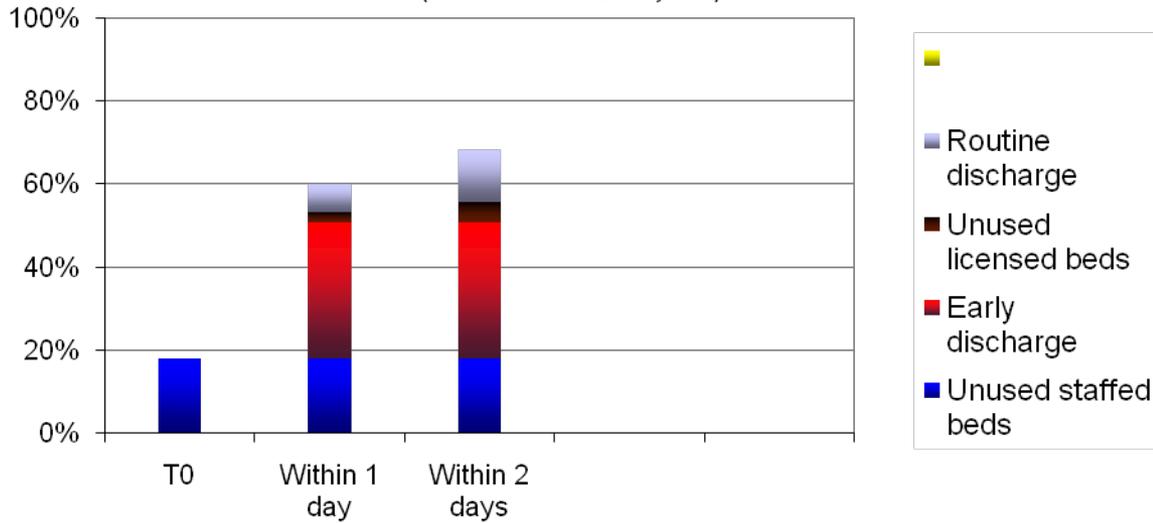
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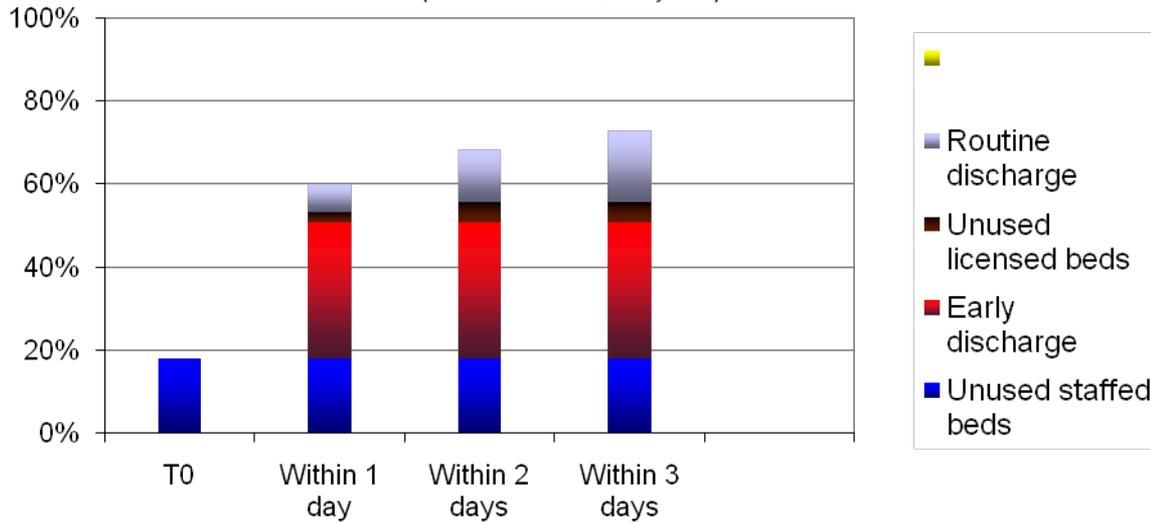
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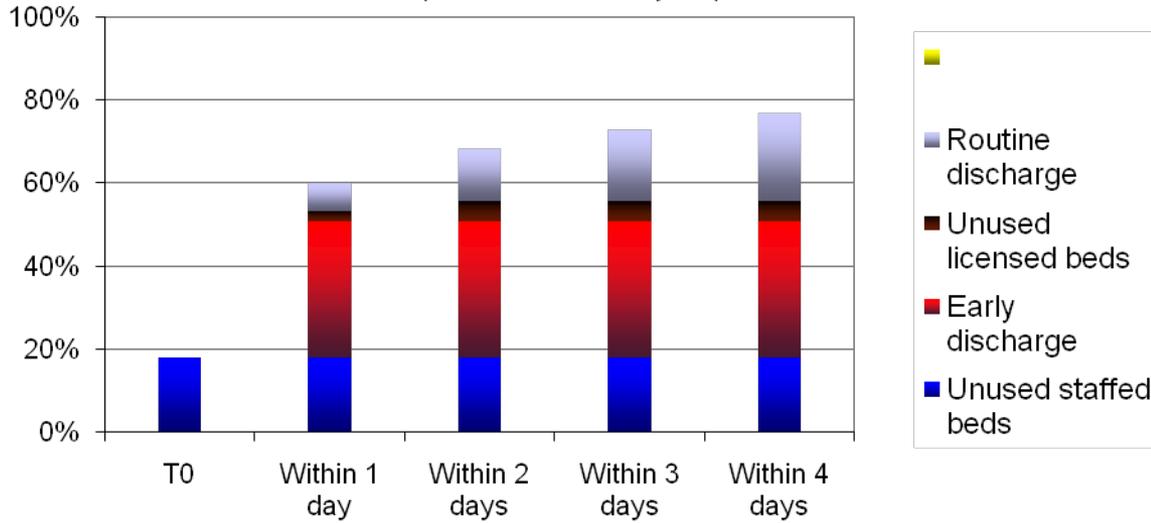
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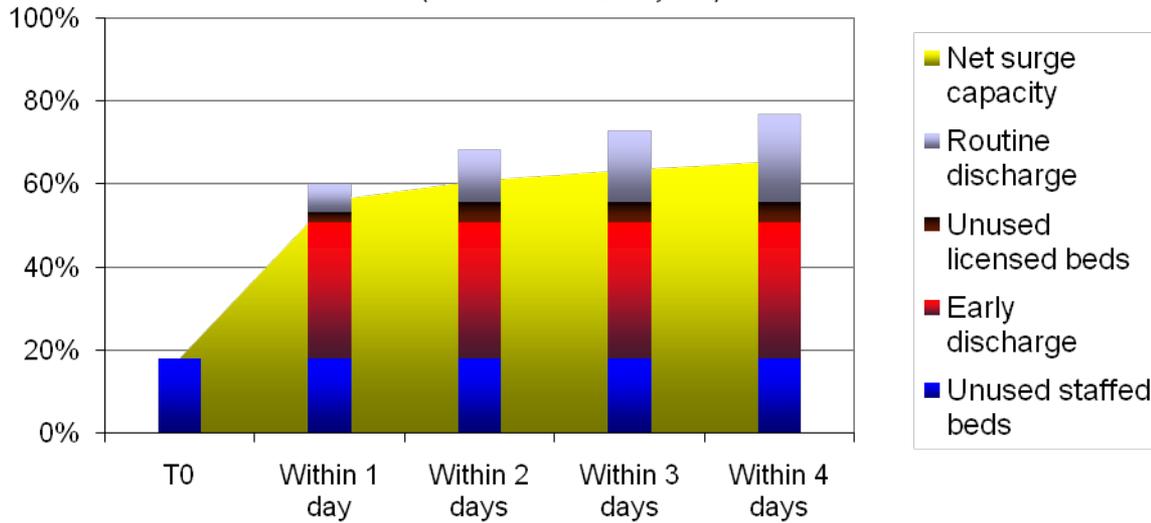
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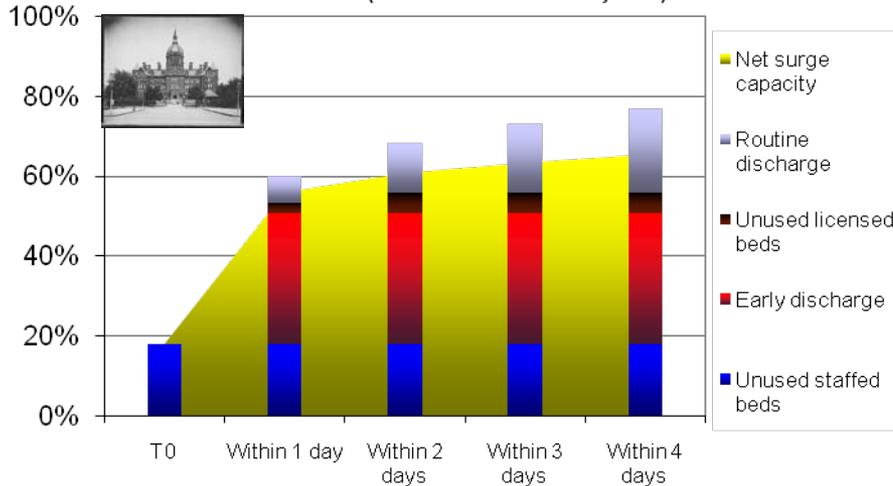
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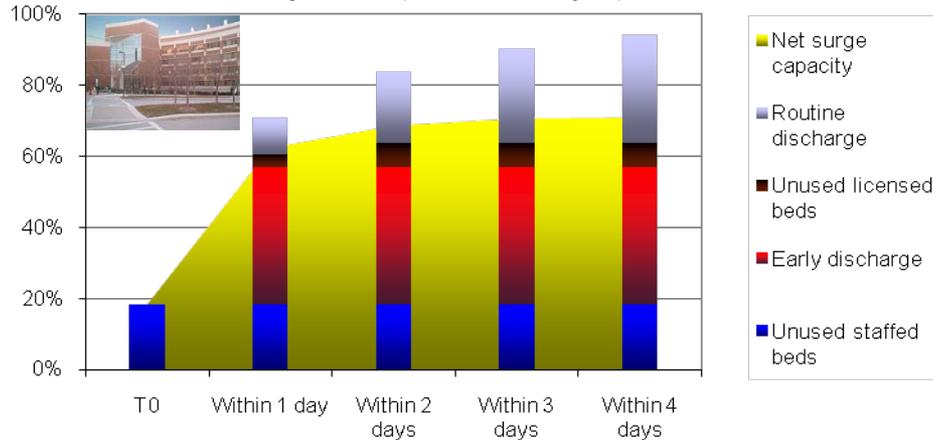


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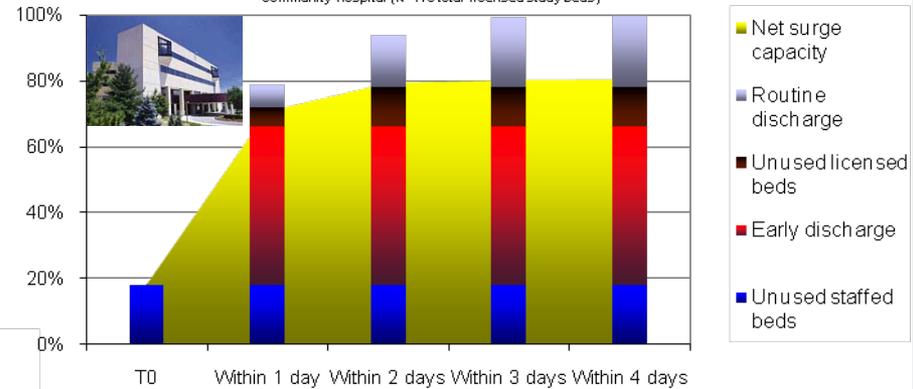
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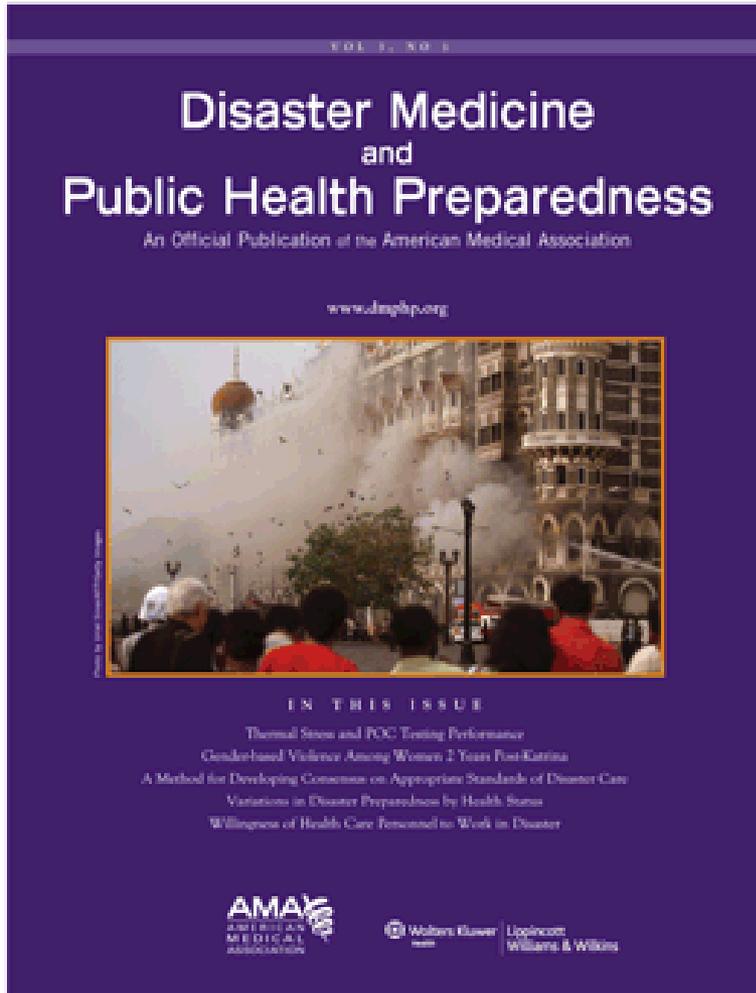


**Figure 1b. Potential Surge Capacity**  
Teaching Medical Center (N=242 total licensed study beds)



**Figure 1c. Potential Surge Capacity**  
Community Hospital (N=170 total licensed study beds)





## World Health Day 2009

Save lives. Make hospitals safe in emergencies



[safehospitals.info](http://safehospitals.info)

World Health Day 2009 focuses on the resilience and safety of health facilities and the health workers who treat those affected by emergencies. Events around the world will highlight successes, advocate for safe facility design and construction, and build momentum for widespread emergency preparedness.

April 7<sup>th</sup>, 2009