



**CENTERS FOR MEDICARE AND MEDICAID  
SERVICES' CHANGES IN REIMBURSEMENT FOR  
HEALTHCARE-ASSOCIATED INFECTIONS:  
SETTING A RESEARCH AGENDA**

**Patricia W. Stone, PhD, FAAN  
February 4, 2010**



# THE CONFERENCE

APRIL 24, 2009

## NEW YORK ACADEMY OF SCIENCES

- Funder: AHRQ (R13 HS018099)
- Organizers: Stone, Larson, Glied, Saiman
- Participants: 33 national experts/leaders in infection control and health policy
- Speakers: Representatives from CMS (Valuck) and CDC (Horan) and national experts in quality improvement (Dudley), organizational learning (Nembhard) and health economics (Glied)



# CONFERENCE FORMAT

- Morning Presentations
  - “CMS’ Progress toward Value-based Purchasing”
  - “Measuring Healthcare-associated Infections”
  - “Using Incentives to Reduce the Rate of HAI”
- Morning “Breakout” Session
  - Discussion of presentations and key questions in pre-assigned groups of 8-10 participants; each group reported their ideas/findings to all participants
- Afternoon Presentations
  - “Creating an Environment for Learning, Innovation, and Successful Implementation in Organizations”
  - “Other Payer and Provider Responses to the CMS HAI Rule”
- Afternoon “Breakout” Session
  - Participants kept same grouping for afternoon discussion





# PRESENTATIONS & KEY QUESTIONS

Morning Session

Centers for Medicare & Medicaid Services

# CMS' Progress Toward Implementing Value-Based Purchasing

Thomas B. Valuck, MD, JD

*Medical Officer & Senior Adviser*

*Center for Medicare Management*



# Value-based Purchasing Program Goals

- Improve clinical quality
- Reduce adverse events and improve patient safety
- Encourage patient-centered care
- Avoid unnecessary costs in the delivery of care
- Stimulate investments in effective structural components or systems
- Make performance results transparent and comprehensible
  - To empower consumers to make value-based decisions about their health care
  - To encourage hospitals and clinicians to improve quality of care

# Value-based Purchasing Programs

- Hospital Quality Initiative: Inpatient & Outpatient Pay for Reporting
- Hospital VBP Plan & Report to Congress
- **Hospital-Acquired Conditions & Present on Admission Indicator Reporting**
- Physician Quality Reporting Initiative
- Physician Resource Use Reporting
- Physician VBP Plan & Report to Congress
- Home Health Care Pay for Reporting
- ESRD Pay for Performance
- Medicaid

# The Healthcare-acquired Conditions Problem

- In 2000, CDC estimated that hospital-acquired infections add nearly \$5 billion to U.S. health care costs annually

Centers for Disease Control and Prevention: Press Release, March 2000.  
Available at: <http://www.cdc.gov/od/oc/media/pressrel/r2k0306b.htm>.

- A 2007 study found that, in 2002, 1.7 million hospital-acquired infections were associated with 99,000 deaths

Klevens et al. Estimating Health Care-Associated Infections and Deaths in U.S. Hospitals, 2002. *Public Health Reports*. March-April 2007. Volume 122.

# Statutory Authority: DRA Section 5001(c)

- Beginning October 1, 2007, IPPS hospitals were required to submit data on their claims for payment indicating whether diagnoses were present on admission (POA)
- Beginning October 1, 2008, CMS cannot assign a case to a higher DRG based on the occurrence of one of the selected conditions, if that condition was acquired during the hospitalization

# Selected Healthcare-acquired Conditions for Implementation

1. Foreign object retained after surgery
2. Air embolism
3. Blood incompatibility
4. Pressure ulcers
5. Injuries from Falls & Trauma
6. Manifestations of poor glycemic control
7. Deep vein thrombosis (DVT)/pulmonary embolism (PE)
8. Catheter-associated urinary tract infection
9. Vascular catheter-associated infection
10. **Surgical site infection**
  - **Mediastinitis after coronary artery bypass graft (CABG)**
  - **Certain orthopedic procedures**  
(Spine, Neck, Shoulder, Elbow)
  - **Bariatric surgery for obesity**  
(Laparoscopic gastric bypass, Gastroenterostomy,  
Laparoscopic gastric restrictive surgery)



# Measuring Healthcare-Associated Infections (HAI)

Teresa C. Horan, MPH  
Division of Healthcare Quality Promotion  
Centers for Disease Control and Prevention  
Atlanta, GA

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# Methods of Surveillance

- Systematic, ongoing surveillance of endemic HAI in hospitals
  - First CDC system started in 1965 in 6 community hospitals
  - Current CDC system, National Healthcare Safety Network (NHSN), includes >2200 hospitals
- Metrics designed to help drive local decision-making regarding prevention and intervention strategies (i.e., for internal quality improvement)



# Traditional Case Finding Challenges

- Time-consuming
- Expensive
- Subjective case definitions can lead to variability across data collectors
- Post-discharge loss to follow up



# Electronic Case Finding

- Computer algorithms for screening
  - Limits number of patient charts to review
- Computer algorithms for detection
  - Fully-defined case
  - Partially-defined case presented to IP for additional information and/or final determination
- Both types of algorithms save time and may be less subjective
  - May not accurately discern “true infections”

Yokoe DS et al. EID 2004;10:1924-30; Miner AL et al. EID 2004;10:1931-7;  
Woeltje KF et al. ICHE 2008;29:842-6; Yokoe DS et al. Abstract 494 SHEA 2009;  
Yokoe DS et al. ICHE 1998;19:657-60; Trick WE et al. EID 2004;10:1612-20;  
Klompas M et al. ICHE 2008;29:31-7; Oda G et al. Abstract 499 SHEA 2009



# Challenges with Current HAI Metrics



- Labor intensive to collect HAI and denominator data
- Not easily understood by public
  - Propose use of standardized infection ratio (SIR) instead (i.e., Observed / Expected)
- Usefulness for assessing performance quality remains to be explored

# Using Incentives to Reduce the Rate of HAI

R. Adams Dudley, MD, MBA

Institute for Health Policy Studies

University of California, San Francisco

*Support: Agency for Healthcare Research and Quality, California  
Healthcare Foundation, Robert Wood Johnson Foundation  
Investigator Award Program*

# HAI: Measurement Issues

- Possible responses to HAI incentives that should impact the incentive magnitude calculation:
  - How much does it cost to find infections?
  - Will people start doing more cultures at admission to be able to prove infections are not hospital-acquired?

## Provider

### Incentive

#### Design of the Incentive Program:

- *Financial characteristics* (e.g., revenue potential, cost of compliance)
- *Reputational aspects* (e.g., extent of efforts to market data to patients and peers)
- *Psychological dimensions* (e.g., salience of quality measures to provider's practice)

Environmental variables: General approach to payment; regulatory and market factors

Provider group



Provider decision-maker



Provider response: change in care structure or process



### Predisposing/Enabling factors

Organizational factors (if applicable, e.g., the organization's internal incentive programs or information technology)

Patient factors (e.g., education, income, cost sharing)

### Change in outcomes:

- Clinical performance measures
- Non-financial outcomes for the provider (e.g., provider satisfaction)
- Financial results for the provider

Source: Frolich et al. *Health Policy*, 2007; 80(1):179

# MORNING DISCUSSION QUESTIONS

- What are the key research questions (gaps in what we know related to pay-for-performance and HAI)?
- What types of research designs are needed to answer these questions?
- What are the important methodological issues that should be addressed (designs, data sources, etc.)?
- How are these methodological issues similar/different across hospital-acquired conditions (what is infection-specific)?
- How and when do we measure success (use surrogate endpoints)?





# PRESENTATIONS & KEY QUESTIONS

Afternoon Session

# Creating an Environment for Learning, Innovation and Successful Implementation in Organizations

*Lessons from Management Research*

**Ingrid Nembhard, Ph.D., M.S.**

Assistant Professor

Yale School of Medicine-Public Health

Yale School of Management



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AHRQ Conference on CMS Reimbursement for HAIs

# Challenges to Organizational Learning

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## □ Staff resistance

- Preference for known work routines
- Norms emphasize performance not learning  
*... it's difficult to embrace learning because it involves uncertainty*

## □ Intergroup relations

- Professional (status) hierarchies
- Different mental models and systems  
*... it's difficult to create collaboration and teamwork for learning efforts when a history of division exists*

## □ Leader-workforce interactions

- Transactional not transformational
- Perceived conflict of goals between leaders and staff  
*... it's often difficult to adopt the leader/organizational goal when the past has built suspicion*

# More Challenges

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- **Performance measurement and control systems**
  - **Often under-developed and under-utilized**
  - **Does not reward learning and implementation efforts**  
*... it's difficult to dedicate one's self to learning when metrics do not align and effort is unrewarded*
  
- **The nature of knowledge**
  - **Abundant and dynamic**
  - **Tacit and context dependent**  
*... it's often difficult to describe the process... let alone to implement and improve it!*
  
- **Resource constraints**
  - **Staff shortages**
  - **Financial demands and limitations**  
*... it's difficult to embrace learning new things when already feeling pressed to accomplish the old things*

# Strategies for Success

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1. Frame as a learning challenge
2. Create learning opportunities for staff
3. Involve frontline staff
4. Leadership that facilitates
5. Measure and reward effort

# Other Payer and Provider Responses to the CMS HAI Rule

Sherry Glied, Ph.D.

Department of Health Policy and  
Management and CIRAR

Mailman School of Public Health

Because action on HAI likely involves fixed costs...

Actions of other payers may:

- Reinforce

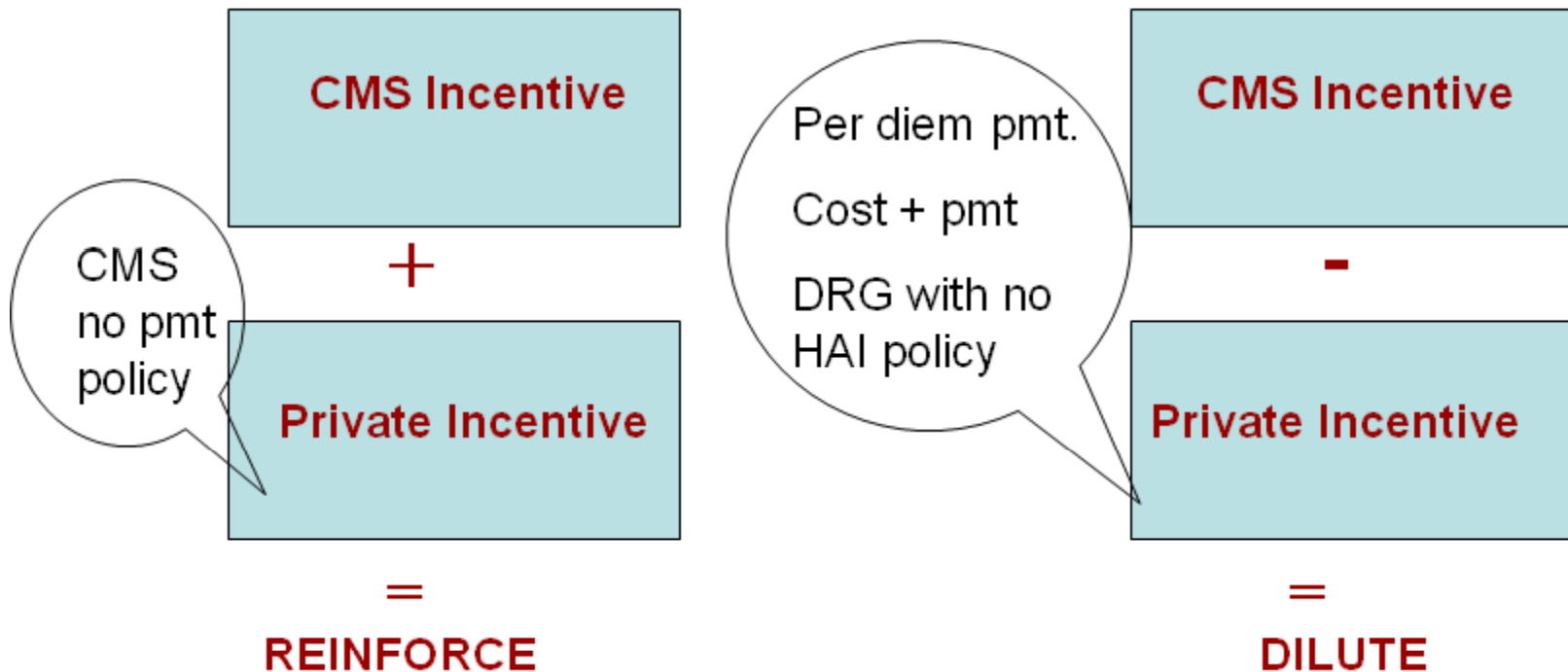
or

- Dilute

the effects of CMS policies



# Invest in HAI Prevention Protocols?



# Research Questions (1)

- Will other payers follow CMS?
  - Why or why not?
- Will hospital behavior around HAIs vary with proportion of revenue from Medicare?

# Undesired Hospital Responses

- Law of unintended consequences
  - More cultures to affect pre-hospital infections
  - Coding
  - Selection
  - Financial effects
  - Discharges

## Research Questions (2)

- 1) Do coding changes occur for conditions that co-occur with HAI?
- 2) Do hospitals with high HAI risk patients alter their service mix?
- 3) Are hospitals with high HAI risk patients affected financially?
- 4) Do discharge patterns of high HAI risk patients change?

# AFTERNOON DISCUSSION QUESTIONS

- What are the potential responses by payers, providers (intended and unintended consequences)?
- What should hospitals be doing to ensure lower HAI and costs?
- What are the potential barriers/facilitators to obtain desired behaviors?
- What are the highest priority topics for research to assess the impact of the CMS regulations in relation to HAI? In relation to other hospital-acquired conditions?
- Given the discussion this afternoon, does this change any of the conclusions/discussion from the morning?
- What role(s) should executive leaders, unit/team leaders and staff play in change efforts?
- What challenges exist to studying implementation efforts in this setting, and how might they be addressed?





**DEVELOPING THE  
RESEARCH AGENDA**

# DATA COLLECTION & ANALYSIS

## ○ Data Collection

- Audio recordings and transcriptions of presentations and Q&A
- Notes from “breakout” sessions
- Audio recordings and transcriptions of each “breakout” groups’ reports to all participants

## ○ Data Analysis

- Data were analyzed by two reviewers using thematic content analysis (Nvivo) to identify gaps in current knowledge and specific research questions
- Results were summarized to identify common themes and research priorities

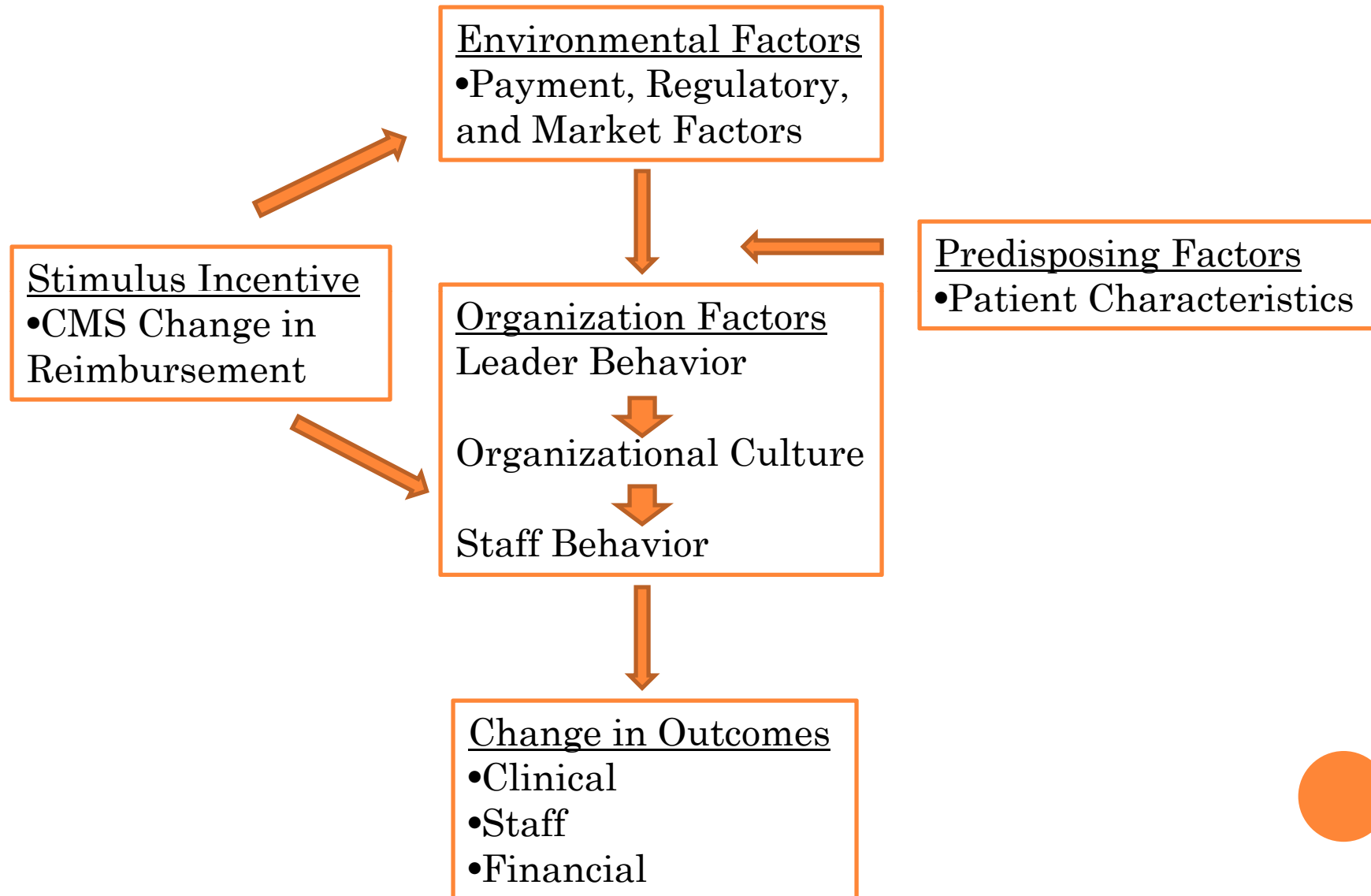


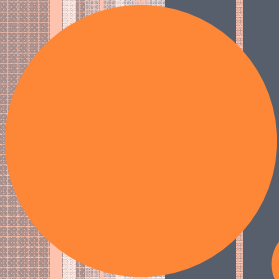


# THE RESEARCH AGENDA

Research issues and gaps identified by workshop participants

# CONCEPTUAL FRAMEWORK FOR CMS CHANGE IN REIMBURSEMENT





# DISSEMINATION

## PUBLICATION AND POSTER

- Stone PW, Glied SA, McNair PD, Matthes N, Cohen B, Landers TF, Larson EL. CMS changes in reimbursement for HAIs: setting a research agenda. *Medical Care*. In Press.
- Stone PW, Larson EL. A Research Agenda Evaluating Reimbursement Policies Related to Healthcare Associated Infections. American Academy of Nursing 36<sup>th</sup> Annual Meeting and Conference, Atlanta, GA, November 5-7, 2009.

