

National Quality Partners

The Role of Providers and Payers in Antibiotic Stewardship



NATIONAL
QUALITY FORUM

August 13, 2015, 11:00 am-12:30 pm ET

WELCOME

Speaker



Wendy Prins, MPH, MPT
Vice President, National Quality Partners

Join the Conversation Live

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- Join the conversation on Twitter during the webinar using #ABXatNQF

NQF's Work: Framed by the National Quality Strategy

Three aims to improve healthcare

BETTER CARE



MORE AFFORDABLE CARE



HEALTHIER PEOPLE IN HEALTHIER COMMUNITIES



NQF's National Quality Partners...

...collaborate through “Action Teams” to catalyze and accelerate improvement on the priorities and goals of the National Quality Strategy to improve quality, improve health, and reduce healthcare costs

NQF's National Quality Partners...

...maximize the impact of high-leverage drivers—payment, public reporting, consumer engagement, and accreditation and certification—that each of us brings to bear

National Quality Partners' 2015-2016 Action Teams



- Reducing antimicrobial resistance through aggressive antibiotic stewardship

- Improving advanced illness care through authentic patient and family engagement



Why Antibiotic Stewardship?

NATIONAL ACTION PLAN FOR COMBATING ANTIBIOTIC-RESISTANT BACTERIA

MARCH 2015

Learn more about **CDC's proposed investments** to stop the spread of antibiotic resistance and protect patients.

CDC's FY16 AR Solutions Initiative
www.cdc.gov/drugresistance/solutions-initiative

Antibiotic Resistance Solutions Initiative

FORUM ON ANTIBIOTIC STEWARDSHIP

JUNE 2, 2015

2 Million
Antibiotic-resistant germs cause more than 2 million illnesses and at least 23,000 deaths each year in the US.

NATIONAL QUALITY FORUM

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National Action Plan: Goals

1. Slow the emergence and spread of resistant bacteria and infections
2. Strengthen national one-health surveillance efforts
3. Advance development and use of rapid and innovative diagnostic tests
4. Accelerate basic and applied antibiotic research and development for prevention, surveillance, and control
5. Improve international collaboration and capacities

National Targets For 2020

TABLE 1: National Targets to Combat Antibiotic-Resistant Bacteria

By 2020, the United States will:

For CDC Recognized Urgent Threats:

Reduce by 50% the incidence of overall *Clostridium difficile* infection compared to estimates from 2011.

Reduce by 60% carbapenem-resistant Enterobacteriaceae infections acquired during hospitalization compared to estimates.

Maintain the prevalence of ceftriaxone-resistant *Neisseria gonorrhoeae* below 2% compared to estimates from 2013.

For CDC Recognized Serious Threats:

Reduce by 35% multidrug-resistant *Pseudomonas* spp. infections acquired during hospitalization compared to estimates from 2011.

Reduce by at least 50% overall methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infections by 2020 as compared to 2011.*

Reduce by 25% multidrug-resistant non-typhoidal *Salmonella* infections compared to estimates from 2010-2012.

Reduce by 15% the number of multidrug-resistant TB infections.¹

Reduce by at least 25% the rate of antibiotic-resistant invasive pneumococcal disease among <5 year-olds compared to estimates from 2008.

Reduce by at least 25% the rate of antibiotic-resistant invasive pneumococcal disease among >65 year-olds compared to estimates from 2008.

Source: National Action Plan for Combating Antibiotic-Resistant Bacteria

NQP Antibiotic Stewardship Action Team

Advancing appropriate antibiotic utilization across the care continuum and community settings

mutually reinforcing activities • communications • culture of innovation and action



NQF is the backbone organization that connects stakeholders and supports collaboration

Speaker



Marcia Wilson, PhD, MBA
*Senior Vice President, Quality
 Measurement*



FORUM ON ANTIBIOTIC STEWARDSHIP

JUNE 2, 2015

White House Summit Debrief: Key Takeaways

- Importance of data
- Need for measures
- Need for guidelines (core elements)
- Importance of transparency
- Need for audit feedback and decision support
- Need for IT interoperability, vendors
- Education, culture change
- Role patients, consumers, and families
- Education, culture change
- Importance of surveillance and tracking tools
- Importance of funding

NQF's Commitments to Advancing Antibiotic Stewardship

- ...work with federal agencies and private-sector stakeholders to encourage development and submission performance measures for use in quality improvement and accountability programs to improve appropriate antibiotic use
- ...expedite the process so that, if endorsed, the measures are positioned for rapid implementation in public and private programs
- ...encourage and support the use of antibiotic resistance and utilization measures through our diverse membership and ongoing measure selection activities
- ...convene a multistakeholder Action Team to activate our 425+ organizational members and promote a shared agenda aligned with the National Action Plan
- ...foster partnerships that advance antibiotic stewardship programs, education, and engagement of our members to create the “burning platform”



NQF Measure #2720—National Healthcare Safety Network (NHSN) Antimicrobial Use Measure

- This measure assesses antimicrobial use in hospitals based on medication administration data that hospitals collect electronically at the point of care and report via electronic file submissions to CDC's National Healthcare Safety Network (NHSN).
- ACTION: Comment before 6:00 pm ET September 3, 2015

Implementation of a Successful Antimicrobial Stewardship Program in a Large Health Care System

Ed Septimus, MD, FACP, FIDSA, FSHEA
Medical Director Infection Prevention and
Epidemiology
@HCAHealthcare

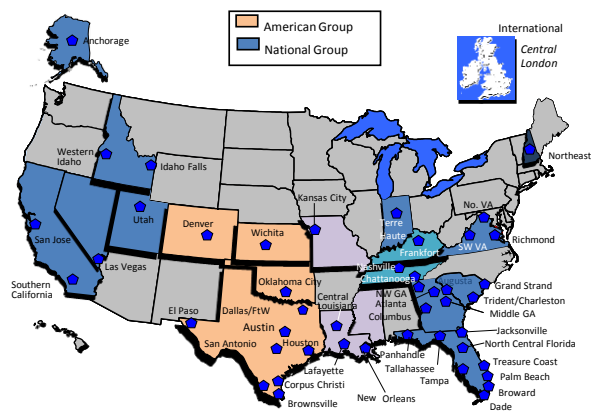


HCA Clinical Snapshot

20 million patient contacts annually

Approximately 5% of major hospital services in U.S.:

- Admissions > 1.5 million
 - Patient Days > 7.6 million
 - Deliveries > 0.25 million
 - Total Surgeries > 1.3 million
 - ED Visits > 6.9 million
- 165 Hospitals, 115 Freestanding Surgery Centers, > 550 Physician Practices in 20 states and London
 - Hospitals range from complex tertiary referral and academic medical centers to urban and suburban community medical centers
 - ~ 215,000 employees, including ~ 72,000 nurses and 30,000 allied health professionals
 - > 50,000 affiliated physicians, including > 3,300 employed physicians and practitioners
 - More than 38,000 licensed beds



Getting Started

- Establish a core planning committee
 - Subcommittee of P&T?
 - Subcommittee of Infection Control?
 - Other interested stakeholders
- Establish goals and mission statement
- Draft an idea
 - Program structure
 - Program elements
- Identify existing and needed resources

Getting started (2)

- Present ideas to pharmacy director
- Vet your ideas with CMO and/or key medical staff leadership
- Met with VP for patient safety/quality
- Establish a working budget
- Write a strategic (business plan)-work with CFO
- Meet with CEO/COO when above complete
- Present to key medical staff committees and get approval from the Executive Committee*

*Antimicrobial stewardship team should be physician directed or supervised
Infect Control Hosp Epidemiol 2012; 33:322-327

System Implementation

Team success

- ***“The Ultimate difference between a company and its competition is, in fact, the ability to execute.”***

- Larry Bossidy

One size does not fit all
Customize at local level

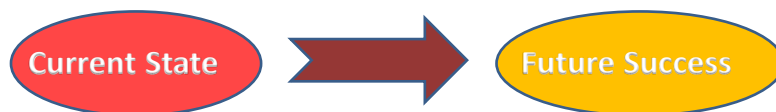
ASP Phase 1 Foundational

- MD/ PharmD Champion
- Multidisciplinary team
- Gap Assessment
- Assess staff resources
- Competency/Training Planning
- Communication Plan for facility
- CEO support for AMP by approval of gap and action plan

- Selecting Physician Champion
- Complete gap assessment and action plan as a team
- Determine staffing needs to adequately resource AMP activities
- Create competency/training plan for all disciplines based on current knowledge and involvement
- Invite CEO to AMP team meeting to discuss plan, resources, and support

Gap Analysis

- Highly recommended in the beginning
- Aids development of short-term and long-term goals
- Identifies what needs to be done to close the gap
- Ensure quantitative and qualitative results



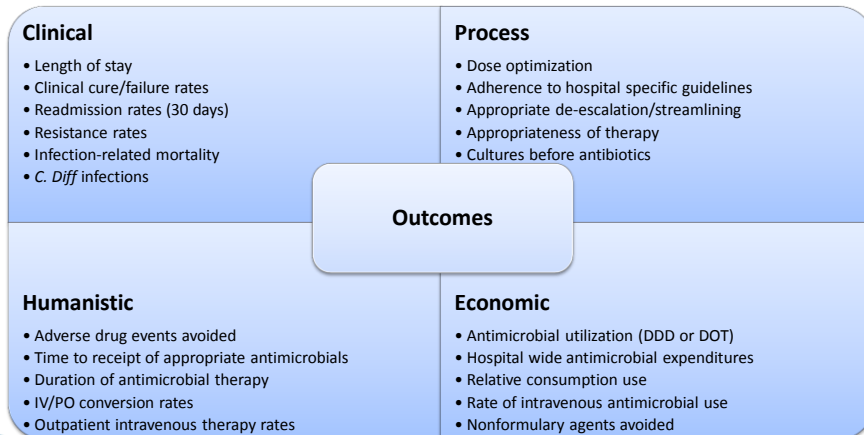
1. What is the desired goal?
2. What is the current status?
3. How do you bridge the gap?

Gap Analysis

- Executive and Medical Staff Ownership
- Information technology
- Staff development and competencies
- IV to PO conversion
- Renal dosing
- Criteria for antimicrobial use
- Formulary review
- Antibigram and culture and sensitivity reporting (CLSI)
- Empiric antimicrobial treatment guidelines
- Antimicrobial streamlining (de-escalation)
- Duration
- Utilization reviews
- Measurement

<http://www.cdc.gov/getsmart/healthcare/improve-efforts/resources/doc/AMP-GapAssessment.doc>

Measurement



ASP Phase 2

- Antimicrobial formulary review
 - Review metrics (DDD Spreadsheet)
 - Review CAP and SCIP core measure
 - Microbiology
 - CLSI susceptibility reporting
 - Review new CLSI breakpoints
 - Appropriate use of microbiology document with emphasis on obtaining appropriate cultures before starting antimicrobial therapy for new septic episodes
 - Dose optimization
 - Weight-based dosing
 - Renal dosing
 - IV to PO
- Associated with clinical and economic benefit
 - Review facility by-laws and state scope of practice for automatic interchanges
 - P&T and Med Exec approval
 - Many institutions have these activities implemented (CAP/SCIP)
 - Routine IV to PO/ Renal Dosing

ASP Phase 3

- Kinetic dosing
 - Vanc and AG
 - Prolonged infusion for piperacillin/tazobactam and carbapenems
 - Approve institutional guidelines
 - CAP, HAP, UTI and ABU, MRSA, VAP, intra-abdominal, surviving sepsis, C. difficile
 - Timely and appropriate use of antibiotics based on approved institutional guidelines and local antibiograms
 - Optimize duration based on evidence-based peer review publications
 - Evaluate use agents based on local needs (front/back-end approach)
 - Suggested drugs: daptomycin, linezolid, echinocandins, tigecycline, and carbapenems
 - Clinical pharmacy rounding with team
- Involve nursing staff early in extended infusion work
 - Meropenem and P/T prolonged infusion recommendation can be combined with formulary change to P&T
 - Evaluate ability of pharmacist to cover drug regimen reviews and rounding consistently

ASP Phase 4

• De-escalation “72 hour time-out”

- Suggestions: review charts with positive blood cultures, 3 or more antibiotics for ≥72 hours, drug-bug mismatches, or antibiotics without a positive culture, duration
- Review and/or implement rapid diagnostics, point of care testing, and biomarkers (PCT) for appropriate use
- Ongoing antibiogram development (e.g. unit specific)
- Report approved metrics to all stakeholders on a regular basis
- Clinical decision support/CPOE

- Overlap will occur with various phases.
- Expectation is for all facilities to complete elements of each phase in a timely manner.
- Advanced programs can start on other phases before the suggested timelines.
- Synergize AMP with Core Measures and Sepsis Programs

2015 Enterprise AMP Supporting Activities

Pharmacy

- Vigilanz workflow
- AMP focus
- Support CE Initiatives
- Dashboards
- CPW rules, tracking, reports etc.
- Formulary reviews
- Best practice toolkits

Infection Prevention

- Universal decolonization
- Theradoc
- HAI tracking and NHSN reporting
- Reduce device and post-operative associated infections

Laboratory

- CLSI breakpoint update
- Rapid diagnostics best practices
- Bacterial resistance tracking
- Therapeutic drug monitoring processes

Education

- AMP Series
- Clinical Pathway
- CPW/VigiLanz rule guidance

Informatics

- Antimicrobial meaningful use admin criteria
- Vaccine assessment screen updates
- Pharmacy IT roles
- CPOE Optimization
- CDS
- eMed Rec process
- Surgical Experience

Research

- Point prevalence international study
- Harvard antimicrobial stewardship
- CDC antimicrobial utilization (DOT)

Tools/Resources

- MDRO culture result workflow
- Competencies
- Healthstream AMP series
- Atlas AMP site

Leadership

- Corporate AMP team
- Clinical Leadership Forum
- Local AMP teams
- Mission statements
- Accountability

Key Elements for Successful ASP/AMP

- Establish compelling need and goals for ASP
- Senior leadership support
- Effective local physician champion
- Adequate resources and competencies (pharmacy, infection preventionist [IP], microbiology, information technology [IT])
- Primary objectives: optimize clinical outcomes and reduce adverse events, not reduce costs
- Good teamwork
- Agreed upon process and outcome measures

Successful Antimicrobial Stewardship: Identified Hurdles

David N Gilbert, MD
@ProvHealth

Providence Health and Services

- Born 160 years ago
- **34 acute care hospitals in 5 western states (Alaska, Washington, Oregon, Montana, and California)**
- Total net operating revenue, 2014: 12 billion
- **Total net income in 2014: 771 million**
- System committed to Antimicrobial Stewardship

Providence Portland Medical Center (PPMC)

- Licensed beds = 483
- Average daily census = 281
- Average LOS = 4.8 days
- Admissions = 21,351
- Infectious Diseases AMS Team :
 - 6 consultants and one teacher/researcher
 - Pharmacists
 - Infection control
 - Clinical microbiology



1. Serum Procalcitonin Levels Available Within One Hour 24/7

Procalcitonin: A biomarker of activation of the innate immune system

- Serum procalcitonin levels do not increase, or increase minimally, in response to either viral colonization or viral invasive disease
- **Potential bacterial pathogens that are present but not invading do not stimulate synthesis of Procalcitonin**
- Bacterial pathogens causing pneumonia stimulate an increase in serum procalcitonin levels
- **PCT levels increase if viral infection with bacterial superinfection**
- Hence, a “normal” serum level of procalcitonin has a very high negative predictive value for invasive bacterial infection but does not distinguish viral colonization from viral invasion.

PCT Can Assist AMS

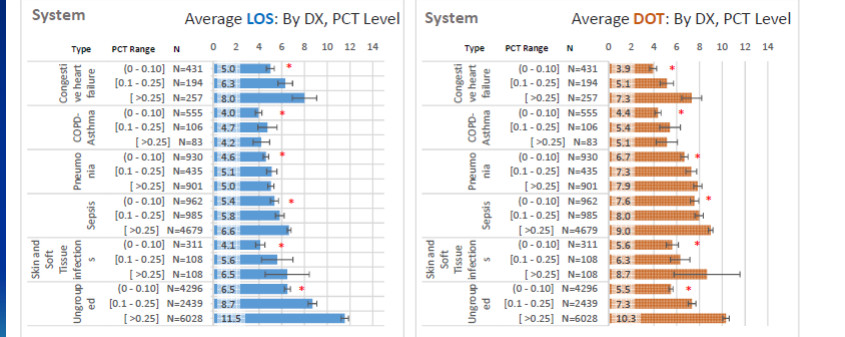
- Differentiate viral from bacterial infection, especially for RTIs
- **Provide evidence of efficacy of selected antimicrobial regimen (“source control”)**
- Provide guide to the duration of antimicrobial therapy

2008: Launched Procalcitonin at PPMC

- PCT and AMS:
 - Separation of pure viral infection from bacterial infection
 - **Data indicating the that duration of antibiotic therapy be determined by time to normalizaion of PCT level**
 - In 2014, 18,000 PCT levels in 4 Portland hospitals
 - **2015, using EMR, system evaluated influence of PCT levels on Days of Antibiotic Therapy**

PCT Levels Correlate with LOS/DOT

Relationship Between PCT Levels and LOS, DOT - Encounters w ≥ 1 DOT & PCT value, *Big 6 PLUS*, 2014



BIG 6 +: Ceftriax., Dapto, Dori, Erta, Imi, Mero, Linezolid, Vanco, Pip/tazo

8/13/2015

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2. Rapid Identification of the Etiology of Community-Acquired Pneumonia Reduces the Empiric Use of Antibiotics

**THE CLINICAL IMPACT OF THE DETECTION OF POTENTIAL
ETIOLOGIC PATHOGENS OF COMMUNITY-ACQUIRED PNEUMONIA**

In press: Diagnostic Microbiology and Infectious Diseases

Gita Gelfer, D.O., James Leggett, M.D., J. Myers, L. Wang, and David N. Gilbert, M.D.

Providence Portland Medical Center

Portland, Oregon

Our study was designed to address three questions. First, can expansion of the traditional diagnostic test bundle substantively increase the detection of potential etiologic organisms? Second, can molecular diagnostics provide clinicians with actionable data in hours rather than days? Lastly, will providers respond to rapid diagnostic data with adjustments of empiric antibiotic treatment regimens?

Microbial Etiology of CAP in 59 Evaluable Patients

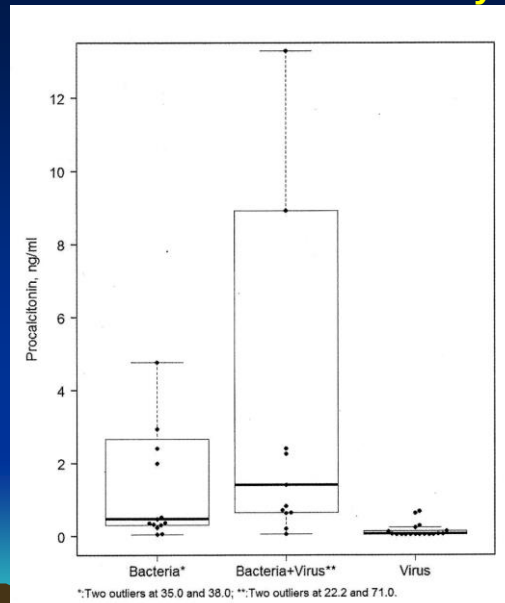
	Detection of Potential Pathogen(s)
Sputum and blood cultures; Urine antigens (<i>S.pneu.</i> ; <i>Legionella pneu.</i>)	16 of 59 (27%)
As above plus nasal swab PCR for <i>S.pneumoniae</i> and <i>S.aureus</i>	33 of 59 (56%)
All of above plus multiplex PCR panels for respiratory viruses plus PCT level	46 of 59 (78 %)

Turn Around Times by Test Type

Test	TATs
Serum Procalcitonin	1 hr
Film Array multiplex PCR panel for 17 viruses	1.8 +/- 0.3 hrs
Urine antigens	5- 7 hrs
Nasal PCRs: <i>S.aureus</i> and <i>S. pneumo.</i>	12-30 hrs
Nasal PCR: LDT* for 5 viruses	12-36 hrs
Sputum Culture	2-3 days
Blood culture	Up to 5 days

*LDT = Lab Developed Test

Initial Serum Procalcitonin Levels by Microbial Etiology



RESPONSE of Providers

Etiology of Pneumonia (No. of Patients)	Days of Antibiotic Therapy per 1000 Patient Days
Bacterial (15)	1484 +/- 252*
Bacterial + Viral (13)	1661 +/-387*
Viral (18)###	1188 +/- 641 **

+ vs ++: $p = 0.003$

###:Antibiotics discontinued in only 4 of 18 within 48 hrs of MD receipt of test results showing virus detection by PCR and low serum PCT

**3. Embed ID Specialist as
Part of Multidisciplinary
Patient Care Rounds in the
Intensive Care Unit**

Critical Care Research and Practice
Volume 2014 (2014), Article ID 307817, 4 pages
<http://dx.doi.org/10.1155/2014/307817>

Research Article

Table 1: Influence of the presence and absence of an infectious diseases specialist (IDS) on antibiotic use decisions by the ICU Multidisciplinary Team at Providence Portland Medical Center.

	In the presence of IDS	In the absence of IDS
Number of rounding sessions	61	51
Total number of patients receiving antimicrobials pre-rounds	384	352
Total days of therapy (DOT)		
Prerounds	669	593
Postrounds	511	572
Difference	-158	-21
Decrease DOT/patient	-0.41*	-0.06*
Total cost of antimicrobial regimen, \$		
Prerounds	17,521	15,153
Postrounds	13,749	14,426
Difference	-3,772	-727
Decrease cost/patient	-9.82*	-2.10*
Number of multidisciplinary rounds where DOT		
Increased	0	14
Did not change	15	14
Decreased	46*	23*

* $P = 0.001$.

PPMC AMS Success: Pneumonia, Sepsis, and SSTIs

Days of antibiotic therapy per 1000 patient days							
	2013	2014 target	1 st Q	2 nd Q	3 rd Q	4 th Q	1 st Q 2015
Total PHS System	781	NA	858	873	927	865	794
PPMC	780	708	598	572	577	599	483
Pneu.	282	254	168****	192	141	186	102****
Seps.	362	326	353	272	309	254	269
SSTI	136	129	77	108	126	159	111

**** CAP Diagnostic Study in Progress

Physician Education

- The dynamic duo: identification of the pathogen and serum PCT levels
- **How to help MDs use the information in a correct and timely fashion ?**
 - Need faster communication
 - Require physicians to indicate a diagnosis for each antibiotic order; 48 hr. re-assessment
 - Embed ID MD in ICU rounds

How To Be More Successful ?

- CMS et al: Provide reimbursement for expense of molecular diagnostics that favorably impact antimicrobial stewardship
- **Rapid diagnostics requires rapid help in interpretation via direct communication with the patient's physician provider**
- In short, achievement of full potential of emerging biomarkers and pathogen detection will require TIME, PEOPLE, AND MONEY



Kerry L. Thalmann Mount Hood - Alpenglow and Lenticular Clouds





Shari M. Ling, MD
Deputy Chief Medical Officer
Centers for Medicare and Medicaid Services (CMS)

Diane Corning, RN, JD
Health Insurance Specialist
Clinical Standards Group (CSG)
Center for Clinical Standards and Quality (CCSQ)
CMS

@CMSgov

Promoting Antibiotic Stewardship

Lynn Stillman
Program Manager
Hospital Quality Recognition
@AnthemInc

August 13, 2015

Anthem

Targeting Appropriate Antibiotic Use

Antibiotic Use for Acute RTI

Working with AAP and AFP to evaluate antibiotic use by site and specialty and determine appropriate antibiotic use rates

CDC SHEPherD Contract

Collaboration with Washington University SOM and HealthCore to conduct studies focused on prevention of infections

Patient Safety First

Statewide initiative with California hospitals to develop interventions to promote patient safety and reduce costs

Winner of John M. Eisenberg Patient Safety & Quality Award

Quality-In-Sights® Hospital Incentive Program (Q-HIP®)

National hospital quality and value-based payment initiative

Winner of John M. Eisenberg Patient Safety & Quality Award

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Patient Safety First

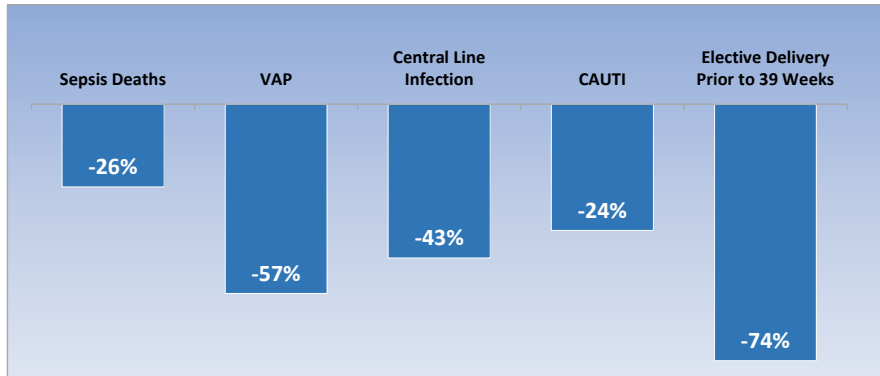
A collaboration with hospitals across California to tackle patient safety in the areas of sepsis mortality, hospital acquired infections, perinatal care and surgical care.

- Long time focus on HAIs, including VAP, CLABSI, CAUTI and *C. diff*
- Antibiotic Stewardship included in the curriculum for all HAI focus areas
- Supports peer to peer discussions regarding Antibiotic Stewardship programs
- Sharing of guidelines and informing hospitals when and how guidelines are changing

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Patient Safety First Results

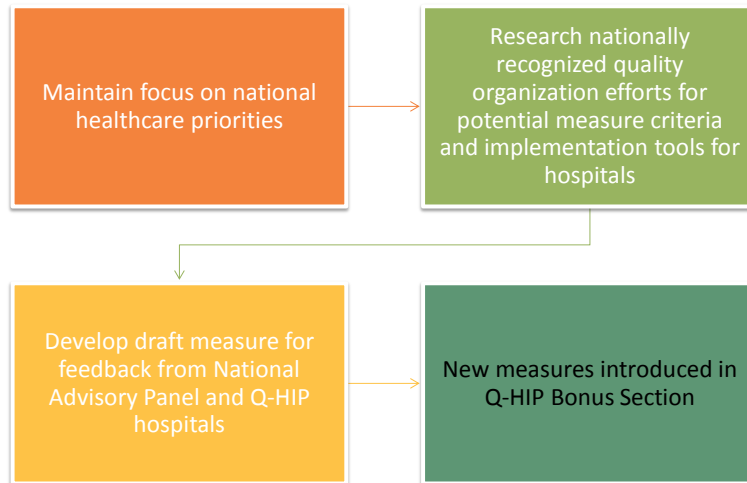


Q-HIP® Hospital Value-Based Payment Program

Rewards hospitals for meeting quality, patient safety, outcomes, and patient satisfaction measures

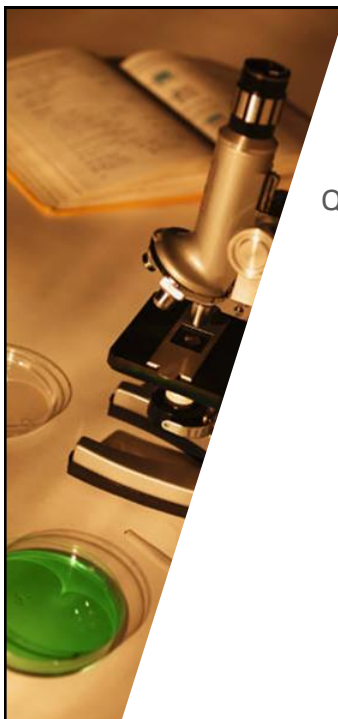
Patient Safety	Health Outcomes
- CMS Meaningful Use - IHI - Surgical Safety and Med Rec - NQF Safe Practice 15 (Discharge Systems) - NQF, AHRQ and ACEP ED Measures - IHI Post Hospital Care Follow Up - NQF Perinatal Care - CDC CRE Toolkit	- JC Stroke (STK) - JC Influenza Immunization - CMS/JC Perinatal - NHSN Measures - CMS Readmission Measures - ACC-NCDR PCI Measures - STS CABG Measures
Patient Satisfaction	Bonus
H-CAHPS Survey Results	- JC Perinatal Measure Set - IHI Patient Teach Back - Registry/Patient Safety Collaboration - AHRQ Patient Safety Culture Survey - ACP Care Coordination Agreement

Q-HIP Measure Selection Process



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History of the Q-HIP Antibiotic Stewardship Measure

Q-HIP has mirrored the national focus on HAIs

- Increased number of HAI related measures and affiliated point values
- Introduced metric to reward hospitals for implementing the core measures described in the CDC CRE Toolkit
- With the publication of the CDC *Core Elements of Hospital Antibiotic Stewardship Programs* guide, developed a measure focused on implementation of a comprehensive Antibiotic Stewardship program in participating facilities
- Intended rollout in 2016

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Antibiotic Stewardship Program Measure

New Metric: We are proposing the addition of a measure based on the CDC's new *Core Elements of Hospital Antibiotic Stewardship Programs*. The measure would adopt the following structure:

- **Description:** Hospital has implemented the Core Elements described in the *CDC Core Elements of Hospital Antibiotic Stewardship Programs guide*
- **Compliance Criteria:** To answer "Yes", the program must incorporate:
 - Leadership Commitment: The hospital has designated a leader (e.g., physician, pharmacist, etc.) responsible for program outcomes of antibiotic stewardship activities at the hospital
 - Accountability: There is a single leader responsible for program outcomes
 - Drug Expertise: There is a single pharmacist leader responsible for working to improve antibiotic use
 - Action: At least one recommended action has been implemented, such as systemic evaluation of ongoing treatment need after a set period of initial treatment (i.e. "antibiotic time out" after 48 hours)
 - Tracking: Antibiotic prescribing and resistance patterns are monitored
 - Reporting: Regular reporting information on antibiotic use and resistance is provided to doctors, nurses and relevant staff
 - Education: Education of clinicians about resistance and optimal prescribing is ongoing
- **Compliance Example:**
 - Written policies and procedures showing that an Antibiotic Stewardship program *is in place during the Measurement Year* to ensure optimal antibiotic prescribing and limit overuse and misuse of antibiotics. The program includes all the Core Elements from the *CDC Core Elements of Hospital Antibiotic Stewardship Programs guide*.

<http://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html>

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Moderator: Ed Septimus



Please type into the chat box anytime or
call 844-734-8223 (no passcode)

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National Quality Partners Antibiotic Stewardship Action Team

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SHEA
The Society for Healthcare
Epidemiology of America

AAAAI American Academy of
Allergy Asthma & Immunology

VHA



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Getting Engaged

To continue the dialog after today, please join the NQP Antibiotic Stewardship Group on [LinkedIn](#) and contribute your resources

Visit CDC for [Vital Signs](#) web page for additional resources to stop spread of antibiotic resistance



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