Houston Antimicrobial Stewardship Symposium

Acute Care
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Overview

- Why antimicrobial stewardship is needed
- Guidelines for implementing ASPs in hospitals
- Survey results: State of ASPs in US hospitals
- Barriers to implementing ASPs
- HCA® enterprise wide launch of AMP
  - Experience in Gulf Coast Division

Why ASPs Are Needed

- Antibiotics are commonly misused
- Misuse of antibiotics is associated with negative consequences
- Antimicrobial stewardship programs aim to improve antibiotic use
- Plenty of resources on implementing ASP
- Many barriers still exist

ASP Implementation

Multidisciplinary antimicrobial stewardship team	
Core Strategies	**Supplemental**
• Prospective audit with interventions and feedback • Formulary restriction and preauthorization	• Education • Guidelines and clinical pathways • Antimicrobial order Forms • Streamlining (de-escalation) • Dose optimization • IV to PO conversion

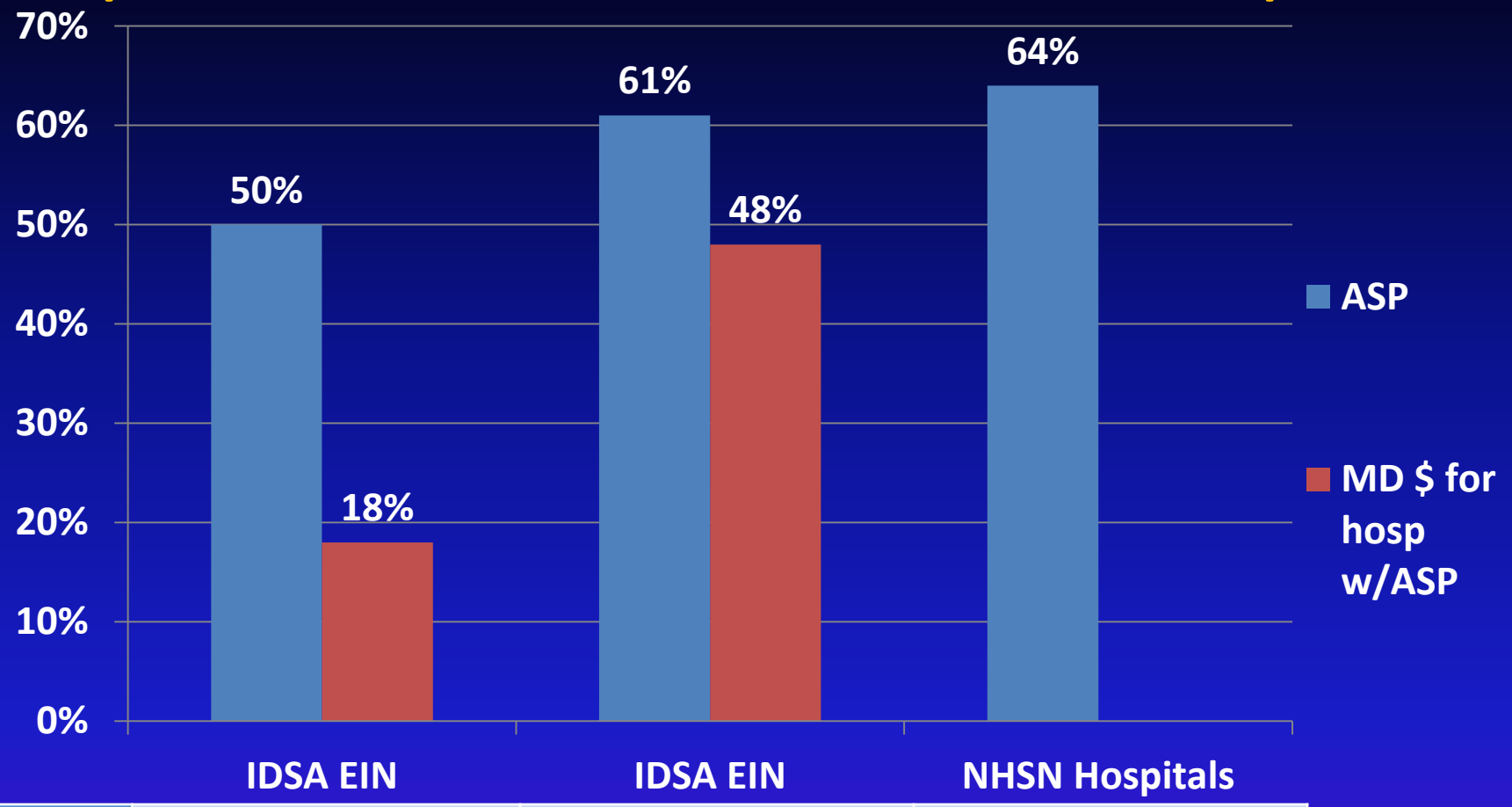
Dellit TH, et. al. Clin Infect Dis. 2007;44:159-177

CDC Core Elements of Hospital ASP

Element	Role/Action
Leadership commitment	Dedicating necessary resources
Accountability	Physician leader
Drug expertise	Pharmacist leader
Action	Implement at least one recommended action
Tracking	Monitoring prescribing and resistance
Reporting	Regular reporting
Education	Educate clinicians about resistance and optimal prescribing

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

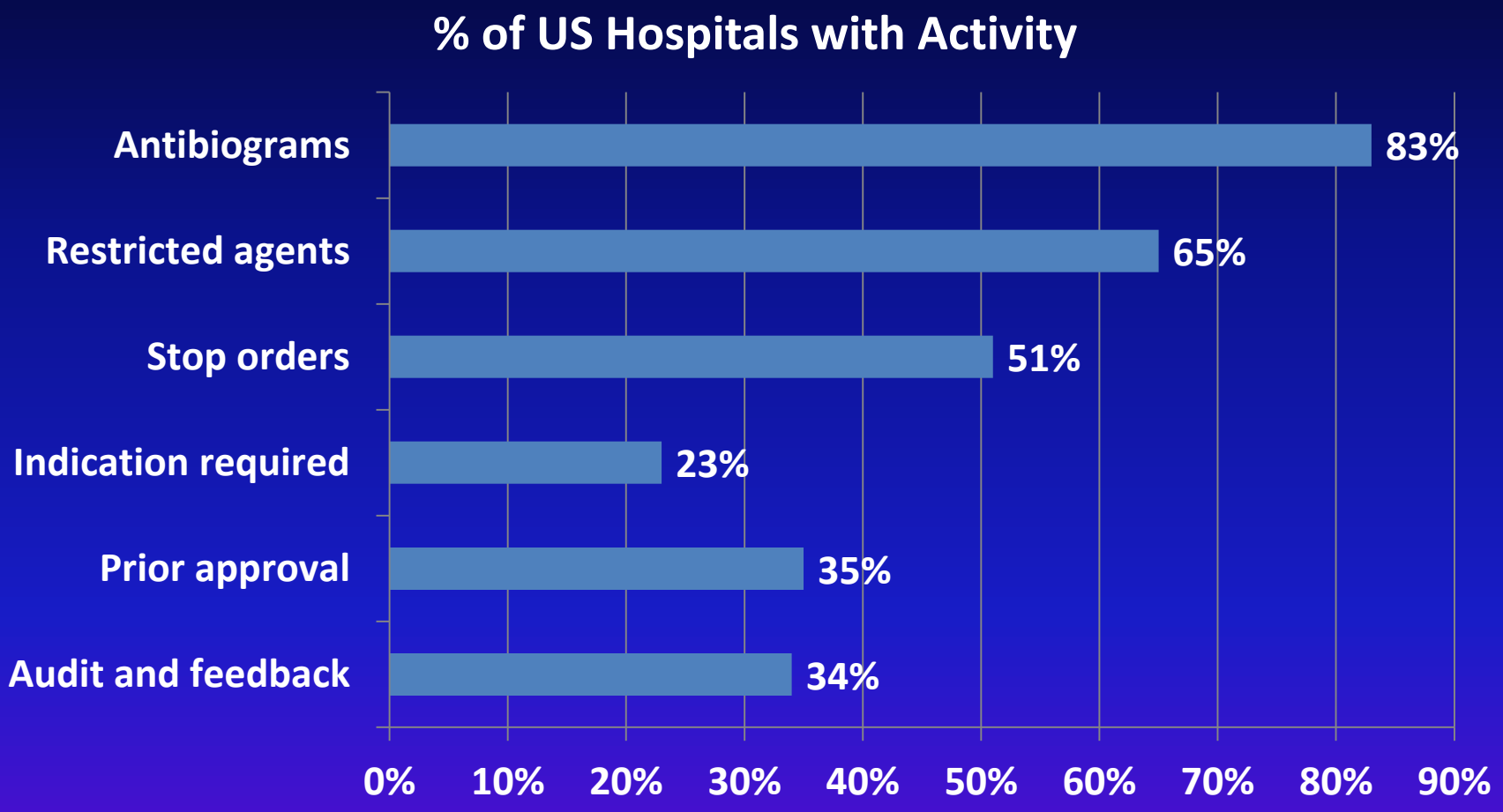
Implementation of ASP in US Hospitals



Time	March 1999	September 2009	Fall 2011
Responses	502 (73%)	522 (50%)	1,015 (30%)

Clin Infect Dis. 2004;38:934-8
Infect Control Hosp Epidemiol. 2011;32:367-374
Infect Control Hosp Epidemiol. 2014;00:1-4

Implementation of ASP in US Hospitals



Adapted from Infect Control Hosp Epidemiol. 2014;00:1-4

Implementation of ASP in US Hospitals

Characteristics	Yes (N = 652) N (%)	No (N = 363) N (%)	*P*
Beds (n = 984)			
≤ 200	296 (47)	241 (69)	<0.001
201-500	260 (41)	86 (25)	
> 500	79 (12)	22 (6)	
Setting (n = 1,009)			
Urban	202 (31)	61 (17)	<0.001
Suburban	234 (36)	100 (28)	
Rural	213 (33)	199 (55)	
Teaching status (n = 725)			
Yes	204 (44)	64 (25)	<0.001
No	262 (56)	195 (75)	
Shares/pools IP resources (n = 1,002)			
Yes	207 (32)	88 (24)	0.009
No	435 (68)	272 (76)	
Full time MD Epidemiologist (n = 934)			
Yes	198 (33)	78 (23)	0.001
No	395 (67)	263 (77)	

Adapted from Infect Control Hosp Epidemiol. 2014;00:1-4

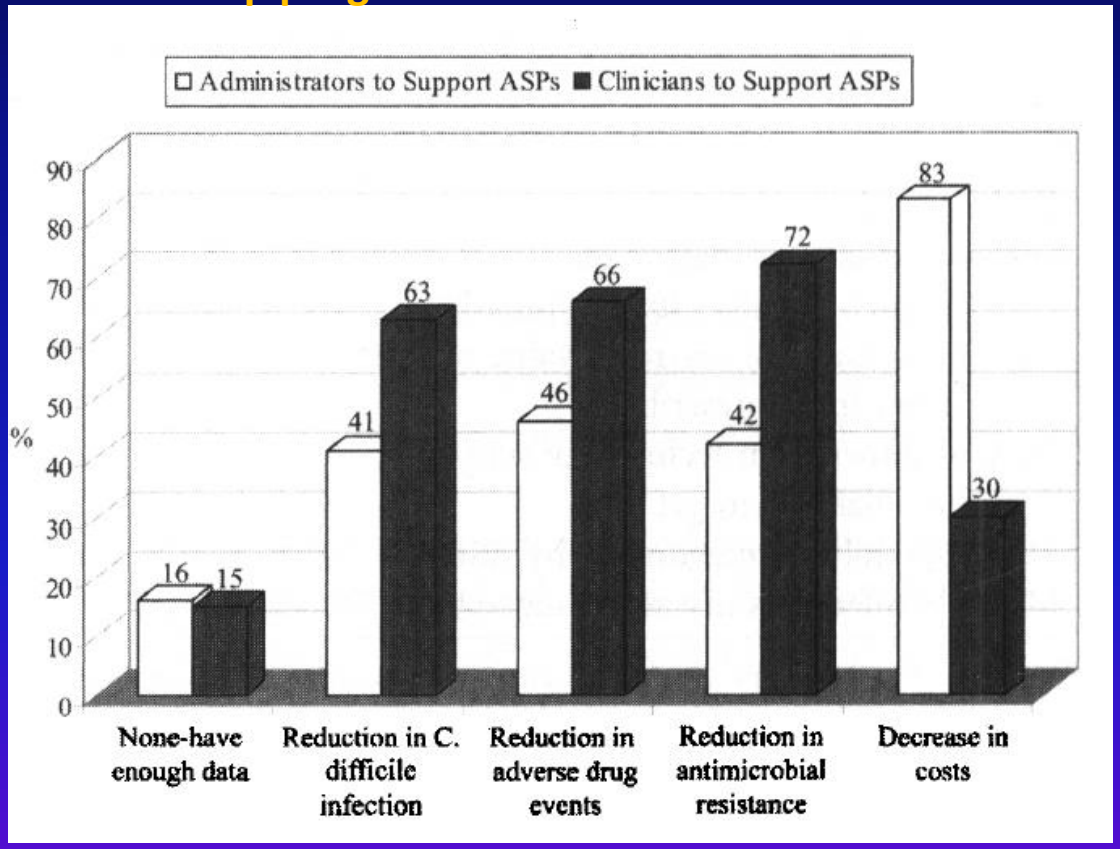
Barriers

- Lack of resources
  - Administrators want to see a return on investment
  - Physician and pharmacist availability
  - MD willingness to participate
    - Lack of time
    - Lack of compensation
    - Fear of antagonizing colleagues
  - Others members of ASP team
    - Infection control practitioners and microbiologist less frequently included (33%)as core members
  - Funding
  - IT resources

Infect Control Hosp Epidemiol 2011;32:367-374

Opposing Priorities

Data that would be most useful in convincing clinicians and administrators to support antimicrobial stewardship programs



Criteria for review by ASP

Criteria	N, (%)
High cost	215 (87)
Potential for misuse	166 (67)
Broad spectrum	141 (57)
High-use agents	128 (52)

Infect Control Hosp Epidemiol 2011;32:367-374

Barriers

- Clinical/Knowledge Base
  - Consistency between stewardship and ID recommendations
  - Lack of appreciation for development of drug resistance
- Diagnostics
  - Cultures are not always helpful
  - Perception that there are greater risks in using targeted therapy
  - Need more sensitive and specific tests

Barriers

- Fragmented healthcare system
  - Influx of patients from other healthcare settings
  - Medical information does not follow the patient
- Culture
  - Antimicrobial stewardship is not a priority
  - Perceived loss of prescriber autonomy
  - Opposition to change from administrators and/or prescribers

Barriers for Community Hospitals

- Less support than university hospitals
- Less likely to report that any type of outcomes data would help convince administrators
- Less likely to pay pharmacists and physicians
- Community hospitals more likely to use audit and feedback
- Most studies of ASPs have been conducted at larger academic centers

Infect Control Hosp Epidemiol 2011;32:367-374

Resources at Community Hospitals

Table 2. HealthTrust Purchasing Group Survey Results: Current Antimicrobial Stewardship Program Use and Resources

Resources	Respondents (%)
Infection control committee	80.0
Microbiology laboratory	78.3
Hospitalists	73.4
ID specialist	58.8
Clinical pharmacy program	55.0
Pharmacy clinical coordinator	44.1
Intensivists	39.0
Antimicrobial subcommittee	15.4
ID pharmacist	7.0
Other	5.7
Point person for program	
Pharmacist	64.0
Physician	5.2
Nurse	1.7
Other	0.4
None identified	28.3
Antibiogram	92.7
Unit breakout	12.1
Antimicrobial restriction program (at least 1 agent)	60.0
Intravenous to oral program	72.0
Dose–optimization program	55.7

Clin Infect Dis. 2011;53(S1):S8-S14

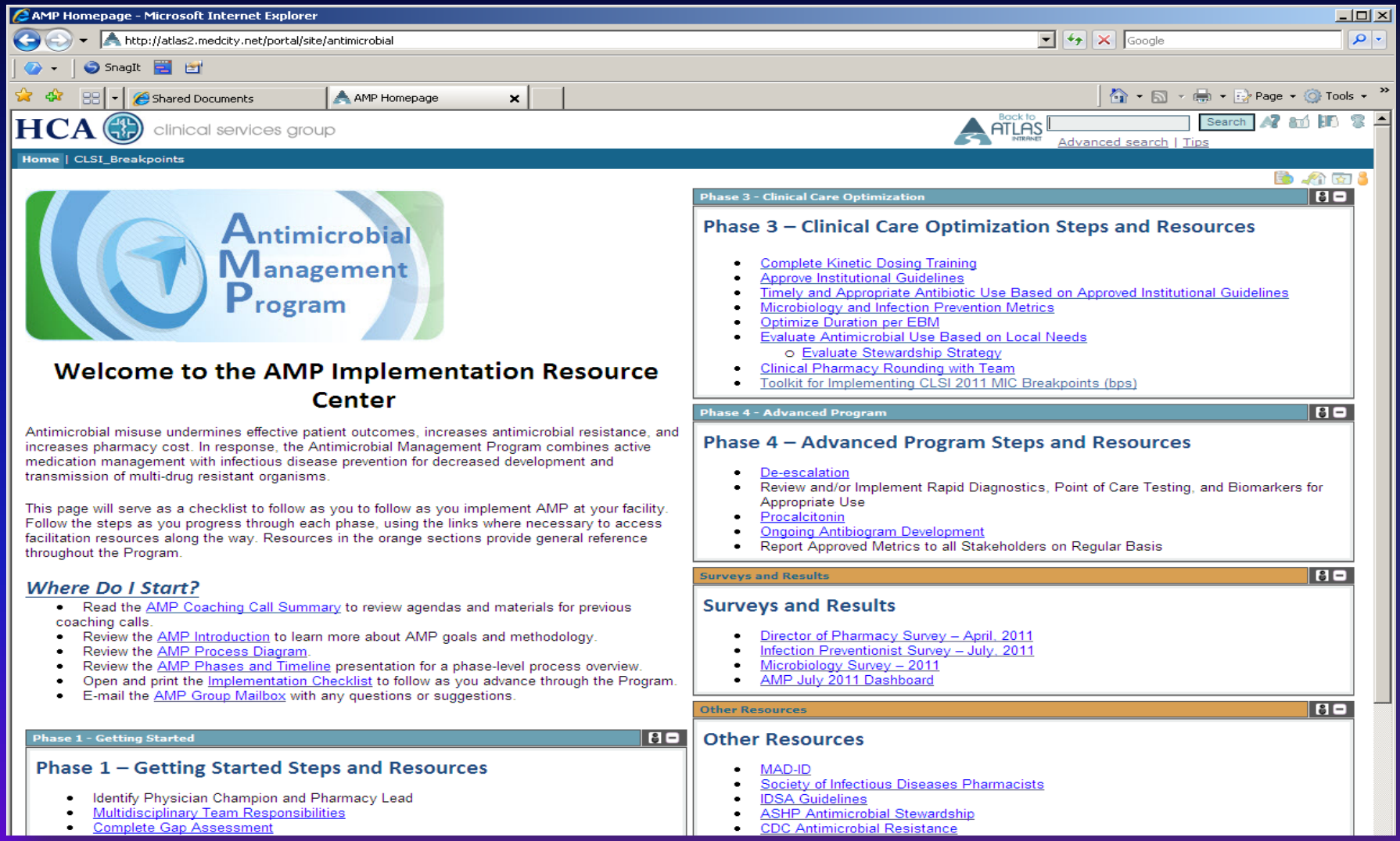
Company Background

- Hospital Corporation of America® (HCA®)
  - 165 hospitals in 20 states and England
  - 200K employees
  - 14 Divisions within the States
  - Partners with Parallon® for shared services
  - Gulf Coast Division
    - 3 markets
      - Houston, Corpus Christi, Rio Grande Valley
    - 10 acute care hospitals
    - 2 specialty hospitals

AMP Implementation Phases

Phase 1 Getting Started Complete Q2 2011	Phase 2 Foundational Work Complete: Q3 2011	Phase 3 Clinical Care Competencies Complete: Q4 2011	Phase 4 Advancing the Program Complete: Q1 2012
• MD/ PharmD Champion • Pharmacist lead • Multidisciplinary team • Gap Assessment • Assess staff resources • Complete Action Plan • Sample AMP policy • Competency/Training Planning • Communication Plan for facility • CEO support for AMP by approval of gap and action plan	• Antimicrobial formulary review • Review metrics (DDD Spreadsheet) • Review CAP and SCIP core measure • Dose optimization – Weight-based dosing – Renal dosing – IV to PO	• Kinetic dosing • Approve institutional guidelines • Microbiology • Appropriate use of antibiotics based on approved institutional guidelines – Optimize duration based on EBM – Evaluate use based on local needs (front/back-end approach) • Clinical pharmacy rounding with team	• De-escalation – Suggestions: review charts with positive blood cultures, 3 or more antibiotics for ≥72 hours, drug-bug mismatches, or antibiotics without a positive culture • Rapid diagnostics • Procalcitonin • Ongoing antibiogram development (e.g. unit specific) • Report approved metrics to all stakeholders on a regular basis

Enterprise Resource Center



AMP in Gulf Coast Division: 2012-present

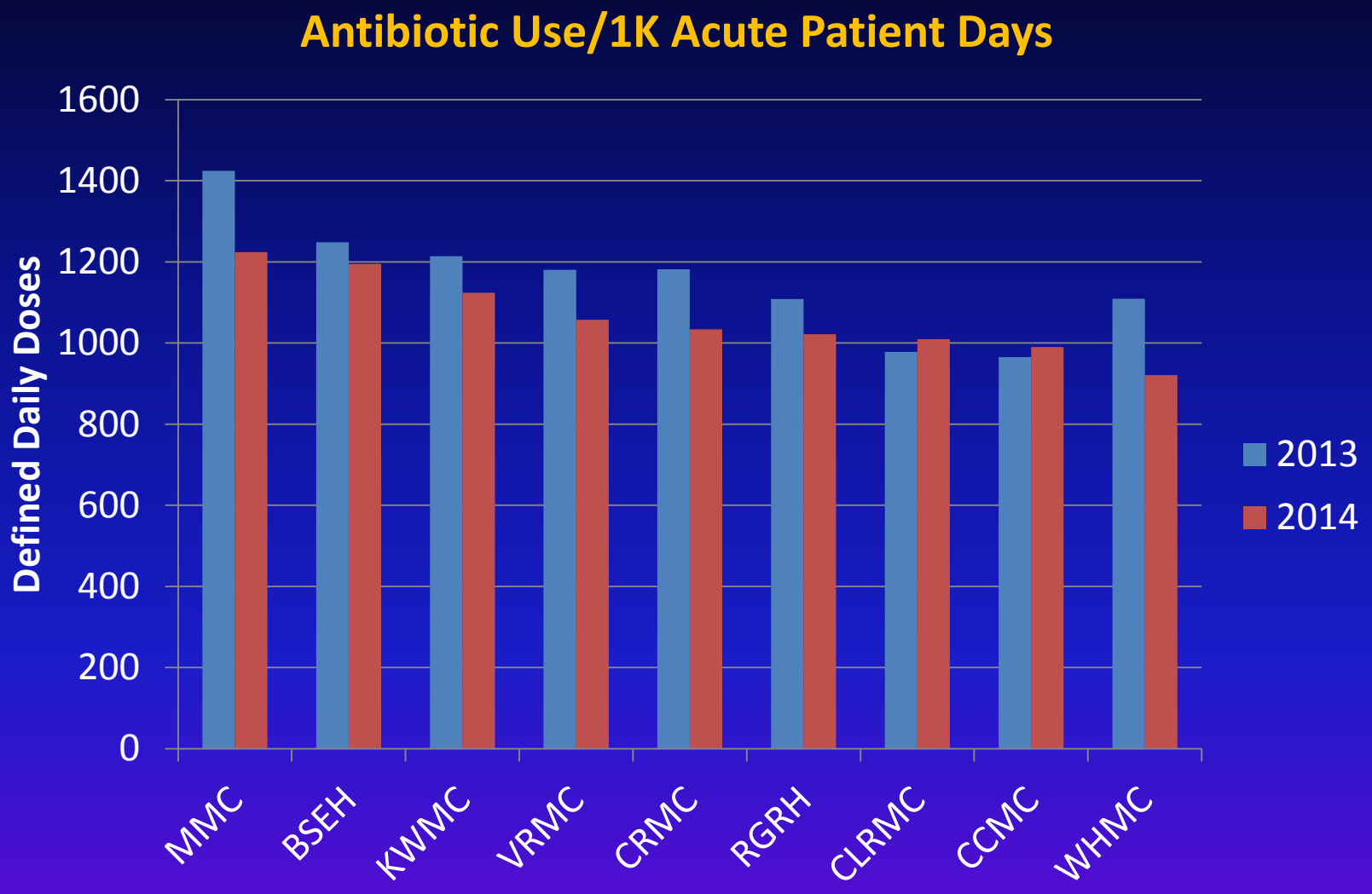
Challenges

- Culture/Awareness
  - Administrators
  - Medical staff
- Personnel
  - Pharmacist time
  - RX expertise in ID
  - AMP MD
- Operational
  - AMP committees lacking
  - Core strategies lacking
  - PD dosing lacking
  - Guidelines lacking

Strategies

- Presentations to C-suites
- Presentations to Medical Staff
- Remote AMP reviews
- Education/training
- Moved pharmacist to the floors
- New job descriptions and expectations
- Recruited new pharmacists
- ID MD in consultant roles
- Utilized non-ID MD as proponents
- Antibiograms & resistance trends
- Formulary reviews
- Division support to implement PD dosing and treatment guidelines
- Antibiotic use monitoring at all sites
- AMP report at P&T and other committees
- Review and feedback on select drugs

GCD Antibiotic Use 2013 vs 2014



AMP: The Road Ahead at HCA®

- Alignment with company goals and national PCAST direction
  - Regular updates to leadership
- Enterprise multidisciplinary continuing education
- Real time clinical surveillance
  - Patient-centric/clinical metrics
- Rapid diagnostics
- Data sharing and benchmarking
  - CDC NHSN AUR
  - Point prevalence study

Conclusion

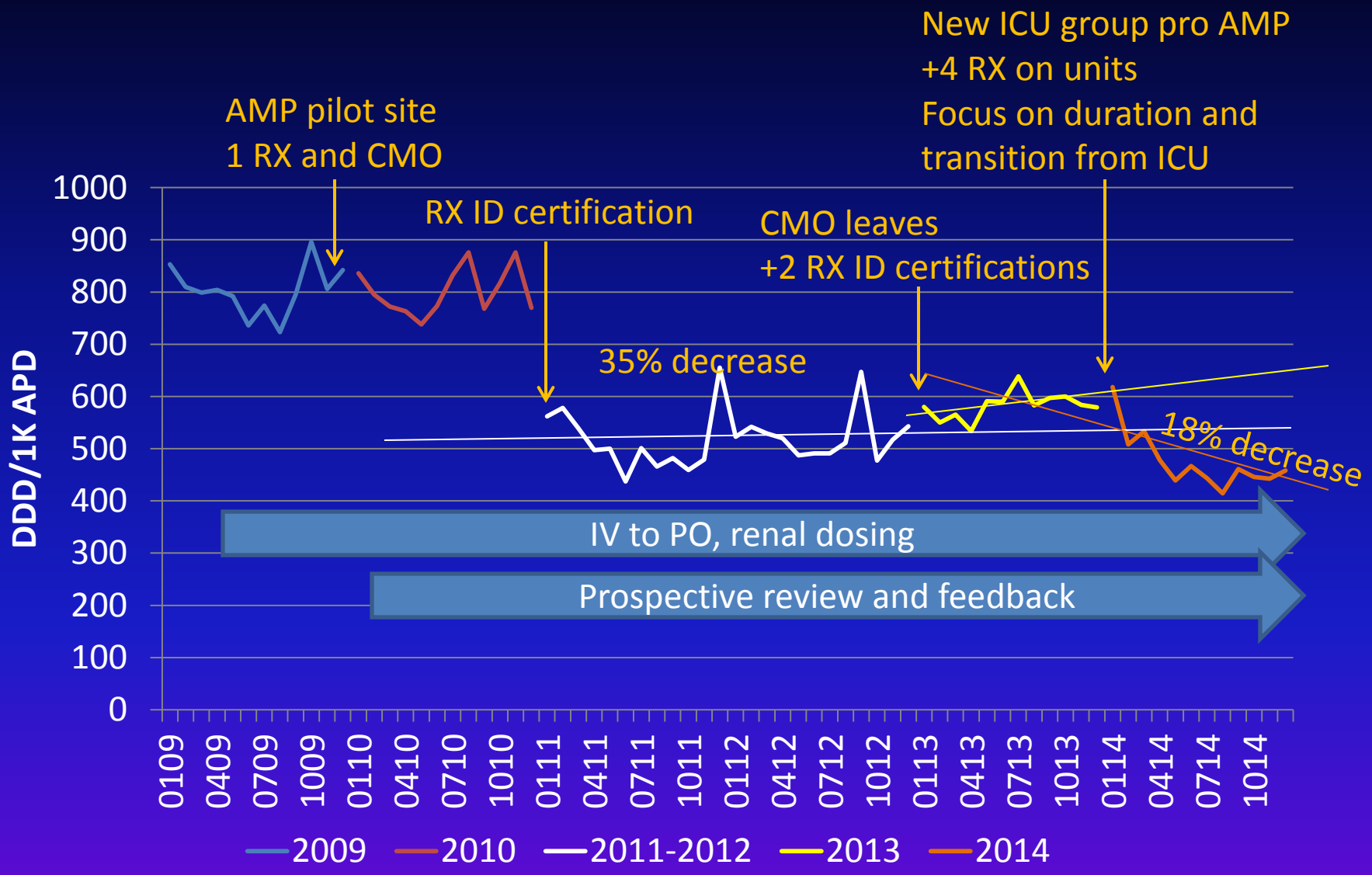
- Antimicrobial stewardship is imperative
- Guidance on implementation is available
- Resources are often lacking and many barriers exists
- Have to find ways to improve antibiotic use with the resources we have
- City wide antimicrobial stewardship initiative can help breakdown barriers

Gulf Coast Division Successes

West Houston Medical Center

- Full service community hospital, in 2014:
  - ER visits
    - 48,686 (133/day)
  - Admissions
    - 12,866 (35/day)
  - Surgeries
    - 8,484 (23/day)
  - Daily census
    - 190
- Medical Staff
  - Hospitalist program
  - Private practitioners
- Barriers to ASP
  - 1 clinical pharmacist
  - No PG or ID training
- Positives
  - CMO is ID MD
    - Upon initiation of AMP
  - Chosen as pilot site for corporate ASP initiative
  - Strong P&T
  - Strong micro lab
  - Strong infection control

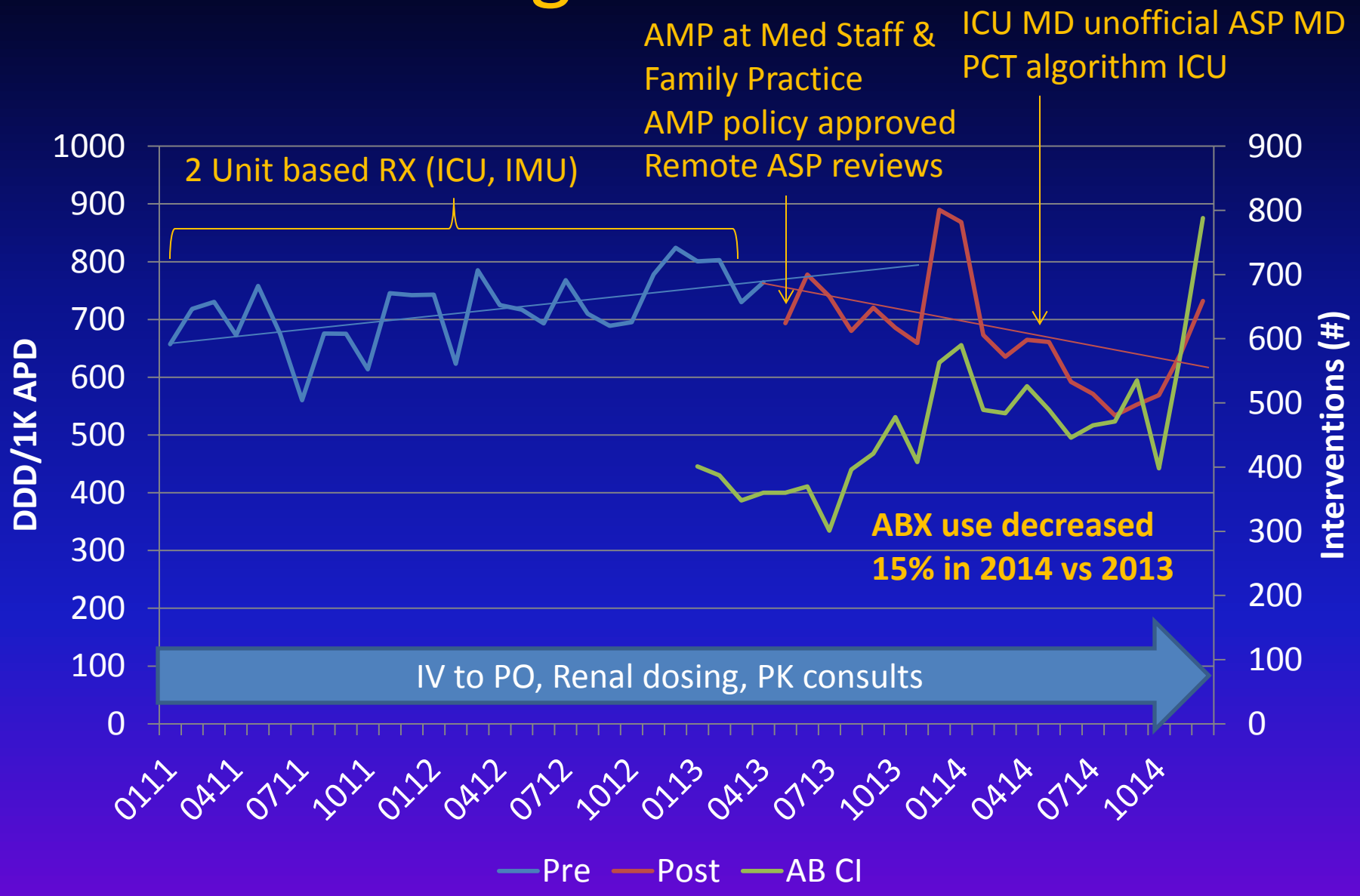
West Houston Medical Center



Conroe Regional Medical Center

- Full service hospital & regional tertiary referral center (level III trauma), in 2014
  - ER visits
    - 53,854 (148/day)
  - Admissions
    - 15,335 (42/day)
  - Surgeries
    - 8,674 (24/day)
  - Daily census
    - 213
- Medical Staff
  - Community teaching
    - Residency program
  - Hospitalist program
  - Private MD
- Barriers
  - No ID RX
  - 1 PGY1 trained RX
  - Several ID MD's but no ASP MD
- Positives
  - Engaged P&T chair (head of residency program)
  - Engaged senior intensivist
  - Strong infection control and micro

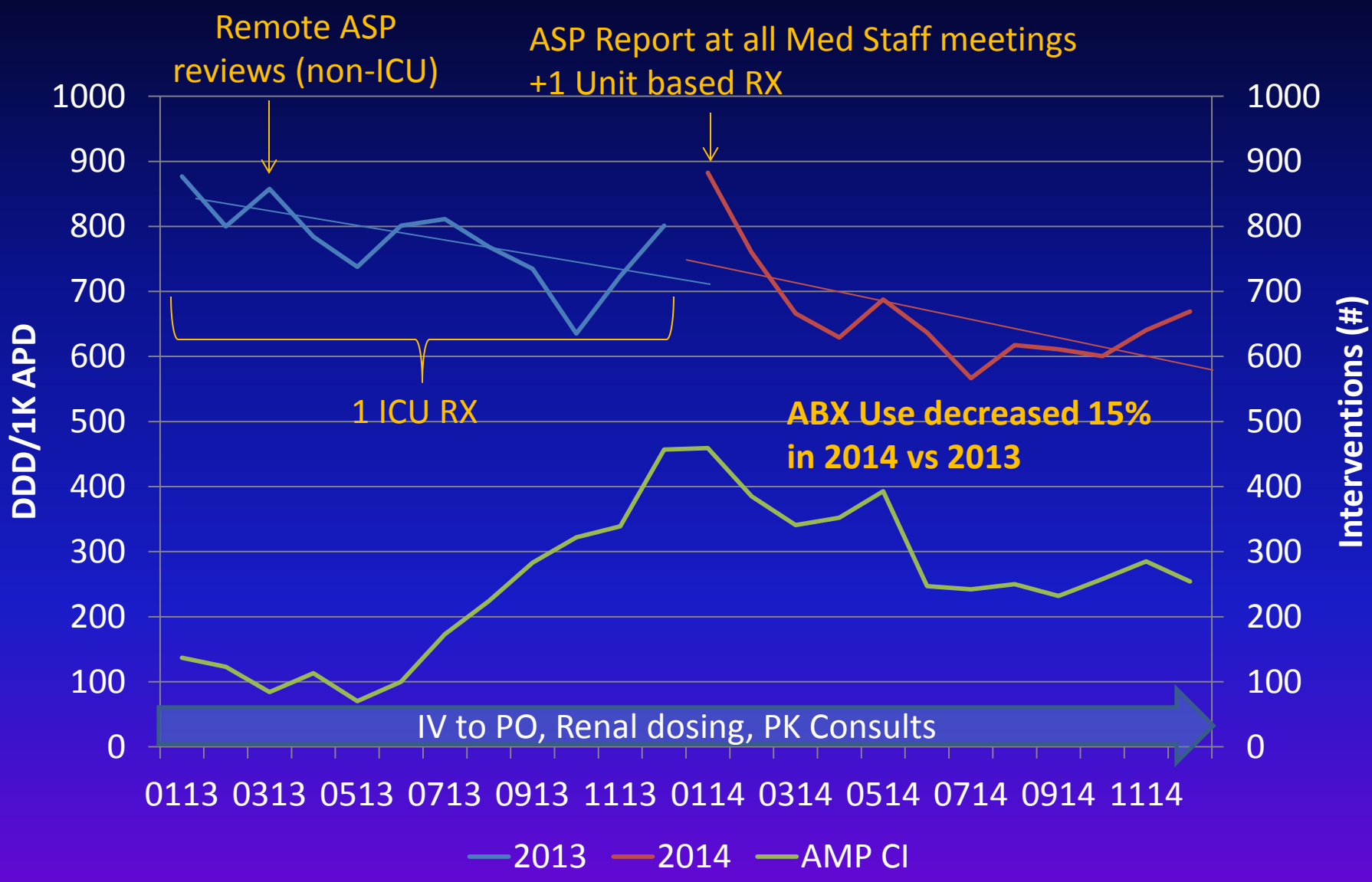
Conroe Regional Med Center



Rio Grande Regional Hospital

- Full service hospital & level III trauma center, in 2014
  - ER visits
    - 56,084 (154/day)
  - Admissions
    - 14,323 (39/day)
  - Surgeries
    - 12,180 (33/day)
  - Daily Census
    - 168
- Medical staff
  - Hospitalist program
  - Private practitioners
- Barriers
  - No ID trained RX
  - 1 PGY1 trained RX
  - Difficult to recruit region
  - Competing ID MD groups
  - No paid ASP ID MD
  - Proximity to border with Mexico
    - Over the counter access to antibiotics
- Positives
  - P&T chair is ID MD

Rio Grande Regional Hospital



Rio Grande Regional Hospital