

Antibiotic Stewardship: A National Call to Action

Deborah A Pasko, Pharm.D, MHA

THA

November 17, 2016



Disclaimers

- No financial conflicts
- Will not be discussing specific antibiotics and use
- Antimicrobial stewardship program = ASP
- Not an employee of The Joint Commission

About ASHP

- ASHP is the national professional organization whose more than 43,000 members include pharmacists, student pharmacists, and pharmacy technicians who serve as patient care providers on healthcare teams in acute and ambulatory settings
- Advocacy, career services, continuing education, drug information, meetings and conferences, professional policies and practice standards, publishing, residency and technician training accreditation

Did You Know.....

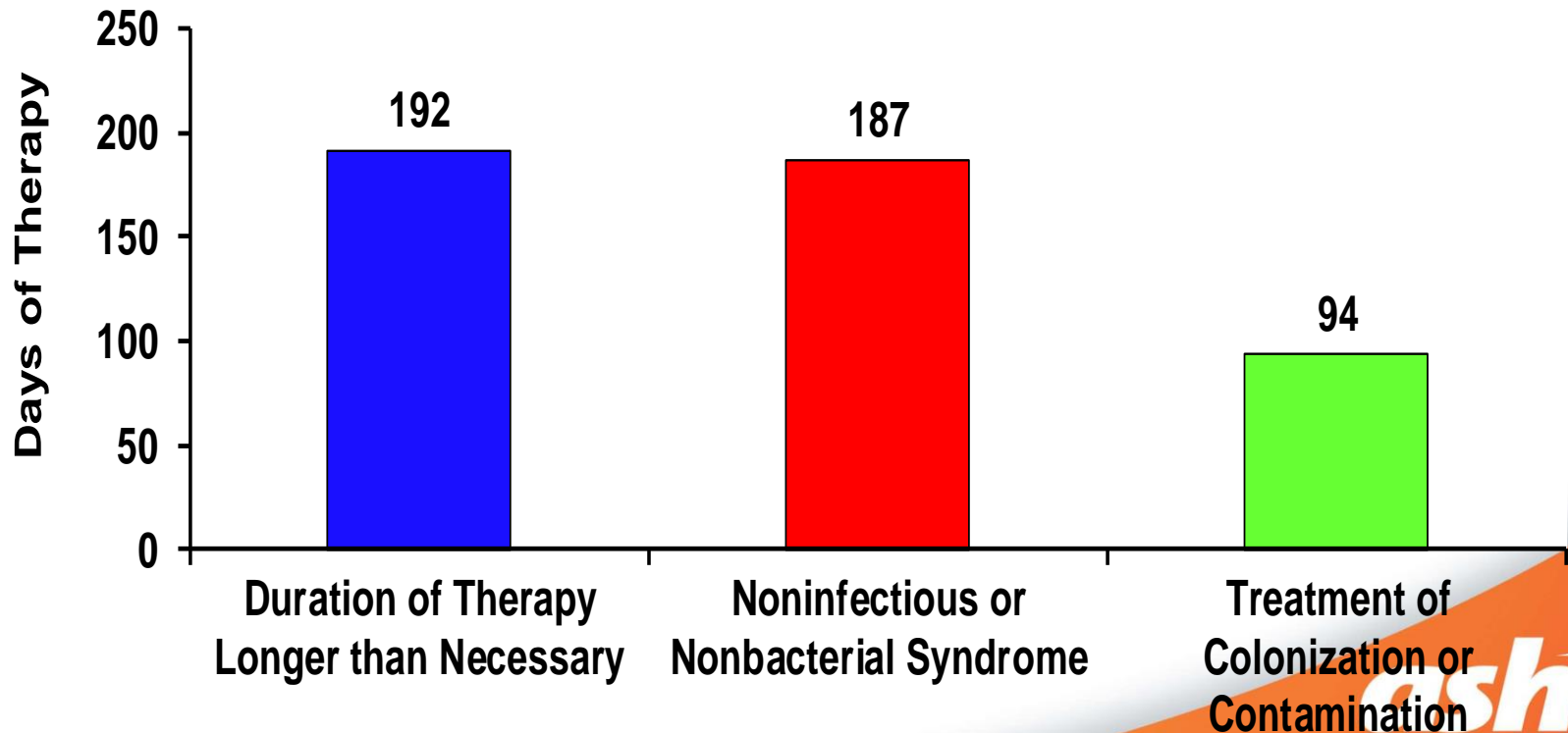
- **Pharmacists in hospitals participate in bedside patient care**
- **Some pharmacists may be residency trained, fellowship trained, have a certificate or even board certified in a specialty**
- **Examples of specialties:**
 - Medication safety
 - Pediatrics
 - Critical care
 - Nutrition
 - Surgical care
 - Pain / Anesthesia
 - Emergency room
 - Informatics
 - Cardiology
 - Anticoagulation
 - Infectious disease

Why We Have to Improve Antibiotic Use

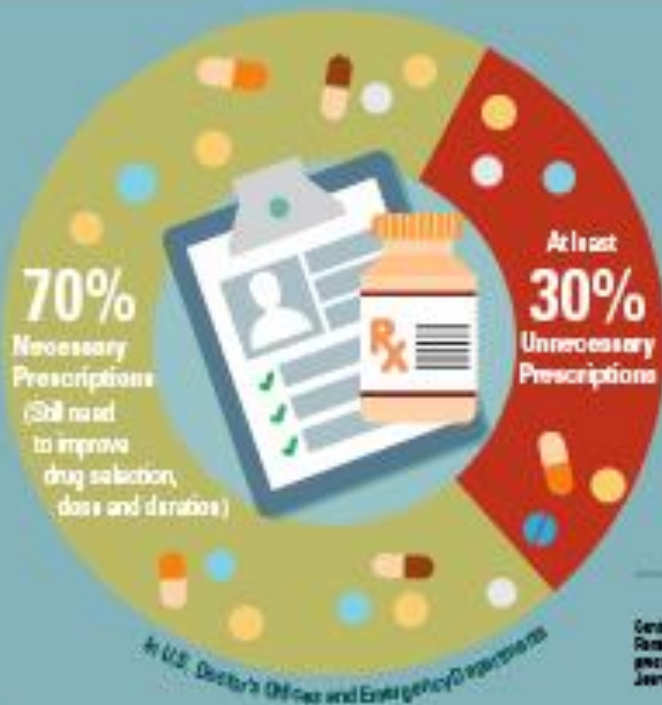
- A lot of in-patient antibiotic prescriptions are unnecessary or sub-optimal.
- Antibiotics are unlike any other drug, in that the use of the agent in one patient can compromise its efficacy in another.
- Antibiotic overuse has negative consequences.
- We are running out of antibiotics.
- We won't get new ones soon.

Most Common Reasons for Unnecessary Days of Therapy

576 (30%) of 1941 days of antimicrobial therapy deemed unnecessary



Improve Antibiotic Use to Combat Antibiotic Resistance



CDC is working to reduce unnecessary antibiotic use

White House National Action Plan to Combat Antibiotic-Resistant Bacteria (CARB)

Goal: By 2020, reduce inappropriate outpatient antibiotic use by 50%

Find out when antibiotics are necessary. Visit: <http://www.cdc.gov/getsmart>

Centers for Disease Control and Prevention (CDC).
Rising Sun, K et al. Prevalence of inappropriate antibiotic prescriptions among US ambulatory care visits, 2008-2011.
Journal of the American Medical Association. May 2014.



Centers for Disease Control and Prevention
National Center for Emerging and Zoonotic Infectious Diseases

47 million unnecessary antibiotic prescriptions per year

ashpTM

Antibiotic Misuse Adversely Impacts Patients

- In 2008, there were 142,000 visits to emergency departments for adverse events attributed to antibiotics.

C. difficile

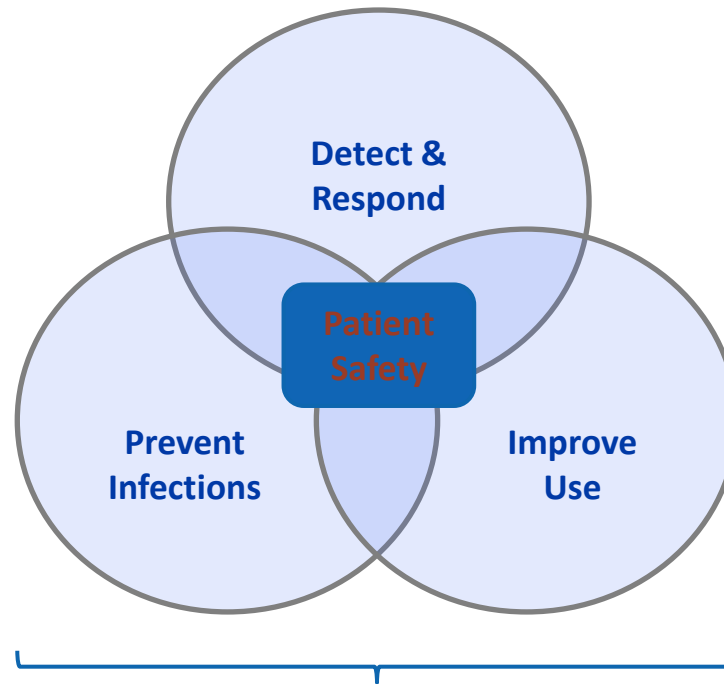
- Antibiotic exposure is the most important risk for getting *C. difficile*- 7-10 fold increased risk.
- ~453,000 total annual *C. difficile* infections.
- ~15,000 attributable deaths
 - 80% of deaths in patients >65 years old
 - 66% of cases were healthcare associated.
 - About \$1 billion in excess healthcare costs and re-admissions
- **N Engl J Med 2015; 372:825-834**

Estimated minimum number of illnesses and deaths caused by antibiotic resistance*:

At least  **2,049,442** illnesses,
 **23,000** deaths

**bacteria and fungus included in this report*

Build and Expand HAI Prevention Success: AR Solutions Initiative Continues Focus on Patients

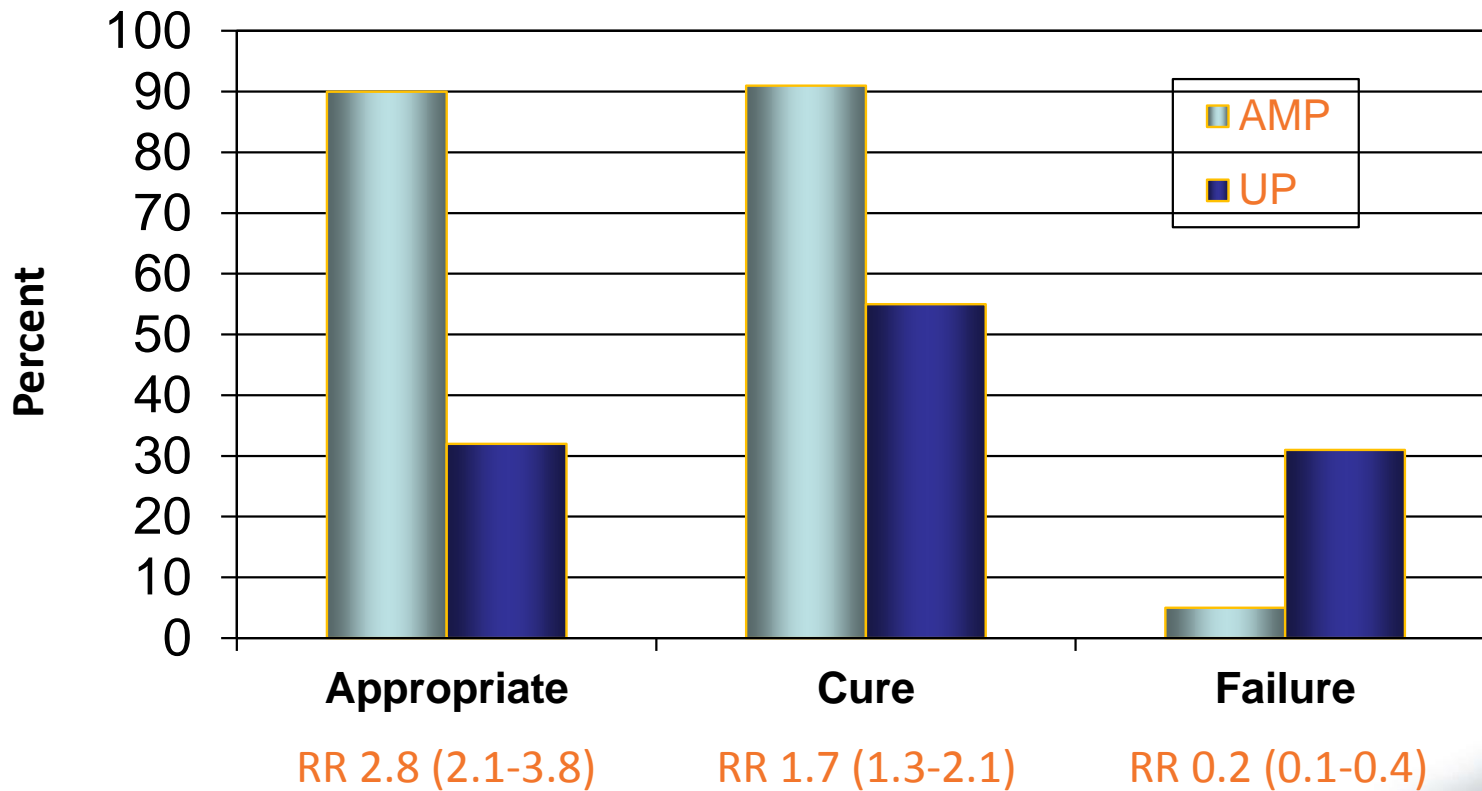


Innovation: CDC continually improves and develops innovative approaches to maximize public health impact

Why Improve Antibiotic Use?

- It improves patient outcomes and saves money at the same time.

Clinical outcomes better with antimicrobial stewardship program



Fishman N. *Am J Med.* 2006;119:S53.

AMP = Antibiotic Management Program
UP = Usual Practice



Begin With The End In Mind

- Every patient gets antibiotics quickly when they need them.
- Only when they need them.
- And they get:
 - The right antibiotic
 - At the right dose
 - For the right duration

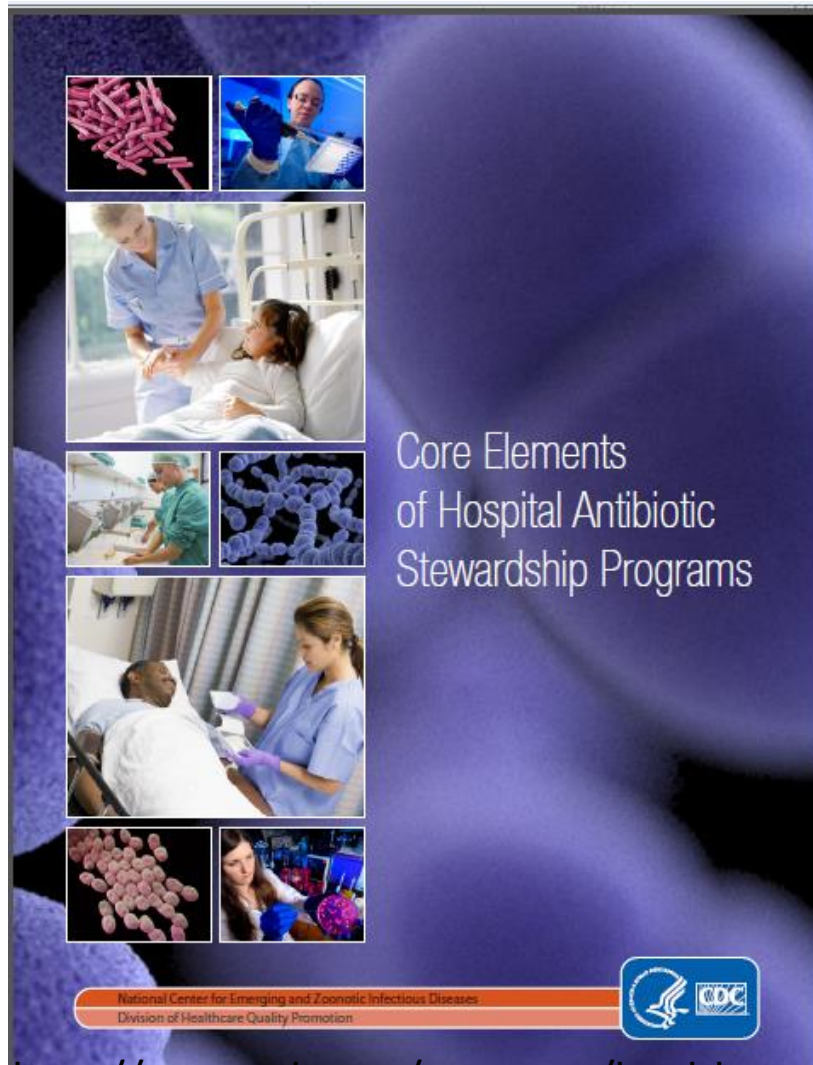
How Do We Get There?

- **We need activities to improve antibiotic use in all healthcare settings where they are used:**
 - Hospitals
 - Clinics
 - Nursing homes
- **Broadly, efforts to improve antibiotic use fall under the category of “antibiotic stewardship”.**

How Do We Make It Happen?

- ❑ Healthcare facilities and clinics don't all look the same, and neither do stewardship programs.
- ❑ There must be flexibility in how programs are implemented.
- ❑ But, there are certain key elements that have been strongly associated with success.

Core Elements for Antibiotic Stewardship Programs



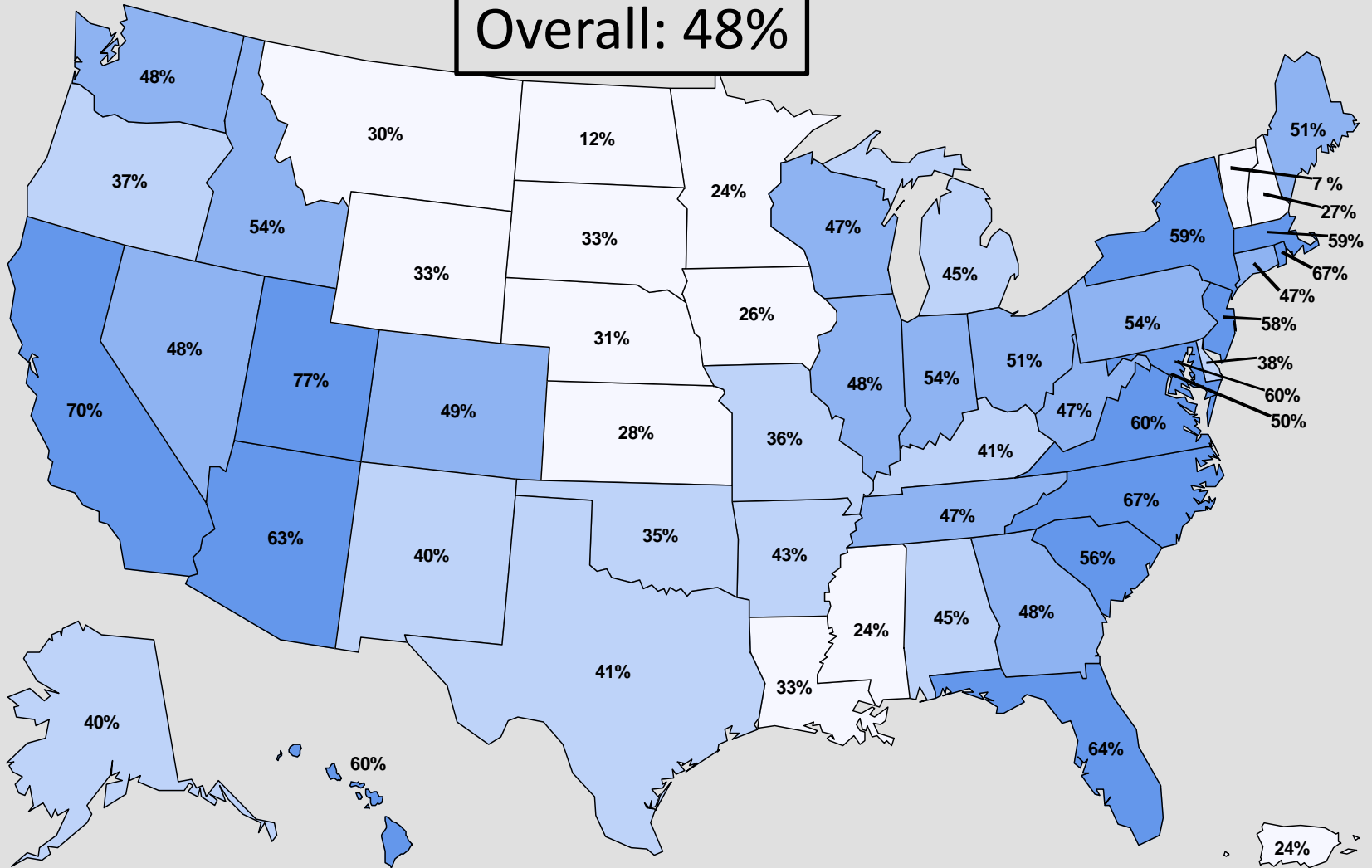
**Also available
for Nursing
Homes and
Outpatient
Settings**

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

ashpTM

Percentage of Facilities in Each State Meeting all 7 Core Elements, 2015

Overall: 48%



Percentage Meeting All 7 elements 7 - 33 34 - 45 47 - 54 56 - 77

4569 hospitals responded in 2015 (4184 in 2014)



Help With Implementation: A Stewardship Playbook

- ❑ **Assembled by experts in stewardship from diverse settings as well as representatives from about 20 different professional organizations brought together by the National Quality Forum.**
 - Outlines specific actions that have been taken by other hospitals to implement the CDC Core Elements, barriers and solutions.
- ❑ **http://www.qualityforum.org/Publications/2016/05/Antibiotic_Stewardship_Playbook.aspx?utm_source=internal&utm_medium=link&utm_term=ABX&utm_content=Playbook&utm_campaign=ABX**

Keys to Success

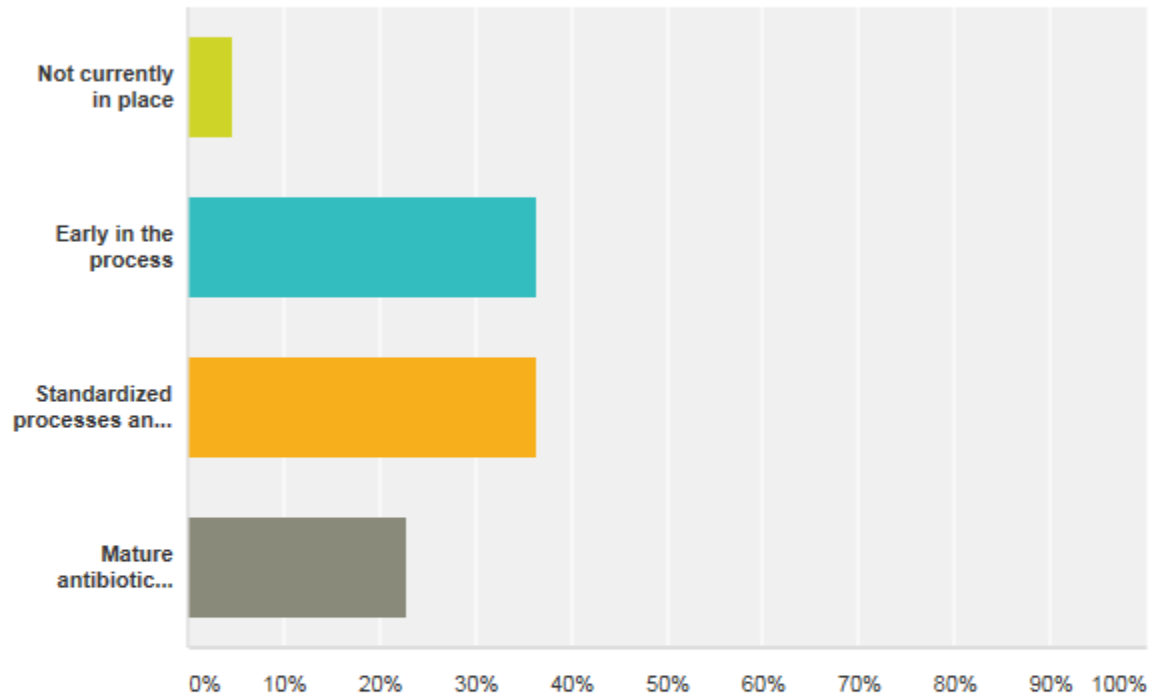
- Ensuring support from facility leadership.
- Focus on common conditions where antibiotics are often misused.
- Hospitals and nursing homes: respiratory, urinary tract and skin infections.
- Outpatient: respiratory infections, pharyngitis
- Focus on what makes sense for your facility or practice.

**WHAT DID YOU SAY?
WHAT DO YOU NEED?**



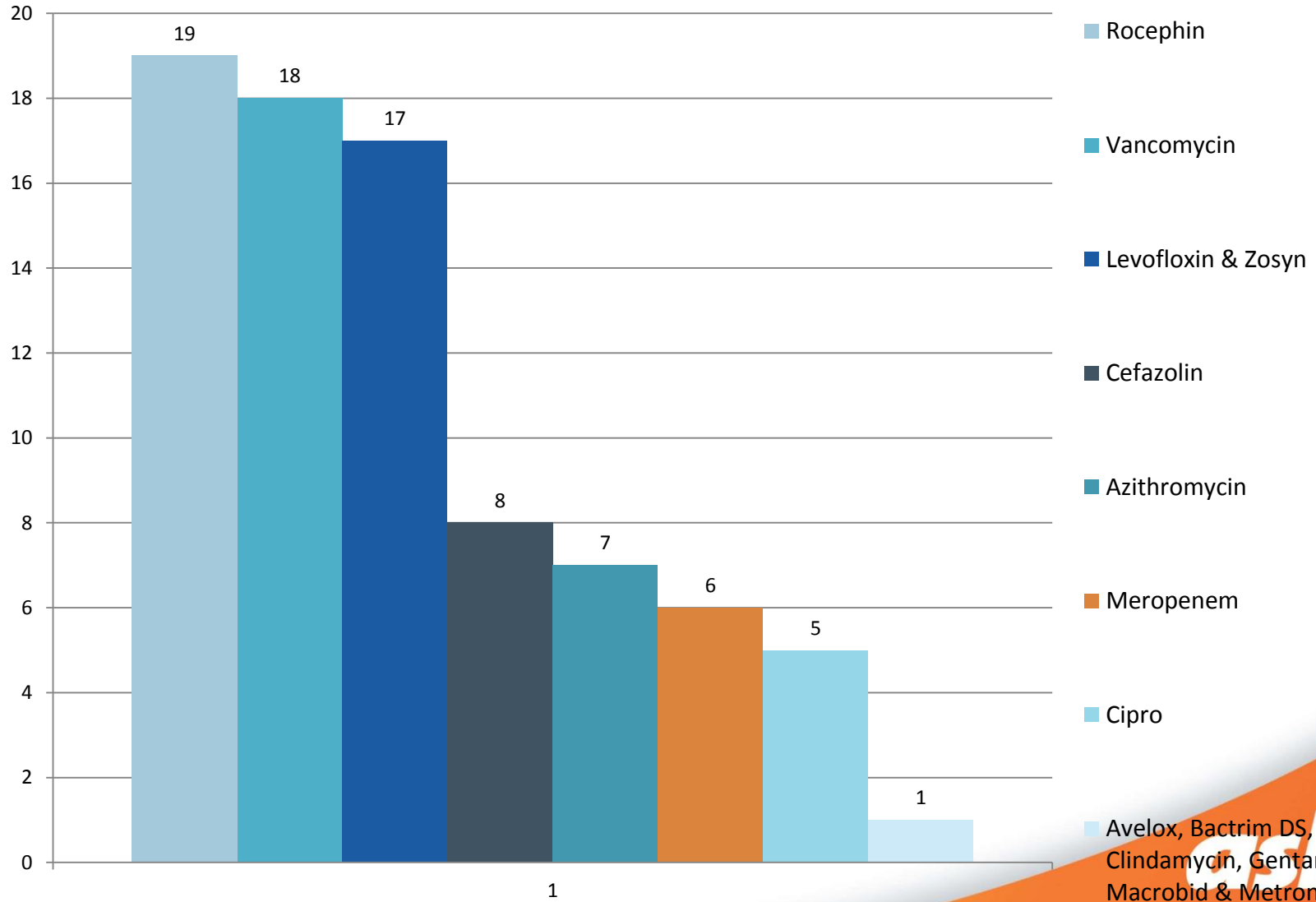
Where is your facility in regards to implementation of an Antibiotic Stewardship Program?

Answered: 22 Skipped: 0

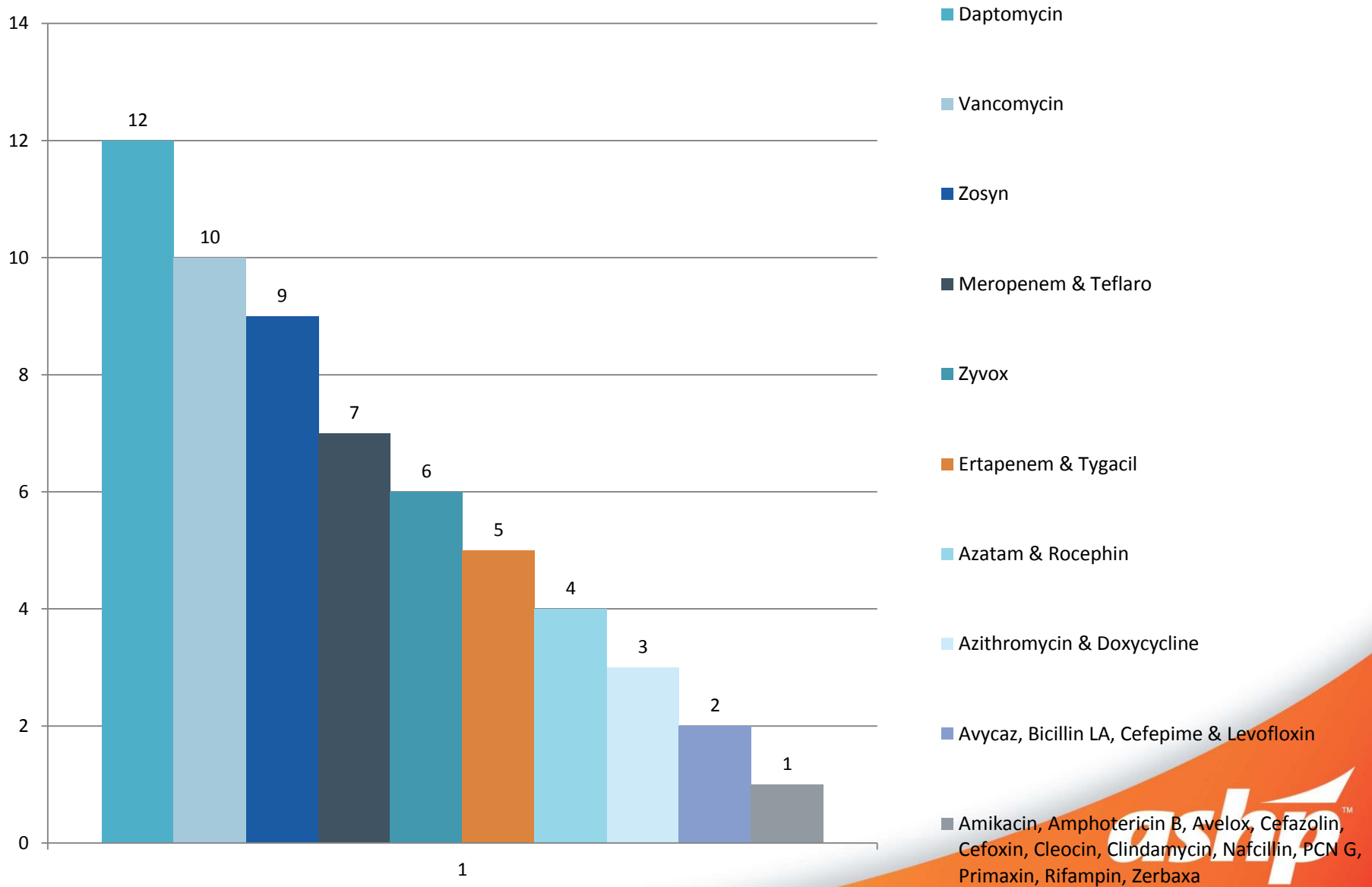


Answer Choices	Responses
Not currently in place	4.55% 1
Early in the process	36.36% 8
Standardized processes and ASP team in place, but not yet meeting all of the measures outlined by the Centers for Disease Control, the Joint Commission, and CMS	36.36% 8
Mature antibiotic stewardship program in place	22.73% 5
Total	22

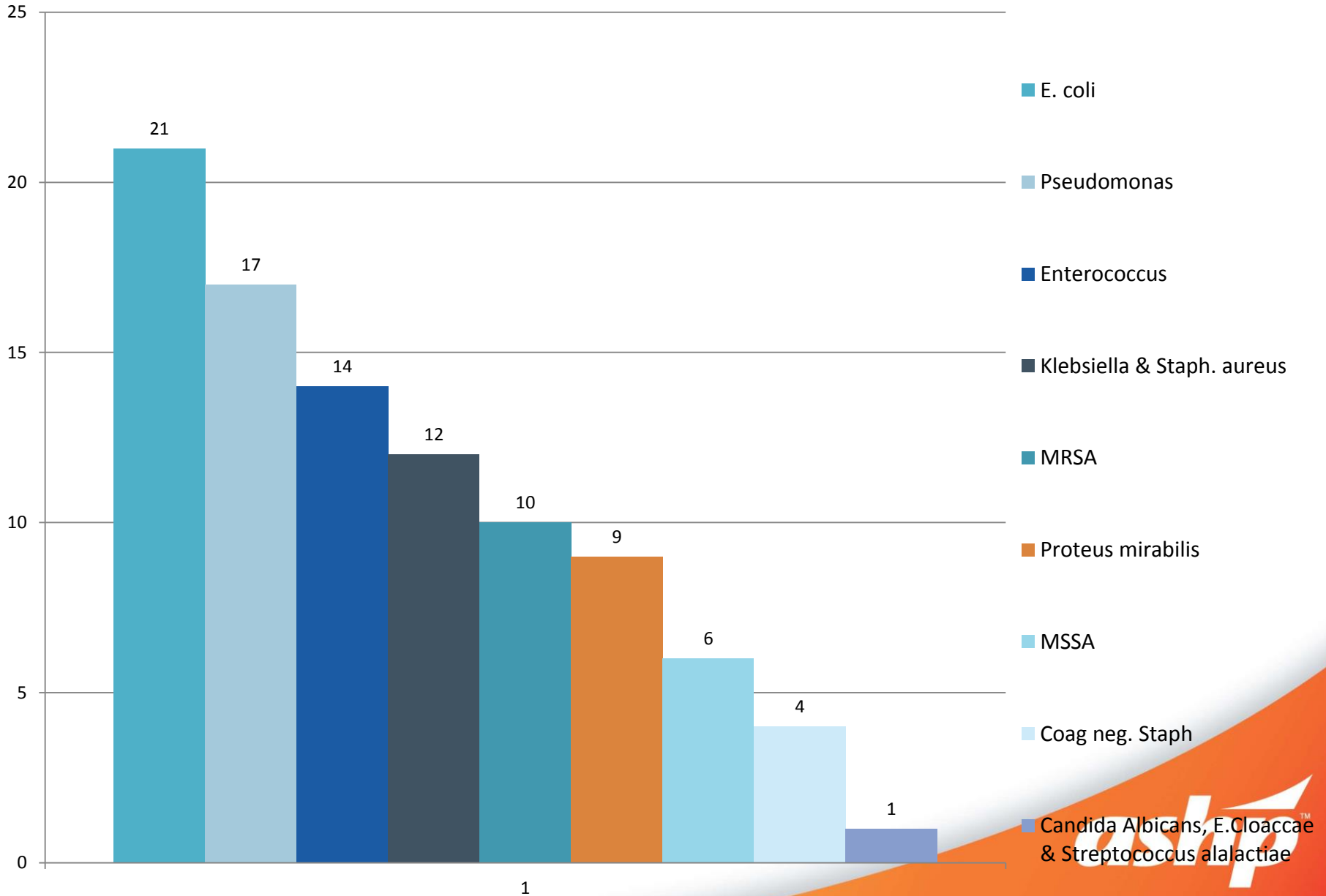
Top 5 Antibiotics by Use



Top 5 Antibiotics by Cost



Top 5 Organisms Encountered



Pharmacists and ASP

- It has been estimated that 30-50% of antibiotic use in hospitals is potentially unnecessary or inappropriate
- ASHP was invited to the White House Forum in 2015 and has been engaged with the CDC about in the fight against national and global antimicrobial resistance
- New TJC guidelines coming soon for hospitals, critical access hospitals and nursing care centers

Evidence

Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship

Timothy H. Dellit,¹ Robert C. Owens,² John E. McGowan, Jr.,³ Dale N. Gerding,⁴ Robert A. Weinstein,⁵ John P. Burke,⁶ W. Charles Huskins,⁷ David L. Paterson,⁸ Neil O. Fishman,⁹ Christopher F. Carpenter,¹⁰ P. J. Brennan,⁹ Marianne Billeter,¹¹ and Thomas M. Hooton¹²

¹Harborview Medical Center and the University of Washington, Seattle; ²Maine Medical Center, Portland; ³Emory University, Atlanta, Georgia; ⁴Hines Veterans Affairs Hospital and Loyola University Stritch School of Medicine, Hines, and ⁵Stroger (Cook County) Hospital and Rush University Medical Center, Chicago, Illinois; ⁶University of Utah, Salt Lake City; ⁷Mayo Clinic College of Medicine, Rochester, Minnesota; ⁸University of Pittsburgh Medical Center, Pittsburgh, and ⁹University of Pennsylvania, Philadelphia, Pennsylvania; ¹⁰William Beaumont Hospital, Royal Oak, Michigan; ¹¹Ochsner Health System, New Orleans, Louisiana; and ¹²University of Miami, Miami, Florida

**Journal of
Antimicrobial
Chemotherapy**

J Antimicrob Chemother 2013; **68**: 2675–2681

doi:10.1093/jac/dkt241 Advance Access publication 3 July 2013

The increasing role of pharmacists in antimicrobial stewardship in English hospitals

H. J. Wickens^{1,2*}, S. Farrell³, D. A. I. Ashiru-Oredope⁴, A. Jacklin¹ and A. Holmes¹ in collaboration with the Antimicrobial Stewardship Group of the Department of Health Advisory Committee on Antimicrobial Resistance and Health Care Associated Infections (ASG-ARHAI)†

Table 7. Antimicrobial Stewardship Programs^a

AJHP.2016;73:1307-30

Variable	% Hospitals With Program	n ^b	Pharmacists' Primary Role				Strategies Used				
			% Hospitals Reporting Role				% Hospitals Reporting Strategy				
			Leadership and Accountability	Data Analysis	Clinical Support Only	Pharmacist Not Actively Involved	n ^b	Education and Guidelines	Formulary or Restrictions	Daily Review and Feedback to Prescribers	Use of CDS Technology
No. started beds ^c											
<50 (n = 65)	43.1	28	35.7	14.3	42.9	7.1	26	65.4	38.5	73.1	53.8
50–99 (n = 47)	61.7	28	57.1	14.3	28.6	0	28	82.1	75.0	85.7	71.4
100–199 (n = 38)	73.7	28	50.0	17.9	32.1	0	28	71.4	82.1	89.3	50.0
200–299 (n = 43)	81.4	35	80.0	14.3	5.7	0	35	91.4	94.3	94.3	77.1
300–399 (n = 44)	93.2	40	65.0	15.0	20.0	0	40	95.0	92.5	87.5	82.5
400–599 (n = 47)	91.5	43	76.7	7.0	14.0	2.3	43	97.7	95.3	95.3	88.4
≥600 (n = 33)	97.0	32	75.0	6.3	18.8	0	32	100.0	96.9	100.0	93.8
All hospitals—2015 (n = 317)	65.5 ^c	234	57.3 ^d	14.3 ^d	26.6 ^d	1.8 ^d	232	80.8 ^e	76.5 ^f	86.9	66.7 ^g
All hospitals—2013 (n = 411) ^h	63.0	296	60.3	13.7	23.0	3.1	297	74.3	71.1	78.9	31.0
All hospitals—2010 (n = 566) ^h	43.5	290	48.5	13.1	36.2	2.2	289	... ^h	74.0	77.3	31.1

^aCDS = clinical decision support.

^bn denotes number of survey respondents providing information.

^cUncorrected $\chi^2 = 49.0374$, $df = 6$, design-based $F(4.24, 1314.74) = 9.9966$, $p < 0.0001$.

^dUncorrected $\chi^2 = 97.0000$, $df = 49$, design-based $F(49.49, 6000.04) = 9.9999$, $p < 0.0001$.

ASHP National Survey ASP Data

■ 100-199 ■ 50-99 ■ less than 50

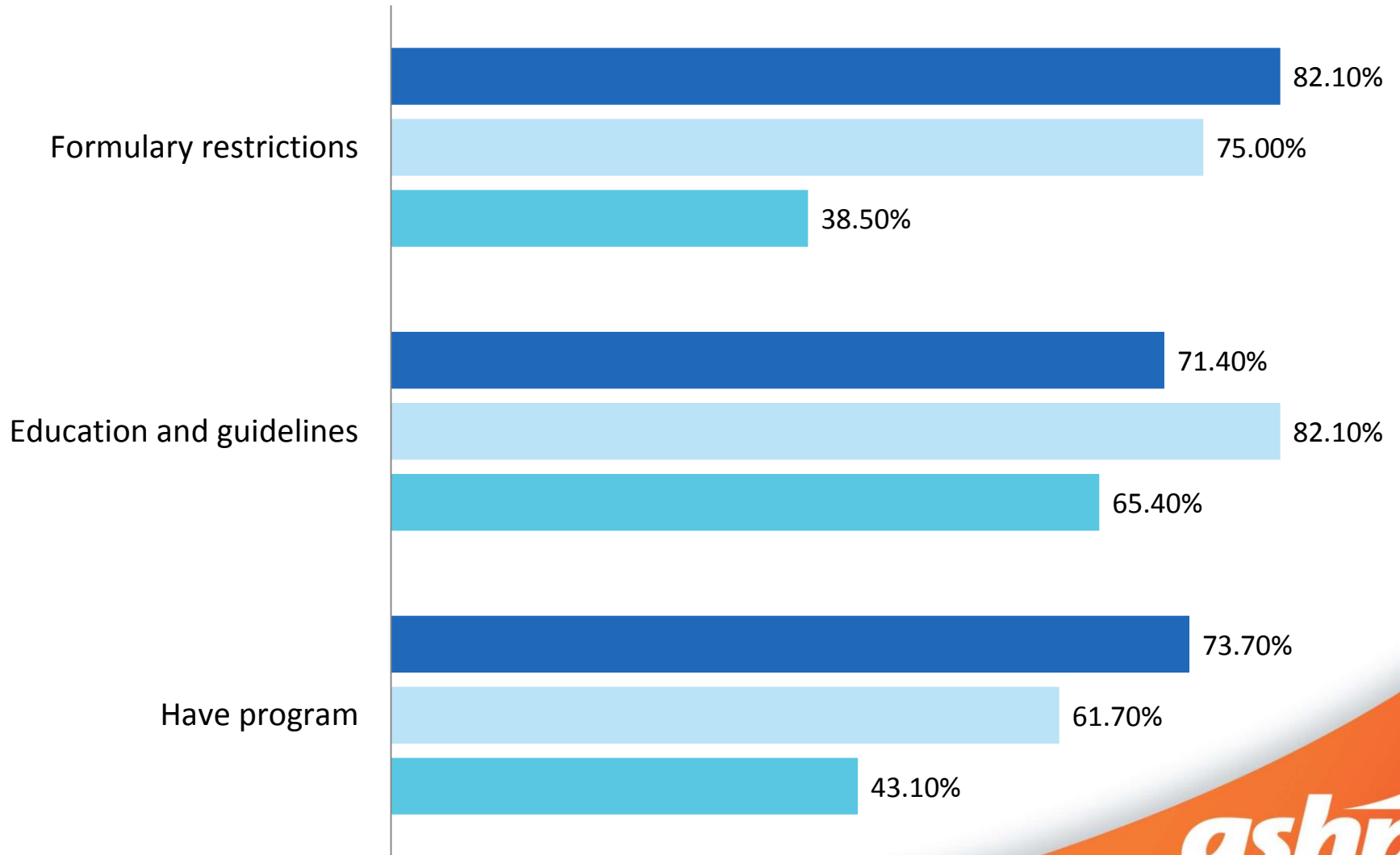
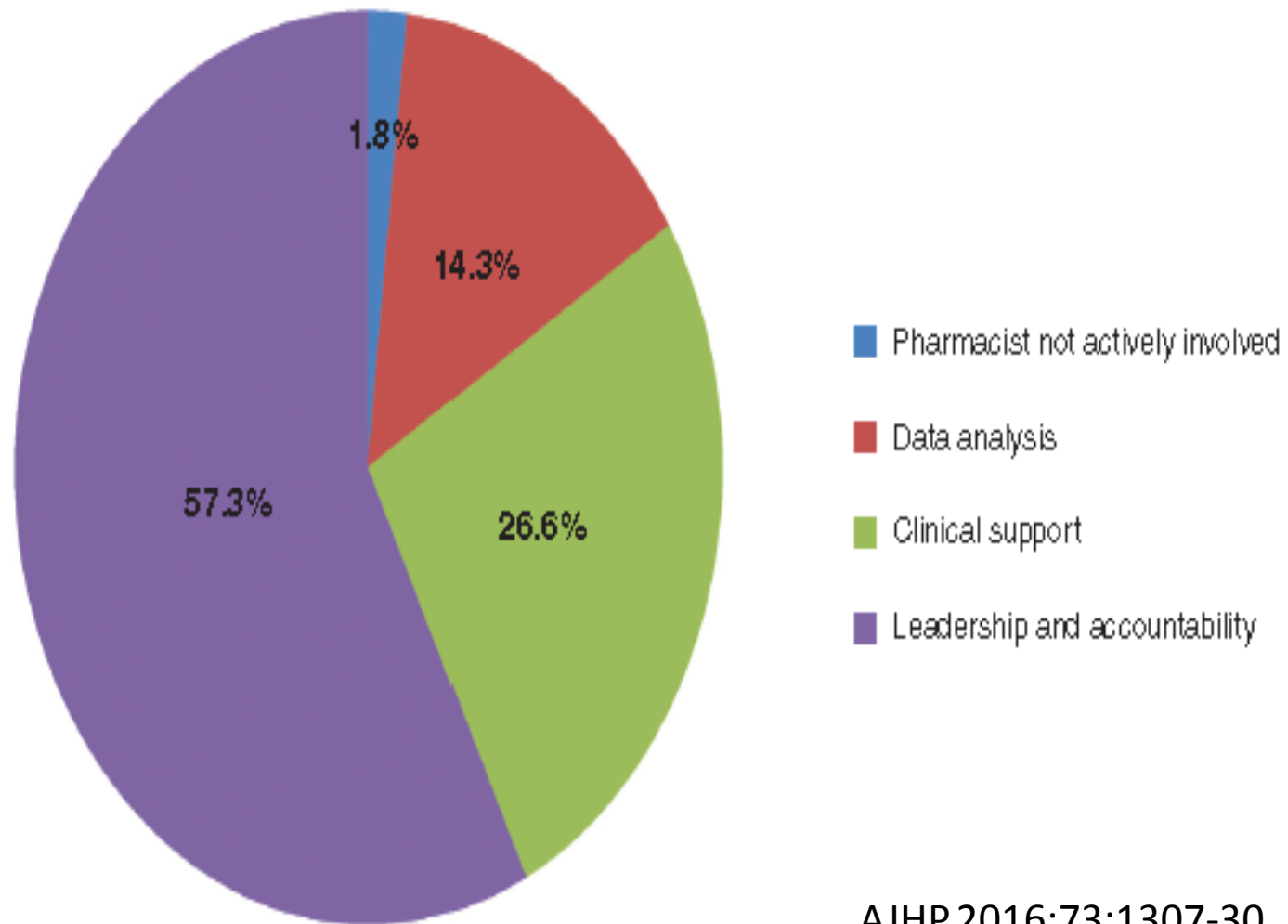


Figure 4. Pharmacists' primary role in antimicrobial stewardship, 2015.



AJHP.2016;73:1307-30

The Role of the Pharmacist in ASP

- ASHP statement endorsed by Infectious Diseases Society of America, Society for Healthcare Epidemiology of America
- Other organizations now recognize and support the use of pharmacists in ASP: CDC, TJC, CMS, Society of Hospital Medicine, many others....

ASHP Statement on the Pharmacist's Role in Antimicrobial Stewardship and Infection Prevention and Control

The Role of the Pharmacist in ASP

- **Promoting optimal use of antimicrobial and antifungal agents**
 - Ensure prophylactic, empiric and therapeutic uses result in optimal patient outcomes
 - Work with Pharmacy & Therapeutics committee for formulary decisions
 - Co-lead ASP teams and interact with inter-professional colleagues (including microbiologists, infection prevention and informaticists)
 - Generate and analyze data to improve clinical outcomes and cost-effectiveness
 - Assess and implement strategies to reduce potential errors and adverse drug events

The Role of the Pharmacist in ASP

- **Reducing transmission of infections**
 - Establish internal pharmacy policies and procedures to prevent contamination of drug products (utmost importance for IV prep, USP 797 guidelines)
 - Promote and support use of single-dose products when possible
 - Advocating for routine immunizations of hospital staff and patients
 - Work with IP, quality teams to enhance and complement bundle work (blood stream infections, ventilator pneumonia, etc)
 - Strive for zero tolerance of health-care induced infections
- **Education**
 - Pharmacy students, pharmacy staff, specialists in infectious disease
 - Inter-professional approaches (providers, nurses, respiratory therapists, quality, etc)

Pharmacist Impact on Patient Outcomes

- Many studies have now shown efficacy of pharmacists improving patient outcomes (too numerous to list)
- This is why the CDC, TJC, CMS and others are now recommending pharmacist co-led teams and inter-professional teams for ASP
- The pharmacist is the medication expert

Joint Commission ASP Standards

- **Coming January 2017!!!**
 - Is your organization ready?
- [https://www.jointcommission.org/assets/1/6/New Antimicrobial Stewardship Standard.pdf](https://www.jointcommission.org/assets/1/6/New_Antimicrobial_Stewardship_Standard.pdf)
- Hospitals, critical access hospitals, nursing care centers



Standard MM 09.01.01

- **8 main areas of focus for hospitals and critical access hospitals**
 - Leaders establish ASP as priority
 - Competent staff and staff education
 - Educate patients and caregivers
 - Use of inter-professional team
 - Core elements
 - Have to prove, not good enough anymore just to say we have an ASP
 - Use of protocols
 - Data collection and analysis
 - PDCA and change practice based upon findings of data analysis

Approaches for All (including small and rural)

- **Low-hanging fruit**
 - Timing of antibiotics for sepsis
 - Evaluating need for antibiotics beyond 48-72 hours
 - Stopping antibiotics if cultures are negative and infection unlikely
 - Maximizing PK/PD for dose optimization
 - Optimizing choice based upon culture results
- **Formulary optimization**
 - Tailor to infections seen in the hospital
 - No need for very broad if never seen certain infections
- **Order sets and guideline control**
 - Should undergo a review process
- **Telemedicine approaches**

Horizontal Integration with Quality

- CVC Line insertion – CLABSI
- Catheter associated UTI – CAUTI
- Ventilator PNA - VAP
- Surgical site infections – SSI's

- What are your protocols – local vs. national?
- Are pharmacists involved in development?
- Do you review organisms in each category and associated antibiotic usage?
- Do you have bundles imbedded into electronic ordering and workflow?
- Working with local and state health departments
 - Incorporation of high reliability concepts

ASP and Informatics



- **Policies**
 - Practice and policy must match!!
 - Where are the found? Electronic, easily searchable?
- **Order-sets**
 - Development, who's involved
 - Who reviews from QA standpoint
 - How often
- **Should help with decision-making upfront upon order entry**
 - Indication, dosage, organ impairment adjustments, resistance patterns
- **Telemedicine**
 - Need to provide resources for all, not just larger, academic centers

The C-suite and Pharmacy Chief Officer/Director

- The Joint Commission will want to see dedicated time and resource allocation
- Time devoted to data analysis, interpretations, and process improvement
- A c-suite champion in addition to a provider and pharmacist champion
- Do you know your top 5 organisms, prevalence and resistance patterns?
- Data around antibiotic timing
- Microbiology lab, point-of-care testing, biomarkers, etc.
- Is there a clinical guidance committee along with IT support?

Ambulatory Care and What Patients Need to Know

- **CDC Get Smart: Know When Antibiotics Work**
- **Patients often seek OTC medicine first**
- **Understand viral vs. bacterial infections, and signs/symptoms**
- **If a provider is prescribing an antibiotic ask....**
 - Could you explain to me what type of infection I have or you are worried about?
 - What class of antibiotics are you prescribing?
 - What are the major side effects I should be concerned about?
 - Are there any major drug-drug interactions (birth control, blood thinners, etc)
 - What should I do if my symptoms persist and the medication doesn't seem to be working?
- **www.safemedication.com**

ASHP Recent Work

- **Expert panel meeting**
 - 8 pharmacists, 2 MD's
- **NQF and Playbook**
 - ASHP asked for input
- **Pew Trusts, CDC related to appropriate metrics**
- **Comments to TJC and CMS**
- **Collaborative position statement, “The Essential Role of Pharmacists in Antimicrobial Stewardship”**
 - In collaboration with SHEA, SIDP , published in ICHE
 - Endorsement of Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America

ASHP Future Work

- **Education scheduled at Midyear**

- Complete comprehensive program, almost 8 hours CE
- Continue webinar work as new information is available especially about metrics
- Keep members informed about TJC changes
- Consider introducing concepts earlier in student/resident curriculum

- **Best practices and models for telemedicine networks**

- Operational and logistical concerns (“how-to”)
- MedStar Health is an example but many others

- **Collaborations**

- Need for C-suite focus to integrate infection prevention, quality, and ASP
- Continue to work with national, state and local programs

Questions?



ashp[®] **MIDYEAR** 2016
Clinical Meeting & Exhibition

Mandalay Bay
Convention Center
Las Vegas, Nevada
December 4 – 8, 2016

#ASHP16