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Crowe Healthcare Webinar Series

Antimicrobial Stewardship Requirements for Healthcare Organizations

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Introductions

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Agenda

- Antimicrobial Stewardship (AMS) Background & Associated Risks
- Solutions for Implementation & Compliance

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Background & Associated Risks

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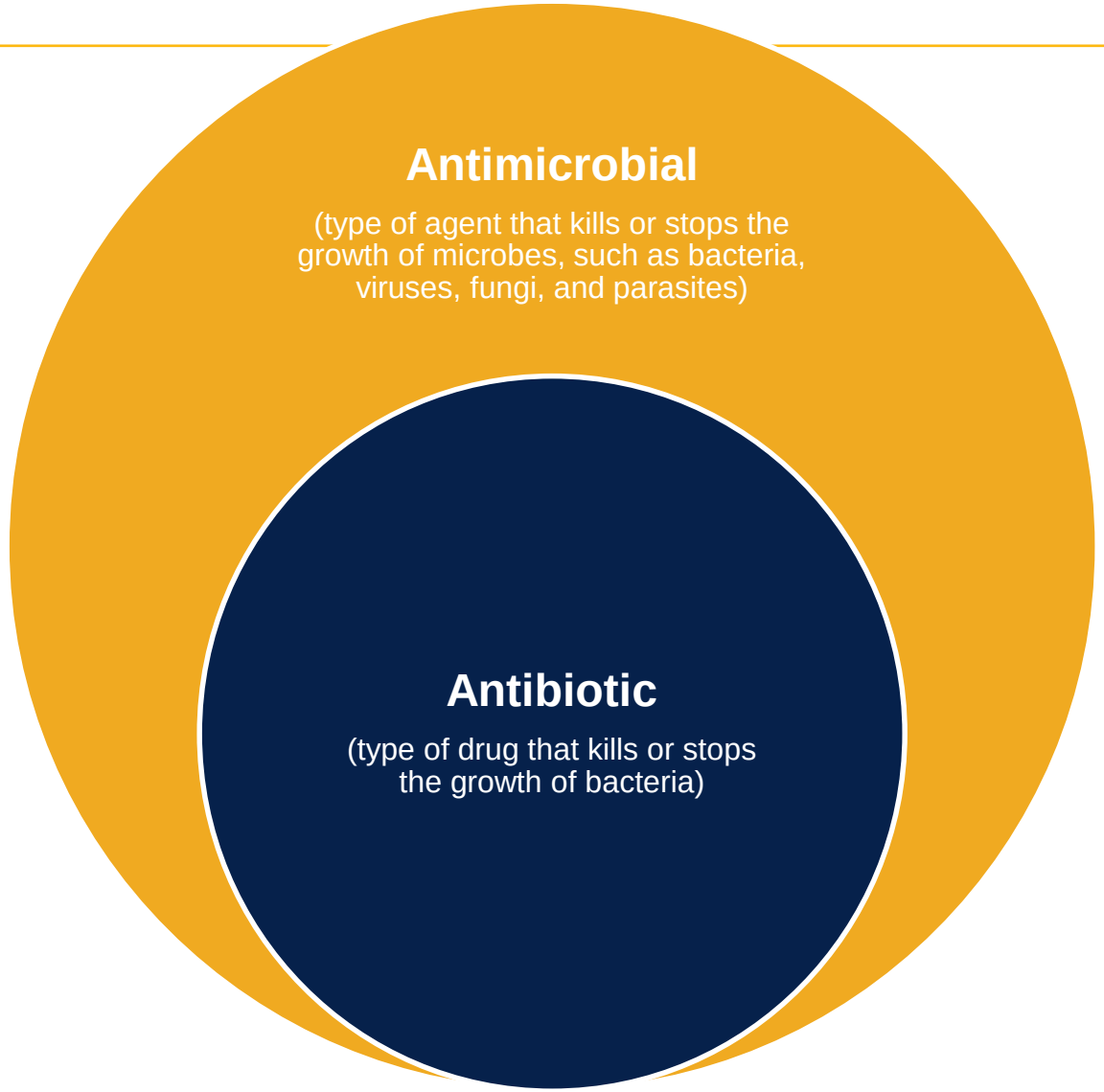
Antimicrobial vs. Antibiotic



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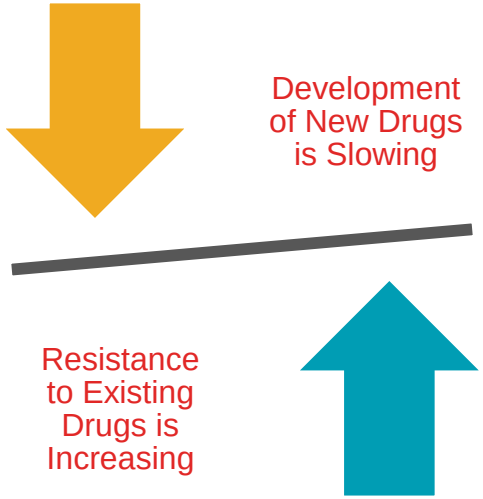
Key Concerns

- An estimated 50% of antibiotic use in humans is unnecessary and inappropriate
- Antibiotic-resistant bacteria cause over **2 million illnesses** and **23,000 deaths** annually in the US
- Antibiotic use in food animals can lead to resistant infections in humans
- Without effective antibiotics, the success of major surgery and cancer chemotherapy would be compromised
- Cost of care for patients with resistant infections is higher than care for patients with non-resistant infections due to longer duration of illness, additional tests and use of more expensive drugs
- The development of antibiotics is slowing while resistance to existing drugs is increasing
- Antimicrobial resistance (AMR) is an increasingly serious threat to health at the patient, community and global level



Retrieved 08/14/17 from https://www.cdc.gov/drugresistance/about.html and http://www.who.int/mediacentre/factsheets/fs194/en/

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Polling Question

Does your organization have a strategic focus on evidence-supported prescribing of antimicrobials?

a) Yes

b) No

c) Not Sure

d) Not Applicable

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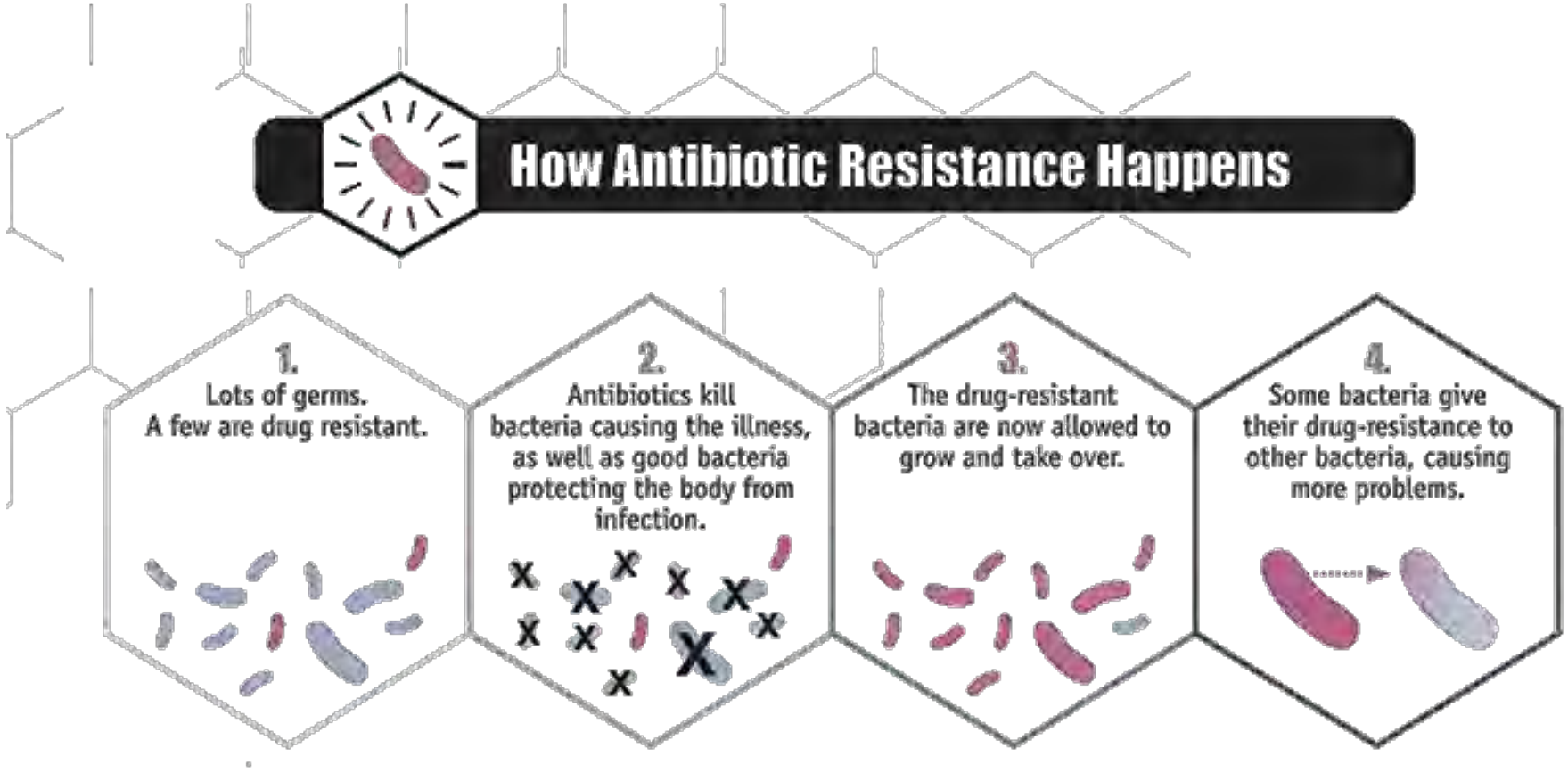
How Does Antimicrobial Resistance Happen?



Retrieved 08/14/17 from https://www.cdc.gov/drugresistance/about.html

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Antimicrobial Resistance

Antibiotic	Introduced	Resistance Identified
Tetracycline	1950	1959
Methicillin	1960	1962
Levofloxacin	1996	1996
Ceftaroline	2010	2011

Retrieved 08/14/17 from https://www.cdc.gov/drugresistance/about.html

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Polling Question

Does your organization’s antimicrobial stewardship program cover inpatient or outpatient settings?

a) Inpatient only

b) Outpatient only

c) Inpatient and Outpatient

d) Neither Inpatient nor Outpatient

e) Not Sure

f) Not Applicable

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Antimicrobial Stewardship Defined

Definition: **Antimicrobial stewardship is a "…coordinated set of interventions designed to improve and measure the appropriate use of antimicrobials…"**

Retrieved 8/16/2017 from http://www.idsociety.org/Stewardship_Policy/

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National Action Plan to Combat Antibiotic-Resistant Bacteria

On March 27, 2015 the White House released a comprehensive plan that identifies critical actions to be taken by key Federal departments and agencies to combat the rise of antibiotic-resistant bacteria. The National Action Plan for Combating Antibiotic-Resistant Bacteria, which was developed by the interagency Task Force for Combating Antibiotic-Resistant Bacteria in response to Executive Order 13676: Combating Antibiotic-Resistant Bacteria, outlines steps for implementing the National Strategy on Combating Antibiotic-Resistant Bacteria

The National Action Plan provides a roadmap to guide the Nation in rising to the challenge of antibiotic resistance and potentially saving thousands of lives. The Action Plan outlines Federal activities over the next five years to enhance domestic and international capacity to prevent and contain outbreaks of antibiotic-resistant infections; maintain the efficacy of current and new antibiotics; and develop and deploy next-generation diagnostics, antibiotics, vaccines, and other therapeutics.

Implementation of the Action Plan will require the sustained, coordinated, and complementary efforts of individuals and groups around the world, including public and private sector partners, healthcare providers, healthcare leaders, veterinarians, agriculture industry leaders, manufacturers, policymakers, and patients. Efforts carried out as part of the Action Plan will help the Federal government curb the rise of antibiotic-resistant bacteria with the goal of saving lives.

Retrieved 8/16/2017 from https://obamawhitehouse.archives.gov/the-press-office/2015/03/27/fact-sheet-obama-administration-releases-national-action-plan-combat-ant

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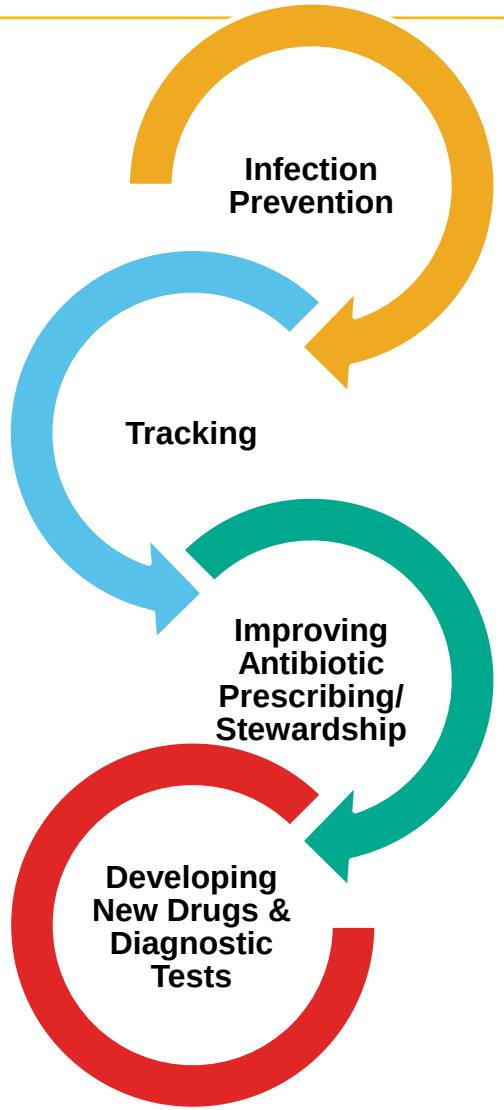
Four Core Actions to Fight Resistance



- Avoiding infections in the first place reduces the amount of antibiotics that have to be used and reduces the likelihood that resistance will develop during therapy.

- CDC gathers data on antibiotic-resistant infections, causes of infections and whether there are particular reasons (risk factors) that caused some people to get a resistant infection.

- Perhaps the **single most important action needed** to greatly slow down the development and spread of antibiotic-resistant infections is to change the way antibiotics are used.

- Because antibiotic resistance occurs as part of a natural process in which bacteria evolve, it can be slowed but not stopped. Therefore, we will always need new antibiotics to keep up with resistant bacteria as well as new diagnostic tests to track the development of resistance.

Retrieved 08/14/17 from http://www.cdc.gov/drugresistance/about.html

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Joint Commission Antimicrobial Stewardship Standards

- The Joint Commission has developed antimicrobial stewardship standards for hospitals, critical access hospitals and nursing care centers effective January 1, 2017. (MM.09.01.01)
- Defines Seven Core Elements of Antimicrobial Stewardship Program:
  - Leadership Commitment: Dedicate necessary human, financial, and information technology resources.
  - Accountability: Appoint a single leader (preferably a physician with infectious disease management experience/expertise) responsible for program outcomes.
  - Drug Expertise: Appoint a single pharmacist leader with time dedicated to work on improvement of antimicrobial usage.
  - Action: Implement recommended actions, such as systematic evaluation of ongoing treatment need, after a set period of initial treatment.
  - Tracking: Monitor antimicrobial stewardship program, which may include information on antibiotic prescribing and resistance patterns.
  - Reporting: Report information on the antimicrobial stewardship program, which may include information on antibiotic use and resistance.
  - Education: Educate practitioners and staff at hire and at least annually, about appropriate antimicrobial use, including information about resistance and optimal prescribing. Educate patients and/or family members as appropriate.

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Joint Commission AMS Elements of Performance

- Establish AMS as an organizational priority
- Educate staff and licensed independent practitioners involved in antimicrobial ordering, dispensing, administration, and monitoring about antimicrobial resistance and antimicrobial stewardship practices.
- Educate patients, and their families as needed, regarding the appropriate use of antimicrobial medications, including antibiotics.
- Maintain an antimicrobial stewardship multidisciplinary team that includes the following members:
  - Infectious Disease Physician
  - Infection Preventionist(s)
  - Licensed Independent Practitioner(s)
  - Pharmacist(s)
  - Nurses

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Joint Commission AMS Elements of Performance

- Maintain an antimicrobial stewardship program that includes the seven core elements
- Employ organization-approved multidisciplinary protocols, e.g.,
  - Antibiotic Formulary Restrictions
  - Appropriate antimicrobials for commonly encountered disease states
  - Preauthorization Requirements for Specific Antimicrobials
- Collect, analyze, and report data on the organization's antimicrobial stewardship program
- Take action on improvement opportunities identified in the organization's antimicrobial stewardship program

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Why should Antimicrobial Stewardship be a Strategic Priority?

- At present due to antimicrobial resistance:
  - At least 2,049,442 illness
  - At least 23,000 deaths
  - At least 250,000 related illness such as Clostridium Difficile
  - At least 14,000 related deaths such as Clostridium Difficile
- Increased:
  - Patient recovery time
  - Hospital length of stay
  - Medical expenses
- Prescribing of second- and third-choice drugs due to resistance of first-choice drugs resulting in less effective, more toxic, and more expensive drugs being used
- “At current rates of antimicrobial resistance, we estimate that 2.5 million people will be lost to drug-resistant ‘superbugs’ in 2020, 5.9 million will be lost in 2030, and 15 million will be lost in 2050.”

Retrieved 8/16/2017 from https://www.cdc.gov/drugresistance/about.html and https://www.rand.org/randeurope/research/projects/antimicrobial-resistance-costs.html

Polling Question

Antimicrobial stewardship "…programs have been shown to improve patient outcomes, reduce antibiotic resistance and save money".

a) True

b) False

Retrieved 8/16/2017 from http://www.idsociety.org/New_Antimicrobial_Stewardship_Guideline_2016/

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Solutions for Implementation & Compliance

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Leverage Internal Audit Resources

- Independent, objective assessment of the organization's antimicrobial stewardship program
- Audit against the seven core elements of the Joint Commission Standard MM.09.01.01
- Use an integrated approach that incorporates expertise from clinical, financial, IT and operational auditors
- Evaluate documentation to determine if the Elements of Performance are being met; documentation may include
  - Policies, procedures and protocols related to AMS
  - Budget for AMS activities (such as support for salary, training, or IT support)
  - Infection Prevention plans
  - Performance Improvement plans
  - Meeting minutes and agendas
  - System alerts and controls to support interventions, if applicable (e.g., IV to PO alerts)
  - Monitoring reports/dashboards for AMS process and outcome measures
  - Communication of prescribing practices and trends
  - Education records for clinicians and other relevant staff as well as evidence of patient education
- Develop corrective action plans to address any gaps identified
- Follow-up to confirm corrective actions were taken in a timely and effective manner

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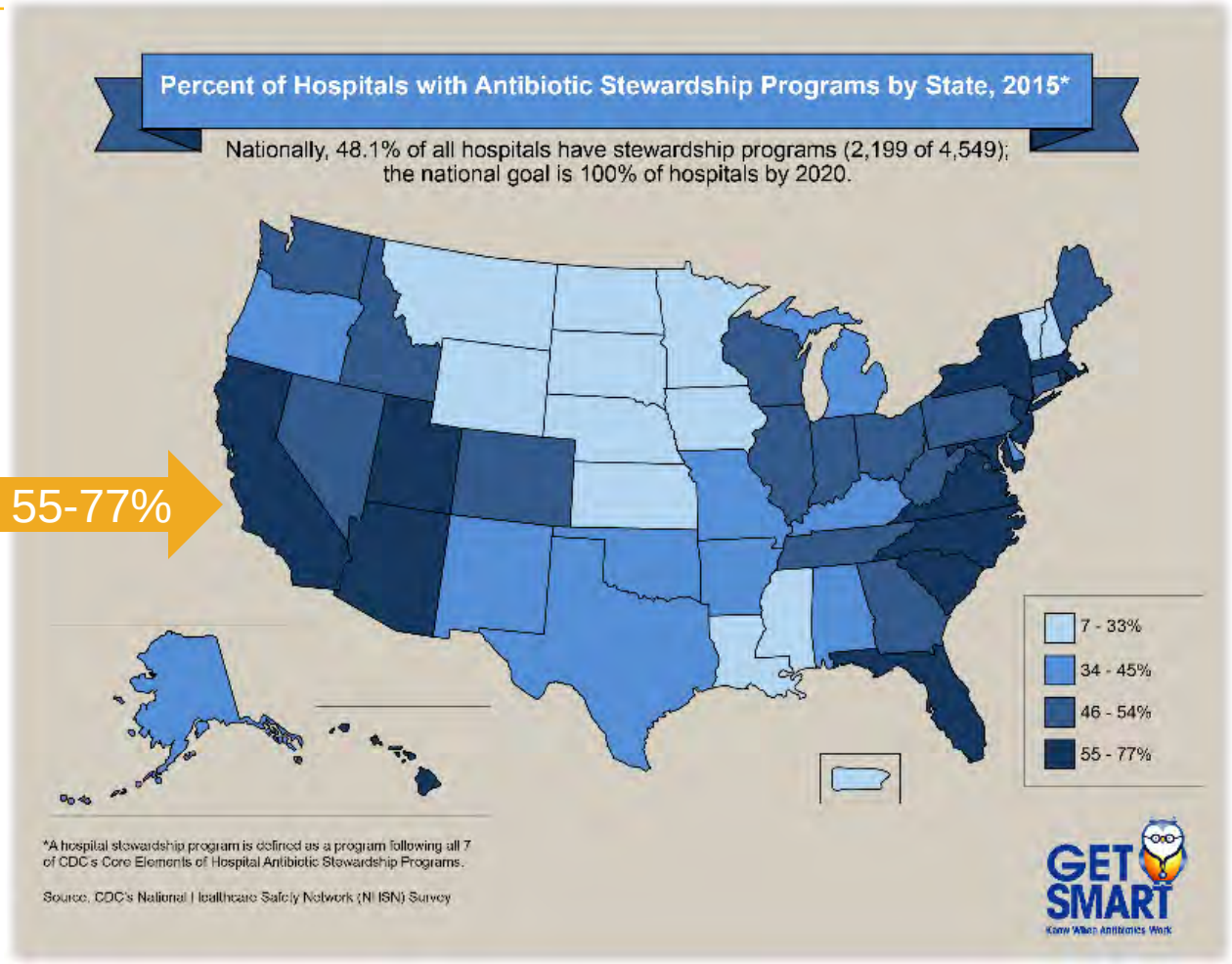
Why an ASP Program?

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

Resistant organisms

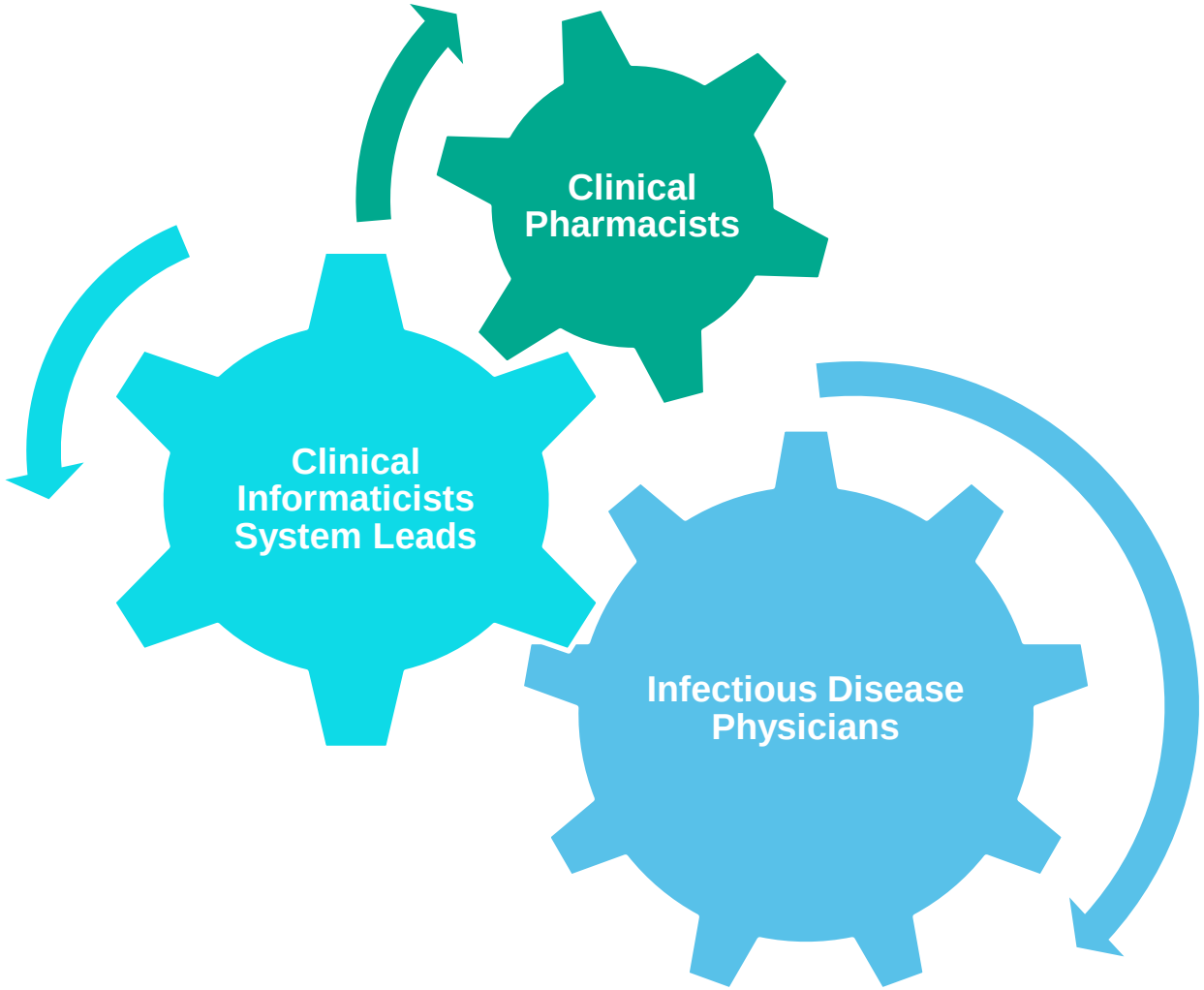
The Joint Commission

55-77%



CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

ASP System Taskforce



Branding

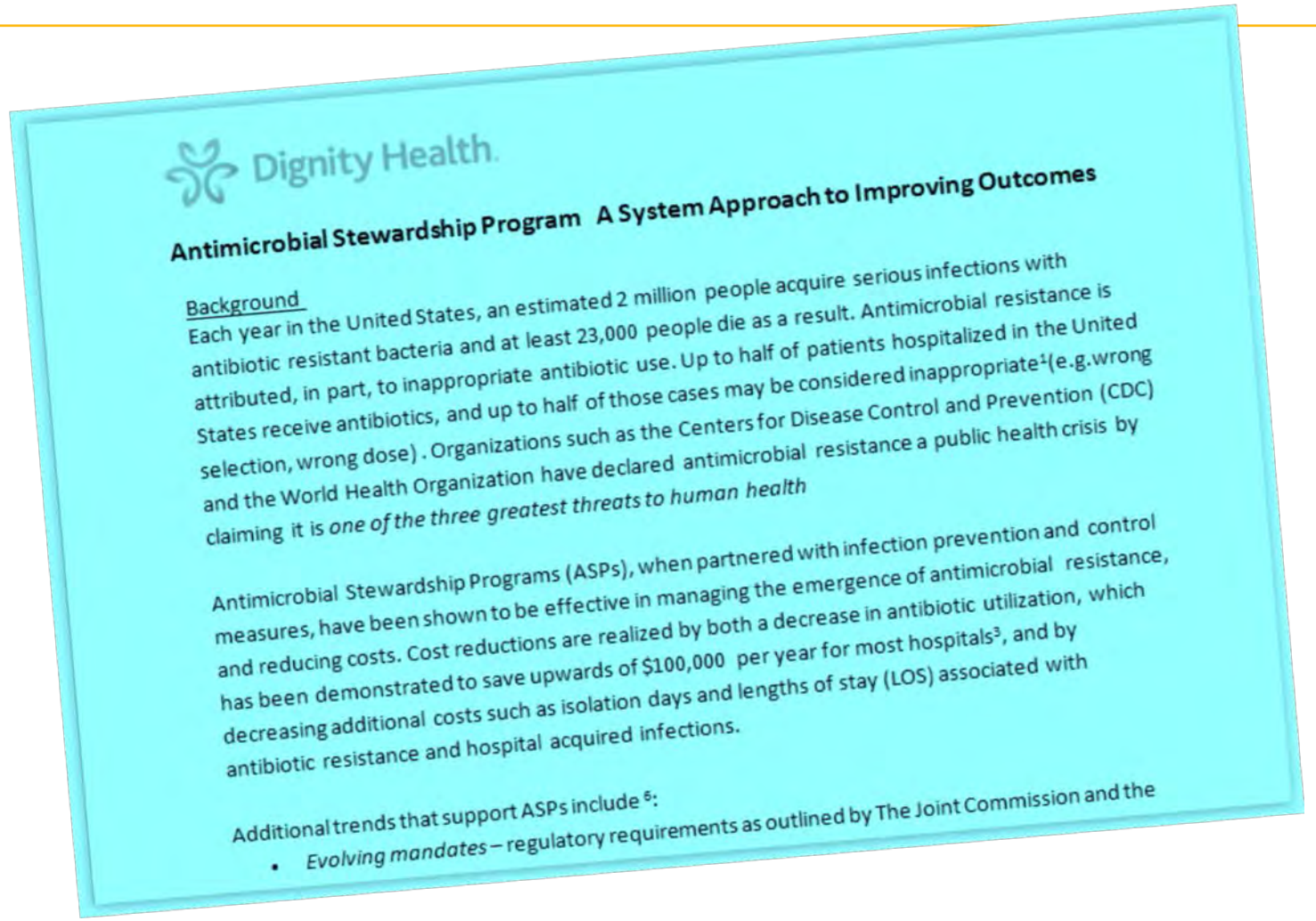

Keep it on your
RADAR
Raise Awareness Decrease Antimicrobial Resistance
Keep it on your
RADAR
Raise Awareness Decrease Antimicrobial Resistance

Antimicrobial Stewardship System Strategies

- ASP Taskforce of pharmacists, nurses and ID physicians
- Completion of a system policy
- Completion of a system White Paper
- Completion of Educational Modules for nursing, pharmacy and physicians
- Patient Educational tools
- Gap analysis for regulatory compliance (TJC, CDC, CMS)

February 2017 This is a Patient Safety Work Product.

ASP System White Paper



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Antimicrobial Stewardship Program A System Approach to Improving Outcomes

Background

Each year in the United States, an estimated 2 million people acquire serious infections with antibiotic resistant bacteria and at least 23,000 people die as a result. Antimicrobial resistance is attributed, in part, to inappropriate antibiotic use. Up to half of patients hospitalized in the United States receive antibiotics, and up to half of those cases may be considered inappropriate[1](e.g.wrong selection, wrong dose) . Organizations such as the Centers for Disease Control and Prevention (CDC) and the World Health Organization have declared antimicrobial resistance a public health crisis by claiming it is *one of the three greatest threats to human health*

Antimicrobial Stewardship Programs (ASPs), when partnered with infection prevention and control measures, have been shown to be effective in managing the emergence of antimicrobial resistance, and reducing costs. Cost reductions are realized by both a decrease in antibiotic utilization, which has been demonstrated to save upwards of $100,000 per year for most hospitals[3], and by decreasing additional costs such as isolation days and lengths of stay (LOS) associated with antibiotic resistance and hospital acquired infections.

Additional trends that support ASPs include [5]:

- *Evolving mandates* – regulatory requirements as outlined by The Joint Commission and the

Educational Modules – All Clinicians

Nurses—What Can You Do?

- Question the antibiotic administration route – is the patient ready for early switch from I.V. antibiotic therapy to oral therapy?
  - ✓ This can help shorten hospital stays and reduces the risk of infection from I.V. catheter access.
- Sensitivity reports facilitate more appropriate antibiotic selection and should be reviewed when available.
  - ✓ Discussion with physician may be warranted to advocate for narrow-spectrum antibiotic therapy and ask for clarification about the projected duration of therapy.
- Be sure to monitor the patient for side effects and toxicity.
- On discharge, make sure your patient is educated on discharge antibiotics. Review dose, route, frequency, indication, and common side effects of the antibiotics.
- Reconcile antibiotics during all patient-care transitions. To help reduce inappropriate antibiotic use during these transitions, ask physician to review the need for antibiotic therapy.
  - ✓ Durations of therapy may be as short as 3 days for indications such as UTI

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Olans RN. Clin Infect Dis. 2016 Jan 1;62(1):84-9.

De-escalation Education Points for Physicians

- Use results of your facilities rapid diagnostic tests, e.g., Verigene®, BioFire®, to narrow antimicrobial coverage
- Select more specific antimicrobial therapy using culture and susceptibility data when it is made available
- For patients with no positive cultures, consider de-escalation of therapy within 48 to 72 hours depending on the patient's clinical status

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Pharmacists—What Can You Do?

Ensure the patient is…

- On the **RIGHT** antibiotic
  - Consider spectrum of activity, penetration into site of activity, volume of distribution, drug-drug interactions, bacteriostatic vs bactericidal.
- For the **RIGHT** indication/organism suspected or confirmed
  - Confirm right empiric coverage for infection based on facility guidelines/antibiogram.
  - Identify opportunities to improve antimicrobial therapy through de-escalation, drug-bug mismatch, and optimization.
  - Utilize rapid detection assays to guide therapy.
- With the **RIGHT** dose and frequency
  - Optimize antimicrobial dose via dose adjustments based on therapeutic drug monitoring and in cases of organ dysfunction
  - Use of extended-infusion administration of beta-lactams, optimizing therapy for highly drug-resistant bacteria.

Dellit TH. CID. 2007 Jan 15;44(2):159-77.

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Monthly Newsletters

Antimicrobial Stewardship
A System Approach to Improving Outcomes
Update No. 2, December 2016

Antimicrobial Stewardship (ASP) is a coordinated program that is designed to promote and improve the appropriate use of antimicrobials (including antibiotics), which in turn improves patient outcomes and reduces antimicrobial resistance.

What Work is Dignity Health Doing to Reduce C-Diff?

Clostridium difficile (C-diff) has emerged as one of the most significant health care-associated infection within the United States in recent years. Dignity Health recognizes the significance and impact of Clostridium difficile on our patient population. As such, one of our Fiscal Year17 goals is to work on multiple initiatives to reduce the risk of C-diff. This includes but not limited to:

Partnering with pharmacy to implement a robust system wide antimicrobial stewardship program by implementing software that will provide data and analysis which will drive appropriate antibiotic selection.

Standardizing environmental cleaning agents to improve effectiveness, staff safety, dwell time, and compliance.

In addition, standardizing quality assurance testing by utilizing biomarkers to assess cleanliness of patient rooms post discharge.

Initiating a system wide hand hygiene campaign that focuses on providers, patients, and their family.

This is accomplished by producing a patient centered hand hygiene video that will be shared with patients upon admission, monitoring hand hygiene compliance via iPads, standardizing a system wide hand hygiene policy, initiating screen savers for hand hygiene, trialing electronic hand hygiene monitoring system, and distributing hand hygiene infographics created by the system office.

Trialing early detection protocols to treat, isolate, and prevent the spread of C-diff at one of our facilities.

This includes exclusion criteria integrated into Cerner and an automated trigger to initiate testing and informing the physician of patient symptoms.

Collaborating with Lab council to determine standardization efforts for C-diff testing.

Questions? Need More Information?

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Antimicrobial Stewardship
A System Approach to Improving Outcomes
Update No. 5, March 2017

Antimicrobial Stewardship (ASP) is a coordinated program that is designed to promote and improve the appropriate use of antimicrobials (including antibiotics), which in turn improves patient outcomes and reduces antimicrobial resistance.

Surgical Antibiotic Prophylaxis (SAP)

with good medical practices, including infection prevention and control, surgical technique, hospital and operating room environment, and instrumentation sterilization processes, the rate of surgical site infections (SSIs) diminishes. Appropriate antibiotic prophylaxis also plays an important role in preventing surgical site infections. As supported by most guidelines, the duration of antimicrobial prophylaxis should be less than 24 hours for most procedures with the exception of cardio-thoracic procedures for which prophylaxis duration of up to 48 hours has been accepted. However, evidence is mounting that post-operative antimicrobial administration is not necessary for most procedures.

Preoperative antibiotic prophylaxis has been demonstrated to reduce the risk of surgical site infections across different types of surgical procedures in multiple randomized controlled trials and meta-analyses.

Antibiotics selected should have few adverse effects and the narrowest spectrum of activity necessary to prevent post-operative infections. Antibiotics should be administered 60-120 minutes before surgical incision. Doses should be adjusted for obesity.

Intra-operative antibiotics need to be administered for prolonged procedures (greater than four hours), or for agents with short half-life or blood loss greater than 300ml to ensure adequate and tissue concentrations maintained.

Most guidelines recommend a maximum post-operative SAP duration of 24 hours, but more evidence shows that administering a single preoperative dose with or without intra-operative dose might be non-inferior.

Recently, the World Health Organization (WHO) published recommendations on post-operative antibiotics for SSI prevention. Lancet Infect Dis 2016; 16:e288-303. Forty-four randomized controlled trials, including 17,805 patients (mostly adult and some pediatric) investigating optimal duration of antibiotic prophylaxis in various surgical procedures were reviewed.

The meta-analysis shows that prolonged SAP post-operatively has no benefit in reducing SSI after surgery when compared to a single dose pre-operatively with possible intra-operative doses (moderate quality). However, there was some evidence (low to very low quality) that a prolonged post-operative administration of antibiotics may be beneficial to reduce the risk of SSI in cardiac, vascular and orthognathic surgery when compared to single-dose prophylaxis.

Overall, the panel recommends against the prolongation of antibiotic administration after completion of the operation for the purpose of preventing SSI.

Need More Information?

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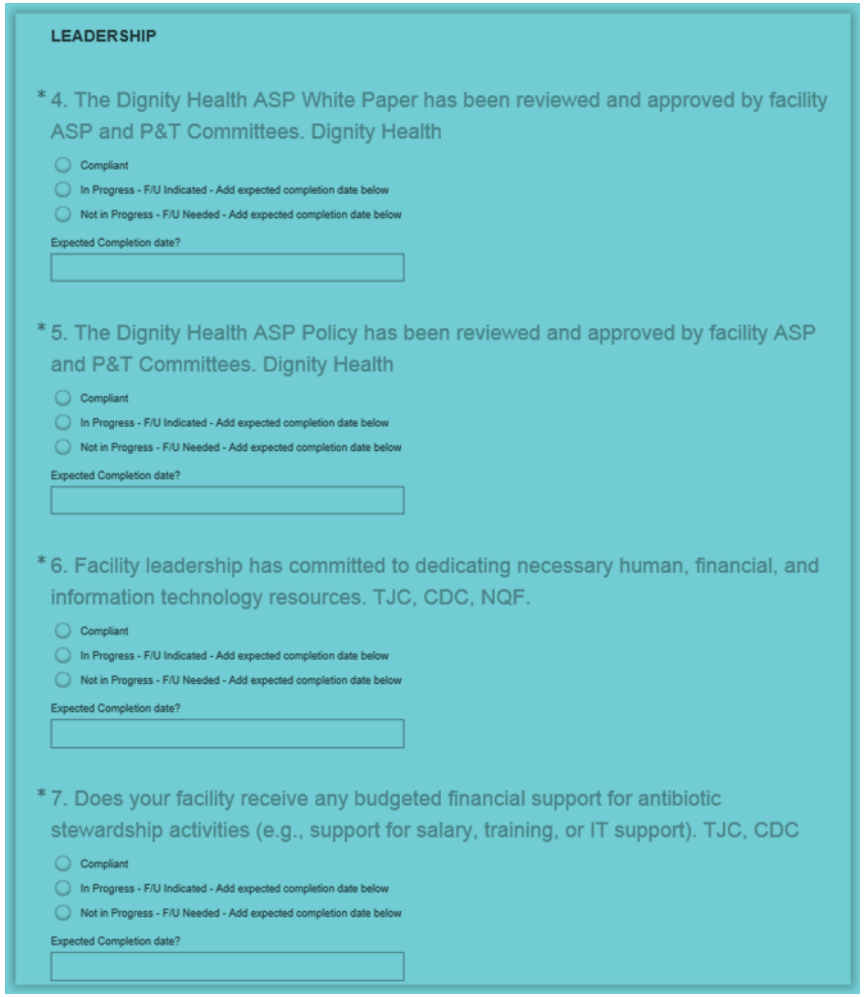
Screensavers

Screensavers

ASP Compliance Survey



LEADERSHIP

* 4. The Dignity Health ASP White Paper has been reviewed and approved by facility ASP and P&T Committees. Dignity Health

- Compliant
- In Progress - F/U Indicated - Add expected completion date below
- Not in Progress - F/U Needed - Add expected completion date below

Expected Completion date?

* 5. The Dignity Health ASP Policy has been reviewed and approved by facility ASP and P&T Committees. Dignity Health

- Compliant
- In Progress - F/U Indicated - Add expected completion date below
- Not in Progress - F/U Needed - Add expected completion date below

Expected Completion date?

* 6. Facility leadership has committed to dedicating necessary human, financial, and information technology resources. TJC, CDC, NQF.

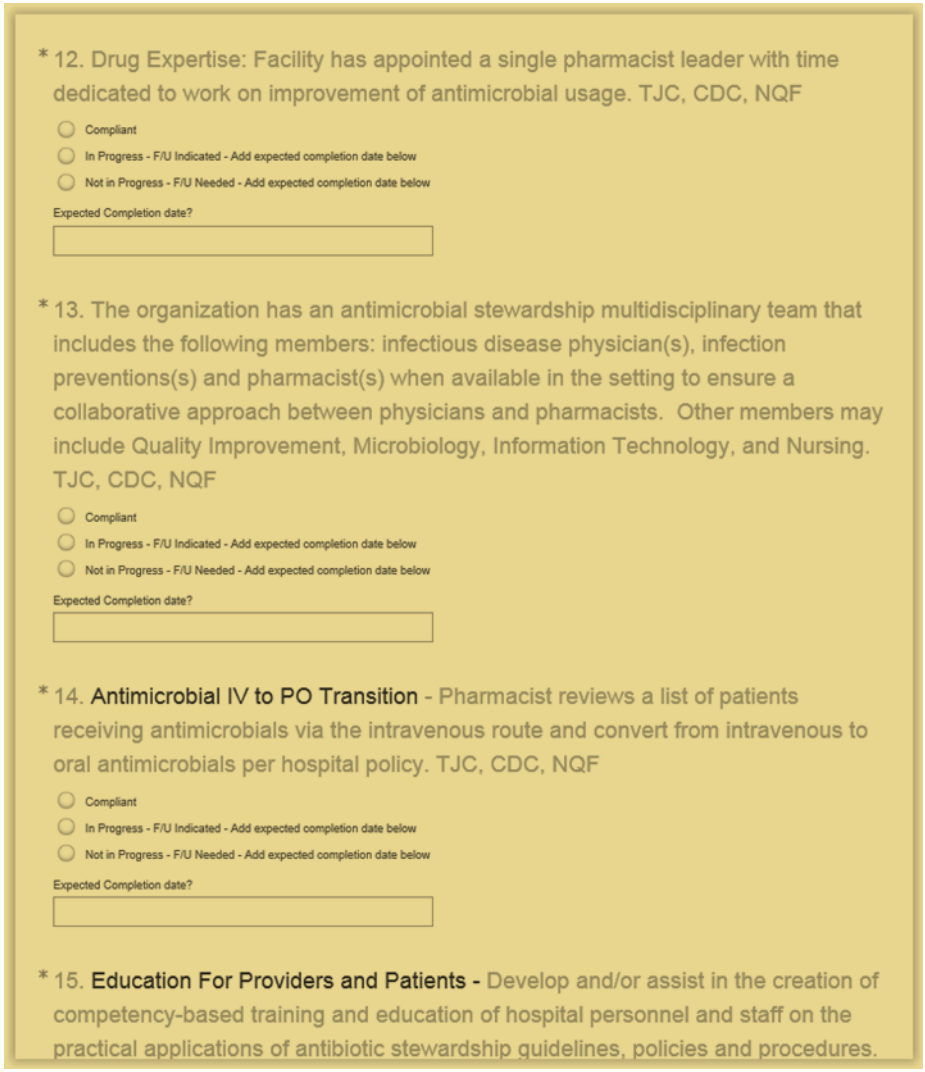
- Compliant
- In Progress - F/U Indicated - Add expected completion date below
- Not in Progress - F/U Needed - Add expected completion date below

Expected Completion date?

* 7. Does your facility receive any budgeted financial support for antibiotic stewardship activities (e.g., support for salary, training, or IT support). TJC, CDC

- Compliant
- In Progress - F/U Indicated - Add expected completion date below
- Not in Progress - F/U Needed - Add expected completion date below

Expected Completion date?



* 12. Drug Expertise: Facility has appointed a single pharmacist leader with time dedicated to work on improvement of antimicrobial usage. TJC, CDC, NQF

- Compliant
- In Progress - F/U Indicated - Add expected completion date below
- Not in Progress - F/U Needed - Add expected completion date below

Expected Completion date?

* 13. The organization has an antimicrobial stewardship multidisciplinary team that includes the following members: infectious disease physician(s), infection preventions(s) and pharmacist(s) when available in the setting to ensure a collaborative approach between physicians and pharmacists. Other members may include Quality Improvement, Microbiology, Information Technology, and Nursing. TJC, CDC, NQF

- Compliant
- In Progress - F/U Indicated - Add expected completion date below
- Not in Progress - F/U Needed - Add expected completion date below

Expected Completion date?

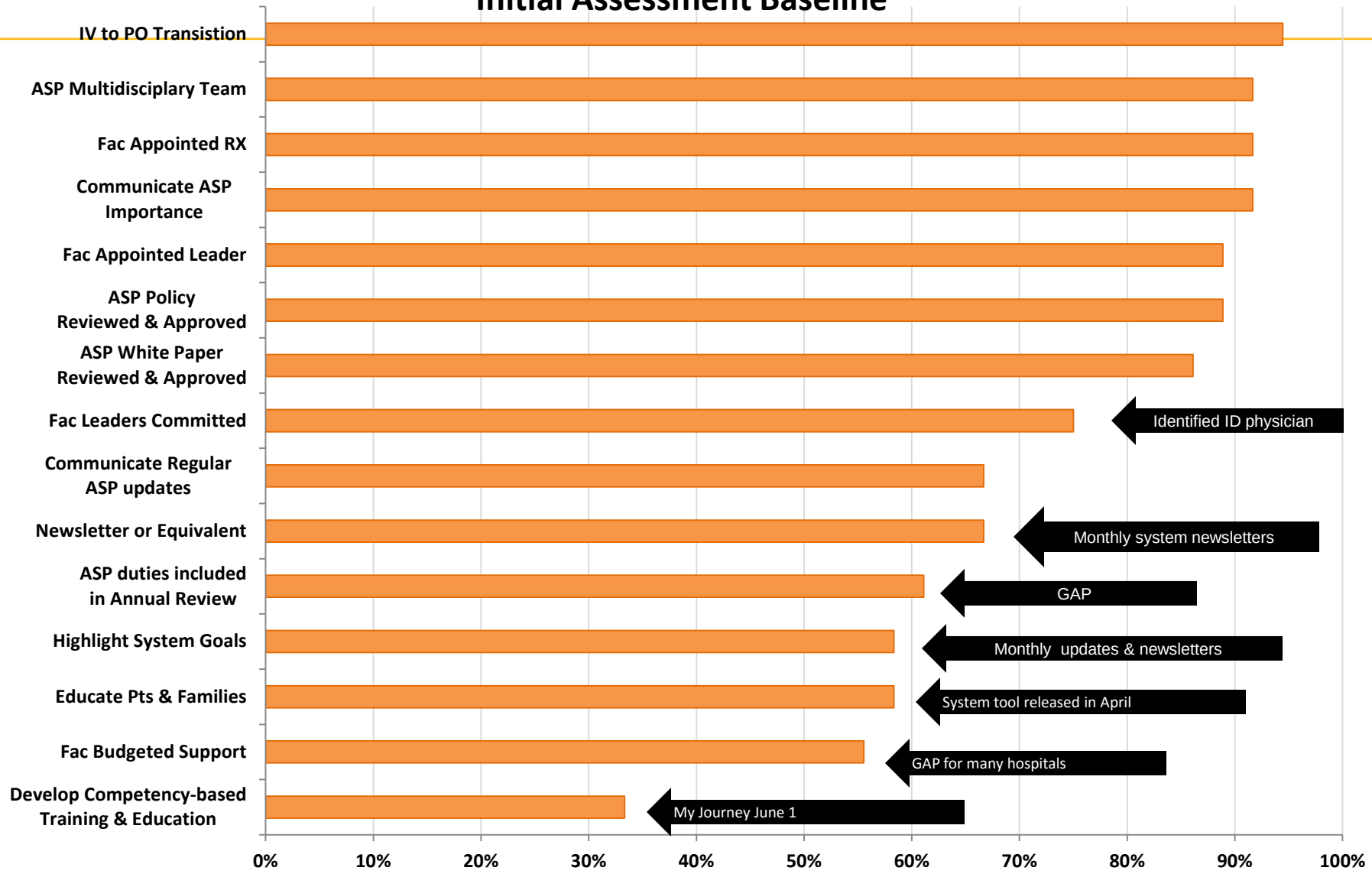
* 14. **Antimicrobial IV to PO Transition** - Pharmacist reviews a list of patients receiving antimicrobials via the intravenous route and convert from intravenous to oral antimicrobials per hospital policy. TJC, CDC, NQF

- Compliant
- In Progress - F/U Indicated - Add expected completion date below
- Not in Progress - F/U Needed - Add expected completion date below

Expected Completion date?

* 15. **Education For Providers and Patients -** Develop and/or assist in the creation of competency-based training and education of hospital personnel and staff on the practical applications of antibiotic stewardship guidelines, policies and procedures.

ASP Compliance Work Plan Questions
Overall Percentage Complete
Initial Assessment Baseline



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Metric: Days of Therapy

Numerator

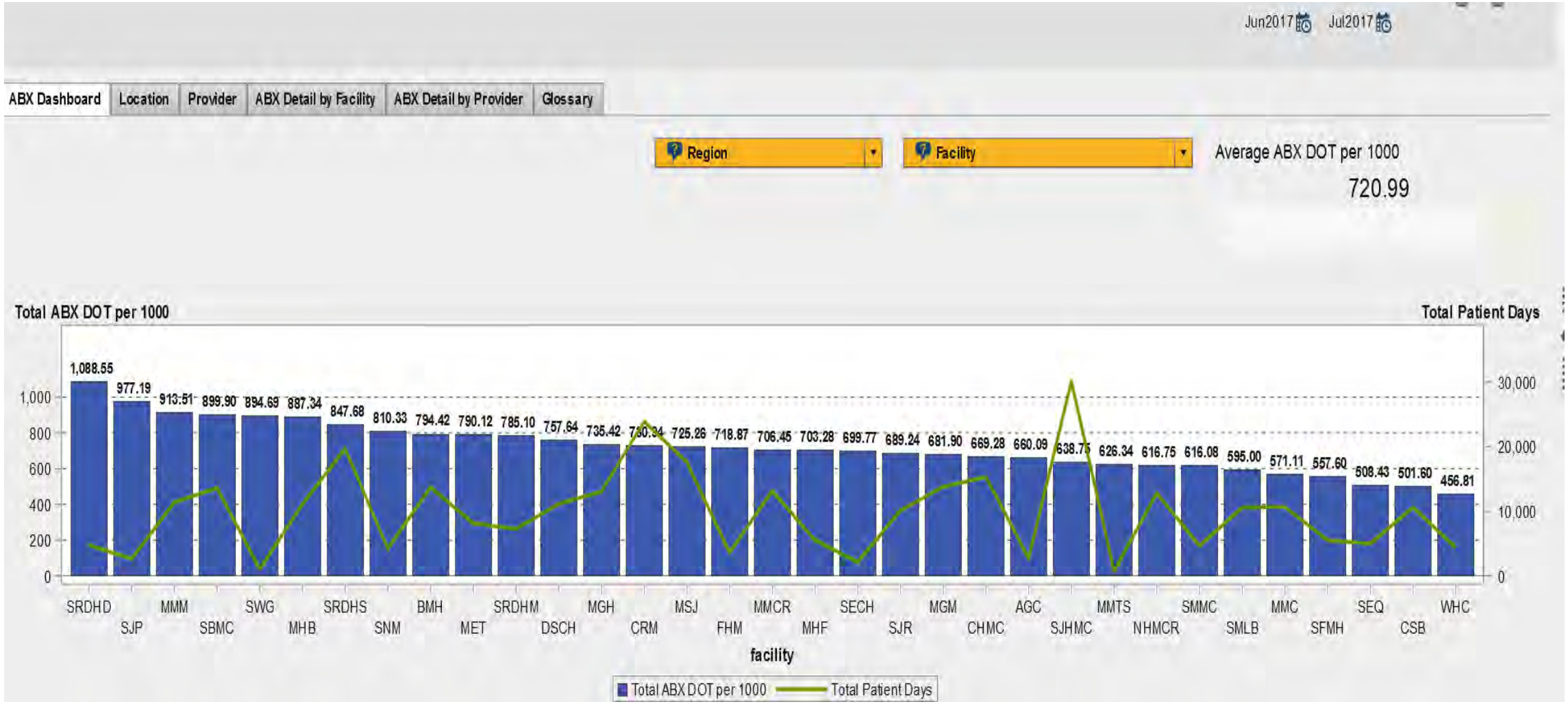
- Inpatients & Observation on antimicrobials
- antibiotics, antifungals and antivirals list from NHSN

Denominator

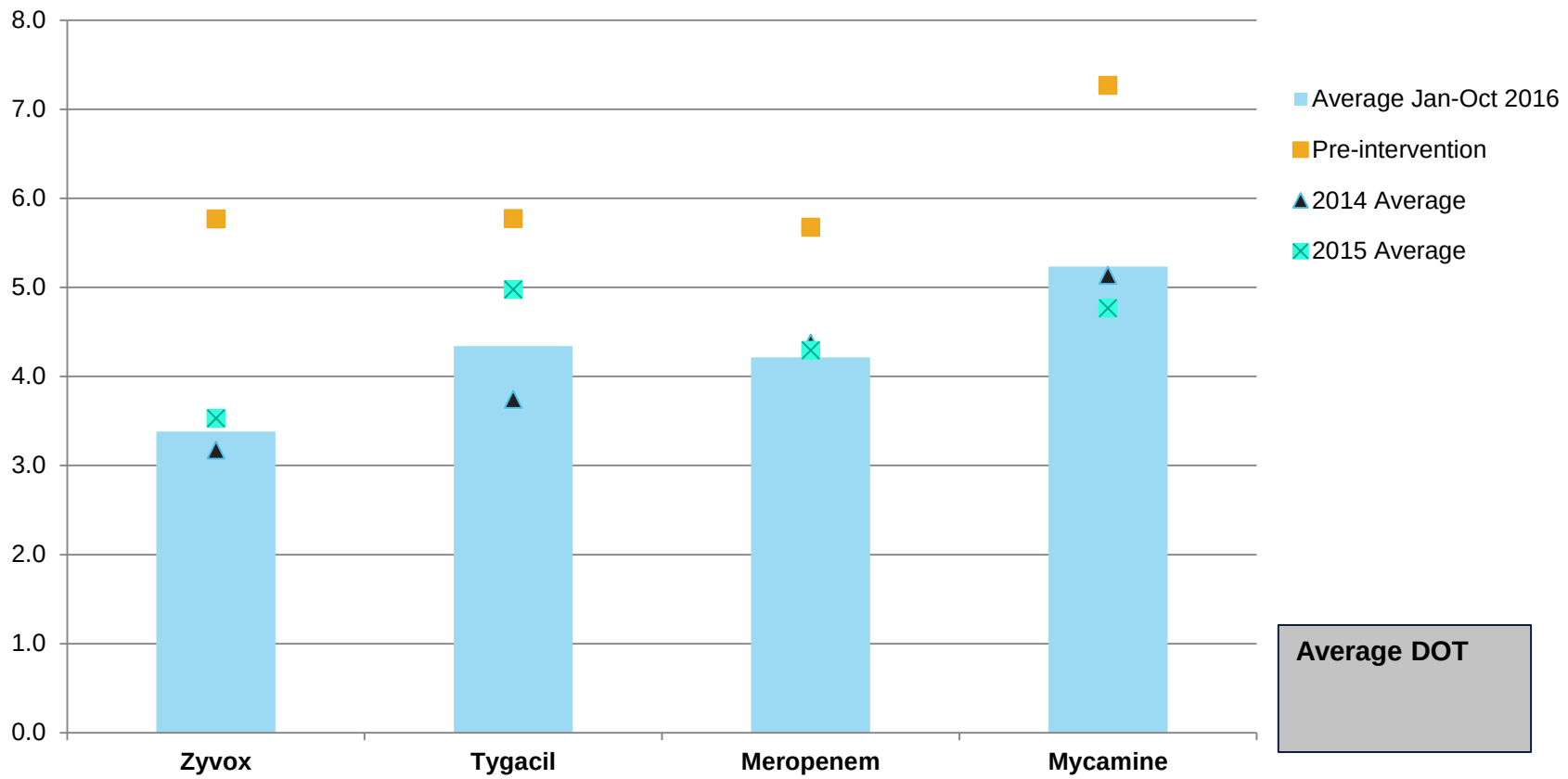
- 1000 patient days
- based on inpatient & Observation census data that is submitted to NHSN

Exclusions: outpatients units / ED / ambulatory surgery / ED Holds

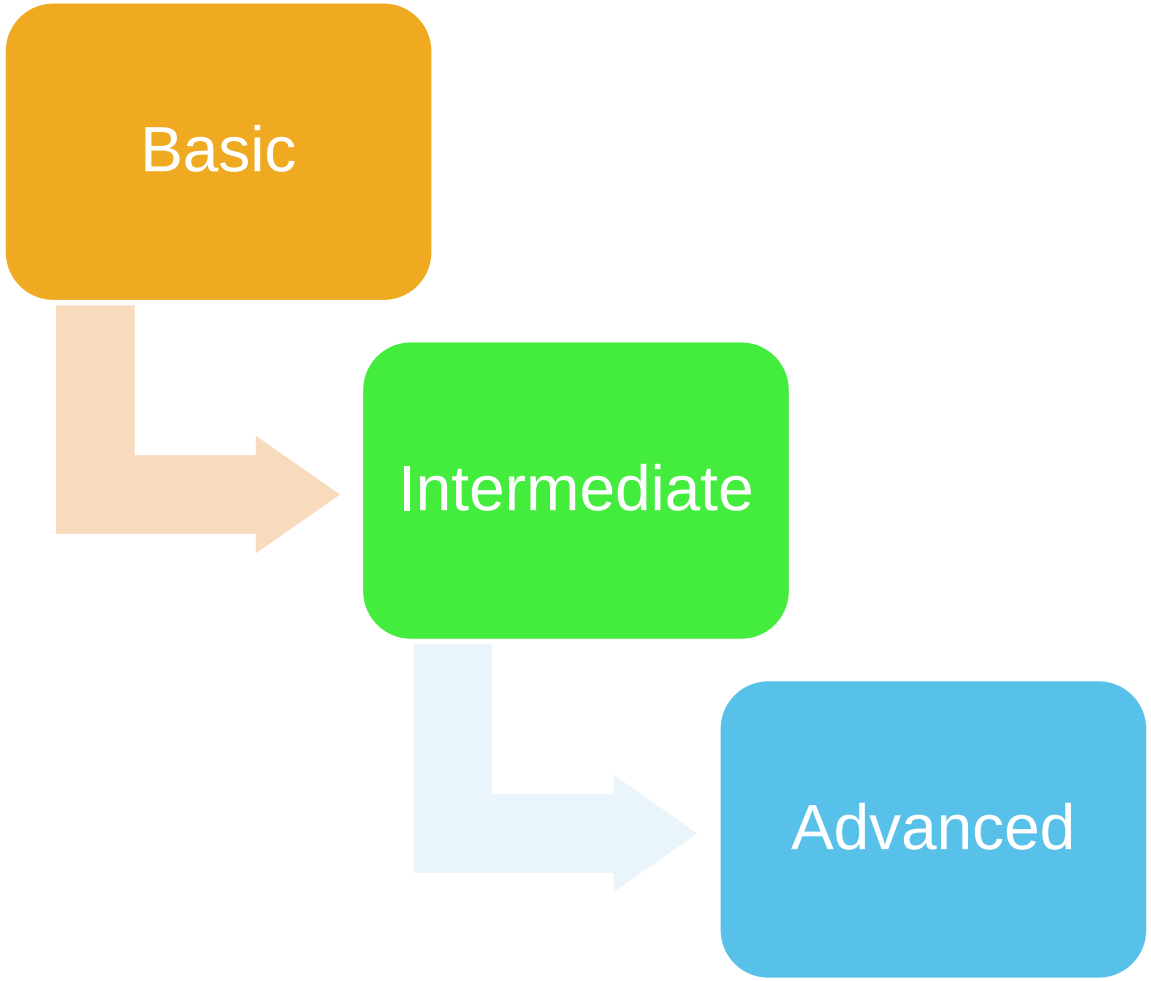
Dignity Health Insights - DOT Source



Example of Success: Average Days of Therapy



Elements of Performance for Surveyors



Keys to Success

- Dedicated resources – Physician and Pharmacist
- Formal / organized plan
- Technology to support analysis
- Accountability

Why We Must Act Now

- The way we use antimicrobials today directly impacts how effective they will be tomorrow; the way we use antimicrobials in one patient directly impacts how effective they will be in another patient. They are a **shared resource.**
- Antimicrobial resistance is not just a problem for the person with the infection. Some **resistant microbes have the potential to spread to others** – promoting antimicrobial-resistant infections.
- Since it will be **many years** before new antimicrobials are available to treat some resistant infections, we need to improve the prescribing of antimicrobials that are currently available.

Polling Question

Antimicrobial “…misuse is the single most modifiable and important factor leading to resistance”.

a) True

b) False

Retrieved 8/16/2017 from https://mentis.uta.edu/dashboard/file/download/id/196963

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Thank you

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