



EQuIP for LTC webinar

“Bugs and Drugs”

4/26/17 10:00 AM

PUBLIC HEALTH
ALWAYS WORKING FOR A SAFER AND
HEALTHIER COMMUNITY





Bugs and Drugs in Nursing Homes

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Antibiotic Resistance Lab

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ID Pharmacist Specialist

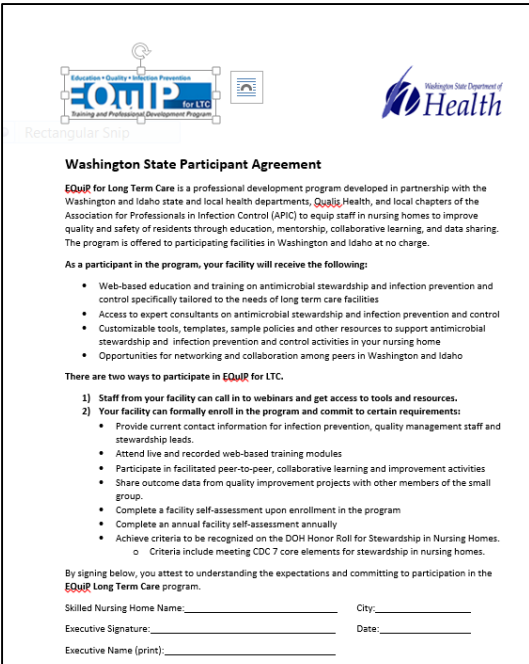
St Joseph Medical Center

PUBLIC HEALTH
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Enrollment in EQulP

- Formal participation encouraged (not mandatory)
- Requires signed enrollment form by facility leadership & contact info for facility attendees
- Annual facility self-assessment
- Opportunity to participate in small group collaborative and QI projects
 - Work together
 - Share outcome data
 - Community of support
- Establish ASP & be recognized on DOH Honor Roll for Stewardship



Washington State Participant Agreement

EQulP for Long Term Care is a professional development program developed in partnership with the Washington and Idaho state and local health departments, **Quality Health**, and local chapters of the Association for Professionals in Infection Control (APIC) to equip staff in nursing homes to improve quality and safety of residents through education, mentorship, collaborative learning, and data sharing. The program is offered to participating facilities in Washington and Idaho at no charge.

As a participant in the program, your facility will receive the following:

- Web-based education and training on antimicrobial stewardship and infection prevention and control specifically tailored to the needs of long term care facilities
- Access to expert consultants on antimicrobial stewardship and infection prevention and control
- Customizable tools, templates, sample policies and other resources to support antimicrobial stewardship and infection prevention and control activities in your nursing home
- Opportunities for networking and collaboration among peers in Washington and Idaho

There are two ways to participate in **EQulP** for LTC.

- 1) Staff from your facility can call in to webinars and get access to tools and resources.
- 2) Your facility can formally enroll in the program and commit to certain requirements:
 - Provide current contact information for infection prevention, quality management staff and stewardship leads.
 - Attend live and recorded web-based training modules
 - Participate in facilitated peer-to-peer, collaborative learning and improvement activities
 - Share outcome data from quality improvement projects with other members of the small group.
 - Complete a facility self-assessment upon enrollment in the program
 - Complete an annual facility self-assessment annually
 - o Criteria include meeting CDC 7 core elements for stewardship in nursing homes.

By signing below, you attest to understanding the expectations and committing to participation in the **EQulP** Long Term Care program.

Signed Nursing Home Name: _____ City: _____

Executive Signature: _____ Date: _____

Executive Name (print): _____

JumpStart Stewardship

Implementing Antibiotic Stewardship in Nursing Homes



Leadership Commitment Poster

- Customize for your facility
- Post in prominent location
- Include in admission packet

**Your nursing home
photo and logo here!**



A Commitment to Our Patients about Antibiotics

What we will do as your healthcare team

Your health is important to us. When you have an illness, we promise to provide the best possible treatments for your condition. If an antibiotic is not needed, or would do more harm than good, we will explain this to you and offer other treatments that are better for you.

Antibiotics only fight infections caused by bacteria

- Antibiotics don't work for viral infections like the common cold, most coughs, and most sore throats.
- If you're sick from a virus and you take antibiotics, you won't get better and you could get bad side effects.
- Antibiotics should only be taken when necessary.
- Buying medications that won't help you is a waste of your money.

Problems with using antibiotics

Antibiotics make bacteria more resistant and can make future infections harder to treat.

Side effects include:

- Drug-resistant infections ("superbugs")
- Skin rashes
- Diarrhea (including *C. difficile* which can be serious and difficult to treat)
- Yeast infections

What should you do?

- If you get an antibiotic, take it as prescribed.
- If you don't get an antibiotic but think you need one, discuss your concerns with us.

Our promise

As your healthcare team, we promise to provide the best possible treatments for your condition. We are dedicated to prescribing antibiotics only when they are needed, and we will avoid giving them to you when they might do more harm than good.

If you have any questions, please feel free to ask your doctor, nurse, or pharmacist.

Clinic Picture Here

Clinic Name Here

Clinic Logo Here



www.medicare.qualishealth.org

This material was prepared by the Washington State Department of Health, the Washington State Medical Association and Qualis Health, the Medicare Quality Improvement Network - Quality Improvement Organization (QIO-QIO) for Idaho and Washington, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. ©2014-2015 10/21-2/15/15-02-17

Material adapted from: Mosaker D, Knight TK, Friedberg ME, et al. JAMA Intern Med. 2014;174(3):405-417. doi:10.1093/iamctam/2013.14191 and Centers for Disease Control and Prevention (CDC). Get Smart: Know When Antibiotics Work materials. <https://www.cdc.gov/getsmart/community/index.html>.

Bacteriology and Antimicrobial Resistance

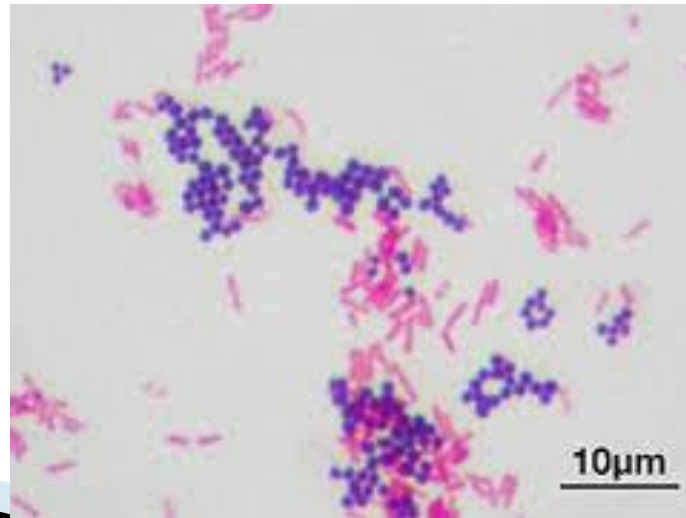
Ryan S. Ruiz, MS, MLS (ASCP)^{cm}
Washington State Department of Health
Antibiotic Resistance Lab Network

Clinical Microbiology

- Bacteriology
- Common Infections
- Resistance Mechanisms
- Interpretation of Antimicrobial Resistance Testing

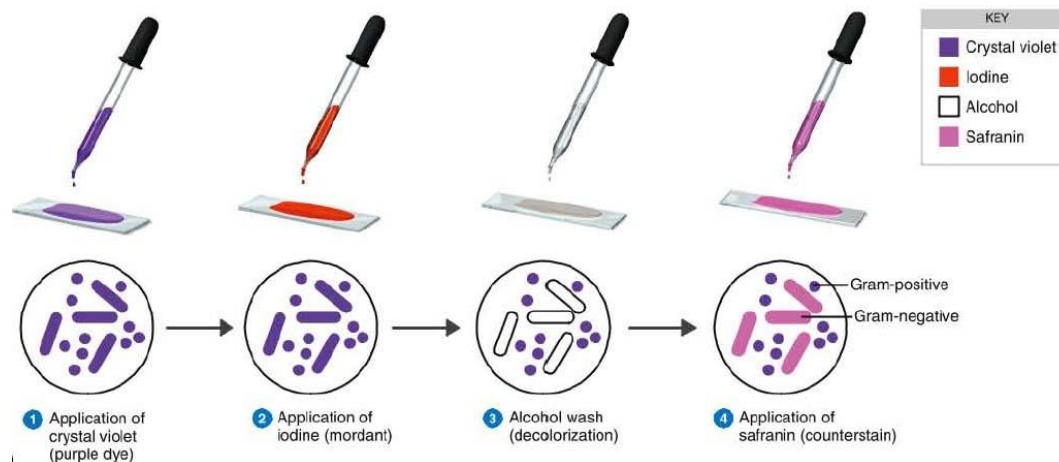
Divide into two large groups

- ▶ The gram stain is a method to divide bacteria into either gram positive or gram negative organisms.
- ▶ A series of dyes and chemicals produces a blue/purple or pink/red color under a microscope



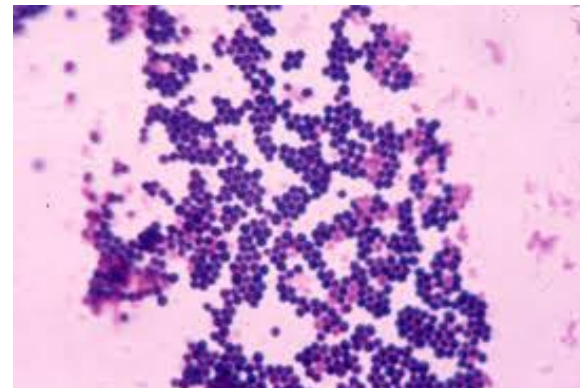
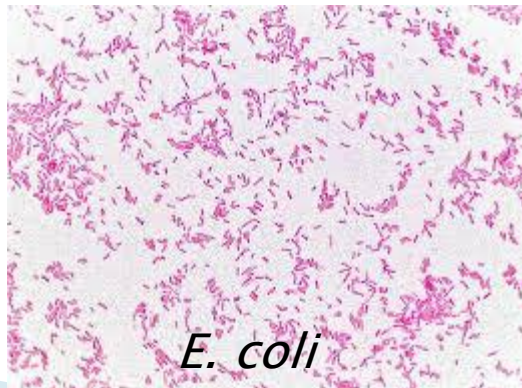
Clinical Decisions

- ▶ The gram stain is an excellent tool to understand what may be going on.
- ▶ Empiric therapy is often dictated by this method. (Explained by next speaker)
- ▶ Part of a larger clinical picture.



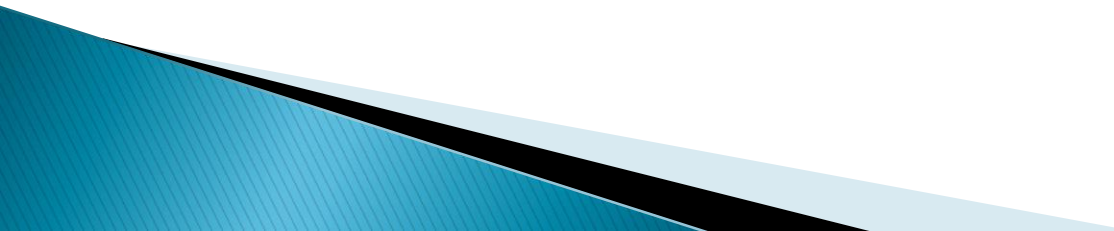
Common Infections

- ▶ Urinary tract infections are commonly associated with use of urinary catheter.
- ▶ NHSN approximates 75% are hospital acquired infections.
- ▶ Typical organisms: *Escherichia coli*, *Staphylococcus sp.* including *aureus*.



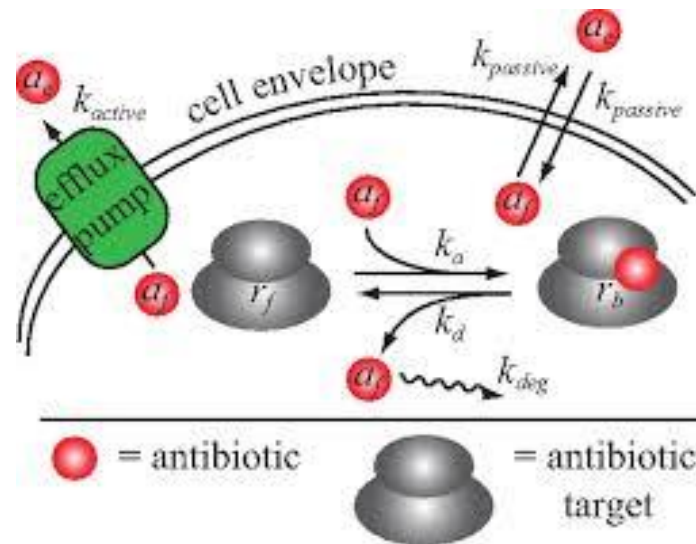
Staph spp.

Location, Location, Location

- ▶ Often, the site of infection may lead to clues as to the type of organism seen.
 - ▶ Skin or superficial: Gram Positives (depending on location)
 - ▶ Deeper tissue (sterile sites): sometimes gram positive (rods)
 - ▶ Respiratory: Mixture of Gram Positive, Negative, and Yeast
- 

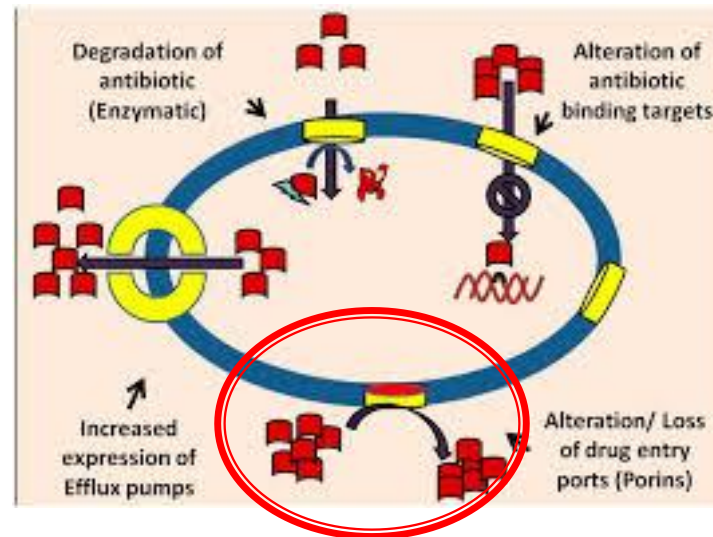
Resistance to antibiotics

- ▶ Typically four ways bacteria combat drugs:
- ▶ i. pump it out



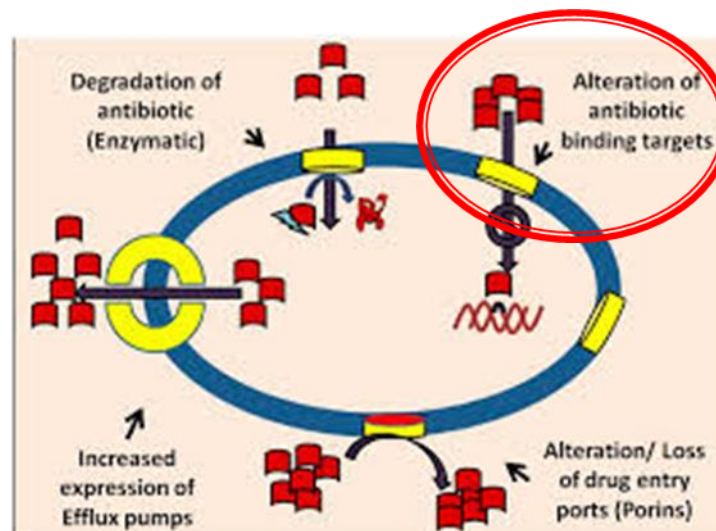
Resistance to antibiotics

- ▶ Typically four ways bacteria combat drugs:
- ▶ i. pump it out
- ▶ ii. Keep it out



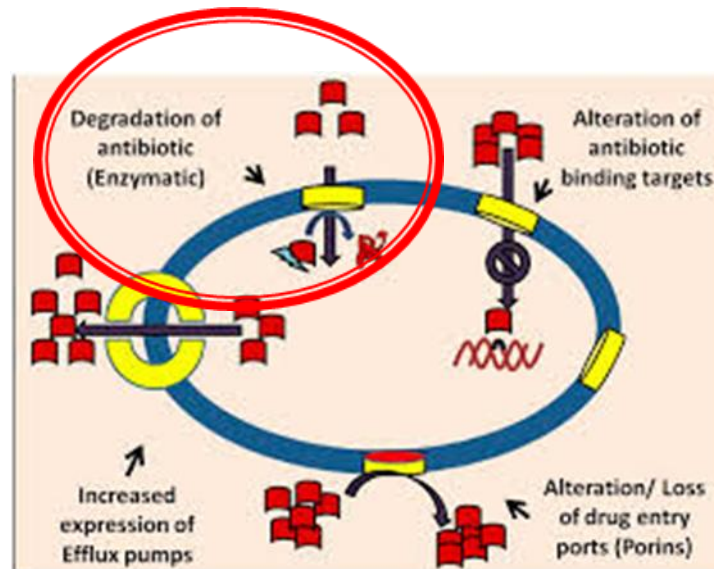
Resistance to antibiotics

- ▶ Typically four ways bacteria combat drugs:
 - ▶ i. pump it out
 - ▶ ii. Keep it out
 - ▶ iii. Change on themselves where the drug would target



Resistance to antibiotics

- ▶ Typically four ways bacteria combat drugs:
 - ▶ **IV. DESTROY THE DRUG!!!**



Antimicrobial Susceptibility Testing

- ▶ A way for laboratories to determine what drugs will work for what bugs.



Kirby Bauer



E test



Microbroth
Dilution

Antimicrobial Susceptibility Testing

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 4	Sample 6
Oxytetracyclin	S	S	I	S	S	I
Streptomycin	I	I	I	S	R	I
Neomycin	S	I	R	S	R	I
Penicillin	S	R	S	S	S	I
Ampicillin	S	I	S	S	S	I
Ceftriaxone	S	S	S	S	S	I
Sulfamethoxazole-trimetoprim	S	S	I	S	R	I
Gentamicin	S	S	I	S	R	I
Amoxicillin	S	R	S	S	S	I
Amoxicillin + clavul. acid	S	S	S	S	S	I

R – resistant; I – intermediary; S sensitive; / has not been performed

KB is qualitative

Antibiotics	MICs (µg/ml)		
	<i>M. morganii</i>	<i>E. coli</i>	<i>E. coli</i>
	SM12012	HB101	SM12012 HB101
Amoxicillin	512	512	8
Ticarcillin	256	>512	8
Cephalothin	>512	256	<2
Cefoxitin	64	32	2
Cefotaxime	512	32	<2
Ceftriaxone	64	64	<2
Ceftazidime	128	128	<2
Aztreonam	128	128	<2
Nalidixic acid	512	>512	512
Chloramphenicol	128	8	<2
Tetracycline	64	8	<2
Ciprofloxacin	32	8	2
Ofloxacin	32	32	2
Streptomycin	64	512	2
Ertapenem	<0.25	<0.25	<0.25
Imipenem	4	2	<2

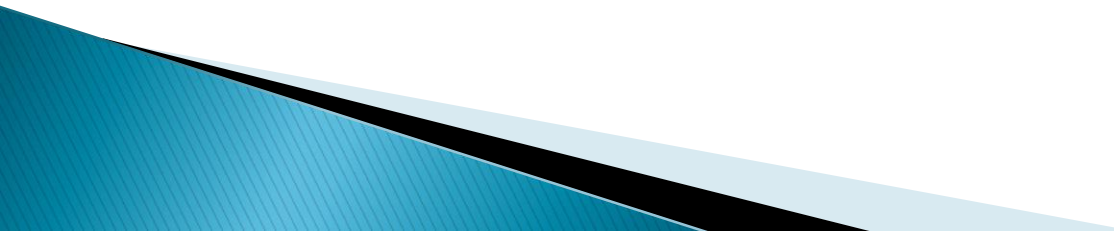
E Test and MB are quantitative

Note: Always confer with physician and/or pharmacist for treatment options!!

Real-World Application of the Antibigram

Justin Jellison, PharmD
Infectious Disease Pharmacist Specialist
St. Joseph Medical Center, Tacoma, WA

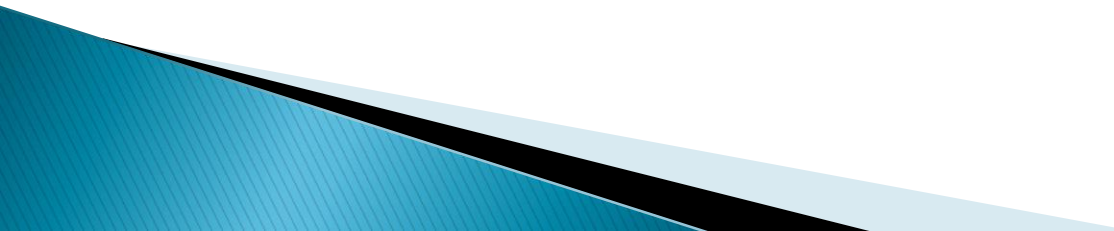
I have an antibiogram, now what?

- ▶ Interpreting the antibiogram
 - ▶ Guide empiric antimicrobial selection
 - Pneumonia (PNA)
 - Urinary Track Infection (UTI)
 - Skin, soft tissue (SSTI)
 - ▶ Detect and track trends in antimicrobial resistance
- 

Interpreting the Antibioqram

2015 Summary St. Joseph Medical C																							
Percent Susceptible																							
	# of isolates	Amp/Sulb	Ampicillin	Cefazolin	Ceftazidime	Ceftriaxone	Cefepime	Ciprofloxacin	Levofloxacin	Gentamicin	Tobramycin	Nitrofurantoin	Meropenem	pip/Tazobactam	Trimeth/sulfa	Clindamycin	Erythromycin	Oxacillin	penicillin	Rifampin	Tetracycline	Vancomycin	Beta-lactamase
Gram Positive Isolates																							
Staphylococcus aureus	779							50	50	99					94	71	40	48	0	99	91	100	
Staphylococcus not aureus	154							44	46	87					56	61	47	41	1	98	83	100	
Enterococcus species	184		88																			92	
Strep pneumoniae, invasive	12					100			100						85		90		90			100	
Strep pneumoniae, non-invasive	17					100			100						100		90		100			100	
Gram Negative Isolates																							
Acinetobacter baumannii	20	0	0	0	40	0	65	55	60	75	80	0	NA	NA	70								
Citrobacter freundii	22	0	0	0	86	86	95	95	95	91	95	86	100	91	86								
Enterobacter aerogenes	37	0	0	0	76	76	100	86	86	100	100	46	100	76	95								
Enterobacter cloacae	76	0	0	0	72	76	92	89	89	96	93	32	93	75	93								
Escherichia coli	1,283	57	48	83	89	89	90	72	72	90	91	95	100	95	71								
Haemophilus influenzae	41																						75
Klebsiella pneumoniae	231	84	0	92				88	89	97	94	40	100	96	89								
Klebsiella oxytoca	45	56	0	67				89	91	91	96	96	81	100	91	87							
Moraxella catarrhalis	101																						0
Proteus mirabilis	104	81	60	89	92	92	92	64	69	86	89	0	100	100	57								
Pseudomonas aeruginosa	201				87		91	60	56	83	90		87	90									
Serratia marcescens	31	0	0	0	100	100	100	97	97	100	97	0	94	97	100								

Guide Empiric Antimicrobial Selection

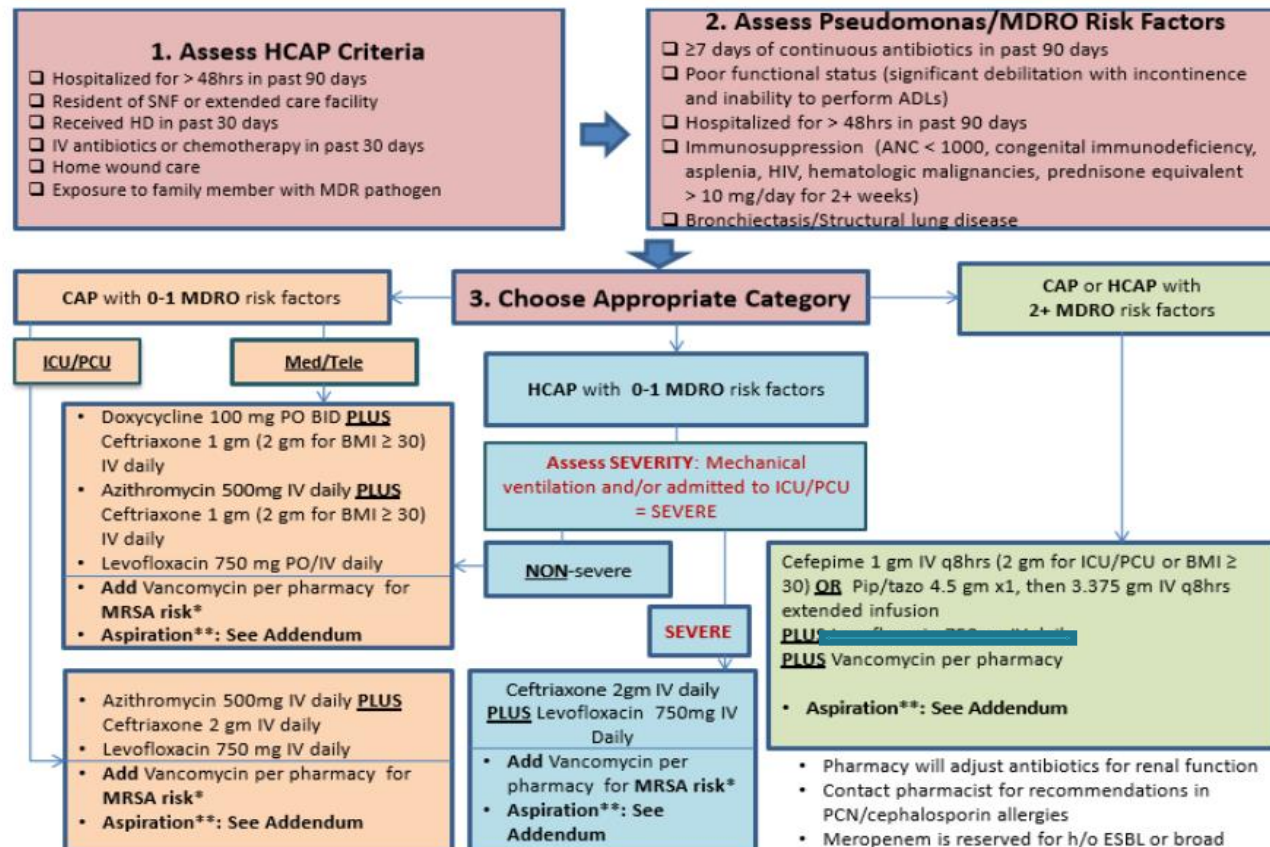
- ▶ Site-specific recommendations
 - Order sets, guidelines, algorithms
 - ▶ Educate!
- 

Guide Empiric Antimicrobial Selection

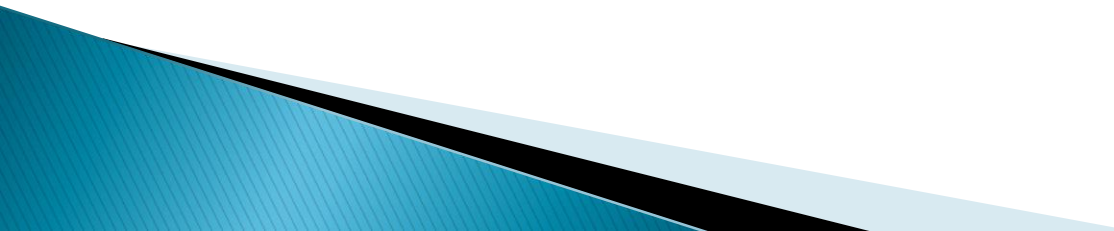
- ▶ Start with national recommendations
 - IDSA
- ▶ Know typical bugs for the suspected infection
 - Pneumonia (PNA): *Pseudomonas*, *Staph*, *Klebsiella*, *E.coli*
 - UTI: *E.coli*, *Klebsiella*, *Proteus*
 - SSTI: *Strep*, *Staph*

Let's Look at an Example: PNA

Pneumonia Treatment Algorithm



Guide Empiric Antimicrobial Selection

- ▶ Review new data/antibiogram annually
 - ▶ As needed: alter recommendations as indicated by antibiogram
 - ▶ Get out and educate!
- 

Track and Detect Trends in Antimicrobial Resistance

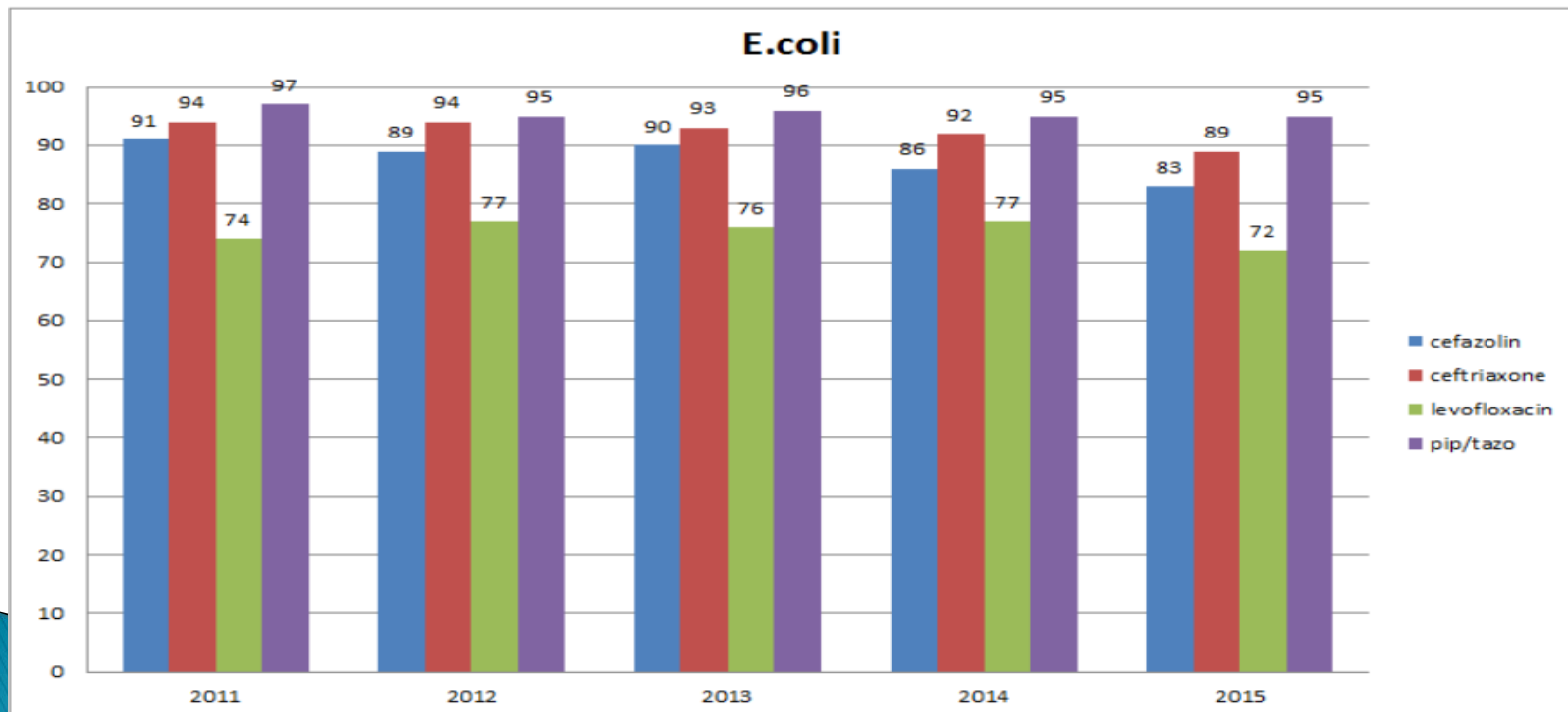
- Annual antibiogram is a snapshot:

2015 Summary St. Joseph Medical Center															
Percent Susceptible															
	# of isolates	Amp/Sulb	Ampicillin	Cefazolin	Ceftazidime	Ceftriaxone	Cefepime	Ciprofloxacin	Levofloxacin	Gentamicin	Tobramycin	Nitrofurantoin	Meropenem	Pip/Tazobactam	Trimeth/sulfa
Escherichia coli	1,283	57	48	83	89	89	90	90	72	90	91	95	100	95	71

Track and Detect Trends in Antimicrobial Resistance

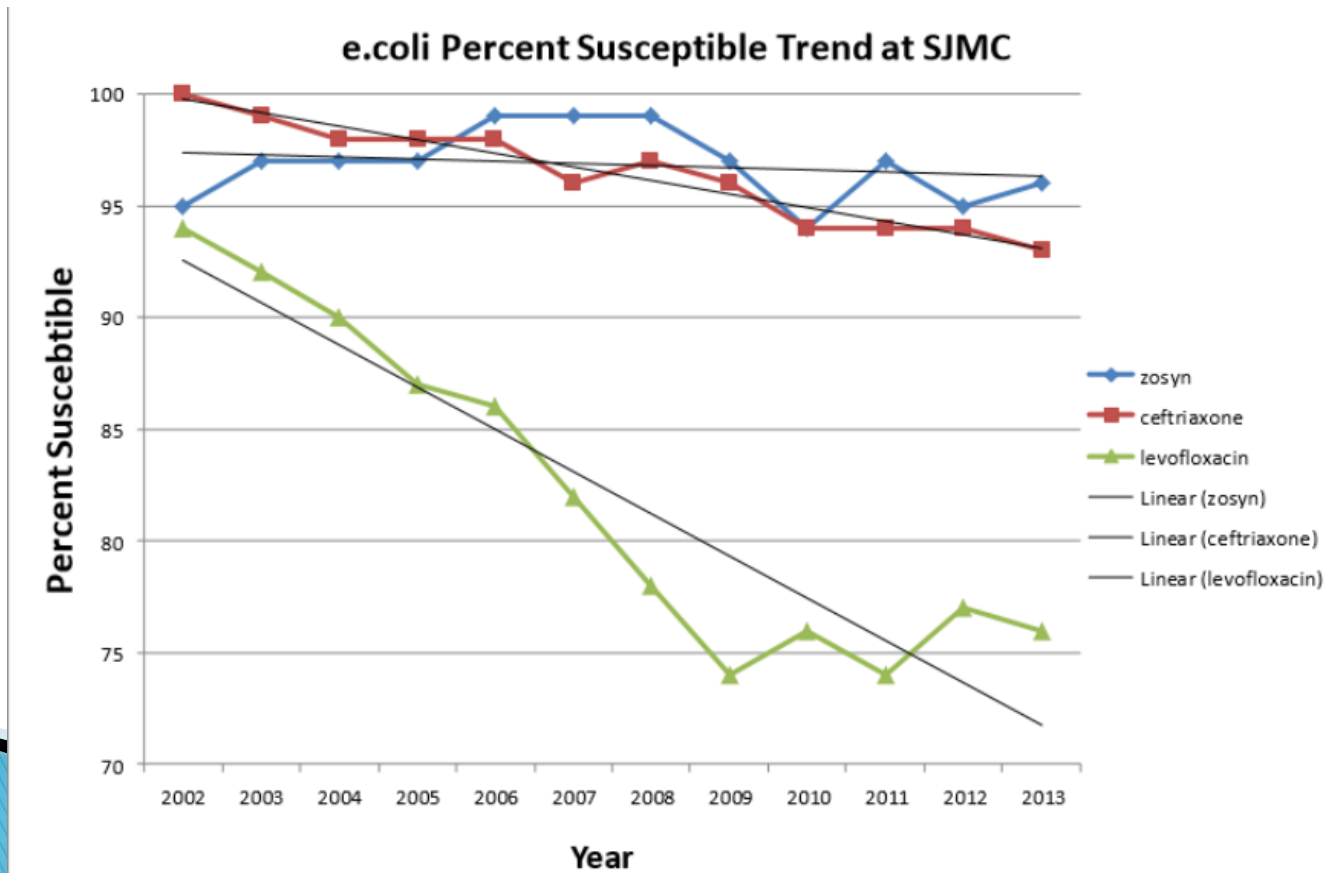
- ▶ Susceptibility trends over time can indicate overuse of certain antibiotics

SJMC Summary: Percent Susceptible



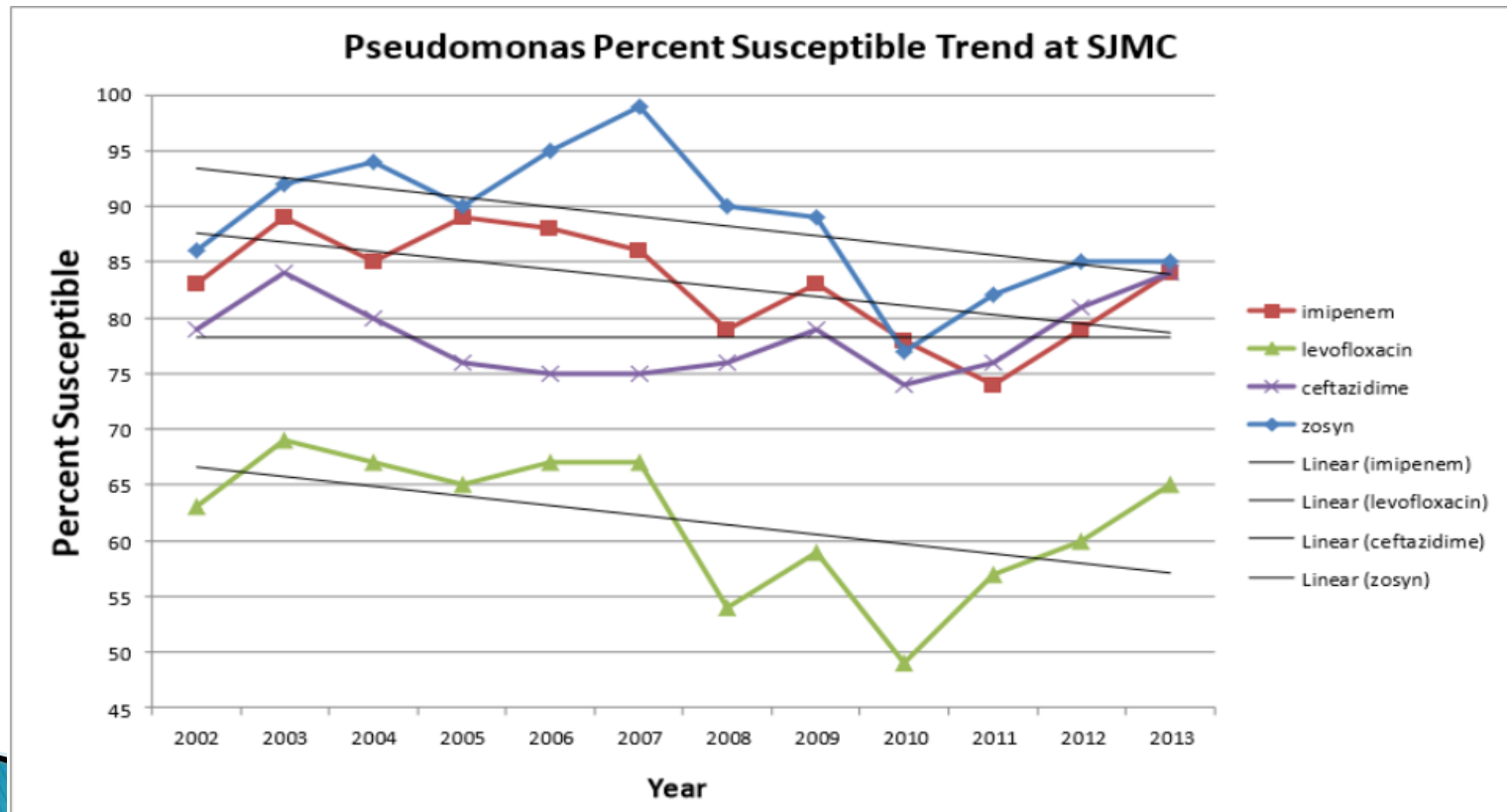
Track and Detect Trends in Antimicrobial Resistance

Expand timeline back to reveal true trends



Track and Detect Trends in Antimicrobial Resistance

Track and report your success too!



Upcoming EQuIP for LTC Webinars

- ▶ 5/24/17— Rita Olans, DNP, “Staff nurse’s role in stewardship”
- ▶ 6/28/17—Dr. Joseph Boero, “Empowering nurses to support stewardship”
- ▶ 7/26/17— Dr. Amit Desai, “Clinical pearls to reduce antibiotic overuse in nursing homes”
- ▶ 8/23/17—Dr. Gwinwa Dumyati, “Stewardship to reduce CDI in nursing homes”
- ▶ 9/27/17—Dr. Chris Crnich “Antibiotic Stewardship in Nursing Homes: What are the Low Hanging Fruit?”

Before next EQuIP webinar on April 26

- ▶ Share the webinar registration link with your colleagues
- ▶ Consider formally enrolling in EQuIP for LTC
- ▶ Please send suggestions or requested topics to marisa.dangeli@DOH.wa.gov

Q & A



marisa.dangeli@DOH.wa.gov

206-418-5595