Antimicrobial Stewardship Program Development in Alaska

Yukon-Kuskokwim Health Corporation

"Working Together to Achieve Excellent Health"

January 17, 2017

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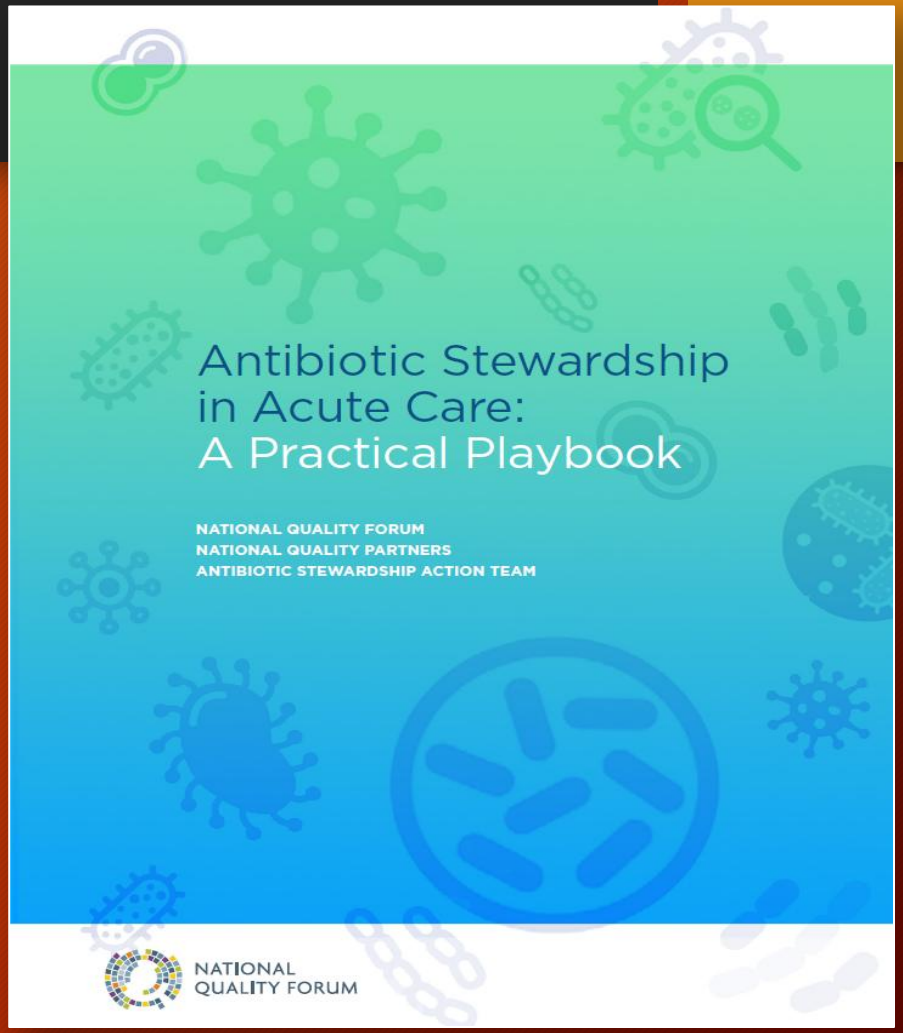
Director of Statewide Antimicrobial Stewardship Services

ANTHC Community and Health Systems Improvement

Discussion Topics:

- The State of Stewardship
- Why me? Why now? Regulatory embracement
- Collaborative efforts in Alaska
- Why is this guy here?
- Guidelines
- Outpatient too!?
- Next steps



http://www.qualityforum.org/Publications/2016/05/Antibiotic_Stewardship_Playbook.aspx

Antimicrobial Stewardship

A Quality and Patient Safety Initiative

- Prescription of broad-based antimicrobials for too long, or when they are not indicated, can lead to an increase in complications
  - Antibiotic resistance
  - Adverse drug reactions
  - *Clostridium difficile* infection
- Clinics can create a reliable system that optimizes outcomes through appropriate selection of:
  - Agent
  - Dose
  - Duration
- Antimicrobial Stewardship Programs (ASPs):
  - A combination of personnel and procedures that promote the wise use of antibiotics, antifungals & antivirals.

BRIEFING ROOM ISSUES THE ADMINISTRATION PARTICIPATE 1600 PENN

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The White House
Office of the Press Secretary

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For Immediate Release September 18, 2014

Executive Order -- Combating Antibiotic-Resistant Bacteria

EXECUTIVE ORDER

COMBATING ANTIBIOTIC-RESISTANT BACTERIA

By the authority vested in me as President by the Constitution and the laws of the United States of America, I hereby order as follows:

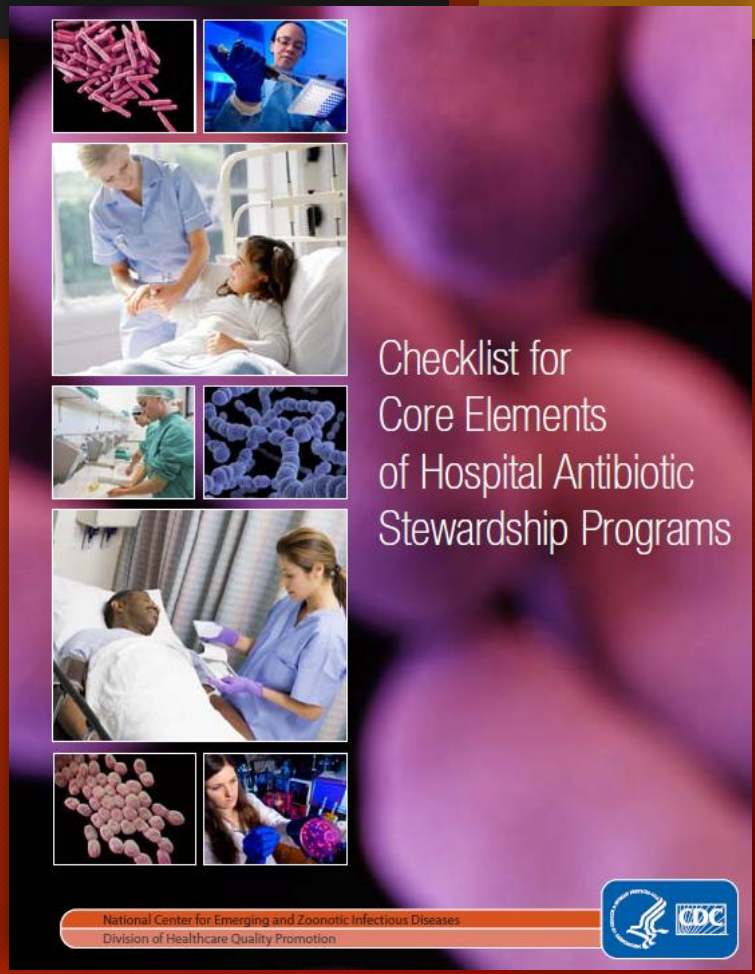
Section 1. Policy. The discovery of antibiotics in the early 20th century fundamentally transformed human and veterinary medicine. Antibiotics save millions of lives each year in the United States and around the world. The

- The rise of antibiotic resistant bacteria represents a serious threat to public health and the economy.
- Antibiotic resistance is responsible for over 2 million illnesses and 23,000 deaths annually in the U.S.
- A successful campaign will require collaborative efforts between public & private entities and is a national priority.

www.whitehouse.gov Executive order—Combating Antibiotic-resistant bacteria Sept 18, 2014
CDC "Antibiotic resistance threats in the United States, 2013."

CDC's Core Elements 2014

- Complement existing guidelines on ASPs
- There is no single template
- Flexibility in implementation
- Experience in a wide variety
- Success depends on
  - Defined leadership
  - Coordinated multi-disciplinary approach



Core Elements in Summary

- Leadership Commitment
  - Dedicating necessary human, financial and information technology resources.
- Accountability
  - Appointing a single leader responsible for program outcomes. Experience with successful programs show that a physician leader is effective.
- Drug Expertise:
  - Appointing a single pharmacist leader responsible for working to improve antibiotic use.
- Action:
  - Ex. Implementing at least one recommended action, such as an “antibiotic time out” after 48-72 hours.
- Tracking:
  - Monitoring antibiotic prescribing and resistance patterns.
- Reporting:
  - Regular reporting information on antibiotic use and resistance to doctors, nurses and relevant staff.
- Education:
  - Educating clinicians about resistance and optimal prescribing.

CMS Patient Safety Initiative

Section 1. C. Systems to prevent tr stewardship, Surveillance

Elements to be assessed		
1. C.1 The hospital has policies and procedures to minimize the risk of transmission of multidrug-resistant organisms (MDROs) within the hospital (between or amongst patients and health care personnel).		
1. C.2 The primary interview participants can provide evidence that the hospital identifies patients with MDROs and has implemented policies and procedures aimed at preventing the development and transmission of MDROs.		
1. C.3.a Facility has a multidisciplinary process in place to review antimicrobial utilization, local susceptibility patterns, and antimicrobial agents in the formulary *and* there is evidence that the process is followed.		
1. C.3.b Systems are in place to prompt clinicians to use appropriate antimicrobial agents (e.g., computerized physician order entry, comments in microbiology susceptibility reports, notifications from clinical pharmacist, formulary restrictions, evidenced based guidelines and recommendations).	○ Yes ○ No ○ N/A	○ 1 ○ 2 ○ 3 ○ 4 ○ 5
1. C.3.c Antibiotic orders include an indication for use.	○ Yes ○ No ○ N/A	○ 1 ○ 2 ○ 3 ○ 4 ○ 5
1. C.3.d There is a mechanism in place to prompt clinicians to review antibiotic courses of therapy after 72 hours of treatment.	○ Yes ○ No ○ N/A	○ 1 ○ 2 ○ 3 ○ 4 ○ 5
1. C.3.e The facility has a system in place to identify patients currently receiving intravenous antibiotics who might be eligible to receive oral antibiotic treatment.	○ Yes ○ No ○ N/A	○ 1 ○ 2 ○ 3 ○ 4 ○ 5
1. C.4 The hospital has established systems with a clinical microbiology laboratory that ensures prompt notification of IP staff or medical director/designee when a novel resistance pattern is detected.	○ Yes ○ No ○ N/A	○ 1 ○ 2 ○ 3 ○ 4 ○ 5
No citation risk for 1.C.1 through 1.C.4; for information only.		

Joint Commission NEW Medication Management Standard (MM.09.01.01)

https://www.jointcommission.org/assets/1/6/New_Antimicrobial_Stewardship_Standard.pdf

Effective January 1, 2017 - Applicable to all Hospitals

Elements of Performance:

- Leaders establish antimicrobial stewardship as an organizational priority.
  - Accountability documents
  - Budget plans
  - Infection prevention plans
  - Performance improvement plans
  - Strategic plans
  - Using the electronic health record to collect antimicrobial stewardship data
- Educate staff & licensed independent practitioners upon hire or granting of initial privileges & periodically thereafter
- Educate patients & families

Joint Commission NEW Medication Management Standard (MM.09.01.01)

https://www.jointcommission.org/assets/1/6/New_Antimicrobial_Stewardship_Standard.pdf

- Antimicrobial Stewardship Team in place
  - Infectious disease physician
  - Infection preventionist
  - Pharmacist(s)
  - Practitioner
  - Part-time/consultant staff and/or telehealth staff are acceptable members
- Stewardship program implements CDC Core Elements
- Program uses organization-approved protocols
  - Assessment of Appropriateness of Antibiotics for
    - Community-Acquired Pneumonia
    - Skin and Soft Tissue Infections
    - Urinary Tract Infections
  - Care of the Patient with *Clostridium difficile*
  - Guidelines for Antimicrobial Use in Adults
  - Guidelines for Antimicrobial Use in Pediatrics
  - Plan for Parenteral to Oral (IV to PO) Antibiotic Conversion
- Collect, analyze & report data
  - antimicrobial prescribing patterns
- Must take action on improvement opportunities identified

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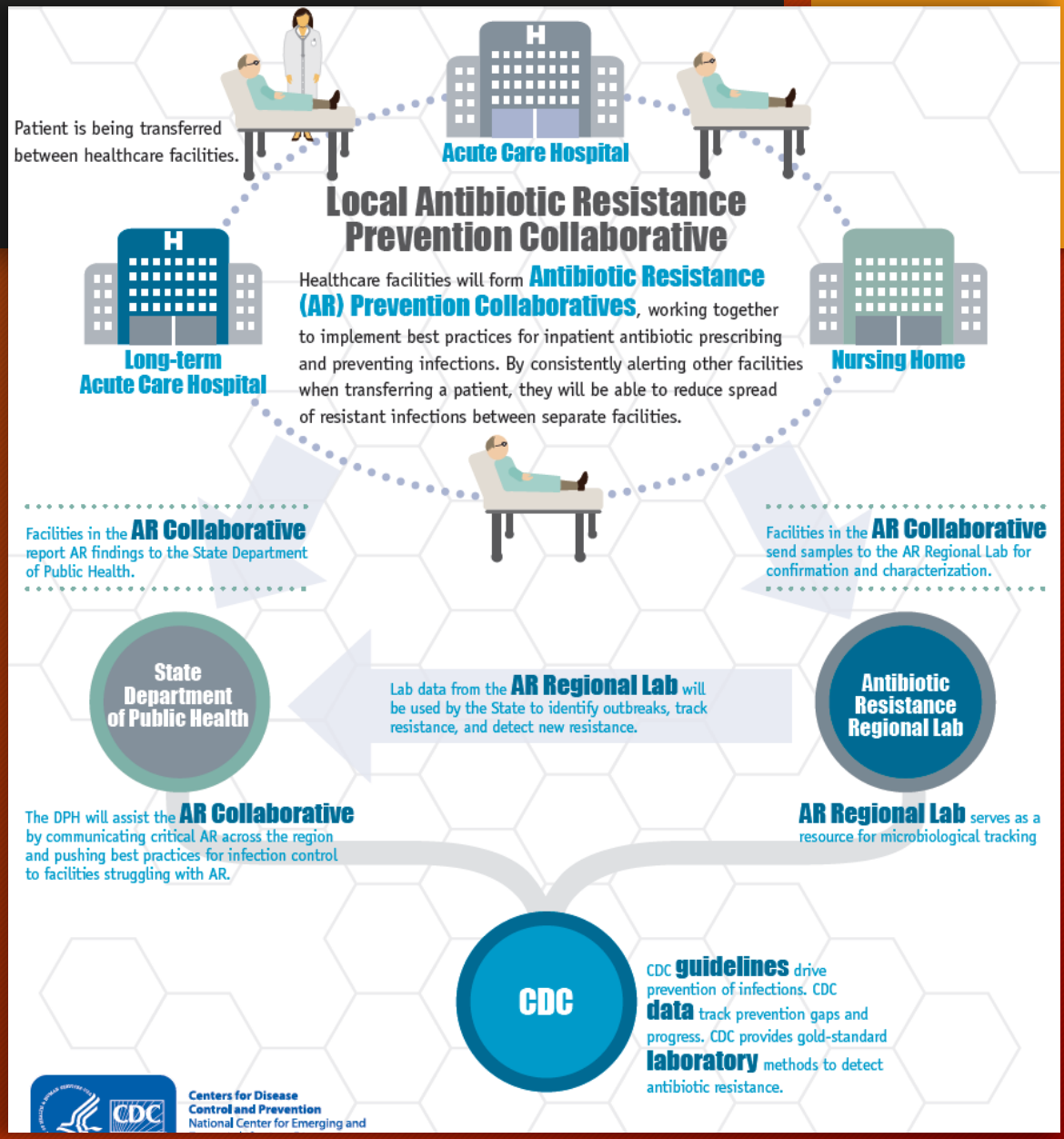
Alaska Antimicrobial Stewardship Collaborative

- Share Information
- Learn from Common Experiences
- Surveys
- Webinars
  - IDSAPP Modules
- Workshops
- Conference Calls
  - IDSAP Mo & Th 2-3pm
- Statewide Strategic Planning
- Reach the Public

Alaska Division of Public Health
Alaska State Hospital and Nursing Home Association
Mountain-pacific Quality Health Alaska
Alaska Pharmacists Association



Hospital Improvement Innovation Network (HIIN) Partnership for Patients

- Alaska State Hospital & Nursing Home Association in partnership with the Washington State Hospital Association
- Antimicrobial Stewardship Measurement: DOT/1000 patient days
  - Days of Therapy (DOT) of select antibiotics
    - Penicillins
    - Cephalosporins
    - Fluoroquinolones
    - Carbapenems
    - Clindamycin
  - Patient days to include total acute inpatient, observation & rehab days
- Reduce antibiotic utilization (40% reduction from baseline)

Alaska Native Medical Center | Samuel Simmonds Memorial Hospital| Kanakanak Hospital| Maniilaq Health Center | Norton Sound Regional Hospital | Mt. Edgecumbe Hospital | Yukon-Kuskokwim Delta Regional Hospital

Statewide Stewardship Service

- AIM: Establish a system-wide Antimicrobial Stewardship infrastructure to optimize patient outcomes and minimize collateral damage.

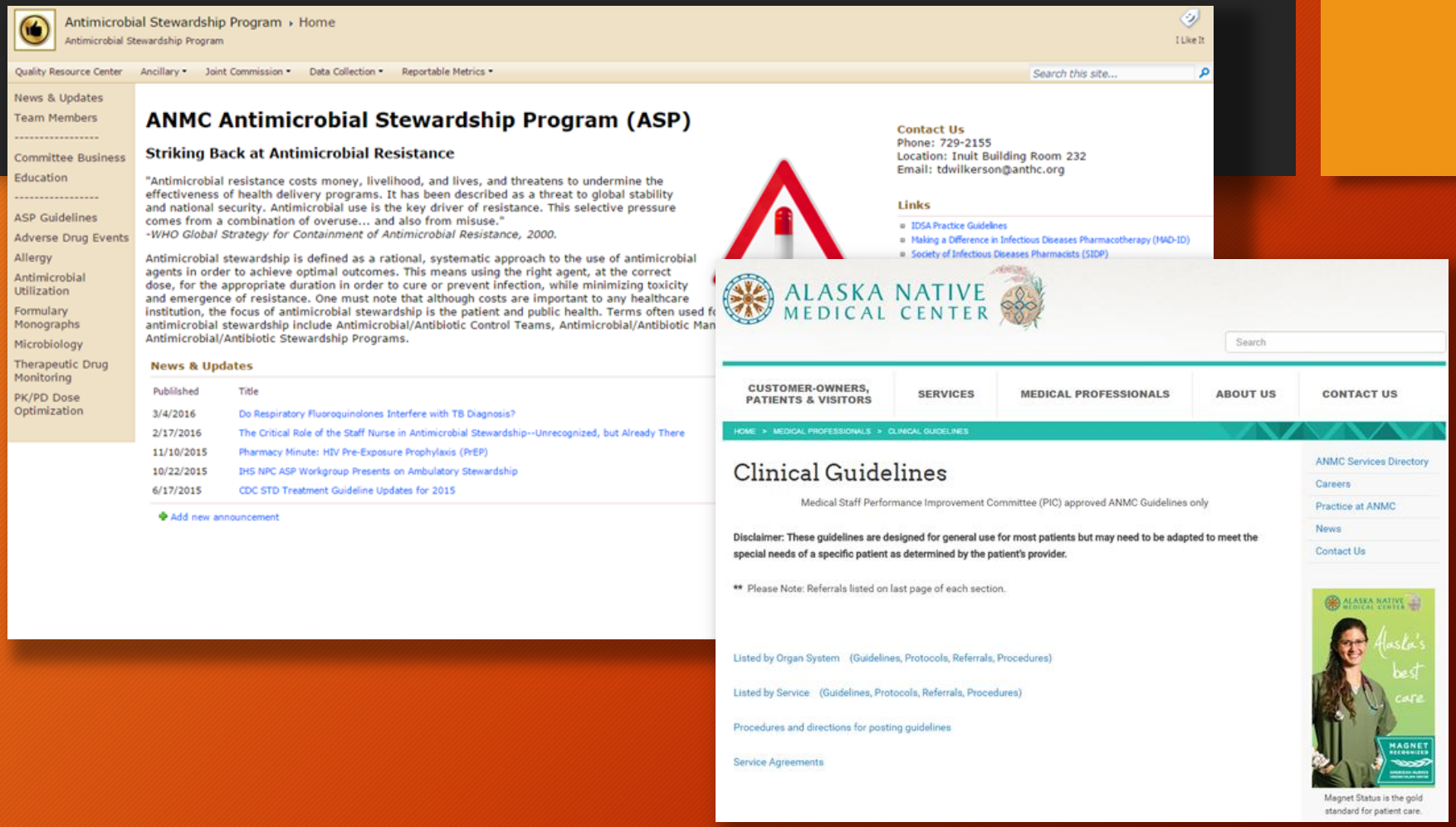
- GOALs: Ensure every partner regional facility has an established program that meets current regulatory requirements.

  Prepare all THOs for Outpatient Antibiotic Stewardship.

- SERVICE: Infectious diseases pharmacotherapy consultation and comprehensive Stewardship Program development and enhancement.

Statewide Stewardship Service

- Baseline gap analysis
- Program implementation and/or optimization
- One-on-one support with site visits
- Data collection & analysis
- Local provider education and engagement
- Coordinate access to Infectious Diseases experts
- Guideline development, distribution, integration & maintenance



http://anmc.org/medical-professionals/clinical-guidelines/

ASP Ambulatory Guidelines

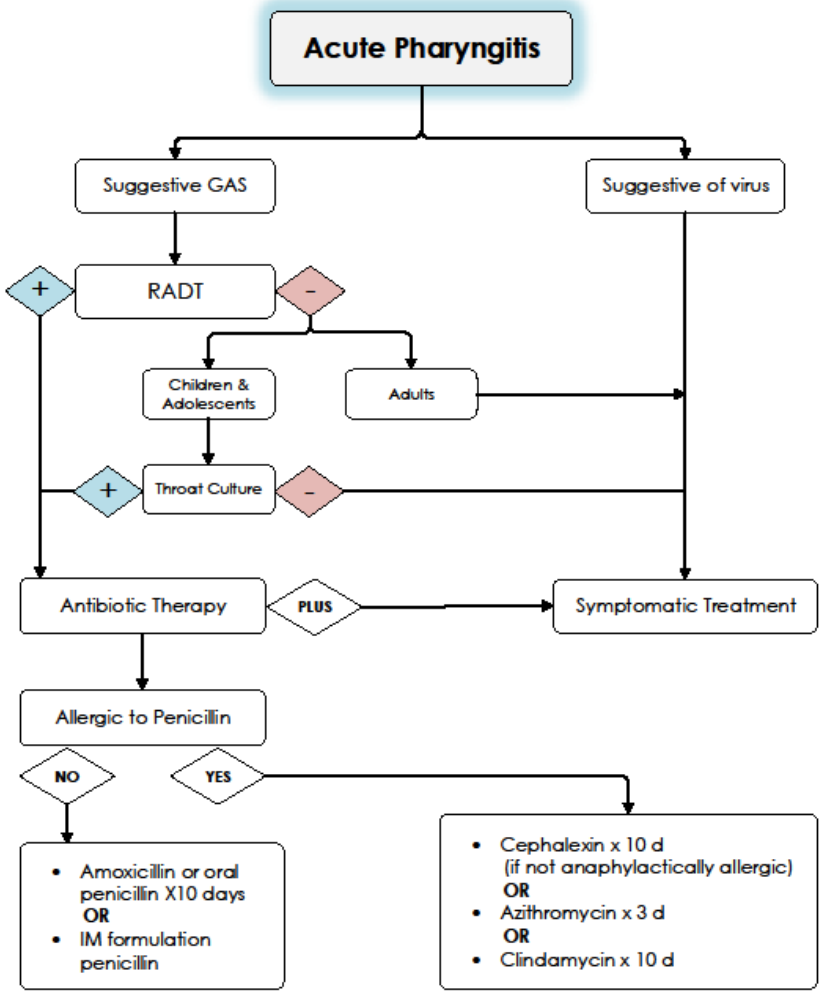
- Sinusitis Guideline
  - Updated to include fluoroquinolone warning
- UTI Guidelines
  - Emphasize avoidance of urine culture and treatment in asymptomatic patients
    - Nitrofurantoin duration aligned with cystitis for pregnancy; contraindicated in pregnancy at term
  - FDA Safety alert added
    - Ciprofloxacin considered last line for acute cystitis
    - High dose cephalexin moved to 1st line for pyelonephritis but fluoroquinolone also considered appropriate
  - Pediatric Febrile UTI guideline available
    - Obtain culture prior to abx
    - Renal/bladder US for 1st episode
    - Cephalexin preferred initial treatment

ASP Ambulatory Guidelines

- Community Acquired Pneumonia: Adult
  - Adult regimen provides broad-spectrum coverage for majority of individuals: Beta-lactam + macrolide
  - Duration 5-7 days
  - Levofloxacin for serious beta-lactam allergy
    - *Avoid fluoroquinolone use in TB endemic areas where possible*
  - Doxycycline monotherapy appropriate in select uncomplicated cases
- Community Acquired Pneumonia: Pediatric
  - Treatment based upon immunization status
  - Amoxicillin or amox/clav preferred treatment
  - 2nd generation cephalosporin for PCN allergy
  - Macrolide or doxycycline in select situations only

ASP Ambulatory Guidelines

- Streptococcal Pharyngitis
  - Guidance provided for testing (RADT/culture)
    - Testing not necessary for viral features
    - Likely unnecessary in children < 3 yoa
    - No back up culture needed for adults with (-) RADT
  - Treatment:
    - PCN or Amox 1st line
    - cephalexin 2nd line
    - Azithromycin for severe beta-lactam allergy only; note novel 3-day dosing

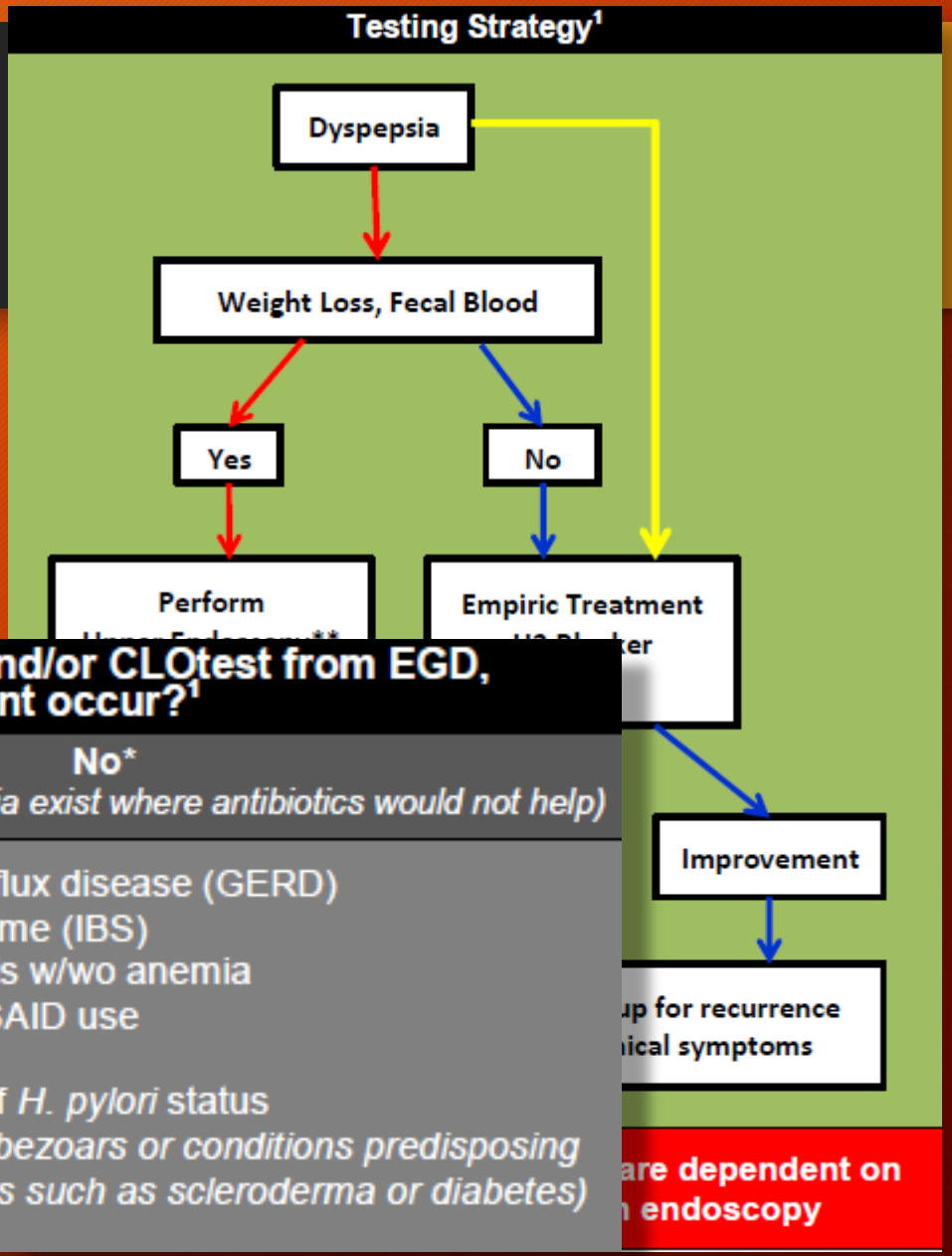


ASP Ambulatory Guidelines

- Acute Cervical Lymphadenitis
  - Tender node > 2cm **PLUS** fever and/or redness/warmth
  - Unilateral: ***Staph aureus***; beta strep
    - Clindamycin 1st line
  - Bilateral: viral etiology
    - Observation
  - Guidance provided for prompt referral to ENT
    - Subacute/chronic unilateral
    - Lymphadenopathy > 2cm without fever or warmth/redness
  - Guidance provided for neck US
    - Fluctuance
    - Size > 6cm
    - Failure to improve 48-72 h empiric clinda for unilateral
    - Failure to resolve > 2-4 weeks observation bilateral

ASP Ambulatory Guidelines

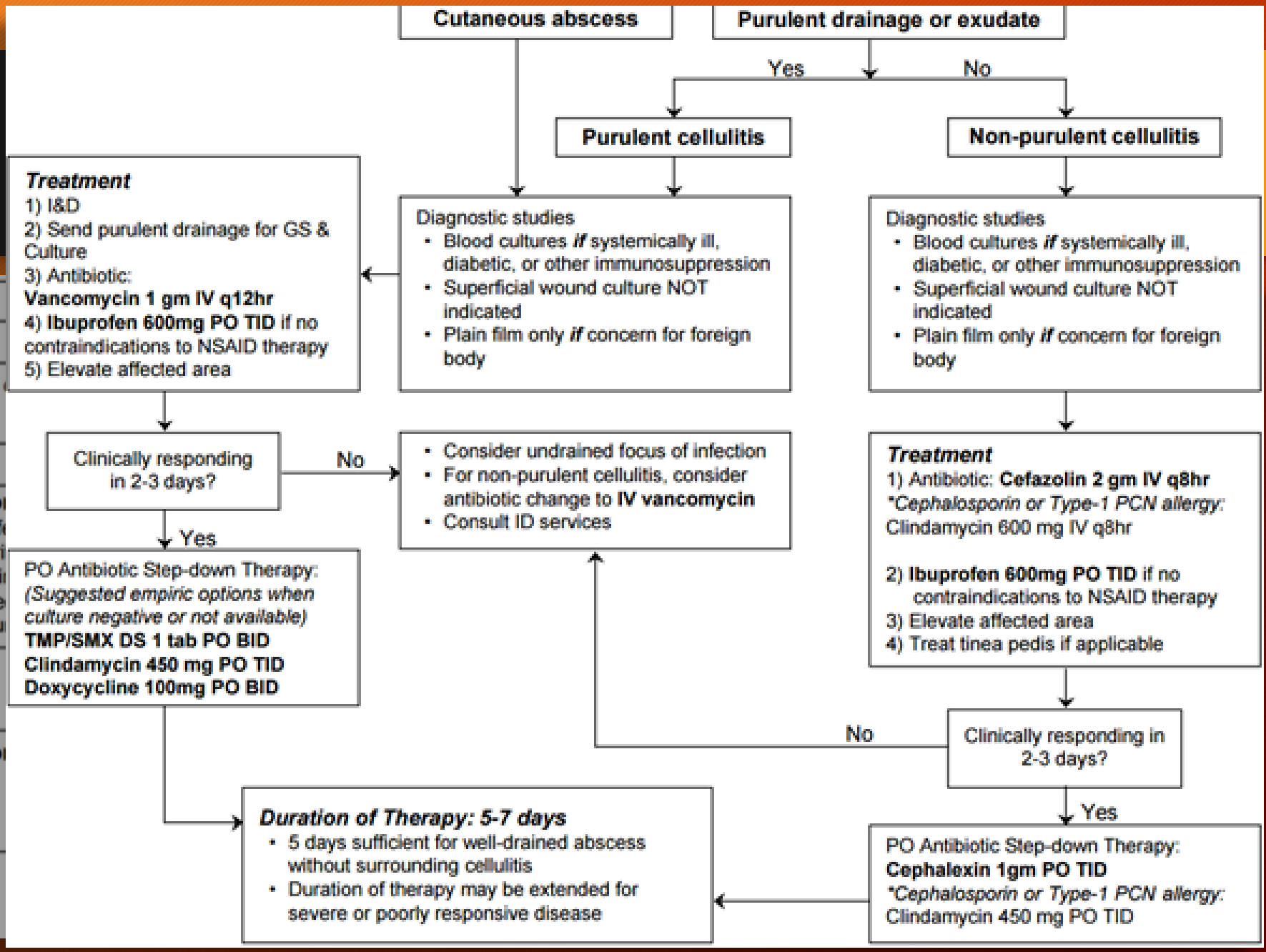
- *H.pylori*

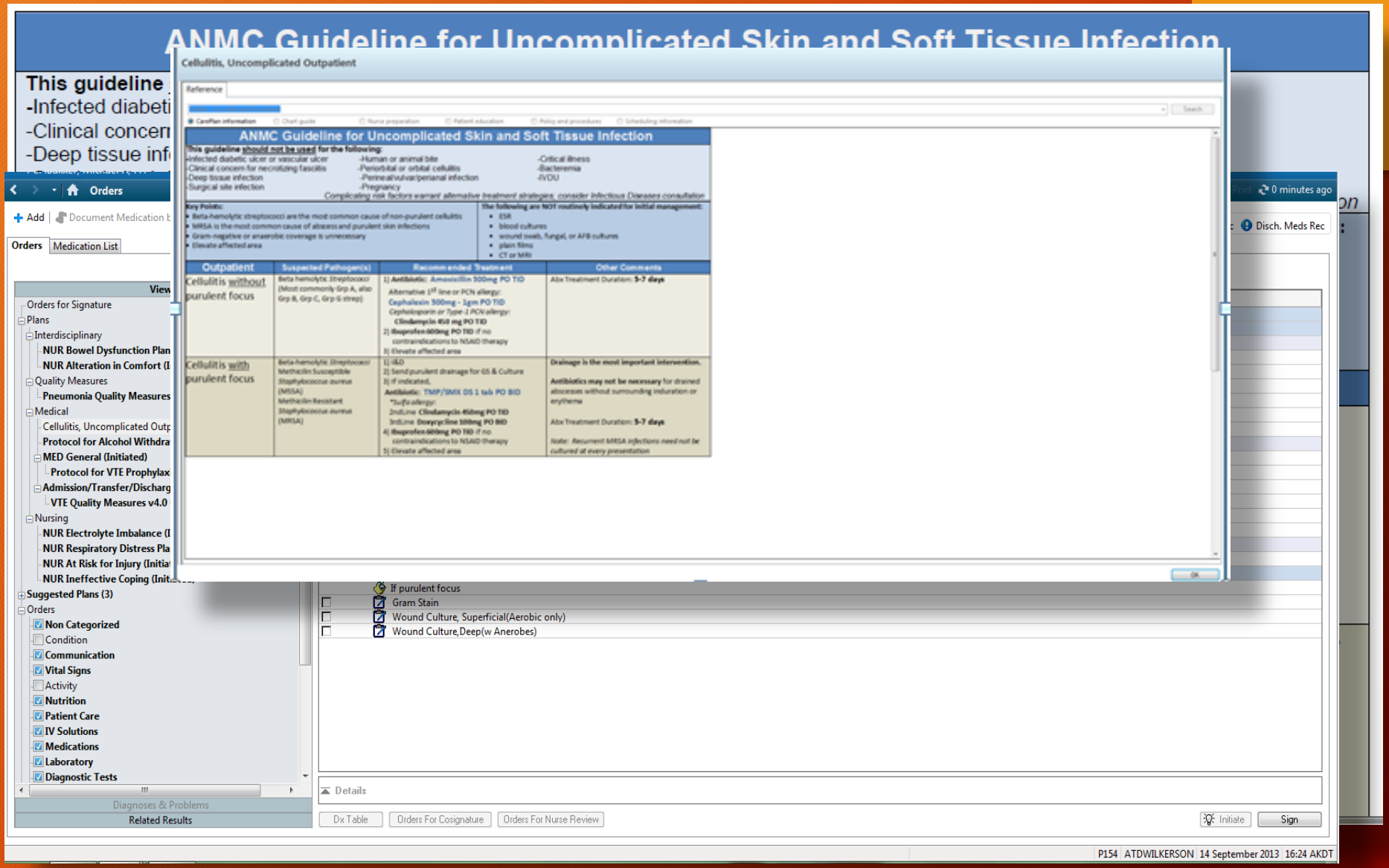


***H. pylori* is identified by histology and/or CLOtest from EGD, when should treatment occur?[1]**	
Yes	**No*** *(Many causes of dyspepsia exist where antibiotics would not help)*
❖ Endoscopy reveals the following: ❖ Duodenal ulcers ❖ Gastric ulcer ❖ MALT lymphoma ❖ Intestinal metaplasia	❖ Gastroesophageal reflux disease (GERD) ❖ Irritable bowel syndrome (IBS) ❖ Mild/moderate gastritis w/wo anemia ❖ Excessive/chronic NSAID use ❖ Heavy alcohol use ❖ Gastritis regardless of *H. pylori* status ❖ Poor gastric motility *(bezoars or conditions predisposing to GI motility disorders such as scleroderma or diabetes)*

ASP Ambulatory Guidelines

- *H.pylori*
  - First line:
    - Metronidazole 500mg PO TID – QID or 1 gram PO BID
    - Amoxicillin 1 gram PO BID
    - PPI BID
    - Bismuth subsalicylate 524mg PO QID
  - Avoid clarithromycin due to resistance in AK
  - Higher dosing of metronidazole does overcome resistance
  - Doxycycline may be substituted for amoxicillin in allergic patients
  - Eradication testing recommended at 2 months or longer after treatment completed
    - 10-35% of patients will fail first course
    - Urea Breath Test (UBT); must be off PPI for at least 2 weeks


Cutaneous abscess
Purulent drainage or exudate
Yes
No
Purulent cellulitis
Non-purulent cellulitis
Treatment
1) I&D
2) Send purulent drainage for GS & Culture
3) Antibiotic:
Vancomycin 1 gm IV q12hr
4) Ibuprofen 600mg PO TID if no contraindications to NSAID therapy
5) Elevate affected area
Diagnostic studies
• Blood cultures if systemically ill, diabetic, or other immunosuppression
• Superficial wound culture NOT indicated
• Plain film only if concern for foreign body
Diagnostic studies
• Blood cultures if systemically ill, diabetic, or other immunosuppression
• Superficial wound culture NOT indicated
• Plain film only if concern for foreign body
Clinically responding in 2-3 days?
No
• Consider undrained focus of infection
• For non-purulent cellulitis, consider antibiotic change to IV vancomycin
• Consult ID services
Yes
PO Antibiotic Step-down Therapy:
(Suggested empiric options when culture negative or not available)
TMP/SMX DS 1 tab PO BID
Clindamycin 450 mg PO TID
Doxycycline 100mg PO BID
Treatment
1) Antibiotic: Cefazolin 2 gm IV q8hr
*Cephalosporin or Type-1 PCN allergy:
Clindamycin 600 mg IV q8hr
2) Ibuprofen 600mg PO TID if no contraindications to NSAID therapy
3) Elevate affected area
4) Treat tinea pedis if applicable
No
Clinically responding in 2-3 days?
Yes
Duration of Therapy: 5-7 days
• 5 days sufficient for well-drained abscess without surrounding cellulitis
• Duration of therapy may be extended for severe or poorly responsive disease
PO Antibiotic Step-down Therapy:
Cephalexin 1gm PO TID
*Cephalosporin or Type-1 PCN allergy:
Clindamycin 450 mg PO TID


ANMC Guideline for Uncomplicated Skin and Soft Tissue Infection
This guideline
-Infected diabeti
-Clinical concern
-Deep tissue inf
Cellulitis, Uncomplicated Outpatient
Reference
ANMC Guideline for Uncomplicated Skin and Soft Tissue Infection
This guideline should not be used for the following:
-Infected diabetic ulcer or vascular ulcer
-Clinical concern for necrotizing fasciitis
-Deep tissue infection
-Surgical site infection
-Human or animal bite
-Periorbital or orbital cellulitis
-Perineal/vulvar/perianal infection
-Pregnancy
-Critical illness
-Bacteremia
-IVDU
Complicating risk factors warrant alternative treatment strategies; consider Infectious Diseases consultation
Key Points:
Beta-hemolytic streptococci are the most common cause of non-purulent cellulitis
MRSA is the most common cause of abscess and purulent skin infections
Gram-negative or anaerobic coverage is unnecessary
Elevate affected area
The following are NOT routinely indicated for initial management:
ESR
blood cultures
wound swab, fungal, or AFB cultures
plain films
CT or MRI
Outpatient
Suspected Pathogen(s)
Recommended Treatment
Other Comments
Cellulitis without purulent focus
Beta-hemolytic Streptococci (Most commonly Grp A, also Grp B, Grp C, Grp G strep)
1) Antibiotic: Amoxicillin 500mg PO TID
Alternative 1st line or PCN allergy:
Cephalexin 500mg - 1gm PO TID
Cephalosporin or Type-1 PCN allergy:
Clindamycin 450 mg PO TID
2) Ibuprofen 600mg PO TID if no contraindications to NSAID therapy
3) Elevate affected area
Abx Treatment Duration: 5-7 days
Cellulitis with purulent focus
Beta-hemolytic Streptococci
Methicilin Susceptible Staphylococcus aureus (MSSA)
Methicilin-Resistant Staphylococcus aureus (MRSA)
1) I&D
2) Send purulent drainage for GS & Culture
3) If indicated,
Antibiotic: TMP/SMX DS 1 tab PO BID
*Sulfa allergy:
2nd Line Clindamycin 450mg PO TID
3rd Line Doxycycline 100mg PO BID
4) Ibuprofen 600mg PO TID if no contraindications to NSAID therapy
5) Elevate affected area
Drainage is the most important intervention.
Antibiotics may not be necessary for drained abscesses without surrounding induration or erythema
Abx Treatment Duration: 5-7 days
Note: Recurrent MRSA infections need not be cultured at every presentation
OK
Orders
Add
Document Medication
Orders
Medication List
0 minutes ago
Disch. Meds Rec
View
Orders for Signature
Plans
Interdisciplinary
NUR Bowel Dysfunction Plan
NUR Alteration in Comfort (I
Quality Measures
Pneumonia Quality Measures
Medical
Cellulitis, Uncomplicated Outp
Protocol for Alcohol Withdra
MED General (Initiated)
Protocol for VTE Prophylax
Admission/Transfer/Discharg
VTE Quality Measures v4.0
Nursing
NUR Electrolyte Imbalance (I
NUR Respiratory Distress Pla
NUR At Risk for Injury (Initia
NUR Ineffective Coping (Init
Suggested Plans (3)
Orders
Non Categorized
Condition
Communication
Vital Signs
Activity
Nutrition
Patient Care
IV Solutions
Medications
Laboratory
Diagnostic Tests
Diagnoses & Problems
Related Results
If purulent focus
Gram Stain
Wound Culture, Superficial(Aerobic only)
Wound Culture,Deep(w Anerobes)
Details
Dx Table
Orders For Cosignature
Orders For Nurse Review
Initiate
Sign
P154
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Guidelines for Management of Diabetic Foot Infections

- All wounds should be debrided
- Cultures should be sent from deep tissue via biopsy or curettage.
- Wound surface swabs should not be sent for culture.
- Empiric antibiotics for mild to moderate infections in patients who have not been recently treated can be directed at gram-positive cocci only.
  - Staphylococcus is the most common causal organism
  - Duration: 1-2 weeks
- Severe infections should cover GPC, GNR & obligate anaerobes.
  - Empiric MRSA and *P. aeruginosa* are appropriate
  - Tailor according to C&S
  - Duration: 2-3 weeks without osteomyelitis

Lipsky et al. CID 2012;54(12):132-173.

Using Clinical Guidelines to Control Antibiotic Overuse & Deter Microbial Adaptation

-Antibiotic prescribing trends per care team/department
-Point prevalence analysis to look for indications where antibiotics should be held
-Address appropriate durations of therapy

TABLE 1. Specific Situations Where Antibiotics Should Be Withheld

Respiratory tract syndromes
Viral pharyngitis[10]
Viral rhinosinusitis[10]
Viral bronchitis[10]
Noninfectious cardiopulmonary disorders misdiagnosed as pneumonia
AOM (for selected cases, refer to article)[22]
SSTIs
Subcutaneous abscesses (for selected cases, refer to article)[26]
Lower extremity stasis dermatitis[29]
Asymptomatic bacteriuria and pyuria, including catheterized patients[30,34]
Microbial colonization and culture contamination[36]
Low-grade fever[41]

Wlodaver & Mary. Infect Dis Clin Pract 2012; 20(1):12-17

Table. Infections for Which Short-Course Therapy Has Been Shown to Be Equivalent in Efficacy to Longer Therapy

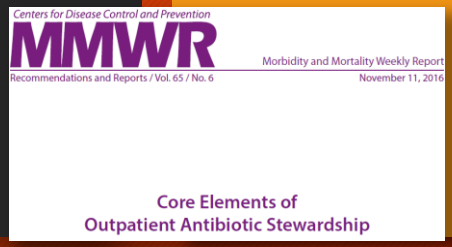
	Treatment, Days	
Disease	Short	Long
Community-acquired pneumonia[1-3]	3-5	7-10
Nosocomial pneumonia[6,7]	≤8	10-15
Pyelonephritis[10]	5-7	10-14
Intraabdominal infection[11]	4	10
Acute exacerbation of chronic bronchitis and COPD[12]	≤5	≥7
Acute bacterial sinusitis[13]	5	10
Cellulitis[14]	5-6	10
Chronic osteomyelitis[15]	42	84

The New Antibiotic Mantra

"Shorter is Better"

Spellberg. JAMA Intern Med 2016; 176(9).

Core Elements of Outpatient Antibiotic Stewardship



- Intended audiences:
  - Primary care clinics and clinicians
  - Outpatient specialty & subspecialty clinics & clinicians
  - Emergency departments (EDs) & emergency medicine clinicians
  - Retail health clinics and clinicians
  - Urgent care clinics and clinicians
  - Dental clinics and dentists
  - Nurse practitioners and physician assistants
  - Health care systems

- Partners for Outpatient Stewardship activities:
  - Acute care hospitals
  - Long-term care facilities
  - State and local health departments
  - Health plans and payers
  - Health care professional societies
  - Community pharmacies & pharmacists
  - Local microbiologic laboratories

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

MMWR Vol.65 / No.6 / November 11, 2016

Core Elements of Outpatient Antibiotic Stewardship

- Commitment
  - Demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety.
    - Write & display public commitments in support of abx stewardship
    - Include abx stewardship-related duties in position descriptions or job evaluation criteria
    - Communicate with all clinic staff members to set patient expectations
- Action for policy and practice
  - Implement at least one policy or practice to improve antibiotic prescribing, assess whether it is working, and modify as needed.
    - Provide communication skills training for clinicians
    - Require explicit written justification in the medical record for non-recommended antibiotic prescribing
    - Provide support for clinical decisions

MMWR Vol.65 / No.6 / November 11, 2016

Core Elements of Outpatient Antibiotic Stewardship

- Tracking & reporting
  - Monitoring antibiotic prescribing practices and offer regular feedback to clinicians, or have clinicians assess their own antibiotic prescribing practices themselves.
    - Participate in continuing medical education & quality improvement activities
    - Track & report abx prescribing for one or more high-priority conditions
    - Track & report % of all visits leading to antibiotic prescriptions
- Education & expertise
  - Provide educational resources to clinicians and patients on antibiotic prescribing, and ensure access to needed expertise on optimizing antibiotic prescribing.
    - Educate patients about potential harms of antibiotic treatment.
    - Provide face-to-face educational training
    - Provide CE for clinicians
    - Ensure timely access to ID experts

MMWR Vol.65 / No.6 / November 11, 2016

Get Smart Education

UNDERSTANDING INAPPROPRIATE ANTIBIOTIC USE

Inappropriate antibiotic use can refer to two types of antibiotic misuse: when an antibiotic is prescribed, but not needed or when the wrong antibiotic, dose, or duration is chosen.

Unnecessary Use/Overuse

Example: A 40-year-old woman is diagnosed with bronchitis and prescribed an antibiotic, even though national guidelines recommend against prescribing antibiotics for bronchitis.

Misuse/Incorrect Prescription

Example: An 8-year-old boy is diagnosed with strep throat and needs an antibiotic to treat it, but the antibiotic prescribed is the wrong one, or the dose is too low, or the duration is too long.

https://www.cdc.gov/getsmart/index.html

Partnership for Patients Stewardship Tiers

BASIC TIER

Leadership commitment and accountability, establishing AMS as priority, including P&P
*TJC *CMS *CDC

Collaboration with Infection Control and hospital QAPI leadership
*CMS

Multidisciplinary team and dedicated, inclusive of pharmacy and clinical expertise
*TJC *CMS

Reporting, improving upon AU (such as DOT of select antibiotics per 1000 patient days)
*TJC *CMS *CDC

Annual competency based training of staff and licensed practitioners
*TJC *CDC

Patient and family education regarding appropriate use of antimicrobials
*TJC *CDC

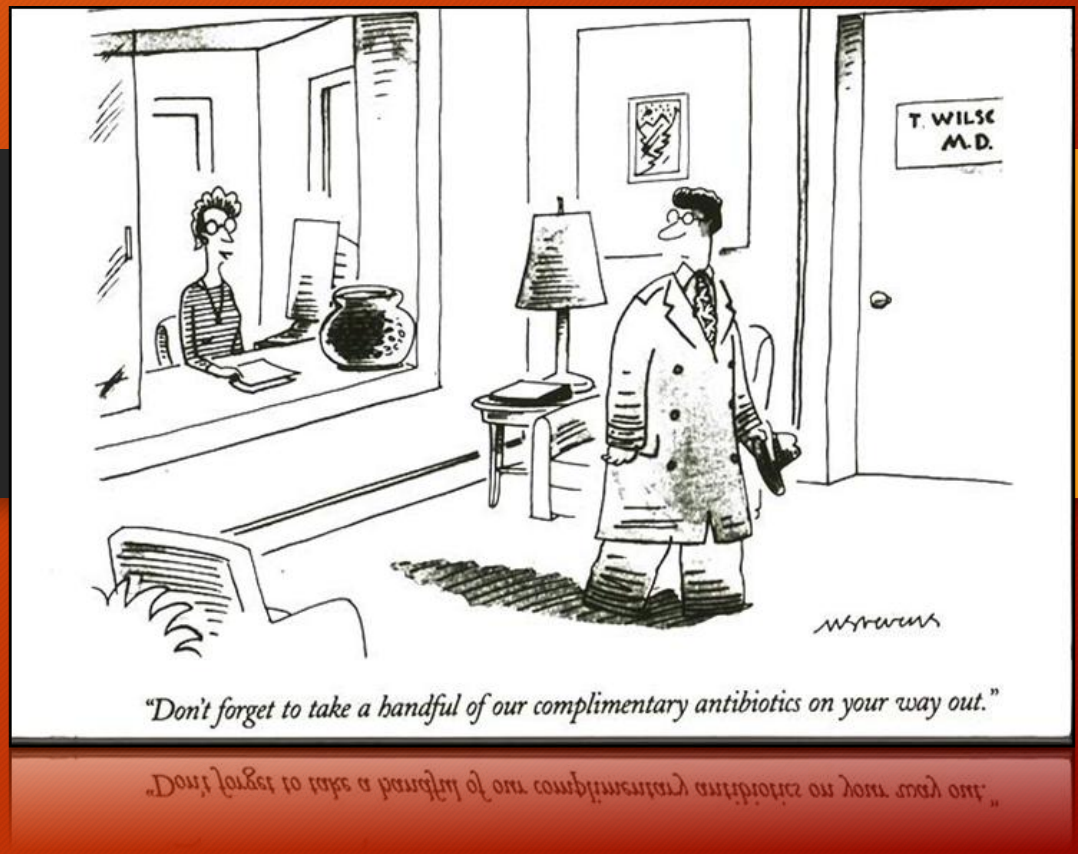
Organizational protocols, i.e. de-escalation processes, guidelines, 48-72 hour time-outs
*TJC *CMS *CDC

Drug expertise, including appointed pharmacist leader responsible for improving AMS
*TJC *CDC

"accountability with partnership, empowerment, and service"

Peter Block. Stewardship: Choosing Service Over Self-Interest

Antimicrobial Stewardship



"Don't forget to take a handful of our complimentary antibiotics on your way out."

Stewardship Resources

- Toolkits available from various organizations
  - IDSA/SHEA: 2016 Implementation Guidelines
  - JC: Antimicrobial Stewardship Initiative: Module 5
  - NQF: Antibiotic Stewardship in Acute Care Playbook
    - www.qualityforum.org
  - IHI: Antibiotic Stewardship Driver Diagram & Change Package
  - CDC: Get Smart resources (Inpatient, Outpatient, LTAC)
- Indian Health Service Antimicrobial Stewardship Steering Committee
  - www.ihs.gov/nptc/resources/
- Alaska Antimicrobial Stewardship Collaborative
  - www.ashnha.com

Or contact Thaddus
tdwilkerson@anthc.org
(907) 729-2155