



Addressing Antimicrobial Resistance in the Indian Health Service

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Indian Health Service

- ❖ Founded 1955
- ❖ Serve 2.56 million persons from 574 federally recognized tribes in 37 states
- ❖ 40K admissions, 13.7 million clinic visits/year





IHS Antimicrobial Resistance History

- ❖ Community-Acquired Methcillin resistant *Staphylococcus aureus*
 - CA-MRSA First described in the US in an IHS facility in 1997
 - **Fifty five percent** of 112 patients with *Staph aureus* infections had MRSA
 - Risk factors were identical for CA-MRSA and non-resistant *Staph aureus* (MSSA) patients

Groom et al. JAMA 2001



IHS Antimicrobial Resistance History

❖ Early IHS Response

- Analysis showed **over-prescription of antibiotics** was linked to CA-MRSA
- **Report cards** given to providers showing frequency of antibiotic prescriptions per clinic visit compared with peers
- **Educational activities**
 - ❖ Local continuing medical education in the highest risk area
 - ❖ Education of IHS leadership
 - ❖ Indian Health Service Primary Care conference



Current IHS Antibiotic Stewardship Activities

- ❖ National IHS Antibiotic Stewardship Program created in 2014
- ❖ Developed
 - National antibiotic guidelines
 - Core Formulary of mandatory drugs with guidance on usage via briefs
 - Educational activities
 - ❖ Pharmacists
 - ❖ Providers



National IHS Antibiotic Guidelines

❖ National guidelines

- Covered comprehensive recommendations for common illnesses
- Last updated in 2020 (inpatient) and 2021 (outpatient)
- Linked best choice drug for each common diagnosis based on local resistance

❖ Two big challenges:

- Antibiotic **susceptibility varied greatly** across the Indian Health Service
- Guidelines quickly became **outdated**



National Pharmacy and Therapeutics Formulary

- ❖ The IHS has a **Core Formulary** with mandatory drugs for each pharmacy
- ❖ **Tightly regulated** by a team of experts that meets quarterly from across the US IHS sites, **focused on outpatient antibiotics.**
- ❖ Provide
 - **Formulary briefs**
 - **Best Practices in Formulary Management** series to promote stewardship
- ❖ Goal is to support the 4 pillars of **access, quality, value and equality**



IHS Formulary Briefs

❖ Antibiotic Stewardship Briefs are created to address current needs

- Upper Respiratory Infection
- Sexually Transmitted Diseases
- COVID-19

❖ Distributed to every provider and pharmacist in the IHS

Preferred antibiotic choices: these recommendations have been consistent for many years.

Diagnosis	Preferred antibiotic	Alternate antibiotic if allergies exist
Acute Otitis Media	Amoxicillin (pediatric) Amoxicillin-clavulanic acid (adult)	Cefdinir Ceftriaxone Clindamycin Doxycycline
GAS Pharyngitis <i>(always use the PCN family, unless allergic to such)</i>	Penicillin family: Amoxicillin (liquid/solid) Penicillin V potassium (solid form) Penicillin G benzathine (IM)	Cephalexin Clindamycin Azithromycin (less preferred): Resistance well- documented
Sinusitis	Amoxicillin (pediatric) Amoxicillin-clavulanic acid (adult)	Cefdinir Ceftriaxone Clindamycin Doxycycline Levofloxacin
Bronchitis	None recommended	

Findings:

Antibiotics have significantly contributed to the control of infectious diseases, the leading cause of human morbidity and mortality for most of human existence. **In each of the four URI categories presented, most (~90%) are of viral etiology.** Proper antibiotic stewardship includes a balance between the avoidance of prescribing for common viral etiologies of URI and the judicious use of antibiotics when bacterial etiologies are suspected, based on appropriate clinical findings. The NPTC took action to add six antibiotics to the NCF (amoxicillin, amoxicillin-clavulanate, cefdinir, cephalexin, clindamycin and penicillin V potassium) based on well-established standards of care.



Antibiotic Stewardship Program Education

❖ Monthly webinar focused on stewardship in 2022

❖ Topics

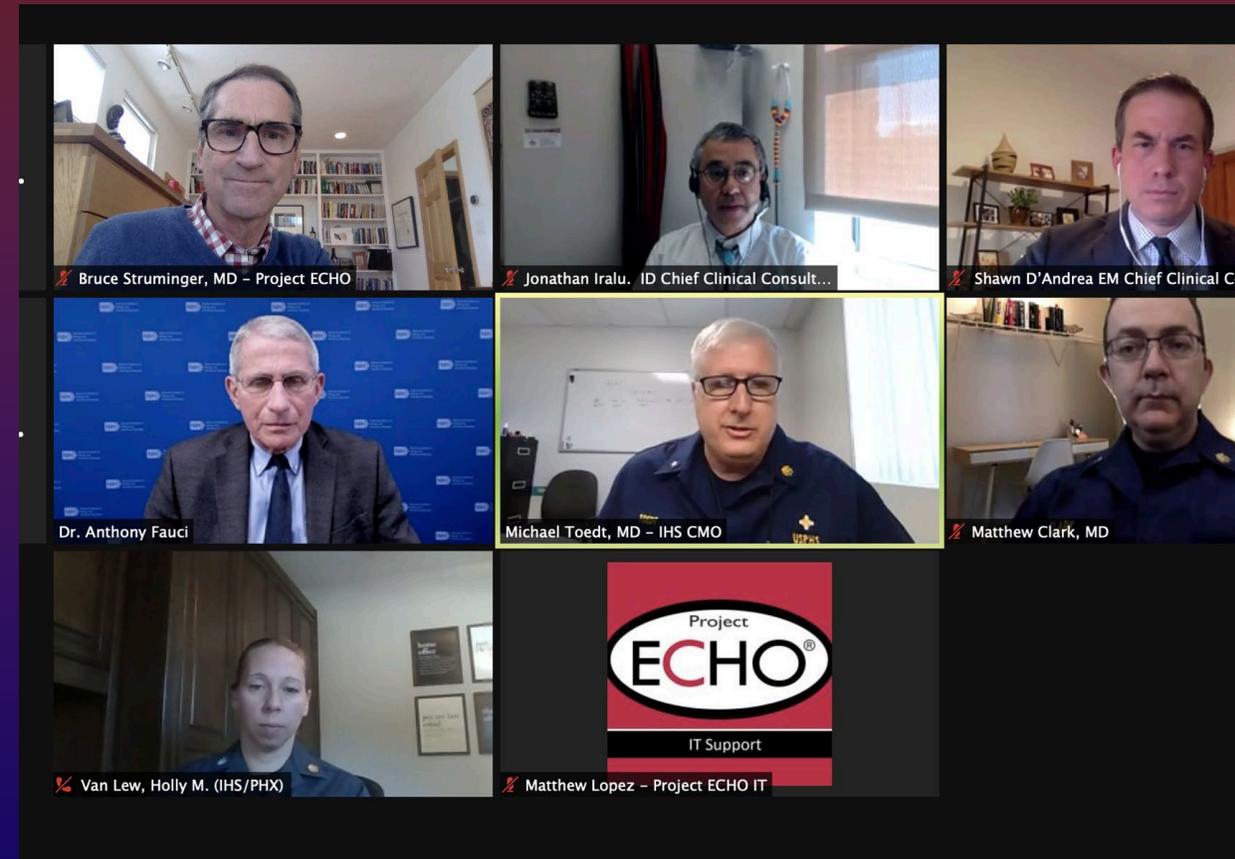
- Core elements
- STI
- Anti-biograms
- Ambulatory care
- Emergency Department

Third Wednesday of Each Month ~12pm MST			
Date	Topic	Presenter	Moderator
January 10, 2022	A Review of Core Elements of Hospital Antibiotic Stewardship Programs	CDR Dinesh Sukhlall CDR J. Garrett Sims LCDR Madison Adams LCDR Russell Kern	20 participants
February 16, 2022	Implementation of AUC:MIC Vancomycin	LT Christopher Tran	LCDR Madison Adams 20 participants
March 16, 2022	Sexually Transmitted Disease	LCDR Michelle Barbosa	Aprana Fox Arpana.Fox@ihs.gov 60 participants
April 20, 2022	Updates on Gram Negative Resistance	Dwayne David and Dr. Jose Mera	Tveit, Adrienee ATveit@SourthcentralFounda tion.com
May 18, 2022	Quality Improvement projects	CDR Mary Thoennes LT Nicholas Stauffer	Kyle Sheffer Kyle.Sheffer@ihs.gov
June 15, 2022	Reporting of antibiotic data using BCMA/RPMS • Inpatient reporting	Russell Kern	Tveit, Adrienee ATveit@SourthcentralFounda tion.com
July 20, 2022	A Review of Antimicrobial Resources	LCDR Russell Kern CDR Dinesh Sukhlall	Aprana Fox Arpana.Fox@ihs.gov
August 17, 2022	Developing and evaluating an antibiogram	LCDR Deidra Newbrough	Gavin Obrien Gavin.Obrien@fda.hhs.gov
September 21, 2022	Ambulatory Care Antimicrobial Stewardship Elements	LT David Moore	LCDR Rachel Washburn Rachel.Washburn@ihs.gov
October 19, 2022	Antimicrobial Efforts in the emergency room	LT Ashley Channels – waiting confirmation	Chelsea McFadden Chelsea.McFadden@ihs.gov
November 16, 2022	Developing & Organizing Quick Orders	Andrew Portier	



IHS Infectious Disease ECHO

- ❖ Collaboration with University of New Mexico since 2013
- ❖ Infectious Disease ECHO started in 2021
 - Urinary Tract Infection
 - STI, TB, HIV, COVID, Mpox
 - Endemic Fungi
 - Drug Resistant Organisms



COVID-19 in the Indian Health Service

- ❖ First IHS cases reported in mid-March 2020
- ❖ Indian Health Service was heavily impacted by early April 2020
- ❖ By April 23, 2020, Navajo Area IHS was one of the most heavily impacted places in the country





COVID-19 and antibiotic stewardship

- ❖ COVID-19 diverted staff away from routine care and stewardship efforts
- ❖ Temporary decrease in incidence of infections like TB and syphilis followed by resurgence once clinical services & surveillance reopened
- ❖ Staff needed to learn to avoid over-treating COVID-19 patients with antibiotics for what is essentially a viral pneumonia



The future in IHS Stewardship

- ❖ Revitalize the national Antibiotic Stewardship Program as Pandemic response subsidies
- ❖ Antibiotic stewardship pharmacist and team at every facility
- ❖ Regional anti-biograms to guide antibiotic choice
- ❖ Education is the key to success
 - ECHO teleconferences and Stewardship Program webinars
 - Formulary briefs

