

Impact of a Public Health Emergency on Human Antibiotic Stewardship Practices



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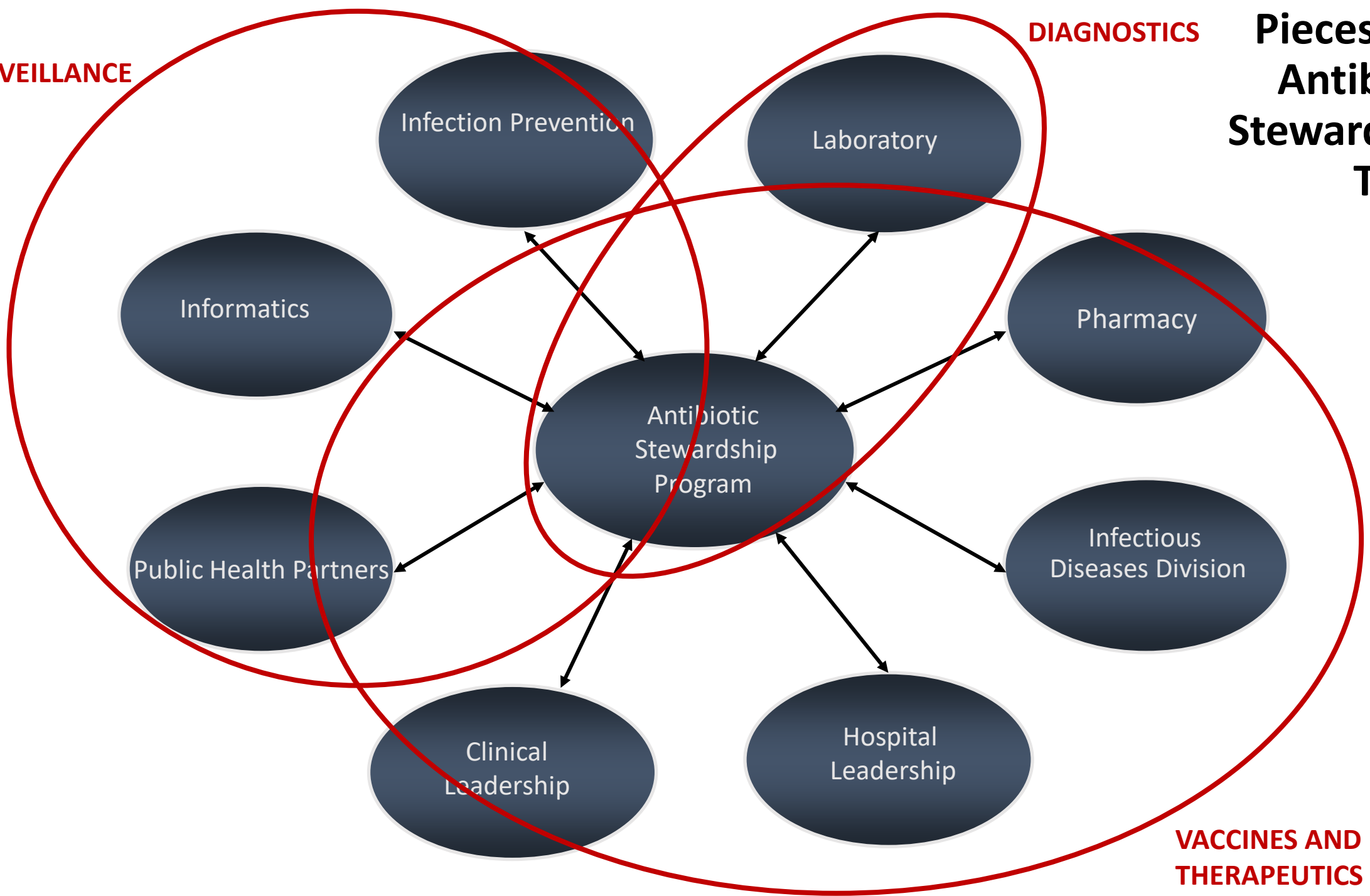
Notable Points from Base Scenario

- Frequent bacterial superinfection at presentation or during hospitalization
- Many secondary bacterial infections due to antibiotic-resistant pathogens (MRSA, VRE, CRAB, MDR *Pseudomonas*, *Aspergillus fumigatus*)
- **Typical bacterial CAP agents also causing disease**
- High rate of empiric use of broad-spectrum agents (e.g. cefepime, pip/tazo, carbapenems, fluoroquinolones, colistin, and anti-MRSA)
- Strained antimicrobial supplies

SURVEILLANCE

DIAGNOSTICS

**Pieces that
Antibiotic
Stewardship
Touch**



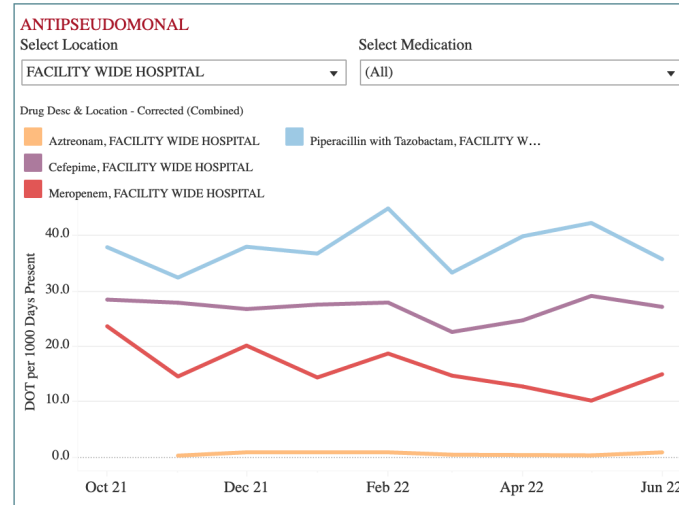
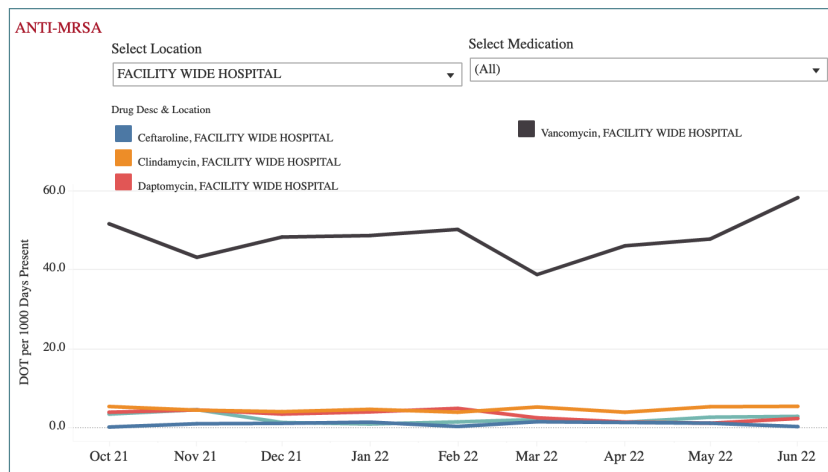
**VACCINES AND
THERAPEUTICS**

Lab

- Develop viral and bacterial testing guidance (who, what, when, where)
- Develop susceptibility testing plans for bacterial pathogens (e.g. up front expanded testing versus cascade susceptibility testing)
- Get information on viral and bacterial diagnostic supply chain
 - Do we need restricted ordering of any rapid testing?
- Make sure all lab micro data feeds into surveillance reports and create new reports

Informatics

- Review influenza and AMR surveillance reports
- Incorporate new diagnostics into reports
- Upgrade antibiotic use surveillance (link with lab data, e.g. MRSA nasal PCR and influenza testing)
- Update changes to antibiotic ordering processes
- Consider messaging to outpatients who test positive for influenza regarding treatment



Influenza Surveillance

Report completed: Wed 8/31 02:43 PM
Your data source returned no rows.

MDRO Results Review

Data collected: Wed 8/31 02:42 PM

Report Title	Results
UH AMS AMP C Type Resistance (Last 7 Days)	--
UH AMS MRSA (Last 7 Days)	--
UH AMS MSSA (Last 7 Days)	--
UH AMS Positive Influenza - Inpatient & Outpatient (Last 4 Weeks)	--
UH AMS Positive Urine - Legionella Antigen (Last 7 Days)	--
UH AMS VRE (Last 7 Days)	--

Infection Prevention

- Collaborate on diagnostic pathways
- Shared surveillance/communication for AMR organisms
- Communicate on any changes seen in HAIs and any role antibiotic use patterns may play

Pharmacy

- Work with drug information services to understand supply chain and shortage issues
- Keep up with FDA changes
- Develop antibiotic restriction criteria, processes and policy approvals

Outpatient Stewardship

- Update outpatient influenza and pneumonia diagnostic and treatment guidelines
- Need to monitor antibiotic use for respiratory indications, specifically influenza and pneumonia
- Should we be recommending antiviral treatment for more outpatients or proactively reaching out to those at high risk for severe disease?
 - Automated messaging versus manual outreach
 - Consider health equity in approach

Stewardship Specific Actions

- Develop/update influenza and bacterial superinfection guidelines:
 - CAP
 - MDR Gram-negative guidance
- Likely restrict broad-spectrum antibiotic agents due to overuse and supply issues
- Manage Stewardship Pager for restricted drug calls and questions, approval of limited diagnostics
- Daily rounds with ICU to review patients and antimicrobial use
- Review influenza patients on other units based on surveillance report
- Review all micro to promote antibiotic de-escalation
- Regular updates to hospital staff
- Community engagement / Media Relations

Public Health

- Do we anticipate federal allocation/management of existing or novel therapeutics?
- Inpatient and/or outpatient therapeutics?
- If so, will state DOH manage? Do we plan to coordinate at a state level?
 - State guidance on distribution
 - State guidance on treatment indications
 - Health equity considerations

State Guidance

- Originally developed after Remdesivir EUA and federal allocation
- Reconvened for monoclonal antibodies and antivirals and agreed upon criteria for use, allocation, equity issues, infusion capacity and operational hurdles

<https://coronavirus.utah.gov/>

Utah Crisis Standards of Care Scarce COVID Therapeutics Allocation Guidelines

January 20, 2022



Produced in cooperation with



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PLOS ONE

OPEN ACCESS PEER-REVIEWED
RESEARCH ARTICLE

Simple scoring tool to estimate risk of hospitalization and mortality in ambulatory and emergency department patients with COVID-19

Brandon J. Webb, Nicholas M. Levin, Nancy Grisel, Samuel M. Brown, Ilhan D. Peltan, Emily S. Spivak, Mark Shah, Eddie Stenehjem, Joseph Bledsoe

Published: March 3, 2022 • <https://doi.org/10.1371/journal.pone.0261508>



How Will We Do All This?

- **University of Utah**

- 5 hospitals approaching 1000 beds
- New 300 bed hospital coming
- 12 community health centers
- 9 urgent cares

- **Antibiotic Stewardship**

- 1.0 MD
- 2.5 PharmDs

Daily Interventions

- Review of all positive blood cultures (80-100/month)
- ~~Review antimicrobials on 14 Internal Medicine Teams with prospective audit and feedback (2-3 days/week)~~
- ~~Review antimicrobials on General Surgery teams (2 days/week)~~
- Manage all restricted antimicrobials via Antimicrobial Stewardship pager
- ~~**Recommendations documented via progress notes**~~
- ~~Developing outpatient stewardship metrics and guidelines~~

Expanding Stewardship Staffing Imperative to Pandemic Preparedness

- CMS standards require “human, financial and information technology resources”
- But no formal staffing standards exist
- Pre-pandemic proposals suggest minimum of 1 FTE per 250 beds
- Most of us not there now

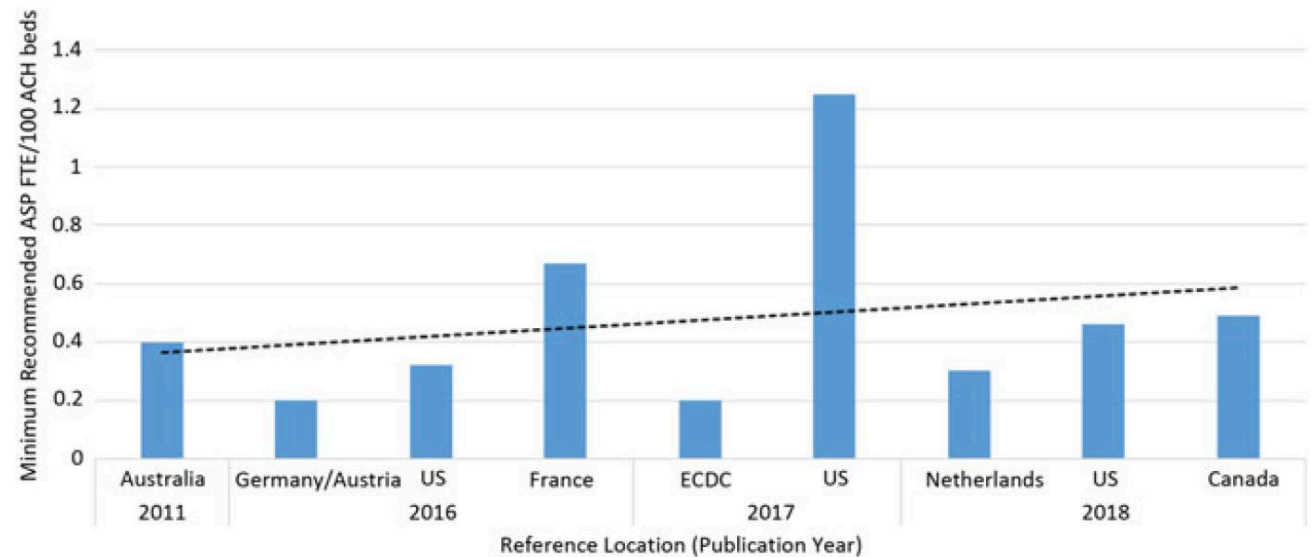


Fig. 2. Selected Antimicrobial Stewardship Program Staffing Proposals. ASP, Antimicrobial Stewardship Program; FTE, full-time equivalent; ACH, Acute Care Hospital; US, United States; ECDC, European Centre for Disease Prevention and Control.

Conclusions

- Learned from COVID-19 that Antibiotic Stewardship Programs touch multiple aspects of the pandemic response and play a pivotal role in coordination.
- Due to resource limitations, pre-pandemic Stewardship Program activities and impacts will suffer because of need to pivot to pandemic response.
- Investing in Antibiotic Stewardship resources key to fighting silent day to day impacts of AMR and those unroofed during a pandemic.

Thank you.