

## Antibiotic Stewardship During the Novel Coronavirus Pandemic

As the SARS-CoV-2 virus spreads around the world, our understanding of COVID-19 disease continues to evolve. Epidemiologic statistics, treatment recommendations, and literature summaries related to the novel coronavirus continue to change daily. In this rapidly changing environment, we will avoid discussing these topics in the monthly newsletter. The most up-to-date resources can be found on the [DASON website](#) and by contacting your local liaison. Instead we would like to briefly focus on the role of the antibiotic steward in the setting of this novel coronavirus pandemic.

Antibiotic stewards battle the slow and steady burn of antimicrobial resistance, a process that may take years (and sometimes decades) to manifest. Antibiotic stewardship programs (ASPs) may not typically be involved in rapid bio-preparedness response, in part due to the relatively young age of stewardship.<sup>1</sup> However, antibiotic stewardship developed out of a close partnership with the field of infection control and prevention. Many overlapping skillsets remain relevant, and new skills acquired by stewards are useful as we face the months to come.

Stewards are adept at prospective audit and feedback and evaluation of antimicrobial use. These fundamentals are critical to maintain during the COVID-19 pandemic. For example, in one of the largest cohort studies published from China in the *New England Journal of Medicine*, approximately 58% of hospitalized patients with confirmed COVID-19 were treated with intravenous antibiotics.<sup>2</sup> This number likely overrepresents the true incidence of

bacterial co-infection and the population remains at risk for unnecessary adverse side effects. However, a significant number of deaths related to the H1N1 were attributed to bacterial super infection.<sup>3</sup> Thus, implementing protocols for antimicrobial review of COVID-19 is necessary for ensuring appropriate overuse.

In addition, prospective audit of hospitalized patients provides secondary assistance in identifying potential COVID cases. Reports from the origin of the pandemic in China indicated that hospital-acquired COVID infections contributed significantly to the number of total cases. Consistent ASP review may provide additional identification of hospital-onset cases where primary providers are anchored to alternative diagnoses. Identification of these cases remains critical as personal protective equipment (PPE) shortages are predicted to occur.<sup>4</sup>

Antibiotic stewards are skilled in identifying and reviewing the appropriate use for new antimicrobials. ASPs are typically ingrained in the appropriate committee structures in their respective hospitals to

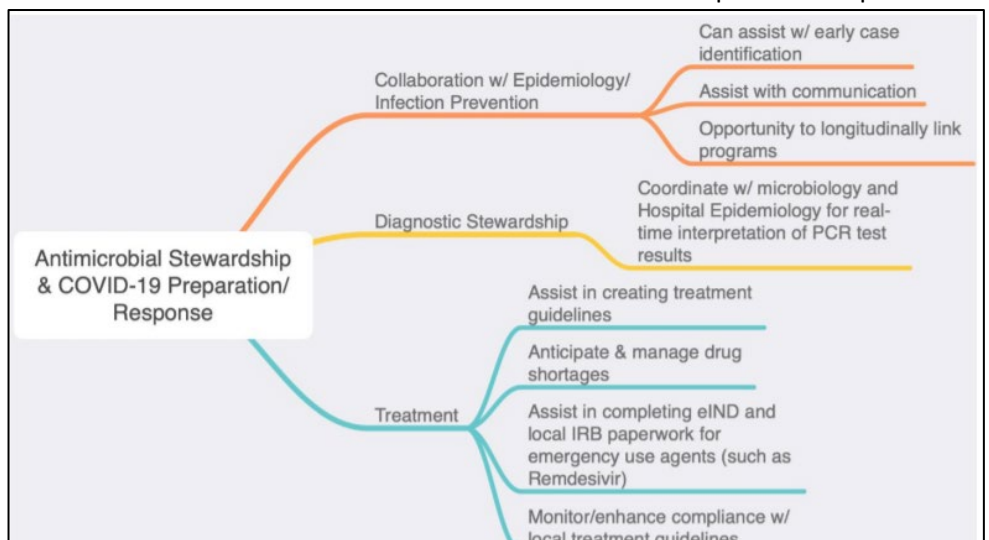


Figure 1: Opportunities for Antimicrobial Stewardship Programs to Assist COVID-19 Response Preparation & Planning Efforts from Stevens et. al<sup>1</sup>

approve antimicrobials for use by clinicians. As data related to the novel coronavirus emerges, new (and old) therapeutics are identified as potential options for treatment of COVID-19. ASPs are in prime position to review the literature, identify options, and make recommendations to the critical stakeholders in hospital leadership.

Finally, once new therapies are identified, ASPs should be involved in the development of treatment protocols. In the setting of a pandemic, supply chains are disrupted and medication shortages are more likely to occur. ASPs are adept at monitoring and adjusting treatment recommendations in such settings.<sup>1</sup>

Antibiotics stewards can fulfill one, many, or all of the potential roles we have discussed in this newsletter, in addition to many others (Figure 1). Antibiotic stewards are critical leaders and thoughtful contributors to a necessary system-wide response as the COVID-19 pandemic progresses.

#### **References:**

1. Stevens MP, Patel PK, Nori P. Involving Antimicrobial Stewardship Programs in COVID-19 Response Efforts: All Hands on Deck. *Infection Control & Hospital Epidemiology*.1-6.
2. Guan W-j, Ni Z-y, Hu Y, et al. Clinical Characteristics of Coronavirus Disease 2019 in China. *New England Journal of Medicine*. 2020.
3. Morris DE, Cleary DW, Clarke SC. Secondary Bacterial Infections Associated with Influenza Pandemics. *Front Microbiol*. 2017;8:1041-1041.
4. Bauchner H, Fontanarosa PB, Livingston EH. Conserving Supply of Personal Protective Equipment—A Call for Ideas. *JAMA*. 2020.