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Pandemic Pinch: The Impact of COVID Response on Antimicrobial Stewardship (ASP) Resource Allocation

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dason DUKE ANTIMICROBIAL STEWARDSHIP OUTREACH NETWORK

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Abstract

Background

The COVID-19 pandemic placed a strain on inpatient clinical and hospital programs due to increased patient volume and rapidly evolving data on best COVID-19 management strategies. However, the impact of the pandemic on ASPs has not been well described.

Methods

We performed a cross-sectional electronic survey of stewardship pharmacy and physician leaders in 37 hospitals within the Duke Antimicrobial Stewardship Outreach Network (DASON) (community) and Duke/UNC Health systems (academic) in April-May 2021. The survey included 60 questions related to staffing changes, use of COVID-targeted therapies, related restrictions, and medication shortages.

Results (updated)

Twenty-nine facilities responded (response rate of 78%). Pharmacy personnel was reduced in 17 (59%) facilities by an average of 14%. Impacted pharmacy personnel included the stewardship lead in 15/17 (88.2%) hospitals. Converting to remote work was rare and only reported in academic institutions (n=4, 14%). ASP personnel were reassigned to non-stewardship duties in 12 (44%) hospitals with only half returning to routine ASP work as of May 2021. Respondents estimated that 62% of routine ASP activities were diverted during the time of the pandemic.

Non-traditional, pandemic-related ASP activities included managing multiple drug shortages, of which ventilator support medications (91%) were most common affecting patient care at 92% of facilities. Steroid and hydroxychloroquine shortages were less frequent (44% and 22%, respectively).

Despite staff reductions, pharmacists often served as primary contact for remdesivir approvals either using a criteria-based checklist at dispensing or as part of a dedicated phone approval team. Most (77%) hospitals used a criteria-based pharmacist review strategy after remdesivir FDA approval. Restriction processes for other COVID-19 therapies such as tocilizumab, hydroxychloroquine, and ivermectin were reported in 64% of hospitals.

Conclusion

Pandemic response diverted routine ASP work and has not yet returned to baseline. Despite the reduction in pharmacy personnel due to the pandemic, the ASP pharmacy lead took on a novel and critical stewardship role throughout the pandemic exemplified by their involvement in novel treatment allocation for COVID patients.

Background

- The COVID pandemic has changed antibiotic use in US hospitals with the majority of COVID patients who are hospitalized receiving antibacterials.[1] To best assess this change, an understanding of impact on stewardship resources is needed.

Methods

- Electronic survey (RedCap™) was distributed to 37 hospitals from one of three hospital networks:

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- The survey consisted of 60 questions targeting staffing changes, COVID therapies, COVID-related medication restrictions and medication shortages
- Surveys were completed by pharmacist and physician stewardship leaders
- All surveys were completed between March and April 2021

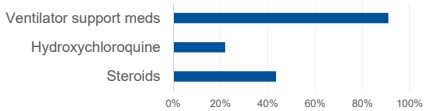
Results

- **29** facilities (78%) responded to the survey
- **Pharmacist staffing reductions:**

58.8% (17/29) reported reduction in pharmacist workforce beginning April 2020 by an average of 14%.

- **Drug shortages:**

Figure 1: % of Facilities Reporting Medication Shortages by Drug Class



Shortages of ventilator support meds were most prevalent (Figure 1) and more likely to directly impact patient care (52%) vs. 30% (steroids) and 0% (hydroxychloroquine).

Survey Results (continued)

Stewardship Team Impact:

13/29 (45%) of facilities reported diverting ASP personnel to other activities

62% of routine stewardship work was shifted to other areas due to COVID-19

54% of this diverted stewardship effort had not returned as of May 2021

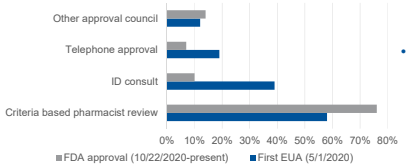
Virtual work for the stewardship team was rare.

- Only 4 (14%) of facilities reported converting to virtual stewardship work. Except for one facility, virtual work had ended by May 2021

Remdesivir :

- Investigational remdesivir was used in 10/29 (34%) facilities prior to the first expanded use access (EUA) approval on 5/1/2020.
- All hospitals reported use of remdesivir by the time it was made available for purchase through the EUA process on 7/13/2020

Figure 2: Remdesivir Approval Process



- Local remdesivir approval processes evolved over time.
- After FDA approval, hospitals required ID consults less frequently and shifted toward pharmacist-based criteria review.
- Less than 5% of hospitals reported supply shortages impacting patients who met local criteria for remdesivir use.

Other medications:

- Other investigational or supportive treatments for COVID-10 were restricted for inpatient use at 62% (18/29) hospitals. Including:

74% tocilizumab | 58% hydroxychloroquine | 37% Convalescent plasma | 32% baricitinib | 26% Lopinivir/ritonavir | 31% each Ivermectin & azithromycin

Conclusions

- Pandemic response diverted ASP resources from routine stewardship activities and had not returned one year into the pandemic.
- Medication shortages were common, and hospitals implemented many restrictions protocols for covid-related medications. As the pandemic continued, this shifted from required ID consults to criteria based pharmacist review more commonly.
- Additional data are needed to assess the impact of the current 4th wave on stewardship in US hospitals.

1. Rose AN et al. *OFID* 2021;8:ofab236. https://doi.org/10.1093/ofid/ofab236

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