

Outpatient Parenteral Antimicrobial Therapy in the Time of COVID-19: The Urgent Need for Better Insurance Coverage

Omar Mansour,^{1,2} Sara Keller,^{3,4,5} Morgan Katz,³ and Jennifer L. Townsend⁶

¹Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA, ²Center for Drug Safety and Effectiveness, Johns Hopkins University, Baltimore, Maryland, USA, ³Division of Infectious Diseases, Department of Medicine, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA, ⁴Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA, ⁵Armstrong Institute of Patient Safety and Quality, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA, and ⁶Division of Infectious Diseases, Johns Hopkins Bayview Medical Center, Baltimore, Maryland, USA

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the disease it causes, coronavirus disease 2019 (COVID-19), are placing unprecedented pressure on every health care system. Patients who require weeks of intravenous antibiotic therapy after hospital discharge due to severe bacterial infections, generally referred to as outpatient parenteral antibiotic therapy (OPAT), are at increased risk for contracting and/or transmitting COVID-19 due to extensive contact with the health care system. To reduce the risk of COVID-19 among this vulnerable patient population, providers overseeing OPAT care need to consider the relative safety of the different OPAT sites of care. Home-based OPAT should be emphasized to minimize hospital stays and prevent skilled nursing facility admissions. Medicare reimbursement policies need to urgently change to provide comprehensive coverage of home infusion services.

Keywords. coronavirus; home infusion; infection prevention; nursing homes; pandemic.

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the disease it causes, coronavirus disease 2019 (COVID-19), is one of the most pressing public health challenges in recent decades. As we contemplate the ramifications of this rapidly evolving pandemic, the need for comprehensive containment and mitigation strategies is clear. One group that may be at increased risk for contracting and transmitting COVID-19 due to extensive contact with the health care system is the outpatient parenteral antimicrobial therapy (OPAT)

population, which has serious infections that typically require longer than average hospital stays to evaluate and control, followed by 2–6 weeks of intravenous antimicrobial therapy postdischarge. OPAT can be completed at different sites of care, including at home, skilled nursing facilities (SNFs), outpatient infusion centers, and dialysis centers. Providers overseeing OPAT care need to consider the relative safety of these options in the setting of the COVID-19 pandemic (Table 1).

Nationally, home infusion-based OPAT is the most common method of OPAT delivery [1] and is arguably the safest option during COVID-19. Home infusion is typically delivered by the patient and family, with support from a single nurse who may visit weekly for the duration of the course. While home nursing interactions carry similar risks as other health care encounters, including nursing time pressures, contact with numerous patients daily, and imperfect usage of protective equipment, the interactions are much less frequent than SNF interactions (i.e., weekly vs multiple times daily). The home setting

is also not subject to the crowding and transmission risks inherent in SNFs and hospitals. OPAT patients receiving care at home are better able to comply with social distancing measures. They also can spend more time with their families than patients in hospitals and SNFs, many of which have implemented a no-visitors policy to prevent COVID-19 transmission. Patients at home also have better access to the technologies necessary for telemedicine encounters than residents of SNFs. Other benefits of home infusion may include increased satisfaction, improved outcomes, and lower cost to the health care system [2].

Outpatient infusion centers and dialysis centers are also common sites of OPAT care, but likely represent higher-risk care settings than home infusion due to a high volume of health care delivery with equipment and staff shared among numerous patients throughout the day. Also, patients are required to travel outside their home and enter public spaces multiple times per week, which carries risk of exposure to persons and surfaces contaminated with the coronavirus. Some

Received 4 May 2020; editorial decision 28 June 2020; accepted 2 July 2020.

Correspondence: Jennifer L. Townsend, MD, Johns Hopkins Bayview Medical Center, 5200 Eastern Ave, MFL Center Tower #381, Baltimore, MD 21224 (jholme27@jhmi.edu).

Open Forum Infectious Diseases®

© The Author(s) 2020. Published by Oxford University Press on behalf of Infectious Diseases Society of America. This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs licence (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial reproduction and distribution of the work, in any medium, provided the original work is not altered or transformed in any way, and that the work is properly cited. For commercial re-use, please contact journals.permissions@oup.com
 DOI: 10.1093/ofid/ofaa287

Table 1. Comparison of OPAT Sites of Care

Site of Care	Home	Outpatient Infusion Center/DC	SNF	Hospital
Risk of COVID-19	Low	High	Very high	High
Patient preference	Highly preferred	Preferred	Not preferred	Not preferred
Infection prevention support	Low	Varies	Varies	High
Cost to the health care system	Low	Low	High	Very high
Medicare coverage	Limited	Varies	Adequate	Full

Abbreviations: COVID-19, coronavirus disease 2019; DC, dialysis center; OPAT, outpatient parenteral antibiotic therapy; SNF, skilled nursing facility.

outpatient infusion centers have closed, with their patient populations primarily shifting to the home. However, patients requiring dialysis are already making these forays into their dialysis centers, so OPAT administration in this setting does not pose additional risk.

SNFs are likely the highest-risk setting for COVID-19 in the current health care landscape and should be avoided if possible. SNFs have been hit hard by COVID-19 outbreaks due to their congregated nature and large numbers of elderly and medically fragile residents [3]. Many SNFs are facing critical shortages in personal protective equipment, COVID-19 testing capabilities, and adequate staffing. Surveillance studies have identified facilities with up to 80% of asymptomatic residents and 50% of asymptomatic staff members testing positive for COVID-19 (Dr. Katz, unpublished data). Wide local spread is likely facilitated by asymptomatic staff members who are caring for large numbers of patients due to high patient-to-staff ratios. While states and local health departments are attempting to bolster the infection control capacity of these facilities, there is still reasonable concern about placing OPAT patients in these high-risk environments. Many facilities are closed to admission of new residents due to active transmission within the facility, making placement challenging and delaying the discharge process from a potentially overwhelmed acute care system. Shifting patients from SNFs to home infusion would not only benefit patients, but also SNFs as they strive to “de-densify” and follow Centers for Disease Control and Prevention guidance [4].

Staying at the hospital for the duration of OPAT is the most expensive option to the health care system and exposes patients to excess risk of COVID-19. Thus, OPAT programs should seek to discharge patients from the hospital as soon as possible to reduce their risk of disease.

Given the risks of OPAT outside of the home, what is preventing all OPAT patients from being treated at home? Commonly encountered barriers to home discharge in our hospital include substance use disorder, the need for wound care, lack of a safe home environment, and lack of adequate informal caregivers. Rehabilitation is also a common reason for SNF placement but is often available in the home setting as well. However, the most common barrier in our population is a lack of insurance coverage for home infusion under Medicare, which is the primary payor for ~50% of our OPAT patients. As a result, many patients are discharged to SNFs (56% at our hospital) to complete their treatment course. A significant proportion of patients may also be treated with suboptimal oral regimens due to reluctance on the part of the patient or the physician to place the patient in an SNF. Suboptimal therapy and SNF placement both expose an already vulnerable patient population to a tremendous amount of unnecessary risk, especially given that a significant proportion of OPAT patients at our hospital are black (25%) or of lower socioeconomic status, as preliminary data suggest a disproportionate COVID-19 burden among these populations [5].

The “OPAT gap” in Medicare coverage has a long history and has come under scrutiny in recent years. Before 2015, Medicare coverage for home infusion

services such as OPAT did not fall under any 1 part of Medicare [6]. The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) revised certain Medicare reimbursement policies to allow payment for home infusion services, but only on the day when the nurse is in the home (once weekly on average). Hamad and colleagues recently summarized the coverage gaps for OPAT services [7]. Medicare part A covers home nursing only for homebound patients. Medicare Part B covers <10% of intravenous antimicrobials. Medicare Part D, while covering drugs, does not cover the needed supplies or nursing. Excepting patients with Medicare Advantage plans, OPAT patients face prohibitively high out-of-pocket expenses for daily medications and supplies and hence are discharged to SNFs in large numbers.

Medicare has a window of opportunity to save lives during the pandemic by revising and improving its coverage regarding OPAT. Medicare should be applauded for rapidly expanding coverage for telemedicine services, which has dramatically decreased the risk of COVID-19 acquisition for patients and providers during face-to-face encounters. In a similar manner, Medicare should include daily allowances for home infusion medications and supplies in order to facilitate safe OPAT at home, which in turn will reduce patient contact with health care settings. As previous analyses have shown, expanding home infusion coverage for OPAT patients will save Medicare money [8] that could be redirected toward fighting the pandemic in other arenas. The cost of home infusion should not fall on patients or hospitals in this time of unprecedented stress on individuals

and health systems. Funding home infusion for OPAT patients is a win-win for Medicare and patients, especially under the threat of COVID-19.

Acknowledgments

Financial support. The authors received no financial support for the research, authorship, and/or publication of this article.

Potential conflicts of interest. The authors report no conflicts of interest related to this work. The authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

References

1. Hamad Y, Lane MA, Beekmann SE, et al. Perspectives of United States–based infectious diseases physicians on outpatient parenteral antimicrobial therapy practice. *Open Forum Infect Dis* **2019**; 6:XXX–XX.
2. Mansour O, Arbaje AI, Townsend JL. Patient experiences with outpatient parenteral antibiotic therapy: results of a patient survey comparing skilled nursing facilities and home infusion. *Open Forum Infect Dis* **2019**; 6:XXX–XX.
3. Barnett ML, Grabowski DC. Nursing homes are ground zero for COVID-19 pandemic. *JAMA Health Forum* **2020**; 1(3):e200369.
4. Centers for Disease Control and Preventions. Preparing for COVID-19: long-term care facilities, nursing homes. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/long-term-care.html>. Published 15 April 2020. Accessed 29 April 2020.
5. Centers for Disease Control and Preventions. COVID-19 in racial and ethnic minority groups. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/racial-ethnic-minorities.html>. Published 22 April 2020. Accessed 29 April 2020.
6. Keller S, Pronovost P, Cosgrove S. What Medicare is missing. *Clin Infect Dis* **2015**; 61:1890–1.
7. Hamad Y, Joynt Maddox KE, Powderly WG. COVID-19 and outpatient parenteral antimicrobial therapy: the need to protect vulnerable medicare beneficiaries. *Annals Intern Med*. **In press**.
8. Mansour O, Heslin J, Townsend JL. Impact of the implementation of a nurse-managed outpatient parenteral antibiotic therapy (OPAT) system in Baltimore: a case study demonstrating cost savings and reduction in re-admission rates. *J Antimicrob Chemother* **2018**; 73:3181–8.