Follow-up for patients discharged from hospital to an acute rehabilitation center within our health system is enhanced by a shared EHR; however, opportunities exist to improve communications with partner agencies (including subacute rehabilitation centers and LTCFs), which could be achieved via replication of applicable internal elements. Even in the absence of a shared EHR, it may be possible to grant these facilities "read-only" access to the health system. This access can improve visibility of future appointment dates, OPAT clinical notes, and other key information pertaining to the patient's OPAT care plan. Prioritization of relationship development with the pharmacist(s) providing consulting or home infusion services to these facilities may additionally serve as an effective means of enhancing communication. Although these strategies may not be possible for every single subacute rehabilitation center or LTCF, OPAT programs almost certainly benefit from pursuing these relationships with their most frequently encountered facilities.

The study by Kaul et al¹ provided data that highlights the difficulty of care coordination for OPAT patients in off-site facilities. Significant healthcare practice changes that may alter the trajectory of this challenging environment are (1) OPAT provided via telemedicine (ie, "tele-OPAT") and (2) utilization of oral antimicrobials for the treatment of serious infections.

Telemedicine may be a welcome friend to the OPAT–facility partnership. Video visits by ID specialists to LTCFs or subacute rehabilitation centers, supplemented by local laboratory testing and imaging, removes transportation barrier, and simplifies follow-up. Furthermore, a systematic review demonstrated that tele-OPAT was cost-effective and was associated with high patient satisfaction and lower rehospitalization risk compared with traditional OPAT.³ Tele-OPAT has been suggested for remote and geographically isolated OPAT patients, and facility residing patients should be considered an additional focus group.

Oral antimicrobials, on the other hand, could be a friend or a foe. The relative simplicity of outpatient oral antimicrobial(s) prescribing, generally less rigorous monitoring, and lack of central venous access requirement is favorable. However, there is heightened potential for progressive adverse effects or infection

worsening going undetected in the absence of support by a dedicated OPAT team.⁴ Several studies have demonstrated more symptomatic intolerances to long term oral antimicrobials than intravenous.⁵ Furthermore, suboptimal oral antimicrobial prescribing at transitions of care is well documented.⁶

OPAT programs are poised to manage serious, complex infections with oral and intravenous antimicrobials in facility-based care settings, acknowledging the challenges. Contemporary publications on quality initiatives to improve the OPAT care in off-site facilities would be valuable additions to the literature.

Are off-site facilities the OPAT clinician's friend or foe? It may be that we follow OPAT patients closely, with extra efforts to keep those in off-site facilities even closer.

Acknowledgments.

Financial support. No financial support was provided relevant to this article.

Competing interests. All authors report no conflicts of interest relevant to this article.

References

- Kaul CM, Haller M, Yang J, et al. Factors associated with loss to follow-up in outpatient parenteral antimicrobial therapy: a retrospective cohort study. Infect Control Hosp Epidemiol 2023. doi: 10.1017/ice.2023.216.
- Kaul CM, Haller M, Yang J, et al. Assessment of risk factors associated with outpatient parenteral antimicrobial therapy (OPAT) complications: a retrospective cohort study. Antimicrob Steward Healthc Epidemiol 2022;2:e183.
- Durojaiye OC, Jibril I, Kritsotakis EI. Effectiveness of telemedicine in outpatient parenteral antimicrobial therapy (Tele-OPAT): a systematic review. J Telemed Telecare 2022. doi: 10.1177/1357633X221131842.
- Li HK, Rombach I, Zambellas R, et al. Oral versus intravenous antibiotics for bone and joint infection. N Engl J Med 2019;380:425–436.
- Azamgarhi T, Shah A, Warren S. Clinical experience of implementing oral versus intravenous antibiotics (OVIVA) in a specialist orthopedic hospital. Clin Infect Dis 2021;73:e2582–e2588.
- Mercuro N, Medler C, MacDonald N, et al. Improving prescribing practices at hospital discharge with pharmacist-led antimicrobial stewardship at transitions of care. Infect Control Hosp Epidemiol 2020;41:s289–s290.

The authors' reply to Jensen et al's Letter to the Editor

Christina M. Kaul MD, MS^{1,2}, Matthew Haller MD^{3,4}, Jenny Yang MD⁴, Sadie Solomon BS⁵, Maria R. Khan PhD, MPH², Robert A. Pitts MD¹ and Michael S. Phillips MD^{1,5}

¹Division of Infectious Diseases, NYU Grossman School of Medicine, New York, NY, USA, ²Department of Population Health, NYU Grossman School of Medicine, New York, NY, USA, ³Department of Medicine, NYU Grossman School of Medicine, New York, NY, USA and ⁵Department of Hospital Epidemiology, NYU Langone Health, New York, NY, USA

Keywords: OPAT; outpatient parenteral antimicrobial therapy; outpatient parenteral antibiotic therapy; outcomes; loss to follow-up; outpatient follow-up

Corresponding Author: Christina Kaul; Email: ckaulmd@gmail.com
Cite this article: Kaul CM, Haller M, Yang J, et al. The authors' reply to Jensen et al's
Letter to the Editor. Infect Control Hosp Epidemiol 2024. 45: 799–800, doi: 10.1017/

To the Editor—We thank Jensen et al for also highlighting the difficulties at points of transitions of care, and bringing up the difficulties that lie in discharge to off-site facilities for patients requiring outpatient parenteral antimicrobial therapy (OPAT).¹

To acknowledge the point of the authors that existing methods of communication with these facilities should be described, we

© The Author(s), 2024. Published by Cambridge University Press on behalf of The Society for Healthcare Epidemiology of America

800 Christina M. Kaul *et al*.

provide the description as follows. Similar to the central OPAT program described by Jensen et al, our institution also maintains a dedicated OPAT outpatient service consisting of two infectious diseases (ID) physicians and four nurse practitioners (NP); further details regarding the service have been previously described.^{2,3} Patients followed by the OPAT team are required to have an ID inpatient consult. For our patients discharged to acute rehabilitation (AR), which is a part of our hospital system and located in close physical proximity to our main hospital, ID physicians continue to follow the patients while they remain in this facility. At the time of discharge from AR, the OPAT service is notified and take over antimicrobial management once discharged from AR. One NP is assigned to each case and subsequently initiates contact with the patient, infusion company, and accepting facility (if applicable). This NP also assumes responsibility for antimicrobial monitoring and ensures indwelling catheter removal after completion of intravenous therapy.

For OPAT patients discharged to sub-acute rehabilitation (SAR) or long-term care facilities (LTCF), a similar protocol exists. Prior to discharge, the OPAT service is notified by the inpatient team. An OPAT service NP is assigned to each patient, initiating contact and assuming responsibility for antimicrobial monitoring as described above. Contact is made with the accepting physician and nursing staff of the accepting unit via email or telephone to initiate care coordination. Communication with the facility continues at least weekly to ensure collection of laboratory tests at the appropriate interval, communication of adverse events, adjustment of therapy if indicated, and removal of vascular access at the completion of therapy. However, we would like to note that successful contact varies widely by facility, therein highlighting a major challenge we face in ensuring appropriate care coordination.

We agree with Jensen et al that in the absence of a shared electronic health record that communications can be improved, including granting facilities read-only access to the health system. While we agree that this would certainly improve communication with off-site facilities, we must acknowledge the logistical hurdles in place to allow this to occur, particularly in large urban centers where patients are discharged to a wide range of off-site facilities. Other issues that come to mind in this model include lack of buy-in or motivation for cross-facility communication due to increased workload in already-overburdened staff, as well as how to sustain channels of communication over time. While we continue to work toward improving technological integration, one potential solution would be to prioritize discharge of OPAT patients to partner offsite facilities, which has been done at other institutions.⁴ However, whether there is a positive impact on outcomes has yet to be established.

Jensen et al bring up the importance of telemedicine as a possible method to improve the relationship between off-site facilities and health systems. It has certainly been noted that transportation issues have led to patients missing follow-up appointments, including in patients at SAR or LTCF. ^{5,6} We agree that utilization of telemedicine in necessary circumstances could

potentially improve patient outcomes, and we would welcome further work in this area.

We also agree with the authors that lack of support from a dedicated team in oral antimicrobial regimens is of concern. As more data emerge on the efficacy of oral regimens to treat complex infectious conditions, more formal workflows should be put in place to ensure that patients receiving these complex oral regimens are managed appropriately.

We wholeheartedly agree with Jensen et al that quality initiatives to improve OPAT management in off-site facilities should be prioritized and be incorporated into the literature to bring much-needed advancement to work done at this transition of care. As the authors described, whether off-site facilities are friend or foe remains to be seen.

Acknowledgements. None.

Financial support. NDr. Kaul acknowledges funding from the NYU Department of Internal Medicine Organization for Nurturing Diversity, which has supported research related to OPAT outcomes. Dr. Kaul is also supported through Grant Award Number T32HP22238 by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award totaling \$500,000 with 4.7 percentage financed with non-governmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS, or the U.S. Government. For more information, please visit HRSA.gov. The efforts of Dr. Kaul were also supported by the National Center for Advancing Translational Sciences, National Institutes of Health, through Grant Award Number UL1TR001445. The content is solely the responsibility of the author and does not necessarily represent the official views of the NIH.

Competing interests. None.

References

- Jensen KL, Van Abel A, Frykman P, Rivera CG. Off-site facilities: friend or foe of outpatient parenteral antimicrobial therapy. *Infect Control Hosp Epidemiol* 2024;1–2. doi: 10.1017/ice.2024.20
- Kaul CM, Haller M, Yang J, Khan MR, Pitts RA, Phillips MS. Factors associated with loss to follow-up in outpatient parenteral antimicrobial therapy: a retrospective cohort study. *Infect Control Hosp Epidemiol* 2024;45(3):387–389.
- Kaul CM, Haller M, Yang J, et al. Assessment of risk factors associated with outpatient parenteral antimicrobial therapy (OPAT) complications: a retrospective cohort study. Antimicrob Steward Healthc Epidemiol 2022;2: e183. doi: 10.1017/ash.2022.313
- Player J, Bouzigard R, Arnold M, et al. 345. Unaccounted costs associated with different outpatient parenteral antimicrobial therapy (OPAT) models of care. Open Forum Infectious Diseases 2023;10(Supplement_2). doi: 10.1093/ ofid/ofad500.416
- Hamad Y, Lane MA, Beekmann SE, Polgreen PM, Keller SC. Perspectives of United States-based infectious diseases physicians on outpatient parenteral antimicrobial therapy practice. *Open Forum Infect Dis* 2019;6. doi: 10.1093/ ofid/ofz363
- Halilovic J, Christensen CL, Nguyen HH. Managing an outpatient parenteral antibiotic therapy team: challenges and solutions. *Ther Clin Risk Manag* 2014;10:459–65. doi: 10.2147/TCRM.S48906