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1993. Economic Evaluation of Outpatient Parenteral Antimicrobial Therapy in Children

Nathan Krah, PhD; Lawanda Esquivel, BS; Tyler Barley, MS; Richard E. Nelson, PhD; Andrew Pavia, MD, FIDSA, FSHEA; FPIDS; and Adam L. Hersch, MD, PhD;

Division of Infectious Diseases, University of Utah, Salt Lake City, Utah; Pediatrics, Division of Infectious Diseases, University of Utah, Salt Lake City, Utah; Ideas Center, VA Salt Lake City Health Care System, Salt Lake City, Utah; Department of Pediatrics, Division of Pediatric Infectious Diseases, University of Utah School of Medicine, Salt Lake City, Utah; University of Utah School of Medicine, Salt Lake City, Utah

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Background. Outpatient parenteral antimicrobial therapy (OPAT) is a safe and effective method to treat serious infections in the home environment. Compared with prolonged hospitalization, OPAT has lower costs and burden on patients and caregivers. However, there is increasing evidence that outcomes with oral therapy are comparable to OPAT in some conditions. Our objective was to compare the economic burden between OPAT and oral therapy.

Methods. Prospective cohort study of caregivers for children hospitalized at Primary Children’s Hospital, a 289-bed freestanding children’s hospital. At an initial visit to the Pediatric Infectious Diseases clinic after hospitalization, subjects completed an electronic survey that included caregiver and medical record components. The caregiver component collected data about missed school, work, comfort with medication administration (5-point Likert scale) and time spent administering therapy. Caregivers also completed the PedsQL, a validated instrument to assess caregiver quality-of-life (QoL). Scores range from 0 to 100 with higher scores indicating better functioning. The medical record component collected clinical information including length of stay (LOS), scores (77.8 vs. 68.9) than caregivers administering oral therapy. Mean daily costs were $65 (95% CI: $51–$78) for OPAT and $7 (95% CI: $4–$9) for oral. The relative differences in cost and QoL between groups did not change after model adjustment.

Conclusion. The overall burden of OPAT is substantially higher than oral therapy including higher direct and indirect costs and greater impact on caregiver and patient QoL.

1934. Who Really Benefits Financially From OPAT: Patients/Families or Healthcare Institutions?

Laila Ibrahim, MBBC; Li Huang, PhD; Sandy Hopper, MBBS; Kim Dalziel, PhD; Franz Babi, MD, and Penelope Bryant, BM BCH, PhD;

Department of Paediatrics, University of Melbourne, Parkville, Australia; Murdoch Children’s Research Institute, Parkville, Australia; The Royal Children’s Hospital Melbourne, Melbourne, Australia; Centre for Health Policy, University of Melbourne, Melbourne, Australia; Emergency Department, The Royal Children’s Hospital, Parkville, Australia; University of Melbourne, Parkville, Australia; Infectious Diseases Unit, Department of General Medicine, The Royal Children’s Hospital, Parkville, Australia

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Background. Outpatient parenteral antibiotic therapy (OPAT) is an accepted model of care for children, as it reduces the negative psychosocial impact of hospital admission and the risk of hospital-acquired infection. However, evidence for the overall cost-effectiveness of this strategy is lacking, with the concern that OPAT may benefit healthcare providers/institutions but not patients/families. This health economic analysis aimed to address both healthcare and societal perspectives, by comparing the cost-effectiveness of OPAT at home for moderate/severe cellulitis to standard hospital care.

Methods. An economic evaluation was conducted of patients recruited to a randomized control trial from January 2015 to June 2017. Children aged 6 months–18 years presenting to the emergency room (ER) with moderate/severe cellulitis were randomized to receive either intravenous antibiotics at home via OPAT or standard care in hospital. The costs considered were the OPAT service cost for the home treatment group, the inpatient admission cost for the hospital group, and costs to families. Costs were collected using hospital administrative cost data for each patient and case questionnaires completed by parents, which included parental leave taken from work, medication and transport costs incurred. The effectiveness was measured in quality-adjusted life years (QALY) using the Child Health Utility 9D, a well-validated health-related quality-of-life assessment tool.

Results. One hundred eighty-eight children were included in the study. The total cost per patient for the healthcare institution was significantly lower for the OPAT group compared with the hospital group (US$1,136 vs. US$2,124, P < 0.001). The mean cost to a family was US$160 for the home group compared with US$552 for the hospital group (P < 0.001), which was primarily accounted for by patients’ days taken off work. Children’s health utility was significantly higher in the OPAT group compared with the hospital group (0.86 vs. 0.75, P < 0.001). OPAT was less costly and more effective thus dominant (figure), and estimating the incremental cost-effectiveness ratio is redundant.

Conclusion. OPAT for children with moderate/severe cellulitis is less costly for both healthcare providers and families, in addition to being more effective compared with standard care to a hospital ward.

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1935. Outpatient Parenteral Antimicrobial Therapy in Nonanegarians

Caitlin Blaskевич, DO, PhD; Steven Gordon, MD; Susan J. Rehm, MD, FIDSA; Angela Everett, KAS; and Nabin Shrestha, MD, MPH, FIDSA, FSHEA; Internal Medicine, Cleveland Clinic, Cleveland, Ohio; Infectious Disease, Cleveland Clinic, Cleveland, Ohio

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Background. Although OPAT is widely accepted practice for adults in the USA, the safety of OPAT in very old patients has not been examined before.

Methods. The Cleveland Clinic OPAT Registry was screened to identify patients aged 89 and above discharged from hospital on OPAT. Controls subjects (those aged 89 years and younger) were selected from the OPAT registry, matched to study subjects on sex, year of admission, OPAT site, vascular access, infection category, and antibiotic group. ED visits, readmissions, and deaths, for nonanegarians and controls, were described as competing outcomes. Patients were only included once. Events up to 90 days following initiation of OPAT were analyzed.

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considered. OPAT-related ED visits, and separately OPAT-related readmissions, were compared across the two groups in subdistribution proportional hazards competing risks regression models. Adverse drug events were compared using logistic regression.

**Results.** Thirty nonagenarians and 87 control subjects were identified for patients discharged on OPAT between January 1, 2013 and May 21, 2014. Mean (SD) of age for nonagenarians and controls were 92 (3) and 61 (16), respectively, and 67 (57%) were males. Cardiovascular and osteoarticular infections accounted for more than 50% of infections treated in each group, and the majority of patients received their OPAT in skilled nursing facilities. The cumulative incidences of OPAT-related ED visits and readmissions for nonagenarians and control patients with death and non-OPAT-related readmissions accounted for as competing events, are shown in the figure. Compared with matched patients below 90 years of age, nonagenarians were not at increased risk of OPAT-related ED visits (HR 1.32, 95% CI 0.55–3.18, P = 0.54), OPAT-related readmissions (HR 1.2, 95% CI 0.23–6.19, P = 0.83), or adverse drug events from OPAT medications (OR 1.22, 95% CI 0.28–8.55, P = 0.81).

**Conclusion.** OPAT can be accomplished in nonagenarians as safely as in younger patients.

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1936. Implementation of IV Push Antibiotics for OPAT in a Safety Net Hospital Following a National Fluid Shortage
Kavita Bhavan, MD, MHS1; Cylaina Bird, BA2; Amish Gunagaly, BS, BA2; Helen King, MD3; Aurora Schmalstieg, MD4; Norman Mang, PharmD5; Jessica Ortwine, PharmD6; Wenjing Wei, PharmD7 and Ryan Collins, PA8; Infectious Diseases, UT Southwestern Medical Center, Dallas, Texas, UT Southwestern Medical Center, Dallas, Texas, Parkland Health And Hospital System, Dallas, Texas

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**Background.** In the wake of Hurricane Maria, hospitals nationwide have faced a shortage of IV fluids sourced from Puerto Rico. Out of necessity to conserve IV fluids, Parkland Memorial Hospital shifted IV antibiotic administration from traditional fluid suspension via pump/gravity to “IV push” administration. The safety and potential cost savings of short infusion administration of antibiotics have been previously described; however, implementation of IV push administration among patients receiving long-term IV antibiotics has yet to be described.

**Methods.** Starting November 2017, patients requiring long-term IV antimicrobial treatment with were transitioned to receive IV push administration from infusion. Per the Parkland self-administered Outpatient Parenteral Antimicrobial Therapy (5-OPAT), patients were screened and trained to self-administer IV antibiotics prior to hospital discharge and followed in the Parkland OPAT clinic.

**Results.** Since implementation November 2017, 200 patients completed antibiotic therapy with IV push method with 100% success rate and no reported complications. The following supplies were estimated to be saved: 3,000 less IV fluid bags, 1,000 IV tubing, and 50% fewer gloves and alcohol swabs, amounting to approximately $22,000 of cost savings for a patient going home on once a day antibiotic therapy. Teaching time for the nursing team was reduced on average by 50% per patient. Preliminary patient satisfaction surveys indicate greater satisfaction due to decreased infusion time from an average of 45 minutes to 3–5 minutes with the IV push method. Patient’s reported satisfaction with the new IV Push method due to greater convenience for both storing the medication and a faster preparation time.

**Conclusion.** Parkland Memorial Hospital was able to implement IV push as a safe and cost-effective alternative to traditional IV antibiotic administration in fluid suspension. Use of IV push antibiotics resulted in $22,000 of cost savings and reduced utilization of a critical resource currently facing a nationwide shortage. Though implemented at our institution in response to a national crisis, IV push is a favorable alternative to administration via a pump or gravity due to time savings, cost reduction, and convenience.

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1937. A Dedicated OPAT Program Reduces Readmission and Complications Rates
Wesley Willeford, MD1;2; J. Andrew Carr, PharmD, BCPS (AQ-ID);3 Rachael A. Lee, MD1;; Alison Patel, MD4;5; Sonya Heath, MD1;6; John W. Baddley, MD7; and Todd P. McCarty, MD1;2,8; Infectious Diseases, University of Alabama at Birmingham, Birmingham, Alabama, 2Birmingham VA Medical Center, Birmingham, Alabama, Infectious Disease, Birmingham VA Medical Center, Birmingham, Alabama, 4Infectious Diseases, Birmingham VA Medical Center, Birmingham, Alabama, University of Alabama at Birmingham, Birmingham, Alabama, 8University of Alabama at Birmingham, Birmingham, Alabama, 1Birmingham Veterans Affairs Medical Center, Birmingham, Alabama, 2Division of Infectious Diseases, University of Alabama at Birmingham, Birmingham, Alabama

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**Background.** Outpatient Parenteral Antibiotic Therapy (OPAT) programs provide improved patient outcomes with reductions in the rate of complications and readmissions in our VA population. Our data support the center’s efforts to dedicate centralized resources to improving the outcomes of OPAT patients.

**Methods.** A retrospective study was conducted including all patients discharged from the Birmingham Veterans Affairs (VA) Medical Center on OPAT from January 1, 2014 to December 31, 2014 (Period 1) and January 1, 2015 to December 31, 2016 (Period 2). Prior to January 1, 2015 OPAT was managed by individual infectious diseases physicians. Starting with Period 2, OPAT was monitored by a dedicated ASP physician and pharmacist. Episodes that eclipsed both periods were excluded. Data collection included demographics, antibiotic indication, treatment received, and clinical outcomes (frequency and types of drug related complications, acute kidney injury [AKI] defined as a rise in serum creatinine requiring a change in antibiotic dosing, CVC complications, hospital readmission, and planned OPAT duration [difference between discharge and planned stop dates]).

**Results.** Period 1 included 120 patients, period 2 included 299 patients. The mean planned OPAT duration was 30.3 days in Period 1, 28.3 days in Period 2 (P = 0.21). Demographics and OPAT indications for each period are in Table 1. Fewer patients had complications in Period 2 compared with Period 1 (50 [42%] vs. 77 [26%], P = 0.001). Complications for each period are detailed in Table 2. Readmission rates were lower in Period 2 compared with Period 1 (27.5% of patients vs. 10%, P < 0.0001). Year is significantly negatively associated with complications (P < 0.0001) and hospitalization (P < 0.0001), Figure 3.

**Conclusion.** The establishment of an OPAT-ASP tasked with close monitoring of therapy improved patient outcomes with reductions in the rate of complications and readmissions in our VA population. Our data support the center’s efforts to dedicate centralized resources to improving the outcomes of OPAT patients.

| Table 1: Patient Characteristics by Period |
|------------------------------------------|
| **Period 1** | **Period 2** |
| **Age** | 61 (16) | 60 (19) |
| **Sex** | 23 [77%] | 28 [94%] |
| **Race** | 14 [47%] | 23 [77%] |
| **Type of OPAT** | 12 [39%] | 24 [79%] |
| **Complications** | 12 [39%] | 24 [79%] |

| Table 2: Complications by Period |
|---------------------------------|
| **Period 1** | **Period 2** |
| **Infectant Demographics** | **Infectant Demographics** |
| **Age** | 61 (16) | 60 (19) |
| **Sex** | 23 [77%] | 28 [94%] |
| **Race** | 14 [47%] | 23 [77%] |
| **Type of OPAT** | 12 [39%] | 24 [79%] |
| **Complications** | 12 [39%] | 24 [79%] |

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