Impact of an Antimicrobial Stewardship Policy to Restrict Palivizumab Use

TO THE EDITOR—Respiratory syncytial virus (RSV) is a frequent cause of bronchiolitis and pneumonia; it is estimated to cause more than 57 000 hospitalizations per year in the United States in children younger than 5 years at a cost of nearly \$10 000 per hospital stay for term infants and up to \$40 000 per stay for premature infants [1, 2]. Palivizumab (PZ), a monoclonal antibody directed against RSV, was approved in 1998 to reduce morbidity associated with RSV infection in children who are at risk for developing severe disease. At more than \$2500 per vial, PZ remains a costly medication. Recommendations published in 2014 advise limiting PZ to 5 monthly doses to provide protection only during RSV season and advise against using the medication for the prevention of health-care-associated RSV (HA-RSV) infection. In addition, PZ should be used only in the first year of life for infants born at less than 29 weeks gestational age or those born at less than 32 weeks gestational age with chronic lung disease or other another condition that places them at risk [3].

To guide our hospital clinicians to adhere to guidelines, our antimicrobial stewardship program (ASP) implemented

a restriction policy in November 2014 that was embedded in the electronic health record (EHR) as clinical-decision support. We examined the effect of this policy on PZ usage and anticipated a decrease in usage and expenditures [4, 5]. We performed a retrospective cohort study of patients who received PZ while hospitalized to determine the rates of use of PZ at our hospital before and after implementation of the ASP's PZ-restriction policy. An order set in the EHR was created by the ASP; PZ could not be ordered without use of the order set. Order-set usage was restricted to November 1 through March 31. The numbers of doses of PZ given before (2011–2014) and after (2014–2016) policy implementation and the costs per season are listed in Table 1. In the preintervention period (2011–2013 RSV seasons), 112, 145, and 126 doses of PZ were given per season, respectively. After the intervention (2014 and 2015 RSV seasons), administrations decreased to 75 and 55 per season, respectively. Pharmacy purchasing decreased 51.3% from \$293 209 per season to \$142 076 per season (while the costs per vial were stable). Direct patient benefit was seen by the reduction in unnecessary medication administration. The hospital benefitted in the form of cost savings.

To ensure that the reduction in hospital administration of PZ did not inadvertently lead to an increase in HA-RSV

infection, the 11 cases of HA-RSV infection detected during the study period were reviewed. No increase in the incidence of HA-RSV was noted. Our study found that an ASP policy combined with clinical-decision support within an EHR resulted in a decreased number of PZ doses given, a decreased number of doses given at inappropriate times, and a decrease in pharmacy expenditures, all without an increase in the incidence of HA-RSV infection. With ever-changing health care guidelines and increasing adoption of EHRs, implementation of restriction policies directly through the EHR serves as a model for future restriction policies and implementation of evidence-based practice, which minimize patient exposure to unnecessary medications.

Notes

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Table 1. Number of Doses of Palivizumab Given Before (2011–2014) and After (2014–2016) Policy Implementation and Yearly Spending on Palivizumab

	Season				
	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016
Unique patients (n)	85	105	88	58	41
Doses administered (n)	112	145	126	75	55
Doses before November 1 (n)	18	24	18	1	0
Doses after March 31 (n)	4	11	5	0	0
Doses for patients > 2 y of age (n)	4	2	2	0	0
Given <72 h before discharge (n [%])	47 (42)	49 (34)	60 (48)	37 (49)	36 (65)
Seasonal palivizumab spending (\$)	Unavailable	293 209	271 171	165 982	142 076

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