Clarifying Costs and Benefits of Respiratory Syncytial Virus Immunoprophylaxis

In response to recent studies demonstrating that palivizumab use in moderate preterm infants may decrease subsequent wheezing, Meissner and Kimberlin\(^1\) discuss costs associated with palivizumab but make multiple statements that may not be consistent with the best available evidence.

The stated hospitalization cost of $8530 (2009$) is not representative of respiratory syncytial virus (RSV) hospitalizations among palivizumab-eligible infants; it is the average cost of bronchiolitis hospitalizations among US children <2 years.\(^2\) Using the same source, the Kids’ Inpatient Database, the average RSV hospitalization (International Classification of Diseases, Ninth Revision, Clinical Modification 079.6, 466.11, 480.1) cost for all infants was $14,832 (2009$). Among high-risk infants, costs of RSV hospitalization and associated care through 12 months of age range from $20,160 to $39,399 (2010$).\(^3\) The authors also state the number needed to treat (NNT) with palivizumab to prevent 1 RSV hospitalization for most infants ranges from 19 to 170. In the Canadian Pediatric Society’s RSV prevention position statement, high-quality NNT estimates range from 12 to 23 depending on the population. Lower quality estimates from studies of health care utilization databases, such as those referenced by the authors, often yield higher NNTs due to underdiagnosis of RSV and limited use of RSV-specific codes.

Meissner and Kimberlin\(^1\) state that RSV hospitalizations are becoming less common among children eligible for palivizumab, citing a 17% decrease in bronchiolitis hospitalization rates from 2000 to 2009 among US children <2 years.\(^2\) However, Hasegawa et al\(^3\) also found a 34% increase in children with high-risk conditions from 2000 to 2009. According to a personal communication with Dr Hasegawa, the hospitalization rate among children at high risk rose by 29%. This increase despite palivizumab use is not surprising given that most children at high risk do not receive palivizumab and use has declined since 2006.

Concerning the cost of palivizumab, the authors state that rebates may modify the cost, but the cost presented does not incorporate rebates. Federally mandated rebates for Medicaid recipients and discounts for 340B-eligible organizations have resulted in ~40% reduction in palivizumab cost for ~60% of palivizumab recipients, as described in a recent publication\(^2\) and a Centers for Disease Control and Prevention analysis at the June 23, 2010, Advisory Committee on Immunization Practices.

Finally, the authors state that mortality reduction cannot be included in palivizumab analyses because it has not been demonstrated in randomized trials. However, mortality reductions are commonly included in cost-effectiveness studies even without statistically significant differences in randomized trials. Two examples include an economic evaluation of pediatric influenza vaccination conducted by the Centers for Disease Control and Prevention and investigators from Harvard University, as well as the UK Health Technology Assessment of palivizumab.\(^4\) There is no evidence to support the authors’ statement that “adverse long-term outcomes such as death are not prevented by passive immunotherapy.”

Cost-effectiveness analyses of palivizumab should consider all downstream costs and savings and use the best available evidence. As the authors state, quality of life and other factors must be considered. Calculating cost per quality-adjusted life-year gained is the recommended approach to understand the benefits of an intervention relative to costs and enables comparison with other health interventions.\(^5\)

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Conflict of Interest:
Kimmie McLaurin is an employee of AstraZeneca. Christopher Ambrose is an employee of MedImmune.

REFERENCES

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Authors’ Response Re: Clarifying Costs and Benefits of Respiratory Syncytial Virus Immunoprophylaxis

We appreciate the interest expressed by employees from MedImmune and
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