pooled measure of effect, a higher-sensitivity search would certainly have been the best choice.

With regard to the criticisms that we included publications that may have had overlapping study populations and that we did not provide estimates of the measure of effect observed in the studies that we reviewed, we again refer to the primary aim of our review. Because our focus was on evaluating study methods, we did not discriminate between publications with total or partial overlaps in the study population, nor did we feel that it was necessary to include observed measures of effect. We agree that, in the case of meta-analyses, it is critical not to include publications that are based on the same study and to provide measures of effect (as a pooled estimate of the measure of effect) for the association being evaluated.

In reference to the criticisms that we included studies that contradicted our study inclusion and/or exclusion criteria or that we mistakenly categorized a study as not having performed a multivariable analysis, we can only reassure that we made every effort to abide by the criteria that we set and to ensure the accuracy and integrity of our publication. The publication that Leibovici and Paul [1] referenced included a multivariable analysis of appropriate therapy and septic shock [4]; however, this association was not the subject of interest for our review. Thus, we were correct in our determination that this study lacked a multivariable analysis of the association between appropriate antibiotic therapy and mortality.

Finally, we agree that there are additional methodological issues that could have been addressed. However, because of space limitations, we focused on the specific epidemiologic subjects that were of particular importance to studies of appropriate therapy and mortality among bacteremic patients.

Marcos et al. [2] disagreed with our recommendation that investigators should not statistically adjust for septic shock in studies of the appropriateness of antibiotic therapy and mortality among bacteremic patients. The authors contended that septic shock is not an intermediate variable in the causal pathway between antibiotic therapy and mortality. In contrast, we believe that septic shock is an intermediate variable; thus, adjusting for septic shock would result in an attenuated estimate of effect of appropriate antibiotic therapy on mortality. Among bacteremic patients, the development of septic shock is in the causal pathway to mortality. Furthermore, patients receiving inappropriate antibiotic therapy may be more likely to experience a worsening progression of bacteremia, including the development of septic shock and, ultimately, death. Thus, there is a need to study the association between appropriate antibiotic therapy and mortality. We do, however, acknowledge the exception that, in some instances, therapy may be initiated after the onset of septic shock. In this situation, septic shock may be associated with the receipt of more-aggressive therapy; thus, investigators should consider controlling for potential confounding by indication using either design or statistical analysis techniques [5–8]. This point of contention highlights the need for researchers to stipulate the causal model that they are using to guide their multivariable analyses, as well as the time at which time-dependent covariates are measured [9, 10].

In summary, we agree that a meta-analysis of the association between appropriate antibiotic therapy and mortality would be both informative and useful, but at present, the methodological heterogeneity among existing studies would render such an analysis uninformative. It is our hope that our review will provide guidance for the design and analysis of future research and, thus, allow for a future meta-analysis of studies that have a high degree of internal validity and generalizability.

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References


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Strengthening Adult and Adolescent Immunization: A Policy without a Home

To the Editor—The American Academy of Family Physicians is a strong advocate for widespread provision of Advisory Committee on Immunization Practices–recommended vaccines to children, ado-
lescents, and adults in the United States [1] and has partnered with the American Academy of Pediatrics and the Centers for Disease Control and Prevention in the creation of the harmonized childhood and adolescent immunization schedule [2]. To this end, the Infectious Diseases Society of America’s policy statement regarding adolescent and adult immunizations [3] is welcomed. This policy statement, however, could be fortified through acknowledgement, endorsement, and promotion of the role of the continuity clinician in a medical home.

Primary medical care has been defined as “the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community” [4, p. 31]. An emergent property of sustained partnerships between patients and their continuity clinicians is an estimated 10%–40% increase in immunization rates [5–9]. Continuity, as facilitated by a medical home, is associated with improved immunization coverage for children [5, 6] and adults [7]. This effect persists even when vaccines are universally available and costs are covered [8]. Moreover, older individuals are more likely to receive influenza and pneumococcal vaccinations from generalist continuity clinicians than from specialist continuity providers [9]. In contrast, when influenza vaccine is not available from a continuity clinician, Medicare claims data indicate that patients do not receive vaccines elsewhere [10].

Strengthening the immunization coverage of adolescents and adults is a laudable goal. To further progress to this goal, an evidence-based recommendation—calling for integrated and accessible health care from a continuity clinician within a medical home for every American—should not be omitted.

Acknowledgments


References


Reply to Temte and Campos-Outcalt

To the Editor—We agree with Temte and Campos-Outcalt [1] regarding the critical role of the medical home for delivery of immunizations to adolescents and adults. The Infectious Diseases Society of America’s principles call for strengthening the medical home in several respects. We recommend increasing the number of age-based preventive care visits in primary care settings in order to integrate immunization services with other preventive health care while extending the opportunities for immunization. Also, we focus on the need for adequate payment by all payors for all of the costs associated with delivery of immunizations. This has become an increasingly important problem for many primary health care providers and needs to be addressed urgently. These and other points are most clearly addressed in the full version of the principles [2].

Family physicians are better positioned than other primary health care providers to address some of the current problems, such as the need for administration of influenza vaccines to adult household contacts of high-risk infants and children. Although the medical home is the ideal place to deliver immunization, the Infectious Diseases Society of America believes that the present low immunization coverage rates for adolescents and adults reflect a failure of the current strategy to effectively deliver immunizations to a high proportion of the population through the medical home. We recognize the need to expand immunization services to other health care providers and to bolster immunization rates of hospital inpatients and outpatients. For some populations, use of alternative sites, including school-based clinics, can be an effective means for immunization delivery. Influenza vaccine is currently recommended annually for 73% of our population, and serious consideration is being given to potential vaccination of all Americans, many of whom do not access our health care system an-

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