Improving Care for Acute Respiratory Infections: Better Systems, Not Better Microbiology

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(See the article by Gaglia et al. on pages 1182–8)

Americans made 1.17 billion visits to ambulatory clinics and emergency departments in 2005. Acute respiratory infections (i.e., nonspecific upper respiratory infections, otitis media, sinusitis, pharyngitis, bronchitis, influenza, and pneumonia) account for 11% of this total (130 million visits). This makes acute respiratory infections the most common symptomatic reason for seeking medical care in the United States. It is interesting that, despite the prevalence and impact of such infections on the health care system, no medical or scientific discipline seems to have taken “ownership” of acute respiratory infections. Acute respiratory infections should fall somewhere at the intersection of otolaryngology, pulmonary, and infectious diseases; alas, one doesn’t perform surgery, bronchoscopy, or culture for most acute respiratory infections. Seventy percent of visits for acute respiratory infections are made to primary care physicians.

In addition to the fact that there is no National Institute of Primary Care, the lack of interest in acute respiratory infections might also be attributable to the self-limited nature of and low morbidity associated with these infections. The vast majority of acute respiratory infections only make people miserable for a few days to a few weeks. However, among the millions of acute respiratory infections are cases due to potentially more-morbid conditions that can be treated with antimicrobial drugs, such as pneumonia, streptococcal pharyngitis, and influenza.

Influenza itself can range in severity from mild illness to life-threatening disease. In the United States, influenza causes millions of clinic visits, hundreds of thousands of hospitalizations, and tens of thousands of deaths each year. Vaccination with the influenza vaccine remains the best means of reducing the incidence and severity of and complications from influenza. For those individuals who contract influenza, either because they were not vaccinated or despite vaccination, anti-influenza antiviral medications can shorten the course of influenza and reduce complications. Anti-influenza antiviral medications are cost-effective.

Despite their effectiveness, the proper use of anti-influenza antiviral medications is challenging. Patients need to recognize that they might have influenza, access the medical system, and want to take, have access to, and be able to afford antiviral drugs. Clinicians need to recognize the possibility of influenza, consider whether testing will be helpful, perhaps perform testing, and consider whether antiviral drugs—medication that individual providers do not often prescribe—will be helpful. All of this needs to happen within 48 h after the onset of symptoms. The rate-limiting step is patients’ accessing of the medical system; patients generally seek medical care after they have had acute respiratory infections for >5 days. A difficulty for the health care providers is that, unlike most medical problems, the single most important risk factor for influenza—the community prevalence of influenza—is not found among the patient’s history, signs, or symptoms. Many health care providers are not readily aware of the prevalence of influenza in their communities beyond, perhaps, a sense that “something is going around.” Given these challenges, it is not surprising that the use of antiviral medications for influenza is infrequent and often inappropriate [1, 2].

Several of the barriers to antiviral use are highlighted in this issue of Clinical Infectious Diseases [3]. Gaglia et al. [3] describe their survey of internal medicine clinic patients’ knowledge and reported behaviors regarding antiviral medications. Knowledge about antiviral medicines was generally poor. Only 13% of patients reported calling their physician within 48 h after the onset of an influenza-like illness. Patients with conditions (other than heart
disease) that were associated with a high risk of influenza or influenza-related complications, who could benefit most from antiviral drugs, were no more likely to be knowledgeable or to call their physician promptly. The authors conclude that physicians should discuss antiviral medications with patients who are at high risk for complications. In addition, throughout the article, the authors imply that patients should be calling their physicians within the first 48 h of an influenza-like illness. Unfortunately, these recommendations are not grounded in the realities of the American health care system.

First, primary care physicians do not have the time to do additional counseling. As it stands, it has been estimated that it would take primary care physicians 7.4 h per day to deliver recommended preventive care and at least 10.6 h per day to deliver guideline-adherent, chronic care [4, 5]. The authors propose introducing targeted discussion of antiviral medications to the mix. However, unlike screening and counseling for chronic conditions, the targeted patient population for antiviral counseling is difficult to define and could change from year to year. The benefit of counseling would be minimal to nonexistent in the event of a mild influenza season. Also, issues of antiviral susceptibility are changing rapidly, both for influenza A and influenza B, as well as for influenza A (H5N1) [6, 7]. It will be difficult for health care providers and patients to keep abreast of the latest recommendations. Discussions about antiviral medications could detract from influenza vaccine counseling and administration, which should be health care providers’ primary focus.

Second, having patients call their physicians within 48 h after the onset of a flu-like illness is also not realistic. It has been estimated that Americans get, very roughly, ~1 billion colds per year. Efficient, accurate triage of patients with respiratory symptoms to reduce visits and antibiotic prescribing has generally not been successful [8]. Each additional 1% of patients with colds who make ambulatory visits to their health care provider would account for an additional 10 million visits per year. Most of these visits would probably be of no benefit for patients, but they would increase health care costs and would probably increase inappropriate antibiotic prescribing.

So what would work? What do patients and clinicians need to efficiently deal with seasonal influenza? We need a system that collects information about the prevalence of influenza in communities across the United States; that rapidly transmits this information to departments of public health; that is easily accessible by patients, so that they know whether influenza is circulating in their community; and that helps them decide whether to contact their health care provider. Health care providers need user-friendly information about the local prevalence of influenza that they can easily integrate with other patient-specific information to make a diagnosis and provide antiviral treatment, if appropriate.

We have many of the pieces of this puzzle in place. The system for influenza tracking provided by State and Territorial Epidemiologists and aggregated by the Centers for Disease Control and Prevention is quite good, but it is not granular enough to be useful to individual patients and health care providers. It is definitely not user-friendly. Not surprisingly, pharmaceutical companies have slicker Web sites for tracking influenza activity and collecting information about influenza-like symptoms. Also not surprisingly, these Web sites provide a nonspecific recommendation to “see your doctor” (presumably to get a prescription for antiviral drugs) and do not provide substantive guidance as to who should and should not seek care.

Electronic health records (EHRs) are a big piece of this puzzle, as well. EHR use is expanding gradually. Unfortunately, we do not see improvements in health care quality when practices simply install an EHR [9]. However, most EHRs are probably electronic replacements for paper and do not include more advanced functionality, like decision support or quality reporting. Furthermore, I am not aware of any EHR that provides a link to the public health system, but this is what we should be striving for.

One can imagine a bidirectional system in which the surveillance system of today is augmented by automated reporting from EHRs. The Centers for Disease Control and Prevention and Departments of Public Health could provide local—extremely local—information back to providers through EHRs. Patients could check their symptoms and their probability of having influenza, based on location, on a Centers for Disease Control and Prevention or Department of Public Health Web site. Better yet, patients would have a personal health record that is integrated with their health care provider’s EHR. Again, in some places, we have many of these pieces in place. As hard as it has been to encourage the use of EHRs, the hardest part of building a health care system in which personal health and public health are integrated will be joining the pieces together. Such a system has the potential to provide disease surveillance that is much more sensitive, accurate, and efficient than the system in place today.

Acute respiratory infections, which are the most common symptomatic reason for seeking health care in the United States, strain the health care system, even though it is unclear whether many patients with such infections are actually helped by accessing medical care. Clearly, there is a lot of potential for harm through inappropriate antimicrobial prescribing. As to the future of research into acute respiratory infections, because most acute respiratory infections are self-limited and are not associated with morbidity, the “cure for the common cold” probably will not be available anytime soon. Such a cure will need to have a near-perfect safety profile and be inexpensive (Gaglia et al. [3] found that only 37% of patients were willing to pay >$20 to shorten the duration of symptoms by 1 day). The answer for most acute
respiratory infections is not microbiology. Outcomes, effectiveness, and health care systems research, which have not been the traditional purviews of infectious diseases as a discipline, will point the way towards improving how we manage patients with acute respiratory infections and whether such management helps patients.

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References