Antibiotics for Both Moderate and Severe Cholera

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The 2010 Haitian cholera outbreak has pressed local and international experts into rapid action against a disease that is new to many health care providers in Haiti. The World Health Organization (WHO) has time-tested management protocols for emerging cholera outbreaks. These protocols have been used by the Haitian government to fight an epidemic that is merely one of several recent tragedies in Haiti. The use of these protocols has allowed for a high standard of care in this complex and evolving medical landscape. But whereas the current WHO cholera-treatment protocol (www.who.int/mediacentre/factsheets/fs107/en/index.html) recommends antibiotics for only severe cases, the approach of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), recommends antibiotics for both severe and moderate cases. Several antibiotics are effective in the treatment of cholera, including doxycycline, ciprofloxacin, and azithromycin, assuming that the cholera strain is sensitive. Currently, the epidemic strain in Haiti is susceptible to tetracycline (a proxy for doxycycline) and azithromycin but is resistant to nalidixic acid, sulfisoxazole, and trimethoprim–sulfamethoxazole. The WHO advocates giving antibiotics to patients with cholera only when their illness is judged to be “severe.” This recommen-
dation is interpreted to mean that only patients who present with “severe dehydration” (≥10% dehydration) should be given antibiotics. By contrast, the ICDDR,B recommends antibiotics for patients with cholera who have severe dehydration as well as for those with “some dehydration” (5 to 10%) who continue to pass large volumes of diarrheal stool during their treatment. These recommendations apply only to patients who have symptoms typical of cholera — that is, less than 24 hours of acute watery diarrhea with dehydration and usually vomiting. It is crucial in triage to rapidly assess dehydration, rule out alternative causes of diarrhea that are common in areas with poor sanitation and coexisting infections, and rehydrate aggressively according to the WHO protocols.

With effective antibiotic therapy, the purging rate is lessened by about 50%, the illness is shortened by about 50%, and the duration of excretion of *Vibrio cholerae* in the stool is shortened to 1 or 2 days. Without effective antibiotic therapy, patients continue to excrete *V. cholerae* for 5 or more days and shed for a longer period at home. If antibiotics are used, patients recover more quickly and require less rehydration fluid. Nursing care is lessened, and patients are able to leave the treatment center earlier, as demonstrated in a study that showed dramatic resolution of diarrhea at 24 hours with azithromycin. This approach maximizes the effectiveness of limited resources while optimizing patient care.

Regarding transmission, rice-water stools contain 10^{11} to 10^{12} *V. cholerae* organisms per liter. An infectious dose is 10^{5} to 10^{8} organisms. These numbers might explain why 50% of household contacts of a patient who is the index case in Bangladesh develop diarrhea about 2 days after the index case occurs. Although some of these household contacts may have been infected from the same source as the index patient, many others are likely to be true secondary cases. Direct data are not available to determine whether household contacts are protected when the index case is treated with antibiotics. However, given the liter volumes of diarrhea, antibiotics will decrease contamination in the household.

We do not, however, recommend antibiotic prophylaxis for household contacts because of the programmatic difficulty in restricting the use of such prophylaxis only to those persons in the immediate family who are at highest risk and because doing so would almost certainly drive antibiotic resistance. Since families of patients with cholera are at high risk for cholera themselves, they need targeted education about safe water and sanitation, appropriate home use of oral rehydration solution, and information about the availability of treatment facilities in case illness does occur.

Some may argue that emphasizing the importance of antibiotic therapy may lead to the misguided belief that this is the most important component in the overall management of patients with cholera. With careful training in instituting appropriate and aggressive rehydration followed by effective antibiotic therapy, this misunderstanding need not occur.

A practical reason for hesitancy regarding administering antibiotics to patients with cholera relates to the severe vomiting that usually accompanies infection. Vomiting generally stops within a few hours after patients are rehydrated; thus, the administration of the antibiotic should be delayed until the patient is able to take food and drink without vomiting. Doxycycline can be associated with nausea and should be taken with food and plenty of fluids.

In summary, the use of antibiotics is an urgent issue for all stakeholders, because effective antibiotic therapy shortens the duration of illness and reduces the shedding of thousands of infectious doses. Our goal is to promote more effective care for large numbers of patients with cholera while maximizing limited resources to keep patients who are discharged early from dying, reduce the number of repeat hospital admissions, and limit at-home shedding of *V. cholerae*. To achieve these aims, we believe that patients with moderate and severe cholera should be treated with antibiotics — especially in Haiti, and especially now.

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Rethinking Safety-Net Access for the Uninsured

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Now that health insurance reform has begun, safety-net programs throughout the United States are struggling to adapt their missions to suit the post-reform composition of the uninsured population. Most such programs are organized at the local level, with funding largely premised on their serving low-income uninsured residents. Examples include well-structured comprehensive care programs in some major cities, more than 1000 limited-service free clinics, and dozens of volunteer physician-referral programs.

When the Affordable Care Act (ACA) is fully implemented, 8% of the U.S. population is projected to remain uninsured. Other than undocumented immigrants, however, most such people will be eligible for Medicaid or highly subsidized private insurance and will be subject to tax penalties if they don’t obtain coverage. So beginning in 2014, most people who are currently served by access programs for the uninsured will have insurance, be eligible for insurance, or be undocumented immigrants.

Some people will remain uninsured because their income is too high for a subsidy but low enough to make insurance unaffordable (costing more than 8% of their household income). But subsidies will be available to people with family incomes up to 400% of the federal poverty level, which currently calculates to $88,200 for a family of four — well above the country’s median household income of about $50,000.

Access programs for the uninsured usually serve people with household incomes below about twice the federal poverty level. They may therefore be hard pressed to adapt their missions to the new uninsured population in ways that will maintain their fragile support from funders and volunteers. Since safety-net systems are already on life support, any major shock may threaten their very existence. Therefore, access programs must consider carefully how best to refocus and justify their function and mission.

First, health care reform’s chickens should not be counted until they’ve hatched. During the 3 years before full implementation begins, constitutional challenges and conservative politicians threaten to upend the ACA. Safety-net programs must remain intact at least until reform takes effect — and just in case it never does. Second, even after reform, the newly insured will face barriers to access arising from provider shortages, transportation difficulties, and language differences — all of which safety-net organizations can help to overcome.

Third, the future uninsured population will probably deserve more safety-net support than one might imagine. Some people will be uninsured temporarily when their economic circumstances change. New workers may earn enough to lose their subsidy for individual insurance but remain ineligible for group insurance during the 3-month probationary period that employers may impose. People without good jobs whose income increases just enough to nudge them over 138% of the poverty level will be disqualified from Medicaid and be required to purchase subsidized private insurance. It may be difficult to make this public-to-private transition smoothly. Medicaid enrollment can start instantaneously, sometimes even retroactively, but private coverage typically begins on the first day of the month after all forms have been completed and the initial check has cleared.

If the experience in Massachusetts is any guide, these wrinkles will probably cause short-term coverage gaps for many people (see table). Coverage discontinuity will also occur within households, when different family members qualify for coverage from different sources, depending on their citizenship and employment status. Safety-net programs can therefore serve a critical function in maintaining