THE MULTIPLIER EFFECT
Leveraging K–12 Science Teachers to Communicate Accurate Information about Zika

Nationwide concern over infectious disease is not new. From polio in the early to mid-1900’s to the recent Ebola outbreak, the U.S. has encountered and addressed many global health crises. However, when citizens are not equipped with accurate information, disease can spread needlessly. Further, lack of knowledge about a disease—what it is, how it is transmitted, and who is at risk—can engender unwarranted concerns and fears. For example, during the recent Ebola outbreak, some school districts closed schools when they learned that staff, parents, or students had been on the same flight as one of the infected Dallas nurses. A poll by the Pew Research Center at the time indicated that 41 percent of Americans were “very worried” or “somewhat worried” that they or someone they knew would be exposed to the Ebola virus (Pew Research Center, 2014). The spread of fear and misinformation is often fueled by media fervor and reports of inaccurate information (Salles, 2014).

LESSONS FROM EBOLA

Zika is already much closer to the U.S. than Ebola ever was, and the possibility of effects on the unborn is sure to generate questions and concerns just as Ebola did. It is more important than ever to ensure that accurate information about Zika is available and communicated nationally. The United States school system, with over 100,000 schools, 3 million teachers (over 1 million of whom teach science), and 50 million students, is a potentially effective means for conveying accurate information about emerging health related issues such as Zika—how the disease spreads and, just as importantly, how to prevent it from spreading. Teachers multiply the effect of dissemination efforts, passing on the information they acquire to the 30–150 students they teach each day. But, do teachers address health-related issues in their classrooms? When they do, where do they get their information, and is it reliable?

Recently, a partnership of organizations, led by Horizon Research, Inc. and with support from the National Science Foundation, surveyed the nation’s science teachers to understand how they address health-related issues, specifically in the context of Ebola. What the researchers learned sheds light on how science teachers will likely respond to Zika and how to support teachers when they talk about the virus with their students.
FINDINGS

Most science teachers did address Ebola in their classrooms.
The survey found that despite Ebola not being a part of their curriculum, most science teachers addressed it in their classrooms. Specifically, three-quarters of high school science teachers devoted some class time to the topic, typically one or two class periods for a total of approximately an hour. Life science teachers might be expected to address a topic like Ebola (and almost 90 percent did, reaching over 5 million students), but the study found that almost half of those who do not teach life science (e.g., chemistry and physics teachers) also addressed Ebola with their students. Why? Among all types of teachers, the most frequently cited reason was that students were interested in the topic and asked questions. In fact, almost 80 percent of science teachers surveyed reported that students asked about the virus before teachers addressed the topic.

Science teachers searched for appropriate information about Ebola to use with their students.
Study data indicate that teachers actively sought information about the virus and disease, likely to shore up their own knowledge. Among those who addressed Ebola, two-thirds reported relying on websites from health organizations (e.g., CDC, NIH, WHO). No other resource was relied on nearly as much, including television news programs, newspapers (print or online), websites from science teacher organizations, or magazines.

Interviews conducted with teachers following the survey indicated that teachers would benefit from access to resources that are age appropriate for their students, which was not surprising as a lack of resources was cited by many teachers as a deterrent to teaching about Ebola.

Science teachers were more likely to teach about Ebola if they were confident in their knowledge of the topic.
The survey asked science teachers to respond to a series of true/false statements about the Ebola virus and Ebola virus disease. In addition to answering each statement, respondents rated their confidence in their answers. These responses were combined into a single confidence score for each individual. Among high school science teachers, one of the largest differences between those who did and did not teach about Ebola was confidence in their knowledge of Ebola. Similarly, about a third of high school teachers who did not teach about Ebola reported that their knowledge of Ebola discouraged them from addressing Ebola in their classroom, compared to only 6 percent who did teach about it.

IMPLICATIONS FOR SUPPORTING SCIENCE TEACHERS

As Zika spreads into the U.S., the topic is likely to capture students’ interest and generate questions. And if Ebola is a guide, science teachers will respond, whether Zika is part of their curriculum or not. To do so, they need well-designed resources, and they need them in a timely way. Excellent Zika resources for the general public already exist (e.g., http://www.cdc.gov/zika/), and these could be tailored for teachers, increasing their usefulness. Findings from the Ebola study suggest the following considerations for designing and disseminating such resources:
Resources for teachers should acknowledge students’ interest and concern and use them as an entry point for discussing Zika.

Typically, science teachers must generate interest with a question or problem that engages students. With topics like Ebola and Zika, students come to class with interest and questions, and some of the questions are predictable: What exactly is Zika? What are the symptoms? How likely am I to get it, and if I do, what will happen to me? How does Zika spread, and how do you prevent it from spreading?

Resources should be tailored for particular age groups.

Some teachers reported avoiding Ebola because of concerns about age appropriateness, and depending on the detail involved, those concerns may be justified. Discussing Ebola symptoms with young children, for example, would likely do more harm than good. The potential for harm to unborn babies associated with Zika should be off limits for some age groups and treated respectfully and compassionately with all others.

Resources should accommodate varying depths of coverage.

Study data indicate that life science teachers spent more time addressing Ebola and covered more topics than non-life science teachers. Resources that begin with basic information about Zika and then offer alternatives for more in-depth treatment will serve the needs of both groups of teachers.

Developers of resources should assume limited knowledge on the part of teachers about Zika specifically, and viruses more generally.

Study data indicate that a substantial number of physical science teachers (e.g., chemistry and physics teachers) will devote class time to Zika, and they are unlikely to have strong biology backgrounds. Thorough background knowledge will benefit them, as well as less well-prepared life science teachers.

Mechanisms should be employed to update teachers on emerging research about Zika.

Given the ongoing efforts to learn about Zika, what we know about the virus will change and information provided to teachers at any given time will be incomplete. It would be beneficial, therefore, to set up mechanisms to update teachers about the status of what is being learned and alert them to new or revised resources. For example, when teachers initially seek out resource about Zika, they can be asked to provide their contact information, which can be used to send out alerts over time.

Science teacher organizations are effective dissemination mechanisms.

The National Science Teachers Association (NSTA) has over 55,000 members. Other organizations, like the National Association of Biology Teachers (NABT), serve particulate segments of the science teaching force. These organizations have effective processes in place for disseminating information quickly to their members and can be valuable partners with health organizations that have developed Zika resources.

CONCLUSION

Rather than teachers searching out resources on their own, which was the case with Ebola, science teachers would benefit from having vetted, appropriate resources for addressing Zika when their students ask about the virus. Making teachers aware of such resources would contribute to broad dissemination of accurate information about Zika to potentially millions of students across the U.S.
ACKNOWLEDGEMENT

This article is based upon work supported by the National Science Foundation under the DRK–12 program (Grant No. DRL–1520689). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

REFERENCES

Blad, E. (2014). As educators respond to Ebola, threat to schools remains low. Education Week, 34(10), 1, 10.


MORE INFORMATION

Contact Sean Smith (ssmith62@horizon-research.com) or Joan Pasley (jpasley@horizon-research.com), of Horizon Research, Inc. This brief is derived from the report Stopping an Epidemic of Misinformation: How K-12 Science Teachers Responded to Ebola. Preliminary Report of Results (2016) by P. Sean Smith and Joan D. Pasley.