Non-Influenza Respiratory Virus Testing in the United States

Background

In response to the emergence of Middle East Respiratory Syndrome Coronavirus (MERS-CoV), the Association of Public Health Laboratories (APHL) invited state and local Public Health Laboratories (PHLs) to participate in a brief survey on the abilities to test for respiratory viruses other than influenza. As CDC and PHLs prepare to respond to emerging respiratory virus threats, it is important that CDC and APHL have a clear picture of PHL capabilities to test for various respiratory pathogens.

Methods

In April 2013, APHL conducted a survey to determine non-influenza respiratory virus testing capacity and capability of the country’s state and local public health laboratories. This three question survey was developed by APHL and CDC and administered through Qualtrics, an online survey application. Survey questions focused on testing services provided at PHLs for non-influenza respiratory viruses or enteroviruses. Ninety-three public health laboratories received the survey and 68 (73%) responded: 50 of 52 state laboratories (Puerto Rico and Washington DC are included in state count) and 18 local public health laboratories.

Results

Figure 1: Public Health Laboratory Capacity to Test for Non-Influenza Respiratory Viruses

Figure 1 depicts the responses of PHLs when asked the question “Does your laboratory currently test for non-influenza respiratory viruses or enterovirus?” Eighty-five percent of the respondents (n=58) perform testing for non-influenza respiratory viruses or enterovirus whereas 15% (n=10) of responding laboratories do not provide testing.
Figure 2 depicts the responses of PHLs when asked “Which viruses does your laboratory test for?” Sixty-three PHLs responded to this question. Virus culture was the most common method of testing at the PHL for non-influenza respiratory viruses.

Table 1 describes the responses to the question “Which viruses does your laboratory test for?” A total of 63 PHLs responded to this question. Overall, virus culture was the most common method of testing at the PHL while antigen testing was the least common method for non-influenza respiratory virus testing. PCR is performed in approximately half of the responding PHLs.

Conclusion

Approximately 85% of respondents currently test for non-influenza respiratory viruses. Despite the increased availability of PCR testing methods, many laboratories (62%) still maintain culture capacity. However, the availability of multiplex PCR systems that allow simultaneous testing for many respiratory pathogens continues to increase as does the public health interest in obtaining information on circulating pathogens. As there is increased demand for testing, the public health system will need to consider the resources required to obtain the increased information. APHL will continue to monitor the status of this rapidly changing landscape as public health laboratories remain continue to respond to emerging public health threats.