07-ID-07

Committee: Infectious Diseases/Surveillance

Title: Enhancing Disease Control for Cruise Ship Travel

Statement of the Problem:

Cruise ship travel has become increasingly popular during the past decade. (1,2) In recent years, approximately 9 million passengers embarked from North American ports for cruise travel, and approximately 50% of these passengers embarked from a Florida port. (1) According to the Cruise Line International Association (CLIA), the North American Cruise Industry's main marketing and lobbying organization, consisting of 17,000 travel agencies and 20 major cruise lines (representing 80% of global cruise capacity), over the next three years 51 million North Americans plan to take a cruise, and 17% of the U.S. population has already cruised once in their lifetime. (1) CLIA exists to promote all measures that foster a safe, secure and healthy cruise ship environment, educate and train its travel agent members, and promote and explain the value, desirability and affordability of the cruise vacation experience. (1)

As the demand for cruise travel has grown, so has the capacity of cruise ships -- the average carries 3000 passengers and 1500 crew members. Time lines between cruises are typically tight, leaving very little time for public health interventions. Many cruises last 7 – 10 days, after which the ship docks in port, unloads its passengers, is cleaned and restocked, and picks up a new complement of passengers, all in a single day. (3)

Cruise ships have been operating at near full capacity, and offer unique opportunities for diverse interpersonal interactions and sharing of common food and beverages. Passengers tend to originate from affluent countries (79% of all cruise passengers are U.S. residents) with low rates of many infectious diseases and high rates of vaccination, while crew members tend to come from developing countries that may not have incorporated certain vaccines such as rubella into their national vaccination programs and have higher rates of many infectious diseases. Although historically, passengers tended to be older, recently cruises have been popular with middle-aged and young adults, children, and pregnant women. (1-3)

No international body regulates the practice of medicine at sea, and the quality of care varies widely. Consensus-based guidelines for the practice of medicine on cruise liners exist, but their implementation depends upon each individual cruise line. CLIA monitors and participates in domestic and international maritime policy development, and accordingly sets compliance standards among its member cruise lines. The CLIA recommends that its members follow and exceed the "Health Care Guidelines for Cruise Ship Medical Facilities," developed by American College of Emergency Physicians (ACEP) Section on Cruise Ship and Maritime Medicine. (4) The guidelines address standards for medical facility design, medical staff qualifications, diagnostic equipment and formulary selection, with a goal to providing general and emergency medical services to passengers and crew. However, no industry standards exist regarding primary care and preventive services of the crew aboard the ship.

International Health Regulations stipulate health and sanitation requirements for international conveyances. In the United States, the US Coast Guard enforces maritime safety requirements and CDC has regulatory responsibilities for sanitation and public health on cruise ships. (2,3) The U.S. Public Health Service (USPHS) is authorized by the Public Health Service Act (42 U.S.C. Section 264) to take measures necessary to prevent the introduction, transmission, or spread of communicable diseases into the United States from a foreign country. In addition, the Public Health Service Act (42 U.S.C. Section 269) authorizes the promulgation of regulations applicable to vessels for preventing the introduction into the United States of "any communicable

disease by securing the best sanitary condition of such vessels, their cargoes, passengers, and crews." (5)

The CDC is the lead agency of the USPHS on issues related to communicable disease control at international ports of entry in to the United States. Regulations require that international carriers report death and certain illnesses in arriving international passengers and crew to CDC. Operationally, CDC has divided the responsibilities for enforcing foreign quarantine regulations between the Vessel Sanitation Program (VSP) and the Division of Global Migration and Quarantine (DGMQ). The CDC established the Vessel Sanitation Program in 1975, as a cooperative activity with the cruise ship industry. VSP takes the lead on overseeing the gastrointestinal illness surveillance and outbreak investigation activities on cruise ships, as well as the routine sanitation inspection activities in partnership with cruise lines. When there are illnesses or outbreaks on ships for diseases of public health importance other than gastrointestinal (GI) illness, or a death due to any cause, then DGMQ will take the lead. In addition, DGMQ takes the lead on investigating all illness, outbreaks, and deaths on cargo ships and air carriers arriving at international ports of entry into the United States.

Communicable diseases seen on board cruise ships are similar to those seen on land; however, disease exposure and transmission may be exacerbated by the densely populated, semi-closed cruise environment which requires many shared activities and resources among international passengers and crew. People disembarking from cruise ships may incubate an infectious disease acquired during the voyage, and lead to outbreaks, especially in closed settings (such as nursing homes), in their home communities. Therefore, the public health significance of illness aboard cruises lies not only in possible widespread morbidity onboard ships, but dissemination of diseases into communities all over the world.

Heightened surveillance efforts by the cruise ship industry, and improved communications between the cruise ship industry and federal and state public health authorities have yielded detection of illnesses of public health significance that might otherwise have gone unnoticed. Clusters of various communicable diseases – for example influenza, measles, rubella, varicella, meningococcal meningitis, hepatitis A, Legionnaire's Disease, and respiratory and gastrointestinal illnesses – among cruise ship travelers have been reported and investigated. (6 – 14) In recent years, influenza and norovirus outbreaks have posed particularly difficult challenges to public health and the cruise ship industry. (6,12)

In addition, clusters of vaccine preventable diseases such as influenza, measles, rubella, and varicella have been reported and investigated aboard cruise ships. (14-16) In 1997, the.CDC and the Florida Department of Health investigated two outbreaks of rubella affecting crew on two separate cruise ships sailing from Florida to the Bahamas. In one outbreak, of the 400 crew members, 4% were found with acute infection, of which half were asymptomatic, and an additional 7% were susceptible to infection. (14) The crew came from 50 different countries, and 75% had no known immunity to rubella or had a negative antibody result on testing. No cases of rubella resulted among passengers. Based on this outbreak, recommendations were made to the cruise ship industry to vaccinate crew members without adequate proof of immunity with MMR. However, compliance with this recommendation has varied among cruise lines. (16)

While States have no authority to regulate the cruise ship industry, States have a great stake in what happens aboard ship, as illness among passengers who disembark immediately become a responsibility of the State of disembarkation, and passengers disperse widely across the country. Improving preventive health for both passengers and crew members is in the enlightened self-interest of all parties.

Statement of the desired action(s) to be taken:

1. CDC's Division of Global Migration and Quarantine (DGMQ), National Center for Preparedness, Detection and Control of Infectious Diseases, (NCPDCID); National

Center for Immunization and Respiratory Disease (NCIRD); the Vessel Sanitation Program (VSP), National Center for Environmental Health (NCEH); the National Center for HIV, Hepatitis, Sexually Transmitted Diseases, and Tuberculosis Prevention (NCHHSTP); and the cruise ship industry as well as CLIA, should work with CSTE, particularly with states that have ports, to work to develop uniform recommendations for preventive health measures for passengers and crew members, including such provisions as recommendations for pre-employment crew vaccination, in particular for measles, mumps and rubella (MMR) if adequate proof of immunity is lacking; documentation (electronic if possible) of immunity to these diseases for crew members; and, collection of contact information such as e-mail addresses of passengers at the time of booking to enable rapid communication in the event of a disease outbreak. In addition, guidance for cruise travelers for preventative health measures, including recommendations for routine and destination-specific, pre-cruise immunization should be made widely available on web sites of public health agencies, cruise lines, and travel agencies.

2. An ongoing working group of key stakeholders should be created under CSTE coordination to facilitate communications and uniformity of evidence-based, public health recommendations between CDC, the States, and the cruise ship industry.

Public Health Impact:

While authority for regulation of international travel rests with the federal government, States have a major stake in the prevention of illness among cruise ship passengers and crew members. Providing recommendations and guidelines from States that improve the ability of State public health agencies to communicate with and collaborate with CDC and the cruise ship industry strengthen prevention programs.

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