Targeting Public Health Events on Ships

Clara Schlaich, MD, MPH
Hamburg Port Health Center, Institute for Occupational and Maritime Medicine, University Medical Center Hamburg-Eppendorf, Hamburg, Germany
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This Editorial refers to the articles by Cramer et al., pp. 226–232 and Mitruka et al., pp. 233–237 of this issue.

It is still deeply engraved in the collective memory of nautical personnel that health authorities in global ports focus on the transmission of yellow fever, plague, smallpox, and cholera. But the scope and purpose of the recently updated International Health Regulations 2005 (IHR 2005) is much broader: health measures at ports now aim to prevent and control all kinds of public health threats from spreading internationally. Five years into the global implementation of the IHR 2005 we do recognize a great acceptance with the new scope and procedures, such as the Sanitary Ships Inspections. But we should not overlook that major challenges for an appropriate and effective response to health threats on ships remain.

Disease Surveillance on Ships

Under the legal framework of the IHR 2005, ships traveling in international waters must notify to the health authority any non-traumatic illness aboard. Frequently, health events on ships are rather identified through informal sources or during the biannual ship sanitation inspections than by formal notification. The extent and reasons of underreporting health events on ships are not well studied. In many global ports notification of disease is neither enforced nor made technically easy (e.g., publishing a contact). Shipmasters may fear retardation of their voyage, inappropriate responses or even penalties and therefore avoid notifications of disease. Probably the most detrimental reaction to the notification of disease on ships is the non-response of competent health authorities: no ship visit, no phone call, no response at all. Surely this will not encourage the ship’s master to cooperate with notification requirements in the ports to follow. Even where functioning communication channels exist in ports, data collection does not result in a systematic evaluation in most countries. One well-publicized exception to this lack of systematic surveillance on ships is the US Centers for Disease Control and Prevention Vessel Sanitation Programme (VSP). During the 30 years of its existence the VSP demonstrated that reliable disease surveillance, prevention, and control on ships can be achieved. However, VSP focuses on gastroenteritis and cruise ships only and is run by one single national service. Globally, no international surveillance specifically committed to communicable diseases on ships exists. Thus, the magnitude of disease transmission on international ships still remains unknown on a global level.

Management of Health Risks by Port Health Authorities

A port health authority must undertake a comprehensive risk assessment before responding to a health threat. Risks may differ according to the number of persons on board, the type of cargo, medical facilities, itinerary, and other factors. The decision-making process often is performed under time pressure due to the short turnover time of ships in ports. Clinical information by the time of action frequently is incomplete; laboratory results will be available only after the ship’s departure. Given the complexity of the decision-making process it is well understandable that the public health response is not uniform from one port health authority to the other, but it surely inhibits the willingness of the ship’s crew to cooperate if contradictory public health advice is received while sailing through international waters as observed during the influenza pandemic (H1N1) 2009. The World Health Organization has now started an important consultation process to
develop a more generic guidance to competent health authorities.

Capacity Building at Designated International Ports of Entry

The IHR 2005 creates a legal and technical framework for Member States to secure preparedness at points of entry. It was emphasized before that IHR 2005 obligations at points of entry pose a universal challenge to member states, involving human resources and multi-sectoral engagement and communication. The EU project ShipSan documented the high diversity of practices, administrative arrangements, qualifications, staffing, and equipment of competent port health authorities among EU countries. Clearly it will need a thorough assessment of existing infrastructures and a political commitment to close the gaps and allocate resources. Hopefully, the two main evils that hamper effective public health services in many ports will not be overlooked by countries: corruption and lack of protection of personal health data. As long as ships' crews experience intimidation and arbitrariness in global ports, compliance and trustful cooperation of ship personnel with the public health services will be impaired and opportunities for interventions missed.

This issue of the *Journal of Travel Medicine* includes two papers that pose a timely reminder to the events that must be considered when allocating public health capacities to serve ships and ports: Elaine Cramer and colleagues summarize reports to the electronic Maritime Illness and Death Reporting System of the Centers of Disease Control from 2005 to 2010. Varicella was the vaccine-preventable disease most frequently reported to CDC by cruise ships. It must be of interest to contingency planning of shipping companies and health authorities alike that 70% of reported cases were associated with outbreaks on board. The number of cases per outbreak ranged between 2 to 9 with a majority of first-generation cases and a substantial number of two- or more infection cases. In the opinion of Elaine Cramer and co-authors the CDC protocol for varicella outbreaks on cruise ships was useful to rapidly curtail respective outbreaks. This is important information not only to cruise ships but also to cargo ships where often less than 50 seafarers, many of South East Asian origin are responsible for the ship's safe navigation. Port health services are better being ready to assess immunity and offer post-exposure vaccination to ships' non-immune crew and to passengers.

Mirtuka and colleagues describe the enormous consequences of reporting two crew patients, one from Ukraine and one from the Philippines, with measles after signing to a cruise ship in 2006. The comprehensive investigations over 36 days revealed 1 case of rubella, 3 cases of measles and 11 cases of varicella. A stunning 30,000 passengers, traveling on this ship were notified of potential exposures to measles and rubella with no cases detected among passengers. All 1,197 crew members were considered potential contacts, assessed for immunity to measles and rubella and underwent active and passive surveillance for rash illness. The total costs were estimated at $67,000 for vaccinations, supplies, and health department staff time. Only three of the crew had sufficient immunization records to prove immunity.

What conclusions must be drawn from these publications? Are vaccine-preventable diseases on ships a relevant public health threat? Does measles transmission on ships play an adverse role in the global efforts to eliminate measles as it was shown for international air travelers? If so, what resources must we allocate to the surveillance and control of these events?

The incidence of vaccine-preventable diseases on ships is practically unknown, because of lack of surveillance of diseases and underreporting. Both papers are in line with previous case reports which indicate that probably outbreaks of vaccine-preventable diseases on ships are more common in susceptible crews from tropical countries than currently recognized.

While one can not dispute that cruise ship travelers should be up to date with vaccinations and immune to measles, mumps, rubella, and varicella, it is unknown to what extent outbreaks among crew pose an increased risk of disease to passengers.

The classification of travelers on ships as “contacts” to infectious persons remains uncertain. It is undebated that persons sharing a cabin are “close contacts,” otherwise it is a case-by-case decision. In our service in Hamburg, we will—depending on the nature of disease—label all crew working in the same area (eg, galley, medical personnel) as contacts and take a special look at the facilities for children and the wellness department. On cargo ships, it is our working assumption that all crew are close contacts, since living conditions on board are comparable to general households. In the case report by Mitruka and colleagues, the decision was made to classify all crew and passengers which led to the breath-taking effort of contacting 30,000 travelers—without any positive response. Surely, more guidance and research is needed to understand what the public health tool of “contact tracing” of travelers adds to preventing the international spread of communicable disease in shipping and how it is performed most efficiently.

The fact that less than 1% of crew members had a written proof of immunity against measles, mumps, and rubella in their vaccination certificates points to the odd and annoying habit of crewing agencies in shipping companies solely providing vaccinations against yellow fever and cholera in seafarers. It would be a big step forward if seafarers carry their general vaccination certificates with them, even better if pre-employment exams update and document the vaccination status following national guidelines. In some countries, public health services and/or employers provide free-of-charge vaccinations to seafarers during pre-employment exams: probably a more cost-efficient contribution to the
prevention of spreading diseases internationally than mass health screening of crew and passengers.

To summarize: it can be learnt from these papers that we need well-trained port health officers, good communication structures, contingency planning, solid research to produce evidence-based guidelines, and trustful cooperation between the public health sector and the shipping industry to safeguard the health of crew and passengers and of the residential populations globally. Without doubt the World Health Organization must continue to support countries in identifying priority public health events that affect the global security.

Declaration of Interests

The author states she has no conflicts of interest to declare.

References