

**ABC risks for public health by introducing foreign military bases**

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We agree that a nuclear catastrophe would result if these weapons were used. In this letter, we would like to add public health risks by military membership with other countries. After Russia's invasion into Ukraine, there is increasing public support in Finland and Sweden for joining the North Atlantic Treaty Organization (NATO) (1, 2). Although we understand an advantage in Finland and Sweden for countering possible invasion by military membership, there is a risk of disadvantages of environmental contamination and epidemic spread caused by introducing foreign military bases. There will be ABC (atomic, biological, and chemical) risks for public health from introducing military bases. In fact, these risks have been observed in Okinawa. The prefecture of Japan has had U.S. military bases over the 77 years.

Atomic contamination happened in Okinawa because of the historical background of 1,400 nuclear weapons equipped in Okinawa in the 1960s. During the Cuban Missile Crisis, a nuclear missile was misfired from the U.S. military base in Naha, the local capital of Okinawa (3). There was also an accident in which an aircraft carrying a nuclear bomb fell from an aircraft carrier in the waters near Okinawa (4). The lost nuclear missile and bomb have never been removed and are still submerged in the waters near Okinawa. At the period of the Iraq War, the U.S. military conducted training to launch more than 1,000 depleted uranium bombs on an uninhabited island of Okinawa (5). The radiation exposure in that area is still unclear because of unwillingness by governments of the U.S. and Japan to investigate it.

Biological (infectious) epidemics in Okinawa brought by the military base included congenital rubella syndrome in the 1960s and COVID-19 in the 2020s. Okinawa has been directly hit by infectious diseases prevalent in the US without normal quarantine for incoming foreign soldiers. Okinawa thus has a wide channel for the spread of infection to occur from abroad through the military bases. In 1965-69, the enormous number of Okinawan children were born with congenital rubella syndrome, compared to that in mainland Japan during the same period (6). Recently, in December 2021, COVID-19 took a sharp surge in Okinawa. Multiple outbreaks of infection occurred at the same time on the U.S. military bases and the infection spread to base employees and their families, who are mostly residents of Okinawa. This was a double spread of Omicron and Delta strains. The U.S. military reported later that their soldiers had not been tested for viruses before and after arrival to Okinawa and were not quarantined (7).

Chemical accidents came out in 1969, when an accidental release of VX gas inside an ammunition depot in Okinawa resulted in the hospitalization of 24 U.S. servicemen (8). Dioxin and other environmental contaminants were also buried within the soil of the base at the time of the Vietnam War (9). A recent chemical in question is PFAS (per- or poly-fluoroalkyl substances), a residual fluorinated organic compound consisting of several types often used on military bases as foam extinguishing agents. These were released from the bases. Groundwater and soil around bases have been contaminated at high concentrations (10).

These ABC risks are ongoing threats to public health in the local people of Okinawa. Regular inspection and surveillance is not allowed inside the bases, because of the military treaty between the U.S. and

Japan. People of Finland and Sweden should carefully compare advantages and disadvantages of military membership which may lead to introducing a foreign military base. If they would allow the presence of a foreign military base, a rule for accepting regular inspection and surveillance should be provided to such bases.

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