

Abstract**[Project Information]**

Project Title : Studies on Infection Prevention Measures During Collection and Transportation of Municipal Solid Waste

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The global outbreak of COVID-19 infection that began in 2020 reminded us that waste management is one of the most important lifelines that support social life. Prevention of infection among collection workers who come in contact with large amounts of waste is important for the continuation of business. This report provides scientific support for infection prevention measures and their effectiveness in waste discharge and collection during infectious disease outbreaks. It was found that municipalities with a growing population were more affected by the COVID-19 outbreak than those with a declining population. Resource recovery by communities in the declining population municipal groups declined rapidly with the COVID-19 epidemic. Considering body fluids as tracers of infection sources, a qualitative and quantitative screening method based on an antigen-antibody method using alpha-amylase in saliva as a marker and BPIFA1 (BPI fold containing family A member 1) gene in nasal secretions as a rapid detection method of attachment status, and a qualitative and quantitative screening method based on PCR using BPIFA1 (BPI fold containing family A member 1) gene in nasal secretions as a marker, were developed. The evaluation of the transmission potential of infectious agents in a series of situations during refuse collection work showed that the infection prevention measures implemented during the COVID-19 outbreak were effective, and that the infection risk for refuse collectors could be kept low by thorough implementation of these measures. The infection risk and infection prevention measures in refuse collection operations were evaluated using a risk assessment table used in the field of occupational safety and health. The following measures are effective in preventing infection in refuse collection operations: (1) Avoid talking, ventilate, and frequently disinfect the inside of the collection vehicle,

(2) Disinfect hands frequently when putting on and taking off gloves, (3) Avoid touching contaminated areas when putting on and taking off personal protective equipment and when handling the equipment, or disinfect hands frequently afterward, and (4) Take the 3Cs measures when gathering in an office or coming in contact with people at a garbage station.

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