

Implementation of "Systematic Review on Mortality Rates in Invasive Aspergillosis" (Review Number: 2024489NI)

Our research team is conducting a "Systematic Review on Mortality Rates in Invasive Aspergillosis" in collaboration with Nara Medical University and Showa University, under the approval of the Research Ethics Committee of the Graduate School of Medicine and Faculty of Medicine, The University of Tokyo. The research period is scheduled to continue until March 31, 2027.

Background and Objectives

Invasive aspergillosis (IA) is an acute fungal infection caused by *Aspergillus* species, primarily affecting patients with compromised immune systems. The mortality rate remains high and varies depending on the site of infection and associated complications. While recent developments in antifungal therapeutics have expanded treatment options and potentially improved survival outcomes, comprehensive mortality data from the past decade remains limited. Current epidemiological data predominantly comes from single-center or limited multi-center studies, highlighting the need for more robust, large-scale analyses.

Based on these considerations, our research aims to provide a precise estimation of IA-related mortality over the past decade through systematic literature review and individual patient data analysis. Furthermore, we seek to identify factors influencing mortality, thereby contributing to the development of more effective treatment strategies.

Research Methods

Our study will be conducted in two phases:

In the first phase, we will conduct a systematic literature review of studies published between 2015 and 2024 that report IA mortality rates. We will select publications that report mortality rates using valid methodologies and combine their data to establish reliable mortality estimates.

In the second phase, we will request individual patient data from the corresponding authors of the selected publications. Data transfer will be conducted through secure cloud services. This data will be used to identify factors associated with mortality. The individual patient data will not contain any personally identifiable information. The variables included in the individual patient data are:

- Country

- Type of observation start date (IA diagnosis date or initial treatment start date)
- Age category at observation start (10-year intervals from 0 years, with a single category for 100 years and above)
- Sex
- Certainty of IA diagnosis
- Site of IA infection
- Duration of observation
- Reason for observation completion
- Presence of complications
- Type of initial antifungal medication
- Presence of surgical intervention for IA
- Use of mechanical ventilation
- Whether treatment was received at an academic hospital

Reporting of Results

The findings will be disseminated through publications in international and domestic medical journals and presentations at academic conferences.

Ethical Considerations

This research has been approved by the Research Ethics Committee of the Graduate School of Medicine and Faculty of Medicine, The University of Tokyo, and has received permission from the Dean of the Graduate School of Medicine and Faculty of Medicine, The University of Tokyo.

Funding and Conflicts of Interest

This research is funded by the departmental research budget of the Department of Clinical Epidemiology and Health Economics, School of Public Health, The University of Tokyo. There are no conflicts of interest to declare for this research.

Contact Information

Principal Investigator: Hideo Yasunaga, Professor
Department of Clinical Epidemiology and Health Economics, School of Public Health,
The University of Tokyo

Contact Person: Yuya Kimura, Project Assistant Professor
Department of Health Services Research, Graduate School of Medicine, The University

of Tokyo

Address: 7-3-1 Hongo, Bunkyo-ku, Tokyo, Japan.

Phone: +81-3-5841-1887