

ANALYSIS OF HOLDING TIME AND FOOD TEMPERATURE IN PATIENT
FOOD DISTRIBUTION IN THE NUTRITION INSTALLATION OF WAVA

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ABSTRACT

Holding time is a key quality indicator in hospital food service, referring to the interval between food preparation completion and serving to patients. Prolonged holding time combined with poorly maintained temperature can push food into the temperature danger zone (4–60°C), increasing the risk of pathogenic bacterial growth and reduced organoleptic quality. This descriptive observational study with a cross-sectional design analyzed holding time and food temperature during cooked-food distribution at the Nutrition Installation of Wava Husada Hospital, Kepanjen, Malang, evaluating compliance with Indonesian Ministry of Health (2013) and WHO (2020) food safety standards. A total of 34 measurements were collected using total sampling across 4 menu types (staple food, animal-based side dish, plant-based side dish, and vegetables) at three mealtimes over 5 days of observation (13–17 November 2025), using stopwatches and infrared thermometers at four critical distribution points.

Results showed an overall average holding time of 196.26 minutes, still within the safe limit of ≤ 240 minutes. However, 5 of 12 menu groups (41.7%) exceeded the standard, with the longest holding times found in plant-based side dishes at evening (320 minutes) and midday (313 minutes) meals. All menus failed to meet the minimum serving temperature standard ($\geq 60^\circ\text{C}$), with average serving temperatures ranging only from 28–35°C. The sharpest temperature drop occurred between the completion of cooking and portioning, with an average decrease exceeding 30°C. Plant-based side dishes recorded the lowest cooking and serving temperatures among all menu types.

The study concludes that although overall holding time remained within safe limits, food temperature was not maintained according to food safety standards at any stage of distribution. Contributing factors included a long gap between production and distribution schedules, the centralized service system, limited heating equipment (bain marie and heated trolleys), and time-consuming portioning processes/conditions that pose risks of pathogenic microbial growth and reduced patient food acceptance.

Keywords: holding time, food temperature, food distribution, food safety, hospital