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Research Article

Analysis of the Implementation of Occupational Safety and Health in the Medical Record Storage Room at Ar-Razy Clinic Malang

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Abstract

The study of the implementation of occupational safety and health in the medical record storage room at the Ar-Razy Clinic, Malang was conducted to determine how the implementation of occupational safety and health in the medical record storage room at the Ar-Razy Clinic, Malang. This research aims to determine the implementation of occupational safety and health in the record storage room at the Ar-Razy Clinic, Malang. Occupational safety and health is a form of effort to ensure that workers do not experience unwanted incidents. Occupational safety and health standards in the medical record storage room are very important to protect the safety of officers, maintain the integration of medical documents, and prevent the risk of fire, data leakage, or damage to archive files. Occupational safety and health standards include light fire extinguishers, noise, ventilation, and lighting. The researcher chose a descriptive type of research, using qualitative data types. The data sources used are primary data sources and secondary data sources, with data collection techniques in the form of observation, interviews, literature studies and documentation.

The research was conducted at the Ar-Razy Malang Clinic located at Jalan Mergan Lori No. 6, Tanjungrejo, Sukun District, Malang, East Java, with head nurses and nurses and medical record officers as resource persons. The implementation of Occupational Safety and Health in the medical record storage room at the Ar-Razy Malang Clinic has guaranteed the safety and health of its officers, because there is a written policy related to the implementation of Occupational Safety and Health in the room so that medical record officers before going on duty have undergone basic training on the implementation of Occupational Safety and Health in the medical record storage room. However, there are still things that need to be considered and have not been applied such as light fire extinguishers, noise or sound dampeners, and temperature humidity regulators in the medical record storage room.

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Introduction

Clinics are essential primary care facilities that deliver individual health services and rely on well-functioning support systems to ensure continuity, quality, and safety of care. Among these systems, medical record services are foundational because clinical decision making

and continuity of care depend on accurate and accessible patient information (WHO, 2021).

Medical records are legally defined as files containing patient identity, examinations, treatments, procedures, and other services provided. Maintaining complete, accurate, and retrievable records is central to safe care, because incomplete or unavailable records can contribute to errors, delays, and weaker organizational learning (WHO, 2020).

Medical record storage rooms (often termed filing rooms) represent high-density work environments. Staff may face hazards such as trips and falls, sharp edges and paper cuts, musculoskeletal strain from repetitive lifting and reaching, dust exposure, inadequate lighting, excessive noise, and fire hazards due to paper load and electrical equipment. Similar risk patterns have been documented in medical record installations where OSH procedures and PPE use were inconsistent (Putri & Lidia, 2024).

OSH is broadly intended to prevent occupational injuries and illness and to create safe and productive work systems. In healthcare facilities, OSH also supports patient safety indirectly by ensuring staff can work reliably and by protecting critical assets such as records and information systems (WHO, 2021).

Fire risk is especially salient in record storage areas because paper files increase fuel load and smoke can destroy documents rapidly. Recent fire-safety research in healthcare facilities emphasizes that prevention, rapid detection, accessible extinguishers, and trained staff materially improve outcomes during incidents (Betuš et al., 2025; Beljikangarlou et al., 2025).

Indoor environmental quality is equally important: ventilation affects humidity, temperature, and contaminant levels, which influence worker comfort and can affect the integrity of paper collections. Reviews of indoor air quality in healthcare settings emphasize monitoring and managing temperature and humidity alongside ventilation strategies (Loureiro et al., 2025; Lee et al., 2020).

Noise can reduce concentration and perceived well-being, which is particularly relevant for filing tasks requiring accuracy and sustained attention. Experimental evidence shows that noise conditions can influence subjective and performance outcomes in concentration tasks, supporting the need for noise management in office-like work settings (Sukowski, 2025).

Based on field observations at Ar-Razy Clinic (June 2024) and the clinical need to protect staff and the confidentiality and availability of records, this study asks: (1) to what extent is OSH implemented in the medical record storage room, and (2) what gaps exist relative to current guidance and evidence? The answers are intended to inform practical improvements that are feasible at clinic level while aligning with broader patient-safety and quality goals (WHO, 2021).

Materials and Methods

A descriptive qualitative design was employed to capture real-world OSH implementation in the medical record storage room at Ar-Razy Clinic Malang. Qualitative designs are appropriate for workplace safety evaluations where context, behavior, and local constraints shape implementation (Putri & Lidia, 2024).

The study site was Ar-Razy Clinic, located on Jalan Mergan Lori No. 6, Tanjungrejo, Sukun District, Malang, East Java. The unit of analysis was the medical record storage room and the work processes performed by medical record officers in that space (Pratama, 2025).

Participants (informants) included medical record officers and selected nursing staff/clinic representatives who interact with record retrieval and room access. Purposive selection was used to prioritize staff directly involved in filing, retrieval, and room management, consistent with similar qualitative OSH studies in filing rooms (Putri & Lidia, 2024).

Data collection combined: (1) structured observations (layout, shelving, lighting, ventilation openings, signage, housekeeping, and

safety equipment availability); (2) semi-structured interviews (training, SOPs, perceived hazards, incident history, and improvement needs); (3) documentation review (written policies, training notes, and facility documents); and (4) literature review to benchmark findings against recent evidence on IAQ, fire safety, and noise impacts (Betuš et al., 2025; Loureiro et al., 2025; Sukowski, 2025).

To increase trustworthiness, triangulation across observation, interviews, and documents was performed. Key findings were checked for consistency across sources, and discrepant observations were explored through follow-up notes during analysis. This approach aligns with recommendations in patient-safety learning systems, which emphasize structured interpretation of safety data and cautious inference (WHO, 2020).

Data were analyzed descriptively using thematic categorization aligned to the study's five OSH domains: room standards/space, fire protection, noise, ventilation/IAQ, and lighting. Emergent themes (e.g., PPE use, housekeeping/dust, confidentiality/security risks, and ergonomic handling) were integrated to provide a more complete OSH picture because these hazards frequently co-occur in filing rooms (Putri & Lidia, 2024; Verticchio et al., 2021).

Results and Discussion

The clinic has established baseline OSH implementation through a written policy and basic training before officers begin duty. Training is an important enabling factor because staff knowledge and readiness can determine whether hazards are reported and controlled early, which is consistent with broader patient-safety and learning system principles (WHO, 2020).

As in other filing-room contexts, the presence of policy does not automatically guarantee complete infrastructure or routine hazard control. Recent evaluations in medical record storage settings report gaps in SOP specificity, incomplete PPE adherence, and variable environmental controls, reinforcing the need for periodic audits (Putri & Lidia, 2024).

Room Standards and Layout

The medical record storage room met the minimum spatial standard reported in the clinic context (approximately 3 m² per officer). Adequate space supports safer movement and reduces collision and trip hazards, while also improving workflow efficiency in retrieval and re-filing (Pratama, 2025).

Room adequacy should be interpreted beyond area alone. In filing environments, shelf spacing, aisle width, and task design influence ergonomic risk and access safety. Studies of filing rooms have found that limited movement space and suboptimal shelf distances can increase strain and reduce safety margins, suggesting that layout review remains important even when nominal size standards are met (Fitriana et al., 2023).

Fire Protection

A key gap identified was the absence of light portable fire extinguishers in the medical record storage room. Given the high paper load, even small ignition sources can escalate quickly; therefore, immediate suppression capability is considered a basic requirement for risk reduction in record storage environments (Beljikangarlou et al., 2025).

Evidence from healthcare fire safety highlights that operational readiness depends on more than equipment presence: it includes accessible placement, inspection/maintenance, staff training, and drills. Hospital fire case analyses and emergency-response studies emphasize that staff training and operational state of protection systems strongly affect outcomes during real incidents (Betuš et al., 2025).

Recent fire risk assessment research in healthcare facilities also emphasizes structured risk classification to prioritize controls in high-risk departments. While Ar-Razy is a clinic

(smaller scale than hospitals), the underlying logic remains applicable: filing rooms with high fuel loads require prioritized mitigation, including extinguishers and clear response procedures (Salari & Karimi, 2025).

Noise Control

The storage room lacked sound-dampening or noise control measures, and staff reported external noise that could interfere with concentration. Clerical filing tasks involve attention to identifiers and codes; reduced concentration can plausibly elevate misfiling risk and retrieval errors, which can indirectly affect service continuity (Pratama, 2025).

Experimental evidence in work-related concentration tasks suggests that noise conditions can influence subjective well-being and may modestly affect performance depending on task design and adaptation. This supports implementing practical noise controls (e.g., door seals, acoustic panels, zoning) to create a more stable cognitive environment for record officers (Sukowski, 2025).

Ventilation, Indoor Air Quality, Temperature, and Humidity

Ventilation at Ar-Razy Clinic was generally adequate through structural openings that allow air exchange. Adequate ventilation reduces dampness and supports worker comfort, while also helping limit conditions that accelerate paper deterioration or mold growth (Pratama, 2025).

Systematic reviews of indoor air quality in healthcare units emphasize that temperature and relative humidity are among the most frequently assessed parameters because they influence both occupational comfort and health risk, particularly in enclosed work environments. These reviews recommend that facilities manage ventilation and monitor environmental parameters as part of occupational health practice (Loureiro et al., 2025).

Evidence from hospital settings also indicates that indoor air quality parameters vary by season and location, and that strategies such as air-cleaners can reduce particulate concentrations in specific clinic areas. While Ar-Razy's storage room is not a clinical waiting area, the findings support a general principle: monitoring and controlling indoor parameters can be beneficial for staff exposure and environmental stability (Lee et al., 2020).

From a document-preservation perspective, microclimate conditions (temperature and humidity) influence expected lifetime of paper collections. Research on paper collections shows that adverse temperature and humidity profiles accelerate chemical deterioration, highlighting the practical value of humidity and temperature management for record preservation (Verticchio et al., 2021).

Lighting

Lighting in the storage room was considered adequate for retrieval and filing, supporting visibility and movement. Proper lighting reduces visual strain and may reduce errors in reading file labels and identifiers, which is important for accuracy in record handling (Pratama, 2025).

In filing-room evaluations, inadequate lighting is commonly reported and is linked to visual discomfort and reduced task performance. Maintaining sufficient illumination is therefore a practical OSH control and should be verified periodically, especially if storage density increases or bulbs age (Fitriana et al., 2023).

Additional OSH Considerations: PPE, Housekeeping, and SOPs

Although the clinic reportedly encourages the use of personal protective equipment (PPE), filing-room studies show that PPE use may be inconsistent in practice, particularly for gloves and masks when handling dusty paper files. In a recent study, glove use was reported as limited in

medical record handling, reflecting a common implementation gap (Putri & Lidia, 2024).

Housekeeping and dust control are also relevant because paper archives can accumulate dust and particulate matter, which can irritate respiratory pathways and reduce comfort. Integrating routine cleaning schedules and safe handling practices can mitigate these exposures and aligns with broader indoor air quality management principles (Loureiro et al., 2025).

SOP clarity and signage matter because they standardize safe work practices and reduce reliance on individual memory. Filing-room research frequently identifies missing or incomplete SOPs and safety signs as weaknesses, suggesting that Ar-Razy Clinic can strengthen OSH by developing specific SOPs for filing hazards, manual handling, and emergency response (Putri & Lidia, 2024; Fitriana et al., 2023).

Conclusion

This research concludes that OSH implementation in the Ar-Razy Clinic medical record storage room is partially effective. Foundational elements are present, including a written policy and basic training, and the room's ventilation and lighting are generally adequate, supporting staff comfort and record handling reliability (Pratama, 2025; Loureiro et al., 2025).

Critical gaps remain that warrant immediate attention: the absence of portable fire extinguishers and limited unit-level fire preparedness, and the lack of noise-control measures. These gaps are significant because contemporary evidence in healthcare fire safety emphasizes rapid suppression and trained response, while noise is known to affect concentration and subjective well-being during attention-demanding tasks (Betuš et al., 2025; Sukowski, 2025).

The clinic should prioritize (1) installing and maintaining APAR with clear placement and staff training; (2) implementing basic fire response procedures and periodic drills; (3) applying practical noise abatement; and (4) adding routine monitoring for temperature and humidity to protect paper records. These actions align with evidence-based risk management approaches and support broader patient-safety and information reliability goals (Salari & Karimi, 2025; Verticchio et al., 2021; WHO, 2020).

Future work could extend this assessment using quantitative environmental measurements (lux, dB, temperature/RH) and structured hazard risk scoring to guide prioritization and monitor improvement over time. Such measurement-driven approaches are common in indoor air quality and safety evaluations and can strengthen accountability in OSH programs (Lee et al., 2020; Loureiro et al., 2025).

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