Simplifying the Process of Performing & Recording

EYEWASH STATION CHECKS

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According to the CDC (2024), approximately 2,000 workplace eye injuries occur daily. Employee eye safety needs can vary depending on work environment. PPE for eye protection and emergency response equipment such as eyewash stations are core to eye safety programs.

Various types of eye protection such as goggles, safety glasses, face shields or helmets can be used when hazards cannot be eliminated. Should an eye injury occur, an emergency eyewash station may be utilized. For example, a worker in a healthcare setting may experience splashing of a patient's blood or saliva to the face, including the eyes. In food manufacturing, an incident might occur where an ingredient splashes into a worker's eyes.

It is essential to know where emergency equipment such as eyewash stations are located and how to use them (Purohit, 2018). It is also important to properly maintain eyewash stations, as poorly maintained eyewash stations may cause eye infections or be inoperable when an incident occurs. There is a common saying that goes, "If it is not recorded, it did not happen." But as Kister (2013) indicates, a lack of documentation on the maintenance of equipment is common.

Not recording equipment maintenance may leave an organization vulnerable in proving compliance with OSHA regulation 29 CFR 1910.151(c), which requires "suitable facilities for quick drenching or flushing of the eyes and body" for possible exposure to injurious corrosive materials (OSHA, 1998). Faulconer et al. (2020) found that only half of survey respondents attested to recording the maintenance of lab equipment. Furthermore, half of survey respondents reported working with faulty equipment. Performing proper eyewash station checks and maintenance is paramount to prevent such issues.

Infection Risks

Organisms such as *Acanthamoeba*, *Pseudomonas* and *Legionella* can be present in eyewash station water when equipment is not properly maintained (OSHA, 2015). Shuttered facilities during the COVID-19 pandemic exhibited how stagnant water can develop *Legionella* infection risks (Liang et al., 2021). In research by Abbas and Mendoza (2017), bacteria were found in 90% of 40 research laboratory eyewash stations tested.

Proper maintenance of eyewash stations includes an annual inspection and a weekly activation and flush. During the weekly check, activation checks that there is free-flowing tepid water, and flushing for the recommended amount of time clears stagnant water. Roy and Love (2020) detail the ANSI/ISEA Z3581.1-2014 standard requirements for eyewash and shower stations in a comprehensive summary that indicates the weekly flush "shall be sufficient to ensure all stagnant water is flushed from the unit itself and all sections of piping that do not form part of a constant circulation system," and therefore the flush may need to be longer than 15 minutes.

Results of research by Swanson et al. (2023) demonstrate the effectiveness of proper eyewash flushing to mitigate the risk of microbial contaminants. Testing on eyewash station water found that in 7-day stagnant water, the microbial count dropped (from 30,275 ± 27,957 CFU/100 mL to 34 ± 70 CFU/100 mL) after 10 minutes and dropped even more (to 1 ± 1 CFU/100 mL) after flushing for 20 minutes (Swanson et al., 2023). Overall, the manufacturer's instructions should be followed for proper weekly flushing of eyewash stations to mitigate and reduce infection risks.

Case Study: Automating Recording of Eyewash Station Checks

A medical facility sought to improve the process of documenting eyewash station maintenance checks by partially automating the process. The main focus of this process improvement was to enhance compliance with eyewash station weekly checks and the documentation of such checks. The previous process was to complete checks on paper and then file into a binder.

To alleviate the maintenance documentation barriers in a medical clinical setting, the facility developed and implemented a process using QR codes to make the process paperless and more efficient. The process was initially implemented in the imaging clinic, and the facility plans to utilize it in other areas of the medical facility in the future. For each clinical eyewash station, a unique QR was created. The QR code, which provides access to a survey, is available to be scanned by the eyewash station evaluator upon completion of the eyewash station check. Once the survey opens, the evaluator confirms

Poorly maintained eyewash stations may cause eye infections or be inoperable when an incident occurs.

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the flushing and function of the eyewash station. Once they have completed the survey, the evaluator selects the day and enters the date the check was completed along with their initials.

The process is completed each Wednesday, which was selected because most holidays generally are not observed on Wednesdays. The survey data is automatically uploaded to a saved report, which updates in real-time upon receiving each submission. This report is available as needed for the clinical team to access and review, which is also convenient during various types of inspections by regulatory authorities that may occur. The convenience of this documentation process has significantly improved ease of recording the eyewash station checks while decreasing the weekly time spent performing the checks by 50%.

Limitations and next steps were determined following initial implementation of this process. Limitations include the possibility of employees not having a smartphone or not knowing how to scan QR codes. Another concern is the possibility that a check may not be performed if it is not adequately communicated and understood who is supposed to complete the check and when; if an employee believes someone else is going to perform the check but that is not the case, no one has performed the check. The assigned employee must arrange for an alternate if vacation is scheduled. Next steps identified include analyzing other areas where this process may be utilized, including for other types of checks in different settings. For example, this process may be used for combustible dust checks of dry ingredient rooms in a food factory.

HOW TO MAINTAIN EYEWASH STATIONS

- **Provide adequate training.** Ensure that all employees know the exact locations of eyewash stations and how to activate and use them in an emergency.
- **Maintain weekly and annual checks.** Perform weekly activation and flushing and conduct full annual inspections to prevent microbial buildup and ensure operability.
- **Record every check.** Document all maintenance and testing activities. Unrecorded checks may fail to demonstrate OSHA compliance.
- **Follow manufacturer and ANSI standards.** Adhere strictly to the manufacturer's maintenance instructions and reference the ANSI/ISEA Z358.1-2014 standard for flow, temperature and flushing duration when performing eyewash station checks.
- **Use technology to support compliance.** Implement QR codes or similar digital tools to automate maintenance logs, improving efficiency and inspection readiness.
- **Plan for continuity.** Assign responsibility for checks and designate alternates to prevent missed inspections due to scheduling conflicts or absences.

Conclusion

The proper maintenance and documentation of eyewash station checks mitigate the risk of infection or equipment malfunction during eye emergency response. A medical facility implemented a partially automated process for recording eyewash station checks focused on improving the existing process through the use of QR codes and electronic recording. This new process worked so well in initial implementation that the medical facility plans to implement it in other clinics with eyewash stations. The process could also be applied to other equipment, such as monthly fire extinguisher checks. In other workplace settings, such as a factory or warehouse, this process could be useful in tracking safety checks of various equipment and could potentially be used by safety committee members as a paperless process for management verification. **PSJ**

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