

Waste Audits

Waste audits comprehensively quantify and characterize waste generated in a particular setting. This information helps identify pathways for improvement in waste generation, diversion, and elimination.

Waste Audits in Health Care Settings

In the health care setting, waste audits quantify and characterize all municipal solid waste (MSW), regulated medical waste (RMW), and recycling produced in a medical setting to inform opportunities for improvement.



Preparation and Project Design

It can take several months of preparation and coordination before the audit is performed.

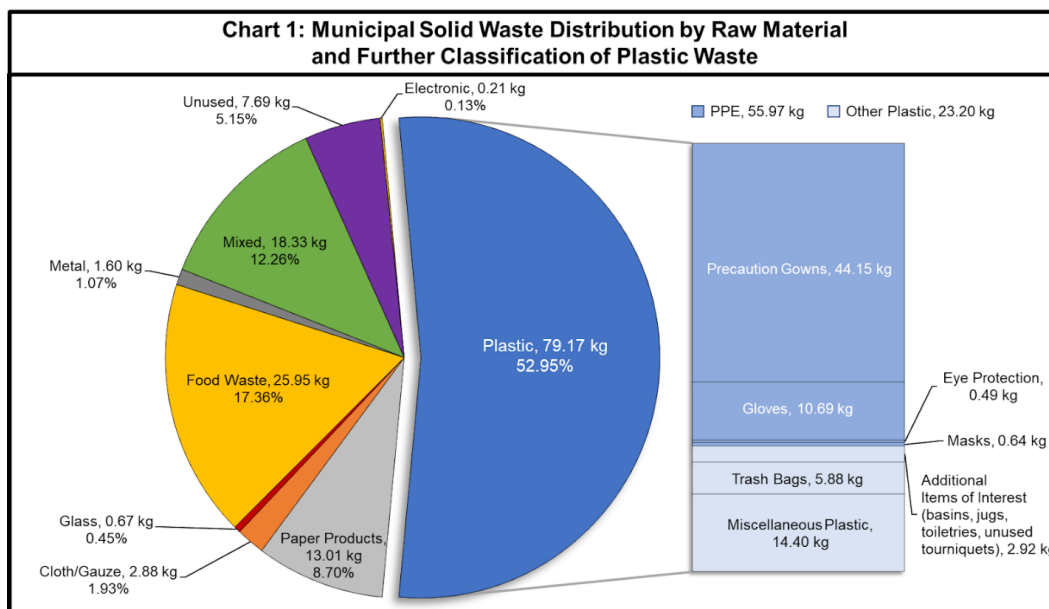
Literature review is critical in understanding audit design and building the foundation for your audit. Know what has been completed both at your institution and elsewhere to guide your objectives. Identify what you hope to determine and demonstrate with your audit.

Support and buy-in are key. Connect with sustainability resources at your institution and your unit leadership regarding your proposed audit.

Assemble the team and identify key stakeholders. In addition to the waste audit team leaders, other participants may include unit clinicians, nursing and ancillary staff, waste management and environmental services, and nutrition services (if food waste is included).

Other logistics to establish:

- **How will you ensure that clinical care is not affected and efficiently streamline waste pathway diversions for the audit?** Including key stakeholders in your multidisciplinary team is important for planning.
- **Where will the waste collection and sorting take place?** You will likely need a large, dedicated space near the clinical unit which can be prepped by environmental services.
- **How long will the audit take?** Most health care audits collect 24 hours' worth of waste, but sorting can take an additional one to two days.
- **How will waste be sorted?** This may use broad categories by materials or by indexed items of interest. It may be of interest to note what of the waste is recycled. (See Chart 1 for an example from an MGH inpatient medicine unit waste audit.)
- **How will waste be measured?** You will likely need a high capacity and fidelity scale, like the OHAUS Ranger 3000.
- **How will RMW be evaluated?** Given that RMW contains sharps and bodily fluids, if you choose to sort RMW, it will require strict precautions for protection from injury and transmission of infectious agents. Certain settings (such as the operating room, emergency department, or intensive care unit) may have higher percentage of RMW than others (ambulatory clinics or medicine units).
- **Who will manage real-time documentation of raw data during the audit and how?** Having an extra hand, such as a research assistant, to methodically track the raw data on a spreadsheet may help with organization.



Post-Audit Analysis

Sometimes the audit will lead to unexpected findings, and lead to outcomes that differ from the pre-audit objectives.

The data analysis can lead to various manners of presentation and visualization. For example, the EPA [Waste Reduction Model](#) (WARM) and Mazzetti [M+Wastecare Calculator](#) can translate the waste collected into estimated greenhouse gas emissions, to help with conceptualization.

The audit data can drive targeted sustainability efforts and health care delivery modifications. For example, the audit might help identify key areas to bolster staff education. Perhaps the findings will lead to further cost-benefit analysis of transition from single-use to reusable items, guidance on equipment choices, or reevaluation of procedures and unsupported clinical policies.

Additional Resources

- Slutzman JE, Bockius H, Gordon IO, Greene HC, Hsu S, Huang Y, Lam MH, Roberts T, Thiel CL. [Waste Audits in Healthcare: A Systematic Review and Description of Best Practices](#). *Waste Manag Res*. 2022 Jun 2:734242X221101531. doi: 10.1177/0734242X221101531
- Hsu S, Thiel C, Mello M, Slutzman J. [Dumpster Diving in the Emergency Department: Quantity and Characteristics of Waste at a Level 1 Trauma Center](#). *Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health*. 2020; DOI: 10.5811/westjem.2020.6.47900
- Grand Rounds Webinar: [Inpatient Medicine Waste Audit and the Plastic Pandemic](#) (video)
- Health Care SOS: [Performing a Waste Audit](#) (podcast episode)
- EPA: [Waste Reduction Model](#)
- Mazzetti: [M+Wastecare Calculator](#)