

Taiichi Ohno, credited with creating the Toyota Production System in the 1950's, defined for manufacturing 7 types of waste that describe all activity that adds cost but not value.

Six of those seven are applicable to healthcare and are included with one additional one below. Recognizing waste in our organizations is the first and most essential step in transforming waste to wisdom.

WASTE "MUDA"	Definition	Examples	Causes	Countermeasures
Confusion	People doing the work are not confident about the best way to perform tasks	Same activities being performed in different ways by different people Unclear MD orders Unclear route for medicine administration Unclear system for indicating charges for billing	Lack of standardized specification of activities of work Lack of common language Workers relying on memory or "figuring things out"	All activities of work clearly specified Clear signals that trigger activities of work uniformly
Motion/Travel	Movement of people that does not add value	Looking for information Looking for materials and people Materials, tools located far from the work	Inconsistent information systems (includes communication) Materials stocking that does not match the demand Scheduling that creates "work-arounds" and "re-work"	IT systems that match the demand of work Reliable communication systems Fluid materials availability that meet the current demand Consistent scheduling that meets the demand
Waiting	Idle time created when people, information, equipment or materials are not at hand	Waiting for other workers at meetings, surgeries, procedures, reports Patients waiting for appointments, MD visits, procedures	Poor understanding of the time required to do a task Poor accountability for delivering on time Compounding delays Unresponsiveness of scheduling systems to demand of work	"Right now" scheduling Fewer meetings; work done in small focus groups Matching capabilities to demand for services, supplies
Processing	Activities that do not add value from the patient/customers perspective	Clarifying orders Redundant information gathering/charting Missing medications Regulatory paperwork	Work area layout that does not promote continuous flow Complex flow of medication delivery from pharmacy Multiple/complex forms	Work area re-designs to create continuous flow Simplified/consistent delivery systems for meds/materials/information Forms that document only essential information
Inventory	More materials on hand than are required to do the work	Overstocked medications on units Overstocked supplies on units and in warehouses	Supply/demand not well understood Outdated supplies not deleted Personal preferences catered, duplicated	Supply exactly what is needed; no more, no less Keep supply availability current Understand personal preferences and orchestrate "like" items use
Defects	Work that contains errors or lacks something of value	Medication errors Rework Variation in outcomes Incorrect charges/billing Surgical errors	Lack of understanding of what is "defect free" Lack of specification in work processes	System redesigns that support workers in doing their good work by clear specification of activities of work, clear expectations of outcomes and safe environment for problem solving in the course of work Clear definition/understanding of what is "defect free" Single, clearly understood method of addressing "defect free" right now
Over-production	Redundant work	Duplicate charting Multiple forms with same information Copies of reports sent automatically	Misinterpretation of regulations Poor communication between departments, offices No clear specification of who needs what Computer systems not linked	Clear interpretation of regulations System (electronic or paper) of information traveling with patient that eliminates redundancy

