Checklists

PSNet primers are regularly reviewed and updated by the UC Davis PSNet Editorial Team to ensure that they reflect current research and practice in the patient safety field. Last reviewed in 2024.

Background

A checklist is an algorithmic listing of actions to be performed in a given clinical setting, the goal being to ensure that no step will be forgotten. Although a seemingly simple intervention, checklists have a sound theoretical basis in principles of human factors engineering and have played a major role in some of the most significant successes achieved in the patient safety movement.

The field of cognitive psychology classifies most tasks as involving either schematic behavior, tasks performed reflexively or "on autopilot," or attentional behavior, which requires active planning and problem-solving. The types of error associated with each behavior are also different: failures of schematic behavior are called *slips* and occur due to lapses in concentration, distractions, or fatigue, whereas failures of attentional behavior are termed *mistakes* and often are caused by lack of experience or insufficient training. In health care, as in other industries, most errors are caused by slips rather than mistakes, and checklists represent a simple, elegant method to reduce the risk of slips. Flight preparation in aviation is a well-known example, as pilots and air-traffic controllers follow pre-takeoff checklists regardless of how many times they have carried out the tasks involved. By standardizing the list of steps to be followed and formalizing the expectation that every step will be followed for every patient, checklists have the potential to greatly reduce errors due to slips.

Current Use of Checklists

Checklists garnered well-deserved publicity as a result of their use in the Keystone ICU project, a multicenter study in which a checklist of evidence-based infection control interventions was implemented to reduce the risk of central line-associated bloodstream infections (CLABSI) in intensive care unit (ICU) patients. This intervention achieved a stunning reduction in line infections, with many ICUs completely eliminating line infections for months at a time. An AHRQ-funded initiative subsequently replicated this success in a wide range of hospitals nationwide. A similar level of success was achieved through

implementation of a [surgical safety checklist](#), which included specific steps during induction of anesthesia, surgical timeout, and transfer of the patient out of the operating room. Initial studies achieved reductions in surgical mortality and morbidity across a wide range of clinical settings. Further research has investigated the use of checklists to improve patient outcomes in [obstetrics](#), [intensive care](#), [trauma](#), [dentistry](#) and [chemotherapy](#), and at [hospital discharge](#) and during [in-hospital handoffs](#). Studies have compared the use of [electronic checklists](#) versus paper-based versions and found significantly higher completion with the use of electronic checklists.

Controversies

Checklists are a remarkably useful tool in improving safety, but they are not a [panacea](#). As checklists have been more widely implemented, it has become clear that their success [depends](#) on appropriately targeting the intervention and utilizing a [careful implementation strategy](#).

Errors in clinical tasks that involve primarily attentional behavior—such as [diagnostic errors](#) or [handoff errors](#)—may require solutions focused on training, supervision, and decision support rather than standardizing behavior, and thus may not be an appropriate subject for a checklist. An effective checklist also requires consensus regarding required safety behaviors. The success of checklists in preventing central line infections and improving surgical safety resulted from the strong evidence base supporting each of the individual items in the checklist, and therefore checklists may not be successful in areas where the "gold standard" safety practices have yet to be determined.

Current Context

When a checklist is [appropriate](#), safety professionals must be aware that implementing a checklist is a complex [sociotechnical](#) endeavor, requiring frontline providers to not only change their approach to a specific task but to engage in [cultural changes](#) to enhance safety. Successful implementation of a checklist requires extensive preparatory work to maximize safety culture in the unit where checklists are to be used, engage leadership in rolling out and emphasizing the importance of the checklist, and rigorously analyze data to assess use of the checklist and associated clinical outcomes. Failure to engage in appropriate preparatory and monitoring before and after checklist implementation may explain why checklist use in real-world settings is often [poor](#), contributing to [disappointing results](#). Ethnographic studies of [successful](#) and [unsuccessful](#) checklist implementation have been instrumental in enhancing understanding of the barriers that can limit checklist utility.