Checklists to Improve Patient Safety

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Why a Checklist?

To improve patient safety and quality outcomes, health care professionals are using multiple methods to reduce patient harm and eliminate medical errors. One method being implemented more and more is the checklist. In his book "The Checklist Manifesto," Atul Gawande, MD, analyzes the positive impact of checklists used in many fields, including health care, to handle "the volume and complexity of what we know."

> Know-how and sophistication have increased remarkably across almost all our realms of endeavor, and as a result so has our struggle to deliver on them....Avoidable failures are common and persistent, not to mention demoralizing and frustrating, across many fields—from medicine to finance, business to government. And the reason is increasingly evident: the volume and complexity of what we know has exceeded our individual ability to deliver its benefits correctly, safely, or reliably. Knowledge has both saved us and burdened us. (Gawande, 2010)

The development and use of checklists in health care has increased. In 2010, a HealthLeaders Media Industry Survey reported that 88.8 percent of quality leaders use checklists to prevent errors in hospital operating rooms. It is important to note that the effectiveness of a checklist depends on its quality and thoroughness, acceptance and compliance by staff, and a strong culture of safety in the organization.

Types of Checklists

Developing the structure and content of a checklist starts with identifying its purpose or goal. Table 1 outlines several types of checklists and their uses in a medical environment.

Table 1. Types of Checklists

Type of Checklist	Description	Example
Laundry list	Items, tasks or criteria are grouped into related categories with no particular order.	Medical equipment checklist
Sequential or weakly sequential checklist	The grouping, order and overall flow of the items, tasks or criteria are relevant in order to obtain a valid outcome.	Procedure checklist (equipment must be gathered before procedure begins)
Iterative checklist	Items, tasks or criteria on the checklist require repeated passes or review in order to obtain valid results, as early checkpoints may be altered by results entered in later checkpoints.	Continued rechecking of the pulse and blood pressure in checklists for adult cardiopulmonary resuscitation
Diagnostic checklist	Items, tasks or criteria on the checklist are formatted based on a "flowchart" model with the ultimate goal of drawing broad conclusions.	Clinical algorithms
Criteria of merit checklist	Commonly used for evaluative purposes, in which the order, categorization and flow of information are paramount for the objectivity and reliability of the conclusions drawn.	Checklist for diagnosis of brain death

Source: Modified from Development of medical checklists for improved quality of patient care, *International Journal for Quality in Health Care, 2008.*

Benefits of Checklists in Health Care

Checklists used in the medical setting can promote process improvement and increase patient safety. Implementing a formalized process reduces errors caused by lack of information and inconsistent procedures. Checklists have improved processes for hospital discharges and patient transfers as well as for patient care in intensive care and trauma units. Along with improving patient safety, checklists create a greater sense of confidence that the process is completed accurately and thoroughly.

Checklists can have a significant positive impact on health outcomes, including reducing mortality, complications, injuries and other patient harm. Working with the World Health Organization, Gawande examined how a surgical safety checklist was implemented and tested in eight hospitals worldwide. With this checklist, major post-surgical complications at the hospitals fell 36 percent and deaths decreased by 47 percent.

Checklists for Improving Patient Care

The Partnership for Patients Hospital Engagement Networks are designed to improve patient care across 10 areas of patient harm through the implementation and dissemination of best practices in clinical quality. This guide includes checklists, developed by Cynosure Health, for these 10 areas:

1. Adverse drug events (ADEs)
2. Catheter-associated urinary tract infections (CAUTIs)
3. Central line-associated blood stream infections (CLABSIs)
4. Early elective deliveries (EEDs)
5. Injuries from falls and immobility
6. Hospital-acquired pressure ulcers (HAPUs)
7. Preventable readmissions
8. Surgical site infections (SSIs)
9. Ventilator-associated pneumonias (VAPs) and ventilator-associated events (VAEs)
10. Venous thromboembolisms (VTEs)

To prevent process breakdowns due to human factors, each checklist identifies the top 10 evidence-based interventions that health care organizations can implement and test to reduce harm. The AHA/HRET Hospital Engagement Network (HEN) supports each checklist topic with a change package that can be accessed at www.HRET-HEN.org. The change packages provide guidance for implementing best practices, including suggested aim statements, lists of change ideas and tools, detailed steps and driver diagrams. These diagrams map the process to implement each intervention.

Through the AHA/HRET HEN, quality improvement leaders and their teams are encouraged to use the checklists to determine which key interventions they can test as part of their Plan-Do-Study-Act process. HEN staff reviews the interventions during site visits with state hospital association leaders and hospitals. With these tools, hospital improvement teams can identify and adopt the process change, assign staff responsibility and record a target date for completion.

These checklists will assist hospitals and health care systems in their efforts to prevent inpatient harm and reduce preventable readmissions, which are the end goals of the Partnership for Patients initiative.

Checklist 1: Adverse Drug Events Top 10 Checklist

Top 10 Evidence-Based Interventions				
Process Change	**In place**	**Not done**	**Will adopt**	**Notes** (Responsible & By When?)
Identify "look-alike, sound-alike" medications and create a mechanism to reduce errors (e.g., different locations, labels, alternate packaging)				
Standardize concentrations and minimize dosing options when feasible				
Set dosing limits for insulin and narcotics				
Use low-molecular-weight heparin or other agents instead of unfractionated heparin whenever clinically appropriate				
Use alerts to avoid multiple prescriptions of narcotics/sedatives				
Require new insulin orders when patient is transitioned from parenteral to enteral nutrition				
Reduce sliding scale variation (or eliminate sliding scales)				
Minimize or eliminate pharmacist or nurse distraction during the medication fulfillment/administration process				
Use data/information from alerts and overrides to redesign standardized processes				
Coordinate meal and insulin times				

Checklist 2: Catheter-Associated Urinary Tract Infections Top 10 Checklist

Top 10 Evidence-Based Interventions				
Process Change	**In place**	**Not done**	**Will adopt**	**Notes** (Responsible & By When?)
Adopt insertion criteria				
Ensure sterile technique (including hand hygiene, soap and water perineal care prior to insertion, and appropriate-sized catheter) is used (i.e., through evaluating staff competency and performing observation audits)				
Incorporate daily review of line necessity into workflow, such as charge nurse rounds, electronic health care record prompt (e.g., take advantage of habits and patterns rather than create a new form)				
Do not change indwelling urinary catheters routinely				
Ensure appropriate care and maintenance—closed system, perineal hygiene done routinely, keep urine flowing (no kinks, bag lower than bladder), regular emptying, use of securement device				
Include RNs, MDs, nurse aids, PT, OT, transport, etc. in efforts to reduce CAUTI; they all have a role in care, maintenance and discontinuation of the catheter				
Engage emergency department and surgical services (and other invasive procedure areas where urinary catheters might be inserted) in adopting insertion criteria and insertion technique				
Use other tools, such as underpads that provide a quick-drying surface and wick moisture away, toileting schedule, and purposeful rounding (good alignment here with falls and HAPU prevention) to manage incontinence				
Involve patient and family so they understand the risks associated with a urinary catheter				
Establish CAUTI as a top priority by making CAUTI data transparent				

Checklist 3: Central Line-Associated Blood Stream Infections Top 10 Checklist

Top 10 Evidence-Based Interventions				
Process Change	**In place**	**Not done**	**Will adopt**	**Notes** (Responsible & By When?)
Implement insertion bundle: procedural pause, hand hygiene, aseptic technique for insertion and care, site selection of subclavian (preferred), internal jugular (acceptable) and avoidance of femoral vein in adults, maximal sterile precautions, skin prep with 2% chlorhexidine				
Implement "stop the line" approach to insertion bundle; if there is an observed violation of infection control practices (maximal sterile barrier precautions, break in sterile technique), line placement should stop and the violation corrected				
Implement insertion checklist to help with compliance and monitoring				
Incorporate daily review of line necessity into workflow, such as charge nurse rounds, electronic health care record prompt				
Adopt maintenance bundle of dressing changes (every 7 days for transparent) line changes, and IV fluid changes; incorporate into daily assessment and review. Can be part of charge nurse checklist along with the daily review of line necessity				
Use a chlorhexidine-impregnated sponge dressing				
Use 2% chlorhexidine-impregnated cloths for daily skin cleansing				
Do not routinely replace CVCs, PICCs, hemodialysis catheters or pulmonary artery catheters				
Use a sutureless securement device				
Use ultrasound guidance to place lines if this technology is available				

Checklist 4: Early Elective Deliveries Top 10 Checklist

Top 10 Evidence-Based Interventions				
Process Change	**In place**	**Not done**	**Will adopt**	**Notes** (Responsible & By When?)
Educate hospital governing board about the dangers of early elective delivery and the hospital's role in prevention				
Use prenatal classes as an opportunity to educate patients about the dangers of early elective delivery and the hospital's policy				
Find a physician willing to champion the effort to reduce early elective delivery. This physician does NOT have to be an obstetrician; a neonatologist or pediatrician can be very successful in this role				
When writing a hard-stop policy, have physicians and hospital leaders involved from the start				
Ensure the hard-stop policy is very prescriptive (stating the exact steps to be taken, and by whom, in the chain of command when an elective delivery is being scheduled that does not meet criteria determined by the medical staff)				
Use policies, scheduling forms, educational materials and data collection tools that are already created and available publicly from the March of Dimes or California Maternal Quality Care Collaborative				
Display data as concurrently as possible for all stakeholders				
Review all early elective deliveries in the past 12 months to determine if any were admitted to NICU; use those stories as motivation				
Pick one system for determining gestational age in hospital policy and stick to it; the "line in the sand" is key to success				
Do not get stuck in developing the policy by trying to be so prescriptive that any possible medical indication is mentioned. Let the policy allow for medical judgment and a rate of less than 3% as a goal instead of zero				

Checklist 5: Injuries from Falls and Immobility Top 10 Checklist

Top 10 Evidence-Based Interventions				
Process Change	**In place**	**Not done**	**Will adopt**	**Notes** (Responsible & By When?)
Conduct fall and injury risk assessment upon admission				
Reassess risk daily and with changes in patient condition				
Implement patient-specific intervention to prevent falls and injury				
Communicate risk across the team; use handoff forms, visual cues, huddles				
Round every 1 to 2 hours for high-risk patients; address needs (e.g., 3Ps: pain, potty, position-pressure). Combine with other tasks (vital signs)				
Individualize interventions. Use non-skid floor mats, hip protectors, individualized toileting schedule; adjust frequency of rounds				
Review medications (by pharmacist); avoid unnecessary hypnotics, sedatives				
Incorporate multidisciplinary input for falls prevention from PT, OT, MD, RN and PharmD				
Include patients, families and caregivers in efforts to prevent falls. Educate regarding fall prevention measures; stay with patient				
Hold post-fall huddles immediately after event; analyze how and why; implement change to prevent other falls				

Checklist 6: Hospital-Acquired Pressure Ulcers Top 10 Checklist

Top 10 Evidence-Based Interventions				
Process Change	**In place**	**Not done**	**Will adopt**	**Notes** (Responsible & By When?)
Implement head-to-toe skin evaluation and risk assessment tool; assess the skin and risks within 4 hours of admission; risk and skin assessment should be age appropriate				
Develop and implement an individualized plan of care based on skin and risk assessment				
Assess skin and risk at least daily and incorporate into other routine assessments				
Avoid skin wetness by protecting and moisturizing as needed; use underpads that provide a quick-drying surface and wick away moisture; use topical agents that hydrate the skin and form a moisture barrier to reduce skin damage				
Set specific time frames or create reminder systems to reposition patient, such as hourly or every- two-hours rounding with a purpose (the 3 P's: pain, potty, position-pressure). This aligns nicely with fall prevention				
Monitor weight, nutrition and hydration status; for high-risk patients, generate an automatic registered dietician consult.				
Use special beds, mattresses, and foam wedges to redistribute pressure (pillows should only be used for limbs)				
Cover operating room tables with special overlay mattresses for long cases (greater than 4 hours; some hospitals choose cases greater than 2 hours) and high-risk patients.				
Use breathable glide sheets and/or lifting devices to prevent shear and friction				
Involve licensed and unlicensed staff, i.e., RNs, LVNs and nurse aides, in HAPU reduction efforts such as rounding with a purpose				

Checklist 7: Preventable Readmissions Top 10 Checklist

Top 10 Evidence-Based Interventions				
Process Change	**In place**	**Not done**	**Will adopt**	**Notes** (Responsible & By When?)
Conduct enhanced admission assessment of discharge needs and begin discharge planning at admission				
Conduct formal risk of readmission assessment. Align interventions to patient's needs and risk stratification level				
Perform accurate medication reconciliation at admission, at any change in level of care and at discharge				
Provide patient education that is culturally sensitive, incorporates health literacy concepts and includes information on diagnosis and symptom management, medications and post-discharge care needs				
Identify primary caregiver, if not the patient, and include him/her in education and discharge planning				
Use teach-back to validate patient and caregiver's understanding				
Send discharge summary and after-hospital care plan to primary care provider within 24 to 48 hours of discharge				
Collaborate with post-acute care and community-based providers including skilled nursing facilities, rehabilitation facilities, long-term acute care hospitals, home care agencies, palliative care teams, hospice, medical homes, and pharmacists				
Before discharge, schedule follow-up medical appointments and post-discharge tests / labs. For patients without a primary care physician, work with health plans, Medicaid agencies and other safety-net programs to identify and link patient to a PCP				
Conduct post-discharge follow-up calls within 48 hours of discharge; reinforce components of after-hospital care plan using teach-back and identify any unmet needs, such as access to medication, transportation to follow-up appointments, etc.				

Checklist 8: Surgical Site Infections Top 10 Checklist

Top 10 Evidence-Based Interventions				
Process Change	**In place**	**Not done**	**Will adopt**	**Notes** (Responsible & By When?)
Develop and follow standardized order sets for each surgical procedure to include antibiotic name, timing of administration, weight-based dose, re-dosing (for longer procedures) and discontinuation				
Ensure preoperative skin antisepsis, such as basic soap and water shower; use chlorhexidine gluconate showers				
Develop standardized perioperative skin antiseptic practices utilizing the most appropriate skin antiseptic for the type of surgery performed				
Develop a standardized procedure to assure normothermia by warming ALL surgical patients				
Develop and implement protocol to optimize glucose control in ALL surgical patients				
Develop protocol to screen and/or decolonize selected patients with *Staphylococcus aureus*				
Adhere to established guidelines (e.g., HICPAC, AORN) to ensure basic aseptic technique (e.g., traffic control, attire) is adhered to uniformly				
Establish a culture of safety that provides an environment of open and safe communication among the surgical team				
Establish system so surgical site infection data is analyzed and shared				
Develop a protocol to provide guidance on blood transfusion practices, as a unit of packed red blood cells should be considered a transplant/immune modulator and has been linked to a higher risk of SSIs				

Checklist 9: Ventilator-Associated Pneumonias and Ventilator-Associated Events Top 10 Checklist

Top 10 Evidence-Based Interventions				
Process Change	**In place**	**Not done**	**Will adopt**	**Notes** (Responsible & By When?)
Include all elements of the bundle in charge nurse rounds and nurse-to-charge-nurse reports				
Multidisciplinary approach is key: RN and RT staff can work together to ensure bundle items such as HOB, SAT/SBT and oral care are done according to recommendations				
Elevate head of the bed to between 30–45 degrees (use visual cues, designate one person to check for HOB every one to two hours, involve family)				
Conduct routine oral care every 2 hours with antiseptic mouthwash and chlorhexidine 0.12% every 12 hours (create visual cues, partner with respiratory therapy in performing oral care by making it a joint RN and RT function). Make the above oral care part of the ventilator order set as an automatic order that requires the MD to actively exclude it				
Include peptic ulcer disease prophylaxis on ICU admission and ventilator order sets as an automatic order that requires the MD to actively exclude it				
Include venous thromboembolism (VTE) prophylaxis on ICU admission and ventilator order sets as an automatic order that would require the MD to actively exclude it				
Spontaneous awakening and breathing trials (SAT/SBT): designate one time of day for the SAT and SBT to be attempted				
Coordinate SAT and SBT to maximize weaning opportunities when patient sedation is minimal; coordinate between nursing and respiratory therapy to manage SAT and SBT; perform daily assessments of readiness to wean and extubate				
Include SAT and SBT in the nurse-to-nurse handoffs, nurse-to-charge-nurse reports, and charge-nurse-to-charge-nurse reports.				
Delirium management: sedation should be goal oriented; provide a daily reduction of removal of sedative support; administer sedation as ordered by the physician according to a scale such as the Richmond Agitation Sedation Scale				

Checklist 10: Venous Thromboembolisms Top 10 Checklist

Top 10 Evidence-Based Interventions				
Process Change	**In place**	**Not done**	**Will adopt**	**Notes** (Responsible & By When?)
Adopt a VTE risk assessment screening tool, such as the three-bucket tool from UCSD				
Assess every patient upon admission of his/her risk for VTE using the VTE risk assessment screening tool (instead of just for certain diagnoses or procedures)				
Adopt a standardized risk-linked menu of choices for prophylaxis				
Develop standard written order sets that link the risk assessment to the choice of prophylaxis				
Use protocols for dosing and monitoring when using unfractionated heparin				
Use pharmacists as key real-time decision support for protocols and when patients have contraindications to chemical intervention				
Make prophylaxis ordering an opt-out process instead of an opt-in				
Find the stories of patients who have fallen through the cracks and ended up with a hospital-acquired VTE/PE. Use these stories as motivation to make the assessment process "real"				
Give nurses the same tools you give doctors; doctors get a hard-stop CPOE process for ordering, so work with IT department to identify VTE at-risk patients in the EHR for risk assessments				
If assessments are not being done reliably, consider changing roles: physicians may do the assessment instead of nurses, pharmacists may do assessments through trigger tools, etc.				

Resources

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