

# A3 Content Guide

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12/05/19

## Purpose & Use

A3 thinking is a method to:

**Solve problems.** A3s are grounded in scientific thinking – cycles of empirical observation, hypothesis generation, and testing. The A3 template guides the problem owner through a systematic, structured thought process to diagnose and treat performance problems – analogous to completing a History & Physical with Assessment and Plan for a patient. A3s can be adapted for diverse settings, audiences and problems. A3s can address problems of varying scope – from small local improvements to major strategic initiatives.

**Develop problem solvers.** An A3 requires problem owners to “show their thinking.” An increasing number of organizations use dialog between a problem owner and his/her manager or mentor around an A3 as a means to develop individuals to solve problems in their work, and to capture organizational learning. A3 topics can be self-selected or assigned to problem owners as a development activity.

**Communicate, engage and build consensus.** As the problem owner shares the A3 with key stakeholders, he or she can incorporate the thinking of others, create a shared understanding, and build consensus on each section of the A3:

<b>Grasping the Situation</b> [ <i>left side</i> ]	<b>Countermeasures &amp; Implementation Plans</b> [ <i>right side</i> ]
<b>Background</b> or reason for action. <b>Current Situation</b> of problem to be solved, concluding with a <u>Problem Statement</u> identifying a performance gap to be closed. <b>Goal</b> of the improvement effort. <b>Analysis</b> to identify root causes of problem.	<b>Countermeasures</b> proposed to address causes. <b>Action Plan</b> for testing, implementation and monitoring if planned actions were performed. <b>Follow Up Plan</b> to assess if desired goals were achieved.

**Tell a story.** A3s are intended to tell a story. Use an effective combination of visual images and words to communicate. Space limits you to only highlights on the page, but you can expand when presenting. A3s can be handwritten or composed using software.

**Propose action.** This A3 template is designed to propose action. The problem owner acquires a thorough grasp of the situation and problem, designs a robust set of countermeasures and plans, and builds consensus needed to start the “Do” phase of the **P-D-C-A** (Plan-Do-Check-Adjust) cycle.

## Sections of the A3

The content of an A3 is organized to help readers follow the logic flow. The top of the page has headings introducing the overall topic and who is involved. The left side generally addresses what the A3’s author has observed (Background, Current Situation ending with a Problem Statement, and Analysis). The right side generally describes what the author wants to try out (Countermeasures, Action Plan, and Follow Up).

**Header:** Orientation information:

**Title:** The topic of the A3, described in a way that clearly identifies the problem to be addressed.

**Owner:** The name of the A3 owner/author who is investigating the problem – the “problem solver.” The owner may also list team members, sponsors, coaches and anticipated reviewers.

**Date:** The date of the draft to assure version control. Multiple revision dates are likely as the problem owner learns more about the problem, incorporates ideas of others and demonstrates the iterations of his/her thinking.

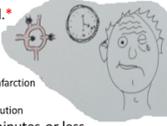
**Background:** Summarize the reason for action---the clinical and/or business case for change. This section should communicate the significance of the problem by describing its serious consequences: who is impacted, how severely, and how frequently. Tell the “ugly story” of how the problem harms patients/customers, frustrates workers, or wastes resources. Highlight relevant historical and organizational context. Keep the customer perspective in mind. Consider using pictures as well as words to tell a compelling story. Simple, hand-drawn illustrations can be powerful.

**Background**      **“Time is Brain”**

- Clinical outcomes in Acute Ischemic Stroke are better the more rapidly IV thrombolysis (tPA) is administered.\*
- Each 15 minute reduction in the time to initiate tPA is associated with a:
  - 4% decrease in the odds of death before discharge
  - 4% decrease in the odds of symptomatic hemorrhagic transformation of infarction
  - 4% increase in the odds of walking independently at discharge
  - 3% increase in the odds of being discharged home, rather than to an institution
- Our “Door-to-Needle” time standard in the ED is 60 minutes or less.
- Despite multiple revisions to our ED stroke protocol, we only meet the 60-minute target about half of the time.

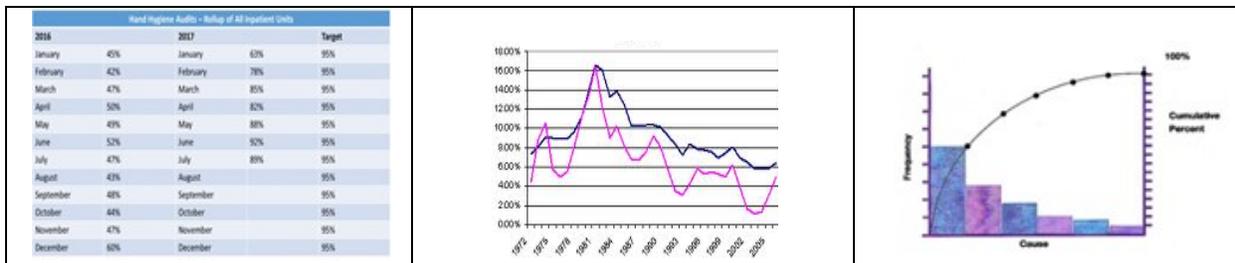
[Target was met in 44 out of 90 cases presenting to the ED in Q4 2018]

\* Saver JL, Fonarow GC, Smith EE, et al. Time to treatment with intravenous tissue plasminogen activator and outcome from acute ischemic stroke. JAMA 2013; 309(23):2480-2488

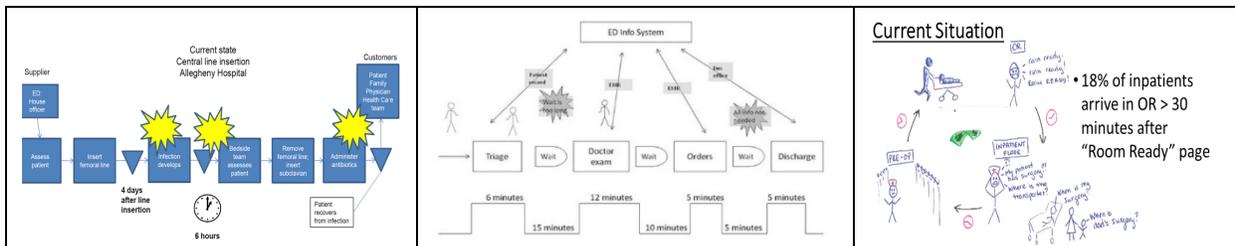


**Current Situation:** Accurately depict the:

- Current level of performance



- Process current doing the work



Ideally, both can be visually illustrated, e.g., baseline measures, trend chart, process map or value stream map of current state. Again, simple hand-drawn illustrations can be effective.

To deeply understand the current situation, “Go and See” to observe firsthand the problem and its context. (A “Go See” takes place at the *gemba*, a Japanese term meaning the real place where the work is done). Talk to and engage people working in the process. They are best positioned to understand the issues, the constraints, and feasible solutions.

Focus on “Five Actuals”: 1) what is actually happening; 2) actual individuals involved in performing the work; 3) actual location where the problem occurs; 4) the actual process; and 5) the actual conditions.

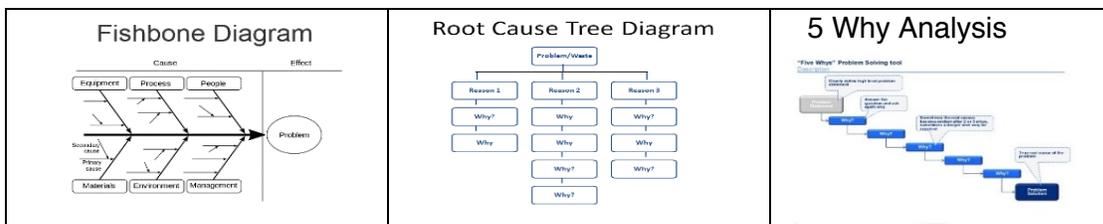
**Problem Statement:** Conclude the section on Current State with a clear sentence describing the specific gap in performance. A performance gap is the difference between what should be happening and what is actually happening, that is, standard v. actual. The gap can be in any dimension of performance: Safety, Quality, Patient Experience, Timeliness/Efficiency, Equity, Value, Financial Performance, Employee Engagement, or others.

The Problem Statement should describe the gap in measurable terms (e.g., callbacks to patients should occur within one working day; only 44% currently meet the standard), not in vague or general terms (callbacks to patients take too long).

**Goal:** Establish the target condition or specific performance improvement to be achieved in a set timeframe. "How much of the gap do you want to close, by when?" The A3 may establish an interim goal (a "next target condition") that is part way to a longer-term goal, or ideal state, requiring a longer time horizon to achieve. Think in terms of setting SMART goals: Specific, Measurable, Achievable, Relevant, and Time-bound.

**Analysis:** Explain causation. Identify contributors to the problem, significant root causes and constraints. The core of A3 problem-solving is to delve beyond symptoms to an actionable root cause or causes. In a complex system, a problem may have multiple root causes – a "web of causation". Multiple causes may need to be addressed for the problem solving to succeed.

Observe the problem at the point of cause and gather relevant facts and data. Then complete the Analysis section of the A3. Depict root causes, ideally with visuals, e.g., fishbone diagram, tree diagram, "5 Whys" analysis, or Pareto chart. Caution: be careful to describe what is observable: "absence or lack of" a potential countermeasure, such as training, standard work or an IT system, are not root causes.

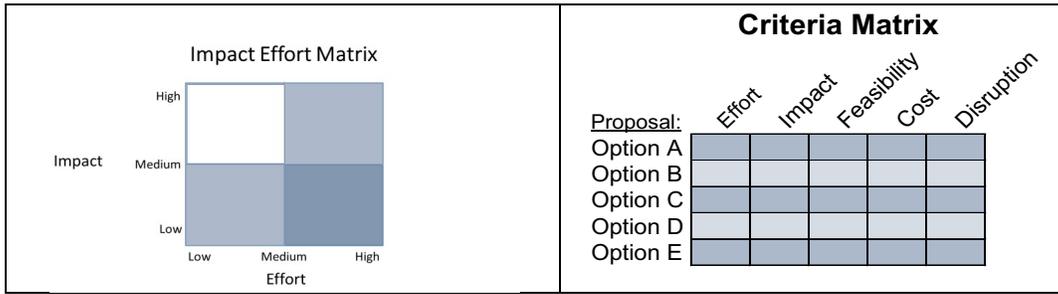


**Countermeasures:** Consider, prioritize and propose countermeasures. The term countermeasures is preferred to "solutions", since it is rarely possible to solve a problem permanently and completely. The countermeasures serve as a prescription for improvement. If the Analysis section of the A3 is thorough, the countermeasures should be readily apparent.

Recommendations should go beyond "weak" countermeasures (such as policy changes, reliance on human memory or education/training), to more effective interventions (such as standard work/roles, just-in-time reminders, redesigning forms and visual/ cognitive aids). If possible, include strong countermeasures such as work system changes, changes in the environment, and physically "error proofing" processes. When strong countermeasures are not feasible, select a set of countermeasures that together are likely to achieve the desired result.

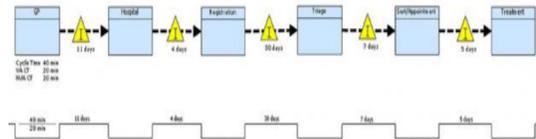
The content of this section should describe:

- Direct linkage of countermeasures to identified root causes
- Evidence of having evaluated multiple options (including ones that don't need new resources); this may take the form of an impact/effort matrix or criteria matrix



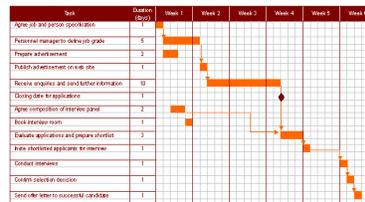
- Simple experiments that can be run to trial the countermeasures
- Prediction of the outcome of the countermeasure

Consider including a future state map as an illustration of what will happen when the proposed improvement is in place



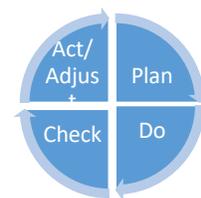
**Action Plan:** The Action Plan describes the D (Do) in the PDCA cycle. Detail the activities required for pilot testing and implementation. List tasks, responsible leads and due dates. Plans should be run like experiments to reveal what is not understood about the work. The plan may be shown in a simple table or a schedule of linked tasks in a Gantt Chart.

What	Who	By When
1) ~~~~	JB	6/1/19
2) ~~~~	LD	6/15/19
3) ~~~~	BG	8/15/19



A related “monitoring plan” should describe the process (monitoring tasks, responsible leads, due dates) for monitoring whether “action items” are performed. *Did we run the experiment?* Often desired results are not achieved because no one monitors whether the Action Plan is implemented.

**Follow Up:** Outline a plan for checking whether the desired results have been achieved: *Did we get the results we were anticipating?* This is the C (Check) in the PDCA cycle.



Like Action Plans, Follow Up Plans should outline the follow-up methods:

- What will be checked (e.g., process, outcome, balancing measures).
- Who will perform the check(s).
- When the check(s) will occur.

The Follow Up section may also be used to identify unresolved issues known at the time of planning and to describe plans for sustaining results and spreading learning, as appropriate. Although testing of countermeasures and implementation actions will not yet have occurred, consider in advance how you will know whether planned activities actually happened, the change is an improvement, and the goal has been achieved.

# Resources on A3s and Problem Solving

## Books

- Cindy Jimmerson, *A3 Problem Solving for Healthcare: A Practical Method for Eliminating Waste*, CRC Press, 2007. (Practical guide written specifically for healthcare)
- John Shook, *Managing to Learn: Using the A3 Management Process to Solve Problems, Gain Agreement, Mentor, and Lead*, Lean Enterprise Institute, 2008. (Description of how A3s may be used as a management process to foster individual and organizational learning)
- Art Smalley. *The Four Types of Problems*, Lean Enterprise Institute, 2018. (Description of 4 main categories of problems, and how to approach each: trouble shooting, gap from standard; target condition and open ended/innovation).
- Derek K. Sobek III and Art Smalley, *Understanding A3 Thinking*, CRC Press, 2008. (Detailed guide on writing and reviewing A3s of various types, including templates, examples and practical advice)

## Chapters and Articles

- Jeffrey K. Liker and David Meier, *The Toyota Way Fieldbook: A Practical Guide for Implementing Toyota's 4 Ps*, Chapter 18, "Telling the Story Using an A3 Report", McGraw-Hill, 2006.
- Mark Graban, *Lean Hospitals*, Chapter 7, "Proactive Root Cause Problem Solving", CRC Press, 2012.
- Roberto Priolo, "What is A3 Thinking?" Planet Lean: The Lean Global Network Journal. March 2, 2020. <https://planet-lean.com/what-is-a3-thinking/>

## A3 Training Opportunities

- Lean Enterprise Institute, <https://www.lean.org/>
- Catalysis, <https://createvalue.org/>
- University of Michigan College of Engineering ISD, <http://isd.engin.umich.edu/>

## Web Resources - Quality Improvement Tools

All of the tools included in the A3 content guide are further explained, with examples and templates provided, at one or more of these websites:

- ASQ (American Society for Quality). *The Seven Basic Quality Tools for Process Improvement*: <http://asq.org/learn-about-quality/seven-basic-quality-tools/overview/overview.html>
- Institute for Healthcare Improvement. *IHI Quality Improvement Essential Toolkit*: <http://www.ihl.org/resources/Pages/Tools/Quality-Improvement-Essentials-Toolkit.aspx>
- Minnesota Department of Health. *Public Health and Quality Improvement Resources and Tools*: <http://www.health.state.mn.us/divs/opi/qi/toolbox/>