



**U.S. Department of Health and Human Services
Centers for Medicare & Medicaid Services
Center for Medicare and Medicaid Innovation
Learning and Diffusion Group**

**Defining and Using
Aims and Drivers for Improvement**

A How-to Guide

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Overview

Are you working to improve health and health care through specific interventions? Whether you are partnering with the Centers for Medicare & Medicaid Services (CMS) to provide better health and better health care for Medicare, Medicaid, and Children's Health Insurance Program (CHIP) beneficiaries or are working independently to improve the services your organization provides, there are hundreds of things to do to get your project started. Where do you begin?

The tools and methods of process improvement - sometimes referred to as quality improvement (QI), or continuous quality improvement (CQI) - suggest that you can increase your odds of program success through an early definition of your project's **aim** (also called a goal or objective) and early agreement on your team's¹ theory about what changes are necessary to achieve that aim. The factors or components of a system² that influence the achievement of the aim are called "**drivers.**"

While there are many ways to depict a theory of change, one type of model that is particularly useful for working toward a specific aim is called a "**driver diagram.**" A driver diagram depicts the relationship between the aim, the primary drivers that contribute directly to achieving the aim, and the secondary drivers that are necessary to achieve the primary drivers.

Clearly defining an aim and its drivers enables a team to have a shared view of the theory of change in a system. A driver diagram represents the team members' current theories of "cause and effect" in the system – what changes will likely cause the desired effects. It sets the stage for defining the "how" elements of a project – the specific changes or interventions that will lead to the desired outcome.

Creating a driver diagram is most useful in the initial planning of a performance improvement project or initiative, and serves as a tool that should be updated regularly as the team refines the theories of improvement. It also helps in defining which aspects of the system should be measured and monitored, to see if the changes/interventions are effective, and if the underlying causal theories are correct. Aims and driver

¹ Whether your team has two or 20 members, we refer to the group of individuals who have shared accountability for the success of your endeavor as your "team" in this document. Most of the QI tools we introduce here are "team tools," meaning that they are most effective when used collaboratively by a team. Using these tools early in your program can help build your team's confidence and skills in working together.

² "System" here means all of the various interrelated components that through their interactions produce the output that is being improved.

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diagrams assist teams in staying focused and on course when they are used as regular references for the improvement work.

Why identify an aim and drivers?

Defined aims and drivers can:

- Reinforce the desired project outcome, or aim
- Define the key leverage points, or “drivers,” in the system
- Link the specific project activities and changes (the “Hows”) to key components in the system
- Help define how project progress and results should be measured and monitored
- Facilitate stakeholder buy-in and commitment to the changes that the project will require
- Provide a simple tool for explaining the project’s purpose and showing how the project activities will deliver that aim

What is an aim?

An aim is a clearly articulated goal or objective of the work. It describes the desired outcome, and often includes sub-aims. An aim should be specific, measurable, and time-bound, and should answer the question “How much improvement, to what, for whom, and by when?”

The statement, “I will become healthier by losing weight,” is not a well-stated aim, as it does not provide a timeframe, and is not measurable in the sense that it does not state the point at which success will be achieved. A better example of an aim would be: “I will reduce my body mass index (BMI) to 28 or lower by December 31.” The aim specifies what will happen, for whom, by when, and is measurable (how much) and succinct.

Another well-stated aim comes from the Partnership for Patients Initiative³: By the end of 2013, to decrease preventable hospital-acquired conditions by 40% compared to 2010.

For participants in the Center for Medicare and Medicaid Innovation (Innovation Center) initiatives, achieving your aim should lead to better health for your population, better health care for individuals, and reduced Medicare, Medicaid, or CHIP costs through improvement. An example aim that includes health, care, and costs is:

³ <http://www.healthcare.gov/compare/partnership-for-patients>

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By 12/31/12, for adult diabetic patients at the endocrinology clinic:

- Increase the number patients receiving appropriate diabetes care from 80% to 95%
- Decrease from 15% to 12% the percent of high risk patients with a hemoglobin A1c level greater than 9%
- Reduce costs through standardization by 5%

Here's another example:

Aim: Eliminate all elective (non-medically indicated) deliveries before 39 weeks of gestation at Hospital X by January 1, 2014.

Sub-aim: Decrease number of infants that need care in the neonatal intensive care unit utilization and associated costs by 10%.

TIP When determining a threshold or measurement for an aim, a team must decide how ambitious it should be. While there is no correct answer, here are some guidelines: An aim should be bold (a "stretch" if achieved), yet attainable. It should create a focus and sense of urgency within an organization, but should always be realistic, based on what the evidence suggests is possible. Do not set an aim that everyone on the teams knows is impossible.

What are drivers?

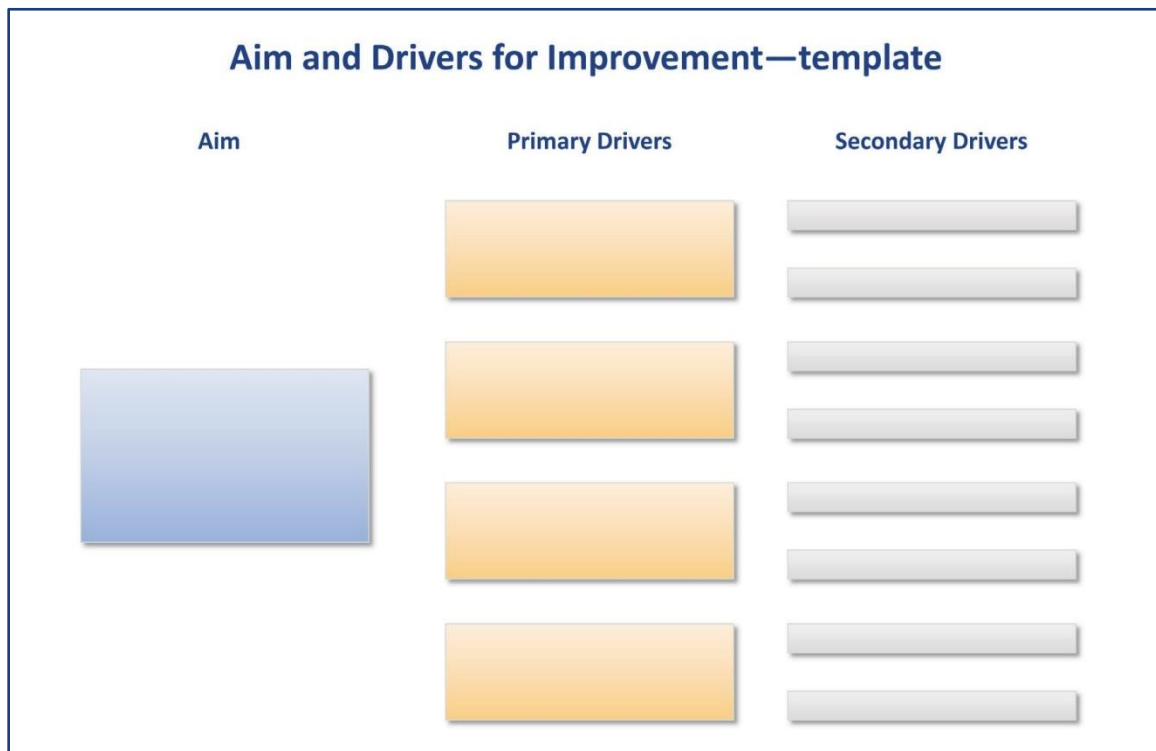
The primary drivers, sometimes referred to as "key drivers," are system components or factors which contribute directly to achieving the aim. Secondary drivers are actions, interventions, or lower-level components necessary to achieve the primary drivers. Secondary drivers should be used to identify changes that can be tested in order to affect the primary drivers. Each driver should be able to be measured, and most drivers should align with specific process measures.

One way to organize and display drivers is through creating a driver diagram. A driver diagram should indicate the causal relationship between the secondary drivers, primary drivers, and the aim. A template for a driver diagram is below:

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Aim and Drivers for Improvement—template



TIP There is no “correct” way of drawing a driver diagram, and there is no set number of primary or secondary drivers that should be included. Additionally, it is not important where the aim is located on the driver diagram (right or left of the page, top or bottom). The important part is the content, and that the depiction clearly shows the causal relationship between the primary drivers, secondary drivers, and aim.

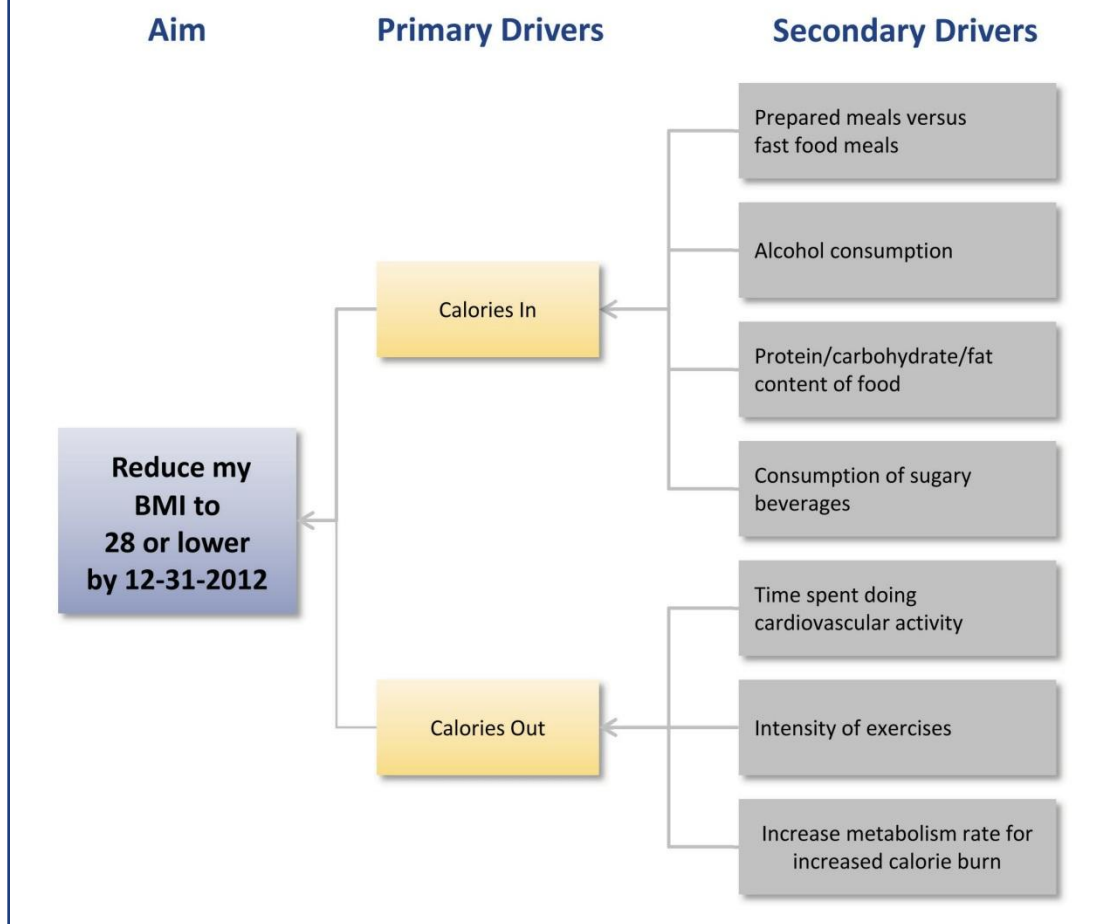
TIP A driver diagram also involves a prediction. It predicts that the changes made to a system will lead to progress toward the aim.

Continuing with the weight loss example, two primary drivers that would lead to a reduction in the BMI of an adult are “calories in” and “calories out.” Secondary drivers that affect “calories in” could include home-prepared meals versus fast food, alcohol consumption, protein/carbohydrate/fat content of food, consumption of sugary beverages, etc. Secondary drivers that affect “calories out” could include time spent doing cardiovascular activity, intensity of exercises, increased metabolism rate, etc. A driver diagram depicting this aim and its drivers is shown below:

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Aim and Drivers for Improvement – Weight Loss



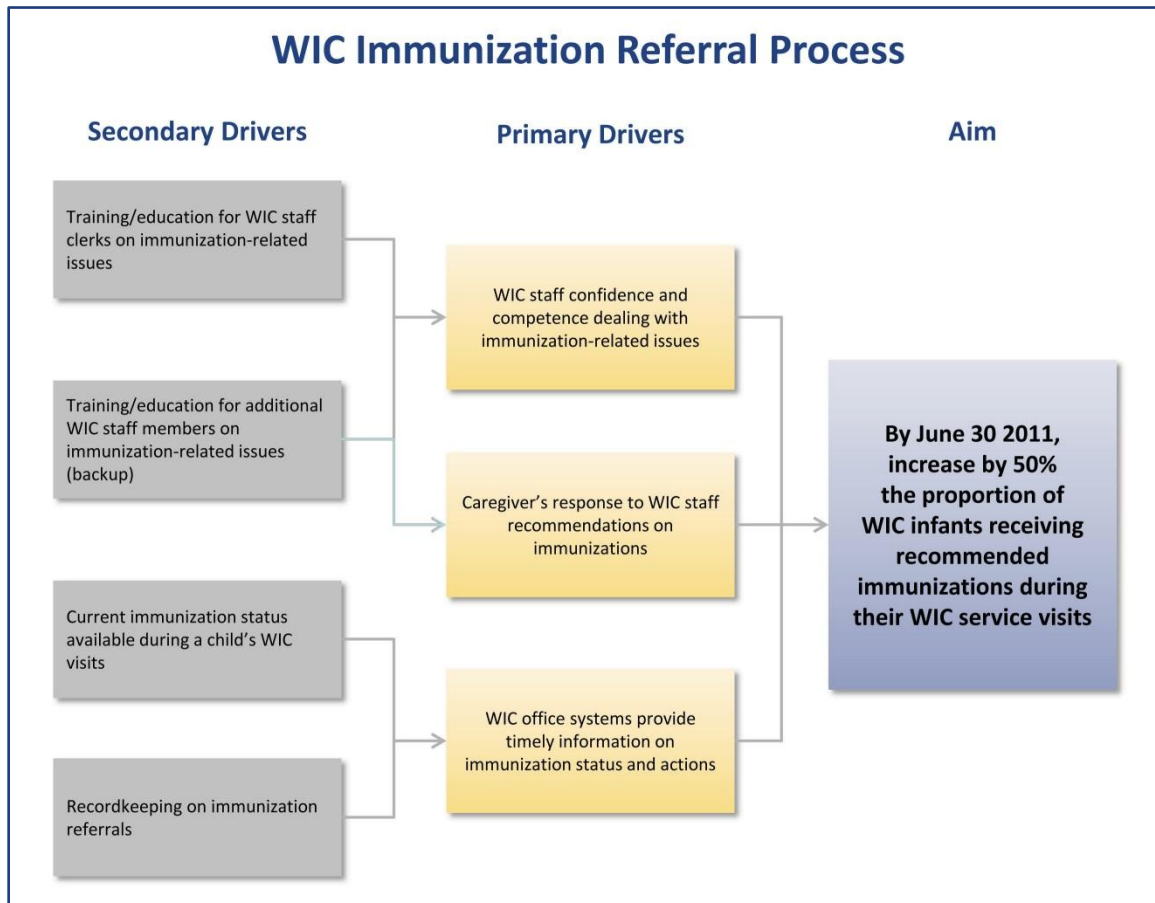
The following chart is another way to depict the same aim and drivers:

AIM	Primary Drivers	Secondary Drivers
Reduce my BMI to 28 or lower by December 31	Calories in	Prepared meals versus fast food
		Alcohol Consumption
		Protein/carbohydrate/fat content
		Consumption of sugary beverages
	Calories out	Time spent doing cardiovascular activity
		Intensity of exercises
		Increase metabolism rate
Causality		

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Another example of a driver diagram is shown below. This diagram shows a public health department's program aim and key drivers for more effectively using Women, Infants and Children (WIC) service visits to deliver recommended immunizations for WIC children and infants.



Note that this driver diagram has the aim on the right and drivers on the left and that some secondary drivers are linked to more than one primary driver.

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Suggested Steps for Creating a Driver Diagram:

1. Agree on the project “aim” (what will be improved, by how much, for whom, by when).
2. Brainstorm all of the system elements, or drivers, that team members feel are necessary to achieve the aim or are likely to affect it. Don’t worry about whether drivers are “primary” or “secondary” at this point.
3. Logically group the drivers, and define high-level “headers” that summarize the groups. The headers will be the primary drivers. The grouped items will be the secondary drivers associated with each primary driver.⁴
4. Check the drivers for duplicates, clarity, missing elements, and team consensus.
5. You can now draw connecting arrows showing the cause-and-effect relationships (if secondary drivers have multiple arrows to more than one primary driver, then the grouping may need to be adjusted; most secondary drivers should align under one primary driver each).
6. You are now ready to define the interventions or strategies (the “hows”) that you will use to have an impact on the various drivers.
7. You can also define project measures for tracking progress, to test and modify your theories for improvement, and to monitor for overall project effectiveness.

TIP Often, when causes or levers in a system are well known, it is easier to first identify the primary drivers, and then identify the secondary drivers that are key elements of each primary driver. When the drivers are less defined and the approach is more innovative, brainstorming often works well to help define the drivers

TIP Involving others in creating and reviewing your driver diagram can help to gain their buy-in. They may also have valuable insights that you’ll want to incorporate.

⁴ For more information on brainstorming and grouping ideas, see: <http://www.hrsa.gov/quality/toolbox/methodology/developingandimplementingagiplan/part2.html>; <http://asq.org/learn-about-quality/idea-creation-tools/overview/overview.html>; or The Public Health Memory Jogger II, GOAL/QPC and the Public Health Foundation, GOAL/QPC 2007

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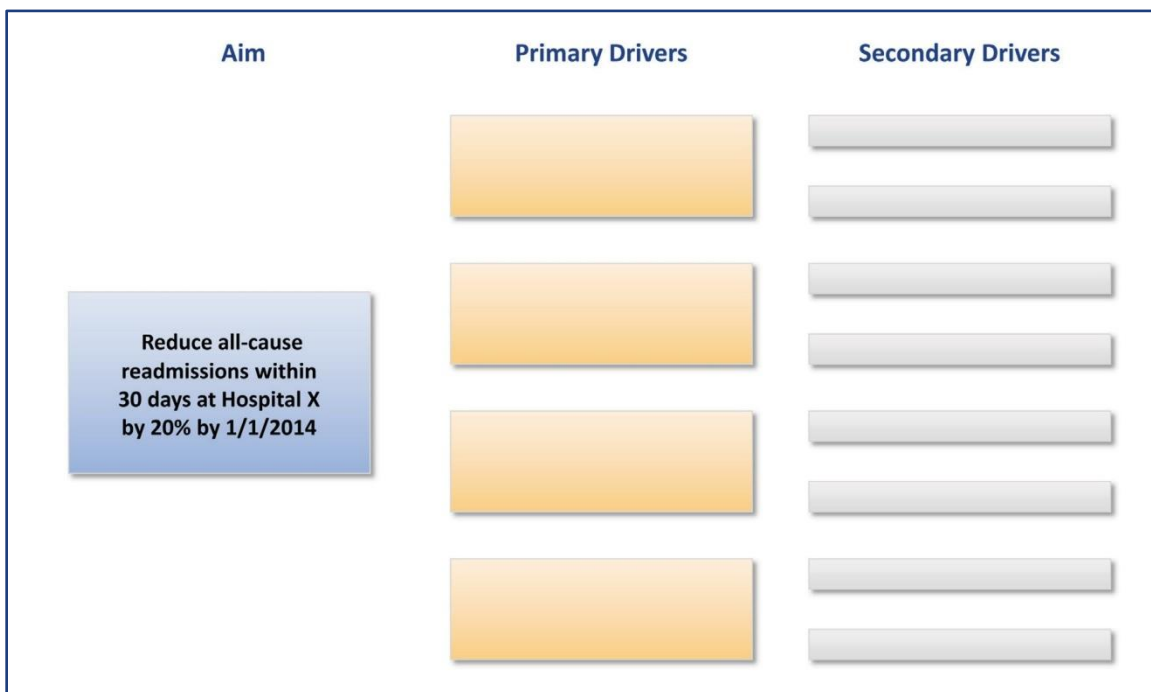
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Building a Driver Diagram – an Illustration

Here's a demonstration of creating a driver diagram using the Suggested Steps. We'll use an example of a hospital seeking to reduce readmissions.

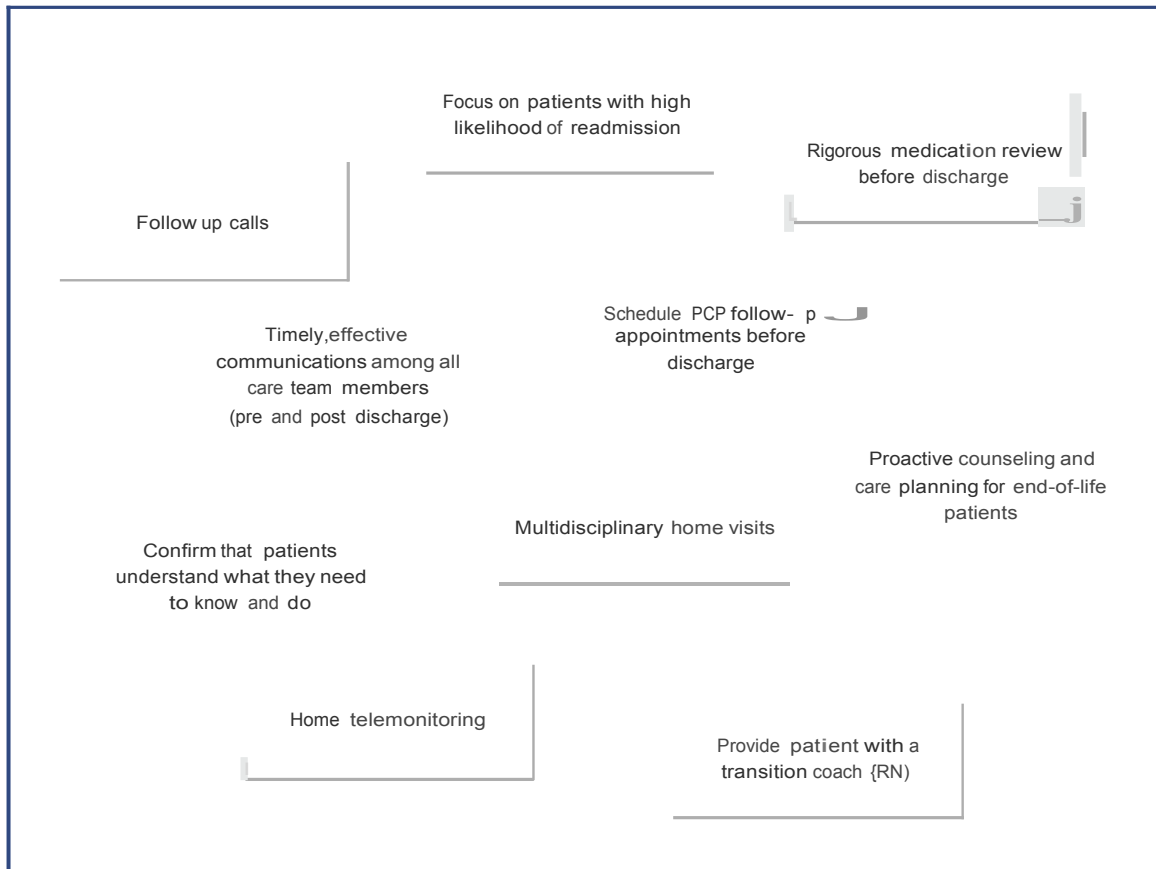
Step 1: Agree on the program "Aim."



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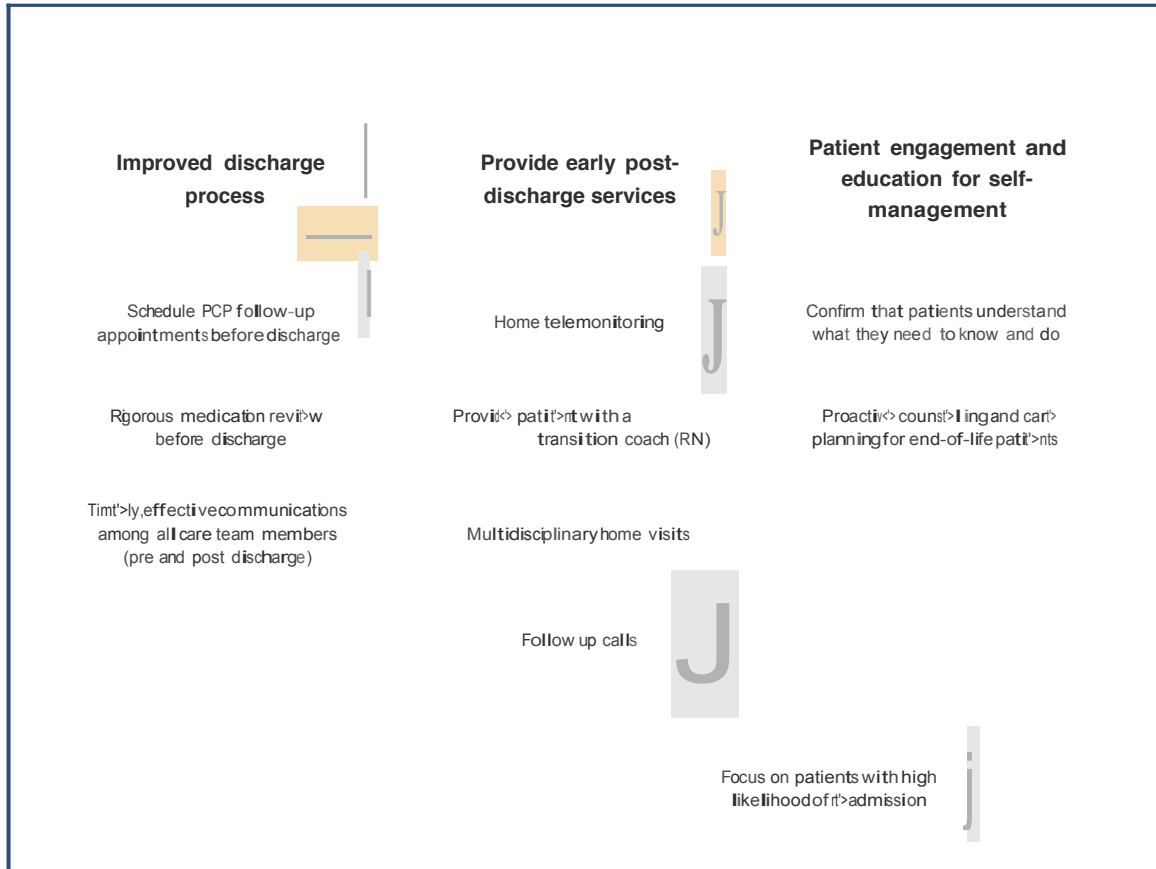
Step 2: Brainstorm a list of the system elements, or drivers.



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Step 3: Logically group the drivers, and define high-level "headers" that summarize the groups.



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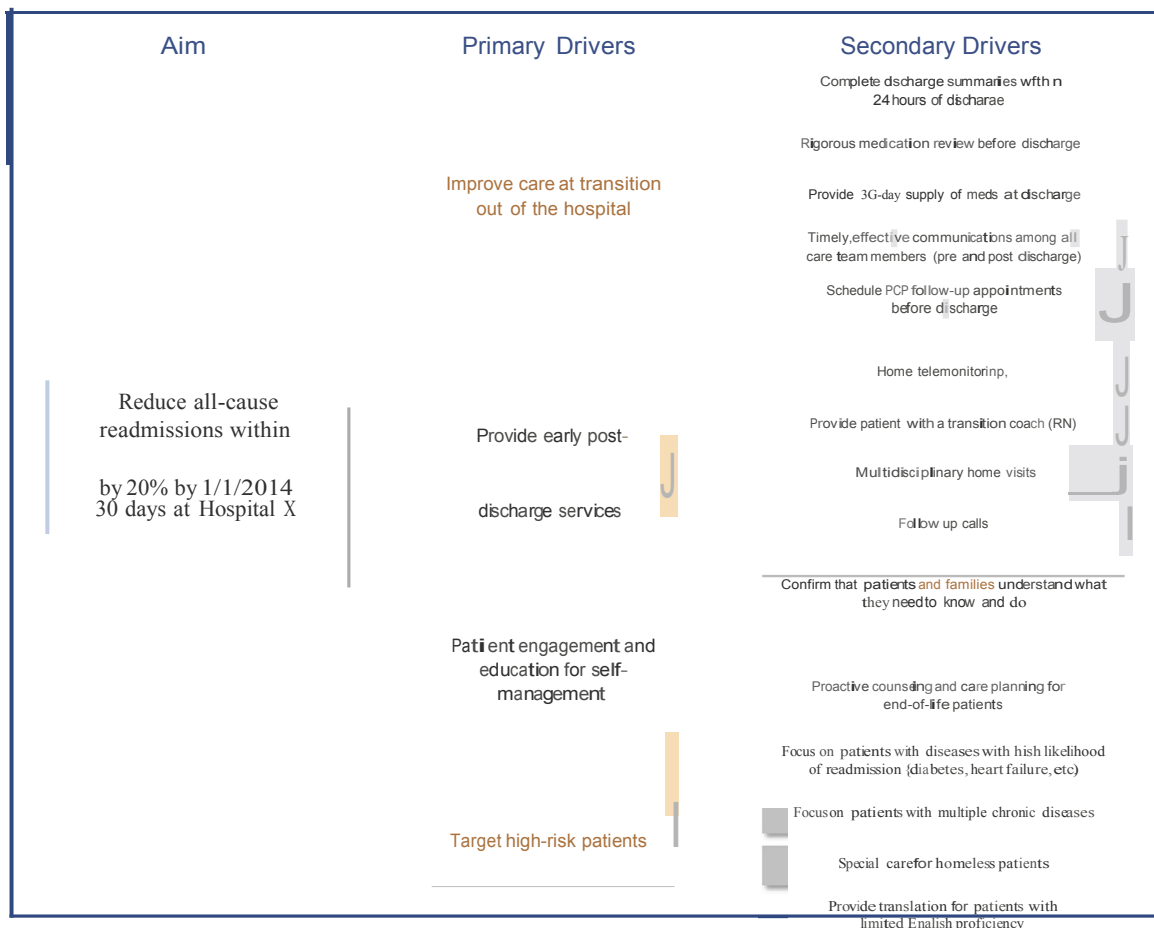
Step 3 continued: The "headers" become the primary drivers in the driver diagram, and the grouped items are now the secondary drivers.



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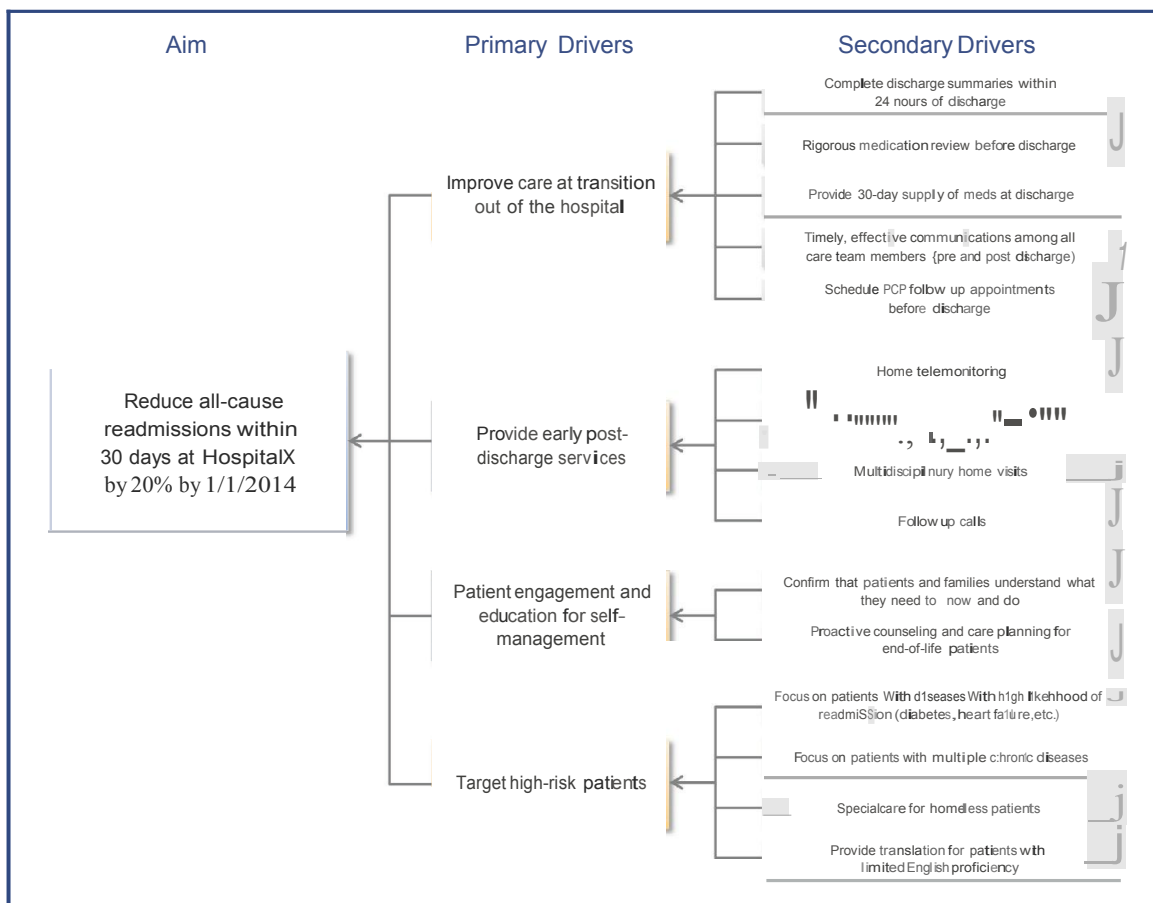
Step 4: Check the drivers for duplicates, clarity, missing elements, and team consensus (corrections and additions highlighted below).



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Step 5: Draw connecting arrows showing the cause-and-effect relationships.

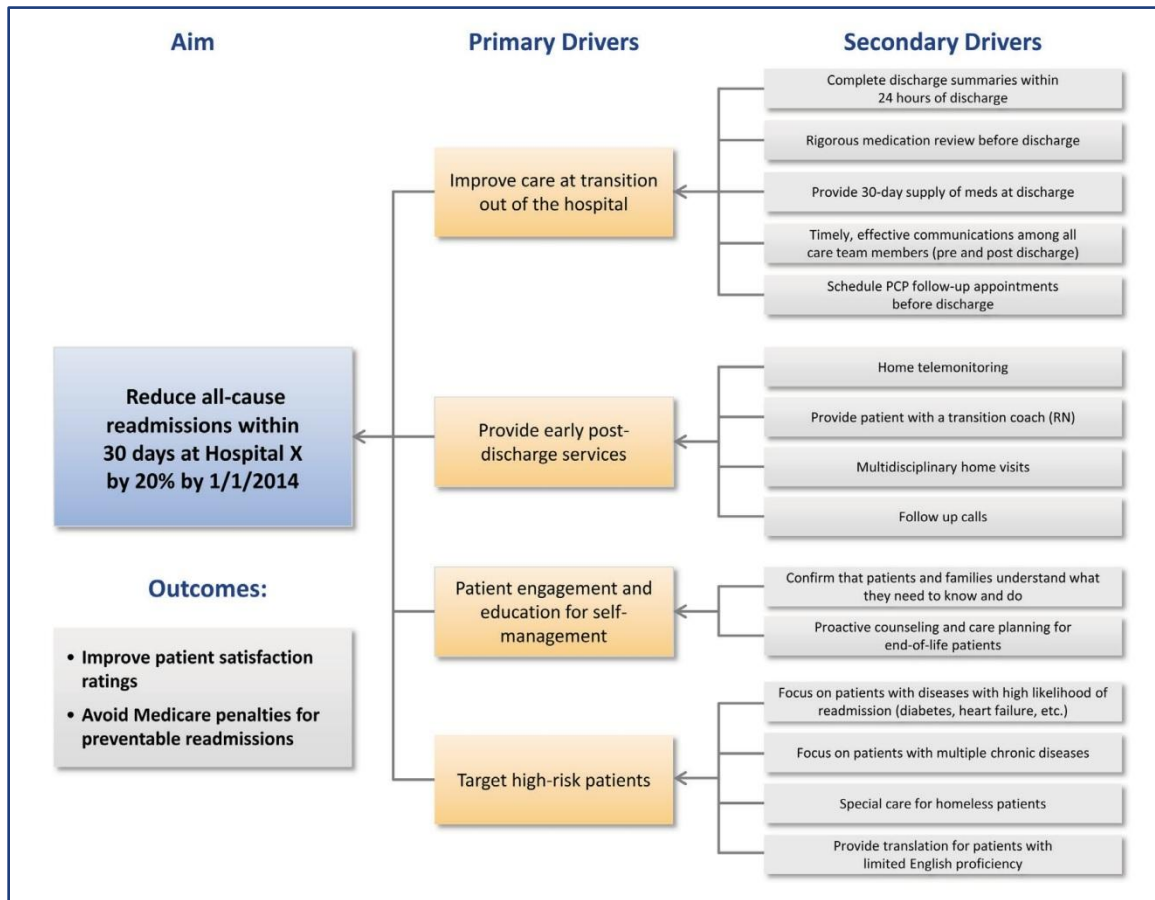


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Steps 6 and 7:

The secondary drivers of this driver diagram already suggest what the interventions will be so details of the interventions are not shown here. Furthermore, process measures relating to the drivers are not shown here, though a small set of outcome measures is provided.

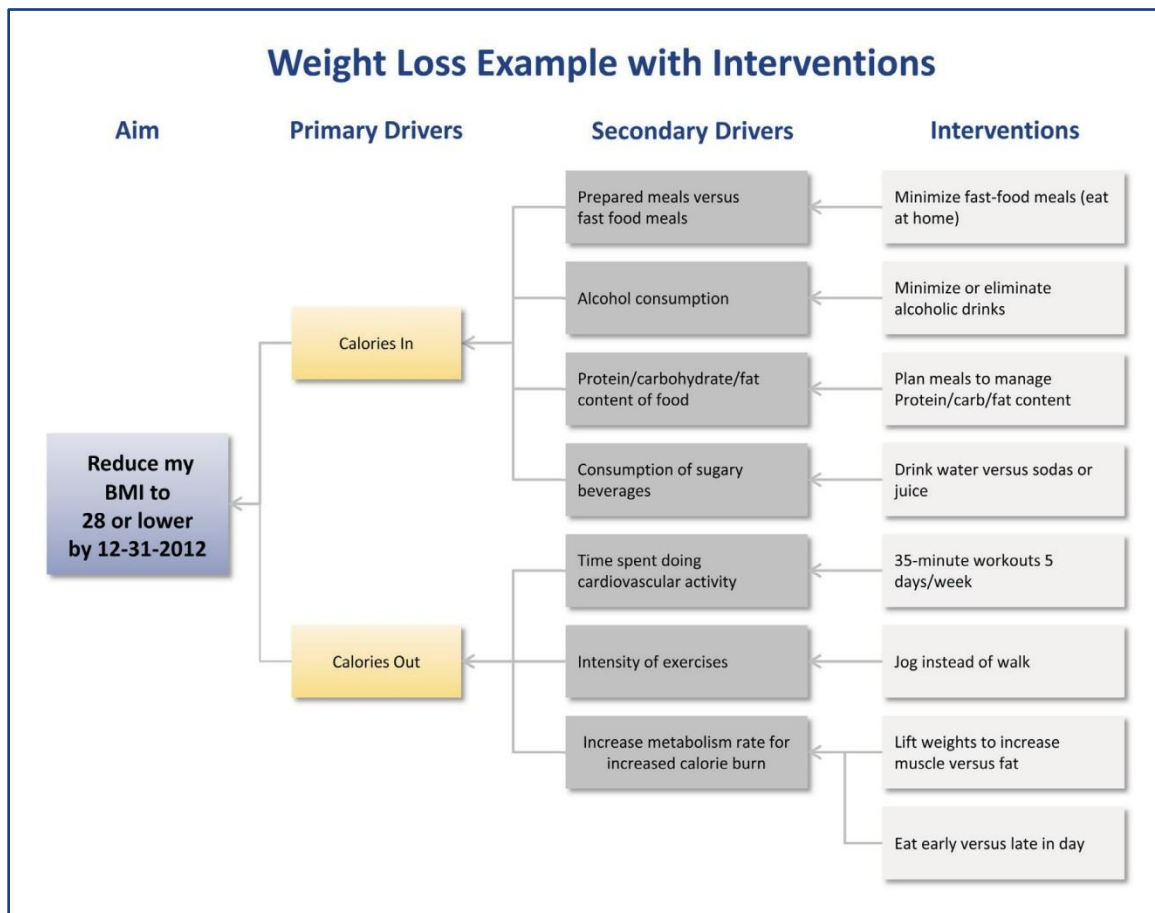


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For another illustration of Steps 6 and 7, let's revisit our weight loss example.

Recall that in Step 6 you identify the interventions and change ideas that you will implement to influence the secondary and primary drivers. In our weight loss driver diagram, we have added a fourth column that shows our list of proposed interventions:



Interventions can be:

- best-practice approaches that have already been developed and tested by others (“change packages”)
- corrective actions to address gaps or shortfalls in approaches that you have previously tried
- ideas that leverage new technologies, such as IT systems
- approaches using proven process improvement concepts, such as waste elimination, workflow improvements, and variation reduction

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- creative approaches to making changes in the system

Finally, in Step 7, you define measurements or metrics that you will use to assess the impact of the various parts of your plan over time. If a specific change or combination of changes doesn't have the desired impact (or perhaps makes things worse), this can be evidence that aspects of your underlying theory or assumptions may be wrong. You can then:

- review and modify your assumptions, based on your learning
- modify existing tests or devise new ones and
- evaluate the results of new or revised tests for the desired effect(s).

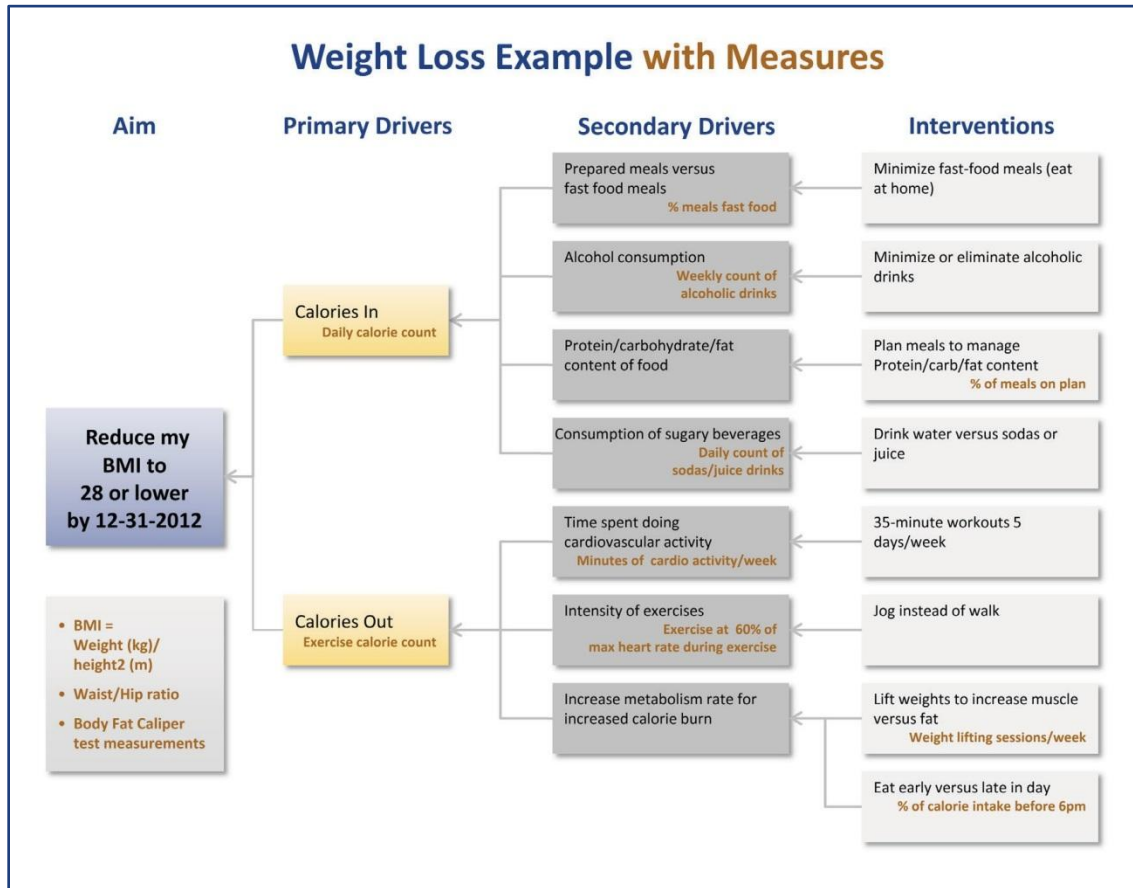
This sequence of actions is consistent with the "Plan, Do, Study, and Act" (PDSA) cycle for managing improvements. Using the PDSA cycle, your project becomes a series of small sequential trials or experiments, in which you are rapidly testing and then refining your ideas for how to achieve the desired outcomes. A PDSA approach to project execution requires a set of process measurements that provide you with timely and accurate information on the impact of your plan.⁵

Measures have been attached to our weight reduction example below, in the orange text:

⁵ For more information on the PDSA Cycle, see: <http://www.apiweb.org>; <http://www.hrsa.gov/quality/toolbox/methodology/testingforimprovement/part2.html>; or Langley et al, The Improvement Guide - a practical approach to enhancing organizational performance, Jossey-Bass, 2009

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Note that some measurements monitor results at the aim, primary driver, and secondary driver levels, while some are more appropriate for monitoring specific interventions.

TIP Driver Diagrams are “living” documents. They can and should be modified as you test your theories of improvement and learn what drivers and interventions are important for achieving your desired results.

TIP Take advantage of opportunities to learn from others working on the same, similar, or related topics (e.g., if participating in an Innovation Center initiative, the other participants will be valuable resources). They may have different theories and regarding what will best drive the desired improvements.

TIP Measurement is critical to any improvement or redesign project since all improvement requires change, but not all change is an improvement.

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References/Resources

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ASQ *idea creation tools*. Retrieved from <http://asq.org/learn-about-quality/idea-creation-tools/overview/overview.html>

If you are a participant in an Innovation Center initiative and you have questions about creating and using a Driver Diagram, you may contact your Project Officer, who can connect you with the appropriate resources.

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