Quality Data Training

November 11-14, 2025

Iloilo City, Iloilo, Philippines

Day 2

Community Garden

Community Agreement

- Be Present
- Actively Participate
- Ask Questions (Be Courageous)
- Step Up & Step Back
- Maintain a Growth Mindset
- Manage Your Technology (cellular phones, tablets, laptops)

Agenda

Data Mapping & Data Mapping Activity

Break

Debrief: Data Mapping

Causal Analysis

Lunch

Fishbone Diagrams & Diagramming Activity

Prioritization & Dot Voting Activity

Closing and Evaluation

Improvement Action Plans Reminder

Teams will develop an action plans to better use data to make improvements and improve communicate with stakeholders.

The plans might involve better understanding and addressing any of the following:

- Data quality and analysis challenges
- Data collection and reporting challenges
- Health care systems barriers
- Patient & population barriers
- QI Teams and activities
- Communications with stakeholders

Data Quality & Analysis

Data Collection & Reporting

Health Care Systems

Patients & Populations

QI Team & Activities

Stakeholder Communication

Questions

Data Mapping

Lecture

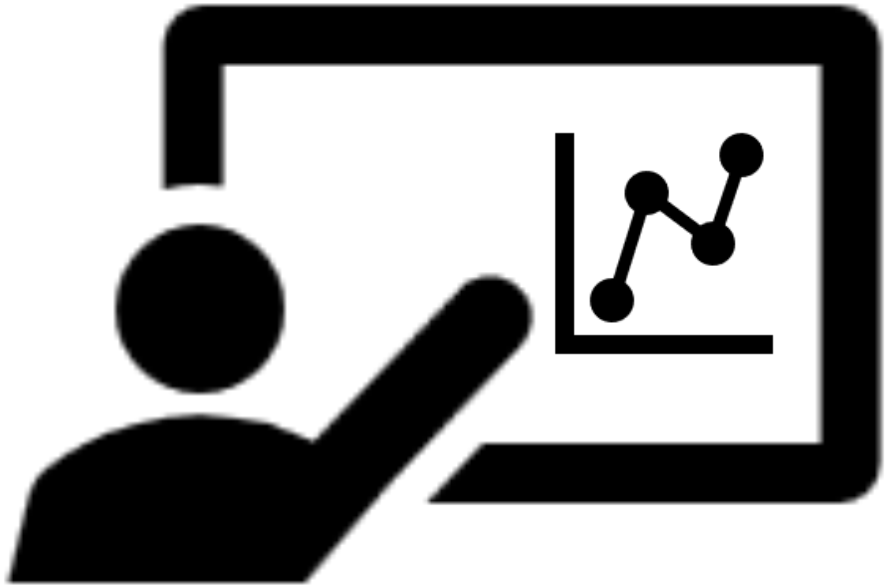
Low Performance on Key Indicator

Investigate to Understand and Address Issue

- Data Quality & Analysis
- Data Collection & Reporting
- Health Care Systems
- Patients & Populations
- QI Team & Activities
- Stakeholder Communication

Confidence in Data Reports

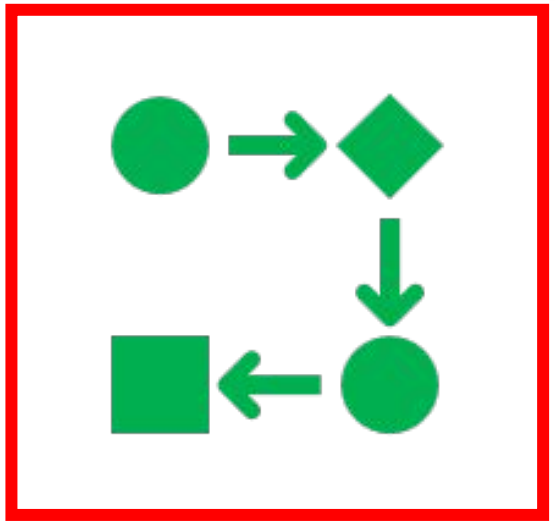
That doesn't look right, I think there is a mistake somewhere – our report didn't look like this.



What about differences in data collection, were there errors there?

Blame the Provider or the Patient?

When investigating low performance, before blaming providers or patients, check the PROCESS used to collect, consolidate, validate, and report the data.



Process Mapping

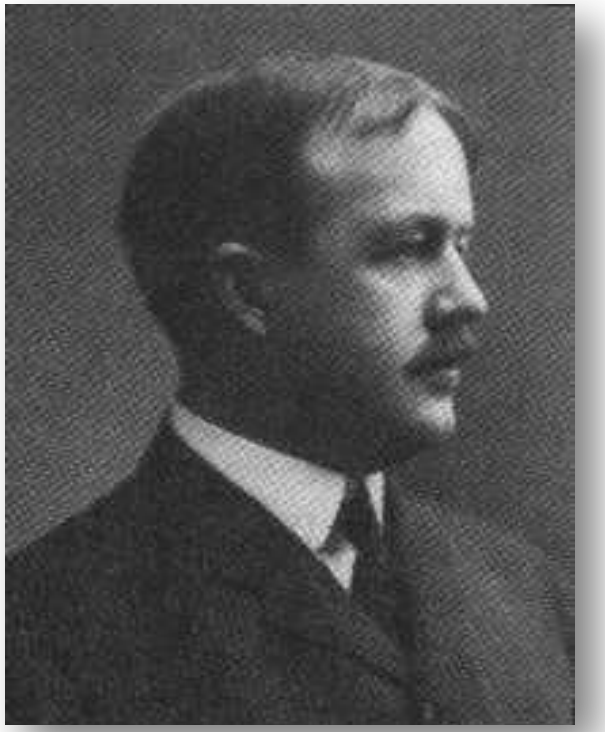
Frank Gilbreth

Frank Gilbreth began his early career as a contractor.

He observed that bricklayers did not uniformly lay bricks which created **variations** in how the process was implemented.

He recognized the variations were **observable and measurable** in terms of time and motion.

Using data gathered from observation he tested and refined many improvements in brick laying – eventually becoming a leader in the field of **scientific management**.

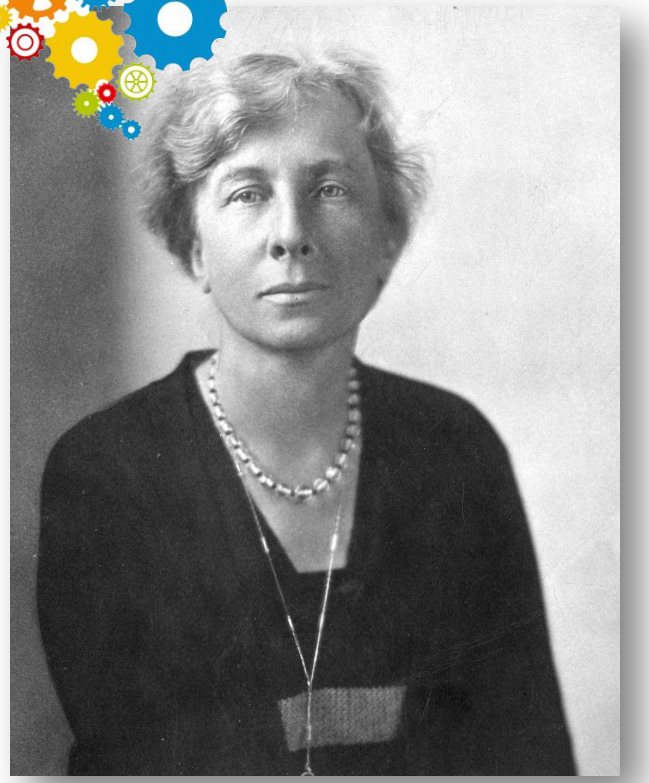


Lillian Gilbreth

Lillian Gilbreth earned an undergraduate degree in English and a Master's Degree in Literature; both from the University of California as well as a PhD in Applied Psychology from Brown University

Lillian conducted pioneering work in **industrial and organizational psychology**, applying social science principles to industry processes

Her work led to the integration of **worker satisfaction** to improve performance and efficiency in process management



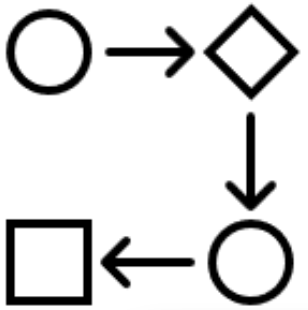
The One Best Way

Frank and Lillian Gilbreth's work in scientific management centered on the concept of the "**one best way**"

- The "one best way" refers to the most efficient method of performing repetitive tasks – accounting for time, motion, & fatigue

The Gilbreth's utilized "**micromotion study**" which consisted of filming workers doing tasks to analyze the process by identifying variations in processes to measure against outputs

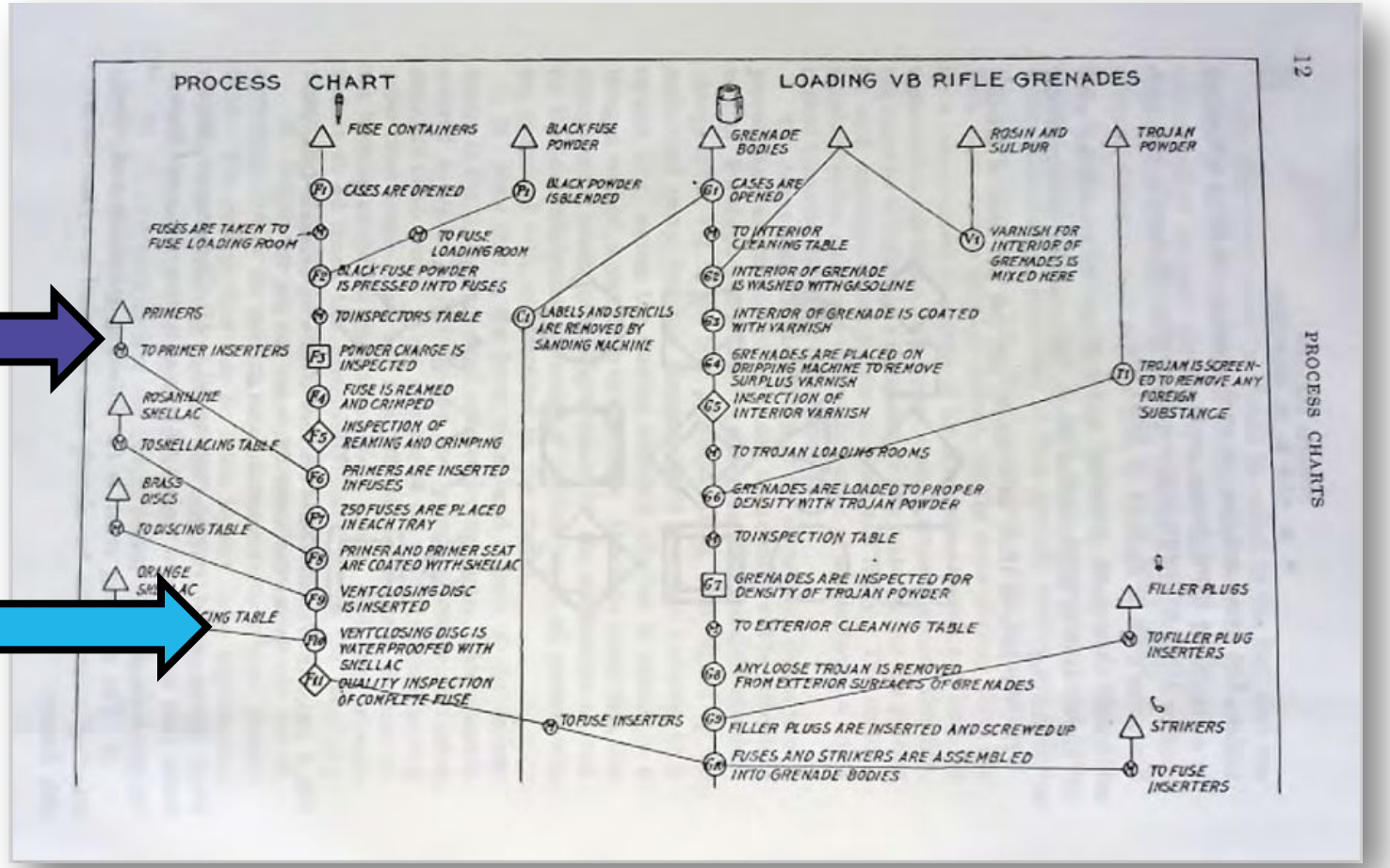
The Gilbreth's depicted results using **process maps** to visualize the one **best** way to complete a task



Process for Loading Rifle Grenades

Symbols

Flow Lines



The One Best Way and Surgical Procedures

By studying surgical operations, the Gilbreths monitored physicians and the way operating room **procedures were organized** and executed.

The Gilbreth's **observed and analyzed the movements** of surgeons to identify the one best way to perform surgical tasks

One key finding was that **nurses could improve efficiency**

- They observed surgeons spent more time searching for their instruments than performing the operation.
- They recommended that **surgical instruments should be organized** and laid out in regular and consistent patterns.

The Evidence-Practice Gap

Frank and Lillian Gilbreth presented their results on surgical operations and the standardization of techniques in operating rooms to the American Medical Association in 1915 – **they were rejected**.

The AMA adopted the Gilbreth's operating room procedures 15 years later in 1930.

Process Mapping

Process mapping refers to “**the entire approach that leads to a holistic understanding of the process under review**”

Process mapping can be used to:

- Align through a **shared mental model of the process**
- Identify **unexpected variations**
- Investigate and **analyze performance**
- Identify **opportunities for improvement**

Benefits of PM in Healthcare Settings

Addresses systems-level drivers of poor health outcomes; **inefficient systems & poor communication**

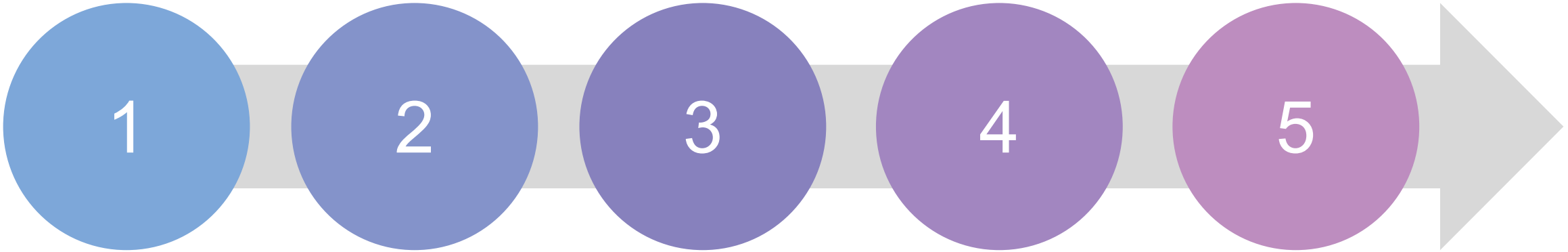
Generates greater **transparency** resulting in:

- Increased communication amongst diverse stakeholders
- Shared mental model of the “as-is” process
- Accessible visual depiction of complex relationships
- Enhanced ability to identify inefficiencies & gaps

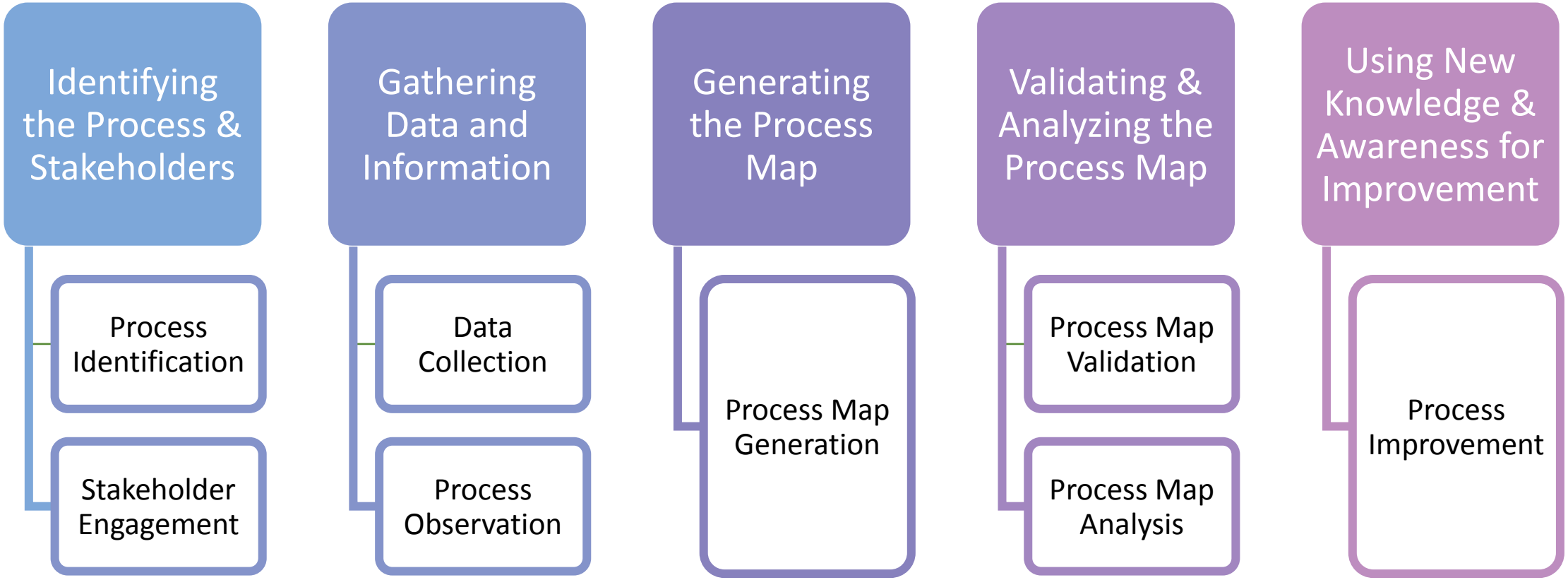
Empowers a more autonomous & effective workforce

Process

A **Process** is a series of steps that must be completed in order to achieve a result



Phases and Key Activities of Process Mapping



Process Map

A **Process Map** is “the visual representation of the process under analysis”

A process map serves as an “**external representation of the system**” which allows for an enhanced analysis of the process under review

Process maps are widely used in process management including in health and social service settings for the purpose of quality improvement

Process Map

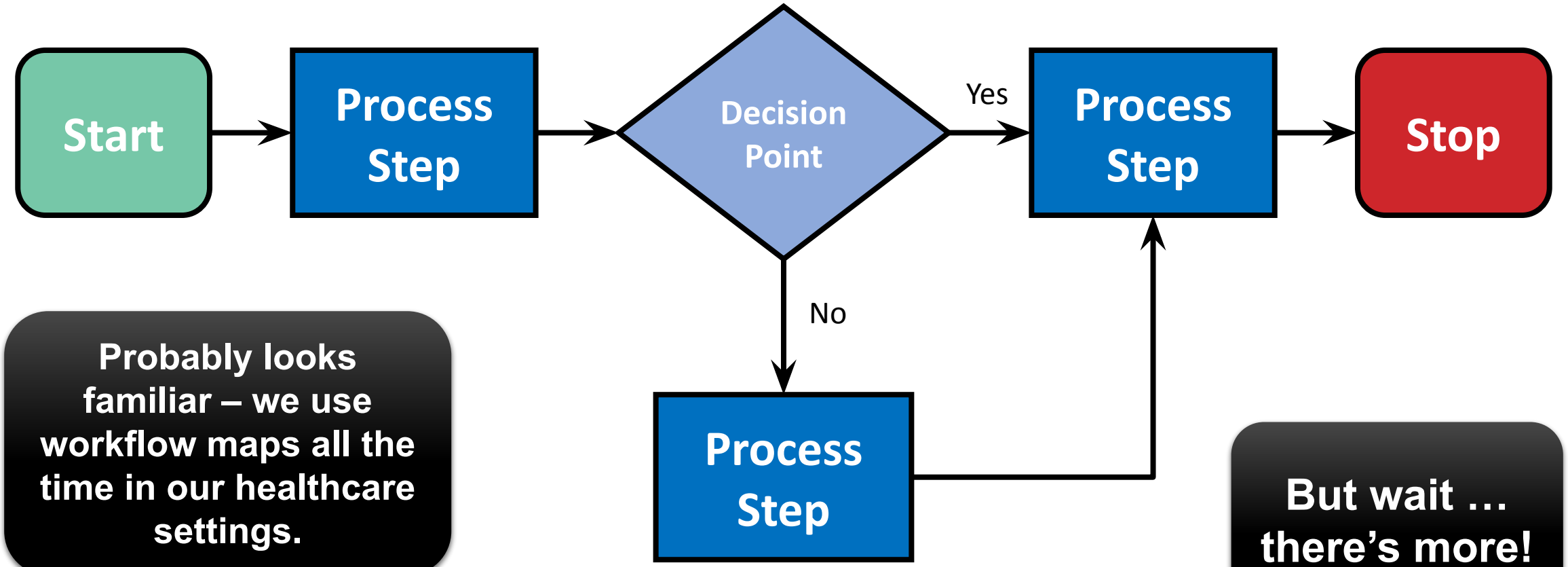
Processes can be depicted in many ways, and **the method of visualization affects the stakeholder perception of the process**

Visualizing processes in **multiple ways** can help to ensure a comprehensive understanding of the process under review

Examples of Process Map visualizations:

- **Block Diagrams (High-Level Map)**
- **Hierarchical Task Analysis Diagrams (Task Diagram)**
- **Sequential Workflow Diagram (Workflow Map)**

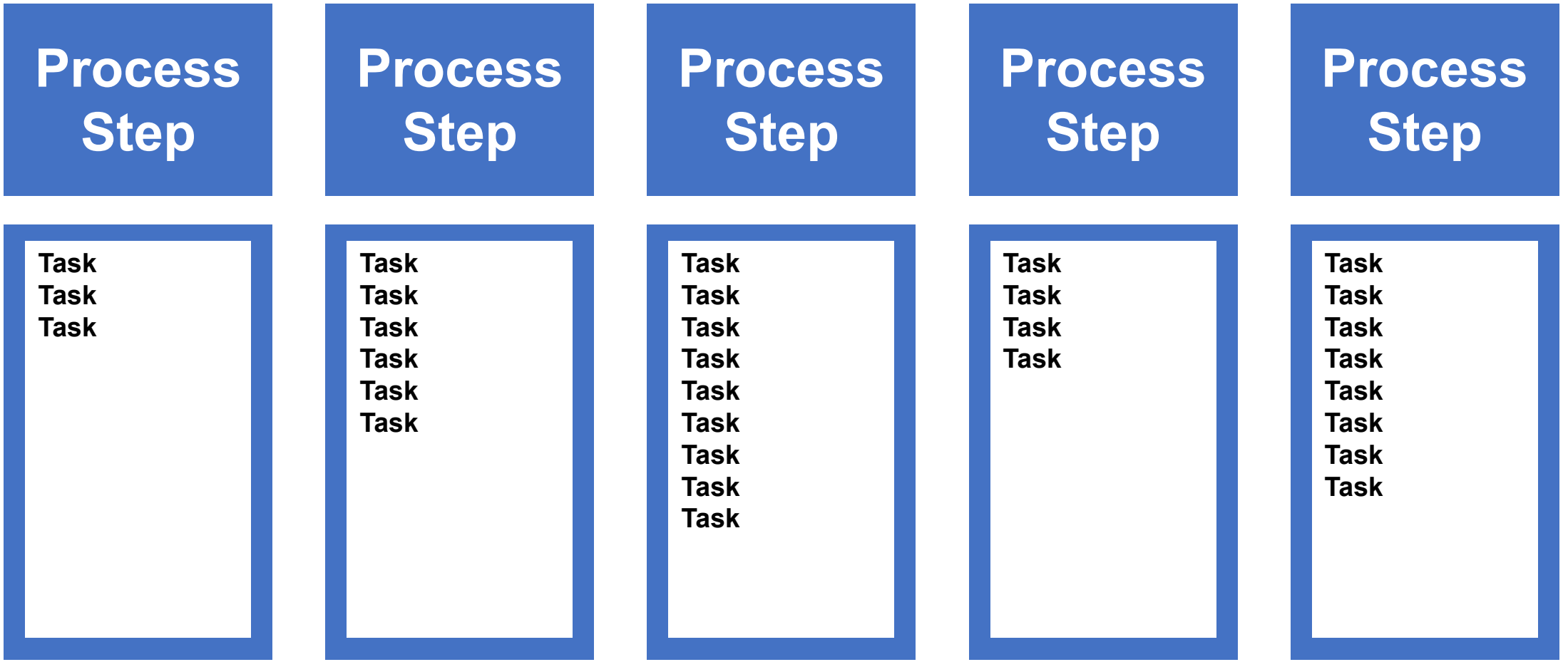
Sequential Workflow Diagram



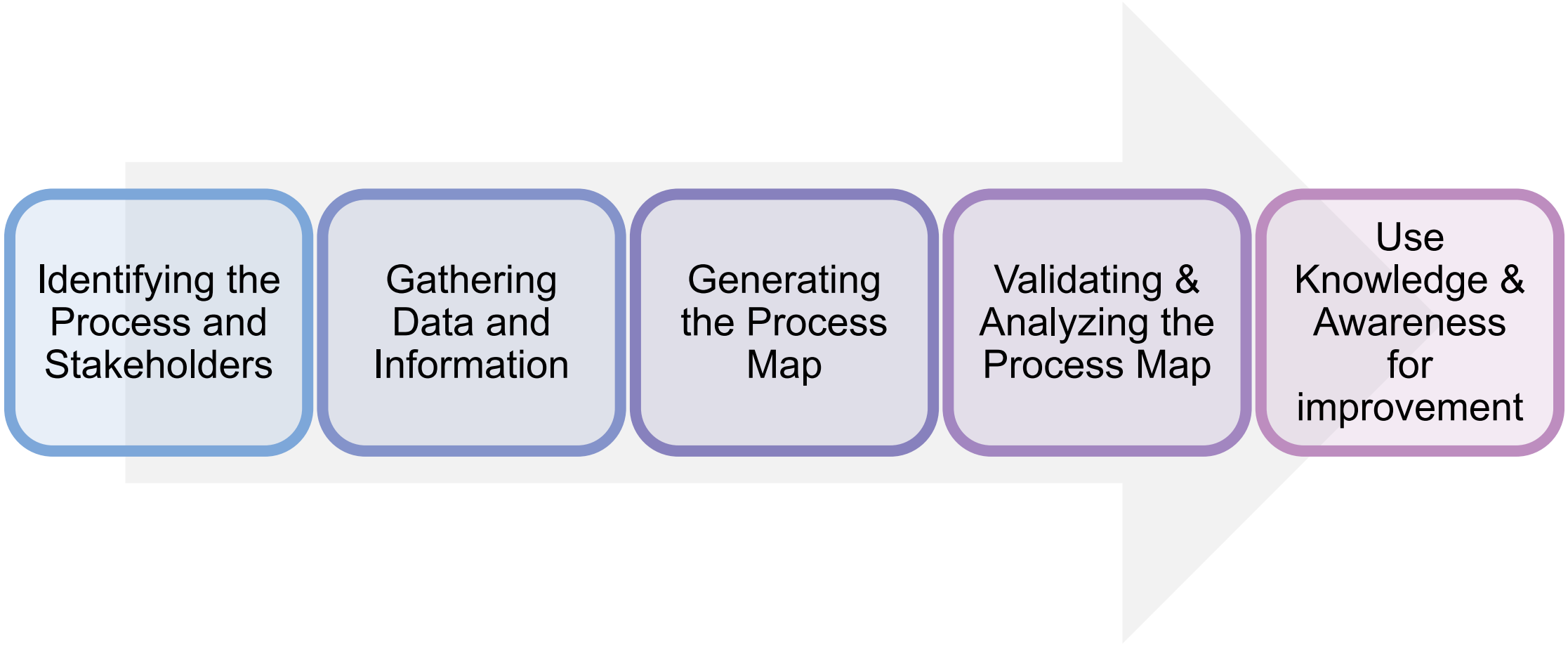
Probably looks familiar – we use workflow maps all the time in our healthcare settings.

But wait … there's more!

Block and Task Diagram



Phases of Process Mapping



Identifying the Process

Phase 1

The first step in process mapping is identifying the process under review.

The selected process should be standardized in its implementation (repeating the same steps each time).

The team should define the start and stop of the process based on the scope of the project.

- Without start and stop points the process could be:
  - (1) too large leading to an overly complex and unhelpful map or
  - (2) too specific and not include elements which are critical to an understanding of the process.
- Some processes might require more than 1 process map.

Block Diagram

A block diagram is a **high-level process map** which visualizes the relationship between the major steps of a selected process.

- Block diagrams use rectangles to depict steps and the sequence to depict the relationship between them.
- Block diagrams usually depict no more than 5-7 steps.

The Patient vs. The Digital Patient

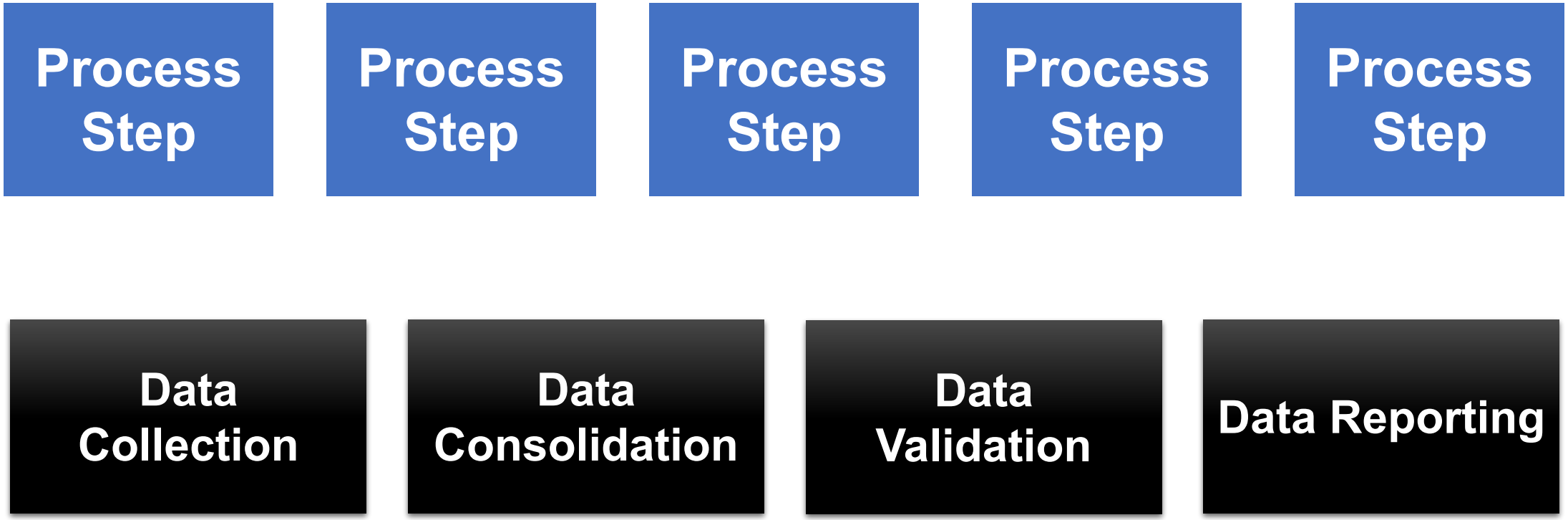
Forms

Databases

Reports

The Digital Patient

Block Diagram



Identifying the Stakeholders

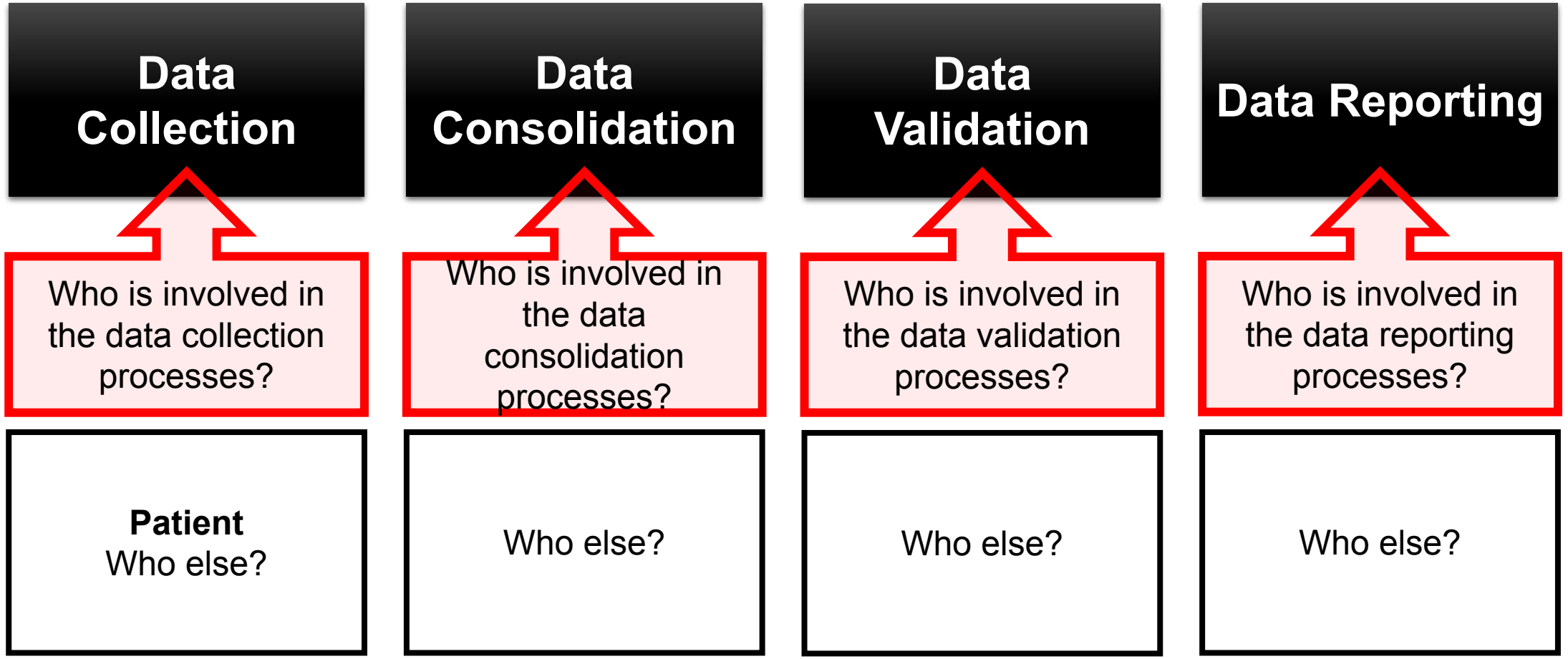
Phase 1

Process Stakeholders:

- Process Owners – individuals accountable for the correct implementation of the process
- Process Implementers – individuals who implement the process
- Process Users – individuals who use the process

Process mapping is an **accessible method of engaging patients, family, and caregivers** and is a critical indicator of evidence-based process mapping

Stakeholder Identification



Gathering Data and Information Phase 2

Gathering data and information about the process includes multiple data sources and both quantitative and qualitative data

Data about the process include:

- Operational data (process & subprocess indicators)
- Direct observations of the process
- Evidence-base and best practice
- Key informant interviews with process stakeholders
- Data from multi-disciplinary meetings
- Analysis of electronic medical records or other databases
- Time-and-motion studies

Generating the Process Map

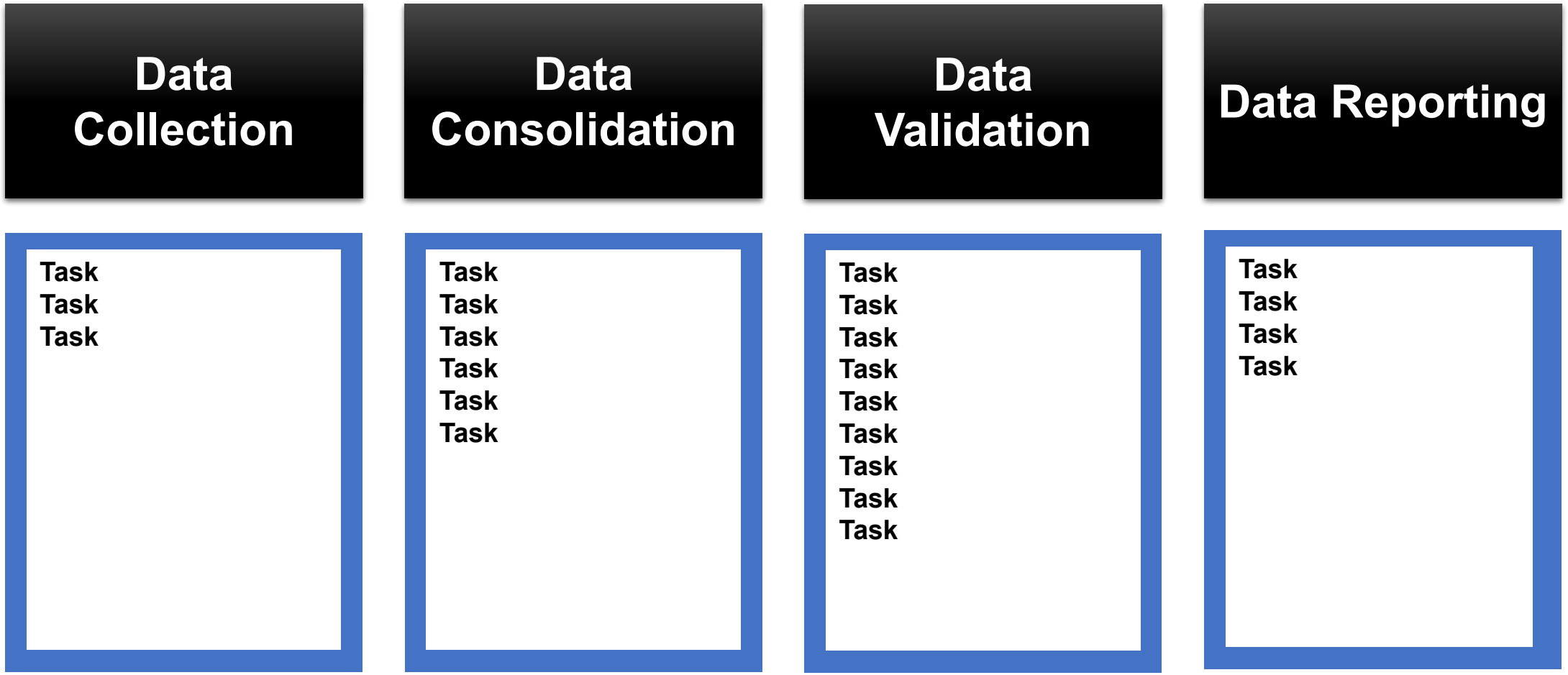
Phase 3

A block diagram is a **high-level process map** which visualizes the relationship between the major steps of a selected process.

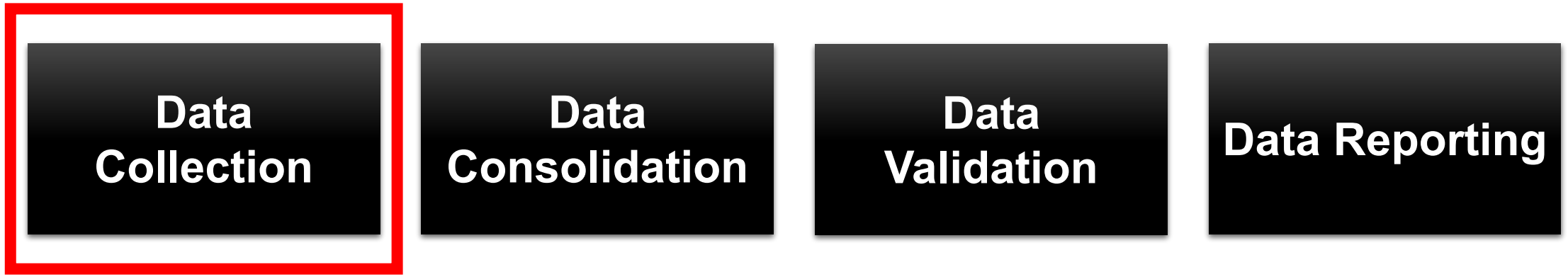
- Block diagrams use rectangles to depict steps and the sequence to depict the relationship between them.
- Block diagrams usually depict no more than 5-7 steps.

A task diagram is a **more detailed process map** which visualizes the relationships between the major steps of a selected process AND the tasks associated with each step presented in a chronological order.

Task Diagram



Begin with the Foundation



Brainstorm tasks for the process steps …

Barangay facility generates weekly summary

Barangay facility generates monthly report

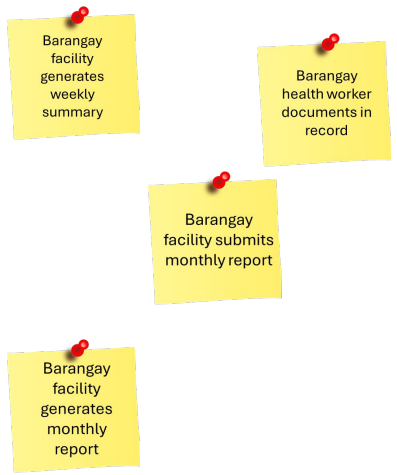
Barangay health worker documents in record

Barangay facility submits monthly report

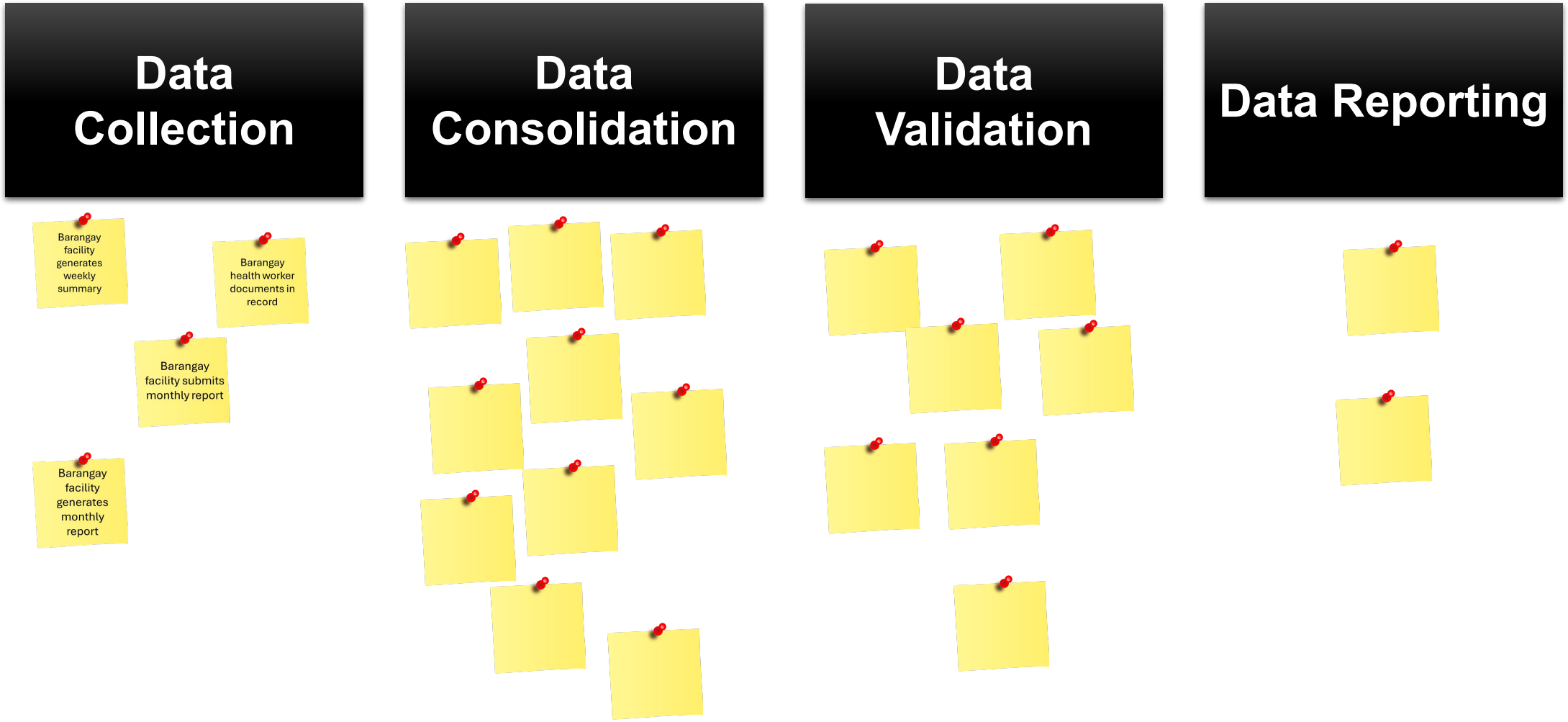
Data Collection

Place tasks under the process step …

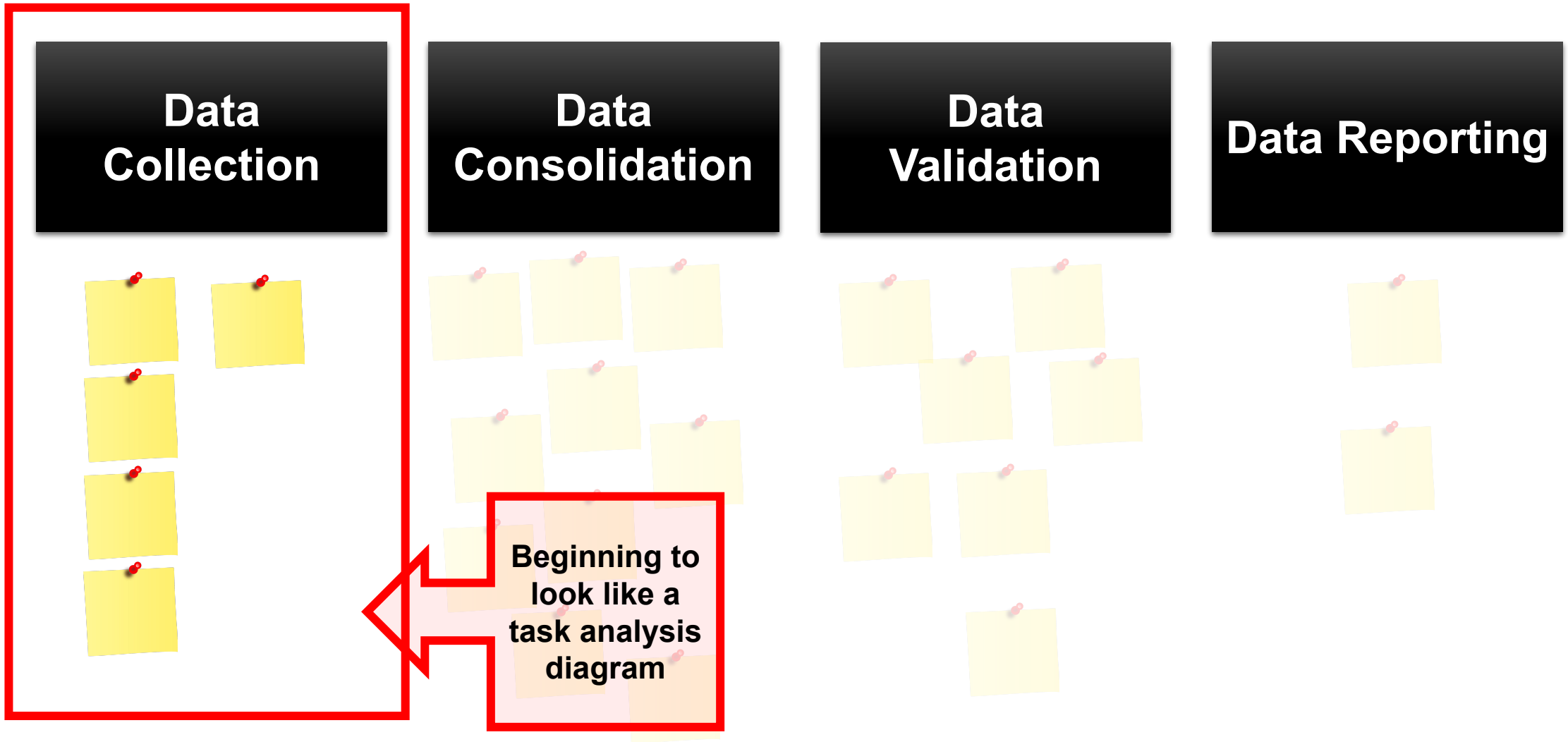
Data Collection	Data Consolidation	Data Validation	Data Reporting



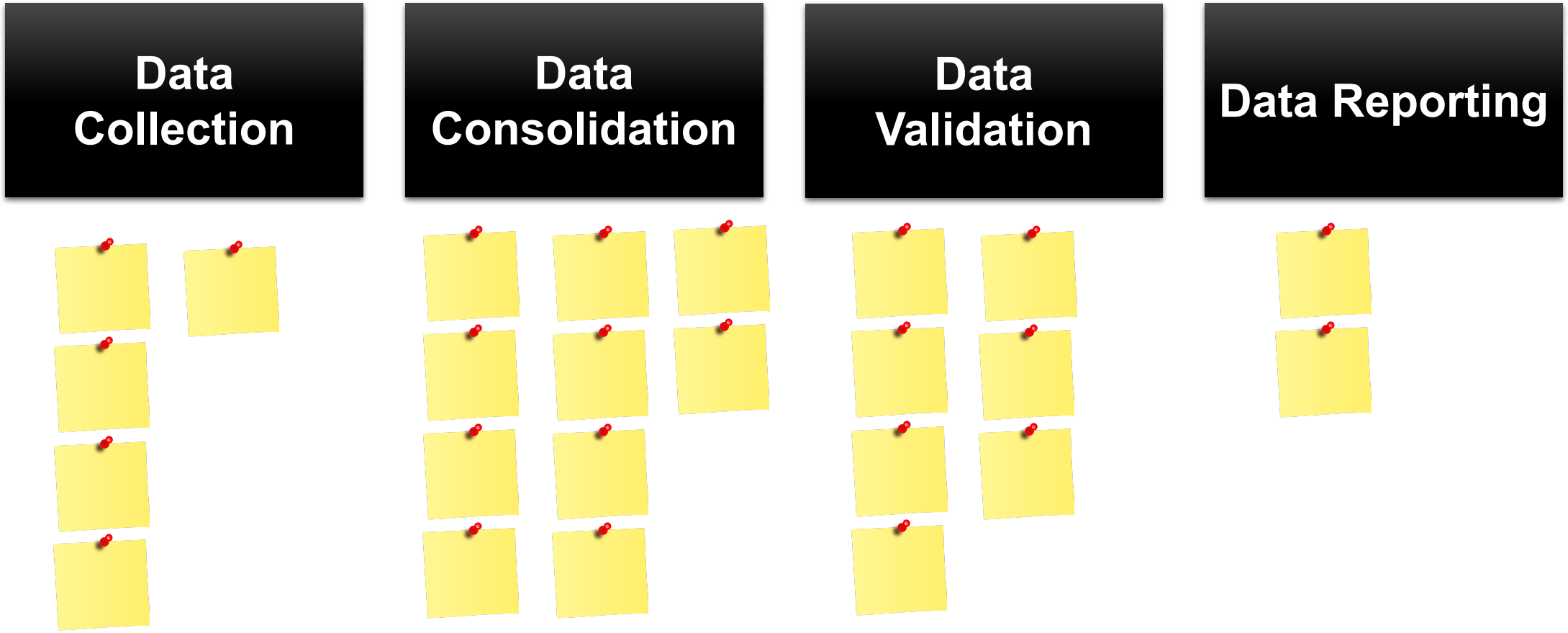
Repeat for each process step …



Arrange tasks in linear order (vertically)



Repeat for each process step



Transfer Stickie Notes to a Table

Data Collection

- Barangay health worker documents in record
- Barangay facility generates weekly summary
- Barangay facility generates monthly report
- Barangay facility submits monthly report

Data Consolidation

- Municipal Encoder (ME) imports into template/database
- ME reconciles duplicates in report
- ME aligns naming conventions
- ME resolves missing entries
- ME generates monthly municipal report
- ME submits monthly municipal report
- PHO imports into provincial template/database
- Automated reconciliation of data
- Submission is stamped with submitter, date, and version
- Missing values are coded

Data Validation

- Automated Checks
- Logic Validation
- Cross-System Triangulation
- Errors are classified by type
- Validation sent to municipal offices with instructions
- Municipal office addresses errors
- Municipal office re-submits corrected report

Data Reporting

- Validated data are packaged into reports:
  - Municipal Dashboards, Quarterly Provincial Reports, Annual Program Summaries, Targeted Surveillance Briefs
- Reports are tailored to audiences

Validating & Analyzing the Process Map

After a team has developed the task diagram (process map) it is ready to be validated by stakeholders.

- Does the task diagram show the key steps in the process?
- Does the task diagram show the tasks associated with each step presented in chronological order?

Once validated, the team is ready to **analyze the process map**.

- Using the task diagram, teams can confirm with the stakeholders associated with the process to ensure their perspectives are included in improvement activities.

Using Knowledge & Awareness for Improvement

Once the task diagram has been developed and stakeholders confirmed, the team is ready to begin investigating the process further.

Teams can use task diagrams to:

- Investigate potential process points for intervention or further investigation
- Discuss where the process is best measured for the development of quality indicators
- Engage additional stakeholders to describe their experiences with each step in the process.
- Engage staff to discuss their barriers and challenges with each step in the process.

Quality Assurance and Process Mapping

Phase	Quality Criteria
Identifying Process & Stakeholders	A process and related stakeholders are identified
	The team is educated or trained on the use of the process mapping tool
	A patient representative is involved in the project
Gathering Data & Information	Information is gathered to inform the process mapping exercise
Generating the Process Map	Different perspectives are gathered from multiple stakeholders' groups
	The process map is analyzed
Validating and Analyzing the Process Map	Additional information gathered during the PM exercise & analysis is represented on the final map
	Sticky notes or paper-based maps are transferred to charting software as soon as possible
	The final map is validated by key stakeholders
Using for Improvement	Improvement actions were taken based on knowledge gained during process mapping

Questions

Data Mapping

Activity

FHSIS Data Cycle Steps

Data Collection	Data Consolidation	Data Validation	Data Reporting
Who does this?	Who does this?	Who does this?	Who does this?
What happens here in your context?	What happens here in your context?	What happens here in your context?	What happens here in your context?

Small Group Activity Instructions

1. Identify data (e.g., a specific data variable or potentially a dataset) that you want to better understand through data mapping.
2. Develop a task diagram to map your selected data from collection to reporting.
3. As part of the diagram, also indicate the stakeholders associated with each step of your process to engage after the training to deepen your understanding.
4. Be prepared to share your rationale for the data you selected and your data map with the larger group.

Data Mapping Activity

Data Collection	Data Consolidation	Data Validation	Data Reporting
Who	Who	Who	Who
Tasks	Tasks	Tasks	Tasks

Identify data that you want to map from collection to reporting; develop a task diagram to depict the key activities and indicate the stakeholders.

BREAK

20 Minutes

Debrief


Data Collection
Barangay health worker documents in record
Barangay facility generates weekly summary
Barangay facility generates monthly report
Barangay facility submits monthly report
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Data Reporting
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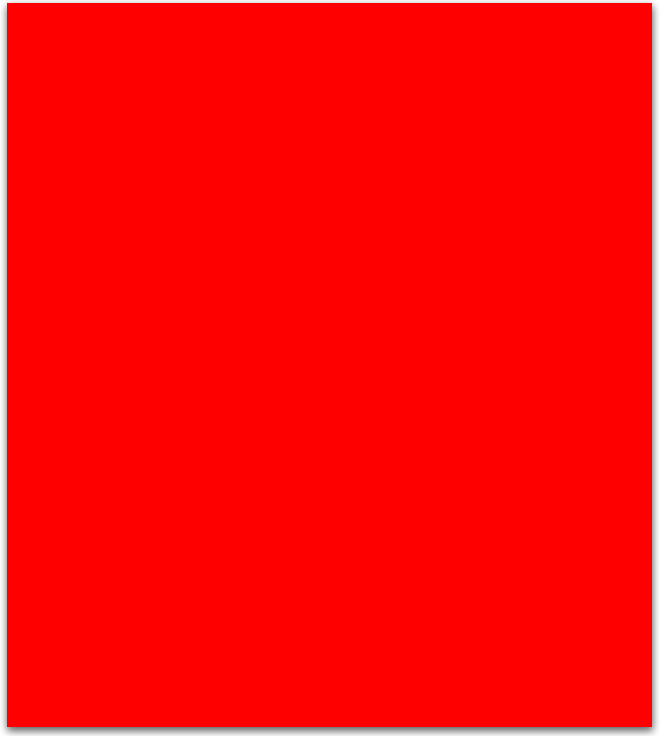
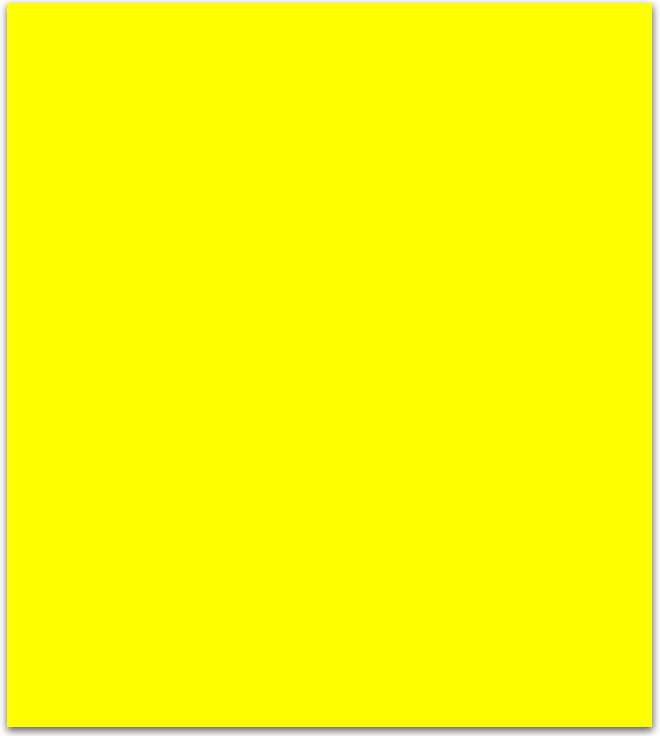
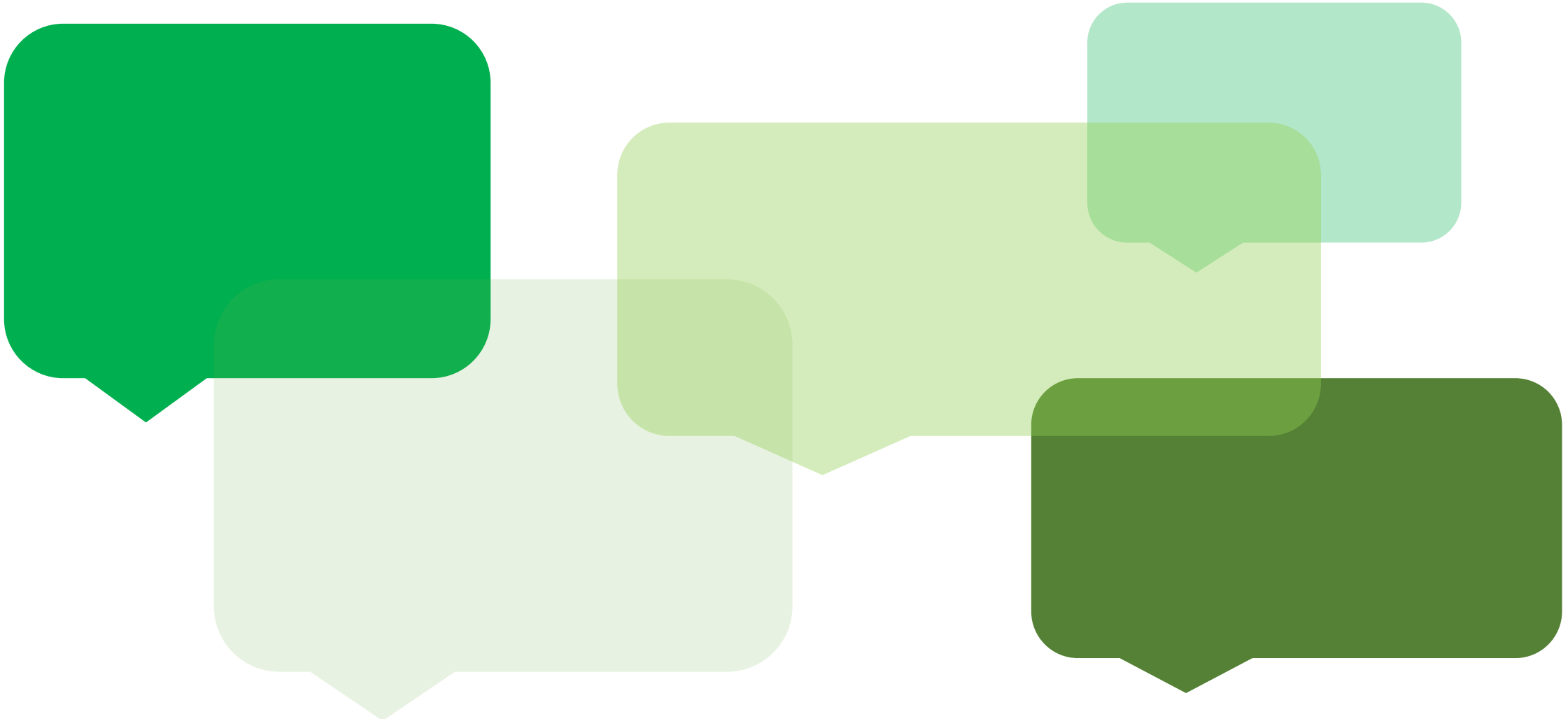
Reports are tailored to audiences

Check-In





Questions



Causal Analysis

Lecture

Low Performance on Key Indicator

Investigate to Understand and Address Issue

- Data Quality & Analysis
- Data Collection & Reporting
- Health Care Systems
- Patients & Populations
- QI Team & Activities
- Stakeholder Communication

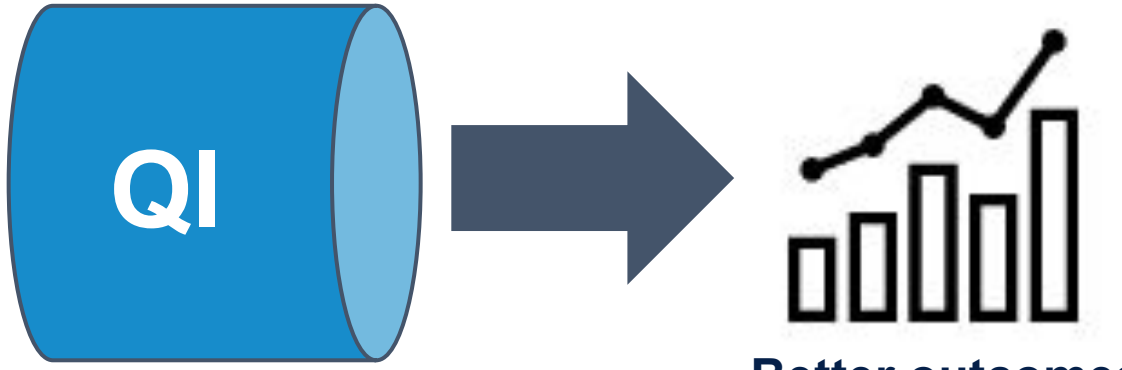
Uniting data streams to improve outcomes

Patient feedback and health literacy

Clinical performance data

Healthcare provider surveys and feedback

Uniting survey and clinical performance data generates a more comprehensive "snapshot" of the quality of service delivery.



Better outcomes

QI methods provide a systematic approach to interpret the "snapshot" of service quality and improve gaps in performance.

The Healthcare Context

- Quality Improvement

Key factors differentiate healthcare from other industries; **strategies must be adapted to account for the contextual factors** differing healthcare from manufacturing settings.

Duplicate Processes

Multiple Decision-Points

Multi-Person Tasks

Documentation & Checklists

Policies and Regulations

Patients, Family, & Caregivers

Power Imbalances

Types of Problems

Tame Problems are those problems that have a definitive solution that can be identified using linear methods of problem solving involving the classic steps of data gathering, data analysis, solution formulation, and solution implementation.

Wicked Problems are those problems that cannot be solved using standard linear methods of problem solving; **wicked problems have incomplete, contradictory, and changing requirements and complex interdependencies that are often unique to the local setting of the problem**

Wicked Problems

Wicked problems are likely to be **ongoing and recurrent**, rather than being resolvable based on scientific evidence, expert plans and competent project management

The use of the rapid cycle quality improvement process is one of the more **effective ways of taming wicked problems**; the intrinsically recurrent and iterative nature of the plan-do-study-act (PDSA) engine empowers local champions **well immersed in the culture of their healthcare organization**.

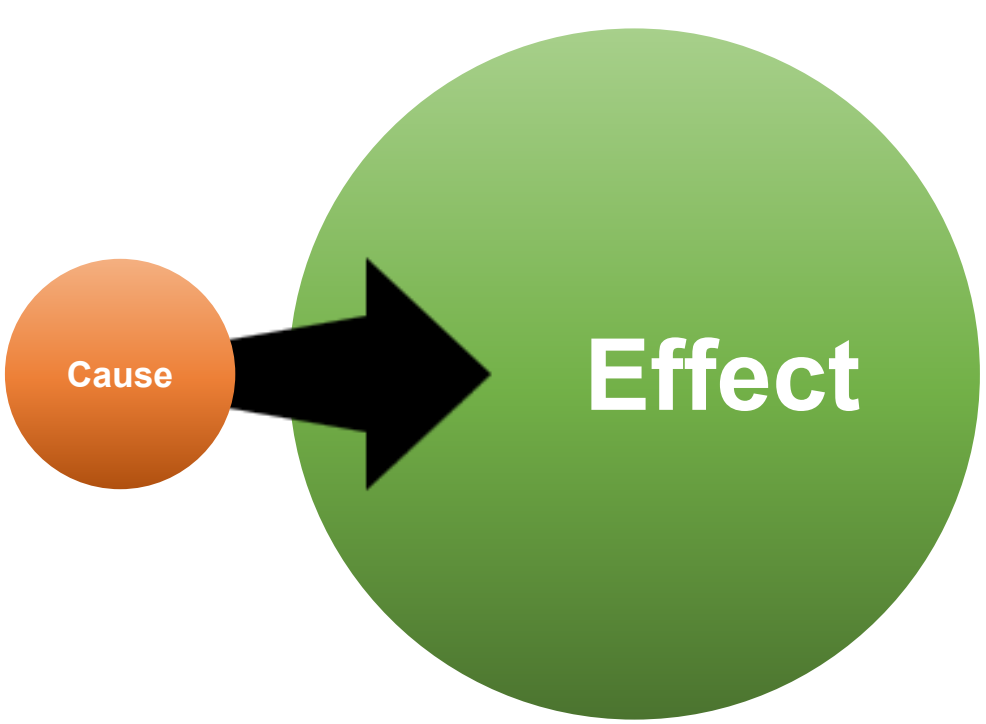
Solving Wicked Problems

Because of the interdependencies & complexity inherent to wicked problems– **wicked problems are likely to have more than 1 cause**

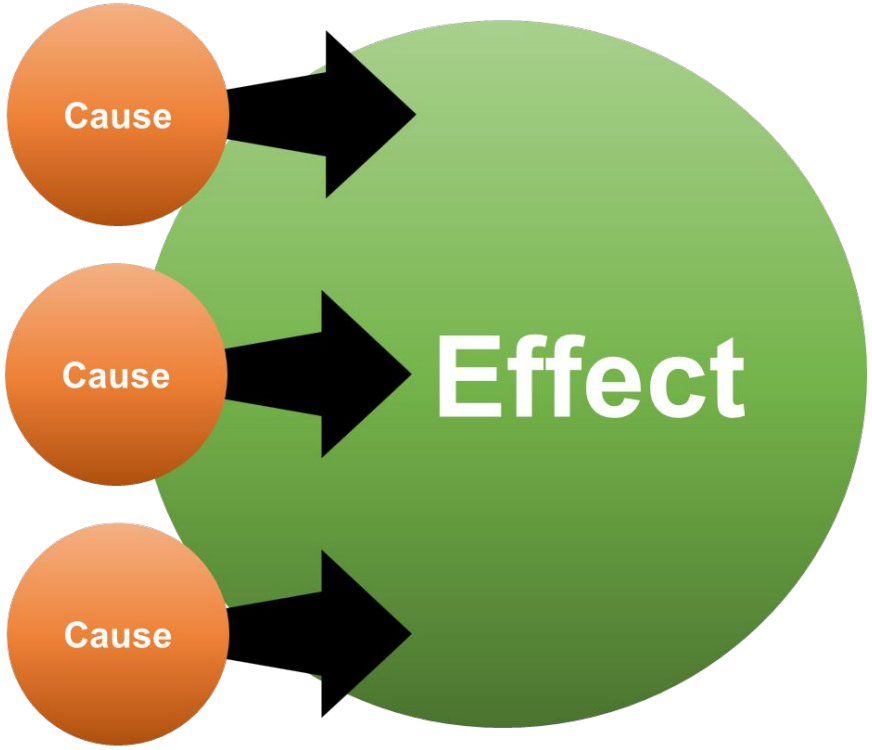
Quality improvement tools can help to generate potential causes and then further investigate causes to identify their root cause(s)

- Because health care problems are likely to be “wicked” there are likely multiple potential causes that, when addressed, will improve outcomes
- Selecting the right “cause” is not the aim; **selecting the first cause to address is the correct mindset**

Cause and Effect



Tame Problems



Wicked Problems

Cause and Effect Diagram

A **Cause-and-Effect Diagram** has a variety of benefits:

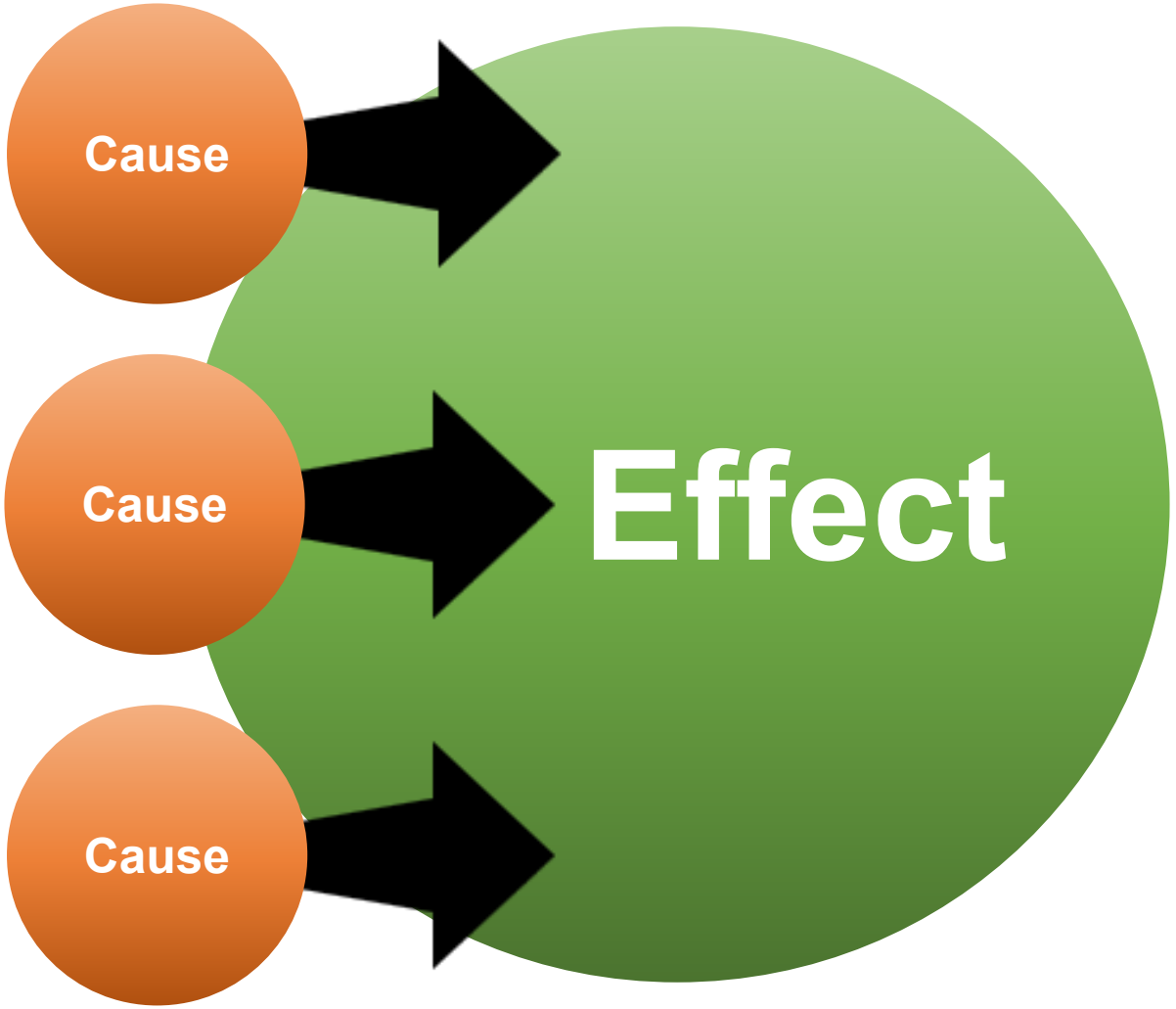
- It **graphically displays the relationship of the causes** to the effect and to each other.
- It helps to identify areas for improvement.

It helps to identify **multiple stakeholder ideas** and allows participants to immediately sort ideas into themes for analysis coding and brainstorming.

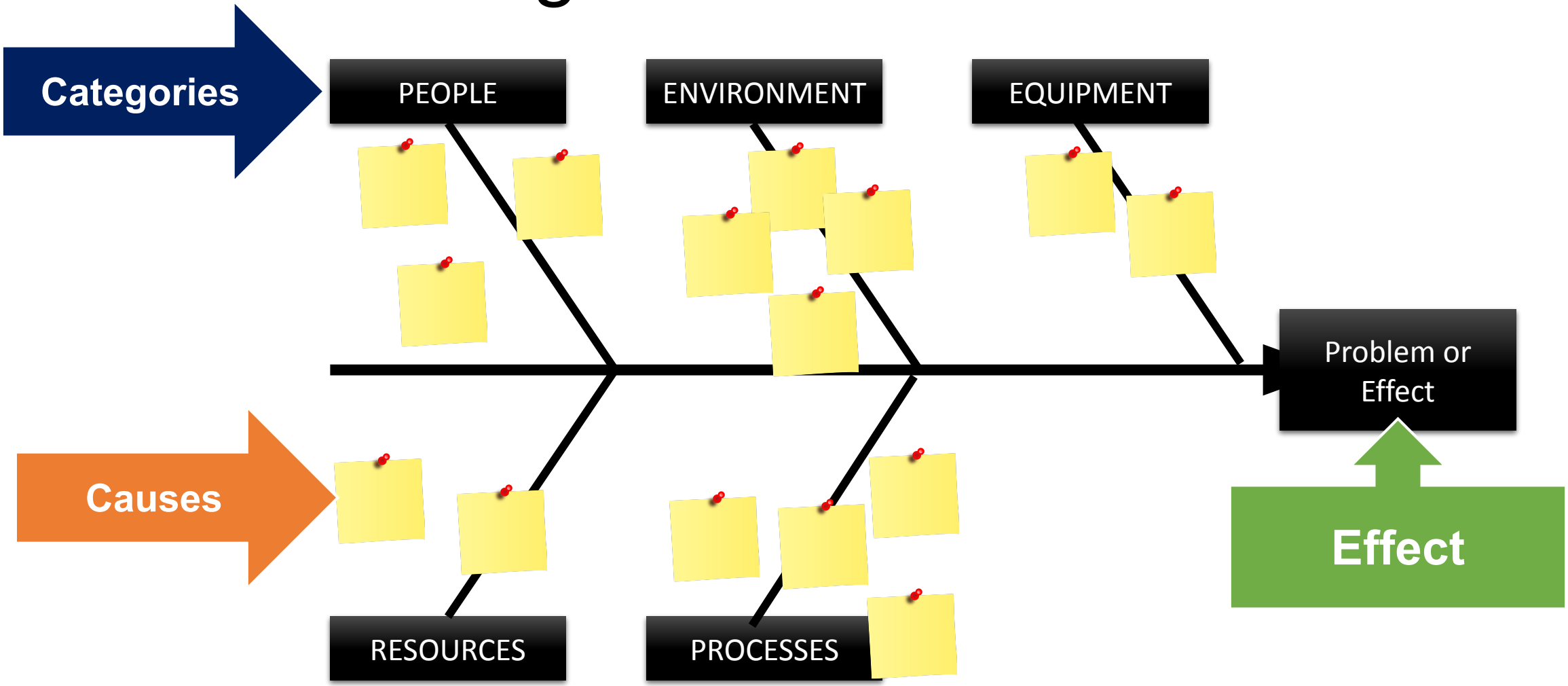
The **Fishbone Diagram** is a cause-and-effect tool that identifies and presents **multiple potential causes for an identified problem.**

Fishbone Diagram

A fishbone diagram can help teams understand that there could be **many causes that contribute to an effect**.



Fishbone Diagram



Fishbone Diagram

Why construct a fishbone diagram?

To explore and **display possible causes contributing to a problem** or an outcome and then determine key causes.

Who should participate?

A team of **multidisciplinary stakeholders** affected by the outcome or problem

When should you use a fishbone diagram?

After defining the problem or setting the goal

What do I learn from the fishbone diagram?

The content of the diagram is the brainstormed listing of causes, then voting to identify key causes; **key causes help teams identify areas for improvement.**

Developing a Fishbone Diagram

Generate Potential Causes with a Quietstorm

Categorize and Group Causes on Fishbone Diagram

Review and Validate the Fishbone Diagram

Generate Causes

Step 1

- Gather the team and stakeholders.
- Distribute the Post-It™ notes and pens.
- Ask the team leader to briefly review the team's problem statement.
- Ask the team and stakeholders to reflect on their experience, expertise, and any data provided and identify potential causes to the identified problem.
  - Each idea should be placed on a single Post-It™ note; one idea per note
  - Select an amount of time to brainstorm potential causes (e.g., 5 mins)

Categorize and Group Causes Step 2

- Use a round-robin technique to elicit potential causes from participants.
  - Select one participant and ask them to share 1 cause and place the Post-It™ note on the wall or board in the appropriate category.
  - Next elicit 1 idea from each stakeholder before returning to the first participant and beginning the process again.
  - Continue the process until no one has further potential causes of the defined problem.

Review and Validate Causes

Step 3

- Group similar ideas and eliminate duplicate ideas.
- Review the fishbone results with the team and stakeholders to clarify any results as needed.

Developing a Fishbone Diagram

Generate Potential Causes with a Quietstorm

Categorize and Group Causes on Fishbone Diagram

Review and Validate the Fishbone Diagram

DEMONSTRATION

Questions

LUNCH

60 Minutes

Diagramming Activity

Activity

Small Group Activity Instructions

Participants will be divided into small groups to select a problem to investigate using a fishbone diagram.

Each group will (1) conduct a quietstorm to generate potential causes, (2) categorize and group the causes on the fishbone diagram, and (3) review and validate the diagram as a group.

Be prepared to discuss your fishbone diagram with the larger group.

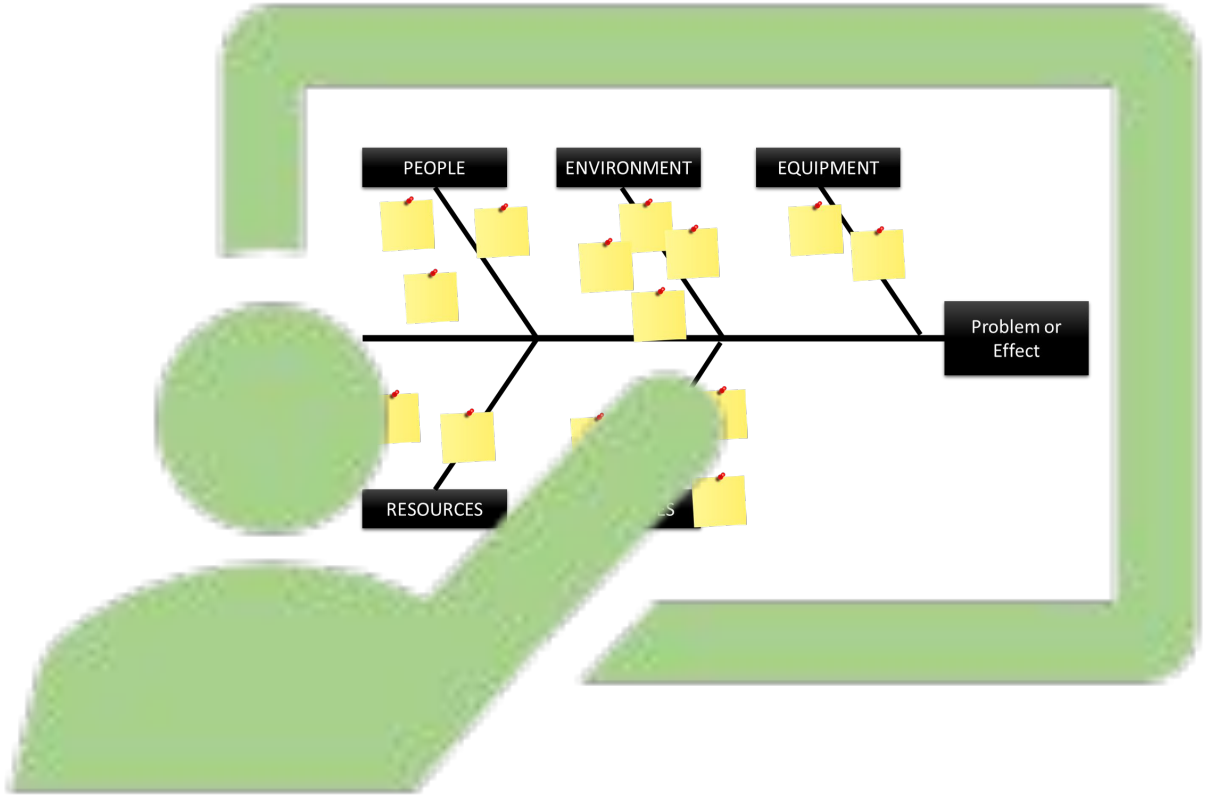
Process

Generate Potential Causes with a Quietstorm

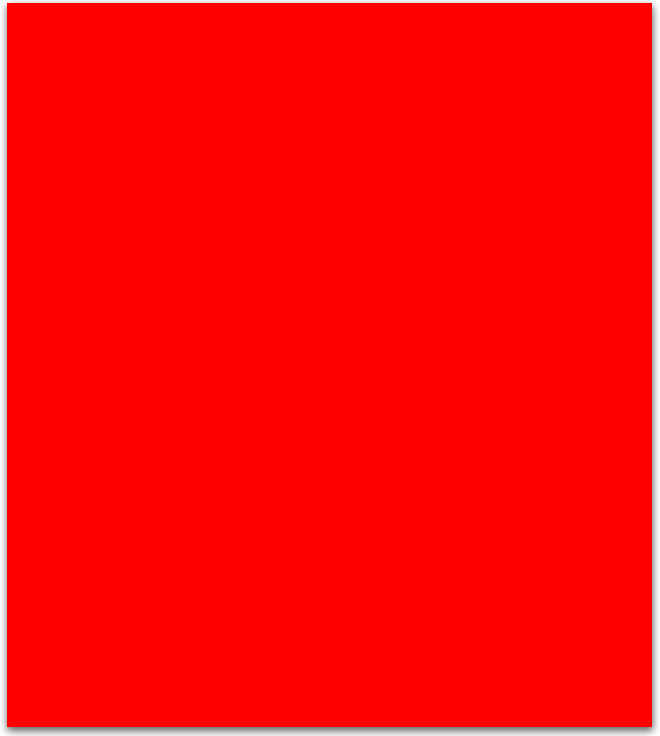
Categorize and Group Causes on Fishbone Diagram

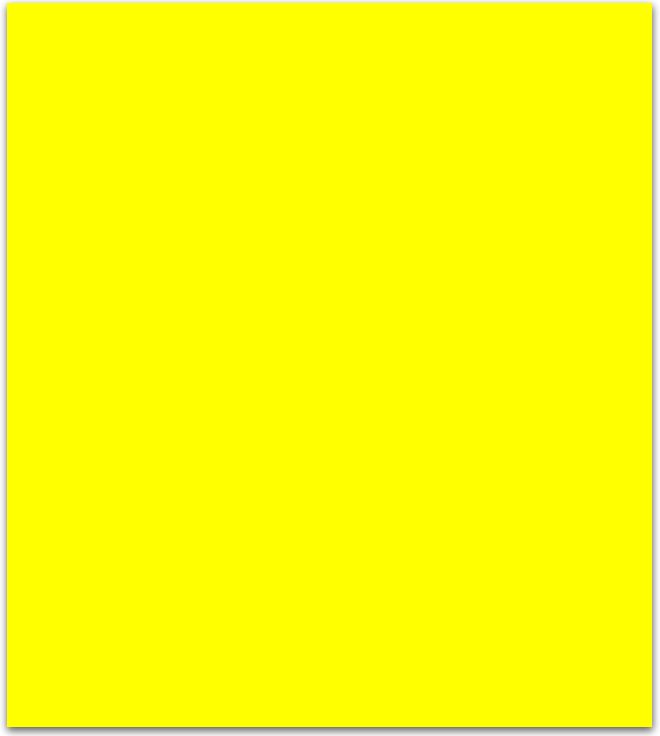
Review and Validate the Fishbone Diagram

Debrief

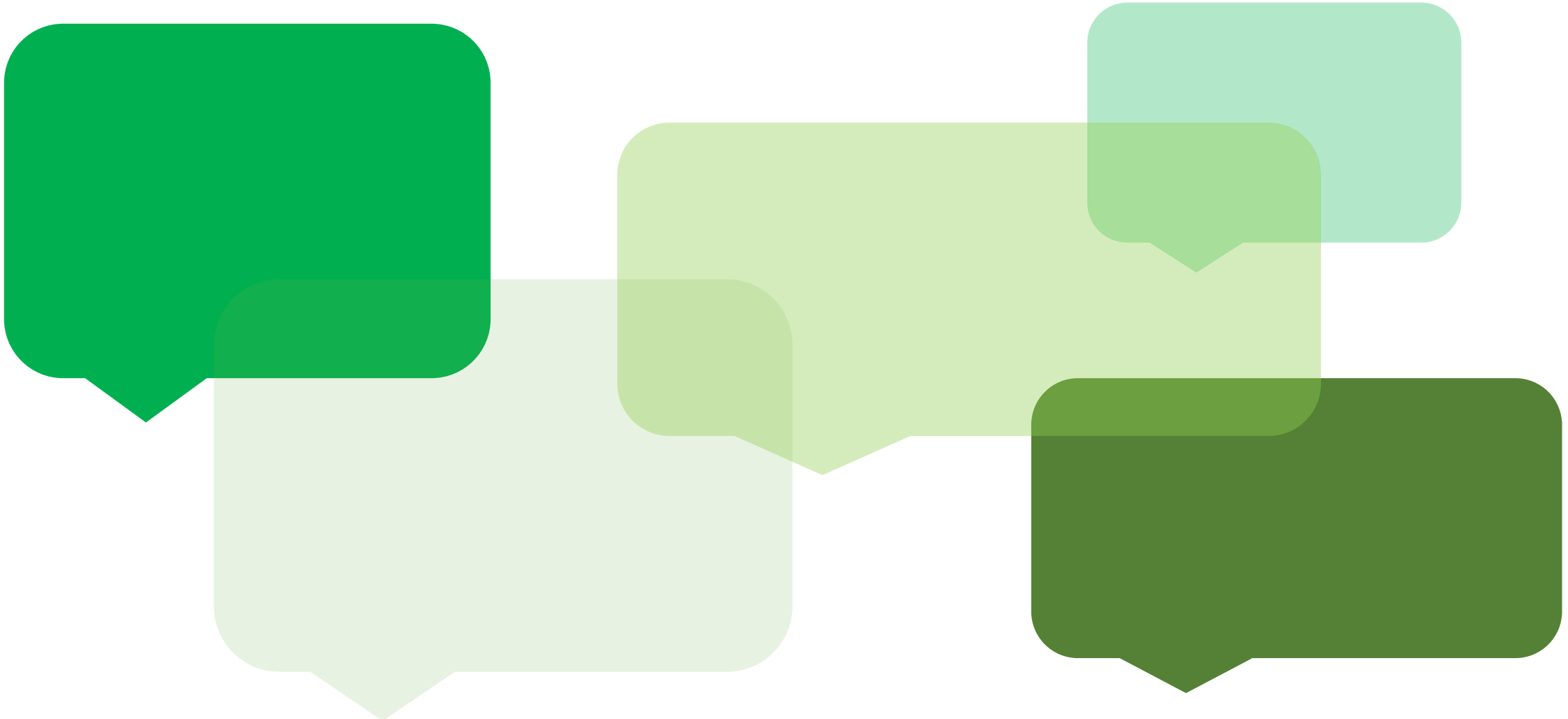

PEOPLE
ENVIRONMENT
EQUIPMENT
Problem or Effect
RESOURCES

Check-In





Questions



BREAK

20 Minutes

Prioritization

Lecture

Low Performance on Key Indicator

Investigate to Understand and Address Issue

- Data Quality & Analysis
- Data Collection & Reporting
- Health Care Systems
- Patients & Populations
- QI Team & Activities
- Stakeholder Communication

Prioritization

Generate Potential Causes with a Quietstorm

Categorize and Group Causes on Fishbone Diagram

Review and Validate the Fishbone Diagram

Prioritize the Potential Causes for Intervention

Prioritization

Prioritization Matrix

Multi-Voting Technique

Prioritization

Prioritization Matrix

Prioritization

Once a team has generated a list of potential causes of the problem, a team must decide which cause to focus on first.

- All causes are potentially important but not all causes have equal impact on the system; some might more impactful than others.
- Additionally, resources are limited and should be allocated to those areas where a team can have the most impact for key populations.

Teams can use a **prioritization matrix** to support better decision-making when choosing a cause to prioritize for a quality improvement project.

Prioritizing a Cause

Voting Criteria	Cause 1	Cause 2	Cause 3	Cause 4	Cause 5	Cause 6	Cause7	Cause 8
Risk to the system if nothing is done about this cause.								
Impact of this cause on patient care.								
Feasibility of making changes to address this cause.								
Cross-Cutting: cause affects multiple areas of the system								

Scoring Criteria: High = 3, Medium = 2, Low = 1

Choosing a Problem

Criterion	Question
Risk	*Will this get worse if we do nothing about it right now?*
Impact	*Can patients die or suffer harm if we do not address this?*
Feasibility	*Can we feasibly make changes that will result in measurable improvement?*
Cross-Cutting	*Does the cause affect more than 1 area of our program, system, or patient care?*

Individual Response Sample

Voting Criteria	Cause 1	Cause 2	Cause 3	Cause 4	Cause 5	Cause 6	Cause7	Cause 8
Risk to the system if nothing is done about this cause.	3	3	3	2	1	3	1	3
Impact of this cause on patient care.	3	2	2	1	1	3	1	2
Feasibility of making changes to address this cause.	3	3	2	1	2	3	1	2
Cross-Cutting: cause affects multiple areas of the system	2	3	2	1	1	3	1	1

Scoring Criteria: High = 3, Medium = 2, Low = 1

Aggregate Group Responses

Voting Criteria	Cause 1	Cause 2	Cause 3	Cause 4	Cause 5	Cause 6	Cause7	Cause 8
Risk to the system if nothing is done about this cause.	35	36	28	24	7	32	7	37
Impact of this cause on patient care.	36	38	28	22	18	32	7	23
Feasibility of making changes to address this cause.	33	36	33	18	33	32	7	24
Cross-Cutting: cause affects multiple areas of the system	30	35	26	7	15	32	7	7

Aggregate Group Responses

Voting Criteria	Cause 1	Cause 2	Cause 3	Cause 4	Cause 5	Cause 6	Cause7	Cause 8
Risk to the system if nothing is done about this cause.	35	36	28	24	7	32	7	37
Impact of this cause on patient care.	36	38	28	22	18	32	7	23
Feasibility of making changes to address this cause.	33	36	33	18	33	32	7	24
Cross-Cutting: cause affects multiple areas of the system	30	35	26	7	15	32	7	7
TOTAL	**135**	**147**	**118**	**75**	**78**	**134**	**35**	**99**

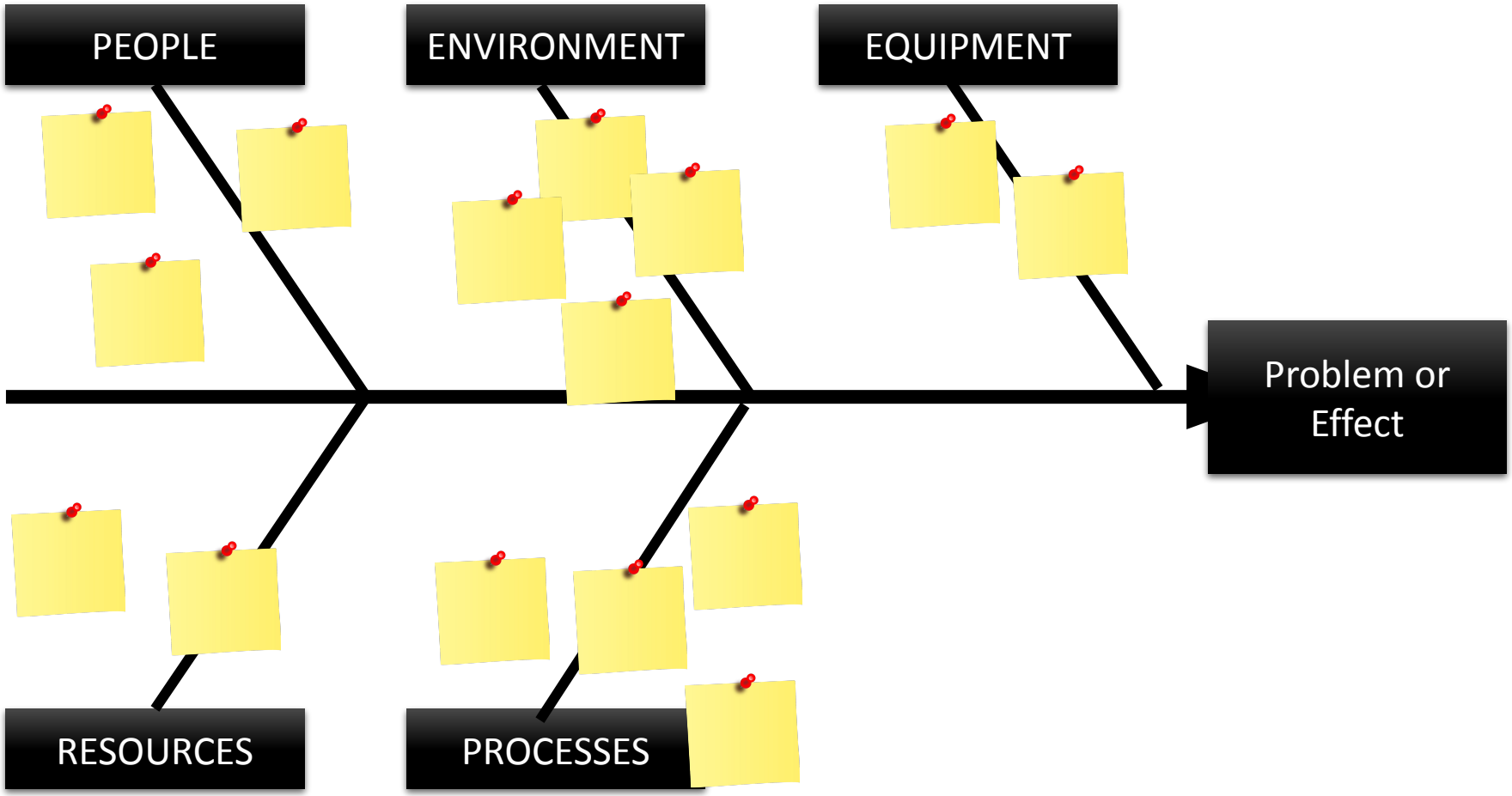
Prioritization

Multi-Voting Technique

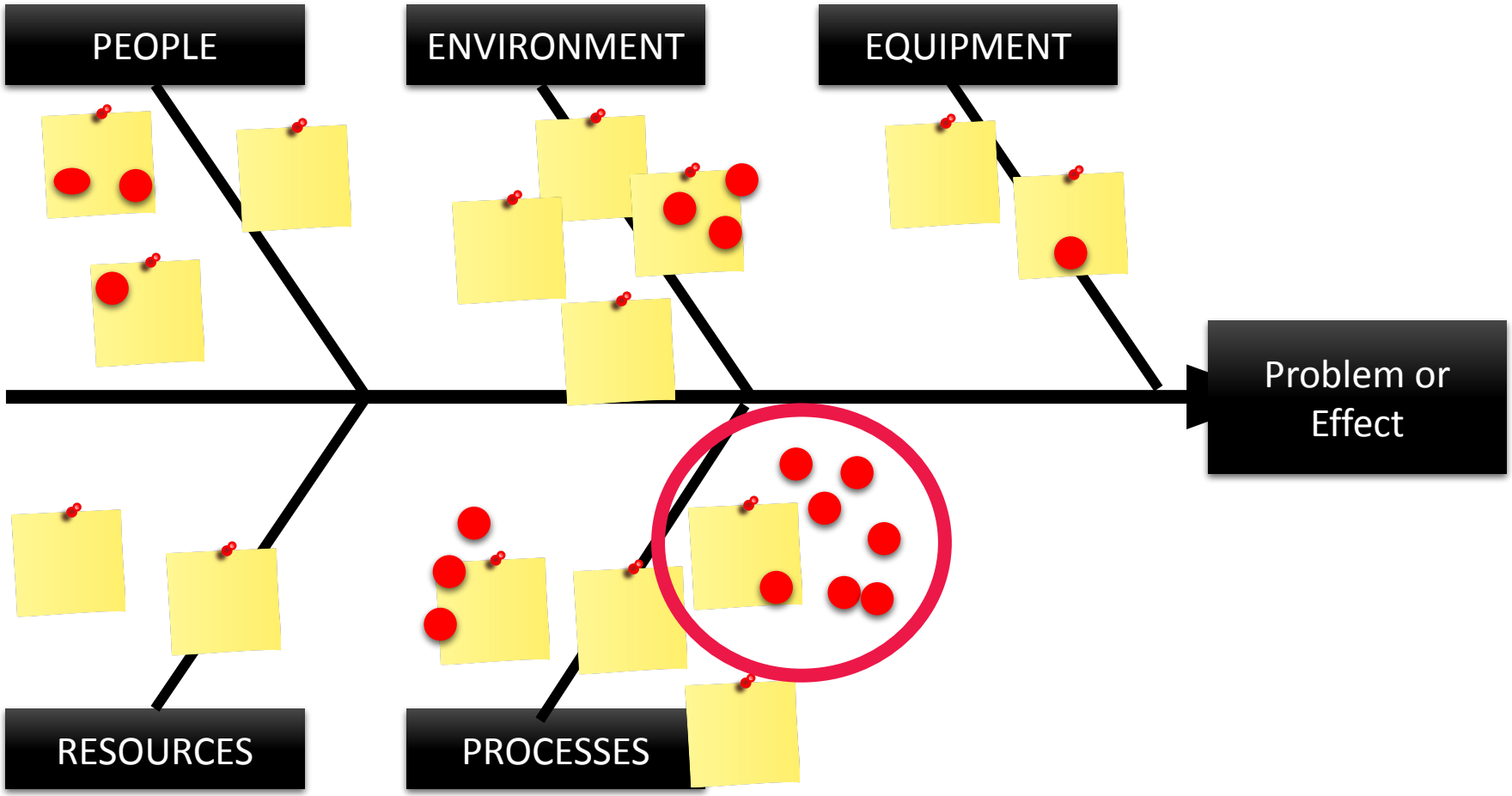
Multi-Voting Technique

- Briefly review the identified causes and review the defined problem.
- Distribute the dot stickers to participants.
  - Ask the team and stakeholders to review the potential causes and identify what they believe are the key causes driving the effect (i.e., the problem).
  - Ask participants to use the dot stickers to indicate which causes they believe are the most important and feasible to address.
- Review the results.
  - if there is no clear “winner”, consider eliminating options that received no or a low number of votes and repeating the activity as many times as needed.
- Document the list of the key causes.

Fishbone


PEOPLE
ENVIRONMENT
EQUIPMENT
Problem or Effect
RESOURCES
PROCESSES

Fishbone with Multi-Voting

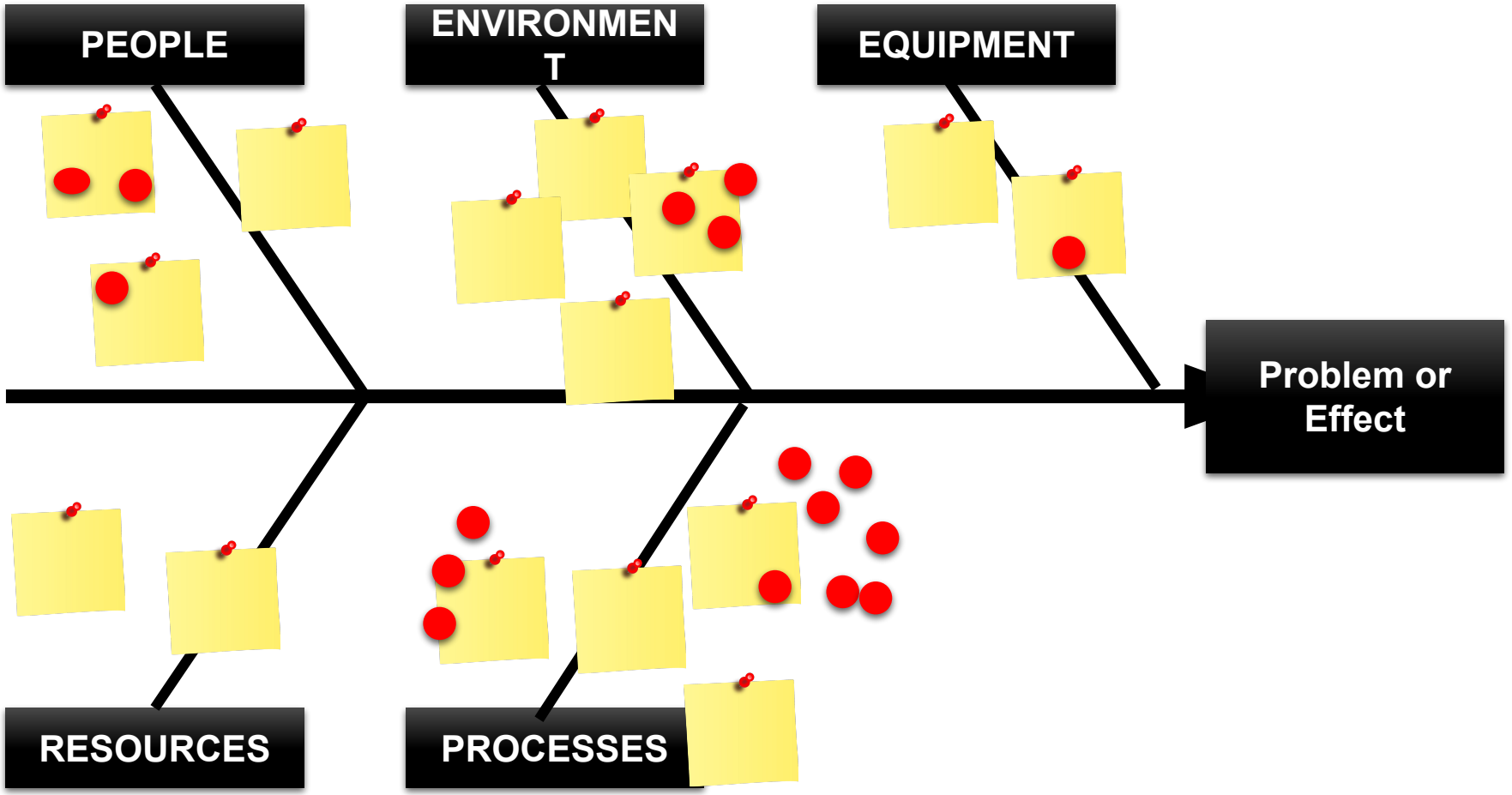


Questions

Multi-Voting Activity

Activity

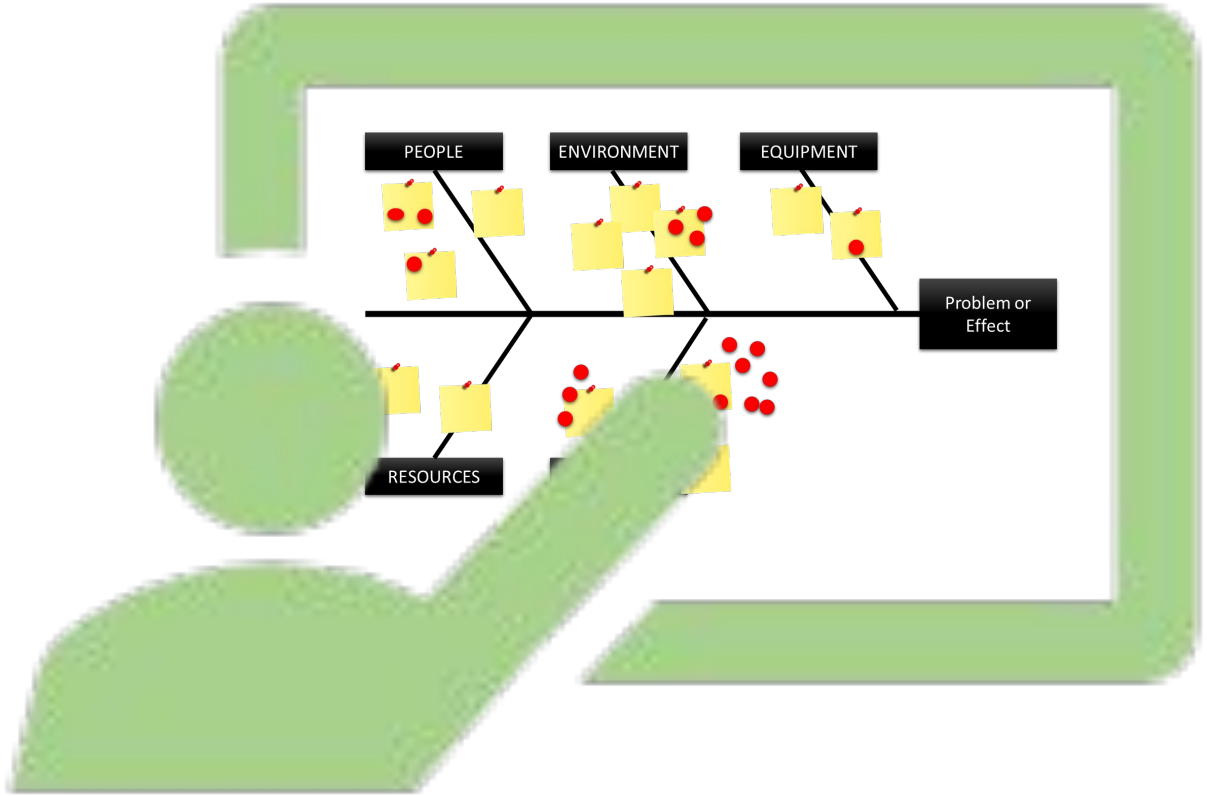
Prioritize Top 3 Causes for Intervention



Small Group Activity Instructions

1. Distribute the dot stickers amongst your team members (3 dots per person).
2. Review your fishbone diagram and thinking about your system, vote for the causes you think are most important to address (You may vote 3 times for 1 cause, or you can distribute your votes across multiple causes).
3. When complete, add up the votes and list your top 3 causes.
4. Be prepared to share your prioritized causes with the larger group.

Debrief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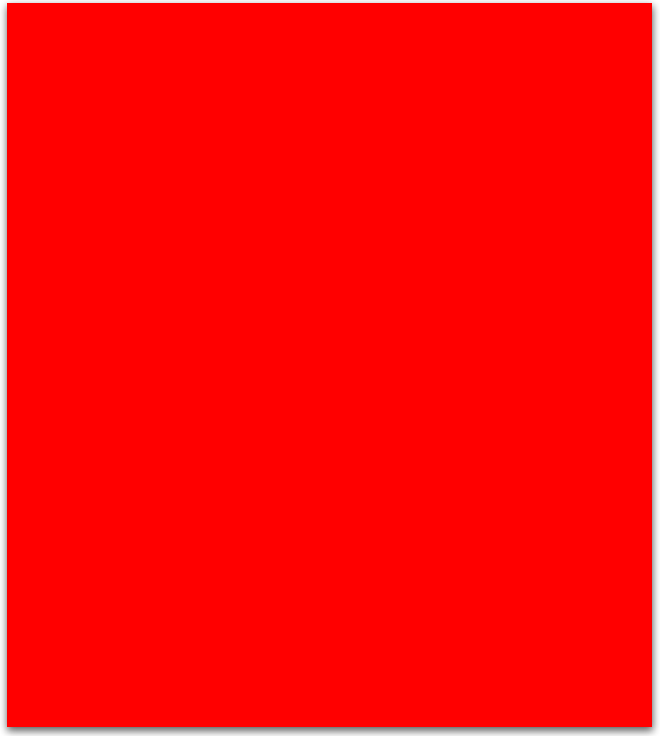

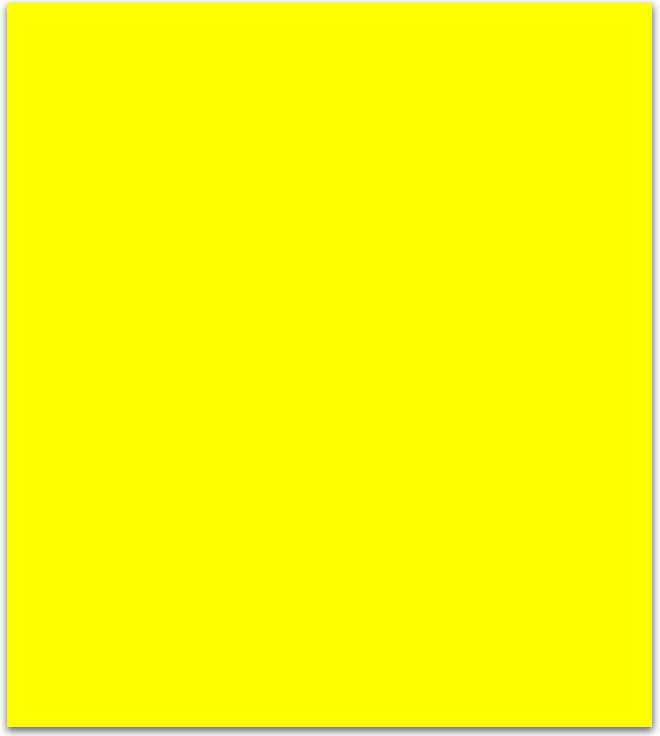

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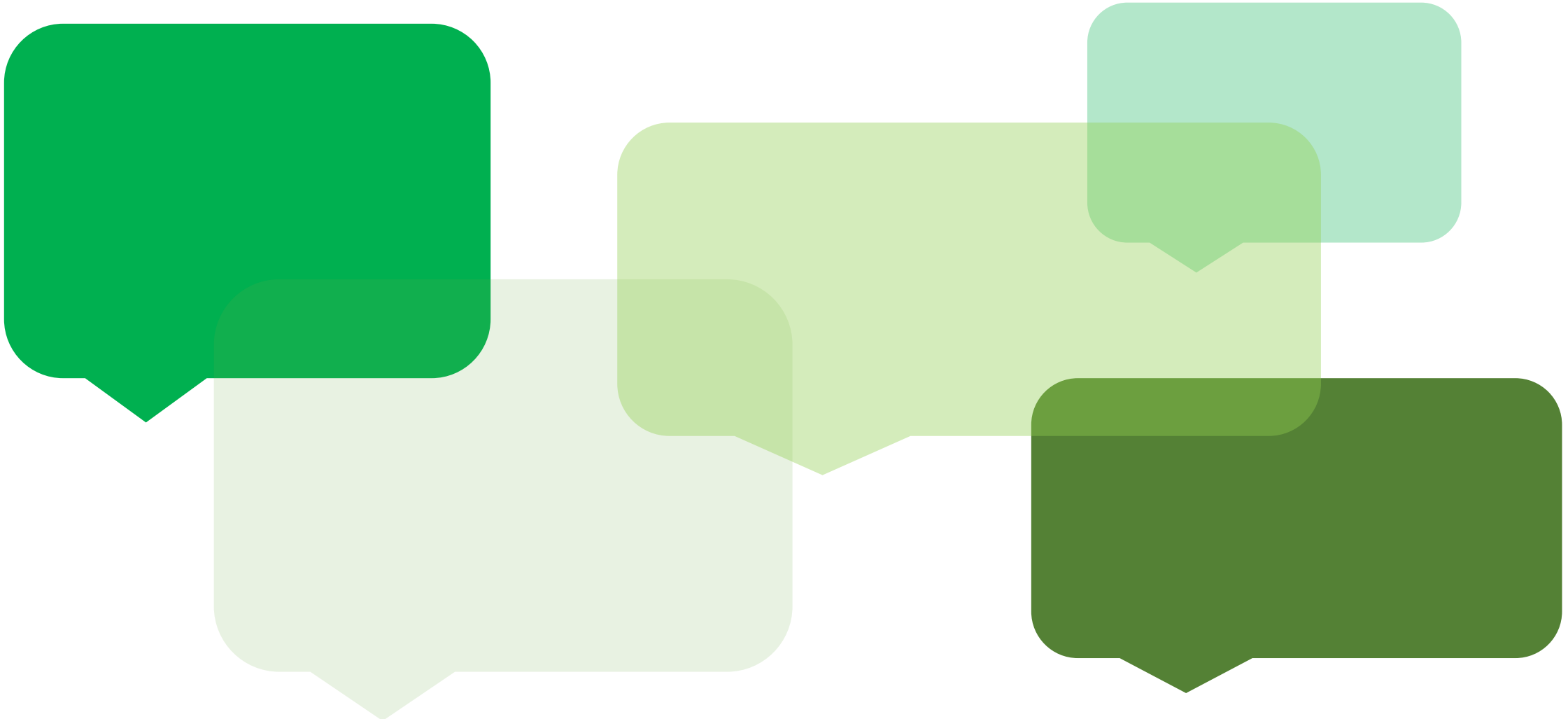


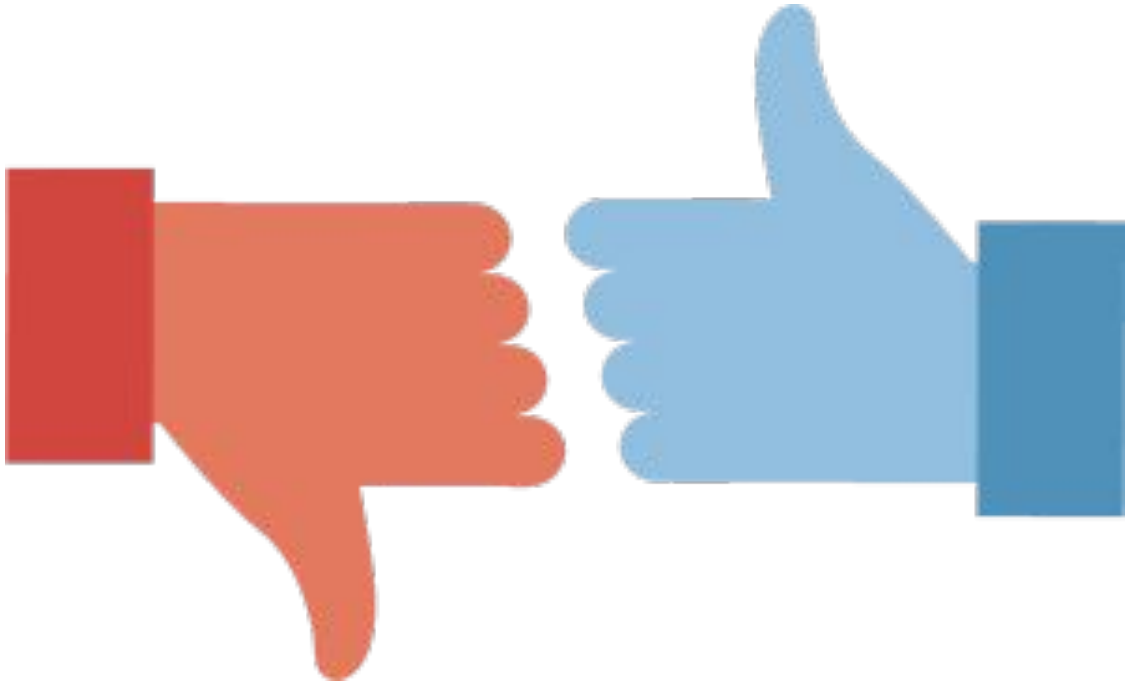
Closing and Evaluation

Reflection

Keep or Change

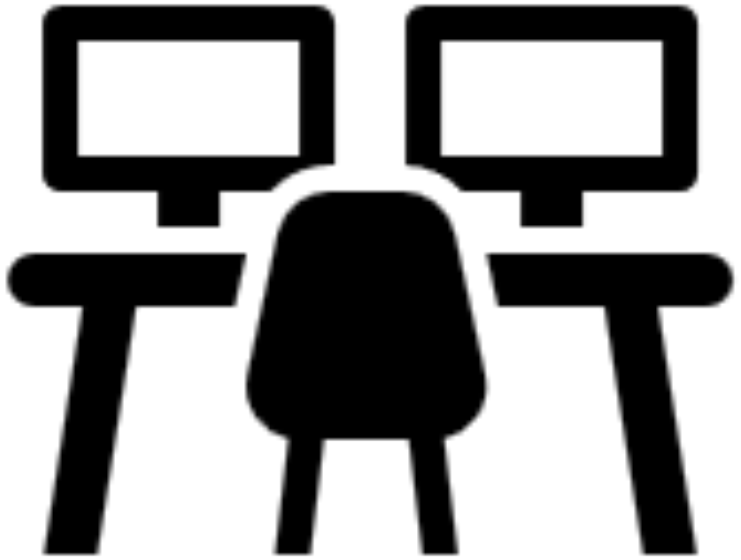
Thinking about today's training, is there anything you would recommend we **keep** doing for tomorrow?

Is there anything you would recommend that we **change** for tomorrow?



What I will apply …

What is 1 thing you learned today that you will apply in your work when you return from the training?



Questions

Salamat!