Microsystems
At A Glance

A Quick-Look Guide
Developed by Microsystem Members
for Microsystem Members

clinicalmicrosystem.org

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“Microsystems at a Glance” was developed by colleagues from Lucile Packard Children’s Hospital at Stanford University Medical Center in Palo Alto, California in an effort to provide the “big picture” and an overview of microsystem development to new members beginning the developmental journey.

The original document has been circulated in the USA and the world to those who are using the microsystem development curriculum, processes, and tools to support their journey to become a high performing microsystem. Feedback and revisions have been incorporated as the booklet has traveled. This booklet is a revised and updated version that offers an overview and quick summary of the various methods, tools and processes to provide a “big picture” and road map of the improvement journey.

The website, www.clinicalmicrosystem.org provides the foundation to the “Microsystems at a Glance” including an electronic version to download and print. You will find additional materials and resources to complement this booklet, including videos, worksheets, publications, stories, contacts, and the electronic version.

Special acknowledgement to Coua Early, for the original design and formatting and her continued commitment to sharing the research findings with other microsystems around the world.

As always, we look forward to your stories and feedback about this resource.

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Introduction and Welcome

The aim of “Microsystems at a Glance” is to introduce and attract new colleagues to the developmental journey to become a high performing microsystem based on the Robert Wood Johnson research. “Microsystems at a Glance” can help activate microsystem transformation by providing an overview and quick introduction to the body of knowledge, various tools, and processes to make it easier to begin improving care in the workplace. The transformation will result in being able to “provide exceptional care AND continuously improve your care delivery system.”

It is with great enthusiasm that we welcome you to the microsystem journey. Your input and participation in the process of making good things happen in your practice are invaluable. We all know that quick fixes don’t tend to last. Through microsystem development and learning about the scientific approach to change, the “fix,” when it happens, tends to “stick” more long term. We want to work smarter, not harder. To make this happen, we need to apply methods and tools of the microsystem approach to quality improvement in health care.

We can all think of things we do every day that seem like they could be done more efficiently. By looking at how we do things, and always keeping in focus that our goal is exceptional, safe patient care, we can find ways to work more effectively and efficiently. In the pages ahead you will get a brief outline of the methods and tools used to create positive change in your microsystem.

Quality is Personal

Essentially, microsystem development is learning to work together as an interdisciplinary group to change our workplace, resulting in better quality improvement and outcomes for patients and families. We are looking to improve patient care and the workplace. One of the best ways to apply the methods and tools that we learn in microsystem development is to practice on a personal project. Attempting to “improve” something in our lives on a personal level allows us to practice the tools and therefore gain a better personal understanding.

Several individual “quality is personal” examples follow:

“I used "quality is personal" to improve my email "habits". I used the tools to look at how I could better stay ahead of my emails and be organized. I tracked data, keeping a log for 3 weeks of my inbox at home and at work. Then I looked at possible solutions and asked other people how they managed their email. Finally, I came up with a plan to improve my email and implemented it. I then tracked data for several days to see if my steps to improvement were working. The changes I made became habit and I was able to improve my emailing habits. The same is true with everything we do personally and at work. If we track the data, see trends, search how others do the work and then brainstorm to improve a process, we can make positive things happen. Remember if you can’t measure something, you really can’t improve it. We can improve our quality. Using the quality improvement methods and tools on a personal quest will help improve our confidence with the methods and tools for other areas of life, like work.”

(Roberts Harry V, Sergesketter, Bernard F, Quality is Personal, The Free Press, NY, NY, 1993.)
"The more I do improvement the more I realize that this is the essence of much of what we try to do."

Effective Meeting Skills
For meetings to be productive, we follow a standard format that includes the following: ground rules of the meeting, meeting roles, and a set timed agenda prepared ahead of time. By following a set plan for our meetings, time is spent more efficiently and everyone who attends has a similar expectation of the meeting. Meeting roles should be rotated amongst the team to provide an experience of assuming each of the roles and to practice working together differently.

Meeting Ground Rules Example
1. Be present and ready to begin on time (Arrive early to start on time).
2. No side conversations.
3. Cut off lengthy discussions and assign offline actions as necessary.
4. Assign a leader, facilitator, recorder, and timekeeper at the beginning of each meeting.
5. Have and follow an agenda - add times for each agenda item.
6. If you oppose, you must propose.
7. Assign action items only to people present at the meeting.
8. Choose action item due dates with 80% confidence.
9. Strive for 100% on time but provide advance warning if an action item will not be completed on time.
10. Use process check, “Is this what we want to be discussing right now: Should the subject be taken offline from here?”
11. If things get heated, focus on the situation or issue, not the person.
12. Respect for each other no matter how contentious the topic.
13. Agree to the mental model of being “unconditionally constructive” while we are working together.

Meeting Roles
Leader of the meeting: Prepares agenda, moves agenda, elicits participation
Recorder: Visual record for the group, next action list
Timekeeper: Verbally announces amount of time remaining and when time is up
Facilitator: Helps to manage group process, balances participation, keeps group focused on objectives
Participant: Follows the ground rules, keeps an open mind to new ideas, arrives early to start on time
**Agenda**

The agenda is an important part of your productive meeting and will help set the agenda for the next meeting through action planning. By setting the agenda, participants can prepare for the work that is expected to be accomplished during the meeting. Specific tasks are listed, and responsible persons noted. This way there is no question who to follow up with for action items. With the agenda, the first part of the meeting is to assign the roles listed for meetings. This helps you to stay on task before you get started. Jobs or participation are never assigned to absent team members because it doesn’t allow for discussion or true ownership of the task. If someone is unable to attend meetings, but is willing to take on a task, that should be announced to the team only if a firm commitment is made by the absent team member. Finally, every meeting should be evaluated for its effectiveness. This should happen the last few minutes of the meeting. Team members who score the meeting should be prepared to express why they scored the meeting in the way they did. Using a scale of 0-10 with 10 being the best meeting ever and describing what went well and what could be improved helps develop open communication amongst the team and to also provide feedback on your meeting process.


**Microsystem Improvement Process (MIP) Spiral**

The Microsystem Improvement Process Spiral is a picture of the organized and disciplined steps of any quality improvement initiative you decide to take on. Before beginning any improvement, the following actions should be taken; assessment, theme, global aim (which will include a flow chart), specific aim (which will include a fishbone), change ideas including benchmarking, review of the literature and evidence-based practice with brainstorming to lead to tests of change with measures. Moving from the assessment stage through the MIP Spiral, we take a systematic approach toward our quality improvement goals.
Microsystem Improvement Process Spiral

Assessment

In the assessment phase of the MIP, with your team you will review the strengths of your unit/microsystem and identify what improvement opportunities exist. Using the core and supporting processes assessment worksheet in the microsystem workbook, staff are asked to vote on microsystem processes that worked well and processes that were “broken” (5P assessment - Core and Supporting Processes Assessment Tool). This is part of the initial assessment of your microsystem. In this phase of the MIP, we are “diagnosing” our microsystem problems and coming up with a “plan of care” that will provide a good outcome for our patients and our staff.

(Godfrey MM, Nelson EC, Batalden PB, “Assessing, Diagnosing and Treating” Workbooks, www.clinicalmicrosystem.org, click “Knowledge Center” and then “Workbooks”)

The 5 Ps Framework

The 5 Ps can be thought of as a structured and organized process to visually look into the anatomy of a clinical microsystem to make assessments of current state and processes from a system perspective.

What is the benefit of the 5Ps framework?

It is a useful tool to assist staff to visually review, assess and understand their own microsystem in a new way.
What are the 5 Ps?
The 5Ps are the components that give life to a clinical microsystem. Together they have a common goal or core purpose.

**Purpose:** To achieve the best possible outcomes for patients.

**Patients:** Subgroup of patients such as post-partum patients, newborns, and antepartum patients.

Patients interact with professionals.

**Professionals:** Nurses, Nursing Assistants, Secretaries, Respiratory or Physical Therapists, Physicians, Social Workers, Translators, Lab Technicians, etc.

Staff and patients work together to meet patients’ needs by engaging in direct patient care processes.

**Processes:** Identify Core and Supporting processes of care and services in the microsystem as a key to developing a common understanding and focus for improvement, such as accessing systems and needs, diagnosing problems, creating treatment plans, and following up.

**Patterns:** Patterns measure safety, functional status, risk, patient satisfaction, and balanced outcomes including financial performance. Patterns of leadership, meetings to discuss care delivery, cultural and traditional patterns and symbols, values of the microsystem, communications, and relationships. As a whole they gauge the value of care.

The Assess, Diagnose and Treat Workbooks can be found at [www.clinicalmicrosystem.org “Knowledge Center”](http://www.clinicalmicrosystem.org) and then “Workbooks”) provide guidance to the 5P assessment.

**Background – An Example of a Simple 5 Ps**

- Patients – 5,400 deliveries in fiscal year 2007
- 40 postpartum beds and 12 antepartum beds
- Occupancy rate from 89% - 102%
- Common diagnosis – postpartum vaginal delivery, postpartum c-section delivery; antepartum diagnoses
- Average age of patient – 32 to 37 years
- Average length of stay – 3.3 days
- Professionals
  - Physicians – 78 OBs and 406 Peds
  - Residents – 16 OBs and 66 Peds
  - Nurses – 104; Nurse Travelers 15; Nursing Assistants 16
  - Receptionists - 14; Birth Recorders – 3
**Theme**

When choosing a theme, you want to review what you learned during the assessment phase. From the findings, you want to build on what makes your staff and patients happy and look at what staff and patients find impossible to live with. By looking at these items, you should be able to formulate a theme. You can’t come up with the next step, a global aim, without having a theme from which to work. You will usually find many themes to improve but pick one that will make the biggest difference in the shortest amount of time at the lowest cost to begin with. The improvement journey is continuous - there will future time for all the themes!

**Global Aim**

The global aim is based on the selected theme for Microsystem improvements. The global aim is the big picture of where you want to go. You may find after working with a global aim a complete direction change may be necessary. By using the Global Aim Template, you can formulate your own global aim.

"We aim to (insert the name of the process) in (insert the clinical location in which the process is embedded). The process begins with (give a starting point) and ends with (give an ending point). By working on this process, we expect to (list expected benefits). It is important to work on this now because (list the imperatives).

An example of a global aim is below:

**Global Aim Statement**

We aim to improve the communication process in maternity. The process begins with specific patient care needs and those who provide services. The process ends when the patient needs are met. By working on the process, we expect to see our patients’ and staff satisfaction scores increase, interdepartmental relationships improve and an efficient use of time. It is important to work on this now because we are tired of being broken.

**Process Mapping**

With the global aim now written, mapping the process is the next step. Process mapping, simply stated, is a diagram of the current process you wish to improve. Gathering the information to create the process map will give your improvement a better chance to succeed.

In coming up with a global aim and process mapping, it is often helpful to use one of the improvement tools called a flowchart. A flowchart is basically a picture of the steps in a process in the order they occur. Using different symbols, a visual diagram of the process can be created. These same diagrams can be used to plan a project, describe a process, or document a standardized way of doing things. The flowchart is meant to show the process as it CURRENTLY exists. When the process improvement is completed, the flowchart may be used in the playbook to show the process. See the symbol key to identify the meaning of each symbol in the chart.
Specific Aim

The specific aim statement is essentially the meat and potatoes of where you want to go with your improvement and includes specific numeric goals after you create the process map. The specific aim is focused and to the point. It is where you want to get with your improvement, the finish line so to speak. It includes measurable outcomes that are clear. These outcomes help maintain the intention and focus. Also included in a specific aim is the target date for completion.

Specific Aim Template: A specific aim statement should include numerical goals, specific dates, and specific measures. Specific aim: (list), Measures: (list).
An example of a specific aim

**Specific Aim Statement**

We will increase the number of daily huddles at the beginning of shift from zero to 15 per week by November 1, 2021.

**Cause and Effect – Fishbone Diagrams**

In moving through the Microsystem Improvement Process Spiral, you want to next look at cause and effect. This cause and effect are part of the science of making a change. You want to see if you can influence the cause and effect relationship(s). We realize not one thing can “cause” something to happen, there may be multiple things that “cause” an effect which is why the fishbone helps to identify all the causes.

The fishbone is a way of diagramming the cause and effect relationship(s). The fishbone can stimulate the formation of impressions that would be worth doing a PDSA cycle on (PDSA - **Plan**, **Do**, **Study**, and **Act**). The fishbone, by its design, encourages looking at problems on a deeper multi-causal level. By narrowing things down and looking deeper, more potential solutions may become apparent. From the main bones of the fish, you look at categories of causes, for example, equipment, people, materials, and process. From the smaller bones of the fish, you gather the contributing factors.

So, for example, let’s say you are looking at the process of exercising. The things that might prevent you from exercising could be lack of equipment, no partner to exercise with, or you may not have proper materials or instruction. By using a fishbone, you could visually identify where the problems were and start addressing them in the PDSA cycles.

**Fishbone Diagram Example**

![Fishbone Diagram](image-url)
Fishbone Diagram

Example of a Fishbone of causes for lengthy appointments in an ambulatory practice.


Fishbone (Cause and Effect) of Lengthy Appointments

<table>
<thead>
<tr>
<th>People</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical staff inconsistent</td>
<td>Support staff trained</td>
</tr>
<tr>
<td>No one responsible for patient flow</td>
<td>Patients arrive with more needs than originally stated</td>
</tr>
<tr>
<td>Providers are late</td>
<td>Support staff unprepared for patient visits</td>
</tr>
<tr>
<td>Inventory low</td>
<td>Equipment broken</td>
</tr>
<tr>
<td>Charts are missing</td>
<td>Equipment missing</td>
</tr>
<tr>
<td>Materials</td>
<td></td>
</tr>
<tr>
<td>Process</td>
<td></td>
</tr>
<tr>
<td>Desired Result</td>
<td></td>
</tr>
<tr>
<td>Major categories of potential “drivers”</td>
<td></td>
</tr>
<tr>
<td>Specific potential “drivers”</td>
<td></td>
</tr>
</tbody>
</table>

Change Ideas

Change ideas provide a list which you will generate your actual changes. By using benchmarking, review of best practices, evidence-based practice, and networks with brainstorming you can formulate your actual change for a PDSA cycle. By formulating change ideas, you can identify what tests you will need to do for your PDSA cycles.

**Benchmarking** looks at how other places do the same or similar process. It’s a way of looking for the best of the best or best practice. Why re-invent a process when another hospital or company is already successful with a similar process? By drawing on their experience, time and money can be saved. The company or hospital you
choose to do benchmarking with now also becomes a resource for questions and problems with process when you bring it to your unit or hospital. Sometimes when benchmarking a process, new ideas of change around that process can be generated and adapted to your own unique setting. It can truly be a win/win endeavor.

**Brainstorming** is meant to generate lots of ideas for change within the framework of your specific aim. Brainstorming helps you to build knowledge of potential change ideas. All members of the team are invited to add ideas to the list. In a brainstorming session, you want to first review the topic you are discussing. Make sure everyone understands the topic and its relationship to the specific aim. Allow a couple of minutes of silent thinking before proceeding with the actual brainstorming. Encourage everyone in the group, regardless of their role in the group, to throw out ideas no matter how crazy. During the brainstorming period, there is to be no discussion and no criticism of any idea submitted. The ideas should be written on a flipchart or board so all members of the team can see and read them. Now that you have this big list, discuss the ideas and make sure they are clear to the team. Have team members prioritize, in their heads or on paper the top 1/3 of the total ideas from the list. It is useful to use “selection criteria” to help choose the top ideas. Selection criteria is usually that the idea is easy to do, doesn’t cost any money, could be started on Monday, and will have the biggest impact on improving patient care and staff workplace.

You now need to begin to narrow the list of ideas. This can be done by using the technique of multi-voting. This process allows members of the team to vote for their top 1/3 of the total choices, then, a second voting is done by selecting the ideas that had the most votes. This then shortens the list further by a second round of voting so that you come up with one or two ideas to work on to test as a group.

**Driver Diagrams**

The driver diagram is a tool to organize and track multiple improvements to achieve the “Global Aim” of the “Theme” of improvement. The driver diagram also shows the relationships among the theme, global aim, specific aims, measures, and PDSA cycles in a quick, visual way. Creating a “Gantt chart” to add pace to the improvement is often helpful. The driver diagram can be used in two ways for improvement teams:

1. Use at the beginning of improvement to list and organize the evidence-based, best-known practices and other improvement PDSA cycles to conduct to reach the goals of improvement. The PDSA cycles can be conducted one-by-one (especially when you are learning improvement skills).
2. Use as a road map when multiple staff know the discipline of improvement and multiple PDSA cycles can be conducted simultaneously to move in a more timely fashion toward the desired aim.
Measures – “Improvement measurement begins with one data point” - R. Messier

Measurement starts at the beginning of the improvement journey when you assess your 5 Ps. If you review the Assess, Diagnose and Treat Workbooks, you can see where you can start measurement with Tick and Tallys leading to Run Charts. Measurement is important to measure or evaluate the changes implemented. You will see in the PDSA cycle that measures or evaluation is included in the process. You can’t improve something you can’t measure. It is the oldest principle of scientific experimentation. You must be able to measure your outcome. Numeric measures are the easiest to post on a chart or graph. Good measures have several important components. They should answer important questions. They should be reliable and valid, not based on opinion, and they should be based on fact and data. It takes good measures to determine whether your global aim and specific aims are being met. You need to remember to keep your aim in mind: What are we trying to accomplish? Measurement answers the question, “How do we know if change is improvement?” Run and control charts are often used to measure outcomes. You will learn more about the run chart below.

Run Charts

A run chart is a graphic display that allows a team to measure a process trends or patterns over a specified period of time.
Reasons Why Run Charts Are Used

1) They are easy to make and interpret.
2) They provide a picture of how a process is performing.
3) They can be used to detect problems, to determine if microsystems are performing at the targeted level, to determine if changes are being made, and to unveil causes influencing the process.

Run Chart Example

PDSA is known as the model for improvement. The focus of the PDSA is experimentation. This model has four steps to test changes, provides a way for testing ideas, learning from the testing and moving ahead with better-informed actions to make improvements.

P- PLAN  you describe and plan the objective and the specific change to be tested along with design great detail to the improvement to be made.

D-DO  the pilot test is carried out based on the preparations in the planning step.

S-STUDY  is the study period of time used to analyze the data and how the pilot test went.

A-ACT  team decides whether or not idea being tested should be modified or abandoned based on the results attained.
What are we trying to accomplish?
How will we know that a change is an improvement?
What changes can we make that will result in an improvement?

Once the desired specific aim is achieved, SDSA (Standardize-Do-Study-Act) is used to standardize the process until the time comes to make new improvements.

SDSA is the other half of making improvement that has staying power.

**S-STANDARDIZE** the process is integrated into daily work.

**D-DO** is what is being done to ensure the new standardize process is being maintained.

**S-STUDY** with measures that tell you that the process is being done consistently.

**A-ACT** to ask, “are the standardized processes occurring all the time?’ Reflect on what changes need to occur and be tested.
The PDSA and SDSAs have a back and forth relationship. Continuous review and 
evaluation will tell you if the best practice is in place and if you need to move back 
to PDSA. Once you have finalized the SDSAs for standard practice, a “play” in the 
PLAYBOOK should be created to ensure the best practice is carried out at the right 
time, by the right person, every time.

**The Microsystem Playbook**

The Playbook provides a collection of tested “best practices” or “plays” to be used by 
the members of the microsystem to help sustain all the improvement efforts and 
results in the microsystem. The Playbook consists of finalized FLOWCHARTS, tools to 
audit and measure the frequency of the “play” being completed and a regular 
schedule to review the plays to ensure they are current. The Playbook is often used 
to; interview potential new employees of the microsystem, orient new members of 
the microsystem, and hold members accountable during performance evaluations to 
ensure “best practice” is being executed in the microsystem every time by everyone 
to get the best results.

**Waste and 5S**

Waste is anything other than the minimum amount of equipment, materials, space, 
and worker’s time which are essential to add value to the product of service. Waste 
is a symptom, not a cause, of a problem.

**The 5S**

<table>
<thead>
<tr>
<th><strong>SORT</strong></th>
<th>Sort through items, keep only what is needed, and dispose of what is not.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STRAIGHTEN</strong></td>
<td>Orderliness.</td>
</tr>
<tr>
<td><strong>SHINE</strong></td>
<td>Cleanliness. The cleaning process allows us to inspect and expose abnormal or failure conditions that affect quality.</td>
</tr>
<tr>
<td><strong>STANDARDIZE</strong></td>
<td>Create rules to monitor first 3 Ss.</td>
</tr>
<tr>
<td><strong>SUSTAIN</strong></td>
<td>Self-discipline. Maintaining a stabilized workplace is an ongoing process.</td>
</tr>
</tbody>
</table>

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Create rules to sustain the first 3 S’s - neatness
Clean it – cleanliness
Organize & label a place for everything - order
Clear out rarely used items by red tagging - arrangement

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**Benefits of the 5 Ss**

- An organized efficient workplace for improved productivity.
- A cleaner workplace for improved safety.
- Reduction in costs and inventory.
- Gaining valuable floor space.
- Contributes to how we feel about our institute and work environment.
- Provides an inviting and pleasing environment at all times.

The 5 Ss come together to create a continuous process for improving the work environment and eliminating waste or "muda".

MUDA means activity without value. Found in personal and organizational work.

**External Mapping**

External mapping is a visual diagram of the systems that effect your patient population. The map provides a tool to look at which systems within your department and outside of your department impact patients. They may include L&D, pharmacy, NICU, dietary, and others. They may have big or small impacts on the patient.

**Relational Coordination**

Jody Hoffer Gittell, Professor of Management, The Heller School for Social Policy and Management, Brandeis University, Waltham, MA

Relational Coordination

- Measures the quality of relationships and communication involved in the coordination of work
- Matters most for work that is complex, uncertain and time constrained.
- Drives quality, efficiency, satisfaction, and engagement outcomes.
- Is supported and reinforced by relational, structural, and process improvements.
Relational Coordination consists of 7 dimensions in two categories of communication and relationships based on research by Jody Hoffer Gittell. The 7 dimensions are: frequent, timely, accurate, and problem-solving communication, shared goals, shared knowledge and mutual respect. These dimensions are measured within and between units for workgroups (providers, administrators, nurses, secretaries, technologists, residents, etc.)

Relational Mapping can explore communications and relationships and stimulate important conversations.

Relational Coordination can be discussed within unit workgroups and between unit workgroups by creating a relational map. Using three colored markers, (red-low; blue-medium; green-high) the perceived collective “RC” assessment between workgroups and units can be discussed and stimulate new understanding and perspectives to enhance communication and relationships which improve processes and systems.

An example of Relational mapping is here:

**Relational Coordination Surveys**
In some situations, organizations, researchers, and leaders desire more detailed measures. Workgroups (example displayed in relational map) of units can complete a survey that rates the 7 relational coordination dimensions to rate from low, medium and high the individual dimensions of RC at baseline before implementing changes to then re-measure the RC for workgroups in unit and with other units.
The survey questions for each dimension:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent Communication</td>
<td>How <strong>frequently</strong> do people in each of the following workgroups communicate with you about [focal work process]?</td>
</tr>
<tr>
<td>Timely Communication</td>
<td>How <strong>timely</strong> is their communication with you about [focal work process]?</td>
</tr>
<tr>
<td>Accurate Communication</td>
<td>How <strong>accurate</strong> is their communication with you about [focal work process]?</td>
</tr>
<tr>
<td>Problem-solving Communication</td>
<td>When a problem comes up in [focal work process] do people in each of these groups blame others or work with you to <strong>solve</strong> the problem?</td>
</tr>
<tr>
<td>Shared Goals</td>
<td>How much do people in these groups <strong>share your goals</strong> for work in [focal work process]?</td>
</tr>
<tr>
<td>Shared Knowledge</td>
<td>How much do people in these groups <strong>know about</strong> the work you do in [focal work process]?</td>
</tr>
<tr>
<td>Mutual Respect</td>
<td>How much do people in these groups <strong>respect</strong> the work you do in [focal work process]?</td>
</tr>
</tbody>
</table>

(References: https://relationalcoordination.org/
Transforming Relationships for High Performance: The Power of Relational Coordination, Jody Hoffer Gittell, 2016.)

**Generative Relationship STAR Model**
**Brenda Zimmerman Schulich School of Business, Toronto, Canada**

The STAR model is a visual diagram of the generative relationship between people and/or unit services. There are two parts to the generative relationship. One is that the relationship produces something that the individual members could not have produced alone. The second is that the value of the new procedure or service is created by the interaction between the parties. Relationships can be contentious, distant, routine, competitive or generative. The generative relationship is what we strive for in complex systems as they create the greatest potential for creativity and innovation. In the STAR map, we look at separateness, tuning (which translates to
For example, what is the STAR model as it relates to you or your unit’s relationship with another unit or service, L&D and F1/F2, or F1/F2 and pharmacy? Separateness also refers to differences. All parties involved in the relationship need to have skills, backgrounds, and perspectives that are different. If these components are similar, you may be able to have heated conversations and debates, but you will unlikely be challenged and changed. The differences allow for different perspectives and therefore new solutions. Often including patients or family members in the group will help increase the separateness and increase the generative outcomes.

Tuning is related to the need to not only talk, but also to listen to one another. There needs to be opportunity for the two parties or groups to challenge things that don’t appear to be working. There can’t be a “sacred cow” as it may be the very thing that changing could promote a better relationship. We need to be open to all input.

Action is essential to the STAR. Let’s face it, talk is cheap. If you don’t put any action behind the discussion, you haven’t accomplished anything. The parties need to be able to get together to create something.

Reason to work together relates to whether the two units or parties have a reason to work together. There has to be some benefit for both parties aligned with the improvement. If the two parties or groups don’t see value in working together, or if they view one another as adversaries, then it is highly unlikely that the two sides will co-create something of value. They may learn from one another but won’t create something new and different.

This assessment of relationship helps to see the current state of the relationship to engage in constructive conversation to improve communication and insights between the two parties.
**Mental Models**

Mental Models are images, assumptions, and stories we create and carry in our minds about ourselves, others, institutions, and every aspect of the world. Mental models explain why two people can observe the same event and describe it differently - they observe different details. They are below the level of our awareness and are often untested. Mental models must be brought to the surface of awareness to explore and discuss them openly. Thus, new mental models can be created that better serve us and our patients and families.

**Ladder of Inference**

The Ladder of Inference is a mental pathway of increasing abstraction, often leading to misguided beliefs. It demonstrates how quickly we make assumptions and come to conclusions without a rational thought process. It is like rapidly climbing up a ladder in our minds. Some individuals have difficulty hearing what others are saying. Instead, they hear what they expect others to say, have little tolerance for multiple interpretations and can only see their own interpretation. Such individuals spend hours arguing their ideas.

Using the ladder of inference (LOI) improves communication through thinking and reasoning. (REFLECTION)

The LOI makes your thinking and reasoning more visible to others. (ADVOCACY)

The LOI inquires into others’ thinking and reasoning. (INQUIRY)

Reference Guide

The following sources maybe helpful to you.

The Microsystem website has many resources and ideas and is constantly being updated. [www.clinicalmicrosystem.org](http://www.clinicalmicrosystem.org)

Our friends and colleagues at the Institute for Healthcare Improvement have incredible resources and experiences from colleagues around the world to help support your improvement journey. [www.ihi.org](http://www.ihi.org)

Books


**Publications**

*The Joint Commission Journal of Quality Improvement Microsystems in Healthcare original 9 Part Series*


Clinical Microsystem Publications


Glossary

**5 Ps**: a process that visually looks at the anatomy of your unique clinical microsystem.

**5 S**: a system for organizing the workplace and eliminating waste. Includes sort, straighten, shine, standardize and sustain.

**Action Plan**: activities to be achieved in the immediate time period of 1-3 weeks including action items, accountable person and date to be completed to maintain rhythm of improvement.

**Benchmarking**: process of looking at how other places do the same thing. “Best of the best practice”.

**Brainstorming**: idea generating and sharing technique designed to develop quality changes.

**Change Concepts**: stimulants to develop and design detailed and specific tests of change.

**Control Charts**: data display over time that detect amount of variation in a process.

**Driver Diagram**: a tool to organize and track multiple improvements; shows the relationships among the theme, global aim, specific aims, measures, and PDSA cycles.

**External Mapping**: a map or visual diagram of all the systems and units that impact your own unit.

**Fishbone**: cause and effect diagram.

**Flowchart**: pictorial diagram of the steps of any process.

**Gantt Chart**: a visual display that illustrates improvement schedule and timeline to keep improvement pace over 3-12 months.

**Generative Relationships**: a relationship between different groups that “generates” new and different processes which were not present in the separate groups.

**Global Aim**: overall goal of the quality improvement.

**Huddle**: mini staff meeting used to keep all staff aware of current happenings. May include current PDSA, expected admissions and unusual situations on the unit. Does not last more than 7 minutes and is conducted while standing.
**Ladder of Inference:** mental pathway of increasing abstraction, often leading to misguided beliefs.

**Mental Models:** images, assumptions, and stories we create and carry in our minds about ourselves, others, institutions, and every aspect of the world.

**Microsystem Improvement Process:** visual diagram of each step of quality improvement and microsystem development.

**Muda:** any activity without value.

**PDSA:** model of improvement that uses scientific approach, plan-do-study-act.

**Playbook:** the “how we do things” book. Written directions or “plays” for how different activities (usually standardized best practices) are completed on the unit.

**Run Charts:** a graphical display that allows a team to measure a process for trends or patterns over a specified period of time.

**SDSA:** model for standardizing improvement, standardize-do-study-act.

**Specific Aim:** focused aim of the quality improvement including clear measurable goals and target dates.

**STAR Mapping:** diagram for visually identifying the relationship between groups or individuals.

**Stop the Line:** a process by which we take immediate action to stop a process that is broken. Commonly used by the Toyota car manufacturing, but useful in the health care setting as well. An example of a stop the line might be a breast milk exposure, stop and look at the problem right away to keep it from repeating and intervene to keep it from happening again.

**Value Compass:** a tool designed to assist us in measuring the value of the changes we make to healthcare and processes. It looks at 4 balanced components: functional status, cost, satisfaction and perceived benefits, and clinical outcomes.