Measure # 44: Clinical Microsystem Assessment Diagnostic Tool (CMAD)

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Additional Notes:
- The Clinical Microsystem Assessment Diagnostic Tool (CMAD) was adapted by Thomas Huber from the Clinical Microsystem Assessment Tool (CMAT) [Nelson EC, Batalden PB, Huber TP, et al. Jt Comm J Qual Improv 2002;28(9):472-93]. The measure items mapped from the CMAD are nearly identical to those mapped for the CMAT. For further information on the CMAT, see the following pages.
- The CMAD provides an additional leadership diagnostic as well as 10 open-ended questions for each of the success characteristics. Open-ended questions were not mapped.
- The CMAD has been modified for use by front-line clinicians (T. Huber, personal communication, November 18, 2010).
Dear Healthcare Colleague,

The Clinical Microsystem Assessment Diagnostic is designed to help front line clinicians and managers improve performance in their natural work teams or “microsystems”.¹ A microsystem consists of the unit based team, the work processes, and performance outcomes for a defined population of patients.

The CMAD diagnostic has been developed and shaped by research and consulting with high performing healthcare teams across the healthcare continuum in North America. We have been researching high performance in healthcare since 1995 and have worked at the unit level to improve healthcare performance.

My colleagues and I have learned that ten success characteristics are associated with high performing microsystems including: leadership, organizational support, front line team member focus, education and training, teamwork, patient focus, community orientation, performance improvement, process and systems orientation, information and communication).

More information can be found in the Joint Commission Article Series on High Performing Microsystems.²

“Microsystems” consist of front line care delivery team members, work systems, and performance outcomes for a defined population of patients.

The CMAD assesses current levels of performance at the microsystem level and helps guide the improvement of quality, safety, service, and culture with front line care teams across each of the ten success characteristics associated with high performance.

We wish you continued success in improving microsystem performance in your local microsystems and organizations.

Kind Regards,

Thomas Huber, MS ECS

¹ The microsystem concept was developed by a group of researchers at Dartmouth Medical School by Paul Batalden, Eugene Nelson, Thomas Huber, Julie Johnson, and Margie Godfrey. The clinical Microsystems framework emerged from the 2000 Dartmouth Medical School research “Mapping and Disseminating Microsystems in Health Care”, funded by the Robert Wood Johnson Foundation. Additional information can be found at www.clinicalmicrosystem.org, and Thomaspatrick@mac.com.

Clinical Microsystem Assessment Diagnostic (CMAD)

1. **Leadership**: The role of leaders is to balance setting and reaching collective goals, and to empower individual autonomy and accountability, through building knowledge, respectful action, reviewing and reflecting.

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<td>Leaders often tell team members how to do their job and leave little room for innovation and autonomy. Overall, we don’t always foster collaboration and empowered team members.</td>
<td>We sometimes struggle to find the right balance between reaching performance goals and supporting and empowering the team. We have regular huddles and team meetings where everyone is encouraged to speak up.</td>
<td>We maintain a consistent purpose in our work, establish clear goals and expectations, and foster a respectful positive culture. We take time to build knowledge, review and reflect, and exchange ideas for building on our leadership.</td>
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**Leadership Questions**: Individually and as a team, review and rate each question below (1 = low, 5 = high)

- a. We have a consistent purpose and clear, established goals for the team.
- b. We balance setting and achieving group goals with individual autonomy and accountability.
- c. We continually foster a positive work culture and mutual respect between our professional disciplines.
- d. We are recognized as leaders and leading improvement by the larger organization.
- e. We continually build knowledge and reflect on how to improve our leadership.

**Leadership Open Ended Questions**: Review the questions below and discuss them during a team leadership meeting.

- f. Does your leadership team meet on a regular basis to discuss leadership goals for the microsystem?
- g. How are changes in the microsystem, i.e., new goals, communicated to the rest of the team members? Do you get buy-in ahead of time, do you involve everyone?
- h. How frequently does your leadership team meet with team members to hear their ideas? How frequently do your individual disciplines meet to share improvement ideas?
- i. Do you engage team members in building a positive culture in the microsystem and respect between the individual professional disciplines?
- j. How often does your team engage in conversations about microsystem leadership? What kinds of topics for leadership do you discuss?

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Clinical Microsystem Assessment Diagnostic (CMAD)

2. Organizational Support: *The larger organization looks for ways to support the work of the microsystem and coordinate the hand-offs between microsystems.*

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<td>The larger organization isn’t supportive in a way that provides recognition, information, and resources to enhance our work.</td>
<td>The larger organization is inconsistent and unpredictable in providing the recognition, information, and resources needed to enhance our work.</td>
<td>The larger organization provides timely recognition, information, and resources that enhance our work and makes it easier for us to meet the needs of our patients.</td>
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**Organizational Support Questions:** Individually and as a team, review and rate each question below (1 = low, 5 = high)

a. The larger organization constantly looks for ways to connect to and facilitate the work of the microsystem.
   - 1 2 3 4 5

b. The larger organization facilitates the coordination and hand-offs between our microsystem and other microsystems in the hospital.
   - 1 2 3 4 5

c. The larger organization recognizes the work we do and provides recognition by congratulating our microsystem on achieving our goals formally and informally.
   - 1 2 3 4 5

d. The larger organization provides us with the right information and feedback, and provides good communication about changes that impact us.
   - 1 2 3 4 5

e. The larger organization provides us with right level of resources and support to help us take better care of our patients.
   - 1 2 3 4 5

**Organizational Support Open Ended Questions:** Review the questions below and discuss them during a team leadership meeting.

f. In what ways does the larger organization currently support the work of your microsystem?

g. How are changes that impact the microsystem, i.e., new goals or changes, communicated by the larger organization?

h. How often do you interact with the larger organization, what is the format?

i. In what ways could the larger organization show more support for the work of the microsystem?

j. How do you interact with other leadership team members in various microsystems throughout the hospital, what is the format?
Clinical Microsystem Assessment Diagnostic (CMAD)

3. Team members Focus: There is selective hiring of the right kind of people. The orientation process is designed to fully integrate new team members into culture and work roles. Expectations of team members are high regarding performance, continuing education, professional growth, and networking.

1 (Low) 2 3 4 5 (High)

We don’t have a good selection process and orientation for new team members. We don’t have a formal integration process for new members. There is a lack of continued education and professional growth.

We sometimes select for a good cultural fit and orient new members to our team. The microsystem is working on improving the education and training of team members, workload, and professional growth.

We always select for both cultural and performance in new team members. All of us feel as valued members of the microsystem. We have great education and training, workload management, and professional growth.

Team members Focus Questions: Individually and as a team, review and rate each question below (1 = low, 5 = high)

a. Our hiring process is highly selective and potential team members are interviewed by our team to make sure the cultural fit is right.
   1 2 3 4 5

b. Our orientation process is designed to fully integrate new team members into our microsystem culture and work roles.
   1 2 3 4 5

c. We meet regularly to evaluate our team member performance and set high standards with regard to continuing education and professional growth.
   1 2 3 4 5

d. All of us feel as valued members of the microsystem and our input is very important to the way we do the work.
   1 2 3 4 5

e. We carefully align professional competencies with the work of the microsystem.
   1 2 3 4 5

Open Ended Questions: Review the questions below and discuss them during a team leadership meeting.

f. What is your selection and hiring process? Describe the selection and hiring process.

g. How are new members oriented to the microsystem? Describe the orientation process.

h. How do you evaluate performance of team members? How often is performance reviewed and discussed? During the evaluation are continued education and professional growth discussed and action plans created for everyone?

i. How do you incorporate team member input and ideas into the functioning of the microsystem? Please give one example of this.

j. How do you align professional competency and work roles in your microsystem?
4. **Education and Training:** All clinical microsystem team members have the responsibility for ongoing education and training, and for aligning daily work roles with training competencies.

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<td>Training is accomplished in disciplinary silos, e.g., nurses train nurses, physicians train residents, etc. The educational efforts are not aligned with the flow of patient care, so that education becomes an add-on.</td>
<td>We recognize that our training could be different to reflect the needs of our microsystem, but we haven’t made many changes yet. Some continuing education is available to everyone. Education and daily work is starting to be aligned.</td>
<td>There is a team approach to training, whether we are training team members, nurses or students. Education and patient care are integrated into the flow of our work. Continuing education for all team members is recognized as vital to our success.</td>
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**Education and Training Questions:** Individually and as a team, review and rate each question below (1 = low, 5 = high)

a. We are very satisfied with our current training and teaching in our microsystem.

b. We have a team approach to knowledge building. Training is interdisciplinary and across our various disciplines.

c. Our educational efforts are tied to the flow of patient care. Our training occurs in real-time and at the bedside.

d. Training programs are integrated and aligned with the work of the microsystem.

e. Resources are available to all team members for ongoing education and training.

**Education and Training Open Ended Questions:** Review the questions below and discuss them during a team leadership meeting.

f. How is the current training and education in your microsystem accomplished?

g. Is training accomplished by disciplinary silos, or do you have a team approach to knowledge building? Please describe.

h. Are your educational efforts tied to the flow of patient care? Please describe.

i. How do you integrate new programs and education into the work of the microsystem?

j. Are resources available to all team members for ongoing education and training? Please describe.
Clinical Microsystem Assessment Diagnostic (CMAD)

5. Interdependence of Care Team: The interaction of team members is characterized by trust, collaboration, willingness to help each other, appreciation of complementary roles, respect and recognition that all contribute individually to a shared purpose.

1 (Low) 2 3 4 5 (High)

| Team members work independently and are responsible only for their part of the work. There is a lack of collaboration and a lack of appreciation for the importance of teamwork. | The care approach is interdisciplinary, but we are not always able to work together as an effective team. Individual contributions are weighed more heavily than being a team player. | Care is provided by an interdisciplinary team characterized by trust, collaboration, appreciation of complementary roles, and we recognize that all team members contribute to the shared purpose. |

Interdependence of Care Team Questions: Individually and as a team, review and rate each question below (1 = low, 5 = high)

a. The care approach in our microsystem is characterized by collaboration and an appreciation for complementary roles.
   1 2 3 4 5

b. There is a great respect and recognition that all team members contribute to a shared purpose.
   1 2 3 4 5

c. Our microsystem functions as a multidisciplinary team. Teamwork characterizes our way of doing our work.
   1 2 3 4 5

d. Although individuals in our microsystem are held accountable for their contribution to our work, there is a strong willingness to help each other.
   1 2 3 4 5

e. We have very good trust and respect among our various professional disciplines.
   1 2 3 4 5

Interdependence of Care Team Open Ended Questions: Review the questions below and discuss them during a team leadership meeting.

f. Tell us about your teamwork in the microsystem. How do your disciplines work together to deliver care?

g. To what degree is there collaboration in the microsystem and an appreciation for complementary roles?

h. Does everyone in your microsystem share a common purpose and shared goals? Are team members aware of how they contribute to the goals of the microsystem?

i. Give us an example of how team members exhibit a willingness to help each other.

j. To what degree is there respect and trust between the professional disciplines in the microsystem?
6. **Patient Focus**: The primary concern is to meet all patient needs – caring, listening, educating, and responding to special requests, innovating to meet patient needs, and great service.

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<td>Many of us, including our patients and families would agree that we do not always provide patient centered care. We are not always clear about what patients want and need.</td>
<td>We are actively working to provide patient centered care and we are making progress toward consistently learning about and meeting patient needs.</td>
<td>We are effective in learning about and meeting patient and family needs – caring, listening, and responding to special requests and great service is the norm.</td>
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**Patient Focus Questions**: Individually and as a team, review and rate each question below (1 = low, 5 = high)

a. The primary concern of the microsystem is to meet all patient needs.
   
   1 2 3 4 5

b. The microsystem can respond to individual needs of our patients, we are constantly innovating to make sure we meet the needs of our patients.
   
   1 2 3 4 5

c. The service flow and patient care process is centered on our patients.
   
   1 2 3 4 5

d. Most of our resources are based on our patients. We have the right amount of resources to provide great care to our patients.
   
   1 2 3 4 5
e. We collect data around patient centered care and know how well we are doing in terms of quality and service of care for our patients.
   
   1 2 3 4 5

**Patient Focus Open Ended Questions**: Review the questions below and discuss them during a team leadership meeting.

f. How do you go about assessing your microsystem in terms of patient centered care delivery?

g. Is your microsystem able to handle the individual needs of patients? How flexible is your microsystem to special needs of patients?

h. How does your microsystem deliver patient focused care, what steps have you taken to design patient centered care?

i. How well do your available resources meet the demands of delivering patient care?

j. Do you currently collect data on patient focused care; can you give us an example?

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7. **Community and Market Focus:** The microsystem is a resource for the community; the community is a resource for the microsystem; the microsystem establishes excellent and innovative relationships with the community (patient and family population) it serves.

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<td>We focus on the patients who come to our microsystem. We haven’t implemented any outreach programs in our community. Patients and their families often make their own connections to the community resources they need.</td>
<td>We have tried a few outreach programs and have had some success, but it is not the norm for us to go out into the community or actively connect patients to the community resources that are available to them.</td>
<td>We are doing everything we can to understand our community. We actively employ resources to help us work with the community. We add to the community and we draw on resources from the community to meet patient needs.</td>
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**Community and Market Focus Questions:** Individually and as a team, review and rate each question below (1 = low, 5 = high)

a. We have developed several ways of connecting to our community, i.e., outreach programs.
   1  2 3 4 5

b. Our microsystem is a resource for our community, and the community is a resource for our microsystem.
   1  2 3 4 5

c. We constantly strive to find innovative ways of connecting with our community.
   1  2 3 4 5

d. We collect data on our community and have measures that tell us how well we are doing.
   1  2 3 4 5

e. Our microsystem serves our community with resources from our larger organization.
   1  2 3 4 5

**Community and Market Focus Open Ended Questions:** Review the questions below and discuss them during a team leadership meeting.

f. Describe a few of your outreach programs, how are you currently connecting with your community?

g. What kinds of services are you offering to the community?

h. How often do you currently connect with your community?

i. What kinds of data do you collect on your community?

j. How does your community support the work of the microsystem?
8. **Performance Results:** Performance focuses on patient outcomes, avoidable costs, streamlining delivery, using data feedback, promoting positive competition, and open discussions about performance.

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<td><strong>We don’t routinely collect data or measurements on the process or outcomes of the care we provide.</strong></td>
<td><strong>We often collect data on the outcomes of the care we provide and on some process of care.</strong></td>
<td><strong>Outcomes (clinical, satisfaction, financial, technical, safety) are routinely measured, reviewed by the team, and acted on to improve patient care.</strong></td>
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**Performance Results Questions:** Individually and as a team, review and rate each question below (1 = low, 5 = high)

- a. We routinely measure outcomes on patient care and avoidable costs to streamline delivery processes.
  
  1  2  3  4  5

- b. We routinely use data to improve the work of our microsystem across a variety of cost and quality metrics.
  
  1  2  3  4  5

- c. We use a dashboard of metrics to assess the work of the microsystem, including clinical, satisfaction, financial, technical, and safety measures.
  
  1  2  3  4  5

- d. We utilize performance metrics in our conversations with team members about how the microsystem is doing.
  
  1  2  3  4  5

- e. We utilize our performance metrics in our discussions with the larger organization to report back how the microsystem is performing.
  
  1  2  3  4  5

**Performance Results Open Ended Questions:** Review the questions below and discuss them during a team leadership meeting.

- f. What kinds of performance data do you currently collect on the functioning of your microsystem, i.e., clinical, process, satisfaction, quality, financial metrics?

- g. How do you utilize the data that you gather on the functioning of the microsystem?

- h. Do you share performance metrics with your team members? If yes, how so.

- i. Do you share performance metrics with your larger organization? If yes, how so.

- j. What kind of additional measures would you like in terms of improving your microsystem performance assessment?
9. Process Improvement: An atmosphere for learning and redesign is supported by the continuous improvement of care, use of benchmarking, frequent tests of change, and team members that have been empowered to innovate.

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<td>The resources required (in the form of training, resources, and time) are rarely available to support improvement work. Any improvement activities we do are in addition to our daily work.</td>
<td>Some resources are available to support improvement work, but we don’t use them as often as we could. Change ideas are implemented without much discipline. We aren’t focusing on sustaining change yet.</td>
<td>There are significant resources to support continual improvement work. Studying, measuring, and improving care are sustained and are essential parts of our daily work.</td>
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**Process Improvement Questions:** Individually and as a team, review and rate each question below (1 = low, 5 = high)

- a. Studying, measuring, and improving care are essential parts of our daily work.
  
  1   2  3  4  5

- b. We have an atmosphere of learning and redesign supported by continuous improvement of care, use of benchmarking, and frequent tests of change.
  
  1   2  3  4  5

- c. Our team members are empowered to innovate with tools to improve the care processes.
  
  1   2  3  4  5

- d. We often use quality improvement tools and techniques to improve our microsystem performance, i.e., fishbone diagrams, PDSA cycles, and flowcharting.
  
  1   2  3  4  5

- e. We regularly share process measures and outcomes data with our team members to improve care for our patients.
  
  1   2  3  4  5

**Process Improvement Open Ended Questions:** Review the questions below and discuss them during a team leadership meeting.

- f. How do you currently use quality improvement techniques and tools to improve your microsystem performance?

- g. Have you ever flowcharted key clinical (quality, safety) processes? If yes, tell us about how you utilized this approach to improve care.

- h. Do you currently train your team members in quality improvement? How is the training done?

- i. How do you actively redesign work (service, resource) processes in your microsystem? How do you use benchmarking and tests of change (PDSA)?

- j. How do you empower team members to innovate and make ongoing changes in the microsystem?
10. Information and Communication: Information is the connector – team members with patients, team members with team members, and team members and the larger organization. Communication is the HOW the information is transferred. Information Technology facilitates effective communication and multiple formal and informal channels exist.

There are three key assessment areas for information and communication with patient and family members, team members, and the larger organization: (1) integration of information and communication with patients, (2) integration of information and communication between team members and with the larger organization, and (3) integration of information with technology.

Communication between Patients and Team Members:

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<td>Patients and family members have access to some standard information that is available to everyone but often leaves a gap between patients and the care team.</td>
<td>Patients and family members feel connected to the care team but don’t always feel informed about the care they are receiving.</td>
<td>Patients and family members have a variety of ways to get the information they need and it can be customized to meet their individual learning styles. There is a strong connection between patients and the care team with joint understanding of care goals.</td>
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Communication between Team Members, and between Team Members and the Organization:

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<td>Relationships between team members are co-existent. We get the work done, but we really work in silos and sometimes it feels dysfunctional.</td>
<td>We are cooperative in the way we accomplish our work. We share information and we reach out beyond our disciplines on occasion.</td>
<td>We work collaboratively within our team and with other teams. We share information in real-time in a professional manner and there is mutual trust and respect for all team members.</td>
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Communication and Information Technology:

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<td>The technology we need to accomplish our work is either not available to us, or it is available but not effective. The information technology systems impede us from working collaboratively.</td>
<td>We have access to technology that enhances the work and care delivery, but it is not easy to use and seems to be cumbersome and not always efficient.</td>
<td>Technology enables us to work collaboratively by facilitating a smooth linkage between information and our patients by providing timely, effective access to the right information at the right time.</td>
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Information and Communication Technology Questions: Individually and as a team, review and rate each question below (1 = low, 5 = high)

a. We have the right information available at the right time to treat patients. Our information technology gives us the right information at the right time.
   1 2 3 4 5

b. We have the right information available at the right time for our team members. Communication happens in real-time and team members and is characterized by mutual trust and respect.
   1 2 3 4 5

c. The information environment has been set-up to support the functioning of the microsystem. Patient, family members and team members have the correct information available to them in a timely manner.
   1 2 3 4 5

d. The larger organization provides us with the right information technology and provides good communication with us about changes that come up.
   1 2 3 4 5

e. There are effective communication channels with multiple formal and informal communication channels that support our work.
   1 2 3 4 5

Information and Communication Open Ended Questions: Review the questions below and discuss them during a team leadership meeting.

f. In what ways does the information environment (communication and information technology) support the functioning of the microsystem? In what ways can we improve the information environment?

g. In what ways can the larger organization support a more effective information environment in your microsystem?

h. What are your primary means of communicating with the rest of your team members? What are your communication strategies to enhance collaboration between team members, and between patients and team members?

i. How is information technology impacting care delivery in your unit? What are your improvement strategies to integrate emerging technology into the care delivery process?

j. How do you incorporate feedback from team members and patients into improving the communication and information environment?
Measure # 44: Clinical Microsystem Assessment Tool (CMAT)

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Additional Notes:

- For a closely related instrument, see the Clinical Microsystem Assessment Diagnostic Tool (CMAD), which was adapted from the CMAT. A copy of the CMAD can be found on the preceding pages.
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<thead>
<tr>
<th>Characteristic and Definition</th>
<th>Description</th>
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| **1. Leadership:** The role of leaders is to balance setting and reaching collective goals, and to empower individual autonomy and accountability, through building knowledge, respectful action, reviewing and reflecting. | - Leaders often tell me how to do my job and leave little room for innovation and autonomy. Overall, they don’t foster a positive culture.  
- Leaders struggle to find the right balance between reaching performance goals and supporting and empowering the staff.  
- Leaders maintain constancy of purpose, establish clear goals and expectations, and foster a respectful positive culture. Leaders take time to build knowledge, review and reflect, and take action about microsystems and the larger organization. |
| **2. Organizational Support:** The larger organization looks for ways to support the work of the microsystem and coordinate the hand-offs between microsystems. | - The larger organization isn’t supportive in a way that provides recognition, information, and resources to enhance my work.  
- The larger organization is inconsistent and unpredictable in providing the recognition, information and resources needed to enhance my work.  
- The larger organization provides recognition, information, and resources that enhance my work and makes it easier for me to meet the needs of patients. |
| **3. Staff Focus:** There is selective hiring of the right kind of people. The orientation process is designed to fully integrate new staff into culture and work roles. Expectations of staff are high regarding performance, continuing education, professional growth, and networking. | - I am not made to feel like a valued member of the microsystem. My orientation was incomplete. My continuing education and professional growth needs are not being met.  
- I feel like I am a valued member of the microsystem, but I don’t think the microsystem is doing all that it could to support education and training of staff, workload, and professional growth.  
- I am a valued member of the microsystem and what I say matters. This is evident through staffing, education and training, workload, and professional growth. |
| **4. Education and Training:** All clinical microsystems have responsibility for the ongoing education and training of staff and for aligning daily work roles with training competencies. Academic clinical microsystems have the additional responsibility of training students. | - Training is accomplished in disciplinary silos, e.g., nurses train nurses, physicians train residents, etc. The educational efforts are not aligned with the flow of patient care, so that education becomes an “add-on” to what we do.  
- We recognize that our training could be different to reflect the needs of our microsystem, but we haven’t made many changes yet. Some continuing education is available to everyone.  
- There is a team approach to training, whether we are training staff, nurses or students. Education and patient care are integrated into the flow of work in a way that benefits both from the available resources. Continuing education for all staff is recognized as vital to our continued success. |
| **5. Interdependence:** The interaction of staff is characterized by trust, collaboration, willingness to help each other, appreciation of complementary roles, respect and recognition that all contribute individually to a shared purpose. | - I work independently and I am responsible for my own part of the work. There is a lack of collaboration and a lack of appreciation for the importance of complementary roles.  
- The care approach is interdisciplinary, but we are not always able to work together as an effective team.  
- Care is provided by an interdisciplinary team characterized by trust, collaboration, appreciation of complementary roles, and a recognition that all contribute individually to a shared purpose. |
| **6. Patient Focus:** The primary concern is to meet all patient needs — caring, listening, educating, and responding to special requests, innovating to meet patient needs, and smooth service flow. | - Most of us, including our patients, would agree that we do not always provide patient centered care. We are not always clear about what patients want and need.  
- We are actively working to provide patient centered care and we are making progress toward more effectively and consistently learning about and meeting patient needs.  
- We are effective in learning about and meeting patient needs — caring, listening, educating, and responding to special requests, and smooth service flow. |
### 7. Community and Market Focus:

The microsystem is a resource for the community; the community is a resource to the microsystem; the microsystem establishes excellent and innovative relationships with the community.

- **We focus on the patients who come to our unit. We haven’t implemented any outreach programs in our community. Patients and their families often make their own connections to the community resources they need.**
- **We have tried a few outreach programs and have had some success, but it is not the norm for us to go out into the community or actively connect patients to the community resources that are available to them.**
- **We are doing everything we can to understand our community. We actively employ resources to help us work with the community. We add to the community and we draw on resources from the community to meet patient needs.**

### 8. Performance Results:

Performance focuses on patient outcomes, avoidable costs, streamlining delivery, using data feedback, promoting positive competition, and frank discussions about performance.

- **We don’t routinely collect data on the process or outcomes of the care we provide.**
- **We often collect data on the outcomes of the care we provide and on some processes of care.**
- **Outcomes (clinical, satisfaction, financial, technical, safety) are routinely measured, we feed data back to staff, and we make changes based on data.**

### 9. Process Improvement:

An atmosphere for learning and redesign is supported by the continuous monitoring of care, use of benchmarking, frequent tests of change, and a staff that has been empowered to innovate.

- **The resources required (in the form of training, financial support, and time) are rarely available to support improvement work. Any improvement activities we do are in addition to our daily work.**
- **Some resources are available to support improvement work, but we don’t use them as often as we could. Change ideas are implemented without much discipline.**
- **There are ample resources to support continual improvement work. Studying, measuring and improving care in a scientific way are essential parts of our daily work.**

### 10. Information and Information Technology:

Information is THE connector - staff to patients, staff to staff, needs with actions to meet needs. Technology facilitates effective communication and multiple formal and informal channels are used to keep everyone informed all the time, listen to everyone’s ideas, and ensure that everyone is connected on important topics.

Given the complexity of information and the use of technology in the microsystem, assess your microsystem on the following three characteristics: (1) integration of information with patients, (2) integration of information with providers and staff, and (3) integration of information with technology.

#### A. Integration of Information with Patients

- **Patients have access to some standard information that is available to all patients.**
- **Patients have access to standard information that is available to all patients. We’ve started to think about how to improve the information they are given to better meet their needs.**
- **Patients have a variety of ways to get the information they need and it can be customized to meet their individual learning styles. We routinely ask patients for feedback about how to improve the information we give them.**

#### B. Integration of Information with Providers and Staff

- **I am always tracking down the information I need to do my work.**
- **Most of the time I have the information I need, but sometimes essential information is missing and I have to track it down.**
- **The information I need to do my work is available when I need it.**

#### C. Integration of Information with Technology

- **The technology I need to facilitate and enhance my work is either not available to me or it is available but not effective. The technology we currently have does not make my job easier.**
- **I have access to technology that will enhance my work, but it is not easy to use and seems to be cumbersome and time consuming.**
- **Technology facilitates a smooth linkage between information and patient care by providing timely, effective access to a rich information environment. The information environment has been designed to support the work of the clinical unit.**