

# Quality Assessment and Improvement Curriculum (QAIC) Toolkit

1. Curriculum overview
2. How to buy the ABIM PIM's
3. QIKAT tools
  - a. Pre-test
  - b. Pre-test (with answers)
  - c. Scoring (modified by University of Chicago)
4. Articles
  - a. Oyler J, Vinci L, Arora V, Johnson J. Teaching Internal Medicine Residents Quality Improvement Techniques using the ABIM's Practice Improvement Modules. J Gen Intern Med. 2008 July, 23(7): 927-30. PMID: 18449612
  - b. Lisa Vinci, MD, Julie Oyler, MD Vineet Arora, MA MD, Julie Johnson, PhD., "Empowering Residents to Improve Quality in their Continuity Clinics: Results of the Quality Improvement Educational Curriculum", 13TH INTERNATIONAL SCIENTIFIC SYMPOSIUM ON IMPROVING QUALITY AND VALUE IN HEALTHCARE, ORLANDO, FLORIDA, USA, 10 DECEMBER 2007, Qual Saf Health Care 2008; 17: 224-232.
5. Website: <http://medqi.bsd.uchicago.edu/curriculum.html>
  - a. Website includes all lectures/articles that are mentioned in the curriculum overview

## Contact Information:

Julie Oyler, MD  
Assistant Professor of Medicine  
Associate Program Director, Internal Medicine Residency  
Section of General Internal Medicine  
University of Chicago  
5841 S. Maryland Ave MC 3051  
Chicago, IL 60637  
Phone 773-834-1808  
joyler@medicine.bsd.uchicago.edu

Lisa Vinci, MD  
Assistant Professor of Medicine  
Director - Primary Care Group  
Section of General Internal Medicine  
University of Chicago  
5841 S. Maryland Ave MC 3051  
Chicago, IL 60637  
Phone 773-834-7055  
lvinci@medicine.bsd.uchicago.edu

Vineet Arora, MD, MAPP  
Assistant Professor of Medicine  
Associate Program Director, Internal Medicine Residency  
Section of General Internal Medicine  
University of Chicago  
5841 S. Maryland Ave MC 3051  
Chicago, IL 60637  
varora@medicine.bsd.uchicago.edu

## **Quality Assessment and Improvement Curriculum (QAIC) Overview**

**Brief Overview:** This toolkit is geared toward teaching Quality Improvement skills which can be used: 1) to improve processes in their own clinical settings and 2) to teach trainees quality improvement skills. Specific techniques that we will address include: writing an aim statement, creating a process map, and developing and conducting a PDSA cycle.

Recently the Residency Review Committee for Internal Medicine has proposed that programs include a practice improvement component to their practice-based learning and improvement curriculum. This is especially challenging since many faculty have not been formally trained in quality improvement methods. Similarly, recent changes to the Maintenance of Certification (MOC) process require physicians to complete both practice assessment and practice improvement components. This toolkit, based on the Quality Assessment and Improvement Curriculum (QAIC), aims to equip faculty with practical techniques in performing and teaching quality improvement including: writing an aim statement, creating a process map, and developing and conducting a PDSA (plan-do-study-act) cycle. QAIC, initially developed at the University of Chicago, has been featured in the Medical Education Issue of the Journal of General Internal Medicine, Quality and Safety in Healthcare, SGIM forum on “How to start a Quality Curriculum”, and is the recipient of the 2008 Educational Innovation Award from the Association of Program Directors of Internal Medicine.

**University of Chicago**  
**Quality Assessment and Quality Improvement Curriculum Overview**

- Block 1 - PGY2 Summer/Fall (July, Sept, Nov)**  
**Block 2 - PGY2 Winter/Spring (Jan, Mar, May)**  
**Block 3 - PGY3 Summer/Fall (Aug, Oct, Dec)**  
**Block 4 – PGY3 Winter/Spring (Feb, Apr, Jun)**

Over the next two years you will be participating in a 4 part quality assessment and improvement curriculum during your ambulatory rotation. Briefly the curriculum you can expect is outlined below:

<b>Residency Year</b>	<b>Ambulatory Block Summer/Fall</b>	<b>Ambulatory Block Winter/Spring</b>
<b>PGY-2</b>	<b>Quality Assessment (Block 1)</b> Introduction to QI Clinical Preventive Services Practice Improvement Module	<b>QI Project (Block 2)</b> Review of PIM data Develop and implement a small quality improvement project
<b>PGY-3</b>	<b>Sustainability and Spread (Block 3)</b> Reevaluate QI Project Redesign using PDSA cycle	<b>Pay for Performance (Block 4)</b> P4P Review Lectures

The goal of the curriculum is to help you to learn to assess the quality of care that you provide in your outpatient continuity clinic and to learn to implement small changes to improve quality of care.

**Block 1:**

**Week 1: Introduction to PIM**

1. Complete QIKAT Pre-test on Quality Improvement Knowledge
2. Introduction to the Clinical Preventive Services Practice Improvement Module (PIM).

**Week 2: Introduction to Quality Lecture**

1. Introduction to Quality lecture.
2. Update progress on PIM chart audits

### **Week 3: System Survey**

1. System Survey – Residents, faculty mentor, and clinic staff will complete the systems assessment of the outpatient clinic setting together. This is a required component of the PIM.
2. Residents should have 5 patient charts reviewed and 5 patient surveys turned in by this time. Faculty mentor will confirm information completed and turned in to ABIM website.

### **Week 4: Review PIM results**

1. Review results of Preventive Screening PIM quality measures as returned by the ABIM
2. Brainstorm 1-3 ideas for quality improvement projects resulting from the data as a group with the faculty mentor

## **Block 2:**

### **Week 1: Plan-Do-Study-Act (PDSA) Cycles and Process Mapping**

#### **During Ambulatory lecture**

1. Reflect on improvement ideas chosen during summer/fall ambulatory block
2. Chose Quality Improvement goal for the month as a group
3. Introduction to PDSA cycle
4. Start PDSA worksheet for QI idea in small groups
5. Introduction to Process mapping

#### **Between class assignment**

1. Complete individual process map for chosen Quality Improvement goal

### **Week 2: Process Mapping and Interviewing Stakeholders**

#### **During Ambulatory lecture**

1. Bring individual process maps and consolidate
2. Discuss current process versus the ideal process
3. Identify potential changes to the process that need to be achieved to accomplish chosen outcome
4. Discuss approaches to changing processes

#### **Between class assignment**

1. Complete interview of a stakeholder in the process

### **Week 3: Developing Pilot Test**

#### **During Ambulatory lecture**

1. Complete 2<sup>nd</sup> page of PDSA worksheet on developing a pilot test
2. Brainstorm PLAN for pilot

#### **Between class assignment**

1. Complete small test of change (pilot test)

## **Week 4: Pilot Test Results**

### **During Ambulatory lecture**

1. Resident to present results of pilot test
2. Discussion of plans for next PDSA cycle
3. QIKAT post test

## **Block 3:**

### **Week 1: Quality Improvement Project Review**

1. Review Old QI Project ( all three old projects discussed)
2. Develop Plan for retest

### **Week 2: Sustainability Plan**

1. Review retest data
2. Revision of aim statement
3. Develop plan for sustainability of project

### **Week 3 Sustainability Lecture**

1. Lecture on Quality Improvement Sustainability

### **Week 4: Hand-off Plan**

1. Present idea/results from revised QI project
2. Develop plan for handoff of project to next Ambulatory group
3. Turn in summary with the following questions
  - a) What did we re-test over this month?
  - b) What were the results?
  - c) How did we change the aim for our QI project?
  - d) What small PDSA cycle did we complete this month?
  - e) How will we hand this project off to other members of our group to complete 2 months from now?

## **Block 4:**

### **Week 1: History of Quality Improvement Policy and Theory Lecture**

### **Week 2: Pay for Performance Lecture**

### **Week 3 Quality Improvement Review Lecture**

1. Aim game with scenarios
2. QIKAT Post test

## **How to buy and use the ABIM PIM's**

3. <http://www.abim.org/residency/residency.aspx>
4. Choose PIM
  - a) Asthma
  - b) Care of the Vulnerable Elderly
  - c) Clinical Preventative Services
  - d) Colonoscopy
  - e) Communication – Primary Care
  - f) Communication – Subspecialists
  - g) Communication with Referring Physicians
  - h) Diabetes
  - i) Essential of Quality Improvement
  - j) Hepatitis C
  - k) HIV
  - l) Hospital Based Patient Care
  - m) Hypertension
  - n) Osteoporosis
  - o) Patient and Physician Peer Assessment
  - p) Preventative Cardiology
  - q) Self Directed
5. The cost of the PIM is \$100 per module plus \$25 per participant.
6. Supervising attending physicians and those enrolled in Maintenance of Certification(MOC) can participate at no charge. MOC credit is given to supervising physicians if currently enrolled.
7. Residents get individual usernames to complete 5 **chart reviews** online
8. Clinic staff passes out **patient surveys** provided by ABIM
9. **System survey** is completed by resident group and faculty supervisor online
10. PIM results are reviewed with residents
11. Quality improvement plan is initiated by resident group with faculty supervisor



# PDSA Worksheet

Name of Group:

Date:

Team Members:

- |                      |           |
|----------------------|-----------|
| 1. Leader _____      | 6. _____  |
| 2. Facilitator _____ | 7. _____  |
| 3. _____             | 8. _____  |
| 4. _____             | 9. _____  |
| 5. _____             | 10. _____ |

1. **AIM - What** are we trying to accomplish?

2. **Measures** – How will we know that a change is an improvement?

3. **Current Process** - What is the process for giving care to this type of patient?

Quality Assessment and Improvement Curriculum (QAIC) Toolkit – Oyler, J. Vinci, L. Johnson, J. , Arora, V., University of Chicago Medical Center

Note: Questions 1-3 are bigger picture (“30,000 feet type questions.”) Questions 4-7 are specific ground level questions  
PDSA worksheet is based on work by Tom Nolan, PhD, Paul Batalden, MD and Eugene Nelson Dsc. 8/93. Dartmouth College

## 4. Plan

- How shall we PLAN the pilot? Who does what and when? With what tools or training? Baseline data to be collected? How will we know if a change is an improvement?

<b>Task to be completed to run test of change</b>	<b>Who</b>	<b>When</b>	<b>Tools/Training Needed</b>

## 5. Do

- a. What are we learning as we DO the pilot? What happened as we ran the test? Any problems encountered? Any surprises?

## 6. Study

- a. As we STUDY what happened, what have we learned? What do measures show?

## 7. Act

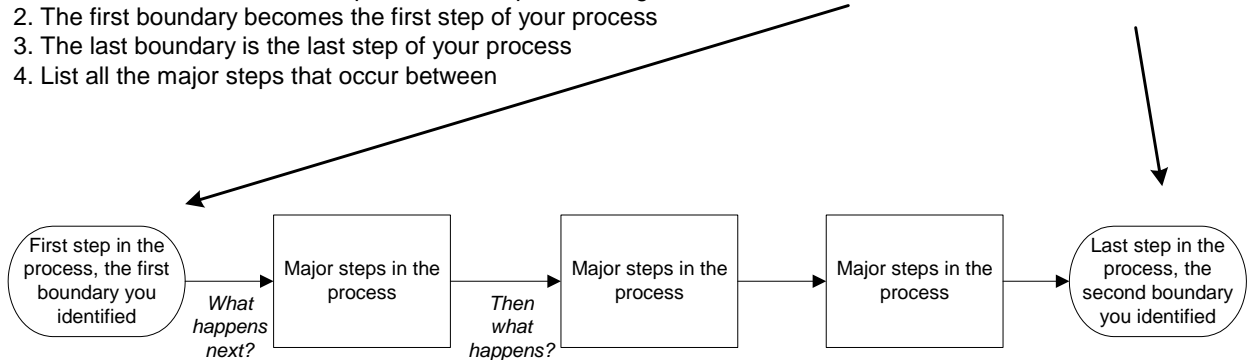
- a. As we ACT to hold gains or abandon our pilot efforts, what needs to be done? Will we modify the change? Make PLAN for next cycle of change



# Process Mapping Tutorial

Steps for creating a process map:

1. Define the boundaries of the process. "This process begins with \_\_\_\_\_ and ends with \_\_\_\_\_"
2. The first boundary becomes the first step of your process
3. The last boundary is the last step of your process
4. List all the major steps that occur between



## Some Reasons To Create a Process Map:

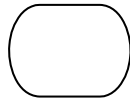
- ✓ Describe and document the process
- ✓ Generate with improvement ideas
- ✓ Determine best method
- ✓ Train others

## Some Hints:

- ✓ Diagram the actual process -- not what the process "should" be
- ✓ If you use "sticky notes" you can easily rearrange and add steps until you have a final draft

## A key to the shapes used in flowcharts:

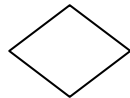
Ovals are beginnings and endings



Boxes are steps or activities



Diamonds are questions or decision points



Arrows show sequence and chronology



## Homework For Our Next Session

1. Finalize your process map
  - √ You can draw your map by hand or download a trial version of Visio if you want to try a flowcharting software. Visio is available at [Microsoft.com](http://Microsoft.com).
  - √ Please bring enough copies of your map to the next session to share with the group.
2. Review your process teaching map to:
  - √ Identify the successful portions of your map
  - √ Identify the problem areas of your map
  - √ Where does your process serve you well?
  - √ Where does your process start to interfere with the ultimate goal of achieving excellence in teaching?
  - √ How will these teaching activities affect providing clinical care?

# Quality Assessment and Improvement

## Pre-Test Self-Assessment

Resident name: \_\_\_\_\_

1. How comfortable are you in your current skills with the following aspects of quality assessment and improvement?

	<b>Not at all</b>	<b>Slightly</b>	<b>Moderately</b>	<b>Extremely</b>
a. Writing a clear problem statement (goal, aim)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Applying the best professional knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Using measurement to improve your skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Studying the process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Making changes in a system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Identifying whether a change leads to an improvement in your skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Using small cycles of change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Identifying best practices and comparing these to your local practice/skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Implementing a structured plan to test a change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Using the PDSA model as a systematic framework for trial and learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Identifying how data is linked to specific processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Building your next improvement upon prior success or failure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Have you had any prior experience in quality improvement?    \_\_\_\_ Yes            \_\_\_\_ No  
If yes, please describe:

3. What questions or concerns do you have regarding quality assessment and improvement techniques?

## Quality Improvement Scenarios

**Instructions:** Please read each of the following scenarios and then answer the questions that follow. We recognize that there may be many areas to improve. Be brief and complete. We request that you attempt each question, even if you are unsure.

### Scenario #1

You are a general internist in a three-person practice and have just finished a busy morning clinic session. Your last patient was a 60 year-old male with adult onset diabetes with whom you have been working very hard to improve glycemic control. You are frustrated because he continues to be in poor control based on his most recent hemoglobin A1C of 10%. You have been successful in getting him to obtain and record some of his finger sticks. However, he is not interested in exercise and his diet is suspect as to whether it is reasonable or not. He says he is taking his oral hypoglycemic medications as prescribed (at their maximum doses). You are particularly concerned because he also has had a myocardial infarction 5 years ago, has an elevated cholesterol and is beginning to note some nocturnal tingling in his feet.

As you sit down to ponder his case, you open a letter from one of the insurance plans that covers many of your patients. Enclosed is a summary of their review of a random number of diabetics in your practice; this was done as part of their annual review for National Committee on Quality Assurance certification of their plan. The data shows that on several measures (hemoglobin A1c, annual retinal exams, podiatry evaluations and urine for microalbumin testing) more than 65% of your patients do not meet the target goals. This further adds to your level of frustration and ruins your appetite for lunch.

### Questions for Scenario #1

Please answer each of the following questions as if you were developing a program to investigate and improve the problem presented above.

- 1) What would be the aim?
  
  
  
  
  
  
  
  
  
  
- 2) What would you measure to assess the situation?
  
  
  
  
  
  
  
  
  
  
- 3) Identify one change that might be worth testing:

## **Scenario #2**

You are an intern in the Emergency Department on a busy Saturday morning in July. You have just finished working-up and admitting your third patient of the day, a 63 year-old woman with unstable angina. You are pleased that you made the diagnosis quickly based on her history, exam and electrocardiogram. You promptly administered aspirin, topical nitrates, a beta-blocker and heparin. These medications relieved her pain and her electrocardiographic changes resolved. You asked that she be admitted to a telemetry bed to rule-out a myocardial infarction. You even called your colleagues who will be caring for the patient in the hospital to let them know about her history and what you have done for her. As you are finishing your note, the charge nurse tells you it will be another 2-3 hours before a telemetry bed will be available and asks you if she really needs one. You indicate that she must be monitored on telemetry and are frustrated that she will have to wait so long in the Emergency Department (ED).

As you are heading out to the waiting room to grab a cup of coffee, you notice that your first 2 patients of the morning are also still in the ED. The second patient was a 52 year-old gentleman with recurrent left leg cellulitis who you admitted for intravenous antibiotics. He is waiting for a bed, too. The first patient was a 75 year-old man whom you evaluated with your attending. He was intubated due to respiratory failure from a new pneumonia and chronic severe obstructive pulmonary disease. You find that your attending is still on the phone trying to find a staff physician who will accept the patient for admission to the intensive care unit. You are shocked at the delays that are occurring in getting patients transferred for admission to the hospital.

Finally, while standing at the coffee machine, a patient approaches you and asks what is going on in the ED today. He explains that he and many other patients have been waiting more than 2 hours to be seen. You are embarrassed and admit that it has been very busy, but that you are not sure why there is so much of a delay to be seen. You head back in to see your next patient and wonder what is going on.

## **Questions for Scenario #2**

Please answer each of the following questions as if you were developing a program to investigate and improve the problem presented above.

- 1) What would be the aim?
  
  
  
  
  
  
  
  
  
  
- 2) What would you measure to assess the situation?
  
  
  
  
  
  
  
  
  
  
- 3) Identify one change that might be worth testing:

### **Scenario #3**

You are an intern doing your Nephrology elective. You have just finished three months of inpatient medicine and are glad for some elective time. Your first morning on service you are called by your attending to go see a new inpatient consult. You go to see the patient. She is a 65 yo woman transferred the previous night for somnolence and confusion. She has a history of hypertension and diabetes, neither of which have been under good control as best you can tell from her outside records. Her exam is remarkable for a BP of 160/90, HR of 88, RR of 20, O2 saturation of 92% on 50% face mask. Her JVP is elevated at 10 cm, lungs have crackles 1/3 of the way up bilaterally and dullness to percussion at both bases. Cardiac and abdominal exams are unremarkable. Her legs have 3+ edema bilaterally to the knees. Lab work is significant for a potassium of 5.0, BUN of 110, creatinine of 7.2; CBC, LFT's and cardiac enzymes are negative. A CXR shows bilateral pleural effusions and an ECG shows no ischemic changes.

Your assessment of the patient is that she is in renal failure and is fluid overloaded with a modest oxygen requirement. You feel she needs dialysis to improve her clinical condition. You review this with your attending who agrees. Together you go to the dialysis unit to make arrangements for an acute dialysis treatment. You discuss this with the dialysis staff just before rounding on the patients in the unit. The news of needing to add a patient on to the schedule is met with frustration, as the schedule is already full and staffing is short. Arrangements are made for that patient to be dialyzed acutely that evening.

Next, you round with your attending on the patients receiving dialysis. Each patient is reviewed at the bedside with the nurse overseeing the dialysis treatment. Data are reviewed on a flowsheet, but many of the values are missing. In many cases, the nurse caring for the patient doesn't know specifics about the patient's current condition or pertinent data about the medical history. This information is not readily available in the paper chart or on the computerized record. Time is required to update the sheets and to decide on any changes that need to be made to the plan of care. There is an opportunity to answer patients' questions and discuss any concerns. As you finish rounds and head to lunch, you ask your attending if that was a typical morning on the rotation. You are excited about all of the things you have been included in, but also wonder if there might be a different way to approach caring for this population of patients.

### **Questions for Scenario #3**

Please answer each of the following questions as if you were developing a program to investigate and improve the problem presented above.

- 1) What would be the aim?
- 2) What would you measure to assess the situation?

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As you sit down to ponder his case, you open a letter from one of the insurance plans that covers many of your patients. Enclosed is a summary of their review of a random number of diabetics in your practice; this was done as part of their annual review for National Committee on Quality Assurance certification of their plan. The data shows that on several measures (hemoglobin A1c, annual retinal exams, podiatry evaluations and urine for microalbumin testing) more than 65% of your patients do not meet the target goals. This further adds to your level of frustration and ruins your appetite for lunch.

### Questions for Scenario #1

Please answer each of the following questions as if you were developing a program to investigate and improve the problem presented above.

4) What would be the aim?

INCREASE THE PERCENTAGE OF RETINAL EXAMS FOR MY PATIENTS WITH DIABETES BY 50% IN THE NEXT 6 MONTHS.

5) What would you measure to assess the situation?

PERCENTAGE OF RETINAL EXAMS EACH MONTH

6) Identify one change that might be worth testing:

PLACE A BRIGHT YELLOW STICKER ON EACH DIABETIC CHART TO REMIND THE CLINICIAN TO ORDER A EYE EXAM.

## **Scenario #2**

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## **Questions for Scenario #2**

Please answer each of the following questions as if you were developing a program to investigate and improve the problem presented above.

1. What would be the aim?

DECREASE THE WAITING TIME FOR TRANSFERRING PATIENTS FROM THE ED TO THE ICU IN THE NEXT 3 MONTHS.

2. What would you measure to assess the situation?

TIME FROM PATIENT "READY FOR TRANSFER" TO ARRIVING ON THE ICU.

3. Identify one change that might be worth testing:

## TRIAL OF STANDARDIZED CHECKLIST FOR PATIENTS GOING TO THE ICU.

### Scenario #3

You are an intern doing your Nephrology elective. You have just finished three months of inpatient medicine and are glad for some elective time. Your first morning on service you are called by your attending to go see a new inpatient consult. You go to see the patient. She is a 65 yo woman transferred the previous night for somnolence and confusion. She has a history of hypertension and diabetes, neither of which have been under good control as best you can tell from her outside records. Her exam is remarkable for a BP of 160/90, HR of 88, RR of 20, O2 saturation of 92% on 50% face mask. Her JVP is elevated at 10 cm, lungs have crackles 1/3 of the way up bilaterally and dullness to percussion at both bases. Cardiac and abdominal exams are unremarkable. Her legs have 3+ edema bilaterally to the knees. Lab work is significant for a potassium of 5.0, BUN of 110, creatinine of 7.2; CBC, LFT's and cardiac enzymes are negative. A CXR shows bilateral pleural effusions and an ECG shows no ischemic changes.

Your assessment of the patient is that she is in renal failure and is fluid overloaded with a modest oxygen requirement. You feel she needs dialysis to improve her clinical condition. You review this with your attending who agrees. Together you go to the dialysis unit to make arrangements for an acute dialysis treatment. You discuss this with the dialysis staff just before rounding on the patients in the unit. The news of needing to add a patient on to the schedule is met with frustration, as the schedule is already full and staffing is short. Arrangements are made for that patient to be dialyzed acutely that evening.

Next, you round with your attending on the patients receiving dialysis. Each patient is reviewed at the bedside with the nurse overseeing the dialysis treatment. Data are reviewed on a flowsheet, but many of the values are missing. In many cases, the nurse caring for the patient doesn't know specifics about the patient's current condition or pertinent data about the medical history. This information is not readily available in the paper chart or on the computerized record. Time is required to update the sheets and to decide on any changes that need to be made to the plan of care. There is an opportunity to answer patients' questions and discuss any concerns.

As you finish rounds and head to lunch, you ask your attending if that was a typical morning on the rotation. You are excited about all of the things you have been included in, but also wonder if there might be a different way to approach caring for this population of patients.

### Questions for Scenario #3

Please answer each of the following questions as if you were developing a program to investigate and improve the problem presented above.

1) What would be the aim?

INCREASE THE EFFICIENCY OF NEPHROLOGY ROUNDS.

2) What would you measure to assess the situation?

NUMBER OF TIMES ROUNDS IS INTERRUPTED BECAUSE APPROPRIATE DATA IS NOT AVAILABLE TO MAKE A CLINICAL DECISION.

3) Identify one change that might be worth testing:

RE-DESIGN THE FLOW SHEETS SO THAT ONLY THE MOST IMPORTANT INFORMATION IS REQUIRED (I.E., MAKE THE FLOWSHEET LESS CUMBERSOME AND MORE USEFUL SO THAT IT IS REGULARLY COMPLETED)

**Scoring Sheet for Quality Improvement Knowledge Assessment Tool (QIKAT) as used by University of Chicago Quality Assessment and Improvement Curriculum (QAIC)**

**Scoring for each scenarios**

1 point good aim, 2 points excellent aim

1 point good measure

1 point good intervention (feasible)

1 point all answers related

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Total 5 points possible per scenario

Total 15 points for QIKAT (total of three scenarios)