Report on a QI Project Eligible for Part IV MOC:

Improving Inpatient Portable Sleep Study Requests

Instructions

Determine eligibility. Before starting to complete this report, go to the UMHS MOC website [ocpd.med.umich.edu], click on "Part IV Credit Designation," and review sections 1 and 2. Complete and submit a "QI Project Preliminary Worksheet for Part IV Eligibility." Staff from the UMHS Part IV MOC Program will review the worksheet with you to explain any adjustments needed to be eligible. (The approved Worksheet provides an outline to complete this report.)

Completing the report. The report documents completion of each phase of the QI project. Final confirmation of Part IV MOC for a project occurs when the full report is submitted and approved.

An option for preliminary review (recommended) is to complete a description of activities through the intervention phase and submit the partially completed report. (Complete at least items 1-16 and 27a-b.) Staff from the UMHS Part IV MOC Program will provide a preliminary review, checking that the information is sufficiently clear, but not overly detailed. This simplifies completion and review of descriptions of remaining activities.

Questions are in bold font and answers should be in regular font (generally immediately below the questions). To check boxes electronically, either put an "X" in front of a box or copy and paste "☒" over the blank box.

For further information and to submit completed applications, contact either:
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Report Outline

Section	Items	
A. Introduction	1-6.	Current date, title, time frame, project leader, specialties/subspecialties involved, funding
B. Plan	7-10.	General goal, patient population, IOM quality dimensions addressed, experimental design
	11-12.	Baseline measures of performance, specific performance objectives
	13.	Data review and identifying underlying (root) causes
C. Do	14-16.	Intervention(s), who is involved, initiated when
D. Check	17-18.	Post-intervention performance measurement, data collection, performance level
E. Adjust – Replan	19.	Review, continuing/new underlying causes,
F. Redo	20.	Second intervention
G. Recheck	21-22.	Post-adjustment performance measurement, data collection, performance level
H. Readjust plan	23.	Review, continuing/new underlying causes to address
I. Future plans	24-26.	Subsequent PDCA cycles, standardize processes, "spread" to other areas
J. Physician involvement	27-30.	Physician's role, requirements, reports, reflections, participation, number
K. Project Organization	31-33.	Part of larger initiative, organizational structure, resources, oversight, Part IV opportunity

QI Project Report for Part IV MOC Eligibility

A. Introduction

1. Date: 4/22/15

2. Title of QI project: Improving inpatient portable sleep study requests

3. Time frame

a. Date physicians begin participating (may be in design phase): 9/15/14

b. End date: 2/23/2015

4. Key individuals

a. QI project leader *[also responsible for attesting to the participation of physicians in the project]*
Name: Kathryn Williams, MBBChBAO
Title: Sleep Medicine Fellow
Organizational unit: Department of Neurology
Phone number: 734-936-9068
Email address: wikathry@med.umich.edu
Mailing address: Med Inn C728, 1500 E Medical Center Dr, SPC 5845

a. Clinical leader to whom the project leader reports regarding the project *[responsible for overseeing/"sponsoring" the project within the specific clinical setting]*
Name: Anita Shelgikar, MD
Title:
Organizational unit:
Phone number:
Email address:
Mailing address:

5. Approximately how many physicians were involved in this project categorized by specialty and/or subspecialty?
Sleep Medicine: 4

6. Will the funding and resources for the project come only from internal UMHS sources?
☒ Yes, only internal UMHS sources
☐ No, funding and/or resources will come in part from sources outside UMHS, which are: _____

The Multi-Specialty Part IV MOC Program requires that projects engage in change efforts over time, including at least three cycles of data collection with feedback to physicians and review of project results. Some projects may have only three cycles while others, particularly those involving rapid cycle improvement, may have several more cycles. The items below are intended to provide some flexibility in describing project methods. If the items do not allow you to reasonably describe the methods of your specific project, please contact the UMHS Part IV MOC Program office.

B. Plan

7. General goal

a. Problem/need. What is the "gap" in quality that resulted in the development of this project? Why is this project being undertaken?
Inpatient sleep study requests are electronically placed and the request is not reaching the on-call fellow in a timely manner. Electronic sleep study requests are being made, printed in a separate location and can sometimes reach the on-call fellow days later. This slows the provision of appropriate care to patients and may unnecessarily lengthen inpatient stays. Prior to interventions, the total time taken to schedule an inpatient sleep study (from the time it was electronically ordered to the time it was scheduled by our office staff) was on average 899 minutes (nearly 15 hours) and up to 2,339 minutes (if the electronic order was placed on a Friday afternoon, it wasn't received by the fellow until Monday and the study could have been completed on the prior night). This delay in scheduling often resulted in a delay of the inpatient sleep study of 24-48 hours.

b. Project goal. What outcome regarding the problem should result from this project?
To have requests for inpatient sleep studies reach the on-call fellow quickly and reliably, shortening the time to complete sleep studies. If the fellow were contacted directly by the primary inpatient service, 5 steps in the process would be eliminated. Our goal is to increase the number of consults for inpatient sleep studies directly called to the on-call sleep medicine fellow. By directly calling the fellow, the sleep study would be completed between 24 to 48 hours faster. This would directly benefit the patient by facilitating earlier discharge and time to treatment (identifying appropriate positive airway pressures or oxygen requirements, particular to the infant population).

8. Patient population. What patient population does this project address.
This project includes patient's admitted to the hospital who need an inpatient sleep study.

9. Which Institute of Medicine Quality Dimensions are addressed? *[Check all that apply.]*

☒ Safety	☐ Equity	☒ Timeliness
☒ Effectiveness	☒ Efficiency	☒ Patient-Centeredness

10. What is the experimental design for the project?
- ☒ Pre-post comparisons (baseline period plus two or more follow-up measurement periods)
- ☐ Pre-post comparisons with control group
- ☐ Other: _____

11. Baseline measures of performance:

a. What measures of quality are used? If rate or %, what are the denominator and numerator?
Number of sleep study requests that are directly called to the fellow.

$$\frac{\text{\# sleep study requests directly called to fellow}}{\text{\# total sleep studies requested}} = \text{\% directly called to fellow}$$

b. Are the measures nationally endorsed? If not, why were they chosen?
No. This represents the deficit in communication between the inpatient services and sleep medicine.

c. What is the source of data for the measure (e.g., medical records, billings, patient surveys)?
Number of calls directly recorded by the on-call fellow

d. What methods were used to collect the data (e.g., abstraction, data analyst)?
The on-call fellow was instructed to keep track of the total number of consults and those that were directly called to the fellows.

e. How reliable are the data being collected for the purpose of this project?
The data are reliable as there was a physical running tally sheet.

f. How are data to be analyzed over time, e.g., simple comparison of means, statistical test(s)?

The data will be analyzed as simple comparison.

g. For what time period was the sample collected for baseline data?
December 1, 2014 to December 31st, 2014

12. Specific performance objectives

a. What was the overall performance level(s) at baseline? *(E.g., for each measure: number of observations or denominator, numerator, percent. Can display in a data table, bar graph, run chart, or other method. Can show here or refer to attachment with data.)*

Time Period	N of Requests for Sleep Studies	% of Requests Directly Called to Fellow
Baseline 12/1/14 – 12/31/14	18	17%

b. Specific aim: What was the target for performance on the measure(s) and the timeframe for achieving the target?
The target for direct calls to the fellows requesting a sleep study is 80%.

c. How were the performance targets determined, e.g., regional or national benchmarks?
There are no regional or national benchmarks. The goal compliance of 80% was considered a realistic target.

13. Data review and identifying underlying (root) causes.

a. Who was involved in reviewing the baseline data, identifying underlying (root) causes of the problem(s), and considering possible interventions ("countermeasures") to address the causes? Briefly describe:

- **Who was involved?**
  All physicians in the sleep medicine fellow and staff group and Cindy Priddy.
- **How?** *(e.g., in a meeting of clinic staff)*
  In a series of meetings discussing and planning quality improvement processes
- **When?**
  Preliminary discussions occurred October to November 2014. Baseline data were reviewed, causes confirmed, and intervention plans finalized on 1/5/2015.

b. What were the primary underlying/root causes for the problem(s) that the project can address? *(Causes may be aspects of people, processes, information infrastructure, equipment, environment, etc. List each primary cause separately. How the intervention(s) address each primary underlying cause will be explained in #14.c.)*

Lack of knowledge: floor staff do not know that the on-call fellow is the person arranging for a requested sleep study.
Poor communication: floor staff send electronic requests to a location that is not routinely accessed by fellows.

Other possible causes not considered primary:

- Fellow does not communicate with sleep tech on time.
- Inappropriate consults are being placed, reducing time to respond to other requests.

C. Do

14. Intervention(s).

a. Describe the interventions implemented as part of the project.

Develop a standard process for the preferred route of requesting an in-patient sleep study (i.e. paging the on-call fellow before an order is placed).

Educate everyone involved regarding the standard process and their roles in it: fellows, front desk staff, house officers and faculty.

b. How were underlying/root causes *(see #13.b)* **addressed by the intervention(s)?** *(List each cause, whether it was addressed, and if so, how it was addressed.)*

Lack of knowledge – addressed as part of educating everyone regarding the process.

Poor communication – addressed by developing standard processes for requests and by educating everyone involved regarding their role in the communication process.

15. Who was involved in carrying out the intervention(s) and what were their roles?

Sleep medicine fellows:

- Agreed on the standard process for requesting in-patient sleep studies – floor staff to page on-call fellow and fellow to talk with floor staff before floor staff place order.
- Educated floor staff about the better process when fellows were called or when the fellow got a printed electronic request and had to call the in-patient staff back.
- Respond promptly when paged in accordance with the new process.

Inpatient staff followed new process after being informed about it.

16. The intervention was initiated when? (For multiple interventions, initiation date for each.)

January 7, 2015

D. Check

17. Post-intervention performance measurement. Did this data collection follow the same procedures as the initial collection of data described in #11: population, measure(s), and data source(s)?

☒ Yes ☐ No – If no, describe how this data collection

18. Performance following the intervention.

a. The collection of the sample of performance data following the intervention occurred for the time period:
1/7/15 – 1/26/15

b. What was post-intervention performance level? *(E.g., for each measure: number of observations or denominator, numerator, percent. Can display in a data table, bar graph, run chart, or other method. Can show here or refer to attachment with data.)*

13/22 (59%) study request were directly called to the on-call fellow

Time Period	N of Requests for Sleep Studies	% of Requests Directly Called to Fellow
Baseline 12/1/14 – 12/31/14	18	17%
Post Intervention 1/7/15 – 1/26/15	22	59%

c. Did the intervention produce the expected improvement toward meeting the project's specific aim (item 12.b)?
While the intervention substantially improved the direct calling of requests, performance is below the target of 80%.

E. Adjust – Replan

19. Review of post-intervention data and identifying continuing/new underlying causes.

a. Who was involved in reviewing the post-intervention data, identifying underlying (root) causes of the continuing/new problem(s), and considering possible adjustments to interventions ("countermeasures") to address the causes? Briefly describe:
- **Who was involved?**
  All physicians in the sleep medicine fellow and staff group, MiChart order coordinator (Lisa Modelski) and Cindy Priddy.
- **How?** *(e.g., in a meeting of clinic staff)*
  Email exchanges and meetings; data was analyzed and discussed amongst the fellows who made the decision to proceed with the next cycle of intervention (given the performance was below the target of 80%).
- **When?**
  1/27/2015

b. What were the primary underlying/root causes for the continuing/new problem(s) that the project can address? *(Causes may be aspects of people, processes, information infrastructure, equipment, environment, etc. List each primary cause separately. How the intervention(s) address each primary underlying cause will be explained in #20.c.)*

Lack of knowledge: while many floor staff know that the on-call fellow is the person arranging for a requested sleep study, some still do not.
Phone number on electronic order incorrect: The number to call on the order page in the electronic medical record was not the number for the on-call fellow.
Poor communication: while the majority of floor staff page on-call fellows before ordering a sleep study, some forget, call the incorrect number, or choose not to call.

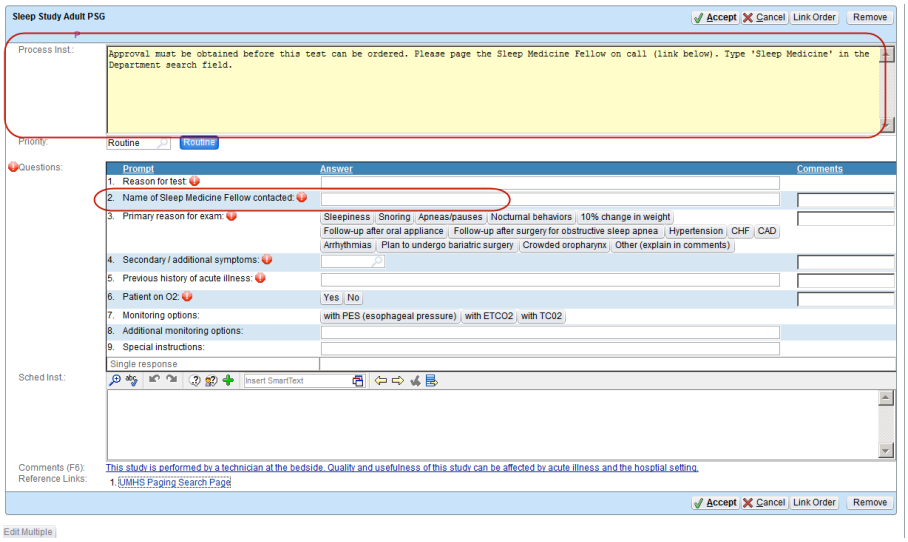
F. Redo

20. Second intervention.

a. The second intervention was initiated when? (For multiple interventions, initiation date for each.)
1/28/2015 (This is the day the order went live in epic.)

b. What interventions were implemented?

Changed order process in electronic medical record. The standard process developed in the first intervention has floor staff page the on-call fellow before placing an order for an inpatient sleep study. The order is placed through entries in the electronic medical record.
- The electronic order form now lists the correct number to reach the on-call fellow.
- The order now shows clearly that approval from the on-call fellow must be obtained before the study is completed. We added a "hard-stop" that the name of the fellow contacted for the sleep study must be placed in the order for the order to be submitted.



c. How were continuing/new underlying/root causes *(see #19.b)* **addressed by the intervention(s)?** *(List each cause, whether it was addressed, and if so, how it was addressed.)*
Lack of knowledge – the instructions are now in the electronic medical record form.
Incorrect number – the correct number is now in the electronic medical record form
Poor communication – the instructions and requirement that they be followed to submit an order are now embedded in the electronic medical record form.

G. Recheck

21. Post-second intervention performance measurement. Did this data collection follow the same procedures as the initial collection of data described in #11: population, measure(s), and data source(s)?

☒ Yes ☐ No – If no, describe how this data collection

22. Performance following the second intervention.

a. The collection of the sample of performance data following the intervention(s) occurred for the time period:
1/28/15 – 2/23/2015

b. What was the performance level? *(E.g., for each measure: number of observations or denominator, numerator, percent. Can display in a data table, bar graph, run chart, or other method. Can show here or refer to attachment with data.)*

Time Period	N of Requests for Sleep Studies	% of Requests Directly Called to Fellow
Baseline 12/1/14 – 12/31/14	18	17%
Post Intervention 1/7/15 – 1/26/15	22	59%
Post Adjustment 1/28/15 – 2/23/15	25	84%

c. Did the second intervention produce the expected improvement toward meeting the project's specific aim (item 12.b)?
Yes, it met our aim of >80%.

H. Readjust

23. Review of post-second intervention data and identifying continuing/new underlying causes.

a. Who was involved in reviewing the data, identifying underlying (root) causes of the continuing/new problem(s), and considering additional possible adjustments to interventions ("countermeasures") to address the causes? Briefly describe:

- **Who was involved?**
  Sleep fellows that were directly involved in the project: Kathryn Williams, Hala Karnib, Wisam Sakbani and Dr. Anita Sheligkar
- **How?** *(e.g., in a meeting of clinic staff)*
  Sleep medicine conference
- **When?**
  2/23/2015

b. What were the primary underlying/root causes for the continuing/new problem(s) that the project can address? *(Causes may be aspects of people, processes, information infrastructure, equipment, environment, etc. List each primary cause separately.)*

A few individuals either do not understand or think they do not need to follow the process. The education provided and systems put in place have addressed the issue for most people. A few orders were placed incorrectly, e.g.:

- Primary service was inappropriately filling the order (i.e. in the "fellow contacted" box they typed in "fellow" or "none") to circumvent the hard stop.
- Primary service was just placing the incorrect order and not contacting the fellow on-call.

Rather than broader efforts to address all primary service personnel, future efforts should target the few individuals incorrectly submitting orders. (See proposed intervention in #25 below.)

If no additional cycles of adjustment are to be documented for the project for Part IV credit, go to item #24.
If a few additional cycles of adjustments, data collection, and review are to be documented as part of the project to be documented, document items #20 – #23 for each subsequent cycle. Copy the set of items #20 – #23 and paste them following the last item #23 and provide the information. When the project to be documented for Part IV credit has no additional adjustment cycles, go to item #24.
If several more cycles are included in the project for Part IV credit, contact the UM Part IV MOC Program to determine how the project can be documented most practically.

I. Future Plans

24. How many subsequent PDCA cycles are to occur, but will not be documented as part of the "project" for which Part IV credit is designated?
0

25. How will the project sustain processes to maintain improvements?
The MiChart orders are now finalized. On an as needed basis, we will continue to educate those who place an electronic order but do not call the on-call fellow.

26. Do other parts of the organization(s) face a similar problem? If so, how will the project be conducted so that improvement processes can be communicated to others for "spread" across applicable areas?
No.

J. Physician Involvement

Note: To receive Part IV MOC a physician must both:
a. Be actively involved in the QI effort, including at a minimum:
- *Work with care team members to plan and implement interventions*
- *Interpret performance data to assess the impact of the interventions*
- *Make appropriate course corrections in the improvement project*

b. Be active in the project for the minimum duration required by the project

27. Physician's role. What were the minimum requirements for physicians to be actively involved in this QI effort? *(What were physicians to do to meet each of the basic requirements listed below? If this project had additional requirements for participation, also list those requirements and what physicians had to do to meet them.)*

a. Interpreting baseline data and planning intervention:
Attend development meetings during October and November 2014 and the meeting on 1/5/2015 at which baseline data were reviewed, underlying causes confirmed, and plans for the initial intervention agreed upon.

b. Implementing intervention:
Understand the expected process, educate staff requesting sleep studies about the new process, and responding promptly to calls, all starting on 1/7/15

c. Interpreting post-intervention data and planning changes:
Attend the meeting on 1/27/2015 at which post-intervention data were reviewed, current underlying causes confirmed, and plans for the second intervention/adjustment were agreed upon.

d. Implementing further intervention/adjustments:
Following the process implemented into the electronic order form and educating staff about it starting 1/28/15

e. Interpreting post-adjustment data and planning changes:
Attend the meeting on 2/23/2015 at which post-adjustment data were reviewed, current underlying causes confirmed, and plans for future activities were agreed upon.

28. How were reflections of individual physicians about the project utilized to improve the overall project?
The project lead participates in the meetings where physicians interpret data and make recommendations for changes. The project lead incorporates this information into overall project planning and further changes made to the process.

29. How did the project ensure meaningful participation by physicians who subsequently request credit for Part IV MOC participation?
The project lead monitored participation of team members and kept the responsibilities even for all physicians involved with the process.

K. Project Organizational Role and Structure

30. UMHS QI/Part IV MOC oversight – this project occurs within:

☒ **University of Michigan Health System**

- **Overseen by what UMHS Unit/Group?**

  Sleep Medicine

- **Is the activity part of a larger UMHS institutional or departmental initiative?**

  ☒ No ☐ Yes – the initiative is:

☐ **Veterans Administration Ann Arbor Healthcare System**

- **Overseen by what AAVA Unit/Group?**

- **Is the activity part of a larger AAVA institutional or departmental initiative?**

  ☐ No ☐ Yes – the initiative is:

☐ **An organization affiliated with UMHS to improve clinical care**

- **The organization is:**

- **The type of affiliation with UMHS is:**

  ☐ **Accountable Care Organization type** *(specify which):*

  ☐ **BCBSM funded, UMHS lead Collaborative Quality Initiative** *(specify which):*

  ☐ **Other** *(specify):*

- **Who is the individual at UMHS responsible for oversight of the QI project regarding Part IV requirements?**
  Name:
  Title:
  Institutional/organizational unit/affiliation:
  Phone number:
  Email address: