

Report on a QI Project Eligible for Part IV MOC

Reducing Errors in Sleep Study Protocols

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. (See section 3 of the website.) Final confirmation of Part IV MOC for a project occurs when the full report is submitted and approved.

An option for preliminary review (strongly recommended) is to complete a description of activities through the intervention phase and submit the partially completed report. (Complete at least items 1-20.) 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. Answers should be in regular font (generally immediately below or beside the questions). To check boxes, hover pointer over the box and click (usual “left” click).

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

- Grant Greenberg, MD, MHSA, MA, UMHS Part IV Program Lead, 763-232-6222, ggreenbe@med.umich.edu
- R. Van Harrison, PhD, UMHS Part IV Program Co-Lead, 734-763-1425, rvh@umich.edu
- Ellen Patrick, UMHS Part IV Program Administrator, 734-936-9771, partivmoc@umich.edu

Report Outline

Section	Items
A. Introduction	1-6. Current date, title, time frame, key individuals, participants, funding
B. Plan	7-10. Patient population, general goal, IOM quality dimensions, ACGME/ABMS competencies 11-13. Measures, baseline performance, specific aims 14-17. Baseline data review, underlying (root) causes, interventions, who will implement
C. Do	18. Intervention implementation date
D. Check	19-20. Post-intervention performance
E. Adjust – Replan	21-24. Post-intervention data review, underlying causes, adjustments, who will implement
F. Redo	25. Adjustment implementation date
G. Recheck	26-28. Post-adjustment performance, summary of individual performance
H. Readjust plan	29-32. Post-adjustment data review, underlying causes, further adjustments, who will implement
I. Reflections & plans	33-37. Barriers, lessons, best practices, spread, sustain
J. Participation for MOC	38-40. Participation in key activities, other options, other requirements
K. Sharing results	41. Plans for report, presentation, publication
L. Organization affiliation	42. Part of UMHS, AAVA, other affiliation with UMHS

QI Project Report for Part IV MOC Eligibility

A. Introduction

1. **Date** (*this version of the-report*):
6/27/16
2. **Title of QI effort/project** (*also insert at top of front page*):
Reducing Errors in Sleep Study Protocols
3. **Time frame**
 - a. **MOC participation beginning date – date that health care providers seeking MOC began participating in the documented QI project** (*e.g. date of general review of baseline data, item #14*): January 4, 2016
 - b. **MOC participation end date – date that health care providers seeking MOC completed participating in the documented QI project** (*e.g., date of general review of post-adjustment data, item #29c*): April 3, 2016

4. Key individuals

- a. **QI project leader** [*also responsible for confirming individual's participation in the project*]
Name: Angela Gupta, DO
Title: Sleep Medicine Fellow
Organizational unit: Sleep Medicine, Neurology Department
Phone number: 734 763 4002
Email address: gangela@med.umich.edu
Mailing address: 1500 East Medical Center Drive, Ann Arbor, MI
- b. **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: Program Director, Sleep Medicine Fellowship
Organizational unit: Sleep Medicine, Neurology Department
Phone number: 734 763 2000
Email address: avalanju@med.umich.edu
Mailing address: 1500 East Medical Center Drive, Ann Arbor, MI

5. Participants

- a. **Approximately how many health care providers (by training level for physicians) participated in this QI effort** (*whether or not for MOC*):

Profession	Number (<i>fill in</i>)
Practicing Physicians	1
Residents/Fellows	3
Physicians' Assistants	0
Nurses (APNP, NP, RN, LPN)	0
Other Allied Health	0

- b. **Approximately how many physicians (by specialty/subspecialty and by training level) and physicians' assistants participated for MOC?**

Profession	Specialty/Subspecialty (fill in)	Number (fill in)
Practicing Physicians	Neurology, Sleep Medicine	1
Fellows	-Family Medicine, Sleep Medicine	1
	-Osteopathic Family Medicine, Sleep Medicine	1
	-Internal Medicine, Pulmonary/Critical Care Medicine, Sleep Medicine	1
Residents		0
Physicians' Assistants	(Not applicable)	0

6. How was the QI effort funded? (Check all that apply.)

- Internal institutional funds
- Grant/gift from pharmaceutical or medical device manufacturer
- Grant/gift from other source (e.g., government, insurance company)
- Subscription payments by participants
- Other (describe):

The Multi-Specialty Part IV MOC Program requires that QI efforts include at least two linked cycles of data-guided improvement. Some projects may have only two cycles while others may have additional cycles – particularly those involving rapid cycle improvement. The items below provide some flexibility in describing project methods and activities. If the items do not allow you to reasonably describe the steps of your specific project, please contact the UMHS Part IV MOC Program Office.

B. Plan

7. Patient population. What patient population does this project address (e.g., age, medical condition, where seen/treated):

All patients who had sleep studies ordered at any of the three U of M sleep labs between October 2015 and March 2016.

8. General goal

a. Problem/need. What is the problem (“gap”) in quality that resulted in the development of this project? Why is important to address this problem?

There are several steps involved in protocolling sleep studies which are redundant, leading to inefficiency and creating opportunities for error. These errors create the potential for studies being improperly run, which may negatively impact patient care and may result in unnecessary repeat studies.

b. Project goal. What general outcome regarding the problem should result from this project? (State general goal here. Specific aims/performance targets are addressed in #13.)

Our goal was to reduce by 50% the number of protocolling errors which will ultimately improve efficiency. We expected to reach this goal by February 2016.

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

<http://www.nationalacademies.org/hmd/~media/Files/Report%20Files/2001/Crossing-the-Quality-Chasm/Quality%20Chasm%202001%20%20report%20brief.pdf>

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

10. Which ACGME/ABMS core competencies are addressed? (Check all that apply.)
 (<http://www.abms.org/board-certification/a-trusted-credential/based-on-core-competencies/>)

- | | |
|--|---|
| <input checked="" type="checkbox"/> Patient Care and Procedural Skills | <input type="checkbox"/> Medical Knowledge |
| <input type="checkbox"/> Practice-Based Learning and Improvement | <input type="checkbox"/> Interpersonal and Communication Skills |
| <input type="checkbox"/> Professionalism | <input checked="" type="checkbox"/> Systems-Based Practice |

11. Describe the measure(s) of performance: (QI efforts must have at least one measure that is tracked across the two cycles for the three measurement periods: baseline, post-intervention, and post-adjustment. If more than two measures are tracked, copy and paste the section for a measure and describe the additional measures.)

Measure 1

- **Name of measure:** The mean number of sleep study protocolling errors per week
- **Eligible population:** All patients who had baseline sleep studies ordered
- **Measure components** – for a rate, percent, or mean, describe the:
 Denominator: The number of weeks during the observation period
 Numerator: The number of pages received during the observation period regarding sleep study protocol questions.
- **The source of the measure is:**
 - An external organization/agency, which is (*name the source*):
 - Internal to our organization and it was chosen because (*describe rationale*): Errors related to oxygen use were the most common ones found during our gathering of background information
- **This is a measure of:**
 - Process – activities of delivering health care to patients
 - Outcome – health state of a patient resulting from health care

Measure 2

- **Name of measure:** The mean number of sleep study protocolling errors per week regarding oxygen use
- **Eligible population:** All patients who had sleep studies performed
- **Measure components** – for a rate, percent, or mean, describe the:
 Denominator: The number of weeks during the observation period
 Numerator: The mean number of pages received during the observation period regarding questions about oxygen use that was undefined on a sleep study protocol
- **The source of the measure is:**
 - An external organization/agency, which is (*name the source*):
 - Internal to our organization and it was chosen because (*describe rationale*):
- **This is a measure of:**
 - Process – activities of delivering health care to patients
 - Outcome – health state of a patient resulting from health care

(If more than two measures are tracked across the two cycles, copy and paste the section for a measure and describe the additional measures.)

12. Baseline performance

a. **What were the beginning and end dates for the time period for baseline data on the measure(s)?**

November 2, 2015 to December 14, 2015

b. **What was (were) the 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	# Pages/Week about Protocolling Errors	# Pages/Week about Protocolling Errors Concerning Supplemental Oxygen use
Baseline: 11/2/15 – 12/14/15	8	7

13. Specific performance aim(s)/objective(s)

a. **What is the specific aim of the QI effort?** *“The Aim Statement should include: (1) a specific and measurable improvement goal, (2) a specific target population, and (3) a specific target date/time period. For example: We will [improve, increase, decrease] the [number, amount percent of [the process/outcome] from [baseline measure] to [goal measure] by [date].”*

Our goal was to reduce the amount of protocolling errors from 8 errors weekly to 4 errors or less weekly. We expected to reach this goal by the end of the second cycle of improvement effort. The end of the second cycle was originally projected for February 2016 but was delayed until March 2016.

b. **How were the performance targets determined, e.g., regional or national benchmarks?**

Our performance target was chosen based on a 50% reduction in the average number of pages per week regarding protocolling errors, not on any known benchmarks.

14. Baseline data review and planning. Who was involved in reviewing the baseline data, identifying underlying (root) causes of problem(s) resulting in these data, and considering possible interventions (“countermeasures”) to address the causes? (Briefly describe the following.)

- **Who was involved?**
Dezmond Sumter, MD; Angela Gupta, DO; Mediha Ibrahim, MD; Anita Shelgikar, MD
- **How?** (e.g., in a meeting of clinic staff)
We met in a scheduled meeting
- **When?** (e.g., date(s) when baseline data were reviewed and discussed)
December 22, 2016

Use the following table to outline the plan that was developed: #15 the primary causes, #16 the intervention(s) that addressed each cause, and #17 who carried out each intervention. This is a simplified presentation of the logic diagram for structured problem solving explained at <http://ocpd.med.umich.edu/moc/process-having-part-iv-credit-designation> in section 2a. As background, some summary examples of common causes and interventions to address them are:

Common Causes	Common Relevant Interventions
<i>Individuals: Are not aware of, don't understand.</i>	<i>Education about evidence and importance of goal.</i>
<i>Individuals: Believe performance is OK.</i>	<i>Feedback of performance data.</i>
<i>Individuals: Cannot remember.</i>	<i>Checklists, reminders.</i>
<i>Team: Individuals vary in how work is done.</i>	<i>Develop standard work processes.</i>
<i>Workload: Not enough time.</i>	<i>Reallocate roles and work, review work priorities.</i>
<i>Suppliers: Problems with provided information/materials.</i>	<i>Work with suppliers to address problems there.</i>

15. What were the primary underlying/root causes for the <u>problem(s) at baseline</u> that the project can address?	16. What intervention(s) addressed this cause?	17. Who was involved in carrying out each intervention? (List the professions/roles involved.)
Lack of specification in sleep study orders related to oxygen led to increased sleep study protocol errors related to supplemental oxygen use	Modification was made to baseline sleep study order to include information on whether or not the patient uses home oxygen and whether or not it should be employed during the initiation of the study	Dezmond Sumter, MD Angela Gupta, DO Mediha Ibrahim, MD Anita Shelgikar, MD Neeraj Kaplish, MD Lisa Modelski, Information Technology Specialist
Unclear location of information regarding CPAP use in electronic health records	Include O2 use, CPAP orders in medication list on electronic health records	Not carried out
Lack of a standard sleep study protocol method	Define standard sleep study protocol method	Not carried out
No definition in sleep study order regarding if tracheostomy studies should be performed with tracheotomy capped or uncapped.	Modify sleep study orders to include information regarding whether or not a study involving tracheotomy should be performed with the tracheotomy capped or uncapped	Not carried out

Note: If additional causes were identified that are to be addressed, insert additional rows.

C. Do

18. By what date was (were) the intervention(s) initiated? *(If multiple interventions, date by when all were initiated.)* January 25 2016

D. Check

19. Post-intervention performance measurement. Are the population (item 10), measures (item 11), and the data collection procedures the same as those for the collection of baseline data?

Yes No – If no, describe how the population, measures, and/or data collection differ:

20. Post-intervention performance

a. What were the beginning and end dates for the time period for post-intervention data on the measure(s)? begin Feb 9, 2016 - end date 2/22/16

b. What was (were) the overall performance level(s) post-intervention? (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	# Pages/Week about Protocoling Errors	# Pages/Week about Protocoling Errors Concerning Supplemental Oxygen use
Baseline: 11/2/15 – 12/14/15	8	7
Post-Intervention: 2/9/16 – 2/22/16	4	0

c. Did the intervention(s) produce the expected improvement toward meeting the project’s specific aim (item 13.a)?

Yes – an average of only 4 pages/week were received regarding protocol errors. The 50% reduction from 8 to 4 errors/week met the specific aim.

E. Adjust – Replan

21. Post-intervention data review and further planning. Who was involved in reviewing the post-intervention data, identifying underlying (root) causes of problem(s) resulting in these new data, and considering possible interventions (“countermeasures”) to address the causes? (Briefly describe the following.)

- **Who was involved?**
 - Same as #14? Different than #14 (describe):
- **How?** (e.g., in a meeting of clinic staff)
 - Same as #14? Different than #14 (describe):
- **When?** (e.g., date(s) when post-intervention data were reviewed and discussed)
- **Feb 22 2016**

Use the following table to outline the next plan that was developed: #22 the primary causes, #23 the adjustments/second intervention(s) that addressed each cause, and #24 who carried out each intervention. This is a simplified presentation of the logic diagram for structured problem solving explained at <http://ocpd.med.umich.edu/moc/process-having-part-iv-credit-designation> in section 2a.

Note: Initial intervention(s) occasionally result in performance achieving the targeted specific aims and the review of post-intervention data identifies no further causes that are feasible or cost/effective to address. If so, the plan for the second cycle should be to continue the interventions initiated in the first cycle and check that performance level(s) are stable and sustained through the next observation period.

<p>22. What were the primary underlying/root causes for the <u>problem(s)</u> following the <u>intervention(s)</u> that the</p>	<p>23. What adjustments/second intervention(s) addressed this cause?</p>	<p>24. Who was involved in carrying out each adjustment/second intervention? (List the professions/roles</p>
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project can address?		involved.)
Insufficient time for the on-call fellow to protocol the sleep studies	Assign on call fellows dedicated time for protocolling	Dezmond Sumter, MD Angela Gupta, DO Mediha Ibrahim, MD Anita Shelgikar, MD
Sleep study parameters not defined for front desk staff to schedule sleep studies appropriately	Encourage specificity in sleep study orders amongst ordering practitioners, including adding titration settings to all titration orders	Not carried out
Lack of a standard sleep study protocol method	Define standard sleep study protocol method by using checklist (see below)	Dezmond Sumter, MD Angela Gupta, DO Mediha Ibrahim, MD Anita Shelgikar, MD

Note: If additional causes were identified that are to be addressed, insert additional rows.

Protocol Checklist:

Determine who placed order	
Review order	
Review clinic/telephone note associated with order	
Review results of previous studies in procedures tab, care web chart, and patient details	

F. Redo

25. By what date was (were) the adjustment(s)/second intervention(s) initiated? (If multiple interventions, date by when all were initiated.)

March 9, 2016

G. Recheck

26. Post-adjustment performance measurement. Are the population, measures, and the data collection procedures the same as indicated for the collection of post-intervention data (item #21)?

Yes No – If no, describe how the population, measures, and/or data collection differ:

27. Post-adjustment performance

a. What were the beginning and end dates for the time period for post-adjustment data on the measure(s)?

March 9-22, 2016

b. What was (were) the overall performance level(s) post-adjustment? (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	# Pages/Week about Protocoling Errors	# Pages/Week about Protocoling Errors Concerning Supplemental Oxygen use
Baseline: 11/2/15 – 12/14/15	8	7
Post-Intervention: 2/9/16 – 2/22/16	4	0
Post-Adjustment: 3/9/16 – 3/22/16	2	0

c. Did the adjustment(s) produce the expected improvement toward meeting the project’s specific aim (item 13.a)?

Yes. The 75% reduction from 8 to 2 errors surpassed our aim of 50%.

28. Summary of individual performance

a. Were data collected at the level of individual providers so that an individual’s performance on target measures could be calculated and reported?

Yes No – go to item 29

b. If easily possible, for each discipline:

- Participants with data available:
 - Indicate the number participating (if none, enter “0” and do not complete rest of row)
 - if any are participating, are data on performance of individuals available? (If “No”, do not complete rest of row.)
- if data on performance are available, then enter the number of participants in three categories regarding reaching target rates (i.e. the specific aims for measures).
(If you do not have this information or it is not easily available, leave the table blank.)

Profession	Participants with Data Available		Number of These Participants Reaching Targets		
	# Participating in QI Effort (from #5.a)	Data on Performance of Individuals Available? (Enter Yes or No)	# Not Reaching Any Target Rate	# Reaching at Least One Target Rate	If Multiple Target Rates, # Reaching All Target Rates (If only one rate, enter NA.)
Practicing Physicians					
Residents/ Fellows					
Physicians’ Assistants					
Nurses (APNP, NP, RN, LPN)					
Other Allied Health					

H. Readjust

29. Post-adjustment data review and further planning. Who was involved in reviewing the post-adjustment data, identifying underlying (root) causes of problem(s) resulting in these new

data, and considering possible interventions (“countermeasures”) to address the causes?
(Briefly describe the following.)

- **Who was involved?**
 - Same as #21? Different than #21 *(describe):*
- **How?** *(e.g., in a meeting of clinic staff)*
 - Same as #21? Different than #21 *(describe):*
- **When?** *(e.g., date(s) when post-adjustment data were reviewed and discussed)*
 April 3, 2016

Use the following table to outline the next plan that was developed: #30 the primary causes, #31 the adjustments(s)/second intervention(s) that addressed each cause, and #32 who would carry out each intervention. This is a simplified presentation of the logic diagram for structured problem solving explained at <http://ocpd.med.umich.edu/moc/process-having-part-iv-credit-designation> in section 2a.

Note: Adjustments(s) may result in performance achieving the targeted specific aims and the review of post-adjustment data identifies no further causes that are feasible or cost/effective to address. If so, the plan for a next cycle could be to continue the interventions/adjustments currently implemented and check that performance level(s) are stable and sustained through the next observation period.

30. What were the primary underlying/root causes for the <u>problem(s)</u> following the <u>adjustment(s)</u> that the project can address?	31. What further adjustments/ intervention(s) might address this cause?	32. Who would be involved in carrying out each further adjustment/intervention? <i>(List the professions/roles involved.)</i>
Sleep study parameters not defined for front desk staff to schedule sleep studies appropriately	Encourage specificity in sleep study orders amongst ordering practitioners, including adding titration settings to all titration orders	Not carried out
Unclear location of information regarding CPAP use in electronic health records	Include O2 use, CPAP orders in medication list on electronic health records	Not carried out
No definition in sleep study order regarding if tracheostomy studies should be performed with tracheotomy capped or uncapped.	Modify sleep study orders to include information regarding whether or not a study involving tracheotomy should be performed with the tracheotomy capped or uncapped	Not carried out

Note: If additional causes were identified that are to be addressed, insert additional rows.

33. Are additional PDCA cycles to occur for this specific performance effort?
- No further cycles will occur.
 - Further cycles will occur, but will not be documented for MOC. *If checked, summarize plans:*

- Further cycles will occur and are to be documented for MOC. *If checked, contact the UM Part IV MOC Program to determine how the project's additional cycles can be documented most practically.*

I. Reflections and Future Actions

33. Describe any barriers to change that were encountered during this QI effort and how they were addressed.

There was a time delay in implementing the changes in electronic health records, as we had to wait for informational technology to help us, but we were able to execute the changes in time to run our experiment.

34. Describe any key lessons that were learned as a result of the QI effort.

That process-based changes can make large impacts.

35. Describe any best practices that came out of the QI effort.

Now all sleep study orders include specification for home oxygen use.

36. Describe any plans for spreading improvements, best practices, and key lessons.

Since the participating fellows are graduating and leaving the institution, we have no plans for spreading the improved specification for home oxygen use to other services here. However, the fellows will be aware of the value of this specification and may incorporate it in their new practice locations..

37. Describe any plans for sustaining the changes that were made.

Incorporating the specification for home oxygen use in the electronic health record for sleep study orders will assure the continued specification of this information in the future..

J. Minimum Participation for MOC

38. Participating directly in providing patient care.

a. Did any individuals seeking MOC participate directly in providing care to the patient population?

- Yes No *If "No," go to item #39.*

b. Did these individuals participate in the following five key activities over the two cycles of data-guided improvement?

- Reviewing and interpreting baseline data, considering underlying causes, and planning intervention as described in item #14.
- Implementing interventions described in item #16.
- Reviewing and interpreting post-intervention data, considering underlying causes, and planning intervention as described in item #21.
- Implementing adjustments/second interventions described in item #23.
- Reviewing and interpreting post-adjustment data, considering underlying causes, and planning intervention as described in item #29.

- Yes No *If "Yes," individuals are eligible for MOC unless other requirements also apply and must be met – see item # 40.*

39. Not participating directly in providing patient care.

a. Did any individuals seeking MOC not participate directly in providing care to the patient population?

Yes No *If "No," go to item 40.*

b. Were the individual(s) involved in the conceptualization, design, implementation, and assessment/evaluation of the cycles of improvement? *(E.g., a supervisor or consultant who is involved in all phases, but does not provide direct care to the patient population.)*

Yes No *If "Yes," individuals are eligible for MOC unless other requirements also apply and must be met – see item # 40. If "No," continue to #39c..*

c. Did the individual(s) supervising residents or fellows throughout their performing the entire QI effort?

Yes No *If "Yes," individuals are eligible for MOC unless other requirements also apply and must be met – see item # 40. .*

40. Did this specific QI effort have any additional participation requirement for MOC? *(E.g., participants required to collect data regarding their patients.)*

Yes No *If "Yes," describe:*

K. Sharing Results

41. Are you planning to present this QI project and its results in a:

Yes No *Formal report to clinical leaders?*

Yes No *Presentation (verbal or poster) at a regional or national meeting?*

Yes No *Manuscript for publication?*

L. Project Organizational Role and Structure

42. UMHS QI/Part IV MOC oversight – indicate whether this project occurs within UMHS, AAVA, or an affiliated organization and provide the requested information.

University of Michigan Health System

• **Overseen by what UMHS Unit/Group?** *(name): Sleep Disorders Center, Neurology Department*

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

No Yes – *the initiative is (name or describe):*

Veterans Administration Ann Arbor Healthcare System

• **Overseen by what AAVA Unit/Group?** *(name):*

• **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** *(name):*

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

- Accountable Care Organization** (*specify which member institution*):
- BCBSM funded, UMHS lead state-wide Collaborative Quality Initiative** (*specify which*):
- Other** (*specify*):