# Report on a QI Project Eligible for Part IV MOC

## Decreasing Missed Appointments Rates through Personalized Appointment Reminder Calls

## 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

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| **B. Plan** | 7-10. | General goal, patient population, IOM quality dimensions addressed, experimental design |
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| | 13. | Data review and identifying underlying (root) causes |
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| **J. Physician involvement** | 29-31. | Physician's role, requirements, reports, reflections, participation, number |
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# QI Project Report for Part IV MOC Eligibility

## A. Introduction

**1. Date** *(this version of the report):* 09/22/2015

**2. Title of QI project:** Decreasing Missed Appointments Rates through Personalized Appointment Reminder Calls

**3. Time frame**

**a. Date physicians begin participating (may be in design phase):** January 1, 2014

**b. End date**: January 26, 2016

**4. Key individuals**

**a. QI project leader** *[also responsible for attesting to the participation of physicians in the project]*
**Name**: Megan Pesch
**Title**: Clinical Fellow
**Organizational unit**: Division of Developmental and Behavioral Pediatrics, Department of Pediatrics and Communicable Diseases
**Phone number**: (734) 647-1088
**Email address**: pesch@umich.edu
**Mailing address**: 300 N. Ingalls Street, 1033 NW. Ann Arbor, MI 48109-5604

**a. Clinical leader to whom the project leader reports regarding the project** *[responsible for overseeing/"sponsoring" the project within the specific clinical setting]*
**Name**: Barbara Felt
**Title**: Professor of Pediatrics
**Organizational unit**: Division of Developmental and Behavioral Pediatrics, Department of Pediatrics and Communicable Diseases
**Phone number**:
**Email address**: truefelt@umich.edu
**Mailing address**: Medical Professional Building, Third Floor SPC 5318, Ann Arbor, MI 48109-5318

**5. Approximately how many physicians were involved in this project categorized by specialty and/or subspecialty?**
Developmental and Behavioral Pediatrics: 2
Internal Medicine-Pediatrics: 1

**6. Will the funding and resources for the project come only from internal UMHS sources?**
X 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?**

Many patients miss their appointments in The Division of Developmental and Behavioral Pediatrics. This results in greater wait lists for appointments, delay in accessing care and decreased revenue.

**b. Physician's role. What is the physician's role related to this problem?**
Physicians oversee many aspects of clinic operations, including protocols for appointment scheduling and appointment reminders.

**c. Project goal. What general outcome regarding the problem should result from this project?**
*(Specific aims/targets are addressed in #12b.)*

To decrease the missed appointment rates in Dr. Barbara Felt's general Developmental and Behavioral Pediatrics clinics.

**8. Patient population. What patient population does this project address.**
Patients with appointments with Dr. Barbara Felt in general Developmental and Behavioral Pediatrics clinics. These are generally school-age and older patients with autism, ADHD, and behavioral issues.

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

| | | |
|---|---|---|
| ☐ Effectiveness | ☐ Equity | X Safety |
| X Efficiency | ☐ Patient-Centeredness | ☐ Timeliness |

**10. What is the experimental design for the project?**

X 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?**
Of all appointments, number and percent that are no-show appointments (missed appointment without cancelation call), that are cancelations (patient called to cancel within 2 days of the appointment, therefore the slot could not be filled), and that are completed appointments.
Numerator = # no show appointments + # cancelations.
Denominator = #completed appointments + # no-show appointments + # cancelations.

**b. Are the measures nationally endorsed? If not, why were they chosen?**
To our knowledge no national standards on measuring missed appointments exist. We used a common sense approach to defining our measurements based on previously published works.

**c. What is the source of data for the measure (e.g., medical records, billings, patient surveys)?**
Medical records - The data were retrospectively collected from scheduling reports within the Electronic Health Record, (MiChart).

**d. What methods were used to collect the data (e.g., abstraction, data analyst)?**
Office staff and a research assistant reviewed the scheduling reports for the denoted time periods. From the reports, the number of no-shows, cancellations, and completed appointments for the denoted time period were be recorded.

**e. For what time period was the sample collected for baseline data?**

March 1 – June 30, 2013. During this period patients received automated phone calls 48 hours in advance of their appointments.

**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 | Appointments | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Total** | | **Completed** | | **No-Show** | | **Late Cancelation** | | **Missed** (no-show + late cancelation) | |
| | % | (N) | % | (N) | % | (N) | % | (N) | % | (N) |
| Baseline 3/1/13–6/30/13 | 100% | (327) | 74% | (243) | 11% | (37) | 15% | (47) | 26% | (84) |

**b. Specific aim: What was the target for performance on the measure(s) and the timeframe for achieving the target?**

To decreased the percentage of missed appointments from 26% to ≤ 10%. We sought to achieve this by the end of the post-adjustment observation period, December 18, 2015.

**c. How were the performance targets determined, e.g., regional or national benchmarks?**
The average national no-show rate is estimated to be 5.5%, however given that we wanted to include late cancelations in our analysis as well (as these ultimately result in unfilled appointment slots), the decision was made to increase this to goal to 10%.

**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?** Megan Pesch (DBP fellow), Barbara Felt (DBP), David Stewart (Ped Hospitalist), Kylie Steenberg (medical student and research assistant), office staff (Carolyn Hicks and Natalie Hayes).

- **How?** *(e.g., in a meeting of clinic staff)* Data were reviewed in a team meeting. Megan Pesch had conducted a phone survey in December 2013 and January 2014 with parents of patients who missed their appointments in Dr. Felts Developmental and Behavioral Pediatrics clinics. These parents were asked, using a standardized script, why they missed their appointment. This data was used to inform the root cause analysis.

- **When?** This occurred in February 2014

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.)*

<u>Ineffective reminder system</u>: Parents reported via the phone survey that they did not receive the automated call reminder and therefore forgot about their appointment.

<u>Scheduling too far in advance</u>: Parents also reported that they forgot about their child's new patient appointment, which was scheduled many months in advance. The access issue of new patient appointments being scheduled many months in advanced was addressed by another group that shorted the time for new patient appointment scheduling to two months in advance. Follow-up appointments are typically scheduled two or more months in advance. Since either type of appointment is still typically scheduled two or more months in advance, this project focused on the issue of parents forgetting the scheduled appointment.

Other barriers identified by parents included weather, transportation and childcare. These barriers were determined not to be easily or economically addressed.

## C. Do

**14. Intervention(s). Describe the interventions implemented as part of the project.**

The participating physicians designed and oversaw implementation of protocols for personalized reminder phone calls. Office staff implemented a personalized reminder phone call 3 to 5 days in advance of the appointment to remind patients and parents of their appointment. If the parent/patient was reached or a voicemail message was left, then the automated call 24 hours in advance of the appointment was turned off. If no parent/patient or voicemail was reached, the automated call was left on.

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

Participating physicians designed and oversaw implementation of protocols for the intervention.

Office staff (Carolyn Hicks and Natalie Hayes) and a research assistant (Kylie Steenbergh) made the personalized reminder phone calls. The office staff and research assistant were also responsible for turning the automated call off if the patient/family was reached or a voicemail was left.

**16. When was the intervention initiated?** (For multiple interventions, initiation date for each.)
March 1 – June 30th, 2014

## 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)?**

X 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:**
Data was collected from March 1 – June 30th, 2014

**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.)*

| Time Period | Appointments | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total | | Completed | | No-Show | | Late Cancelation | | Missed (no-show + late cancelation) | |
| | % | (N) | % | (N) | % | (N) | % | (N) | % | (N) |
| Baseline 3/1/13–6/30/13 | 100% | (327) | 74% | (243) | 11% | (37) | 15% | (47) | 26% | (84) |
| Post-Intervention 3/1/14-6/30/14 | 100% | (342) | 82% | (281) | 7% | (23) | 11% | (38) | 18% | (62) |

**c. Did the intervention produce the expected improvement toward meeting the project's specific aim (item 12.b)?**

Yes, the intervention did provide improvement in the direction of the specific aim. The percentage of missed appointments decreased from 26% to 18%, a decrease of 8 percentage points. However, this decrease was only half way to the goal of ≤ 10% missed appointments.

## 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?** Megan Pesch, Barbara Felt (DBP), David Stewart (Ped Hospitalist), Kylie Steenberg (medical student and research assistant), office staff (Carolyn Hicks and Natalie Hayes)
- **How?** *(e.g., in a meeting of clinic staff)* In two team meetings
- **When?** January 2015 and August 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.)*

Some of the remaining missed appointments may were likely due to a short-term problem with parents forgetting. The personalized reminder calls occurred 3-5 days before the appointment, leaving a gap of 2-4 days during which parents still need to remember and plan for the scheduled appointment.

## F. Redo

**20. Second intervention. What additional interventions/changes were implemented?**

The physicians and office staff agreed to modify the protocol for reminders. Office staff continued personalized reminder calls (3-5 days in advance). The change was to turn back on the automated call to all patients 48 hours in advance, providing a second, shorter-term reminder.

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

September 1, 2015

## G. Recheck

**22. 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)?**

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

**23. Performance following the second intervention.**

**a. The collection of the sample of performance data following the intervention(s) occurred for the time period:**
September 1 – December 18, 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 | Appointments | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Total** | | **Completed** | | **No-Show** | | **Late Cancelation** | | **Missed** (no-show + late cancelation) | |
| | % | (N) | % | (N) | % | (N) | % | (N) | % | (N) |
| Baseline 3/1/13–6/30/13 | 100% | (327) | 74% | (243) | 11% | (37) | 15% | (47) | 26% | (84) |
| Post-Intervention 3/1/14-6/30/14 | 100% | (342) | 82% | (281) | 7% | (23) | 11% | (38) | 18% | (62) |
| Post- Adjustment 9/1/15-12/18/15 | 100% | (252) | 76% | (191) | 6% | (16) | 18% | (45) | 24% | (61) |

**c. Did the second intervention produce the expected improvement toward meeting the project's specific aim (item 12.b)?**

No, the overall missed appointment rate did not decrease below 10% with this intervention. In fact, the overall percentage of missed appointments increased to 24%. The no-show rate (6%) remained low, but late cancellations (18%) increased to a level slightly higher than baseline.

## H. Readjust

**24. 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?** Megan Pesch, Barbara Felt (DBP), David Stewart (Ped Hospitalist), Kylie Steenberg (medical student and research assistant), office staff (Carolyn Hicks)

- **How?** *(e.g., in a meeting of clinic staff)* In a team meeting

- **When?** January 26th, 2016 at 10:30 am

**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.)*

The increase in late cancellations may have been due to:

Shift in seasonal comparison. The two earlier measurement periods were March–June, while the final measurement period is September–December. The September-December period has more holiday events (Halloween, Thanksgiving, Hanukah, Christmas) that cause families to make last-minute changes in plans and cancel late. (Another season-related possibility is more severe weather in November and December that results in families changing plans, but the milder weather this year makes weather less likely a factor.) Comparisons across similar seasons would be needed to assess the impact of the time of year on late cancellations.

Reminders 24 hours in advance shifted no-shows to late cancellations. Adjustments included turning on the automated phone reminder 24 hours in advance of an appointment for patients who received an earlier reminder by personal call or voice mail. For individuals whose plans changed after the earlier reminder, the added reminder 24 hours before the appointment may have prompted the family to call and cancel rather than miss the appointment with no notice. To the extent this may have occurred, the overall "missed" rate (late cancellations + no-shows) may better reflect the overall effect of the interventions.

Considering both of these likely causes, we think a comparison across similar seasons (e.g., March–June 2016) would show that the interventions have a greater overall effect on missed appointments than is indicated in the post-adjustment data. However, even seasonally controlled rates are not likely to be at our goal of ≤ 10% missed appointments. Examining specific instances of reasons for no-shows and late-cancellations would help identify causes beyond those that can be addressed by reminder calls. For example, long lead times may be an underlying cause: patients who have scheduled an appointment with a long lead time may in the interim seek services elsewhere, never cancelling the appointment and ignoring reminder messages that are no longer relevant to them. With a better understanding of the continuing causes, the practical feasibility of addressing those causes could then be considered.

*If no additional cycles of adjustment are to be documented for the project for Part IV credit, go to item #25.*

## I. Future Plans

**25. 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?**

None.

**26. How will the project sustain processes to maintain improvements?**

We will present the results of this project to the Department of Pediatrics, and allow them to decide at a departmental level whether they would like to continue these efforts.

**27. 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?**

Yes – missed appointments are a problem that affect most divisions in our department. We will consider presenting the results of this project to the Department of Pediatrics Quality Improvement group at their monthly meeting.

**28. What lessons (positive or negative) were learned through the improvement effort that can be used to prevent future failures and mishaps or reinforce a positive result??**

- When planning a quality improvement project, we learned that it is very important to carefully consider the outcome variable and how this will be measured.
- We also learned that it is important to take into account all the people involved in a system when trying to make a change in order to understand what is feasible
- We learned a great deal about Quality Improvement methodology, including how to use a run chart
- In the future, when conducting future Quality Improvement projects we would conduct shorter PDCA cycles
- We also learned that these sorts of projects are not easy to conduct and even for a simple intervention, such as ours, it is important to consider the amount of effort and resources needed to implement the intervention and measure the outcomes

## 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*

**29. 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, considering underlying causes, and planning intervention.
Physicians had to participate as described in item #13a.

b. Implementing intervention.
Physicians had to participate as described in items #14, #15, and #16.

c. Interpreting post-intervention data, considering underlying causes, and planning changes.
Physicians had to participate as described in item #24a.

d. Implementing further intervention/adjustments.
Physicians had to participate as described in items #20 and #21.

e. Interpreting post-adjustment data, considering underlying causes, and planning changes
Physicians had to participate as described in item #24a.

**30. How were reflections of individual physicians about the project utilized to improve the overall project?**

In team meetings, the physicians met with office staff and research assistants to review the data and identify causes. Reflections from individual physicians were shared at these meetings and collaboratively incorporated into identifying causes as well as re-planning for future cycles.

**31. How did the project ensure meaningful participation by physicians who subsequently request credit for Part IV MOC participation?**

All physicians were required to attend team meetings to discuss planning, interpret performance data, and assess the impact of interventions. In addition, physicians were required to be actively involved in making plans for additional cycles of PDCA. Physicians involved also contributed to the project by overseeing the office staff and ensuring that the protocol for the intervention was implemented. Lastly, all physicians involved were required to participate fully throughout the entire duration of the project.

## K. Sharing Results

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

☐ Yes X No Formal report to clinical leaders?

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

We already presented the first cycle and results at a national meeting.

☐ Yes X No Manuscript for publication?

## L. Project Organizational Role and Structure

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

X **University of Michigan Health System**

- **Overseen by what UMHS Unit/Group?** Developmental and Behavioral Pediatrics

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

  X 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 state-wide Collaborative Quality Initiative** *(specify which):*

  ☐ **Other** *(specify):*