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Walden University

College of Nursing

This is to certify that the doctoral study by

Jeanette Serrano

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee

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Executive Summary: Clinical Practice Guideline
Structured Follow-Up After Outpatient Visits: A Clinical Practice Guideline

by

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Executive Summary Submitted in Partial Fulfillment
of the Requirements for the Degree of
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Summary

I conducted this Doctor of Nursing Practice (DNP) project to develop an evidence-based clinical practice guideline (CPG) to reduce missed follow-up appointments and improve care continuity in a family medicine outpatient clinic. Missed follow-ups, especially common in underserved populations, compromise safety, delay treatment, and increase costs. The purpose of this doctoral project was to develop and appraise a CPG that integrates evidence-based strategies to improve follow-up procedures, reduce missed appointments, and enhance patient safety and care continuity in an outpatient setting. This project addressed the practice-focused question: Will a CPG around structured follow-up for patient visits in an outpatient clinic be approved by a group of subject matter experts utilizing the Appraisal of Guidelines for Research & Evaluation II (AGREE II) tool? Analytical strategies included a structured literature review using the Johns Hopkins evidence-based practice (JHNEBP) model and expert panel appraisal of guideline quality using the AGREE II instrument. The panel's aggregated results showed strong ratings across the six domains. Key recommendations included automated text/email/phone reminders 24–48 hours before appointments, use of predictive analytics, integration of follow-up workflows into the electronic health record (EHR), and ongoing training and feedback mechanisms. This project enhances nursing practice through improved care coordination, reduced no-show rates, and effective use of predictive tools to identify at-risk patients. The project also advances health equity by promoting structured follow-up care for vulnerable populations, aligning evidence-based guidelines with stakeholder input to support diversity; inclusion; and safer, more efficient care delivery.

Background

Missed follow-up appointments represent a persistent challenge in outpatient primary care, contributing to fragmented care, delayed diagnoses, poor chronic disease management, and increased healthcare costs (Zimolzak et al., 2022; Marbough et al., 2020; Aldadi et al., 2025). Studies have shown that up to 30% of outpatient appointments are not attended, especially in underserved populations where communication barriers, transportation issues, or limited health literacy may exist (Aldadi et al., 2025; Marbough et al., 2020). Moreover, missed appointments and poor follow-up are associated with worsened patient outcomes, including complications from delayed test results or failure to initiate treatment (Zimolzak et al., 2022). Studies have shown that many primary care patients encounter these gaps, including insufficient or delayed follow-ups (Fontil et al., 2022).

In the project site clinic, inconsistent use of reminder systems and unclear responsibilities for follow-up tracking have contributed to gaps in continuity of care. Staff reported confusion regarding who is responsible for following up on test results and missed visits, and the existing EHR lacks standardized workflows or prompts. As a result, patients with abnormal test results or time-sensitive follow-up needs may be lost to follow-up, posing significant patient safety risks. This practice gap highlighted the need for an evidence-based CPG to support structured follow-up processes and reduce missed appointments.

This project addressed the practice-focused question: Will a CPG around structured follow-up for patient visits in an outpatient clinic be approved by a group of subject matter experts utilizing the AGREE II tool? The purpose of this DNP project was

to develop and appraise a CPG that integrates evidence-based strategies to improve follow-up procedures, reduce missed appointments, and enhance patient safety and care continuity in an outpatient setting. By developing this CPG, I aimed to standardize workflows, clarify staff responsibilities, and incorporate digital health tools to facilitate timely patient contact and monitoring.

I conducted a systematic synthesis of 10 peer-reviewed studies the JHNEBP model. The supporting evidence included:

- Level I evidence: A systematic review by Opon et al. (2020) demonstrated that automated patient reminders via phone, text, or email significantly reduce missed appointments. This high-quality review was consistent across various outpatient settings, supporting its generalizability and strength.
- Level II evidence: Valero-Bover et al. (2022) developed a predictive model to identify high-risk patients likely to miss follow-up, demonstrating strong potential for integrating data-driven decision support into workflows.
- Level III evidence: Correa et al. (2020) and Pereira et al. (2022) reviewed implementation barriers and facilitators, providing actionable strategies for overcoming resistance to change and integrating CPGs into practice.
- Level III evidence: Zimolzak et al. (2022) emphasized the importance of clear assignment of responsibility for test result follow-up, highlighting workflow breakdowns that contribute to delays in care.
- Level IV evidence: Eriks-Hoogland et al. (2024) supported staff education and standardization of follow-up practices through implementation science approaches.

Most of the included studies were Level I–III, comprising systematic reviews and high-quality quantitative research. I evaluated evidence using the Johns Hopkins JHNEBP appraisal tool. Overall, the strength of the evidence is moderate to high, with consistent support for reminder systems, workflow clarity, predictive modeling, staff training, and the implementation of structured guidelines. This strong body of evidence supported the development and implementation of a CPG to improve follow-up and reduce appointment no-shows in outpatient primary care.

CPG Development

I developed an evidence-based CPG to reduce missed follow-up appointments and improve care continuity in a family medicine outpatient clinic (see Appendix). CPGs are designed to improve care quality and reduce variations in practice that lead to waste, inefficiency, and low productivity (Guerra-Farfan et al., 2023; Hatakeyama et al., 2019). To develop effective strategies for improving health outcomes, it is crucial to identify the underlying causes of a practice gap and the obstacles that hinder implementation of CPG recommendations (Correa et al., 2020). I selected an expert panel of three subject matter experts (i.e., a doctoral-prepared nurse, one family nurse practitioner, and one experienced clinical manager) to review the CPG. These experts were chosen based on their clinical leadership, experience in outpatient care, and knowledge of evidence-based practice and guideline implementation.

I used the AGREE II tool to evaluate the quality and rigor of the CPG across six domains. Reviewers independently rated the guideline via the official AGREE Plus platform and provided both quantitative scores and qualitative feedback. Descriptive statistics were calculated to assess domain scores, and open-ended comments were

thematically analyzed to identify areas for improvement. I made revisions to the CPG to enhance clarity, applicability, EHR integration, and staff training components based on their feedback. A follow-up summary of changes was provided to the expert panel to confirm resolution of their prior concerns. This structured review process ensured transparency, rigor, and alignment with best practices in clinical guideline development. In addition to the expert panel, the CPG was reviewed for end-user feedback by three front office staff members, two medical assistants, and one call center coordinator. I selected these end users based on their roles in patient scheduling, EHR documentation, and follow-up communication processes.

In the review process, a paper-based version of the AGREE II overall assessment section was employed, consisting of two global rating items: (a) overall quality of the guideline (1 = *lowest possible* and 7 = *highest possible quality*) and (b) recommendation for use (*yes, yes with modifications, or no*). Participants were given time during staff meetings to review the CPG, after which they completed the form anonymously to encourage honest feedback. I compiled their comments and ratings and integrated them with expert feedback to inform my final revisions to the guideline. This multistep evaluation strategy ensured the guideline was both methodologically sound and operationally feasible, enhancing the likelihood of successful implementation and staff adoption.

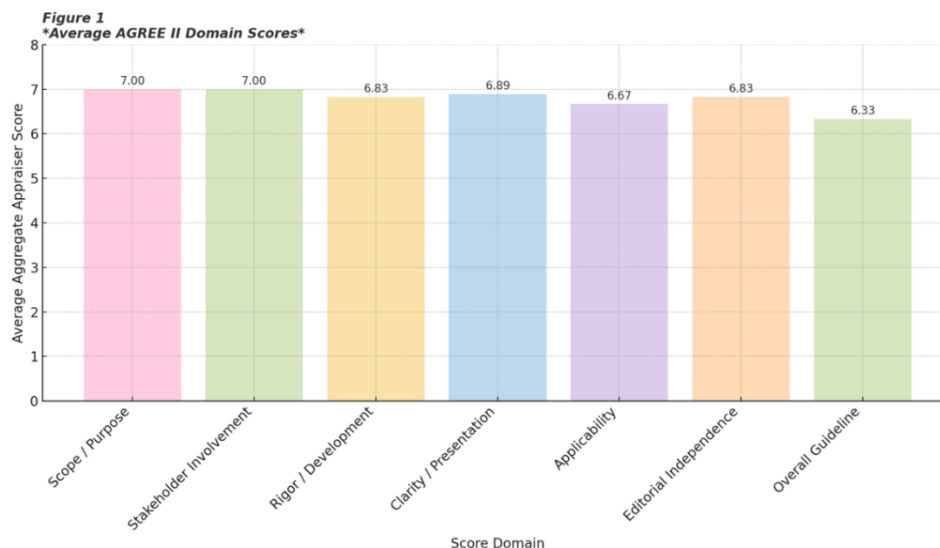
Results

The AGREE II expert panel consisted of three qualified content experts, including a family medicine doctorate nurse practitioner, a family medicine nurse practitioner, and a clinic manager/administrator. Each expert reviewed the CPG independently using the

AGREE II tool online (i.e., My Agree PLUS), which assesses guideline quality across 23 items organized into six domains using a 7-point Likert scale. The panel’s aggregated results showed strong ratings in Scope and Purpose (Domain 1), Clarity of Presentation (Domain 4), and Rigor of Development (Domain 3). Notably, Item 1 (“Overall objective is clearly described”) and Item 10 (“Methods for formulating recommendations are clearly described”) both received consistent scores of 6 or 7 (see Figure 1). Notably, the “Overall Guideline Assessment” received a perfect score of 7 from all three end-user reviewers, and all recommended the guideline for use without modifications, reflecting strong confidence in the quality and clinical utility of the CPG. The average score for the Overall Guideline Assessment from the three end users was 7, indicating strong agreement with the experts’ evaluation. Informal qualitative feedback highlighted appreciation for the reminder template library, structured follow-up checklist, and standardized EHR prompts.

Figure 1

Average AGREE II Item Scores by Domain



Reviewers commented that the step-by-step processes for follow-up, use of automated EHR reminders, and structured workflows were clear and practical. The strongest areas of feedback emphasized the guideline's usability, training plan, and its adaptability to real-world clinic settings. One reviewer noted possible implementation barriers, such as limitations in EHR systems and patient access to communication methods, which were addressed by adding flexible reminder modalities (e.g., phone, text, email).

I collected end-user feedback from three front office staff, two medical assistants, and one call center coordinator. These stakeholders evaluated the guideline using the final two AGREE II items in the Overall Assessment section. All end users rated the CPG as "High Quality" and "Recommended without Modifications."

Adoption of this CPG within the project site organization is expected to improve structured follow-up, reduce no-show rates, and enhance continuity of care. The implementation process involved leadership support, information technology integration, and workflow redesign with staff training and EHR prompt customization. The CPG will be evaluated annually or as new evidence emerges, ensuring sustainability.

Limitations included the small sample size for expert and end-user reviews and potential variability in technology capacity across outpatient settings. However, these were mitigated by ensuring multidisciplinary perspectives and embedding iterative feedback loops.

This project has implications beyond the local clinic site because it demonstrates how structured guideline development, validated with the AGREE II tool, can enhance primary care delivery systems, promote accountability, and support health equity. By

improving patient follow-up through evidence-based workflows, the CPG supports broader efforts to close gaps in outpatient care and contributes to positive social change.

Conclusions

In this DNP project, I evaluated whether the development of a CPG for structured follow-up in an outpatient clinic could be approved by a panel of subject matter experts using the AGREE II tool. The results indicated a positive outcome, with mean domain scores ranging from 6.33 to 7.00 on the 7-point Likert scale, reflecting strong overall quality, rigor, clarity, and applicability across all domains of the Clinical Practice Guideline (see Hatakeyama et al., 2019; Opon et al., 2020). Reviewers provided favorable qualitative feedback, particularly on the step-by-step recommendations for automated reminders, EHR integration, and staff training (see Aldadi et al., 2025; Zimolzak et al., 2022).

These findings support the feasibility and utility of the guideline for reducing missed appointments and improving continuity of care (see Valero-Bover et al., 2022). The CPG's implementation has the potential to improve workflow efficiency and reduce operational disruptions caused by patient no-shows. The project also empowers staff through clearly defined roles and evidence-based protocols for structured follow-up (see Eriks-Hoogland et al., 2024; Marbough et al., 2020). Adoption of this CPG at the organizational level is likely to enhance patient safety, timeliness of care, and communication across the care team (see Correa et al., 2020).

My further recommendations include expanding the use of predictive analytics to identify high-risk patients and adapting reminder modalities to accommodate patient preferences (e.g., language, communication format; Pereira et al., 2022). Ongoing

training and iterative staff feedback loops are also encouraged to sustain engagement and compliance.

From a nursing practice standpoint, this project advances professional accountability and population health by embedding a standardized, evidence-informed process into daily outpatient workflows (see Guerra-Farfan et al., 2023). The project contributes to positive social change by increasing equitable access to follow-up care, reducing disparities linked to missed appointments, and incorporating diverse communication strategies to reach vulnerable populations.

Evaluation of the CPG will be continuous and multimodal. Internal audits and monthly metrics (e.g., no-show rate, follow-up completion rate) will be used to monitor process effectiveness. Annual review cycles using the AGREE II tool, supplemented by end-user and patient feedback, will ensure the guideline remains evidence-based and responsive to practice needs.

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Appendix: Clinical Practice Guideline

1. Scope and Purpose

Objective: Reduce missed appointments and improve continuity of care.

Health Questions addressed:

- What evidence-based interventions reduce missed follow-up visits?
- How can follow-up be improved using CPGs and the AGREE II tool?

Target Population: Adults in outpatient care, especially high-risk groups.

2. Stakeholder Involvement

The Guideline Development Group includes NPs, MDs, nurses, MAs, schedulers, clinic administrators. Feedback from patients and staff is collected to inform CPG development.

Target users are outpatient clinic providers and staff responsible for follow-up and care coordination. Patient perspectives are included through representative input.

3. Rigor of Development

Sources: 10 peer-reviewed studies (Levels I–V). Tools: Johns Hopkins EBP Model and AGREE II. Selection criteria based on relevance, evidence level, and applicability.

Strengths and limitations of evidence are documented using JHEBP. Recommendation process: Thematic synthesis from consistent findings. Recommendations are derived from common themes across the 10 studies. Risks, benefits, and barriers are considered in implementation planning. Recommendations are explicitly linked to evidence with quality ratings. External review involves 3–4 SMEs using AGREE II. Update plan: Conduct annual review or as new evidence emerges. An annual review is scheduled; updates will be based on new evidence and stakeholder input.

4. Clarity of Presentation

Each recommendation is specific and actionable. Options include predictive modeling, EHR prompts, training, and audits. Key recommendations are listed with supporting evidence and their levels. Patient reminders are sent 24–48 hours before visits — Level I, Good Quality (Opon et al., 2020). Predictive modeling for no-show risk —Level II, High Quality (Valero-Bover et al., 2022). Assigning test follow-up responsibility — Level III, High Quality (Zimolzak et al., 2022). EHR alerts and reminder integration — Level V, High Quality (Marbough et al., 2020). Staff training on documentation — Level IV, High Quality (Eriks-Hoogland et al., 2024). Updating CPG with stakeholder input is Level III, High Quality (Pereira et al., 2022; Correa et al., 2020). Using AGREE II to appraise the guideline—Level III, High Quality (Hatakeyama et al., 2019).

5. Applicability

Barriers Identified: Barriers (such as time, training, and system issues) and facilitators are recognized.

- Time constraints, inconsistent documentation, resistance to change.
- Unfamiliarity with tools like AGREE II and lack of follow-up standardization.

Facilitators:

- Experienced staff, interprofessional collaboration, validated tools.

Tools Provided: EHR templates, dashboards, reminder scripts, workflows, and staff education. Resource needs (IT support, champions, training) are discussed.

Evaluation Metrics: No-show rate, test follow-up rate, provider adherence. Metrics include follow-up rates, no-show rates, satisfaction, and delays in care.

6. Editorial Independence

The competing interests of guideline development group members have been documented and managed. Conflict of Interest: None declared. The views of the funding organization did not influence the guideline content. Funding Source: No external funding; the guideline was developed internally.

CPG Recommendations

Recommendation 1: Implement Patient Reminder Systems (phone, text, or email) to reduce missed appointments. Integrate Automated Text Message Reminders via the EHR System to Reduce Missed Appointments

For Clinic: Enable and customize the EHR-based SMS reminder system (e.g., Office Ally) to send texts 24–48 hours before appointments. SMS is more effective and cost-efficient than email or phone calls.

Key Steps:

1. Activate EHR reminder module.
2. Customize messages with clinic name, time, and response options. *“Your appointment at _____ Medical Clinic is on [date] at [time]. Reply YES to confirm or CALL to reschedule.”*
3. Schedule texts 24–48 hours before visits.
4. Assign staff to monitor delivery failures and follow up by phone.
5. Track no-show and confirmation rates monthly.

6. Gather patient feedback to improve messaging.

Opon et al. (2020) found that automated SMS reminders sent 24–48 hours prior to appointments significantly reduced no-show rates, particularly in primary care and outpatient specialty settings. SMS reminders were more effective and cost-efficient than voice calls or emails. Enable the reminder module in your EHR. Customize SMS templates to include the clinic name, appointment time, and response options. Schedule automated reminders for 24–48 hours before each visit. Designate a staff member (e.g., MA or front desk) to monitor failed deliveries and follow up manually by calling back patients. Track outcomes monthly (no-show rate, reschedule rate, patient response).

Gather patient feedback to refine message format and timing.

Evidence shows that patient reminders are effective in reducing missed appointments across outpatient settings. Systematic review results are consistent across multiple care settings.

Level of Evidence: Level I (Systematic Review)

- Quality Rating: High Quality
- Source: Opon et al. (2020)

Integrate reminder protocols and alerts into the EHR system.

- Level of Evidence: Level III

- Quality Rating: High Quality (Marbough et al., 2020)

Recommendation 2: Use Predictive Models to Identify Patients at Risk for Non-Attendance.

Evidence supports the use of predictive algorithms using prior attendance, demographics, and other factors to proactively manage follow-ups.

A quasi-experimental study demonstrated the effectiveness of predictive tools to identify patients likely to miss appointments. Risk stratification supports proactive intervention

- Level of Evidence: Level II
- Quality Rating: High Quality
- Source: Valero-Bover et al. (2022)

Recommendation 3: Standardize Follow-Up Protocols Through Interprofessional Collaboration.

Standardize internal workflows assigning responsibility for test results and appointment follow-up. Qualitative research supports structured systems and communication processes to close follow-up gaps and reduce lost results. This approach ensures continuity of care and accountability among providers.

Train staff on guideline use, documentation, and patient communication practices.

- Level of Evidence: Level I
- Quality Rating: High Quality (Eriks-Hoogland et al., 2024)
 - Level of Evidence: Level III
 - Quality Rating: High
 - Citations: Zimolzak et al. (2022), Aldadi et al. (2025)

Recommendation 4: Incorporate Implementation Strategies Based on Evidence from Qualitative and Mixed-Method Systematic Reviews.

Incorporate patient and clinician feedback into regular updates of the CPG. Evidence suggests implementation success is enhanced by addressing multilevel barriers and leveraging leadership engagement. Using AGREE II to appraise the guideline—Level III, High Quality (Hatakeyama et al., 2019).

Systematic reviews of qualitative, quantitative, and mixed-methods studies support this finding. Correa et al. (2020) is Level III, which includes systematic reviews of qualitative, quantitative, or mixed-methods studies. Pereira et al. (2022) is Level III RCTs, quasi-experimental, and quantitative studies.

- Level of Evidence: Level III
- Quality Rating: High
- Citations: Correa et al. (2020), Pereira et al. (2022)

| Clinical Practice Guidelines |
|---|
| <ul style="list-style-type: none"> • Implement automated reminders (text, phone, email) 24–48 hours before visits. • Use a template library with standardized scripts for consistency. • Apply predictive analytics and clinical judgment to identify high-risk patients. • Flag high-risk patients in the EHR for proactive outreach. • Use a follow-up checklist to track abnormal labs, test results, and appointments. • Assign responsibility to specific staff for accountability. • Embed follow-up protocols in the EHR with prompts for compliance. • Provide a staff quick-reference guide for documentation and workflows. • Maintain supporting tools: reminder templates, tracking checklist, feedback forms, workflow flowcharts, and case examples. • Train staff on procedures, documentation, and communication standards. • Provide quick-reference materials (laminated cards, short video modules) to reduce burden. • Collect patient and staff feedback monthly through forms. • Review results and make iterative changes to improve usability and effectiveness. • Process metrics: no-show rate, follow-up completion rate, reminder success rate. |

- Outcome measures: patient satisfaction, delays in care, missed abnormal results.
- Conduct quarterly audits and report findings to leadership.
- Technology limitations: provide paper/manual workflows if EHR integration is restricted.
- Staff workload: use checklists/templates to reduce documentation time.
- Patient barriers: offer reminders in multiple languages and simplified formats.
- Consistency: standardized tools ensure uniform adoption across staff.
- Review guideline annually or when new evidence emerges.
- Reassess with the AGREE II tool before updates.
- Engage providers, staff, patients, and quality teams in revisions.
- Clinic leadership and champions will oversee adoption.
- IT support will configure EHR prompts and manage data tracking.
- Multidisciplinary stakeholders will conduct quarterly reviews for continuous improvement.