Walden University
ScholarWorks

Walden Dissertations and Doctoral Studies

Walden Dissertations and Doctoral Studies Collection

2-4-2026

Multimodal Education to Improve Metabolic Monitoring Knowledge Among Psychiatric Nurse Practitioners

Tania Alfonso
Walden University

Follow this and additional works at: https://scholarworks.waldenu.edu/dissertations

 Part of the Nursing Commons

This Dissertation is brought to you for free and open access by the Walden Dissertations and Doctoral Studies Collection at ScholarWorks. It has been accepted for inclusion in Walden Dissertations and Doctoral Studies by an authorized administrator of ScholarWorks. For more information, please contact ScholarWorks@waldenu.edu.

Walden University

College of Nursing

This is to certify that the doctoral study by

Tania Alfonso

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
Dr. Patricia Schweickert, Committee Chairperson, Nursing Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2026

Executive Summary: Staff Education Project

Multimodal Education to Improve Metabolic Monitoring Knowledge Among Psychiatric Nurse Practitioners

by

Tania Alfonso

MS, Maryville University, 2019

BS, West Coast University, 2017

Executive Summary Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

February 2026

Summary

This Doctor of Nursing Practice (DNP) staff education project was a multimodal educational intervention to improve outpatient psychiatric nurse practitioner (PNP) knowledge of metabolic monitoring guidelines for patients prescribed second-generation antipsychotics (SGAs). The project addressed low adherence to national monitoring standards that contribute to increased cardiometabolic risks associated with SGAs. The project question was: Does staff education regarding metabolic monitoring guidelines improve nursing knowledge as compared pre- to posteducation? The purpose was to enhance PNP knowledge of metabolic monitoring guidelines. Guided by the Johns Hopkins evidence-based practice (JHEBP) model, I conducted a focused literature search and identified 28 peer-reviewed articles to inform evidence collection and analysis, of which 14 high-quality sources informed project development. A single-group, pre-/posttest design was used to evaluate the short-term knowledge change of five licensed PNPs. Descriptive analysis showed improvement from a mean pretest score of 66% to a mean posttest score of 96%, reflecting a 30% point knowledge gain. Major products included the educational program and pre-/posteducation knowledge assessments. Limitations included a small sample size, single-site implementation, and a short evaluation period. Recommendations included ongoing education to support evidence-based practice, early detection of metabolic risk, and equity in preventive psychiatric care. The project's implications for nursing practice are strengthening evidence-based metabolic monitoring and improving early risk detection. The project also supports positive social change by addressing disparities in preventive monitoring for individuals with serious mental illness.

Background

SGAs are widely prescribed for severe mental illnesses, including schizophrenia, bipolar disorder, and major depressive disorder with psychotic features, because of their effectiveness in symptom stabilization and relapse prevention (American Psychiatric Association [APA] & American Diabetes Association [ADA], 2020; Correll et al., 2020). The ADA (2023) and DeJongh et al. (2021) describe SGAs as a cornerstone of pharmacologic treatment across psychiatric settings; however, SGAs are associated with significant metabolic adverse effects, such as weight gain, dyslipidemia, insulin resistance, and metabolic syndrome, that increase cardiometabolic morbidity and mortality and contribute to reduced life expectancy among individuals with severe mental illness. As demonstrated by Correll et al. (2020), these metabolic complications substantially elevate mortality risk, underscoring that consistent metabolic monitoring is a critical component of safe psychiatric prescribing.

The need for standardized monitoring is reinforced by persistent health disparities affecting individuals with severe mental illness, including barriers to preventive care, fragmented coordination between psychiatric and primary care services, and limited access to routine screening (Cabassa et al., 2021; Poojari et al., 2023; Smithson & Patel, 2023). Cabassa et al. (2021) emphasized that structural and systemic barriers within mental health systems impede preventive care delivery, while Nasrallah et al. (2021) identified inconsistent screening practices as a key contributor to cardiometabolic risk. Fragmented care and unclear responsibility for screening are associated with lower rates of cardiometabolic monitoring across outpatient psychiatric settings, both nationally and internationally (Al-Awad et al., 2024; Smithson & Patel, 2023). Retrospective reviews

further confirmed that adherence to recommended cardiometabolic monitoring remains suboptimal even when clinical guidelines are available (Jacob et al., 2023).

System-level constraints, such as limited visit time, unclear role expectations, lack of standardized workflows, and suboptimal electronic health record (EHR) integration, directly contribute to inconsistent metabolic monitoring and documentation in outpatient psychiatric practice. Bui et al. (2024) and Tran et al. (2023) identified workflow inefficiencies and EHR limitations as primary contributors to missed or delayed monitoring. Both providers and patients identify time constraints, unclear accountability, and insufficient system support as significant barriers to consistent monitoring among individuals treated with SGAs (Poojari et al., 2023), indicating a systems- and provider-level practice gap rather than a lack of clinical guidance.

In response, the APA and the ADA (2020) issued evidence-based recommendations for baseline and ongoing metabolic monitoring for patients prescribed SGAs. Despite these guidelines, adherence remains suboptimal. Nasrallah et al. (2021) reported that fewer than half of patients receive recommended baseline screening, while Yung et al. (2020) found that follow-up monitoring is frequently delayed or inconsistently documented. Local assessment at the project site revealed inconsistent documentation, incomplete assessments, and uncertainty regarding monitoring parameters, confirming a modifiable evidence-based practice gap.

The project question guiding this initiative was: Does staff education regarding metabolic monitoring guidelines improve nursing knowledge as compared pre- to posteducation? The purpose of this quality improvement project was to evaluate whether implementing a multimodal staff education intervention improved PNP knowledge of

evidence-based ADA/APA metabolic monitoring guidelines for patients prescribed SGAs in an outpatient psychiatric setting.

Evidence supporting the proposed change was appraised using the JHEBP model (see Dang et al., 2021). In a focused literature search, I identified 28 peer-reviewed articles, of which 14 high-quality sources were selected to inform project development. The evidence base consisted primarily of Level I and II studies, including systematic reviews, meta-analyses, and quasi-experimental quality improvement studies, representing strong, high-quality evidence supporting educational and system-level interventions (see Dang et al., 2021). The literature demonstrated that structured, multimodal educational interventions improve provider knowledge, documentation, and adherence to metabolic monitoring guidelines (Lam et al., 2022; Macias et al., 2022; Singh et al., 2021). In addition, system-wide quality improvement strategies, structured monitoring tools, and nurse-led interventions reduce practice variation and improve adherence in outpatient psychiatric settings with workflow constraints (El Khalek & Soliman, 2023; Rivera-Segarra et al., 2023; Zhou et al., 2023). Collectively, this evidence supported the implementation of a feasible, low-resource educational intervention to improve the quality, safety, and equity of psychiatric care.

Staff Education Project Development

I conducted this DNP staff education project in a private outpatient psychiatric practice and implemented it through an in-person, structured, multimodal educational intervention designed to strengthen PNP knowledge of ADA and APA metabolic monitoring guidelines for patients prescribed SGAs. The project addressed persistent gaps in guideline adherence that contribute to preventable cardiometabolic complications

among individuals with severe mental illness (see Correll et al., 2020; Nasrallah et al., 2021). Five licensed PNPs participated in the project. Eligibility criteria included active clinical practice at the site; independent prescribing authority for SGAs; and responsibility for ordering, reviewing, and documenting metabolic monitoring. All eligible providers consented to participate and completed each phase of the project. The intervention was delivered in-person to facilitate engagement, promote interactive discussion, and allow immediate clarification of guideline application while minimizing disruption to clinical workflow.

Project implementation followed a sequential, step-by-step process. First, participants completed a baseline knowledge assessment before the educational session. Second, I delivered the multimodal educational intervention during a scheduled, 90-minute, in-person session. Finally, participants completed a postintervention knowledge assessment and qualitative feedback survey immediately following the educational session. No patient data were collected, and participation was voluntary and anonymous.

Evidence collection followed a structured, sequential process consistent with quality improvement methodology. Before implementation, participants completed a 10-item pretest knowledge assessment (Appendix A) designed to evaluate familiarity with ADA and APA-recommended metabolic parameters, monitoring intervals, and provider responsibilities related to prescribing SGAs. This baseline assessment confirmed the presence of modifiable provider-level knowledge gaps, widely documented in outpatient psychiatric settings and associated with inconsistent metabolic monitoring practices (see Lam et al., 2022; Macias et al., 2022).

Following completion of the pretest, participants attended a 90-minute, in-person, multimodal educational session. I incorporated didactic instruction, structured guideline review, case-based discussion, and visual decision-support tools in the session to promote practical application in routine clinical care (see Appendix B). Educational materials included an ADA/APA metabolic monitoring flowchart and a point-of-care checklist, both designed to facilitate real-time decision-making and reinforce adherence to guidelines. I intentionally selected the multimodal approach based on evidence demonstrating improved provider engagement, knowledge retention, and adherence to evidence-based guidelines compared with single-modality educational strategies (see Lam et al., 2022; Macias et al., 2022; Spatioti et al., 2022).

Immediately following the educational intervention, participants completed the same 10-item knowledge assessment to evaluate changes in knowledge and consistency across providers. I used descriptive statistical analysis to examine pre-/posteducation changes in scores, including ranges, mean differences, and the overall direction of improvement, which was appropriate given the project's quality-improvement design and small sample size (see Dang et al., 2021). Participants also completed an anonymous qualitative feedback survey (Appendix C) to assess the perceived relevance, clarity, and applicability of the educational content to clinical practice. Integration of qualitative feedback strengthened interpretation of the quantitative findings and supported a more comprehensive evaluation of the intervention's feasibility and acceptability (see Cabassa et al., 2021). Together, these complementary data sources provided a balanced assessment of both measurable knowledge change and participant-perceived value of the intervention.

Project evaluation was guided by the JHEBP model and the analysis, design, development, implementation, and evaluation instructional framework. The JHEBP model supported systematic evidence translation and alignment with organizational priorities, while the analysis, design, development, implementation, and evaluation framework guided instructional design, delivery, and evaluation of learning outcomes (see Dang et al., 2021; Spatioti et al., 2022). Evaluation focused on immediate changes in provider knowledge, consistency of guideline understanding, and perceived applicability of the intervention to clinical practice.

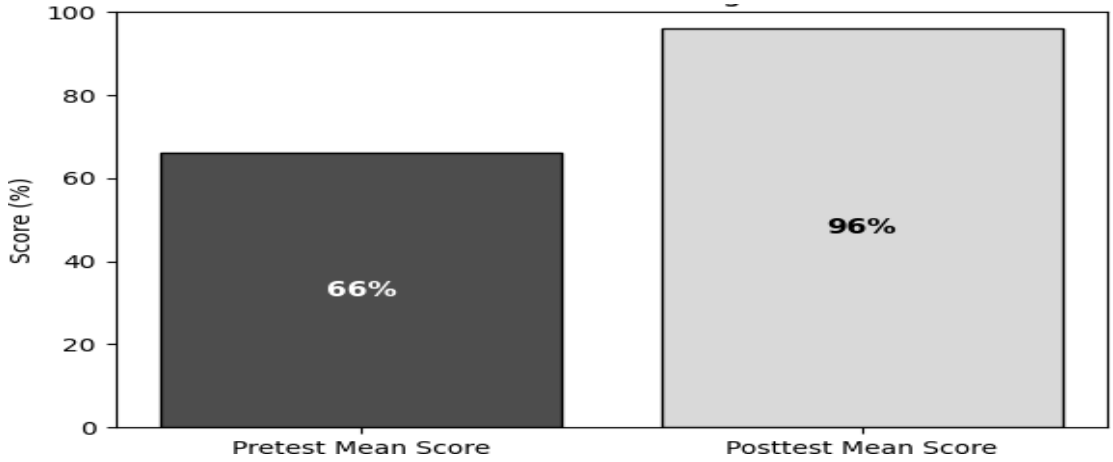
The project involved no patient participation and posed minimal risk to participants. I obtained Institutional Review Board approval prior to implementation. All participation was voluntary and anonymous, and ethical quality improvement standards were maintained throughout the project.

Results

This DNP quality improvement project demonstrated that a structured multimodal educational intervention significantly improved PNP knowledge of APA/ADA metabolic monitoring guidelines, as evidenced by pre- and posttest results illustrated in the bar graph (see Figure 1). The intervention produced substantial knowledge gains across all participants and reduced variability in scores, indicating improved consistency in guideline comprehension.

Figure 1

Pretest vs Posttest Knowledge Mean Scores (%)



Pretest scores ranged from 60% to 80%, with a mean baseline score of 66%, demonstrating moderate knowledge and notable variability in providers' understanding of APA/ADA metabolic monitoring guidelines. These findings confirmed the presence of modifiable provider-level knowledge gaps and inconsistent guideline familiarity prior to the educational intervention. Following implementation of the multimodal education session, posttest scores ranged from 90% to 100% (M = 96%), reflecting a 30% point improvement from baseline and reduced score variability, indicating greater standardization of guideline knowledge across providers. These findings suggest that targeted education effectively addressed modifiable knowledge gaps contributing to inconsistent metabolic monitoring in psychiatric care (see Dang et al., 2021; Spatioti et al., 2022).

All participants demonstrated positive score changes, ranging from +2 to +4 points. Providers with lower baseline knowledge achieved the largest proportional gains, while those with higher baseline scores reached near-perfect posttest performance,

indicating effectiveness across varying levels of prior familiarity and reduced knowledge disparities among clinicians (see Nguyen et al., 2024; Rivera-Segarra et al., 2023).

At the organizational level, these improvements have important implications for clinical reliability, quality, and patient safety. A postintervention mean score of 96% indicates a high level of shared competency among providers and increased readiness to apply metabolic monitoring guidelines across outpatient psychiatric encounters consistently. Reduced variability in guideline understanding supports the development of standardized workflows, enhances documentation consistency, and strengthens safer prescribing practices. These gains are particularly meaningful in outpatient psychiatric settings, where unclear monitoring responsibilities and competing clinical demands can contribute to missed screenings, delayed interventions, and fragmented coordination with primary care providers, ultimately affecting continuity and quality of care (see Lam et al., 2022; Macias et al., 2022).

Several limitations should be considered. The small sample size ($N = 5$), single-site design, and short evaluation period limit generalizability and preclude assessment of long-term knowledge retention or sustained changes in clinical behavior. Outcomes were limited to provider knowledge and did not include patient-level or chart-based measures of monitoring adherence. Despite these limitations, consistent improvement across participants supports the feasibility and internal validity of the intervention within its defined quality improvement scope (see Lam et al., 2022; Macias et al., 2022).

Despite its localized scope, this project has relevance beyond the practice setting. Inadequate metabolic monitoring remains a widespread challenge in psychiatric care and contributes to preventable cardiometabolic morbidity among individuals with severe

mental illness (Correll et al., 2020; Nasrallah et al., 2021). The observed 30% improvement in guideline knowledge supports the use of scalable, low-resource educational interventions to strengthen provider competence, reduce unwarranted practice variation, and promote equity within clinical teams, particularly among providers with lower baseline knowledge (see Nguyen et al., 2024; Rivera-Segarra et al., 2023). This initiative also highlights the leadership role of DNP-prepared nurses in translating evidence into practice and advancing quality-driven change. When implemented systematically, such interventions may support broader adoption of standardized monitoring practices across diverse psychiatric care settings.

Conclusions

This multimodal staff education initiative strengthened PNP knowledge and ensured consistent application of APA/ADA metabolic monitoring guidelines for patients prescribed SGAs. Improved adherence to evidence-based monitoring practices supports organizational priorities in patient safety, quality improvement, risk mitigation, and regulatory compliance while promoting more reliable, standardized preventive care processes in outpatient psychiatric settings. By addressing modifiable provider-level knowledge gaps, the project reduced practice variability and enhanced clinical reliability, consistent with evidence demonstrating that targeted education improves adherence to metabolic monitoring and overall care quality for individuals with serious mental illness (see Lam et al., 2022; Macias et al., 2022; Rivera-Segarra et al., 2023). Despite limitations related to sample size and evaluation duration, the project demonstrated feasibility and offers a scalable model for ongoing professional development.

To sustain and expand these improvements, organizations may consider integrating standardized metabolic monitoring workflows and clinical decision-support alerts within the EHR, strengthening collaboration with primary care providers, and implementing periodic competency reassessments and routine chart audits. System-level strategies, including EHR prompts and audit-and-feedback mechanisms, have been shown to reinforce guideline adherence, improve continuity of care, and support long-term practice change in psychiatric settings (Bui et al., 2024; Jacob et al., 2023).

From a nursing practice perspective, this project reinforces the leadership role of DNP-prepared nurses in translating evidence into practice, leading system-level quality improvement, and fostering a culture of accountability and continuous learning. These outcomes align with the American Association of Colleges of Nursing (2021) *Essentials*, which emphasize evidence-based practice, systems leadership, and quality improvement as core competencies for professional nursing education. Strengthening metabolic monitoring practices also advances positive social change by addressing preventable cardiometabolic disparities that disproportionately affect individuals with severe mental illness, many of whom experience structural barriers to accessing preventive healthcare. By promoting earlier detection, equitable access to evidence-based monitoring, and standardized care delivery, this initiative supports more inclusive, patient-centered psychiatric care and contributes to improved long-term outcomes for underserved and vulnerable populations (see Correll et al., 2020; Nasrallah et al., 2021).

References

Al-Awad, F. A., Almutairi, H. A., Almutairi, S. A., Alessa, O. S., Alanazi, S. F., Alzain, N. M., Albakr, D. M., & Alzahrani, S. I. (2024). Adherence to the monitoring of metabolic syndrome in patients receiving antipsychotics in outpatient clinics in Saudi Arabia. *Journal of Family and Community Medicine, 31*(1), 42–47. https://doi.org/10.4103/jfcm.jfcm_153_23

American Association of Colleges of Nursing. (2021). *The essentials: Core competencies for professional nursing education*. https://www.aacnnursing.org/Portals/0/PDFs/Publications/Essentials-2021.pdf

American Diabetes Association. (2023). Standards of medical care in diabetes—2023. *Diabetes Care, 46*(Suppl. 1), S1–S291. https://doi.org/10.2337/dc23-S001

American Psychiatric Association, & American Diabetes Association. (2020). *Consensus guidelines on metabolic monitoring in patients treated with antipsychotic medications*. https://www.psychiatry.org.

Bui, T. N. T., Au, R. T., Janetzki, J. L., McMillan, S. S., Hotham, E., & Suppiah, V. (2024). Metabolic monitoring for adults living with a serious mental illness on a second-generation antipsychotic agent: A scoping review. *Administration and Policy in Mental Health and Mental Health Services Research, 52*(2), 289–317. https://doi.org/10.1007/s10488-024-01408-9

Cabassa, L. J., Camacho, D., Meyer, M., & Ojeda, V. D. (2021). Clinical strategies to improve metabolic monitoring in community mental health settings. *Psychiatric Services, 72*(5), 550–557. https://doi.org/10.1176/appi.ps.202000390

Correll, C. U., Solmi, M., Croatto, G., Schneider, L. K., Rohani-Montez, S. C., Fairley, L., Bitter, I., Gorwood, P., Taipale, H., Tiihonen, J., van Os, J., Suvisaari, J., Katila, H., Lähteenvuo, M., Correll, L. L., Gallego, J. A., Kane, J. M., Manu, P., Nielsen, J., . . . Olfson, M. (2020). Mortality in people with schizophrenia: A systematic review and meta-analysis of relative risk and predictive factors. *World Psychiatry, 19*(3), 329–346. https://doi.org/10.1002/wps.20794

Dang, D., Dearholt, S. L., Bissett, K., Ascenzi, J., & Whalen, M. (2021). *Johns Hopkins evidence-based practice for nurses and healthcare professionals: Model and guidelines* (4th ed.). Sigma Theta Tau International.

DeJongh, B. M., Peña, A. S., & Smith, R. A. (2021). Clinical pearls for the monitoring and treatment of antipsychotic-induced metabolic syndrome. *The Mental Health Clinician, 11*(6), 324–332. https://doi.org/10.9740/mhc.2021.11.324

El Khalek, H. A., & Soliman, A. (2023). Effect of an offline metabolic monitoring tool on the quality of care in psychiatric patients receiving antipsychotics. *Asian Journal of Psychiatry, 85*, Article 103638. https://doi.org/10.1016/j.ajp.2023.103638

Jacob, R., Ray, M., & Thomas, P. (2023). Cardiometabolic monitoring in psychiatric settings: A retrospective review of practice adherence. *Therapeutic Advances in Psychopharmacology, 13*, Article 20451253231164694. https://doi.org/10.1177/20451253231164694

Lam, H., Leung, C., & Panagiotoglou, D. (2022). Staff education improves documentation in psychiatric inpatient care: A QI pilot study. *Journal of*

Psychiatric and Mental Health Nursing, 29(3), 322–329. https://doi.org/10.1111/jpm.12845

Macias, T., del Moral, E., Ortiz, G., & Vega, A. (2022). Impact of nurse education on metabolic monitoring in antipsychotic-treated patients: A systematic review. *Archives of Psychiatric Nursing, 36*, 78–86. https://doi.org/10.1016/j.apnu.2021.10.007

Nasrallah, H. A., Meyer, J. M., Goff, D. C., McEvoy, J. P., Davis, S. M., Stroup, T. S., Swartz, M. S., Lieberman, J. A., Rosenheck, R. A., Perkins, D. O., Keefe, R. S. E., Hsiao, J. K., Severe, J. B., Davis, C. E., Kane, J. M., Essock, S. M., Miller, A. L., Marder, S. R., McGee, M. F., . . . Lieberman, J. A. (2021). Low rates of monitoring for metabolic side effects of antipsychotics in community psychiatric practice. *Schizophrenia Research, 228*, 142–148. https://doi.org/10.1016/j.schres.2021.03.007

Nguyen, A., Ali, R. A., & Jalal, Z. (2024). A meta-analysis of quality improvement interventions aimed at enhancing metabolic monitoring in psychiatric patients. *Journal of Global Health, 14*, Article 04074. https://doi.org/10.7189/jogh.14.04074

Poojari, P. G., Khan, S., Shenoy, S., Shetty, S., Pai, K., Acharya, L. D., Bose, S., & Thunga, G. (2023). Perspectives of patients and healthcare professionals on metabolic monitoring of adult-prescribed second-generation antipsychotics for severe mental illness: A meta-synthesis. *PLoS ONE, 18*(4), e0283317. https://doi.org/10.1371/journal.pone.0283317

Rivera-Segarra, E., Ramos-Sánchez, L., & Jiménez-Luque, A. (2023). Antipsychotic metabolic monitoring: System-wide QI strategies. *Journal of Clinical Psychopharmacology, 43*(1), 45–52. https://doi.org/10.1097/JCP.0000000000001589

Singh, M., Kaur, G., & Sharma, P. (2021). Educational interventions for antipsychotic monitoring: A narrative review. *Journal of Mental Health Training, Education and Practice, 16*(5), 321–331. https://doi.org/10.1108/JMHTEP-04-2021-0026

Smithson, L., & Patel, R. (2023). Guideline adherence for cardiometabolic monitoring of patients prescribed antipsychotic drugs in UK primary care: A retrospective observational study. *International Journal of Clinical Pharmacy, 45*, 102–110. https://doi.org/10.1007/s11096-023-01642-5

Spatioti, A. G., Kazanidis, I., & Pange, J. (2022). A comparative study of the ADDIE instructional design model in distance education. *Information, 13*(9), Article 402. https://doi.org/10.3390/info13090402

Tran, L., Nguyen, K., & Do, M. (2023). Improving EHR-based documentation of metabolic monitoring in psychiatric clinics. *Informatics in Medicine Unlocked, 41,* 101132. https://doi.org/10.1016/j.imu.2023.101132

Yung, H. T., Chan, W. C., & Leung, S. K. (2020). Gaps in metabolic screening among patients on antipsychotics: A community review. *Journal of Psychiatric Research, 123,* 70–76. https://doi.org/10.1016/j.jpsychires.2020.01.011

Zhou, Y., Park, S., & Kim, J. (2023). Closing the metabolic monitoring gap through nurse-led interventions. *Nursing Outlook, 71*(2), 148–154. https://doi.org/10.1016/j.outlook.2022.08.004

Appendix A: Pre-/Postknowledge Assessment Tool

This appendix contains the pre- and post-intervention knowledge assessment tool referenced in the Staff Education Project Development discussion and in the Results section.

Participant ID: _____ Date: _____ Score: _____

Instructions and Guidelines

1. Purpose:

This assessment evaluates your knowledge before and after the educational intervention on metabolic monitoring for patients prescribed antipsychotic medications.

2. Format:

This test consists of 10 multiple-choice questions. Each question has one correct answer. Circle or clearly mark your choice.

3. Scoring:

Each correct answer earns 1 point. The total possible score is 10 points. Pre- and post-test results will be used to measure knowledge improvement.

4. Confidentiality:

Individual responses are confidential and used only for quality improvement.

5. Timing:

- Complete the **Pre-Test** before the educational intervention.
- Complete the **Post-Test** immediately after the educational intervention.
- Use the same form for both tests. Fill out the participant ID and date for each attempt.

Instructions: Circle the correct answer for each question.

1. A 42-year-old patient who recently started on risperidone presents for follow-up. He reports increased thirst and frequent urination over the past two weeks. Which metabolic complication associated with second-generation antipsychotics (SGAs) should the provider suspect?
   a) Bradycardia
   b) Hyperglycemia
   c) Hypercalcemia
   d) Anemia
2. A 35-year-old woman has been prescribed clozapine after failing trials of two other antipsychotics. During a follow-up visit, her provider educates her about the high risk of weight gain, dyslipidemia, and diabetes associated with this medication. Clozapine and olanzapine fall into which risk category for metabolic side effects?
   a) Low risk for metabolic effects
   b) Moderate risk for metabolic effects
   c) High risk for metabolic effects
   d) Unrelated to metabolic outcomes
3. Before initiating treatment with quetiapine, a provider orders a set of baseline labs. Which test is most important to evaluate metabolic risk before starting an SGA?
   a) Hemoglobin
   b) Creatinine
   c) Fasting glucose
   d) AST

4. A patient starting olanzapine gains 15 pounds in two months. The provider explains that this effect is most commonly linked to which receptor mechanism?
   a) Dopaminergic suppression
   b) Serotonin activity
   c) Histamine receptor blockade
   d) GABA modulation
5. During a chart audit, a nurse notices that documentation of metabolic monitoring is inconsistent across patients on SGAs. Which component of the electronic health record (EHR) is the most appropriate place to document weight, BMI, and lab results for metabolic screening?
   a) Medication list
   b) Vital signs module
   c) Health maintenance tab
   d) Chief complaint field
6. A patient on aripiprazole has a follow-up lab showing elevated fasting glucose. According to best practice, when should the provider schedule a recheck or intervention?
   a) 1 year
   b) 6 months
   c) 3 months
   d) Immediately

7. A 50-year-old male patient prescribed risperidone has gained 5 pounds over the last two months. Which documentation in the EHR would best reflect this finding?
   a) 'Increased appetite noted'
   b) 'Diet discussed with patient'
   c) 'BMI and weight charted in flowsheet'
   d) 'Psych symptoms unchanged'
8. A 29-year-old patient beginning treatment with an SGA is counseled about the importance of baseline and periodic monitoring. Which lab should be obtained to assess metabolic risk?
   a) Vitamin D
   b) Lipid panel
   c) Liver ultrasound
   d) Pulmonary function tests
9. A 32-year-old female recently started on risperidone. At her one-month follow-up, the provider notes that her weight and BMI were not documented at baseline, and the nursing staff asks about the correct monitoring schedule. According to APA/ADA guidelines, how often should her weight and BMI be monitored after initiating SGA?
   a) Weekly for the first month, then annually
   b) Monthly for 3 months, then quarterly
   c) Every 6 months
   d) Only if the patient reports weight changes

10. A 36-year-old man with schizophrenia is prescribed olanzapine. To reduce his risk of developing metabolic complications, his treatment team encourages him to adopt which evidence-based lifestyle intervention?
    a) Cognitive-behavioral therapy
    b) Regular aerobic exercise and dietary modifications
    c) Psychoeducation only
    d) Vitamin supplementation

Scoring Instructions

Each question has one correct answer. Award 1 point per correct response. The total possible score is 10 points.

Answer Key:

1. b. Hyperglycemia
2. c. High risk for metabolic effects
3. c. Fasting glucose
4. c. Histamine receptor blockade
5. c. Health maintenance tab
6. c. 3 months
7. c. 'BMI and weight charted in flowsheet'
8. b. Lipid panel
9. b. Monthly for 3 months, then quarterly
10. b. Regular aerobic exercise and dietary modifications

Score Interpretation:

9–10 = Excellent knowledge

7–8 = Good understanding

5–6 = Moderate understanding

0–4 = Needs improvement

Appendix B: Educational Content Outline

This appendix includes the structured educational content outline referenced in the Staff Education Project Development section.

Agenda Item	Time Allocated	Objectives
1. Introduction and Pre-Test	15 minutes	- Introduce session objectives - Administer baseline knowledge assessment through a (10) case-based questions, multiple-choice pre-test.
2. Presentation: Metabolic Risks of SGAs and Monitoring Guidelines Overview	30 minutes	- Identify the metabolic risks associated with second-generation antipsychotics (SGAs) - Explain the APA/ADA metabolic monitoring guidelines and relevance to practice - Introduce a structured monitoring checklist that ensures consistency
3. Interactive Discussion	15 minutes	- Identify common practice barriers - Explore practical solutions
4. Visual Aids and Tools	15 minutes	- Demonstrate use of EHR prompts and monitoring checklists - Review clinical flowcharts
5. Post-Test and Feedback	15 minutes	- Assess knowledge gains through a (10) case-based question, multiple-choice post-test. - Collect participant feedback and reflections (post intervention staff feedback survey)

Appendix C: Postintervention Staff Feedback Survey

This appendix includes the post-intervention staff feedback survey referenced in the Staff Education Project Development discussion and in the Results section.

Participant ID: _____ **Date:** _____

Survey Questions

- Rate the effectiveness of the intervention on a scale of 1 (Strongly Disagree) to 5 (Strongly Agree).

Statement	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
1. The training improved my knowledge of metabolic risks.	☐	☐	☐	☐	☐
2. I feel more confident in conducting metabolic screenings.	☐	☐	☐	☐	☐
3. The EHR alerts helped me adhere to screening protocols.	☐	☐	☐	☐	☐
4. I have implemented metabolic screenings more consistently.	☐	☐	☐	☐	☐
5. The interdisciplinary approach improved patient care.	☐	☐	☐	☐	☐

- What aspects of the training were most useful?

_____

- What challenges did you face in implementing metabolic screenings?

_____

- What additional support or resources would help improve adherence to guidelines?

_____

- Would you recommend this training to colleagues? Why or why not?

_____

- Additional Comments: