

Background

Madonna University - located in Livonia, MI provides unique and innovative learning opportunities to accommodate the needs of students, including on-campus and virtually. Madonna's well-established Adult-Gerontology Acute Care Nurse Practitioner (AGACNP) and Adult-Gerontology Primary Care Nurse Practitioner (AGPCNP) programs prepare students to care for a full spectrum of adults including young adults, adults, and older adults. Cornerstones of the program focus on evidenced based patient care, with an emphasis of prevention of illness, quality assurance, as well as seamless care coordination for complex acute, critical, and chronic health conditions. Students are required to complete core classes addressing the theoretical and scientific foundation for advanced nursing practice, leadership, policy and advocacy, evidence-based practice, and change. Students also complete an additional 33 semester hours including advanced pharmacology, pathophysiology, physical assessment, and three clinical courses, resulting National certification exam pass rates that exceed national pass rates.



“teaching students differential diagnoses has always been a challenge but Isabel has helped students understand differentials and clinical reasoning better” stated a faculty member.

Diagnostic Challenge

The ability to access, appraise, and use information to hone clinical reasoning skills is critical in contemporary practice. At the Madonna University NP Program, students develop these skills in advanced health assessment and clinical courses with case-based learning using a largely paper based process.

Diagnostic reasoning is complex, requiring the student to distinguish between subtle differences in presentation of diseases and pattern recognition. Due to their relative inexperience, students are more prone to premature closure (a phenomenon where a physician considers a patient's symptoms to be evidence of one specific diagnosis and then stops considering other reasonable possibilities), leading in practice to possible delayed or misdiagnosis. Providing tools and support to enhance those critical thinking skills can be a valuable component in their education.

Reimagined Curriculum Design

The team at Madonna partnered with Isabel to deploy [Isabel Clinical Educator](#) to enhance the delivery of the case-based curriculum. Isabel Clinical Educator provides an online platform for delivery of cases to students, the ability to customize questions to assess comprehension specific to each case, incorporates real-life clinical decision support tools and collects the data for efficient evaluation.

Madonna faculty uploaded several cases covering several specialties into the Isabel tool and the cases became available to students on a weekly basis to coincide with the topics being taught. Students read the case, answer brief questions like “List 2 differential diagnoses”, “For your #1 diagnosis, list any risk factors or health history information that lead to the diagnosis”. Students can then use the diagnosis decision support and evidence-based tools provided to work up the case further. Finally, the student is asked another series of questions about the case. The interaction with the decision support tool is captured and evaluated along with the answers to the questions, affording a comprehensive view and assessment of the clinical reasoning skills of each student.

The image displays a composite screenshot of the Isabel Clinical Educator interface. At the top, a window titled "Start Neurology Activity" shows the initial case with fields for "User Name" (Madonna University) and "Group/Class Name" (Nancy Allen). Below this, a question asks to "List 2 differential diagnoses". A central "Clinical Features" tool is highlighted with a blue arrow and labeled "Mid-Case DDX Tool". This tool includes dropdowns for "Age" (geriatric 65yrs-over) and "Gender" (Female, Male), a "Travel History" dropdown (North America), and a section for "Enter abnormal clinical features in free text OR select from list. NO negatives." with a list of symptoms: tremors, bradykinesia, and sweating. To the right, a "Ranked Diagnoses" panel shows a list of conditions such as Parkinson's Disease, Autonomic Failure, Dystonia Disorders, and Essential Tremor, each with a "Neuro" tag and a "Red Flag" indicator. At the bottom right, a window titled "End Neurology Activity" is highlighted with a blue arrow and labeled "Post DDX use Questions". It contains a question: "1. List Top 3 differential diagnoses" and a second question: "2. For your #1 diagnosis, list any risk factors or health history information that lead to the diagnosis".

Results and Conclusions

Both faculty and students found that Isabel was effective in assisting students with developing differentials and critical thinking skills. A primary care NP student states “I am so glad that we have Isabel, it has really assisted me to think outside the box”. An acute care NP student states “I utilize Isabel in clinical regularly and preceptor is impressed with the differentials I am able to offer during case presentation”.

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