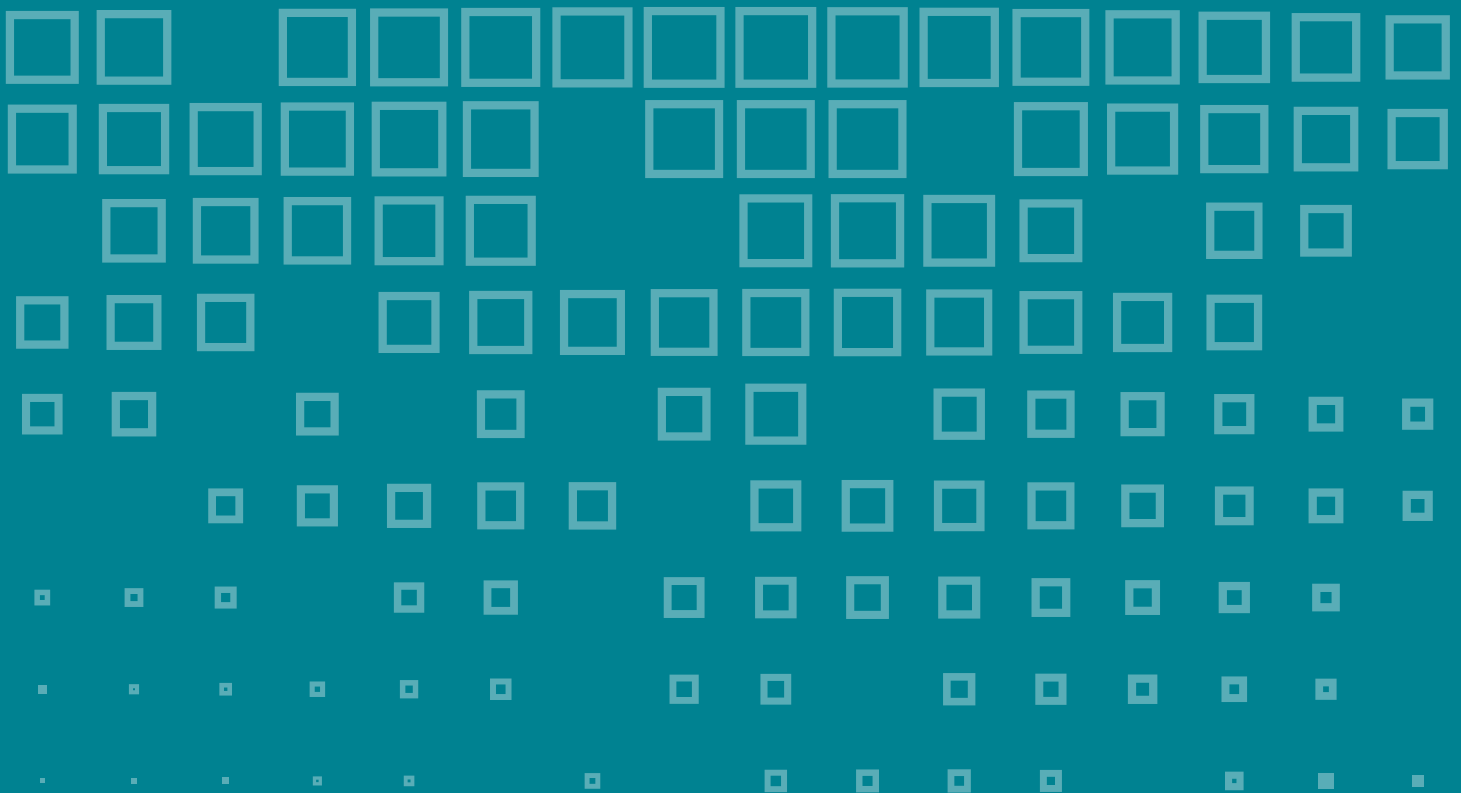


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Integrating AI and Telehealth: Virtual Nursing



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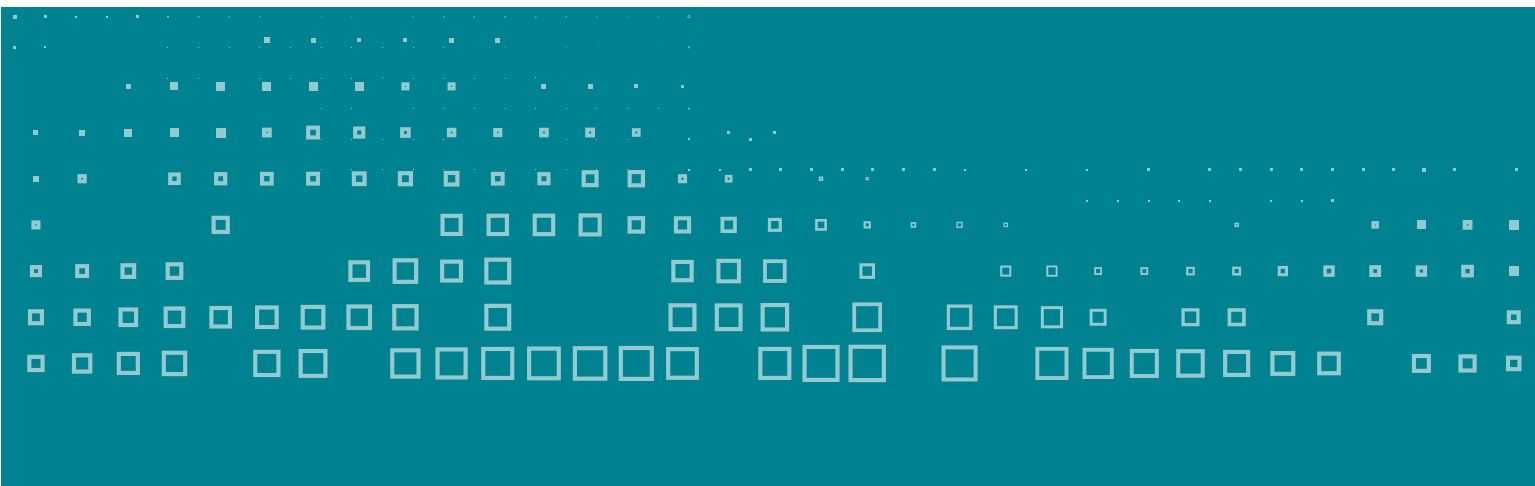
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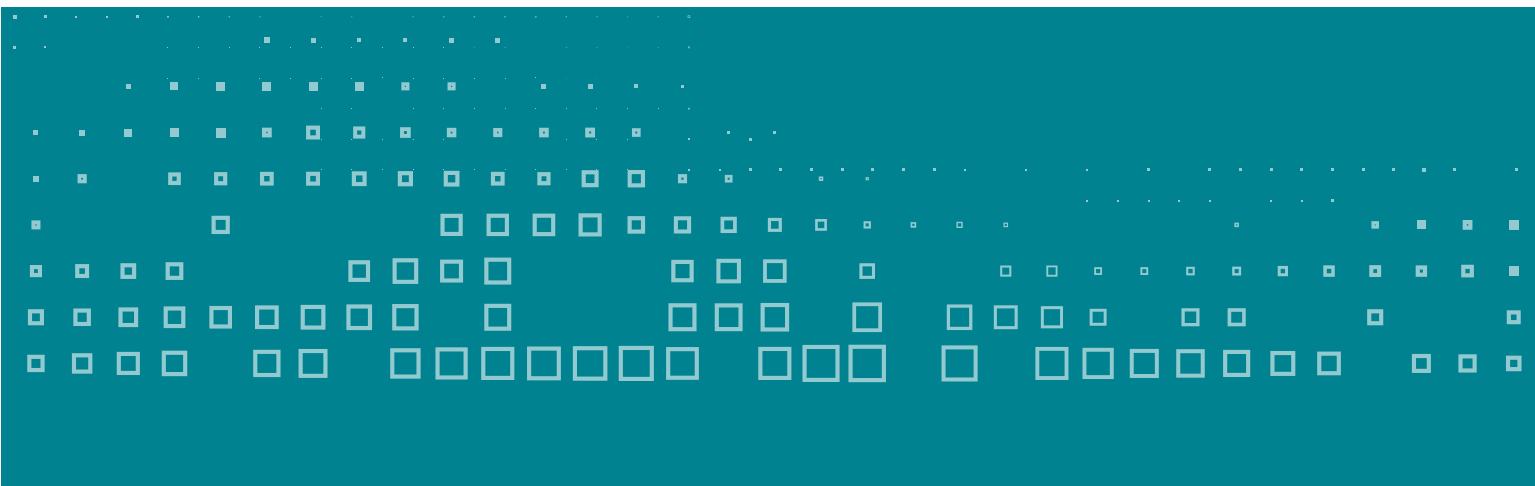
About This Brief

This brief was developed by Manatt Health and the Telehealth Centers of Excellence at the Medical University of South Carolina (MUSC) and the University of Mississippi Medical Center (UMMC) as part of a collaboration to identify and describe opportunities to integrate Artificial Intelligence (AI) within telehealth programs to support broader telehealth scaling and adoption. This brief is part of a series of four briefs, each focused on a different telehealth use case.

Manatt, MUSC, and UMMC conducted background research and interviewed select telehealth leaders across different health systems and associations. The findings and opportunities outlined in this brief represent a combination of research and input from those stakeholders. The views expressed here are solely those of Manatt Health, MUSC, and UMMC.

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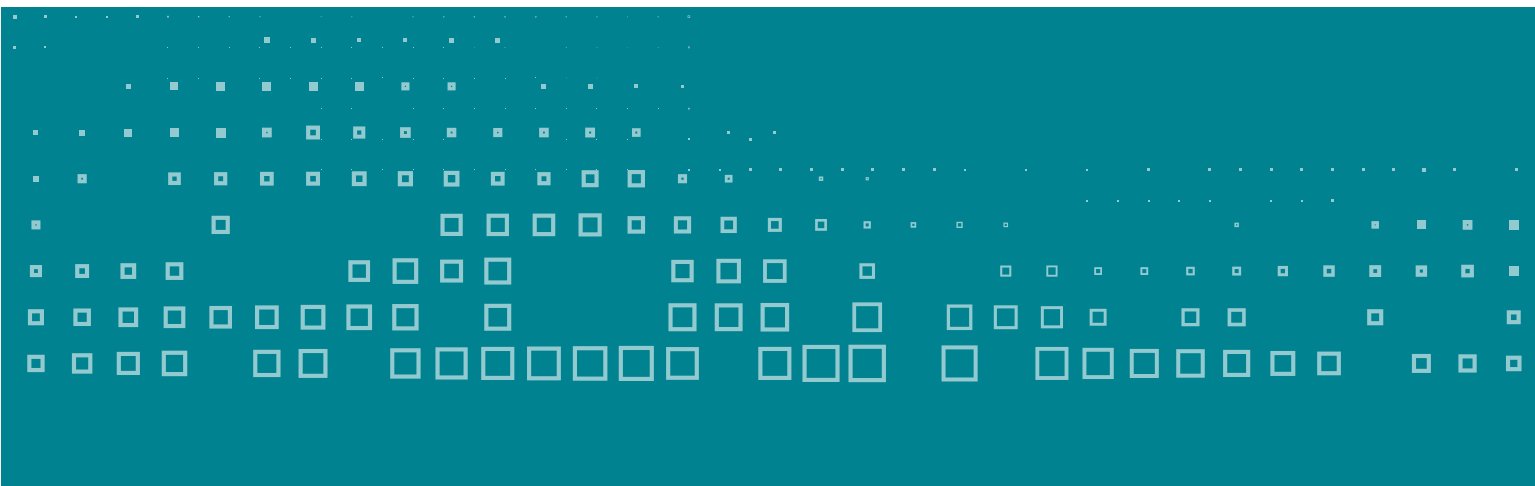


About the MUSC Telehealth Center of Excellence

The Telehealth Centers of Excellence program supports academic medical centers in implementing and evaluating innovative telehealth solutions in rural and medically underserved communities. These centers serve as national models by testing concepts and developing proven, scalable approaches that expand access to care and improve health outcomes. The Medical University of South Carolina (MUSC) Center for Telehealth was designated a Telehealth Center of Excellence (COE) by HRSA in 2017. As an academic medical center, MUSC leverages its research, clinical, and educational strengths to rigorously evaluate and disseminate innovative telehealth initiatives and promising practices. This designation reflects MUSC's demonstrated experience and capacity, including high program volumes, substantial service to rural and medically underserved communities, and demonstrated financial sustainability. With nearly 20 years of experience, the MUSC Center for Telehealth currently offers more than 100 unique telehealth services reaching nearly 350 sites across South Carolina and directly to patients' homes. For more information, visit <https://telehealthcoe.org>.

About the UMMC Center of Excellence

The Telehealth Centers of Excellence program supports academic medical centers in implementing and evaluating innovative telehealth solutions in rural and medically underserved communities. These centers serve as national models by testing concepts and creating proven approaches that expand access to care, improve health outcomes, and can be replicated nationwide. The University of Mississippi Medical Center (UMMC) Center for Telehealth and Emerging Technologies was designated a Telehealth Center of Excellence (COE) by HRSA in 2017. As an academic medical center, UMMC leverages more than two decades of telehealth experience to advance innovative models of care, evaluate the clinical and economic impact of telehealth interventions, and disseminate evidence-based practices nationally. UMMC serves as a living laboratory for developing and testing telehealth solutions that address barriers to healthcare access. This designation recognizes the commitment to accelerate innovation in telehealth, strengthen healthcare delivery through technology-enabled care, and serve as a national clearinghouse for evidence-based telehealth research, resources, and



implementation strategies. Through collaboration with healthcare systems, academic institutions, policymakers, and community partners, the Center continues to expand access to high-quality care regardless of geographic location. For more information, visit <https://telehealthcoe.org>.

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Background

Benefits of Virtual Nursing

Health systems are turning to virtual nursing to address staffing challenges, reduce workload for in-person nursing teams, and improve patient safety. By shifting tasks that can often be safely completed remotely to virtual nurses (e.g., admissions, discharge, and documentation), bedside staff can focus on hands-on patient care. This more efficient allocation of nursing resources drives measurable improvements in patient monitoring, staffing costs, and nurse and patient satisfaction.^{1,2,3}

Challenges to Scale

While virtual nurses can benefit patients and bedside staff, several barriers exist to the broader adoption of virtual nursing programs:

- **Significant upfront costs to establish virtual nursing programs.** Programs require meaningful investments in technology, infrastructure, staff, and operations, including the development of workflows to integrate bedside and virtual nursing teams. An evaluation of a virtual nursing pilot focused on patient discharges in a 112-bed hospital estimated startup costs of nearly \$40,000 and annual operational costs of \$289,000.⁴ These costs may be particularly prohibitive for smaller health systems with more limited resources.⁵
- **Nursing workforce limitations.** Expanding virtual nursing programs requires both bedside and virtual nursing staff, which may pose challenges given broader workforce shortages. HRSA projects a national demand for registered nurses will outpace supply by roughly 263,870 registered nurses in 2026.⁶ Health systems may have insufficient bedside nursing staff to complete in-person tasks or to onboard and train virtual nurses in department-specific protocols. Additionally, virtual nurses' specialized role calls for significant clinical experience, making it harder to find qualified staff in areas already facing nursing shortages.^{7,8}

What Is Virtual Nursing?

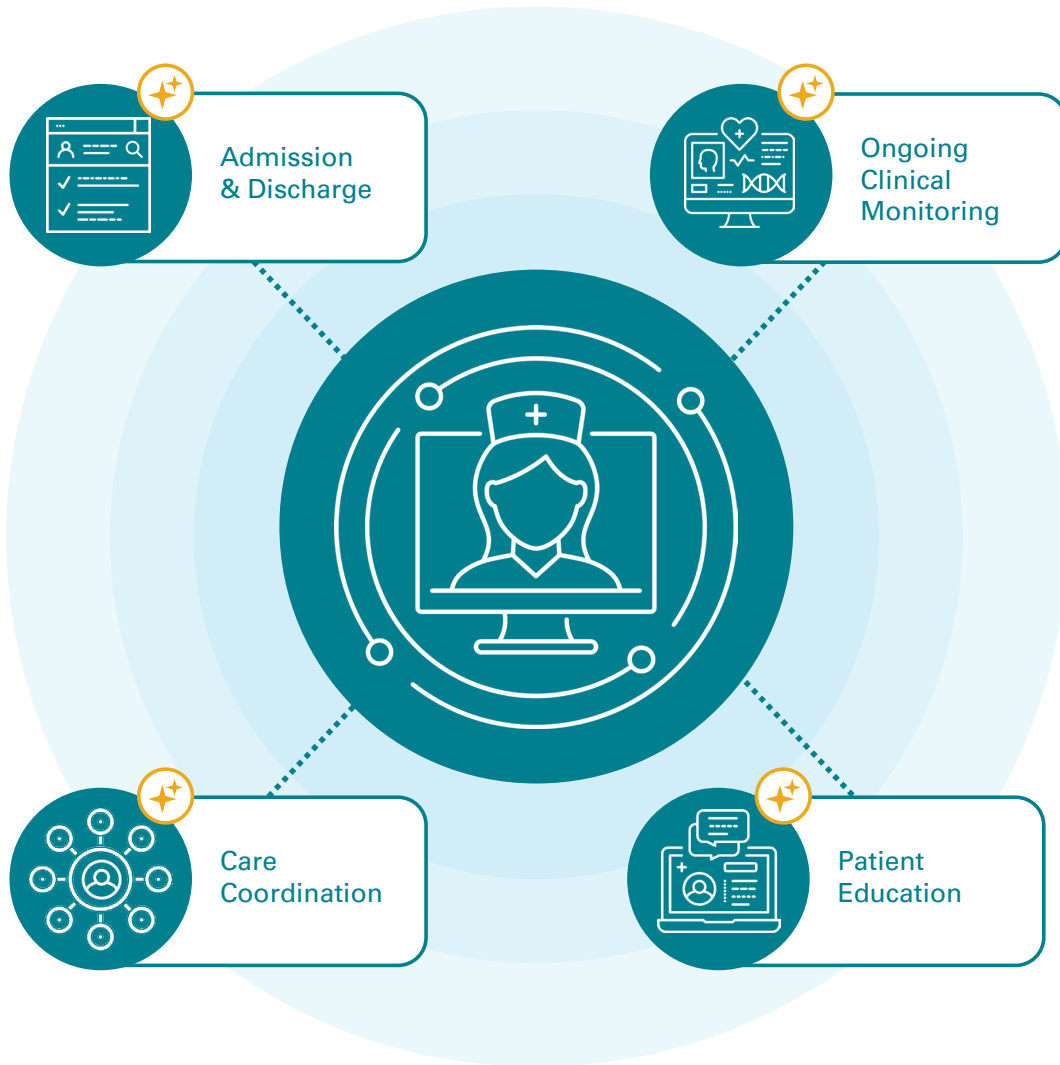
Virtual nurses can partner with bedside nursing teams to provide clinical and administrative support, allowing bedside nurses to focus on patient needs best addressed in-person. Using telehealth technologies, virtual nurses support tasks that can be safely completed remotely, including patient education, admission and discharge, medication reconciliation, and patient monitoring. While virtual nursing can be deployed in inpatient and outpatient settings, this brief focuses on inpatient programs.

- **Difficulty measuring the return on investment of virtual nursing programs.** Without a standardized approach to measure the value of virtual nursing programs, health systems face challenges clearly defining and communicating program impact, raising concerns about long-term sustainability.⁹
- **Integration of virtual and bedside nursing teams.** Fragmented coordination between virtual and bedside staff can lead to duplicative work, documentation errors, and delays in recognizing or escalating patient risks.¹⁰

Opportunities With AI Integration

AI can help health systems address several of the challenges that have limited virtual nursing scale, particularly workforce constraints, integration between virtual and bedside teams, and difficulty demonstrating program value. While still in the early stages, predictive analytics, machine learning, and natural language processing can improve patient monitoring, reduce administrative burden, and strengthen coordination among virtual and bedside nursing teams. Together, these capabilities may enable programs to operate more efficiently and produce clearer evidence of impact.^{11,12}

Integrating **AI** Into Virtual Nursing Programs



 **AI Optimization**

Integrating AI Into Virtual Nursing Programs

The table below illustrates how AI can be applied across key steps of the virtual nursing workflow to support more efficient and effective care delivery.

Virtual Nursing Tasks	Example Use Case	Value Opportunity
Admission, Discharge, and Medication Verification	- Automatically review a patient's medical record to pre-populate documentation forms and develop patient profiles - Guide virtual nurses through questionnaires based on a patient's clinical needs and individual profile. Questionnaires can be developed in partnership with department bedside nursing teams to incorporate department-specific protocols - Use ambient AI scribe technology to capture nurse-patient interactions and automatically populate documentation in the electronic health record¹³ - Monitor adherence to quality and safety bundles (e.g., infection prevention, fall risk) and flag documentation gaps or missed interventions	Reduced administrative burden for bedside and virtual nurses - Reallocates nursing time from administrative tasks toward direct patient care - Improves documentation accuracy Improved patient satisfaction - Faster admissions and discharge processes with fewer, more patient-specific questions - More accurate documentation supporting safer care transitions
Ongoing Clinical Monitoring	- Guide virtual nurses through department-specific clinical protocols and intervention pathways - Use predictive analytics and motion detection to identify patient risks (e.g., fall risk, deterioration), prioritize alerts based on acuity, and suggest nursing interventions - AI-powered avatars and chatbots can help triage patient requests and facilitate ongoing care¹⁴ - Surface targeted, time-sensitive alerts to virtual or bedside teams when escalation is needed	Improved nurse experience - Reduces notification fatigue through prioritized, acuity-based alerting - Frees bedside and virtual nurses to focus on more complex patient care, supporting professional development - Reduces time spent onboarding virtual nurses in department-specific administrative protocols Improved patient outcomes - Strengthens early risk identification and timely intervention - Reduces variability in care delivery through standardized protocol guidance - Improves patient safety indicators (e.g., reductions in falls)

Virtual Nursing Tasks	Example Use Case	Value Opportunity
Care Coordination	• Use predictive risk-stratification to evaluate patient records and identify needs across follow-up, clinical services, and social supports • Match identified needs with available community resources and service providers • Generate accessible patient instructions that integrate medication guidance, follow-up appointments, and connections to social services	Reduced administrative burden • Reduces nursing time spent identifying patient needs and matching them to appropriate services Improved patient satisfaction • Strengthens proactive identification of clinical and social service needs • Improves performance on nursing-sensitive measures (e.g., Hospital Consumer Assessment of Healthcare Providers (HCAHPS)) related to discharge information and care coordination
Patient Education	• Guide virtual nurses through tailored patient education based on the patient's clinical profile, literacy level, and other preferences • Generate patient education content (e.g., after-care instructions, condition-specific learning modules, medication guidance)	Reduced administrative burden • Reduces nurse time spent formulating patient communications and education materials Improved patient experience • Increases accessibility of patient education across language, literacy, and learning preferences • Strengthens patient understanding of care plans, discharge instructions, and self-management guidance

Integrating AI Into Virtual Nursing: University of Mississippi Medical Center (UMMC) Case Study

While use of AI in virtual nursing programs remains relatively nascent, health systems are beginning to integrate AI-powered technologies to expand the reach and value of these programs.

UMMC's AI-Enabled Virtual Nursing Program

Serving as Mississippi's only academic medical center, UMMC launched its virtual nursing program in 2023 with the goal of reducing burnout, improving efficiency, and improving patient satisfaction.¹⁵ Under UMMC's model, nurses with at least five years of clinical experience provide

virtual support from an onsite central hub. The model functions as a workflow-support intervention in adult acute-care medical-surgical units, rather than as a replacement for bedside nursing. To streamline throughput, virtual nurses complete high-burden tasks that do not require the presence of a bedside nurse in the room, such as portions of admissions and discharges. Virtual nurses also support rounding, assisting with activities such as safety checks, pain reassessment, and code blue documentation.

In 2025, UMMC partnered with a vendor with AI technology to expand its virtual nursing program and add a virtual observer program focused on patients with high fall risk. AI-enabled in-room equipment (e.g., cameras, microphones) are trained to monitor patient movement for fall risk, automatically generating audio and visual alerts prompting patients to remain in bed and, if intervention is needed, notifying virtual and bedside staff to prompt action. UMMC's AI-enabled program was launched at both the academic medical center and in a small rural hospital.

Outcomes

UMMC's integration of AI into its virtual nursing and virtual observer programs at its central hub has led to early improvements in patient care and staff satisfaction. Since implementation, UMMC has seen an approximate 12.3% reduction in patient falls and 41.4% reduction in fall-related harm, supported by growing rates of redirections by virtual observers supported by bedside staff intervention.¹⁶ Bedside nurses reported improved satisfaction with their workload. Patient feedback was similarly positive, with most surveyed patients indicating they would want to receive care from a virtual nurse during future visits and that communication with the virtual nurse was easy.¹⁷

UMMC's program at the small rural hospital did not produce the same outcomes, partly due to lack of dedicated virtual observers (in contrast with the program at the main academic medical center), highlighting the continuing impact of staff shortages on program success. Without dedicated virtual observers, the bedside staff thus were given the added burden of monitoring alerts generated by the AI algorithm.

Looking ahead, UMMC intends to leverage AI for pressure injury prevention. High-risk patients will be identified through automated review of patient records, and AI will automatically create timers based on patient position to support timely repositioning and care interventions.

Recommendations for Future AI Strategy, Policy, and Research

As AI begins to be integrated into virtual nursing programs to expand reach and impact, three barriers stand out: AI investment in nursing lags behind AI investment focused on billable physician workflows, virtual nursing programs continue to face challenges demonstrating value, and the evidence base supporting AI-enabled virtual nursing remains limited. The following table outlines targeted recommendations to address these barriers through coordinated strategy, policy, and research.

Barriers	Recommendations for Future Research, Strategy, and Policy
Limited Evidence Base: Published evidence on virtual nursing remains limited overall,¹⁸ particularly in the context of rural and medically underserved areas, and the subset of evidence specific to AI-enabled virtual nursing is largely drawn from early single-system implementations rather than peer-reviewed research.^{19,20,21}	• Fund multi-site demonstration projects for AI-enabled virtual nursing programs – Generate evidence on whether integration of AI into virtual nursing improves care quality, reduces workforce burden, and strengthens collaboration between virtual and bedside teams, especially in rural and medically underserved areas • Develop standard methods for evaluating AI-generated outputs in nursing workflows – Establish scoring rubrics for documentation accuracy, alert appropriateness, and patient education quality to support consistent measurement across health systems
Competing AI Investment Priorities: To date, most ambient and clinical AI investments have focused on physician workflows tied to billing and revenue capture, leaving nursing-focused AI tools as a secondary priority for many vendors and health systems.^{22,23}	• Encourage vendor investment in nursing-specific AI capabilities – Support development of ambient documentation, protocol-driven monitoring, and care coordination tools designed for the nursing workflow rather than adapted from physician-focused products • Position AI-enabled virtual nursing within broader health system AI strategies – Frame investment as a strategic commitment to workforce sustainability and care quality, rather than a discretionary add-on to physician-focused AI investments

Barriers	Recommendations for Future Research, Strategy, and Policy
Demonstrating Program Value: Virtual nursing programs face well-documented challenges demonstrating value, and layering AI introduces additional investment costs that further raise the bar for measurable return.	• Apply structured value frameworks (e.g., MUSC and Manatt Health’s Virtual Nursing Value Framework)²⁴ to evaluate the impact of AI-enabled virtual nursing – Use the Quadruple Aim to assess impact across care team experience, patient experience, population health, and cost domains²⁵ – Pair leading indicators that demonstrate early workflow impact (e.g., documentation time saved, alert response time) with lagging indicators that reflect mature program value (e.g., turnover, HCAHPS performance, contract labor spend) • Build measurement infrastructure into AI-enabled virtual nursing programs from the outset – Establish structured data capture, defined Key Performance Indicator (KPI) ownership, and dashboards that align reporting to executive, operational, and frontline audiences

Conclusion

Virtual nursing programs can improve how inpatient nursing care is delivered by redistributing time-intensive tasks, such as admissions, discharges, documentation support, and patient education, away from bedside staff with limited time and capacity. This innovative model of care delivery can help mitigate staffing pressures, improve timeliness of care, and support patient safety and experience through more consistent monitoring, clearer communication, and better prepared transitions of care.

Integrating AI into virtual nursing programs can further extend their impact by reducing administrative burden and strengthening coordination between virtual and bedside workflows. AI-enabled tools embedded into virtual nursing programs can support activities frequently assigned to virtual nurses by helping pre-populate and quality-check documentation, guiding department-specific standardized questionnaires and protocols, surfacing early risk signals to prioritize patient outreach, and generating clearer patient-facing education and discharge instructions. AI-integrated virtual nursing programs tailored to rural and medically underserved areas have the potential to address persistent staffing shortages. Realizing AI’s potential to strengthen virtual nursing programs will require sustained investment in nursing-specific AI capabilities, structured frameworks for measuring the value of nursing programs, and a stronger evidence base built through multi-site research and shared evaluation standards of these programs.

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