Doswell Health Informatics Conference

AI in Healthcare: Bridging Innovation, Practice and Education

April 25, 2025
T. Boone Pickens Institute of Health Sciences Dallas Center

Presented by:
Texas Woman's University
College of Nursing
Houston J. and Florence A.
Doswell Foundation

COLLEGE OF NURSING
TEXAS WOMAN'S UNIVERSITY

Doswell Health Informatics Conference: Legacy of Innovation and Impact

Since its inaugural event in 2017, the Texas Woman's University College of Nursing has been proud to host the biannual Doswell Health Informatics Conference, made possible by the generous support of the Houston J. and Florence A. Doswell Foundation.

The Doswell Foundation, established in 2008 by Florence Annette Ward Doswell, supports charitable, religious, scientific, and educational causes across the United States. Doswell's deep admiration for the medical and nursing professions was shaped by her husband Houston's battle with cancer. Moved by the compassionate care he received, Doswell developed a heartfelt commitment to supporting health-related institutions, especially nursing education.

In 2009, Florence donated $3 million to the TWU College of Nursing. In recognition of this remarkable generosity, the College of Nursing at TWU's Dallas campus was named the Houston J. and Florence A. Doswell College of Nursing.

In 2010, she contributed an additional $2 million to establish endowed chairs in nursing: teaching excellence and health informatics.

Doswell remained closely connected to the college, often visiting the campus and taking joy in its growth. After her passing, her legacy continued.

In 2014, the Doswell Foundation reaffirmed its ongoing commitment with an additional $1 million to support the endowed chairs. Her enduring spirit of philanthropy continues to inspire and uplift the nursing profession.

The Doswell Health Informatics Conference was established to carry forward this legacy, serving as a premier platform for advancing collective action through health informatics.

The conference brings together diverse stakeholders — clinicians, nurses, students, educators, researchers, developers, administrators, and entrepreneurs — to explore cutting-edge solutions that enhance healthcare quality, outcomes, and workforce readiness across clinical, community, and policy domains.

Conference Themes Over the Years:

- **2017:** Informatics and Community Collective Action to Engage Consumers and Patients
- **2019:** Connected Communities: The Role of Health Informatics
- **2021 (Online):** Health Inequities – The Role of Interprofessional Health Informatics and Communities
- **2023:** Enhancing Clinician and Patient Well-Being through Health Informatics
- **2025:** AI in Healthcare: Bridging Innovation, Practice, and Education

The conference has become a hub for meaningful dialogue, interdisciplinary collaboration, and professional inspiration. Many attendees credit the event with igniting or deepening their passion for health informatics. Some even launched new careers or research initiatives as a result.

As the conference continues to grow, it remains committed to its founding mission: to be a dynamic, inclusive, and forward-thinking forum that drives innovation and excellence in healthcare through informatics.

Health Informatics at TWU

Graduate Certificate in Health Informatics

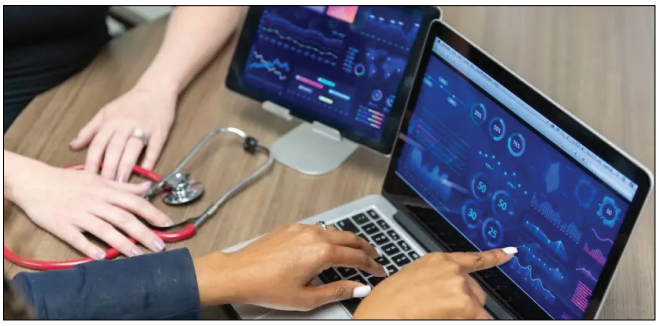
This program is intended for professionals who have a bachelor's degree or higher and seek additional education and training in health informatics. The graduate certificate is open to students from a variety of disciplines including, but not limited to, nursing, occupational therapy, physical therapy, nutrition science, health systems management and business.

Program Features:

- 100% online and interactive
- Interdisciplinary and collaborative
- 15 credits of coursework (5 courses) which can transfer to the MS in Informatics
- Faculty with expertise in health informatics education, research and practice
- Supervised practicums with outstanding academic and community partners
- Courses covering health data management, health information system management, telehealth, and healthcare data-related regulations aligned with the requirements of ANCC Informatics Nursing Certification (RN-BC) and HIMSS CAHIMS certification

Master of Science in Informatics

The MS in Informatics consists of a minimum of 30-33 semester credit hours of graduate coursework comprised of 15 credit hours of foundations in computer science, 3 credit hours in software/statistical tools, and 15 credit hours of discipline-specific coursework in one of the following application areas:



- Clinical applications
- Data science/data analytics
- Cybersecurity
- Community informatics
- Sports informatics.

BS in Health Informatics with Clinical Applications Minor

The BS in Health Informatics begins with a comprehensive computer science core combined with academic components from the clinical nursing program. This online interdisciplinary, interprofessional program thoroughly prepares students for diverse careers available. The program teaches key components of clinical informatics such as telehealth, data applications, human-computer interaction, and electronic health records.

Greetings Esteemed Attendees
Welcome to the 2025 Doswell Health Informatics Conference

It is a pleasure to welcome you to Texas Woman's University Dallas Campus for this year's Doswell Health Informatics Conference.

As AI continues to shape the future of healthcare, this conference offers a timely opportunity to explore its impact across clinical practice, research, education, and policy. The TWU Dallas Campus is proud to serve as the backdrop for these vital conversations. Our focus on health sciences, interprofessional collaboration, and innovation makes this the ideal setting for today's exchange of ideas.

We are especially honored to feature Judy Murphy as our keynote speaker — an influential leader whose work has helped define the field of health informatics. Her presence reflects the caliber of thought leadership this conference brings together.

Thank you for being part of this important gathering. We look forward to the insights, partnerships, and progress that will emerge throughout the day.

Warm regards,
Monica Christopher
President, TWU Dallas

TEXAS WOMAN'S
UNIVERSITY DALLAS

Welcome colleagues to another exciting and insightful Doswell conference at the TWU College of Nursing!

The program spans a wide range of informatics topics and demonstrates the scholarship occurring in your discipline.

I hope this exciting program will add to your knowledge and allow for meaningful conversations with other experts.

It is an honor to host the thought leaders in contemporary data science and informatics.

Stephanie Woods, PhD, RN
Professor and Dean
TWU College of Nursing

COLLEGE OF NURSING
TEXAS WOMAN'S UNIVERSITY

Greetings Esteemed Attendees
Welcome to the 2025 Doswell Health Informatics Conference

It is an absolute pleasure to welcome you all to the 2025 Doswell Health Informatics Conference. We are honored to host such a distinguished gathering of healthcare professionals, researchers, educators, and industry leaders who share a commitment to advancing the field of health informatics.

At TWU, we recognize that the strength of our academic institution is deeply connected to the collaborations and partnerships we cultivate. Strengthening our university's network with healthcare professionals is not just a goal — it is a necessity. By forging stronger ties between academia and the healthcare sector we create a dynamic ecosystem where knowledge, technology, and patient care intersect to drive meaningful change. Today's discussions and partnerships will serve as a catalyst for innovation, ensuring that our work continues to be relevant, impactful, and transformative.

This year is particularly momentous for Texas Woman's University as we celebrate our recent promotion to an R2 classification. This distinction highlights our growing research capabilities and reaffirms our dedication to scholarly excellence. As we enhance our research initiatives, we recognize the critical role that interdisciplinary collaboration plays in health informatics. By fostering research partnerships with healthcare organizations, industry leaders, and fellow institutions, we can tackle pressing challenges, develop cutting-edge solutions, and contribute to the continuous evolution of healthcare technology.

Texas has long been a leader in health informatics, leveraging its vast healthcare infrastructure, research institutions, and innovative spirit to drive progress in the field. From the integration of artificial intelligence in patient care to the advancement of electronic health records and data analytics, Texas continues to shape the future of health informatics on both a national and global scale. At TWU, we are proud to be part of this movement, contributing to research and education that empowers the next generation of healthcare informatics professionals.

Research and innovation are at the heart of progress in health informatics. The work being done in this field has the power to revolutionize patient care, optimize healthcare operations, and address disparities in access and outcomes. As we embark on this conference, let us embrace the spirit of inquiry and collaboration. Let us seek new ways to integrate artificial intelligence, data analytics, and emerging technologies into healthcare systems. And most importantly, let us remain steadfast in our shared mission to improve health and well-being through information-driven solutions.

I encourage you to take full advantage of the networking opportunities, thought-provoking discussion, and insightful presentations over the course of this event. Together, we can build stronger partnerships, advance groundbreaking research, and shape the future of health informatics.

Once again, welcome to the 2025 Doswell Health Informatics Conference. Let's make this a productive and inspiring gathering!

Holly Hansen-Thomas, PhD
Vice Provost, Research, Innovation & Corporate Engagement

RESEARCH & SPONSORED PROGRAMS
TEXAS WOMAN'S UNIVERSITY

Greetings Esteemed Attendees
Welcome to the 2025 Doswell Health Informatics Conference

As we continue to witness rapid innovation and transformation in healthcare, the importance of bridging innovation, practice, and education through health informatics and artificial intelligence has never been more critical. This year's theme, "AI in Healthcare: Bridging Innovation, Practice, and Education," highlights our shared commitment to advancing technologies that not only improve outcomes but also empower clinicians and patients alike.

We are especially honored to welcome our distinguished keynote speaker, Judy Murphy, DN (hon), RN, FACMI, LFHIMSS, FAAN, a nationally recognized nurse executive and health IT leader. Her keynote, "Health IT Strategy and Culture in the Era of AI," explores the complexities of AI integration — from optimizing workflows and alleviating clinician burnout to addressing critical issues of safety, ethics, governance, and staff competence. Her insights set the stage for meaningful discussions throughout the day.

This year, we were excited to receive a record number of abstract submissions — far surpassing those in 2023. Through a rigorous blinded peer-review process, 48 abstracts were selected for presentation, including 32 podium presentations and 16 poster presentations, with contributions from scholars and practitioners not only across the U.S. but also internationally. Congratulations to all of our presenters on their innovative work and thoughtful contributions to the field!

I would like to extend my heartfelt gratitude to the Houston J. and Florence A. Doswell Foundation for their continued and generous support.

Special thanks also goes to our dedicated conference planning committee, whose vision, expertise, and commitment have made this event possible. Their tireless efforts behind the scenes ensure that every detail is carefully executed and that our attendees have an enriching experience.

We invite all participants to consider contributing to the Health Informatics Scholarship Fund, which supports the next generation of health informatics professionals and promotes innovation in research and practice. Your support will have a lasting impact on the future of our field.

Thank you for being a part of this important gathering. Let's make the most of this opportunity to learn, share, and collaborate as we explore how AI is shaping the future of healthcare.

Warm Regards,
Mikyoung A. Lee, PhD, RN
Professor, Doswell Endowed Chair for
Informatics and Healthcare Transformation
TWU College of Nursing

COLLEGE OF NURSING
TEXAS WOMAN'S UNIVERSITY

2025 Doswell Health Informatics Conference

The 2025 Doswell Health Informatics Conference is centered on the theme: "AI in Healthcare: Bridging Innovation, Practice, and Education." This conference provides a dynamic platform for exploring how artificial intelligence is reshaping the healthcare landscape from innovation to real-world application and education.

Designed for a diverse audience of informaticists, scientists, researchers, faculty, clinicians, industry leaders, public health professionals, community organization members, policymakers, consultants, and students, the conference aims to foster meaningful dialogue and collaboration across sectors.

Conference Focal Points:

- Explore Emerging AI Innovations in Healthcare
  - » AI technologies transforming healthcare delivery and outcomes
- Engage with Practical Applications of AI in Healthcare Settings
  - » Implementation strategies, challenges, and solutions
- Advance AI Education for Healthcare Stakeholders
  - » Strategies for integrating AI concepts into curricula and professional development for healthcare educators, practitioners, and students
- Address Ethical and Policy Implications of AI
  - » Ethical considerations, equity challenges, and policy frameworks guiding responsible use of AI in healthcare
- Promote Interprofessional Collaboration and Leadership
  - » Partnerships to enhance AI integration across the healthcare continuum

Keynote Speaker - Judy Murphy, DN(hon), RN, FACMI, LFHIMSS, FAAN Nurse Executive & Health IT Leader - Minneapolis, Minn.

Judy Murphy is a pioneer and thought leader in both national and international health and nursing informatics communities. She has served as Chief Nursing Officer for IBM Global Healthcare and as Deputy National Coordinator for Programs and Policy in the Office of the National Coordinator for Health IT (ONC) at the U.S. Department of Health & Human Services. In these roles, she led national efforts to support healthcare providers in adopting health information technology and to promote greater consumer engagement with health IT for managing their own health.

Previously, she spent 36 years at Aurora Health Care in Wisconsin, with 26 of those years dedicated to clinical informatics. As Vice President of Applications, she led Aurora's electronic health record (EHR) program beginning in 1995, positioning the organization as an early adopter of health IT.

Judy has published over 100 articles and book chapters and has delivered hundreds of presentations both nationally and internationally. In 2022, she was awarded an Honorary Doctor of Nursing degree from the University of Wisconsin–Milwaukee.

Judy Murphy's Complete Profile

2025 Conference Agenda

7:30 - 8:30 a.m.	**Conference Check-in**	1st Floor Lobby

8:30 - 9 a.m.	**Welcome Remarks | Doswell Foundation Appreciation**	Room 1010 (Auditorium)

Mikyoung A. Lee, PhD, RN
Professor, Doswell Endowed Chair for Informatics and Healthcare Transformation
TWU College of Nursing

Monica Christopher
President
TWU Dallas

Holly Hansen-Thomas, PhD
Vice Provost for Research, Innovation, & Corporate Engagement
Texas Woman's University

Stephanie Woods, PhD, RN
Professor and Dean
TWU College of Nursing

9 - 10:15 a.m.	**Keynote Address**	Room 1010 (Auditorium)

Judy Murphy, DN(hon), RN, FACMI, LFHIMSS, FAAN
Health IT Strategy and Culture in the Era of AI

10:30 - 12 p.m.	**Session A: AI in Health Informatics Education** *Moderator: Susan Fenton, PhD, RHIA, ACHIP, FAMIA*	Room 2102

Transforming Healthcare Informatics Training through Generative AI
Chance Reaves, MSN-Ed, RN
Senior Clinical Informatics Learning Specialist
Parkland Health | Dallas, Texas

Integrating ChatGPT into Nursing Education: Enhancing Pedagogy & Efficiency
Heather DeGrande, PhD, CCRN-K
Associate Professor
Texas A&M University-Corpus Christi College of Nursing and Health Sciences | Corpus Christi, Texas

AI Literacy among Nurse Educators
Cora Rabe, DNP, CRNA
Program Director
University of Texas Medical Branch Galveston School of Nursing | Galveston, Texas
Texas Woman's University College of Nursing | Dallas, Texas

Nursing Informatics, Population Health, and Artificial Intelligence in Course Development
Stephanie Large, PhD, ANP-C, CNE
Assistant Professor
University of North Texas Health Science Center College of Nursing | Fort Worth, Texas

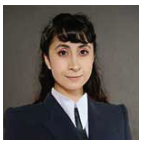
10:30 a.m. - 12 p.m. **Session B: Clinical Informatics and System Optimization** Room 2702

Moderator: Joni Padden, DNP, RN

Standardizing User Surveys to Enhance Efficiency/Comparability in Electronic Health Record Optimization
Ashley P. Huynh
Senior Business Analyst
UT Southwestern Medical Center | Dallas, Texas

Creating Hospital Acquired Pressure Injury Dashboard with E-DRAP Framework
Myrna Garcia, MSN, RN, NI-BC, CPHQ
Informatics/Quality Improvement Specialist
Texas Children's Hospital | Houston, Texas

Designing Novel EHR-Integrated Dashboard to Report Relevant Measures for Culinary Medicine Clinic
Pratikshya Aryal, ND(BNYS)
MSHI Student
UT Southwestern Medical Center | Dallas, Texas



Application of Externally Developed Algorithm to Identify Research Cases and Controls from EHR Data
Nelly Estefanie Garduno-Rapp, MD, MSHI
MSHI Program Associate Director, IMAGINe Lab Researcher
UT Southwestern Medical Center | Dallas, Texas

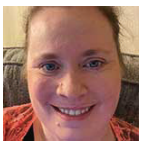
10:30 a.m. - 12 p.m. **Session C: Mobile Health and Telehealth** Room 2706

Moderator: Sheila Haley, PhD, CFN

Utilizing Voice-Assisted Technology to Help Older Adults Age in Place
Latarsha S. Cheatham, DNP, APRN, FNP-BC
Assistant Dean of Graduate Studies, Assistant Professor
UTHealth Houston Cizik School of Nursing | Houston, Texas
Texas Woman's University College of Nursing | Houston, Texas

Framework Design and Development of the Digital Home Hospice Service
Sohi Kwon, PhD, RN, APN
Professor
Kyungpook National University Research Institute of Nursing Innovation | Daegu, South Korea

Telehealth Use: Findings from a Nationally Representative Survey in the U.S.
Chanam Shin, PhD, RN
Associate Professor
Texas Woman's University College of Nursing | Denton, Texas



Leveraging AI in Telehealth and Mobile Clinics to Address Maternal Care Disparities
Lauri Hix, MPH, RN
Graduate Assistant
University of Texas at Arlington College of Nursing and Health Innovation | Arlington, Texas

10:30 a.m. - 12 p.m. **Session D: Public Health Informatics and Social Determinants of Health** Room 2707

Moderator: Theresa Mendoza

Health Equity and Social Determinants of Health Sensitivity Training at Methodist Health System
Sharlisa Raley, DNP, RN, NPD-BC
Nursing Professional Development Specialist
Methodist Health System | Dallas, Texas

Readiness & Acceptance of a Shared Platform for Multisector Alignment
Shuhong Luo, EdD, MBA, RN
Chair, Department of Nursing Education & Associate Professor
Texas A&M University-Corpus Christi College of Nursing and Health Science | Corpus Christi, Texas

The Power of Focus: Addressing Disparities in the Quality of Diabetes Care
Victor Kolade, MD
Associate in Internal Medicine
The Guthrie Clinic | Sayre, Penn.

12 - 1 p.m. **LUNCH & DRAWING** Room 3620, IHSD 1st Floor Lobby, 3rd Floor Cafeteria

1 - 1:30 p.m. **POSTER PRESENTATIONS AND EXHIBITION VISITS*** IHSD 1st Floor Lobby

* Listed at end of agenda

1:30 - 3 p.m. **Session E: Mobile Health and Telehealth** Room 2102

Moderator: Ling Chu, MD

Generative AI's Impact on Healthcare: Opportunities, Challenges, and Risks
Mahesh Raisinghani, PhD, MBA, MSc
Professor
TWU Merrilee Alexander Kick College of Business & Entrepreneurship | Denton, Texas

Data Fusion and Quality Enhancement for Medical Concept Normalization using LLMs
Yuhan Zhou
PhD Student
University of North Texas Department of Information Science | Denton, Texas

Evaluating Large Language Models in Detecting Health Misinformation
Melika Rostami
PhD Student
University of North Texas Anuradha and Vikas Sinha Department of Data Science | Denton, Texas

Multimodal Patient-Centric Dental Care: Integrating Vision-Language Models for Personalized Communication and Education
Harsha Snitha Kamineni
MSHI Student, Clinical Research Assistant
Indiana University | Indianapolis, Ind.

1:30 - 3 p.m. **Session F: Innovative Strategies in Health Education** Room 2702

Moderator: Jennifer Witten, DNP, RN, NI-BC

Integrating AI-Driven Simulations to Enhance Pediatric Nursing Education
Laura Kubin, PhD, RN, CPN, CHES, CNE, CHSE
Professor
Texas Woman's University College of Nursing | Dallas, Texas

Exploring Virtual Reality as a Mental Health Intervention
Hripsime Mantecon
PhD Student
University of North Texas Department of Information Science | Denton, Texas

Academic-Practice Partnerships to Support EHR Competency and Workforce Well-being
Meagan Rogers, PhD, RN, NPD-BC
Associate Professor
University of Texas at Arlington College of Nursing and Health Innovation | Arlington, Texas

Technostress Management: Implications for Health Informatics and Digital Learning
Jennifer Weber, MSN, RN
PhD Student
University of Texas at Arlington College of Nursing and Health Innovation | Arlington, Texas

1:30 - 3 p.m. **Session G: AI in Clinical Practice and Care Delivery** Room 2706

Moderator: Linda Denke, PhD, RN, CCRC

Caring Out Loud: Getting ready for ambient listening and AI supported documentation
Joni Padden, DNP, APRN
Chief Nursing Informatics Officer
Texas Health Resources | Dallas, Texas

Meeting the Demand: Virtual Nursing Toolkit
Kristin A. Raggio, RN, NI-BC
Manager of Clinical Informatics
Texas Tech University Health Science Center | Lubbock, Texas
Baylor Scott & White Health System | Dallas, Texas

Artificial intelligence: Research Trends in Nursing Activities
Linda Denke, PhD, RN, CCRC
Nurse Scientist
UT Southwestern Medical Center | Dallas, Texas

1:30 - 3 p.m.	**Session H: Patient Safety and Workforce Issues** *Moderator: Sharon Blackerby, DNP, RN, NPD-BC, NI-BC, CPHQ*	Room 2106

Hospital at Home: Impacting Safety, Clinical Outcomes Using Technology and Electronic Communication
Dawn-Maia Simmons, RN, CEN
Assistant Nurse Manager
Parkland Health and Hospital System - Hospital at Home | Dallas, Texas

Leaning into Technology to Prevent Falls
Joy Huang, MBA, RN, NEA-BC, CPHIMS
Regional Director of Clinical Informatics
Baylor Scott and White Health System | Dallas, Texas

Leveraging Technology for Leadership Development and Burnout Mitigation in Child Life Services
Morgan Bronson, CCLS
PhD Student
Texas Woman's University School of Human Sciences | Denton, Texas
Cook Children's Medical Center | Fort Worth, Texas

3:15 - 4 p.m.	**AI Tools**	Room 1010 (Auditorium)

Hospital-wide AI Agents: Orchestrating Care across Disciplines
Craig Limoli
CEO and Co-Founder
Wellsheet Newark, N.J.

The Future of AI in Healthcare: Opportunities and Challenges
Krish Purushothaman
Vice President & Practice Head of Implementation Services
CitiusTech Healthcare Worldwide

4 - 4:30 p.m.	**CLOSING REMARKS, EVALUATION & DRAWING**	Room 1010 (Auditorium)

Poster Presentations

Optimizing Pre-Treatment Dental Referrals for Head and Neck Cancer Patients

Ruchira Garg, MSHI Student
UT Southwestern Medical Center
Dallas, Texas

IT Transforming Healthcare: Trust, Security & Privacy Issues Affected by AI among Patients, Employees & Governance

Mahesh Raisinghani, PhD, MBA, Professor
Texas Woman's University Merrilee Alexander Kick College of Business & Entrepreneurship
Denton, Texas

Predicting Duration of Hypotension for Early Sepsis Intervention

Raaghul Subramani, MD, MS Data Science Student
University of Pittsburgh
Pittsburgh, Penn.

Natural Language Processing to Extract Acute Symptom Clusters from Triage Phone Notes with Cancer Patients

Yingzi Zhang, PhD, RN, Nurse Scientist
UT Southwestern Medical Center
Dallas, Texas

Development of a Chronic Kidney Disease Prediction Model Using Machine Learning

Junga Kim, PhD, RN, Kyungpook National University Hospital
Daegu, South Korea

Utilizing Health Informatics to Optimize Access to Care in the Women's Health Ambulatory Setting: A Quality Improvement Project

Trish Jackson, APRN, WHNP-BC, EBP-C, DNP Student, Women's Health Nurse Practitioner
Texas Woman's University College of Nursing
Dallas, Texas

Empowering Rural Nurse Practitioners with a Large Language Model-Based Support System

Saiful Islam Badhon, PhD Student
University of North Texas, Department of Information Science
Denton, Texas

Advancing Pediatric Suicide Prevention: A Clinician's Tool for Early Intervention

Lakshmi Chandrabhanu, MSHI Student
UT Southwestern Medical Center
Dallas, Texas

The Impact of Artificial Intelligence to Determine Clinical Decisions and Pathways

Ronald Samuel, MSN, RN, Nurse Manager
Texas Health Resources Hospital
Plano, Texas

Targeting Skills to Lead Academic EHR Implementation for Student Nurse Competency

Lori Camperlengo, RN, NI-BC, CHSE, CPHIMS, Clinical Assistant Professor
University of Texas at Arlington College of Nursing and Health Innovation
Arlington, Texas

Consolidated Clinical Document Architecture Quick Reference Sheet

Soumya Jayaraj, Biomedical Informaticist
UTHealth Houston, McWilliams School of Biomedical Informatics
Houston, Texas

Acute Kidney Injury Anticipation using in ICU patients using Hybrid LSTM-Transformer

Saiful Islam Badhon, PhD Student
University of North Texas, Department of Information Science
Denton, Texas

Enhancing Nursing Unit and Blood Bank Communication for Blood Product Preparation Through WellSky and Vocera Integration

Kimberly Burt, RN, MSHI Student
UT Southwestern Medical Center
Dallas, Texas

Investigating Intrinsic Barriers to Clinical Practice Guidelines: An Examination of Ambiguity, Inconsistency, and Undecidability

Aditi Dhariya, MSHI, Research Staff
UT Southwestern Medical Center
Dallas, Texas

Assessing Kidney Disease Risk Using Environmental and Genetic Factors

Akshitha Gopikrishnan, High School Student
Rock Hill High School
Frisco, Texas

Podium Presenters and Abstracts

Designing a Novel EHR-Integrated Dashboard to Report Relevant Social and Clinical Measures for a Culinary Medicine Clinic

Pratikshya Aryal, ND(BNYS)[1], Tin Khine, MBA[1], Willis Wong, MD[1], Jaclyn Albin, MD[1]

[1]UT Southwestern Medical Center, Dallas, TX

Background/Significance Culinary medicine addresses diet-related health inequities and enhances patient outcomes by combining clinical treatment with evidence-based nutrition. However, using data-driven tools to maximize these interventions has not received much attention. Electronic health record (EHR) integrated dashboards offer a novel approach to tracking real-time clinical, engagement,[1,2] and behavioral metrics, thereby enhancing program assessment and data-driven program advocacy.[3]

Purpose This study presents the design and deployment of an EHR-integrated Power BI dashboard by aggregating patient demographics, dietary behaviors, clinical, social, physical, and mental health measures for a novel Culinary Medicine Clinic (CMC) at an academic medical center in Dallas, Texas.

Methods From Aug 2024 to Mar 2025, using Human-Centered design principles, the dashboard was developed through key steps: 1) Stakeholder interviews with end users (CMC providers) identified key variables of interest; 2) Relevant data was extracted from Epic EHR using SQL queries from the Caboodle and Clarity databases, alongside self-reported dietary data from REDCap surveys; 3) Data was integrated via PowerBI, and 4) Data validation and cleaning ensured data consistency and accuracy.

Results The dashboard features interactive visualizations, patient flow monitoring, clinical condition tracking, and geospatial analytics. Since Dec 2022, 436 patients have been referred, with a mean age of 59. Most were female (79%) and Black/African American (61%). To date, 240 patients have been seen in clinic, with hypertension, hyperlipidemia, and type 2 diabetes as the top 3 primary indications. Integrated clinical data revealed that 46% of patients seen in clinic had prediabetes, while 27% had type 2 diabetes. 30% had borderline high to very high LDL. 45% had obesity. 24% had morbid obesity. Mental health screenings detected 15 patients with depression and 20 with anxiety. Most patients live in the Dallas area. Post-class surveys showed improved dietary quality, meal planning, and preparation.

Conclusion/Implications This EHR-integrated dashboard promotes program expansion, improves clinical decision-making, and enables focused interventions by offering real-time, data-driven insights.[2,4] Future studies should concentrate on long-term patient outcomes, scalability, and interoperability across EHR systems to further incorporate culinary medicine into healthcare.

References

1. Adediran E, Owens R, Gardner E, et al. Development and usability of an EHR-driven hypertension disparities dashboard in primary care: a qualitative study. *J Clin Hypertens (Greenwich)*. 2024;26(7):797-805. doi:10.1111/jch.14834
2. Perry LM, Morken V, Peipert JD, et al. Patient-reported outcome dashboards within the electronic health record to support shared decision-making: Protocol for co-design and clinical evaluation with patients with advanced cancer and chronic kidney disease. *JMIR Res Protoc.* 2022;11(9):e38461.
3. Magallanes E, Sen A, Siler M, Albin J. Nutrition from the kitchen: culinary medicine impacts students' counseling confidence. *BMC Med Educ.* 2021;21(1):88. doi:10.1186/s12909-021-02512-2
4. Egan M. Clinical dashboards: impact on workflow, care quality, and patient safety. *Crit Care Nurs Q.* 2006;29(4):354-361. doi:10.1097/00002727-200610000-00008

Keywords: Culinary Medicine, Electronic Health Record, Power BI dashboard

Leveraging Technology for Leadership Development and Burnout Mitigation in Child Life Services

Morgan Brinson, MS, CCLS[1,2], Kelsi Hildreth, MS, CCLS[1,3], Kathryn Cantrell, PhD, CCLS[1], Katie Rose, PhD[1], Elizabeth McCarroll, PhD, CCLS[1]

[1]Texas Woman's University School of Human Sciences, Denton, TX; [2]Cook Children's Medical Center, Fort Worth, TX; [3]UT Southwestern Medical Center, Dallas, TX

Background/Significance Child life services are essential in pediatric hospitals,[1] yet a significant shortage of Certified Child Life Specialists (CCLS) exists, exacerbated by a lack of diversity within the profession.[2-4] The Association of Child Life Professionals has committed to promoting diversity, equity, and inclusion, addressing workforce gaps, and supporting emerging leaders.[5]

Purpose The program aimed to enhance leadership and advocacy skills among CCLSs while fostering diversity in the profession. A key component of this initiative was the use of technology to improve access to leadership training and provide ongoing support, addressing barriers like time constraints and geographical distance. The program sought to combat career burnout and promote sustainable professional growth by offering digital, flexible learning opportunities.

Methods Participants engaged in four core leadership topics—supervision, research, service, and anti-racism—while using a virtual platform to participate in peer discussions. Leadership and advocacy skills[4] were evaluated using pre-and post-program assessments tracking participants' progress.

Results Participants showed significant improvement in leadership ($p < .001$) and advocacy skills ($p < .01$), reporting increased confidence. The digital format allowed for greater flexibility, which was crucial in reducing burnout. Participants appreciated the convenience of engaging with the material at their own pace and the opportunity to connect with peers virtually, reducing professional isolation.

Conclusion/Implications This study highlights the potential of technology to support leadership development and mitigate burnout in healthcare professions. Digital platforms can increase accessibility, promote continuous learning, and prevent attrition by offering flexible training opportunities. Healthcare organizations, including those in clinical informatics, can leverage these tools to develop diverse, sustainable leadership pipelines and support workforce retention in high-stress environments.

References

1. Romita B, Jewell J, Jackson M; AAP Committee on Hospital Care, Association of Child Life Professionals. Child life services. *Pediatrics.* 2021;147(1).
2. Association of Child Life Professionals. 2018 year in review. 2018. https://www.childlife.org/docs/default-source/default-document-library/aclp-2018-year-in-review.pdf
3. Dussault M, Frenette É, Fernet C. Leadership: Validation of a self-report scale. *Psychol Rep.* 2013;112(2):419-436.
4. Heering L. President's perspective. ACLP Bulletin. 2022;40(4):5-6.
5. Association of Child Life Professionals. Diversity, equity, and inclusion: Key initiatives, takeaways, and reflections. ACLP Bulletin. 2020;38(4). https://www.childlife.org/membership/aclp-bulletin/fall-2020-table-of-contents/diversity-equity-inclusion-key-initiatives-takeaways-reflections

Keywords: Leadership Development, Burnout Mitigation

Utilizing Voice-Assisted Technology to Help Older Adults Age in Place

Latarsha S. Cheatham, DNP, APRN, FNP-BC[1,2]

[1]UTHealth Houston Cizik School of Nursing, Houston, TX; [2]Texas Woman's University, Houston, Texas

Background/Significance By 2050, an estimated 2.1 billion individuals will be ≥ 60 years of age,[1] with many opting to age in place. Aging in place is defined as being able to live at home as long as possible[2] instead of moving into an institution or facility. A post-covid survey revealed that 77% of adults ≥ 50 years desire to age at home.[3,4] However, many older adults aging in place do so while living alone, which can be challenging. Tasks that once seemed simple can become difficult to manage with advancing age, making it necessary for the older adult to require more physical help and support with tasks such as money management, meal preparation/delivery, shopping, medication management, and companionship. Integrating digital technology (e.g., Amazon Alexa, Google Home, NUGU Candle) has shown promising results that may make it easier for older adults to remain at home.

Purpose This integrative review aimed to synthesize research on the use of smart speakers to support older adults aging in place.

Methods Whittmore and Knafl's framework[5] was utilized A comprehensive literature search was conducted using PubMed, ProQuest, Scopus, Web of Science, and Google Scholar electronic databases. The studies were reviewed for eligibility and appraised using the Johns Hopkins research evidence appraisal tool (Ten level III and two level II evidence studies).

Results Twelve studies published between 2019 and 2024 met the inclusion criteria (seven qualitative, three quantitative, and two mixed methods). Four themes emerged from the literature: older adults use smart speakers to set reminders (67%), assist with administrative tasks (67%), engage in entertainment (75%), and combat loneliness through companionship (92%).

Conclusions/Implications The findings highlighted potential benefits of using smart speakers to help to support older adults aging in place. More research is needed to provide rigorous evidence that can be generalized to the older adult population.

References

1. World Health Organization. Ageing and health. 2024. https://www.who.int/news-room/fact-sheets/detail/ageing-and-health
2. National Council on Aging. Housing & home equity for older adults: Can you afford to age in place? 2023. https://www.ncoa.org/article/can-you-afford to-age-in-place/
3. Binette J, Farago F. Where we live, where we age: Trends in home and community preference: 2021 Home and Community Preference Survey: A national survey of adults age 18 plus. 2021. https://doi.org/10.26419/res.00479.001
4. Davis M. Despite pandemic, percentage of older adults who want to age in place stays steady. 2021. https://www.aarp.org/home family/your-home/info-2021/home-and-community-preferences-survey .html
5. Whittemore R, Knafl K. The integrative review: Updated methodology. *J Adv Nurs.* 2005;52(5):546-553. doi:10.1111/j.1365-2648.2005.03621.x

Keywords: Voice-Assisted Technology, Older Adults, Aging In Place

Integrating ChatGPT into Nursing Education: Enhancing Pedagogy & Efficiency

Heather DeGrande, PhD, CCRN-K

College of Nursing and Health Sciences, Texas A&M University-Corpus Christi, TX

Background/Significance Artificial intelligence (AI) is transforming healthcare education, offering new ways to enhance learning experiences for nursing students.[1] AI-driven tools like ChatGPT have the potential to support nursing education for students by fostering critical thinking, improving clinical reasoning, and facilitating interactive learning.[1] Most of the literature around ChatGPT in academia is focused on student use and benefits. As nursing programs incorporate technology to prepare students for health care complexities, nurse educators should also become versed in the benefits, challenges, and ethical considerations of AI integration.[2]

Purpose This presentation will explore the role of ChatGPT in online nursing education, focusing on how faculty can leverage ChatGPT to improve student engagement and instructional teaching strategies. ChatGPT is a tool, so it is also important to examine ethical considerations in responsible implementation in nursing curricula.

Methods Over the past year, I have leveraged ChatGPT in the creation of lessons and learning assessments for my online graduate nursing courses to enhance student learning and create engaging instructional design. AI-assisted tools were used to facilitate case-based discussions, including rubric development. Additionally, AI-generated images were used to enhance visual engagement. Since many nursing faculty are at a novice or advanced beginner level with AI, this presentation will provide accessible, practical examples of prompt engineering tailored to those experience levels. The goal is to help faculty confidently leverage ChatGPT to enhance pedagogy and improve efficiency in content delivery—without feeling overwhelmed by technology.

Results ChatGPT has enhanced this nurse educators' pedagogical style and efficiency in content development and creating engaging student learning materials. While ChatGPT and AI are growing exponentially, challenges such as AI's limitations in providing credible references and ethical concerns regarding academic integrity were identified.[3]

Conclusions/Implications The leveraging of AI tools such as ChatGPT into nursing education presents both opportunities and challenges. While ChatGPT can enhance learning experiences, provide personalized support, and improve instructional design for nurse educators, careful implementation is needed to ensure accuracy and ethical use. Nursing educators should develop strategies to integrate AI effectively. These insights contribute to the ongoing discussion on AI's role in nursing education.

References

1. Gonzalez L. Nursing Education in the Era of ChatGPT: Implications and Opportunities. *Online J Issues Nurs*. 2024;29(3). doi:10.3912/OJIN.Vol29No03PPT76
2. School of Nursing, Midwifery and Paramedicine, Curtin University, Bentley, Western Australia, Australia, Couper AL. Challenges and opportunities of artificial intelligence in nursing education. *JNRCP*. 2025;3(2):213-215. doi:10.32598/JNRCP.2409.1177
3. OpenAI. ChatGPT (personal communication, February 10, 2025).

Keywords: ChatGPT; Nursing Education; Faculty Development

Artificial Intelligence: Research Trends in Nursing Activities

Linda Denke, PhD, RN, CCRC[1], Maria Goralski, BSN, RN[1], Folefac Atem, PhD, MS[1], Sonia Joseph, MSN, RN[1]

[1]UT Southwestern Medical Center, Dallas, TX

Background/Significance There is a critical need for nurses to adopt artificial intelligence (AI) and machine learning to advance nursing in healthcare, but nurses are not well-versed in AI. This presentation will summarize steps in a systematic review which examines preliminary findings in support of nursing activities research including clinical decision support in patient care, patient management, professional development, and nursing skill development in early career nurses.[3] Since 2020, AI research has exploded, so this nurse scientist and her team explored the state of research from the perspective of nursing activities, specifically randomized controlled studies and summarized findings to fast-track nurse leaders, clinical nurses, nurse residents, and nursing education.

Purpose Examine AI research trends from the perspective of nursing activities.

Methods A systematic review was undertaken from the perspective of nursing activities using PRISMA methodology by clinical nurses at urban health science center. Medline, CINAHL and Scopus databases were searched for high quality research studies from the perspective of nursing activities.

Results A total of 74 randomized controlled studies returned in search results, a total of 39% decision support, 34% patient management, 14% in quality (of life and of care), 13% nursing education, 8% predication and control, 4% care management, 3% continuing education, and 1.3% nursing assessment.

Conclusions/Implications AI research in nursing adds statistical support for nurses to perfect decision-making, streamline cumbersome tasks, and free up time for higher level nursing care and access to more precise assessments and therapies in order to elevate and guide best practices in healthcare organizations and nursing education. Clinical nurses are beginning to test AI applications in terms of nursing activities, but this research only recently transpired, but interest is growing.

References

1. Hwang GJ, Chang PY, Tseng WY, Chou CA, Wu CH, Tu YF. Research trends in artificial intelligence–associated nursing activities based on a review of academic studies published from 2001 to 2020. *Comput Inform Nurs.* 2022;40(12):814–824. doi:10.1097/CIN.0000000000000897
2. PRISMA checklist. 2020. https://static1.squarespace.com/static/65b880e13b6ca75573dfe217/t/65d818f02bbbc04c85371122/1708660977279/PRISMA_2020_expanded_checklist.pdf
3. Shorey S, Ang E, Ng DE, et al. Communication skills training using virtual reality: a descriptive qualitative study. *Nurse Educ Today.* 2020;94:104592. doi:10.1016/j.nedt.2020.104592

Keywords: Artificial Intelligence, Nursing Activities, Systematic Review

Creating Hospital Acquired Pressure Injury Dashboard with E-DRAP Framework

Myrna Garcia, MSN, RN, NI-BC, CPHQ[1], Sadaf Abbas, PhD, MBA, RN, NEA-BC[1]

[1]Texas Children's Hospital, Houston, TX

Background/Significance Hospital acquired pressure injury (HAPI) is a key metric for patient safety and quality of care delivery requiring reliable and accurate data tracking. Data extracted from the electronic health record (EHR) allows for increased reporting reliability and accuracy. The organization set out to create a HAPI dashboard utilizing the Enterprise Data Management, Reporting, and Analytics Program (E-DRAP) framework[1] for real time data tracking, trending, and reporting of HAPI to measure improvements towards clinical and operational goals.

Purpose The primary purpose of this innovation was to develop an effective, robust healthcare analytics' reporting HAPI dashboard from the EHR utilizing the E-DRAP framework with ≥95% data accuracy rate by August 31, 2024.

Methods E-DRAP framework consists of readiness assessment, design, documentation, and build, along with release and training as the roadmap to successfully operationalize the organization's HAPI dashboard. The readiness assessment included mapping the wound care practitioners' documentation workflow within the EHR as well as the manual tracking of HAPI data in an Excel spreadsheet. Design and build interventions involved defining user and documentation requirements, identifying gaps between manual and electronic workflows, and ensuring data quality by testing the accuracy of staged pressure injuries and documentation in the EHR. A comprehensive gap analysis included the integration of specific EHR documentation fields, the use of smart links within the EHR, data validation, and testing. Collaboration with Informatics Resource Experts, Wound Care Leadership, and Quality Leaders facilitated the development of the dashboard's wireframe and a prototype. System-wide metrics and internal/external reporting requirements were incorporated. A data dictionary was established to ensure clarity on measurement and operational definitions. Release and training interventions included communicating with key stakeholders, launching and training on the HAPI dashboard, and refining the dashboard based on user feedback.

Conclusions/Implications The HAPI dashboard achieved a 98% accuracy rate in August 2024 and 100% as of December 2024. The E-DRAP framework was paramount to the HAPI dashboard's success. The HAPI dashboard provides data in real time allowing proactive monitoring, identification of early interdisciplinary interventions, and follow up care actions, while fostering teamwork and accountability. The E-DRAP framework can be implemented in organizations regardless of size.

References

1. McBride, S. & Tietze, M. *Nursing Informatics for the Advanced Practice Nurse: Patient Safety, Quality, Outcomes, and Interprofessionalism.* 2nd Edition. Springer Publishing Company. 2019.

Keywords: Data model, Dashboard, E-DRAP

Application of an Externally Developed Algorithm to Identify Research Cases and Controls from Electronic Health Record Data

Nelly Estefania Garduno-Rapp, MD, MSHI[1], Simone Herzberg, PhD[2,3], Henry H. Ong, PhD[2], Cindy Kao[1], Christoph U Lehmann, MD[1], Srushti Gangireddy[2], Nitin B Jain, MBBS, MSPH[4], Ayush Giri, PhD [2]

[1]University of Texas Southwestern Medical Center, Dallas, TX; [2]Vanderbilt University Medical Center, Nashville, TN; [3]Vanderbilt University School of Medicine, Nashville, TN; [4] University of Michigan Department of Physical Medicine and Rehabilitation, Ann Arbor, MI

Background/Significance The use of electronic health records (EHRs) in research demands robust, interoperable systems.[1] Linking biorepositories to EHR algorithms enables efficient case-control identification for large observational studies. However, variability in metadata and algorithms across EHR systems complicates their implementation. Our study presents an example of a successful implementation and validation process.[2]

Purpose To implement and validate a rule-based algorithm from a Tennessee medical center for classifying cases and controls in a rotator cuff tear study at a North Texas medical center.

Methods We applied a phenotypic algorithm (designed and validated in a tertiary medical center in Tennessee[3]) using EHR data from 492 patients enrolled in case-control study recruited from a tertiary medical center in North Texas. The algorithm leveraged International Classification of Diseases (ICD) and Current Procedural Terminology (CPT) codes to identify case and control status for degenerative rotator cuff tears. A manual review was conducted to compare the algorithm's classification with a previously recorded gold standard documented by clinical researchers.

Results Initially the algorithm identified 398 (80.9%) patients correctly as cases or controls. After fine-tunning and corrections of errors in our gold standard dataset, we calculated a sensitivity of 0.94 and specificity of 0.76.

Conclusions/Implications The implementation of the algorithm presented challenges due to the variability in coding practices between medical centers. To enhance performance, we refined the algorithm's data dictionary by incorporating additional codes. Sharing case-control algorithms boosts EHR research. Our rule-based algorithm improved multi-site patient identification and revealed 12 data entry errors, helping validate our results.

References

1. Adler-Milstein J, Holmgren AJ, Kralovec P, Worzala C, Searcy T, Patel V. Electronic health record adoption in US hospitals: the emergence of a digital “advanced use” divide. *J Am Med Inform Assoc*. 2017;24(6):1142-1148. doi:10.1093/jamia/ocx080
2. Garduno-Rapp NE, Herzberg S, Ong HH, et al. Application of an Externally Developed Algorithm to Identify Research Cases and Controls from EHR Data: Trials and Triumphs. *Appl Clin Inform*. 2025;16(2):314-326. doi:10.1055/a-2524-5216
3. Herzberg SD, Garduno-Rapp NE, Ong HH, et al. Standardizing phenotypic algorithms for the classification of degenerative rotator cuff tear from electronic health record systems. *JAMIA Open*. 2025;8(2):ooaf014. doi:10.1093/jamiaopen/ooaf014

Keywords: Phenotypic Algorithms, Data Validation, Clinical Research Informatics

Leveraging AI in Telehealth and Mobile Clinics to Address Maternal Care Disparities

Lauri Hix, MPH, BSN, RN

UTA Center for Rural Health and Nursing, Arlington, TX

Background/Significance: Maternal health outcomes are often worse in underserved areas, where pregnant women face significant challenges accessing timely medical care. These healthcare deserts—regions where healthcare facilities are too distant—pose considerable risks, as pregnant women in these areas may not receive the necessary prenatal and postnatal care. By mapping these deserts, we can identify key regions in need of healthcare interventions, such as mobile clinics, telemedicine, or even new healthcare facilities, to help mitigate these risks.[1,2]

Purpose: This project examined healthcare accessibility for pregnant women by identifying healthcare deserts and mapping areas that require targeted interventions. Using geospatial data and healthcare facility information, the project aimed to improve maternal health outcomes by recommending solutions such as mobile clinics and telemedicine[1,3] to ensure pregnant women can access the care they need.

Methods: The project utilized a combination of healthcare facility data, demographic information on pregnant women, and geospatial layers (e.g., road networks and transportation routes) to visualize healthcare deserts. Preliminary maps showed the distance between pregnant women and the nearest healthcare facility. A heatmap was also generated to identify regions most in need of intervention, highlighting areas where healthcare accessibility is particularly limited.[2]

Results: Preliminary analysis indicated significant gaps in healthcare accessibility for pregnant women in rural and underserved areas. Initial maps showed that many pregnant women are located far from the nearest healthcare facilities. The heatmap highlighted regions with the greatest need for mobile clinics, telemedicine, or new healthcare facility placements. These visualizations served as a powerful tool to guide targeted healthcare interventions.[3]

Conclusions/Implications: The findings underscore the need for innovative healthcare solutions in underserved areas. By leveraging geospatial data and mapping healthcare deserts, we can ensure that interventions, such as mobile clinics and telehealth, are strategically implemented to improve maternal health outcomes. The project exemplified the potential of health informatics to address healthcare disparities and improve access to care for pregnant women.

References

1. Haleem A, Javaid M, Singh RP, Suman R. Telemedicine for healthcare: Capabilities, features, barriers, and applications. Human Insight. 2021. https://www.humaninsight.it/telemedicine-for-healthcare-capabilities-features-barriers-and-applications/
2. Centers for Medicare & Medicaid Services. Improving access to maternal health care in rural communities. 2023.https://www.cms.gov/About-CMS/Agency-Information/OMH/equity-initiatives/rural-health/09032019-Maternal-Health-Care-in-Rural-Communities.pdf
3. Udegbe BC, Clapp MA, Bryant AS. Disparities from bedside to "webside": Barriers to achieving equity in telemedicine in obstetrics. *AJOG Global Reports.* 2023;3(1):100159. doi:10.1016/j.xagr.2022.100159

Keywords: Maternal Health Disparities, Telehealth, Mobile Clinics, Healthcare Deserts, Geospatial Mapping, Rural Health, Health Informatics, Prenatal Care, Postnatal Care, Healthcare Accessibility

Leaning into Technology to Prevent Falls

Joy Huang, MBA, BSN, RN, NEA-BC, CPHIMS

Baylor Scott & White Health System, Dallas, TX

Background/Significance Patient fall is preventable yet continue to occur too frequently in many healthcare organizations. Per the Agency for Healthcare Research and Quality, approximately 700,000 to 1 million people fall in US hospitals annually.[1] These incidents significantly affect patients' quality of life and care, especially when it results in injury requiring additional monitoring and interventions. Falls also negatively impact patient satisfaction due to pain or extended hospital stays, which can increase by up to 6.3 days if an injury is sustained.[2] Consequently, falls lower hospital profits with CMS payment reduction or direct costs to sitters and other treatments. Baylor Scott & White Health (BSWH) is not immune to patient falls. In 2022, there were 2,198 total falls system-wide, making it ranked as the organization's #1 Sentinel Event. Existing fall prevention interventions have not been fully effective, and BSWH sought innovative, technology-driven solutions to eliminate harm from falls. In June 2021, a Request for Proposal was issued, and six vendors submitted technology solutions aimed at reducing fall rates.

Purpose BSWH's objectives were to: Find a solution that can measurably provide value at an optimal price; Reduce falls from the baseline by 50% during the first 90 days of a proof-of-concept (POC) with zero injuries; Reduce falls from baseline by 75% over three years with the objective to achieve zero harm through falls; and to Optimize resource costs using technology.

Methods Four departments across different facilities were selected for the POC project. Selection was based on highest fall rates and desire of unit leadership, in collaboration with a System Safety Officer. Each department was paired with a vendor. At start, rules of engagement were established including 90-day timeframe, clear details on what is needed for successful implementation, and outcomes and process metrics. Each vendor had some unique features and capabilities: Vendor #1 used infrared technology to detect and prevent falls. Vendor #2 used virtual bed rails and send alarms to tele-sitter if patient exits virtual bed rail perimeter. Vendor #3 offered traditional video monitoring solution relying on human intervention. Vendor #4 integrated AI rules for bed rails and patient positioning into our EHR.

Results Vendors #1 and #2 completed their POC engagement from February to April 2022. Vendor #3 completed from May to July 2022 following contract delays. Vendor #4 implemented their solution from February to April 2023. Every vendor had their wins and challenges, reflected in outcome data.

Conclusions/Implications Video monitoring alone is not panacea to patient falls. Although reductions in fall rates and positive patient satisfaction were seen in 3 of 4 vendors, none met the targeted 50% fall reduction or zero fall-related injury rates. These results underscore that patient falls stem from multifactorial causes and require a comprehensive program and a system-wide safety culture.

References

1. Agency for Healthcare Research and Quality. Estimating the additional hospital inpatient cost and mortality associated with selected hospital-acquired conditions. 2017. https://www.ahrq.gov/hai/pfp/haccost2017-results.html
2. The Joint Commission. Sentinel event alert: Preventing falls and fall-related injuries in health care facilities. 2015. https://www.jointcommission.org/-/media/tjc/documents/resources/patient-safety-topics/sentinel-event/sea_55_falls_4_26_16.pdf

Keywords: Fall, Safety, Video Monitor

Standardizing User Surveys to Enhance Efficiency and Comparability in Electronic Health Record (EHR) Optimization

Ashley P. Huynh, BS[1], Karen Wang, BS[1], Ling Chu, MD[1]

[1] UT Southwestern Medical Center, Dallas, TX

Background/Significance Continuous optimization of electronic health records (EHRs) aims to improve usability, efficiency, and outcomes. Historically, EHRs have scored lower in usability compared to everyday products.[1] Measuring success often imposes an administrative burden, with traditional methods including usage data, surveys, and outcomes. Diverse survey formats complicate comparisons and add to the administrative load.

Purpose This study presents a standardized approach to user surveys, aiming to automate communication, calculation, and data collection, thereby reducing administrative burden, and enhancing operational efficiency. We evaluated three initiatives: a new chart navigator tool, an AI ambient note experience, and a training program for self-service analytics in EHR.

Methods We developed a standardized survey framework to evaluate the initiatives on a consistent scale. The framework includes automated tools designed in RedCap for data collection and calculation, ensuring uniformity and reducing manual effort. Surveys captured key metrics with validated user satisfaction questions on a Likert scale, net promoter score, and SUS score—a 10-question survey that measures the perceived usability of a product.

Results Preliminary results indicate improved comparability of outcomes and a notable decrease in administrative workload. Developing REDCap surveys takes 8 hours on average. By using the same survey, we save 16 hours across the 3 surveys. A total of 260 surveys (~85% clinicians) were compared. 23 initial surveys of the EHR navigation tool had a mean SUS score of 50.21. 49 post-surveys of the AI ambient note experience had a mean SUS score of 84.26. 101 pre-training and 87 post-training surveys of the self-service analytics training had mean SUS scores of 51.39 and 62.04, respectively.

Conclusion/Implication Standardizing user surveys and automating data collection processes can effectively reduce administrative burdens and improve the comparability of EHR optimization outcomes. Comparing the three initiatives, the AI ambient note experience demonstrates the highest usability with a mean SUS score of 84.26. One contribution to the varied score is likely due to the different nature of the initiatives assessed, with the AI ambient note providing the most automation. This survey approach facilitates more efficient and accurate assessments, ultimately contributing to better-informed decision-making regarding resource investment.

References

1. Melnick ER, Leventhal M, Singh H, et al. The association between perceived electronic health record usability and professional burnout among US physicians. *Mayo Clin Proc.* 2020;95(3):476-487.
2. Ponto, J. Understanding and evaluating survey research. *J Adv Pract Oncol.* 2015;6(2):168-171.
3. French, J. Designing and using surveys as research and evaluation tools. *J Med Imaging Radiat Sci.* 2012;43(3):187-192.
4. Kelley K, Clark B, Brown V, Sitzia J. Good practice in the conduct and reporting of survey research. *Int J Qual Health Care.* 2003;15(3):261-6. doi:10.1093/intqhc/mzg031.

Keywords: Standardized Surveys, Electronic Health Record Optimization, Efficiency

Multimodal Patient-Centric Dental Care: Integrating Vision-Language Models for Personalized Communication and Education

Harsha Snitha Kamineni, BDS, MS[1], Ashish R, MS[1]

[1]Indiana University, Indianapolis, IN

Background/Significance Effective communication in dental care is crucial for improving treatment adherence and patient satisfaction. Traditional approaches often rely on textual information and verbal consultations, which may not be easily understood by all patients. Recent advancements in vision-language models (VLMs) provide an opportunity to bridge this gap by offering personalized, multimodal explanations of dental conditions and treatment plans.[1] These models can analyze radiographic images to identify dental caries, periodontitis, cystic lesions, and tumors, potentially reducing the time required for interpretation and report generation.[2]

Purpose The goal is to leverage multimodal AI to interpret dental images, detect abnormalities using dental notation systems, and generate tailored, easy-to-understand patient education materials.

Methods A prototype system was developed using BLIP-2 and Grounding DINO for dental image-text alignment. The system processes DENTEX panoramic X-rays, annotates teeth using the Fédération Dentaire Internationale (FDI) notation system, and generates explanations using GPT-4V. The dataset includes quadrant, tooth enumeration, and diagnosis annotations. The model was trained on 705 fully labeled X-rays and validated on 50 images, with an additional 1571 unlabeled images for optional pre-training. The system was tested by comparing AI-generated explanations with expert-labeled reports, and user feedback was collected from 50 patients and 10 dentists.

Results The AI-generated explanations were clinically accurate in 92% of cases and rated as more understandable (4.5/5) than traditional textual explanations (3.2/5) ($p < 0.05$). Dentists reported a 20% reduction in consultation time, and 84% of patients felt more confident in understanding their condition. Using the DENTEX dataset, multi-level prompting improved fine-grained abnormality detection by 7.9% in mAP compared to traditional methods.

Conclusions/Implications Integrating VLMs into dental informatics can significantly enhance patient communication, reducing barriers to understanding and improving treatment adherence. Future work includes real-time interaction features and integration into electronic health records. This approach can serve as a model for broader healthcare applications where multimodal AI enhances patient engagement.

References

1. Huang H, Zheng O, Wang D, et al. ChatGPT for shaping the future of dentistry: the potential of multi-modal large language model. *Int J Oral Sci*. 2023; 15:29. doi:10.1038/s41368-023-00239-y
2. Du C, Chen X, Wang J, et al. Prompting vision-language models for dental notation aware abnormality detection. *arXiv preprint arXiv:2305.19112*. 2023.

Keywords: Vision-Language Models, Dental Informatics, Patient Education, Multimodal AI, Clinical Decision Support

The Power of Focus: Addressing Disparities in the Quality of Diabetes Care

Victor Kolade, MD, MS

The Guthrie Clinic, Sayre, PA

Background/Significance Thousands of primary care office visits are provided primarily by residents each year; patients seen by residents have been shown to have similar to[1] or worse[2] performances on quality metrics than patients seen by staff clinicians, and the context of training may explain the outcomes seen.[3] However, such comparisons have not been reported from rural academic medical centers, where demographics may not vary widely.

Purpose The primary aim was to meet and exceed the system-prescribed goal for 'diabetes bundle' (in academic year 2024-25, this consists of a hemoglobin A1c of 8.0% or less in the preceding six months, statin therapy in patients aged 40-75 years except for specified contraindications like cirrhosis, and screening for retinopathy every two years or monitoring known retinopathy every year) compliance across patients in the Sayre Internal Medicine academic practice by June 30 of each academic year (*2021-22 to 2024-25*). The secondary aim was to close the gap in screening rates between resident and non-resident clinician patient cohorts.

Methods The system-wide workflow was for nurses in each primary care office to make diabetes outreach calls to patients daily; however, this became impractical early in the COVID-19 pandemic, and our compliance rates fell. In June 2021 patient service specialists were invited to participate in the diabetes outreach, leading to a 2.6 percentage point increase in compliance in 10 days; our office subsequently transitioned the telephone outreach exclusively to the patient service specialists – with one of them taking the lead on it and expanding the outreach arsenal from phone calls alone to include letters and myChart messages. Outreach was provided for all clinicians in our practice, residents or not.

Results 46.9% of 143 resident patients (RPs) with diabetes were bundle compliant on 7/1/20, compared to 60.6% of 953 patients of non-resident clinicians (PNRCs); the cohort disparity of 13.7% dropped to 6.6% (54.8% of RPs vs 61.6% of PNRCs) by 7/1/21 and 6.5% (54.2% of RPs vs 60.7% of PNRCs) by 3/12/25. As of 3/12/25, our residents rank sixth of twenty-two practice groups being tracked system-wide while the non-resident clinicians rank second; both teams are above the system goal.

Conclusion/Significance Tailoring quality improvement pursuits based on practice needs and staff capacity can reduce disparities in patient outcomes.

References

1. Edwards ST, Kim H, Shull S, Hooker ER, Niederhausen M, Tuepker A. Quality of outpatient care with internal medicine residents vs attending physicians in veterans affairs primary care clinics. *JAMA Intern Med.* 2019;179(5):711-713. doi: 10.1001/jamainternmed.2018.8624.
2. Essien UR, He W, Ray A, Chang Y, Abraham JR, Singer DE, Atlas SJ. Disparities in quality of primary care by resident and staff physicians: Is there a conflict between training and equity? *J Gen Intern Med.* 2019;34(7):1184-1191. doi: 10.1007/s11606-019-04960-5.
3. Weppner WG, Wipf JE, Singh MK. In Response to "Disparities in quality of primary care by resident and staff physicians: Is there a conflict between training and equity?". *J Gen Intern Med.* 2020;35(3):937-938. doi: 10.1007/s11606-019-05346-3.

Keywords: Quality Improvement, Workflow, Academic Medical Centers

Integrating AI-Driven Simulations to Enhance Pediatric Nursing Education

Laura Kubin, PhD, RN, CPN, CHES, CNE, CHSE[1], Niki Fogg, PhD, RN, CPN, CHSE, CNE[2], Jessica Barr, MSN, RN[1]

[1]Texas Woman's University College of Nursing, Dallas, TX; [2]Texas Woman's University College of Nursing, Denton, TX

Background/Significance Pediatric clinical experiences have been increasingly reduced and restricted causing an ongoing issue threatening nursing education. Deliberate, planned experiences have been shown to enhance nursing students' development of pattern recognition and understanding of context and significance.[1]

Purpose This project developed three unfolding pediatric simulations using computer-based Artificial Intelligence (AI) to standardize virtual clinical experiences using unfolding simulated patients (VIPs).

Methods Students received planned experiences with deliberate practice designed to enhance their communication, clinical judgment, decision-making, and problem-solving abilities. Because the cases cross the continuum of care, health promotion and disease prevention were also emphasized. Concepts related to diversity, equity, and inclusion were also embedded into the cases to support development of cultural competencies. The project employed a posttest-only control-group design. Students enrolled in a lab course were randomly assigned to either the control group or the experimental group. Students in the control group cared for a VIP patient that did not employ AI while students in the experimental group were assigned the same VIP using AI.

Results Faculty used the Creighton Competency Evaluation Instrument to evaluate student competencies in both groups during an end-of-semester high-fidelity simulation. VIP assignments scores were compared between groups. Knowledge was compared using pediatric course exam grades and HESI specialty examination scores. Students also rated their confidence and satisfaction using a student satisfaction survey. Logistics of implementation, results, and lessons learned will be discussed.

Conclusions/Implications The integration of AI-driven unfolding pediatric simulations enhances nursing education by standardizing clinical experiences, ensuring equitable access to complex patient scenarios, and fostering the development of critical clinical judgment and decision-making skills. This project demonstrates the potential for AI-based virtual patients to complement traditional clinical training, offering scalable solutions to address clinical placement shortages. These findings contribute to the health informatics field by advancing the use of artificial intelligence in simulation-based education, paving the way for future innovations in competency-based learning and digital health training methodologies.[2]

References

1. Buchanan C, Howitt ML, Wilson R, Booth RG, Risling T, Bamford M. Predicted influences of artificial intelligence on nursing education: Scoping review. *JMIR Nursing*. 2021;4(1). doi:10.2196/23933
2. Jung S. Challenges for future directions for artificial intelligence integrated nursing simulation education. *Korean J Women Health Nurs*. 2023;29(3):239-242. doi:10.4069/kjwhn.2023.09.06.1

Keywords: Artificial Intelligence, Simulation, Virtual Patient Simulation, Nursing Education

Framework Design and Development of the Digital Home Hospice Service

So-Hi Kwon, PhD, APN, RN[1], Mikyoung A. Lee, PhD, RN[2], Seo-Hye Park, BSN, RN[1], Min-Jeong Lee, MSN, RN[3], Youngmin Han, PhD[4], A-Sol Kim, PhD, MD[3], Young-Joo Kim, MSN, RN[1]

[1]Kyungpook National University, Research Institute of Nursing Innovation, Daegu, South Korea; [2]Texas Woman's University, College of Nursing, Dallas, TX; [3]Kyungpook National University Chilgok Hospital, Daegu, South Korea; [4]Kyungil University, School of Smart Industry, Daegu, South Korea

Background/Significance The aging population in South Korea has led to increased demand for palliative care,[1,2] while digital health technologies provide opportunities to enhance home hospice care.[3,4]

Purpose This study aims to develop and evaluate the usability of the Hospice@Home system, a digital health solution for home hospice care.

Methods Guided by the approach to human-centered, evidence-driven adaptive design,[5] Hospice@Home was developed a web application optimized for use on Android devices. It integrates wearable biometric data—blood pressure, heart rate, respiratory rate, sleep patterns, and oxygen saturation—measured via the Samsung Galaxy Watch6. It also allows self-reporting of body temperature, pain levels, bowel movements, and the severity of symptoms tailored to individual patients. Alpha testing ensured functionality, followed by a three-week beta testing phase involving five dyads of terminal cancer patients and their caregivers, recruited through a home hospice agency. Usability evaluation focused on biosignal reliability, symptom reporting, medication compliance, and user satisfaction.

Results Over three weeks, five patients (aged 53–93) with terminal cancer and their caregivers (aged 38–63) explored the system. Compliance with monitoring and reporting tasks varied by patient condition, reaching 13 or more out of 18 points during stable periods. User satisfaction averaged 3.3 (SD 0.5) for patients and 4.0 (SD 0.7) for caregivers on a 5-point scale. Challenges included fatigue, cognitive limitations, and preference for phone calls over in-app communication.

Conclusions/Implications *Hospice@Home* showed potential to complement traditional home hospicecare, offering valuable support for patients and caregivers.

References

1. Statistics Korea. Population Projections, 2072: Estimated Population by Major Age Groups (Working-Age Population, Elderly Population, etc.) - National Level. 2024. https://kosis.kr/statHtml/statHtml.do?orgId=101&tblId=DT_1BPA003&conn_path=I2
2. Central Hospice Center. Status and Statistics. Central Hospice Center; 2024. https://hospice.go.kr:8444/?menuno=52
3. Steindal SA, Nes AAG, Godskesen TE, et al. Patients' experiences of telehealth in palliative home care: scoping review. *J Med Internet Res.* 2020;22(1):e16218. doi:10.2196/16218
4. Finucane AM, O'Donnell H, Lugton J, et al. Digital health interventions in palliative care: a systematic meta-review. *NPJ Digit Med.* 2021;4(1):10. doi:10.1038/s41746-021-00430-7
5. Fischer M, Safaeinili N, Haverfield MC, et al. Approach to human-centered, evidence-driven adaptive design (AHEAD) for health care interventions: a proposed framework. *J Gen Intern Med.* 2021;36(4):1041-1048. doi:10.1007/s11606-020-06451-4

Keywords: Home Care Services, Hospice Care, Digital Health

Nursing Informatics, Population Health, and Artificial Intelligence in Course Development

Stephanie Large, PhD, ANP-C, CNE[1], Reagan Laborde, MS[2], Laura Thomas, PhD, RN, CNE[1]

[1]University of North Texas Health Science Center, College of Nursing; [2]University of North Texas Health Science Center, Department of Academic Innovation

Background/Significance The nursing informatics landscape is evolving at a rapid pace.[1-2] Masters prepared nurses must recognize and adapt to the changing technological aspects of the healthcare system to better serve patients. In a new MSN in Practice Innovation program, informatics and population health were combined in one course to demonstrate how informatics can benefit the health outcomes of communities and other populations.

Purpose The purpose of this presentation is to describe the creation of a two-credit hour asynchronous graduate nursing course that integrates population health and informatics.

Methods Two nursing professionals with an informatics background collaborated with an instructional designer to create the course. The course concentrated on integrating each informatics component through the lens of population health. Multimodal methods were used to engage students in the course content.

Results The concepts of informatics and population health are integrated into a paper describing the application of informatics to a specific population of interest. Interactive case studies are used to engage students in real-world examples, such as a medication error leading to a patient death and using an electronic health record to address a question about the Beers criteria. A discussion board challenges students to use artificial intelligence (AI) to create a patient education document, describe how they would revise the document for content and language, and determine if the AI prompt achieved the results the student expected. The final assignment asks students to create an infographic describing a wearable device that could be used by a population with a specific health concern. The course is being taught for the first time in Spring 2025.

Conclusions/Implications Informatics without population health creates a limitation on the utilization of data to improve health outcomes. Population health provides nurses with a lens to comprehend how patients are affected by technology. When students are exposed to informatics in the context of population health it allows them to think critically about how technology is utilized by healthcare providers and patients.

References

1. Booth RG, Strudwick G, McBride S, O'Connor S, Solano López AL. How the nursing profession should adapt for a digital future. *BMJ.* 2021;373:n1190. doi:10.1136/bmj.n1190
2. Irwin P, Rehman SU, Fealy S, Kornhaber R, Matheson A, Cleary M. Empowering nurses - a practical guide to artificial intelligence tools in healthcare settings: discussion paper. *Contemp Nurse*. 2025. Preprint posted online February 3, 2025. doi:10.1080/10376178.2025.2459701

Keywords: Population Health, Informatics, Course Development

Readiness & Acceptance of a Shared Platform for Multisector Alignment

Shuhong Luo, EdD, MSN, MBA, RN

College of Nursing and Health Science, Texas A&M University-Corpus Christi, TX

Background/Significance Low-income, community-dwelling Hispanic individuals with multiple chronic conditions in southern Texas face significant challenges due to social determinants of health (SDoH).[1,2] Alignment among healthcare, social services, and public health sectors is crucial for ensuring coordinated care and advancing health equity.[3,4] Establishing a robust digital infrastructure has been proposed to facilitate this multisector alignment, fostering a shared mission, stronger network relationships, and collective goals that prioritize community well-being.[5]

Purpose This study examined the readiness, acceptance, and impact of a shared platform across the medical, social, and public health sectors. It assesses how platform adoption can address barriers, enhance multisector alignment, and support SDoH-related efforts.

Methods An explanatory sequential mixed-methods design was used, beginning with quantitative data collection followed by qualitative interviews to further explain the findings.[6] Snowball sampling led to the recruitment of 57 participants across sectors, with nine selected (three per sector) for interviews to ensure both sector-specific insights and cross-sector comparisons. Data included demographic information, the Feasibility of Intervention Measure,[7] the Acceptability of Intervention Measure,[7] sector preferences for platform features (e.g., SDoH screening, information exchange, referral tracking, data aggregation), and intended sector connections.

Results Readiness and acceptance levels were high (M = 4.35; range = 4.21–4.52). Readiness (M = 4.48) exceeded acceptance (M = 4.26). SDoH screening was the top priority. Participants aimed to connect with an average of 2.33 sectors. Inter-sector recognition and intra-sector regulation influenced multisector alignment.

Conclusions/Implications While readiness is high, acceptance is hindered by implementation concerns. Enhancing cross-sector awareness, training, and leadership support is essential for maximizing the platform's impact.

References

1. Vaccaro JA, Gaillard TR, Marsilli RL. Review and implications of intergenerational communication and social support in chronic disease care and participation in health research of low-income, minority older adults in the United States. *Front Public Health*. 2021;9:769731. doi:10.3389/fpubh.2021.769731
2. Zayas LE, Wisniewski AM, Kennedy T. Instrumental activity of daily living limitations and supports in a clinic population of low-income Puerto Rican elderly adults with chronic diseases. *J Am Geriatr Soc*. 2013;61(10):1789-1795. doi:10.1111/jgs.12461
3. Gupta SD, Pisolkar V, Alhassan JAK, et al. Employing the equity lens to understand multisectoral partnerships: lessons learned from a mixed-method study in Canada. *Int J Equity Health*. 2022;21(1):141. doi:10.1186/s12939-022-01746-w
4. Jiménez DJ, Sabo S, Remiker M, et al. A multisectoral approach to advance health equity in rural northern Arizona: county-level leaders' perspectives on health equity. *BMC Public Health*. 2022;22(1):960. doi:10.1186/s12889-022-13279-6
5. Crowder SJ, Tanner AL, Dawson MA, et al. Better together: Coalitions committed to advancing health equity. *Nurs Outlook*. 2022;70(6 Suppl 1):S48-S58. doi:10.1016/j.outlook.2022.02.013
6. Creswell JW, Plano Clark VL. *Designing and conducting mixed methods research*. Third Edition. SAGE; 2018.
7. Weiner BJ, Lewis CC, Stanick C, et al. Psychometric assessment of three newly developed implementation outcome measures. *Implement Sci*. 2017;12(1):108. doi:10.1186/s13012-017-0635-3

Keywords: Social Determinants of Health, Readiness, Acceptance, Alignment, Digital Infrastructure

Exploring Virtual Reality as a Mental Health Intervention: Perceptions, Barriers, and Potential Among Graduate Students

Hripsime Mantecon, MS[1], Ana D. Cleveland, PhD, AHIP, FMLA[1], Sharad Sharma, PhD[1], Haihua Chen, PhD[1]

[1]University of North Texas, Department of Information Science, Denton, TX

Background/Significance Mental health challenges have increased, particularly among young adults.[1] The COVID-19 pandemic exacerbated these issues, along with social isolation, economic uncertainty, and social media's impact on self-image.[1] Graduate students face academic pressures that hinder goal attainment and well-being. While cognitive behavioral therapy remains a primary intervention, virtual reality (VR) has emerged as a complementary tool.[2] Studies indicate VR interventions reduce stress and enhance well-being,[3] but their effectiveness and acceptance among students remain underexplored.

Purpose This pilot study examined graduate students' coping mechanisms for anxiety and stress, familiarity with VR, and perceptions of its potential as a mental health intervention.

Methods A 14-question survey was distributed to 106 graduate students, with 82 responses analyzed. It assessed demographics, coping strategies, academic anxiety levels (AAL), VR familiarity, use, preferred features, and barriers. Descriptive statistics examined gender differences and VR adoption trends.

Results Students primarily managed anxiety and stress through social support (23%), music (17%), and watching videos (11%). While 21% found VR as certainly useful, 72% considered it potentially useful. Preferred VR features included immersive environments (32%), breathing exercises (24%), and guided meditation/mindfulness (18%). 77% reported being familiar or somewhat familiar with VR. Barriers included cost (26%) and lack of familiarity (15%). 18 (22%) reported moderate to high AAL, with 26% of females and 6% of males. Their top coping methods were social support (22%), music (19%), and overeating (10%). Within this subgroup, 11% viewed VR as certainly useful, and 78% saw it as potentially useful. Preferred features included guided meditation (39%), breathing exercises (22%), and immersive environments (22%). Females reported 45% VR familiarity vs. 44% of males; 27% were somewhat familiar vs. 50% of males; and 27% were unfamiliar vs. 6% of males. Barriers included cost (44%) and operational challenges (28%). Overall, 80% were willing to try VR, rising to 89% among those with higher AAL.

Conclusions/Implications Graduate students rely on traditional coping strategies, but many see VR as promising. Cost and lack of familiarity remain barriers. Future research should explore ways to improve accessibility, engagement, and tailored VR interventions.

References

1. Goodwin RD, Weinberger AH, Kim JH, Wu M, Galea S. Trends in anxiety among adults in the United States, 2008–2018: Rapid increases among young adults. *J Psychiatr Res.* 2020;130:441-446. doi:10.1016/j.jpsychires.2020.08.014
2. Dilgul M, Martinez J, Laxhman N, Priebe S, Bird V. Cognitive behavioural therapy in virtual reality treatments across mental health conditions: a systematic review. *Consortium Psychiatr.* 2020;1(1):30-46. doi:10.17650/2712-7672-2020-1-1-30-46
3. Xu J, Khanotia A, Juni S, et al. Effectiveness of virtual reality-based well-being interventions for stress reduction in young adults: systematic review. *JMIR Ment Health.* 2024;11:e52186. doi:10.2196/52186

Keywords: Virtual Reality, Anxiety Management, Mental Health Interventions

Caring Out Loud: Getting Ready for Ambient Listening and AI Supported Documentation

Joni Padden, DNP, APRN

Texas Health Resources, Dallas, TX

Background/Significance Caring Out Loud – Preparing the clinical workforce, especially Nursing, for Ambient Listening and other generative AI tools as the use of these grows in healthcare.

Purpose Highlight the need for clinical disciplines to develop their verbal skills to make a seamless transition from checkbox/discrete data entry documentation to care models focused on ambient listening to generate clinical documentation.

Methods Group discussions with bedside nurses, nurse leaders, and nurse educators to gauge awareness of ambient listening technology, need to be able to verbalize an assessment, intervention, or education to/for the patient in a way the AI can understand then translate to discrete and large language model inputs.

Results All groups identified a lack of knowledge of ambient listening technologies and how best to leverage these technologies for nursing. All groups expressed concerns around front-line nurses having the verbal skills to 'care out loud' for the ambient listening to capture. All groups agreed education and competency standards for caring out loud for ambient listening need to be developed to train practicing nurses as well as nursing students.

Conclusions/Implications Physicians/providers have long used dictation as a tool to enter information into the clinical record. Even with that background, the world of ambient listening AI to generate clinical documentation requires a new skill set for 'caring out loud'. Nurses have a steeper learning curve to be able to adopt ambient listening as part of their practice but have some great examples to pull from as they make the climb.

References

1. American Nurses Association. Nursing. 4th ed. American Nurses Association; 2021.https://www.r2library.com/Resource/Title/0999308866

Keywords: Ambient listening, AI, Nursing standards of practice, Reducing documentation burden

AI Literacy Among Nurse Educators: Assessing Adaptation, Integration, and Instructional Approaches in Nursing Education

Cora Rabe, DNP, CRNA[1,2], Mikyoung A. Lee, PhD, RN[1]

[1]Texas Woman's University; [2]University of Texas Medical Branch Galveston

Background/Significance There is a lack of validated tools to assess artificial intelligence (AI) literacy among nurse educators, which creates a barrier to fully integrating AI into nursing curricula. This research study was initiated 1) to evaluate AI literacy among nurse educators from technological, pedagogical, content, and ethical knowledge perspectives using an AI literacy assessment tool adapted explicitly for nursing educators.

Purpose This preliminary study aimed to validate the AI-Technological Pedagogical Content Knowledge and Ethics (AI-TPACK-E) scale, an adaptation of the existing Intelligent TPACK scale designed to evaluate AI literacy among nursing educators.[1] The research question for this phase of the study was: What are the psychometric properties (e.g., content validity, internal consistency) of the adapted Intelligent-TPACK AI literacy scale for assessing nurse educators' technological, pedagogical, content, and ethical knowledge of AI literacy in undergraduate and graduate nursing education?

Methods Seven content experts were recruited, who met at least one of the following criteria: 1) actively engage in teaching topics related to AI, 2) utilize AI tools in educational settings, 3) have at least one scholarly publication on AI in education, or 4) have delivered professional presentations on AI in education. Potential participants who meet the inclusion criteria were identified through the literature and targeted snowballing recruitment. The adapted AI-TPACK-E survey has 28 items, four items on AI ethics, and four open-ended questions to capture feedback on the questionnaire. Specifically, the adapted AI-TPACK-E questionnaire is organized in five domains: technological knowledge (TK, 5 items), technological pedagogical knowledge (TPK, 7 items), technological content knowledge (TCK, 5 items), integrated TPACK (7 items), and ethical considerations (4 items). Participants will assess the relevance of each item on a 4-point Likert scale, ranging from 1 (non-relevant) to 4 (highly relevant). Completing the survey is estimated to take 30-45 minutes. Data analysis using IBM SPSS 29 will involve calculating the content validity index (I-CVI) for each item.

Results I-CVI of a minimum of 0.78 was utilized as a guide for retaining items, and a scale-level CVI (S-CVI) of 0.90 indicated acceptable overall content validity. All the items had a range of I-CVI 0.71-1.00, except for one ethics item (I-CVI 0.57), while S-CVI/UA was 0.79. Feedback gathered in this phase guided revisions to the questionnaire to enhance its clarity, validity, and relevance.

Conclusions/Implications The findings of this study could offer valuable insights into the baseline AI literacy of nurse educators, which will help identify the educational initiatives needed to support their proficiency in AI implementation and integration within the curriculum.

References

1. Celik I. Towards Intelligent-TPACK: An empirical study on teachers' professional knowledge to ethically integrate artificial intelligence (AI)-based tools into education. *Comput Human Behav*. 2023;138:107468. doi:10.1016/j.chb.2022.107468

Keywords: AI Literacy, Nursing Education, Artificial Intelligence

Meeting the Demand: Virtual Nursing Toolkit

Kristin A. Raggio, MSN, RN, NI-BC[1,2], Stephanie Hoelscher, DNP, RN, NI-BC, AIMP, CPHIMS, CHISP, FHIMSS[1]

[1]Texas Tech University Health Science Center, Lubbock, TX; [2]Baylor Scott & White Health System, Dallas, TX

Background/Significance Nurses are essential to healthcare operations, yet the United States faces a critical need for nurse retention and recruitment, with 20% of the workforce expected to leave by 2027.[1] Virtual nursing models offer potential benefits, including cost savings, reduced burden, improved retention, and enhanced care quality.[2,3] Many healthcare organizations are exploring virtual nursing, but implementation and sustainability remain challenging.[2] Currently, no toolkits or evidence-based best practice guidelines exist for implementing virtual nursing programs in acute care settings, highlighting the need for structured support and standardized approaches to ensure success.

Purpose To develop a comprehensive toolkit that equips hospital leaders with practical guidance and evidence-based strategies for successfully implementing and sustaining a virtual nursing program.

Methods A virtual nursing toolkit was developed as a website, incorporating lessons learned, emerging best practices, and a comprehensive literature review. A modified Delphi method[4] was used to establish content validity, with five healthcare leaders (Oracles) providing expert consensus.

Results Experts evaluated the toolkit using a 4-point Likert scale to assess design, clarity, relevance, accuracy, and comprehensiveness, aiming to achieve the minimum required Content Validity Index (CVI) and consensus among the Oracles.[4] Five experts reviewed the toolkit through two rounds of a modified Delphi process, achieving a CVI of 1.0, which met Lynn's[4] required threshold for content validity, ensuring the significance beyond the 0.05 significance level.

Conclusions/Implications Innovative technology has the unique ability to challenge existing standards and offer new solutions, and the field of informatics plays a pivotal role in safely implementing these technologies to improve outcomes and advance practice. Virtual nursing has the potential to transform the current delivery care models while improving quality, safety, revenue, nursing satisfaction and retention rates.[5] However, transitioning to a virtual care delivery model can be challenging due to the lack of established best practices and industry standards. Without evidence-based guidelines, emerging practices often rely on individual opinions and unvalidated trends. The virtual nursing toolkit provides healthcare leaders with a validated and credible resource to guide leaders in implementing a virtual nursing program.

References

1. Smiley RA, Allgeyer RL, Shobo Y, et al. The 2022 national nursing workforce survey. *J Nurs Regul.* 2023;14:S1-S90. doi:10.1016/S2155-8256(23)00047-9
2. Patton H. The business of healthcare: Virtual nursing, a post pandemic plan for efficiency and cost savings. *Nurs Adm Q.* 2023;47:350-354. doi:10.1097/NAQ.0000000000000600
3. Trepanier S, Schlegel S, Salisbury C, Moore A. Implementing a virtual team model in the acute care setting. *Nurs Adm Q.* 2023;46:249-256. doi:10.1097/NAQ0000000000000584
4. Lynn M. Determination and quantification of content validity. *Nurs Res.* 1985;35:382-385.
5. Fleischhauer CB. Overview and summary: Virtual opportunities for nurses. *Online J Issues Nurs.* 2023;28. doi:10.3912/OJIN.Vol28No02ManOS

Keywords: Virtual Nursing, Nursing Shortage, Toolkit

Generative AI's Impact on Healthcare: Opportunities, Challenges, and Risks

Mahesh Raisinghani, Ph.D, MBA, MSc,[1] Natalia Adams, BS,[1] Itavia Hendricks, MBA,[1] Amy Thompson, B.S.[1]

[1]Texas Woman's University's Merrilee Alexander Kick College of Business & Entrepreneurship, Denton, TX

Background/Significance Generative Artificial Intelligence (Gen AI) is a transformative technology in healthcare, capable of generating text, images, and predictive analytics based on large datasets. Its applications span patient diagnosis, treatment recommendations, administrative automation, and data security. However, challenges such as accuracy, bias, privacy, and security remain critical concerns.[1-3]

Purpose This study examined the impact of Gen AI in healthcare, focusing on its benefits, challenges, and implications for patient safety, data privacy, and algorithmic fairness. The research highlights how Gen AI models, including Large Language Models (LLMs) and Generative Adversarial Networks (GANs), are shaping the healthcare landscape.

Methods A systematic review of recent literature and case studies was conducted to assess the effectiveness of Gen AI in clinical decision-making, administrative processes, and cybersecurity. Peer-reviewed journal articles, government reports, and industry analyses were examined to evaluate data quality, accuracy, and ethical considerations.[4-12]

Results Findings indicate that Gen AI enhances efficiency in administrative workflows, reduces clinician workload, and improves diagnostic accuracy. However, issues such as biases in training data, potential misdiagnoses due to algorithmic limitations, and privacy risks associated with AI-driven data handling were identified. GANs show promise in enhancing data security through synthetic data generation, reducing the exposure of patient-sensitive information. Furthermore, while AI-driven cybersecurity tools improve threat detection, concerns over compliance with regulations such as HIPAA persist.

Conclusions/Implications Gen AI presents both opportunities and risks for healthcare. Its integration requires rigorous validation, transparent regulatory frameworks, and ethical AI governance. Healthcare professionals must be equipped with AI literacy to interpret AI-generated insights effectively. Future research should focus on developing equitable AI models that mitigate biases and enhance data security. Ensuring patient trust through transparency and robust security measures will be crucial.

References:

1. Abbasian M, Khatibi E, Azimi I, et al. Foundation metrics for evaluating effectiveness of healthcare conversations powered by generative AI. *npj Digit Med*. 2024;7:82.
2. Basker S, Bruce D, Lamb J, Stein G. Tackling healthcare's biggest burdens with generative AI. 2023. https://www.mckinsey.com/industries/healthcare/our-insights/tackling-healthcares-biggest-burdens-with-generative-ai
3. Basu K, Sinha R, Ong A, Basu T. Artificial Intelligence: How is it changing medical sciences and its future? *Indian J Dermatol*. 2020;65(5):374-380.
4. Byron J. Part 4: AI and HIPAA Privacy Concerns. *American Institute of Healthcare Compliance*. 2023. https://aihc-assn.org/ai-and-hipaa-privacy-concerns/
5. Reddy S. Generative AI in healthcare: an implementation science informed translational path on application, integration and governance. *Implement Sci*. 2024;19(27). doi:10.1186/s13012-024-01357-9
6. Rezaeikhonakdar D. AI Chatbots and Challenges of HIPAA Compliance for AI developers and vendors. *J Law Med Ethics*. 2023;51(4):988-995. doi:10.1017/jme.2024.15
7. Roy S. Privacy prevention of health care data using AI. *J Data Acquis Process*. 2022;37(3):769.
8. Sherwood A. How will generative AI impact healthcare? *Weforum.org.* 2023. https://www.weforum.org/agenda/2023/05/how-will-generative-ai-impact-healthcare/
9. Suleski T, Ahmed M, Yang W, Wang E. A review of multi-factor authentication in the internet of healthcare things. *Digit Health*. 2023;9. doi:10.1177/20552076231177144
10. U.S. Food and Drug Administration. Artificial Intelligence and machine learning in software as a medical device. *Fda.gov.* 2024. https://www.fda.gov/medical-devices/software-medical-device-samd/artificial-intelligence-and-machine-learning-software-medical-device
11. Yaraghi N. Generative AI in health care: Opportunities, challenges, and policy. 2024. https://www.brookings.edu/articles/generative-ai-in-health-care-opportunities-challenges-and-policy/
12. Zhang P, Kamel Boulos MN. Generative AI in medicine and healthcare: Promises, opportunities and challenges. *Future Internet*. 2023;15(9):286. doi:10.3390/fi15090286

Keywords: Generative AI, Healthcare, Artificial Intelligence, Patient Safety, Data Privacy, Bias in AI

Health Equity and Social Determinants of Health Cultural Sensitivity Screener Training at Methodist Healthcare System

Sharlisa Raley, DNP, MSN, RN, NPD-BC[1], Saba Ahmad, MHA, PMP, LSSGB[1]

[1]Methodist Healthcare System, Dallas, Texas

Background/Significance Social Determinants of Health (SDOH) play a crucial role in shaping patient health outcomes, influencing factors ranging from access to care to social support and economic stability.[1-3] To address these challenges and enhance healthcare delivery, it is essential that clinical staff, particularly nurses, social workers, and care transition navigators, are equipped to identify and address SDOH in a patient-centered, culturally sensitive manner.[4,5] Methodist Healthcare System aimed to improve staff awareness of SDOH by developing and deploying SDOH Sensitivity Screener Training across all six Healthcare System (MHS) facilities.

Purpose This initiative aimed to develop and implement SDOH Cultural Sensitivity Screener Training for healthcare staff, targeting an 80% completion rate by December 31, 2024, to meet Centers for Medicare and Medicaid Services Inpatient Quality Reporting regulatory requirements.

Methods A quantitative pre-and post-intervention study design was employed. As part of the SDOH Cultural Sensitivity Screener Training program, an online eLearning module was developed with input from experts in Nursing Operations, Nursing Education, and Professional Development, to ensure comprehensive and culturally appropriate content. A baseline knowledge assessment was conducted before the launch of the training, followed by regular data collection of progress toward the 80% training completion target. The module was deployed to the targeted audience with a go-live date of October 1, 2024.

Results Findings highlighted the importance of culturally sensitive communication, holistic care approaches, and addressing systemic health disparities. Combining a literature review with the deployment of SDOH Sensitivity Training and meeting the regulatory completion goal, this initiative has made significant strides in improving the recognition and management of SDOH across MHS facilities.

Conclusion/Significance The results underscored the importance of integrating SDOH awareness into clinical practice to improve patient outcomes, promote health equity, and address the social and environmental factors that impact health. Addressing SDOH in a holistic patient care approach leads to improved health outcomes and reduced health disparities.

References

1. Centers for Disease Control and Prevention. Health equity. 2024. https://www.cdc.gov/health-equity/what-is/index.html
2. Chen M, Tan X, Padman R. Social determinants of health in electronic health records. *J Am Med Inform Assoc.* 2020;27(11):1764-1773. doi:10.1093/jamia/ocaa143
3. HealthStream Community. Quality & Compliance. community.healthstream.com/home. 2024. https://community.healthstream.com/home
4. Healthy People 2020. Social Determinants of Health. 2022. https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health
5. Thornton M, Persaud S. Preparing today's nurses: social determinants of health and nursing education. *OJIN.* 2018;23(3). doi:10.3912/OJIN.Vol23No03Man05

Keywords: Social Determinants of Health, Health Equity, and Health Inequity

Transforming Healthcare Informatics Training through Generative AI

Chance Reaves, MSN-Ed., RN[1], Amber Wagner, BSN, RN[1]

[1]Parkland Health, Dallas, TX

Background/Significance Traditional healthcare onboarding and informatics training processes are resource-intensive, leading to inefficiencies and high operational costs. Artificial Intelligence (AI) offers innovative solutions to these challenges by streamlining training processes, enhancing user competency, and reducing time-to-proficiency. This project explores how integrating adaptive learning technologies and generative AI into informatics training improves outcomes, reduces costs, and alleviates resource burdens, building on established adult learning theories.[1]

Purpose To evaluate the impact of AI-driven tools on informatics training and onboarding, focusing on reducing training time, improving user competency, and achieving cost savings while addressing staff shortages and turnover challenges.

Methods We implemented adaptive learning technologies and generative AI tools to create concise, role-specific training resources, including instructional videos, quick-reference guides, and interactive assessments. Training effectiveness was measured using pre- and post-implementation metrics, including training duration, user competency (as assessed through performance data), and cost savings.

Results AI-driven adaptive learning reduced onboarding time by 24.37%, equating to 700 saved training hours annually for a cohort of 175 nurses. Generative AI reduced the time required to produce training materials by 89%, from 7 hours to 45 minutes per resource. This efficiency yielded labor cost savings over $150,000, indicating long-term cost savings. User competency, particularly in documentation accuracy, improved by 20.31%, while post-training efficiency metrics showed a 10% reduction in task completion time. Additionally, 87% of users reported increased confidence in informatics workflows.

Conclusions/Implications Integrating AI into informatics training transforms onboarding by reducing time and resource demands while enhancing user outcomes. These methods deliver measurable ROI and address critical workforce challenges, offering scalable solutions for diverse healthcare settings. Future applications include further leveraging AI for personalized training pathways and iterative workflow optimizations.

References

1. Knowles MS, Holton III EF, Swanson RA. The Adult Learner: The Definitive Classic in Adult Education and Human Resource Development. 9th ed. Routledge; 2020.

Keywords: Artificial Intelligence, Informatics Training, Adaptive Learning, Generative AI, Healthcare Efficiency

Academic-Practice Partnerships to Support EHR Competency and Workforce Well-being

Meagan Rogers, PhD, RN, MSN, NPD-BC[1], Alaina Tellson, PhD, RN, NPD-BC, NE-BC[2], Mari Tietze, PhD, RN, NI-BC, FHIMSS, FAAN[1]

[1]University of Texas at Arlington College of Nursing and Health Innovation, Arlington, TX; [2]Baylor Scott and White Health System, Dallas, TX

Background/Significance The ubiquitous adoption of Electronic Health Records (EHRs) has led to increased stress, dissatisfaction, and administrative burden among nurses.[1-3] In 2021, the American Association of Colleges of Nursing updated their practice essentials which emphasizes academic-practice partnerships and includes a competency domain focused on informatics.[4] Despite widespread agreement about the benefits of early EHR exposure to better prepare new nurses, only 60% of nursing programs currently use an academic EHR (aEHR).[2,3,5,6]

Purpose This presentation aims to illustrate the importance of academic-practice partnerships using our ongoing study of EHR deployment for nursing students. Exposing students to the digital interfaces they will encounter in practice promotes confidence, cognitive load, and anxiety associated with navigating unfamiliar systems.[5-7] One essential component of this aEHR study is the involvement of practice partners to provide feedback on EHR use in practice, assist with documentation template development, and collaborate in scenario-based applications of EHR and health information technology in practice.

Methods This study incorporated the diverse perspectives of nearly 1,000 nursing students to measure objective student performance outcomes, faculty's and students' perceived satisfaction, and students' aEHR usability scores. It also included our practice partners' objective assessment of these students hired in their system post-graduation for two years using the validated Casey-Fink Transition and Skills surveys beginning in August 2025.

Results Student participants provided positive feedback about learning to use the aEHR, with an overall student satisfaction of 4.1 and faculty satisfaction of 3.7 on a 5-point scale. Results reflected a 68% usability score, and 63% of students indicated the aEHR would increase their EHR skills in practice.

Conclusions/Implications Health informatics industry experts and stakeholders must join together to address workforce wellbeing and the EHR documentation burden among practicing nurses. In addition to the empirical evaluation of aEHR implementation, this study offers an important value equation for early EHR exposure, including reduced new graduate orientation length and improved workforce well-being. Educators and practice administrators can collaborate to foster workforce health information technology competency as a strategy to promote healthcare quality and prevent adverse health events.

References

1. Dzau VJ, Kirch D, Murthy V, Nasca T, eds. *National Plan for Health Workforce Well-Being*. National Academies Press; 2024. doi:10.17226/26744
2. Raghunathan K, McKenna L, Peddle M. Use of academic electronic medical records in nurse education: A scoping review. *Nurse Educ Today*. 2021;101:104889-104889. doi:10.1016/j.nedt.2021.104889
3. Williams C, Moody L, Martinez D. Electronic medical record use in nurse education curricula: A systematic review. *Teach Learn Nurs*. 2021;16(3):227-234. doi:10.1016/j.teln.2021.02.007
4. American Association of Colleges of Nursing. *The Essentials: Core Competencies for Professional Nursing Education*. 2021. https://www.aacnnursing.org/Portals/0/PDFs/Publications/Essentials-2021.pdf
5. Chung J, Reynolds T. The effect of early adoption of an academic electronic health record system in nursing education: A pilot outcome study. *J Nurs Educ Pract*. 2021;11(5). doi:10.5430/jnep.v11n5p16
6. Eardley D, Matthews K, DeBlieck CJ. Quality improvement project to enhance student confidence using an electronic health record. *J Nurs Educ*. 2021;60(6):337-341. doi:10.3928/01484834-20210520-07
7. Everett-Thomas R, Joseph L, Trujillo G. Using virtual simulation and electronic health records to assess student nurses' documentation and critical thinking skills. *Nurse Educ Today*. 2021;99:104770. doi:10.1016/j.nedt.2021.104770

Keywords: Nursing Education, Electronic Health Records, Informatics Competency

Evaluating Large Language Models in Detecting Health Misinformation

Melika Rostami, PhD Student[1], Tozammel Hossain, PhD[1]

[1]University of North Texas, Anuradha and Vikas Sinha Department of Data Science, Denton, TX

Background/Significance Timely detection of health misinformation is crucial for public health safety. The COVID- 19 pandemic underscored the rapid spread of misinformation, contributing to vaccine hesitancy,[1,2] reduced trust in health authorities,[3] and the promotion of unverified treatments.[4] Several machine learning models have been used for misinformation detection[5–8] but rely on large, labeled datasets, which are time-consuming and costly to create in crisis scenarios. Large language models (LLMs), such as GPT-based models,[9] offer a promising alternative due to their generalizability and reduced dependence on annotated datasets.

Purpose This study evaluated the effectiveness of LLMs, including GPT-3.5-turbo, GPT-4o-mini, and GPT-4o, alongside BERT-based models in detecting health misinformation. The goal was to assess model performance under different conditions and explore their potential to reduce reliance on extensive labeled datasets.

Methods We applied zero-shot and few-shot approaches across four experimental scenarios: 1) Without a COVID-19 debunk list, 2) With an internal debunk list from the Constraint dataset, 3) With an external debunk list from authoritative sources, 4) With a combination of internal and external debunk lists. Model performance is compared across these settings.

Results Findings indicate that GPT models consistently outperform BERT-based models in all scenarios. Notably, in the zero-shot setting, GPT models demonstrate superior generalizability, effectively detecting misinformation without additional context. When a debunk list is incorporated, both BERT and GPT models exhibit improved performance. The fine-tuned BERT model benefits significantly from an internal debunk list but struggles with external sources, suggesting a dependency on domain-specific data. Conversely, GPT models exhibit greater adaptability, effectively leveraging both internal and external debunk lists to maintain consistent performance across scenarios.

Conclusions/ Implications The results suggest that LLMs, particularly GPT-based models, provide a cost-effective and scalable alternative to traditional human annotation processes. Their ability to detect misinformation with minimal supervision makes them valuable tools for combating health misinformation, especially during public health crises where timely intervention is essential. The adaptability of GPT models highlights their potential for real-world applications in misinformation detection and public health communication strategies.

References

1. Jennings W, Stoker G, Bunting H, *et al.* Lack of trust, conspiracy beliefs, and social media use predict COVID-19 vaccine hesitancy. *Vaccines.* 2021;9(6).
2. Shang L, Kou Z, Zhang Y, Wang D. A multimodal misinformation detector for COVID- 19 short videos on TikTok. in *2021 IEEE International Conference on Big Data (Big Data)*:899-908 2021.
3. Kisa S, Kisa A. A comprehensive analysis of COVID-19 misinformation, public health impacts, and communication strategies: Scoping review. *J Med Internet Res.* 2024;26:e56931.
4. Islam MS, Sarkar T, Khan SH, *et al.* COVID-19–related infodemic and its impact on public health: A global social media analysis. *Am J Trop Med Hyg.* 2020;103(4):1621.
5. Alenezi MN, Alqenaei ZM. Machine learning in detecting COVID-19 misinformation on Twitter. *Future Internet.* 2021;13(10).
6. Alghamdi J, Lin Y, Luo S. Towards COVID-19 fake news detection using transformer- based models. *Knowledge-Based Systems.* 2023;274:110642.
7. Alsmadi I, Rice NM, O'Brien MJ. Fake or not? Automated detection of COVID-19 misinformation and disinformation in social networks and digital media. *Comput Math Organ Theory.* 2024;30(3):187–205.
8. Ayoub J, Yang XJ, Zhou F. Combat COVID-19 infodemic using explainable natural language processing models. *Inf Process Manag.* 2021;58(4):102569.
9. OpenAI. Models. https://platform.openai.com/docs/models

Keywords: Health Misinformation, Large Language Model, Debunked List

Telehealth Use: Findings from a Nationally Representative Survey in the U.S.

Chanam Shin, PhD, RN[1], Kanji Mori, MS[2], Kai-Jen Cheng, MS[2], Esther Yon, MSN, RN, FNP[3], Eunmi Kim, BSN, RN CNOR, CRNFA[4]

[1]Texas Woman's University College of Nursing, Denton, TX; [2]Texas Woman's University School of Health Promotion & Kinesiology, Denton TX; [3]Parkland Health, Dallas, TX; [4]Dallas VA Medical Center, Dallas, TX

Background/Significance Cumulative literature reports that telehealth use rapidly expands and provides critical access to health care services.[1-4] However, evidence supports disparities in telehealth use by factors at individual or community levels in the U.S.[1-4]

Purpose We examined the prevalence and predictors of telehealth use among American adults.

Methods A secondary analysis was conducted using data from the 2022 Health Information National Trends Survey (HINTS 6). A total of 5081 adults (aged ≥18 years) were included for data analysis with descriptive statistics and logistic regressions.

Results A half of the sample were women (50.6%), mean age 48.7 (±15.41), 58.8% ≥ college education, 53.4% employed full-time, 46.2% with an annual household income ≥$75,000. More than one third were from the South region of the U.S. (38.8%), followed by West (22.1%), Midwest (21.6%), and North (17.4%). Most of them (90%) were medically insured, and 87.8% were internet users. Hypertension was the most diagnosed condition (36%), followed by depression (28.4%) and diabetes (16.9%). Of 5081, 41.7% reported telehealth use within the last year. The logistic regression model identified key predictors of telehealth use. Those who were men, ≤ a high school degree, with an annual household income of $20,000-$35,999, non-internet users, and without medical insurance were less likely to use telehealth. In contrast, respondents without transportation access, those from the West region, and those preferred patient centered communication were more likely to use telehealth. Being diagnosed with depression was the strongest predictor of telehealth use (OR:4.66, 95% CI:1.45-14.97), followed by those from the West region compared to the South (OR:3.42, 95% CI:1.39-8.43)

Conclusions/Implications The telehealth use rate increased than the previous year (37% in 2021).[1] The study findings indicate that disparities exist in telehealth use by individual and community level factors among American adults. Continued efforts are needed to reduce disparities in equitable access of telehealth. Future research using qualitative or mixed method design needs to explore the underlying factors related to the predictors of telehealth use in American adults.

References

1. Lee EC, Grigorescu V, Enogieru I, et al. Updated National Survey Trends in Telehealth Utilization and Modality: 2021–2022 (Issue Brief No. HP-2023-09). 2023.
2. Lucas JW, Villarroel MA. Telemedicine Use Among Adults: United States, 2021. NCHS Data Brief, no 445. Hyattsville, MD: National Center for Health Statistics; 2022. doi:10.15620/cdc:121435
3. Chang E, Penfold RB, Berkman ND. Patient characteristics and telemedicine use in the US, 2022. *JAMA Netw Open.* 2024;7(3):e243354. doi:10.1001/jamanetworkopen.2024.3354
4. Spaulding EM, Fang M, Commodore-Mensah Y, Himmelfarb CR, Martin SS, Coresh J. Prevalence and disparities in telehealth use among US adults following the COVID-19 pandemic: National cross-sectional survey. *J Med Internet Res.* 2024;26:e52124. doi:10.2196/52124

Keywords: Telehealth Use, Disparities, Predictors

Hospital at Home: Impacting Safety and Clinical Outcomes Using Technology and Electronic Communication

Dawn-Maia Simmons, BSN, RN, CEN[1], Monica Vaz, BSN, RN[1], Alissa Tran, PharmD, BCCCP[1]

[1]Parkland Health and Hospital System – Hospital at Home, Dallas, TX

Background/Significance Hospital at Home (HAH) was first introduced in the U.S. by Johns Hopkins Hospital in 1995 to reduce costs, shorten hospital stays, minimize hospital-acquired infections (HAI), and improve patient satisfaction, readmission rates, and hospital capacity.[1] Parkland implemented its HAH program in 2021, aiming to enhance digital and health literacy for advancing health equity. The challenge of such programs lies in delivering safe, acute care outside traditional hospital settings. Parkland's HAH program, in collaboration with the Digital Health Center (DHC), uses technology to remotely monitor patients, address their needs, and ensure safe and effective care during their recovery at home.

Purpose This presentation discusses the partnership between Parkland's HAH unit and DHC virtual nurses to provide safe, best practice-aligned care at home, using technology and electronic communication.

Methods During the transfer home, patients receive a remote monitoring kit that includes a tablet, internet connection, charging hub, and a wearable device. A scale and blood pressure cuff are provided if required for care. Once home, a DHC nurse contacts the patient to set up the equipment and educate the patient on the equipment use during their admission. Daily, patients receive two in-person visits from a HAH nurse and interact with DHC staff via video for medication self-administration, assessments, and to communicate their needs. The teams communicate via EPIC Secure Chat, and information is documented in the EHR for daily review by the care provider who will conduct a minimum of one virtual or in person visit with the patient.

Results As of February 2025, the HAH program has successfully transferred 874 patients, creating 5,468 bed days. In 2024, the program reported only one patient fall, compared to 423 falls in other inpatient units. It also achieved no central line-associated bloodstream infections (CLABSI) or catheter-associated urinary tract infections (CAUTI). HAH patients had a 94% satisfaction rate in the Press Ganey survey, outperforming traditional inpatient settings with 91%.

Conclusion/Implications Utilizing technology for communication, the integration of in-person and virtual care improves patient outcomes and safety while narrowing the health equity gap by providing a broader caregiving network and personalized education.

References

1. Patel HY, West DJ. Hospital at home: An evolving model for comprehensive healthcare. *Glob J Qual Saf Healthc.* 2021. https://pmc.ncbi.nlm.nih.gov/articles/PMC10229033/.

Keywords: Digital Literacy, Health Equity, Virtual Nursing

Technostress Management: Implications for Health Informatics and Digital Learning

Jennifer Weber, MSN, BSN, RN, PhD Student[1] & Mari Tietze, PhD, RN, NI-BC, FHIMSS, FAAN[1]

[1]University of Texas at Arlington College of Nursing and Health Innovation, Arlington, TX

Background/Significance Technostress, the psychological stress associated with technology use, is a growing concern in higher education, particularly in online learning environments.[1] Higher education students must navigate various educational technologies, including learning management systems, simulation tools, and online teaching strategies. As they prepare for their professional roles, identifying the factors contributing to technostress is crucial for enhancing digital learning experiences and supporting the transition into the workforce. This study examines technostress in students to determine who is most affected and how it impacts their post-graduation educational experience.

Purpose This study examines how demographic and experiential factors, including age, clinical experience, and technical proficiency, predict technostress levels among MSN Education students. Findings will guide strategies to improve digital learning and help nurse educators navigate technology challenges.

Methods This study employs a combination, descriptive and correlational design. Quantitative data will be collected using the Technostress Scale,[2] a validated tool measuring five subscales: techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty. A demographic survey will capture key variables, including teaching experience and proficiency with digital learning platforms. Qualitative data will be obtained through an open-ended survey question exploring MSN Education students' experiences with technology integration. Thematic analysis will be conducted systematically with a subject matter expert to ensure rigor.[3] A purposive sample of 155 MSN Education students will be recruited. Quantitative data will be analyzed using multiple regression, while qualitative responses will be analyzed to identify key themes related to digital adaptation.

Results This study will identify factors influencing technostress and their impact on digital competence and teaching readiness. Findings will guide changes in MSN education programs to reduce technostress by improving digital literacy support and enhancing the use of technology for educators. Preliminary data and emerging qualitative themes will be available at the conference.

Conclusions/Implications By identifying predictors of technostress, this study will provide insights into improving the use of educational technologies in nursing education. Findings will inform targeted interventions, including faculty training enhancements, improvements in instructional design, and strategies to alleviate technostress in MSN education. This research advances discussions on elevating digital learning in higher education and supporting faculty preparation programs.

References

1. Tarafdar M, Cooper CL, Stich JF. The technostress trifecta: Techno eustress, techno distress and design: Theoretical directions and an agenda for research. *Inf Syst J.* 2017;29(1):6-42. doi:10.1111/isj.12169
2. Upadhyaya P, Vrinda. Impact of technostress on academic productivity of university students. *Educ Inf Technol.* 2021;26(2):1647-1664. doi:10.1007/s10639-020-10319-9
3. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;3(2):77-101. doi:10.1191/1478088706qp063oa

Keywords: Technostress, Digital Learning, Nursing Education

Data Fusion and Quality Enhancement for Medical Concept Normalization using LLMs

Yuhan Zhou, MS[1], Haihua Chen, PhD[2] Ana D.Cleveland, PhD, AHIP, FMLA[1]

[1]University of North Texas, Department of Information Science, Denton, TX; [2]University of North Texas, Anuradha and Vikas Sinha Department of Data Science, Denton, TX

Background/Significance Medical concept normalization (MCN) maps informal medical terms to standardized concepts in controlled vocabularies.[1] While existing studies primarily rely on single-source datasets and overlook data quality issues such as coverage, class imbalance, and inconsistency,[2] our study enhances MCN by evaluating and improving data quality across multiple MCN datasets through data fusion and Large Language Models (LLMs).

Purpose To propose a quality-aware, multi-source data fusion framework that systematically integrates heterogeneous MCN corpora while explicitly assessing their quality.

Methods We first collect all the existing MCN datasets developed on the same medical ontologies (UMLS, SNOMED-CT, and MedDRA), then evaluate them across data quality dimensions of correctness, variety, comprehensiveness, and freshness. We employ ChatGPT-based zero-shot and few-shot prompting for data quality improvement with data correction and augmentation. Using the derived quality scores, we propose an adaptive weighting mechanism to reconcile candidate phrase-concept pairs from different data sources.

Results Experiments demonstrate that models trained on our fused dataset achieve statistically significant F1 score improvements over single-source baselines. Further error analyses reveal that our approach excels in disambiguating near-synonyms and standardizing long-tail medical terms—cases typically overlooked by single-source solutions and addressing data imbalance issues.

Conclusions/Implications Our approach enhances synonym disambiguation, mitigates medical data imbalance, and reduces MCN dataset development costs, which are critical for improving the efficiency and accuracy of biomedical NLP applications. This framework and LLM-based enhancement strategies[3] can further facilitate MCN applications such as electronic health record management, clinical decision support systems, health information exchange, drug discovery, and so on.[4]

References

1. French E, McInnes BT. An overview of biomedical entity linking throughout the years. *J Biomed Inform.* 2023;137:104252. doi:10.1016/j.jbi.2023.104252
2. Chen H, Li R, Ding J, Cleveland A. Enhancing data quality in medical concept normalization through large language models. *SSRN.* 2024. doi:10.2139/ssrn.4979696
3. Hosseini M, Hosseini M, Javidan R. Leveraging large language models for clinical abbreviation disambiguation. *J Med Syst.* 2024;48:27. doi:10.1007/s10916-024-02049-z.
4. Peng H, Xiong Y, Xiang Y, Wang H, Xu H, Tang B. Biomedical named entity normalization via interaction-based synonym marginalization. *J Biomed Inform.* 2022;136:104238. doi:10.1016/j.jbi.2022.104238

Keywords: Medical Concept Normalization, Data Quality, Large Language Model

Poster Presenters and Abstracts

Large Language Model Driven Healthcare Support for Rural Texas: Empowering Rural Nurse Practitioners with AI-Based Decision Support

S M Saiful Islam Badhon[1], Ana Cleveland[1], Haihua Chen[2], Debarun Das[3], Mohammad Faridul Haque Siddiqui[3], K S M Tozammel Hossain[2]

[1]University of North Texas Department of Information Science, Denton, TX; [2]University of North Texas Anuradha and Vikas Sinha Department of Data Science, Denton, TX; [3]West Texas A&M University Department of Computer Science, Canyon, TX

Background/Significance Rural communities in Texas experience significant healthcare disparities due to limited access to medical services, provider shortages, and geographic barriers.[1] Nurse practitioners (NPs) play a critical role in these underserved areas, often serving as the primary healthcare providers. However, they encounter challenges in managing complex medical conditions due to constrained resources and a lack of specialist support.[2-7]

Purpose This study explored the feasibility of an AI-driven healthcare support system leveraging Large Language Models (LLMs)[8] to enhance the decision-making capabilities of NPs in rural Texas. By integrating publicly available healthcare, clinical, and environmental data, this system could provide real-time, context-aware decision support tailored to the unique needs of rural healthcare settings.

Methods The proposed framework comprises three major components: (1) the development of scalable data integration frameworks to ensure the accuracy and contextual relevance of LLM-driven recommendations,[9] (2) the enhancement of LLM capabilities for nursing-specific applications through fine-tuning with clinical guidelines, patient case studies, and structured electronic health records,[10] and (3) the implementation of educational workshops and training programs to bridge the gap between AI and healthcare professionals. The decision-support tool was designed with an intuitive interface that facilitates seamless adoption by NPs, offering features such as voice input, interactive explanations, and mobile compatibility for use in remote settings.

Results Beyond improving healthcare outcomes, this project fosters interdisciplinary collaboration between computer science, healthcare informatics, and nursing. It also provides hands-on research opportunities for students at Minority-Serving Institutions (MSIs), particularly those from underrepresented backgrounds in STEM. By engaging students in AI-driven healthcare innovation, the project supports workforce development and promotes diversity in medical AI research.

Conclusions/Implications This study contributes to the growing field of AI in healthcare by demonstrating how LLMs can be leveraged in resource-limited environments to enhance clinical decision-making and patient outcomes. The proposed system has the potential to be scaled nationwide, addressing broader healthcare disparities in underserved regions. By integrating AI and human-centered computing, this work lays the foundation for future advancements in AI-assisted rural healthcare, bridging the gap between technology and equitable medical access.

References

1. Brooks V. Rural Texas needs health care providers—why is Texas law standing in the way? 2023. https://login.texasnp.org/news/632835/Rural-Texas-Needs-Health-Care-Providers-Why-is-Texas-Law-Standing-in-the-Way.htm
2. Healthcare challenges in rural Texas areas - TAMIU Online. 2021. https://online.tamiu.edu/programs/nursing/msn/nursing-administration/healthcare-issues-affecting-rural-texas/
3. Falconnier J, Hecht M. Rural counties face hospital closures. 2022. https://comptroller.texas.gov/economy/fiscal-notes/archive/2022/oct/hospitals.php
4. Texas Hospital Association. Rural issues. 2025. https://www.tha.org/issues/rural-issues/
5. Briggs ME, Francis C. We must heal our rural health care system. 2023. https://www.tafp.org/news/rural-health-editorial-2-23
6. Singh. Rural risk factor. Pulse – TTUHSC. Winter 2023. https://pulse.ttuhsc.edu/issue/winter-2023/rural-risk-factor/
7. Jafri SH, Gandhi S, Osei E. Physician deserts: Navigating the Texas terrain of provider supply and demand with GIS mapping. *Healthcare (Basel).* 2024;12(23):2397. doi:10.3390/healthcare12232397
8. OpenAI. GPT-4 technical report. arXiv. 2023. https://arxiv.org/abs/2303.08774
9. Chrimes D, Kim C. Review of publicly available health big data sets. In: 2022 IEEE International Conference on Big Data (Big Data). *IEEE*; 2022:6625–6627.
10. Lee H, Phatale S, Mansoor H, et al. RLAIF: Scaling reinforcement learning from human feedback with AI feedback. *arXiv.* 2023. doi:10.48550/arxiv.2309.00267

Keywords: Texas Rural Health, Nursing Support, Large Language Models

Acute Kidney Injury Anticipation in ICU patients using Hybrid LSTM-Transformer

S M Saiful Islam Badhon, BSc[1], Lokesh Karanam, MS[2], Mohammad Adibuzzaman, PhD[3], K S M Tozammel Hossain, PhD[4]

[1] University of North Texas Department of Information Science, Denton, TX; [2]RR Donnelley, Austin, TX; [3]Oregon Health Science University, Portland, OR; [4] University of North Texas Anuradha and Vikas Sinha Department of Data Science, Denton, TX

Background/Significance Acute kidney injury (AKI) is a prevalent complication amoing intensive care unit (ICU) patients, associated with high morbidity and mortality.[1] As a result, patients with AKI require costly therapies and burden the healthcare system. The best approach to AKI treatment relies on early prevention, which requires early prediction of AKI events. Due to the availability of electronic health records (EHR) and recent advancements in machine learning (ML), there is an increasing interest in developing ML-based data-driven methods for various disease predictions, including AKI.[2,3] However, these methods do not forecast with sufficient lead time to devise a treatment plan or explain the forecasts.

Methods We developed a deep-learning-based temporal method for anticipating AKI with lead time, along with precursors to AKI events using EHR data.

Results The proposed method integrated Transformer[4] and Long Short-Term Memory (LSTM)[5] architectures to predict AKI in ICU patients. This hybrid model combines LSTM's sequential learning capabilities with Transformer's self-attention mechanism to capture local temporal dependencies and global feature relationships.[6] By leveraging EHR time-series data, the model forecasts AKI onset with a lead time of 6, 12, and 24 hours, allowing clinicians to implement preventive measures. We used the MIMIC-IV database[7] to construct patient histories spanning at least 48 hours. The proposed model outperformed existing methods and achieves AUC-ROC above 90% for all prediction horizons, demonstrating robust predictive accuracy.

Conclusions/Implications The proposed hybrid deep-learning framework for AKI anticipation was novel. This approach enhanced interpretability and clinical applicability by integrating time-series analysis and attention-based feature selection. The findings highlighted the potential of advanced deep learning architectures in transforming critical care decision-making.

References

1. Bellomo R, Kellum JA, Ronco C. Acute kidney injury. *Lancet.* 2012;380(9843):756–766.
2. Rank N, Pfahringer B, Kempfert J, et al. Deep-learning-based real-time prediction of acute kidney injury outperforms human predictive performance. *NPJ Digit Med.* 2020;3(1):1–2.
3. Tomašev N, Glorot X, Rae JW, et al. A clinically applicable approach to continuous prediction of future acute kidney injury. *Nature.* 2019;572(7767):116–119. doi:10.1038/s41586-019-1390-1
4. Vaswani A, Shazeer N, Parmar N, et al. Attention is all you need. *Adv Neural Inf Process Syst.* 2017;30.
5. Hochreiter S, Schmidhuber J. Long short-term memory. *Neural Comput.* 1997;9(8):1735–1780.
6. Cao K, Zhang T, Huang J. Advanced hybrid LSTM-transformer architecture for real-time multi-task prediction in engineering systems. *Sci Rep.* 2024;14(1):4890.
7. Johnson AEW, Pollard TJ, Shen L, et al. MIMIC-III, a freely accessible critical care database. *Sci Data.* 2016;3:160035.

Keywords: Patient Outcome Research, Early Prediction of Diseases, ICU Patient Care

Enhancing Nursing Unit and Blood Bank Communication for Blood Product Preparation Through WellSky and Vocera Integration

Kimberly Burt, BSN, RN, MSHI Student[1] & Emily Flahaven, MSN, RN[1]

[1]UT Southwestern Medical Center, Dallas, TX

Background/Significance The hospital environment is fraught with frequent interruptions during handovers, noise pollution that exceeds industry standards, and opportunities for miscommunication.[1,2] Preparation and retrieval of blood products for transfusion is a complex, multi-step process that leaves many chances for miscommunication.[2]

Purpose This study addresses communication between the nursing staff and blood bank staff during the ordering, matching, and retrieval process, with a goal of decreasing the time that it takes for blood to be retrieved from the blood bank. The approach involves the design and implementation of a mobile alert using Vocera Communication Systems. The investigators proposed that this point-of-care access to information would streamline the process for staff in both the blood bank and the hospital units by decreasing the need to place multiple phone calls, thereby reducing the overall stress level involved in the process of preparing and receiving blood products for transfusion.

Methods Initial investigation was performed via interviews with the manager of the blood bank and a charge nurse on a unit that was proposed for the pilot. A thorough literature review to support the proposed intervention[1,2] Interfacing these systems included preparing outgoing messages from Wellsky, putting them through the Cloverleaf interfacing system, and preparing a set of logic rules for the Vocera system to use in response to the messages. We will measure staff stress and satisfaction on 3 units at UT Southwestern using Redcap surveys. We will also measure the time from the blood having a "ready" status to the time it is picked up from the blood bank by a member of nursing staff. Pilot units (7 Green, 12 Orange, and 9 Orange) were selected via analytics obtained from LogicStream. We will compare outcome measures between a low-use, medium-use, and high-use units. As part of change management, we plan to hold education sessions and update the education for blood administration process in EPIC.

Results We are testing the intervention in the test environment and waiting on IRB approval. We are attempting to incorporate staff requests for the intervention before deploying the pilot. Once approved and tested sufficiently, we plan to deploy the intervention this month (March), collect data through April, and perform analysis to compare our outcome measures to previous values. We are accommodating for the shortened data collection period by including multiple units in the pilot study.

Conclusions/ Implications Further research will include implementation of the intervention on the selected 3 pilot units. The integration from Wellsky to Vocera was successful, meaning that laboratory data can be used to trigger the Vocera system.

References

1. Andrade E, Collins da Cunha e Silva D, Augusta E, et al. Environmental noise in hospitals: A systematic review. *Environ Sci Pollut Res.* 2021.
2. Miranda MS, Nascimento FA, Lima VN, et al. Communication and safe and effective nursing care in surgical center and intensive care: Integrative review. *Health Sci J.* 2023;13(2):42-51. doi:10.21876/rcshci.v13i2.1393.

Keywords: Communication, Noise Pollution, Interfacing

Targeting Skills to Lead Academic EHR Implementation for Student Nurse Competency

Lori Camperlengo MSN, RN, NI-BC, CHSE, CPHIMS[1] & Mari Tietze PhD, RN, NI-BC, FHIMSS, FAAN[1]

[1]University of Texas at Arlington College of Nursing and Health Innovation, Arlington, TX

Background/Significance Nursing school environments have diverse users including faculty in classroom didactic roles, simulation-educator roles, and clinical roles. Addressing user needs at all levels paired with organizational requirements evaluation is vital to successful aEHR implementation, similar to system-wide implementations at health care organizations. System Development Life Cycle (SDLC), phases that help organizations to produce high-quality software or implement technology, are foundational for guiding each role through the process.[1]

Purpose One in three nursing graduates leave their nursing position within the first year due to dissatisfaction and burnout.[2] Findings indicate that nursing faculty have low to moderate technical skills.[3] For that reason, in academic settings, the first step of the SDLC includes accessing user needs to ensure implementation success, not a common practice in academic or simulation environments.

Methods This project addresses the initial aspects of planning the implementation of an aEHR and the critical steps to incorporate early in the process. Coordination of informatics champions efforts aligned with the Planning Phase of the SDLC maximizes effectiveness of aEHR documentation competencies.

Results Students with aEHR access and documentation practice in all areas of their undergraduate curriculum impact patient care delivery and ultimately patient safety in employer hospitals. It is anticipated that a separate study, with post-graduation and student employment data available next year, will demonstrate the important relationship for students and academic practice-partner employees that benefit from documentation competency and less technology-associated burnout.

Conclusions/Implications Application of SDLC principles were foundational to aEHR implementation at a large nursing school, leading to patient safety in academic practice-partner organizations.

References

1. McBride S, Tietze M. Nursing Informatics for the Advanced Practice Nurse. 2nd ed. Springer Publishing Company; 2019:177-208.
2. Nurse.org. Half of new nurses quit within 2 years. Nurse.org. 2023. https://nurse.org/news/half-of-new-nurses-quit-within-2-years/
3. Nes AA, Steindal SA, Larsen MH, et al. Technological literacy in nursing education: A scoping review. *J Prof Nurs.* 2021;37(2):320-334. doi:10.1016/j.profnurs.2021.01.008

Keywords: Academic Electronic Health Record, Implementation, System Development Life Cycle

Advancing Pediatric Suicide Prevention: A Clinician's Tool for Early Intervention

Lakshmi Chandrabhanu, BS, MSHI Student[1], Josepha Komeka, BS[1], Neha Hussain, BS[1]

[1]UT Southwestern Medical Center, Dallas, TX

Background/Significance Pediatric suicide is the second leading cause of death among U.S. youths aged 10–18, with increasing rates, especially among marginalized populations. Early identification of suicidal ideation and risk factors is crucial. Pediatric suicide assessment tools offer structured methods to evaluate emotional distress, mental health conditions, and environmental factors that contribute to suicidal behaviors in children. Because children may struggle to articulate their emotions, standardized assessments are essential.[1]

Purpose This project aims to develop a Clinical Decision Support (CDS) tool that enhances suicide risk assessment by integrating automated alerts and follow-up prompts. The tool is designed to assist clinicians and caregivers in early detection, improving equity in mental health care, and ultimately preventing pediatric suicide.

Methods We developed a Pediatric Suicide CDS System that integrates electronic health records (EHR) and personally collected data to automate risk assessments for children aged 5–18. The tool is adapted from the PHQ-9, a validated instrument for pediatric behavioral health assessments.[2] Positive screenings trigger alerts, order sets, and clinical guidelines to support clinician decision-making. Key Performance Indicators (KPIs) and a risk assessment framework were established to mitigate potential failures such as false positives, misinterpretation, and communication gaps.

Results The CDS tool is expected to improve screening accuracy and increase the rate of early interventions. It simplifies the risk assessment process by providing timely alerts to clinicians. The implementation strategy includes pilot testing, oversight, and iterative improvements. KPIs include counseling effectiveness, adherence to guidelines, and patient follow-up rates. Counseling effectiveness will be measured through changes in withdrawal, engagement in activities, and self-reported emotional states. Adherence will be evaluated through age-appropriate guidance, comprehension of assessment language, and timely post-screening follow-ups. Anticipated implementation challenges include user resistance and false positives; therefore, pilot testing is planned to assess real-world feasibility.

Conclusions/Implications Our Pediatric Suicide Prevention CDS tool aims to address the alarming rise in pediatric suicide through early detection and clinical intervention. By incorporating automated alerts and validated screening tools, it equips clinicians to identify at-risk youth more effectively. Next steps include conducting pilot studies and collecting clinician feedback to refine the tool and enhance its utility in promoting youth mental health.

References

1. Bridge JA, Horowitz LM, Fontanella CA, Sheftall AH, Greenhouse JB, Kelleher KJ. Prioritizing research to reduce youth suicide and suicidal behavior. *Am J Prev Med*. 2014;47(3 Suppl 2):S229-S234. doi:10.1016/j.amepre.2014.06.002
2. Anderson R, Libby AM, Ghosh D, et al. Assessing the PHQ-9 as a screening tool for depression in young adults. *Psychiatr Serv*. 2021;72(5):567-574. doi:10.1176/appi.ps.202000312

Keywords: Pediatric suicide, Clinical Decision Support System, Mental health screening

Investigating Intrinsic Barriers to Clinical Practice Guidelines: An Examination of Ambiguity, Inconsistency, and Undecidability

Aditi Dhariya, MSc, MSHI

UT Southwestern Medical Center, Dallas, TX

Background/Significance Clinical practice guidelines have the potential to improve the care received by patients by promoting interventions of proven benefit and discouraging ineffective interventions.[1] However, clinical practice guidelines are not uniformly successful in influencing clinicians' behaviors toward best practices.[2] Implementability refers to a set of characteristics that predict ease of (and obstacles to) guideline implementation.[2]

Purpose Our objective is to identify and address the intrinsic barriers in the clinical practice guidelines by enhancing the clarity and utility of future guidelines.

Methods To evaluate the selected clinical practice guidelines (CPGs) recommended for diabetes, hypertension, and pediatric obesity, we built a REDCap survey using the GuideLine Implementability Appraisal framework.[2] Appraisers independently extracted the data and evaluated the implementability of the guidelines.[3] The survey questions with 100% agreement for the response 'Yes' were identified as facilitators and those with 100% agreement for 'No', were considered as barriers.[4] We noted borderline barriers, characterized by significant response divergence, where any 'No' responses amidst 'Yes' indicated potential impediments to smooth guideline adoption.

Results Our analysis revealed significant borderline barriers to the implementation of clinical practice guidelines in hypertension, diabetes, and pediatric obesity. These included ambiguities in defining the target audience and inconsistencies in clinical thresholds, which complicate guideline adoption and adherence. Lack of clear, actionable steps was also identified as a key barrier, leading to decision-making challenges among practitioners.

Conclusions/Implications The study underscores the need for guideline developers to prioritize implementability during the guideline development process. Enhancing clarity, consistency, and actionability within guidelines can significantly improve their usability and adoption in clinical practice, thereby improving patient outcomes. Future efforts should focus on integrating practitioner feedback to ensure guidelines are both relevant and practical.

References

1. Grimshaw J, Thomas R, MacLennan G, et al. Effectiveness and efficiency of guideline dissemination and implementation strategies. *Health Technol Assess.* 2004;8(6):iii–iv, 1-72.
2. Shiffman RN, Dixon J, Brandt C, Essaihi A, Hsiao A, Michel G. The GuideLine Implementability Appraisal (GLIA): development of an instrument to identify obstacles to guideline implementation. *BMC Med Inform Decis Mak*. 2005;5:23. doi:10.1186/1472-6947-5-23
3. Wu J, Zhang J, Zhou Y, et al. Assessing the quality of guidelines for primary aldosteronism: which guidelines are worth applying in diverse settings? *J Hypertens*. 2019;37(7):1500-1509. doi:10.1097/HJH.0000000000002074
4. Ierano C, Thursky KA, Marshall C, et al. Evaluating the implementability of antibiotic surgical prophylaxis guidelines. *Infect Dis Health.* 2020;25(1):11-21. doi:10.1016/j.idh.2019.11.002

Keywords: Clinical Practice Guidelines, Implementability, Appraisal, Facilitators, Barriers

Optimizing Pre-Treatment Dental Referrals for Head and Neck Cancer Patients

Ruchira Garg, BDS[1], Andrew Day, MD[1]

[1]UT Southwestern Medical Center, Dallas, TX

Background/Significance Head and neck cancer (HNC) patients undergoing radiation therapy face significant oral complications, yet pre-treatment dental care is often inconsistent. The National Cancer Institute recommends dental evaluation at least 4 weeks before cancer treatment initiation to allow adequate healing for procedures like teeth extraction to prevent osteoradionecrosis.[1] This study evaluated the impact of pre-treatment dental referrals on HNC treatment initiation and outcomes.

Purpose To implement a standardized referral system for pre-treatment dental evaluations, optimize workflow, and improve communication between oncology and dental teams to reduce treatment delays and improve patient readiness before radiation starts. It was hypothesized that a direct referral or recommendation from the surgeon to a dentist would significantly increase the likelihood of dental evaluation before initiating cancer treatment.

Methods A retrospective study (2023–2024) at UTSW analyzed 68 patients with newly diagnosed or recurrent mucosal and salivary gland cancers. Stakeholders including HNC surgeons, radiation oncologists, dentists, and informaticists collaborated to identify process gaps, address workflow inefficiencies, refine referral timelines, and establish patient criteria for referrals. An EHR-integrated SmartSet was implemented expanding “Pre-Radiation Dental Evaluation” to standardize dental referrals. A patient handout was created to educate HNC patients on the importance of pre-treatment dental care.

Results Of 68 patients, 19 (28%) visited a dentist before radiation, while 49 (72%) did not. Among those referred/recommended, 19 out of 28 (68%) completed dental visits, compared to 0% without a recommendation. Lack of formal referrals significantly reduced dental visit likelihood. Patients who visited a dentist were significantly more likely to receive fluoride trays ($p = .0096$). Access to dental records was limited, with only 11/19 (58%) having adequate documentation.

Conclusions/Implications Surgeon referral/ recommendation increases the likelihood of pre-radiation dental evaluation. Engaging multidisciplinary stakeholders optimizes workflow and improves patient access to dental care. Patient education is essential for raising awareness of pre-treatment dental care’s impact on cancer outcomes. This scalable approach enhances oncology care and warrants further exploration.

References

1. Ramamurthy J, Jha P, Lakshmanan R, Krishnan R, Manikandan R. Dental considerations of head and neck cancer: a clinical review. Cureus. 2023;15(5):e39477. doi:10.7759/cureus.39477

Keywords: Head and Neck Cancer Care, Dental Referrals, Workflow Optimization

Assessing Kidney Disease Risk Using Environmental and Genetic Factors

Akshitha Gopikrishnan[1], Christie Martin, PhD, MPH, RN-BC, LHIT-HP[2]

[1]Rock Hill High School, Frisco, TX; [2]University of Minnesota School of Nursing, Minneapolis, MN

Background/Significance Chronic Kidney Disease (CKD) is a disease that affects approximately 700 million people worldwide and has both environmental and genetic determinants. The genetic determinants include family history, gender, and age, while environmental determinants such as diet, toxins, and access to health care also play significant roles.[1-3] Treatment has the best outcomes with early identification, but CKD typically remains undiagnosed until late in the disease, resulting in excessive morbidity and healthcare costs.[4] This project aims to develop a machine-learning algorithm that integrates genetic and environmental factors for the prediction of CKD risk.

Purpose The purpose of this project is to create a predictive algorithm that estimates the percent risk for CKD in an individual based on their genetic predispositions and environmental factors, allowing for early diagnosis and personalized intervention.

Methods The Kaggle CKD dataset, comprising demographic data, medical history, and biomarkers, was used. Data preprocessing consisted of imputation of missing values and encoding categorical variables. The XGBoost classifier was used, and hyperparameter optimization was completed via GridSearchCV. Feature importance was calculated based on SHAP values. Certain vital biomarkers (i.e., age, albumin levels, hemoglobin levels, and blood glucose) were analyzed for predictive capabilities in CKD risk prediction.

Results XGBoost model had an accuracy of 1.0000, demonstrating outstanding predictive ability. SHAP analysis identified albumin level, hemoglobin level, blood glucose, and age as the most predictive features of CKD risk. Elevated blood glucose, decreased albumin and hemoglobin levels, and advanced age were related to high CKD risk.[3-5]

Conclusions/Implications This work demonstrates the potential of machine learning for the integration of genetic and environmental data for CKD risk prediction. The model provides a way of early detection with tailored health advice. Future work will include the addition of genetic sequencing data and additional environmental factors to the model, along with releasing it for general healthcare application and developing early intervention measures.

References

1. Ahmed S, Mothi SS, Sequist T, Tangri N, Khinkar RM, Mendu ML. The Kidney Failure Risk Equation score and CKD care delivery measures: a cross-sectional study. *Kidney Med.* 2022;4(1). doi:10.1016/j.xkme.2021.08.010
2. Francis A, Harhay MN, Ong ACM, et al. Chronic kidney disease and the global public health agenda: an international consensus. *Nat Rev Nephrol.* 2024:1–13. doi:10.1038/s41581-024-00820-6
3. Friedman DJ. Genes and environment in chronic kidney disease hotspots. *Curr Opin Nephrol Hypertens.* 2019;28(1):87–96. doi:10.1097/MNH.0000000000000470
4. Gregorich M, Kammer M, Heinzel A, et al. Development and validation of a prediction model for future estimated glomerular filtration rate in people with type 2 diabetes and chronic kidney disease. *JAMA Netw Open.* 2023;6(4):e231870. doi:10.1001/jamanetworkopen.2023.1870
5. Harasemiw O, Drummond N, Singer A, et al. Integrating risk-based care for patients with chronic kidney disease in the community: study protocol for a cluster randomized trial. *Can J Kidney Health Dis.* 2019;6:205435811984161. doi:10.1177/2054358119841611

Keywords: Chronic Kidney Disease, Machine Learning, Risk Prediction

Utilizing Health Informatics to Optimize Access to Care in the Women's Health Ambulatory Setting: A Quality Improvement Project

Trish Jackson, MSN, APRN, WHNP-BC, EBP-C[1], Faheemah Hannah DNP, APRN, FNP-C, EBP-C[1], LaSteshia Ekeocha DNP, APRN, WHNP-BC[1]

[1]Texas Woman's University College of Nursing, Dallas, TX

Background/Significance The centralized global patient access center is the cornerstone of an appointment scheduling system[1] managing between 3,500 and 4,000 incoming calls daily to provide access to ambulatory women's health services in underserved communities in Dallas County. Although appointment scheduling occurs through the electronic health record (EHR), current scheduling relies on the call center staff's memory or use of a single hardcopy reference guide. This process has led to a 6% increase in scheduling errors on a weekly basis, a rise in patient and staff complaints, longer wait times, and a higher percentage of calls abandoned. The problematic scheduling issues impede access to care, decrease appointment billing and revenue with the potential to increase healthcare disparities in underserved communities. Data analysis with health informatics and an EHR embedded clinical decision support tool are evidence-based solutions to address patient access concerns.

Purpose The Quality Improvement initiative aims to measure the effects of implementing an EHR embedded appointment scheduling decision tree on scheduling errors (patient access), call center performance metrics, and patient experience scores.

Methods This observational quality improvement initiative utilized the independent t-test sample and descriptive statistic to determine the significance of an embedded appointment scheduling decision tree within the EHR. Retrospective and prospective data were collected over 14 weeks. Run charts captured data trends.

Results Targeted outcome goals: (a) scheduling errors ≤ 67, (b) average queue time ≤ 4 minutes, (c) percentage of calls abandoned $\leq 13\%$, and patient experience score $\geq 88.75\%$. Clinical significance obtained. The usage of run charts provided a visualization of the data trends. The PDSA cycle demonstrated the need for interventions regarding staffing challenges.

Conclusions/Implications Health informatics allows real time evaluation of data over specified periods of time. Future implications include the correlation of quality improvement innovations to revenue generation, expenditure savings, and identifying new underserved areas of need. Also, future implications with a pre assessment of the staff health literacy level could assist in the development of the wording of questions within EHR appointment scheduling decision tree, and the development of an easily accessible web-based orientation appointment scheduling guide for new employees.

References

1. Chuang E, Bonilla A, Stockdale S, et al. Telephone access management in primary care: cross-case analysis of high-performing primary care settings. *J Gen Intern Med*, 2022;37:1963–9. doi:10.1007/s11606-021-07365-5

Keywords: Centralized Patient Access Center, Decision Tree, Electronic Health Record

Consolidated Clinical Document Architecture Quick Reference Sheet

Soumya Jayaraj, MS Biomedical Informatics

UT Health Houston, McWilliams School of Biomedical Informatics, Houston, TX

Background/Introduction For medical data to be useful it needs to be turned into meaningful information, and for this there should be seamless communication (interoperability) between information technology (IT) systems and processing of information.[1] Interoperability can occur only if certain conditions are met like secure interfaces and international standards for data exchange.[1] Health data exchange in a structured form is supported by international standard development organizations like Health Level Seven (HL7) International.[1] The primary document standard for clinical data exchange is the Consolidated Clinical Document Architecture (C-CDA) maintained by HL7 and is necessary to meet regulatory standards.[2]

Purpose Complexities of C-CDA standards have led to confusion and that has led to electronic health records (EHRs) being less than optimal. This paper addresses this confusion and helps increase data usability within EHRs. The quick reference sheet provides the user with a simplified version of the framework and tools needed to build systems that are compliant, interoperable, and capable of effectively exchanging healthcare data.

Methods Although C-CDA was implemented to make data transfer between EHR easier, that is not always the case. C-CDA data received by the clinical community is inconsistent. I participated in several national and state meetings including the Texas Interoperability Collaborative meetings and met with Dr. Phil Beckett and Ms. Lisa Nelson who are both end users. The end users helped me identify components that would enable non-technical and technical stakeholders to engage more confidently with clinical data.

Results The four types of templates in C-CDA version 3.0.0 are document, section, entry, participation, and other templates. The quick reference sheet includes 10 document templates, their purpose, and the hyperlinks for more detailed information. The quick reference sheet also includes templateId and version release date for each document type and Value Set Name (VSAC) and VSAC OID and most general Logical Observation Identifiers Names and Codes (LOINC).

Conclusions/Implications The quick reference sheet is a major step toward simplifying the C-CDA standard and addressing its inconsistency. By facilitating a better understanding of templates, terminology, and constraints, this tool has the potential to improve interoperability and ultimately contribute to better healthcare outcomes.

References

1. Lehne M, Sass J, Essenwanger A, Schepers J, Thun S. Why digital medicine depends on interoperability. *Npj Digit Med*. 2019;2(1):1-5. doi:10.1038/s41746-019-0158-1
2. D'Amore JD, Mandel JC, Kreda DA, et al. Are Meaningful Use Stage 2 certified EHRs ready for interoperability? Findings from the SMART C-CDA Collaborative. *J Am Med Inform Assoc*. 2014;21(6):1060-1068. doi:10.1136/amiajnl-2014-002883

Keywords: C-CDA, Interoperability, Electronic Health Records, HL7, Clinical Document Exchange, Health IT Standards, Data Usability, Healthcare Informatics

Development of a Chronic Kidney Disease Prediction Model Using Machine Learning

Junga Kim, PhD, RN[1], Sunghee Lee, PhD, RN[2]

[1]Kyungpook National University Hospital, Daegu, South Korea; [2]College of Nursing, Kyungpook National University, Daegu, South Korea

Background/Significance According to the Korea Disease Control and Prevention Agency, the prevalence of chronic kidney disease(CKD) in Korea was reported to be 6.3% in 2021.[1] According to the International Society of Nephrology, Korea ranked 6th among 59 countries including the United States in terms of the prevalence of renal failure.[2] The annual average growth rate of chronic kidney disease in Korea was reported to be 18.8% per million people, the second highest in the world after Thailand.[3] The number of people treated for chronic kidney disease in Korea more than doubled from 137,003 in 2012 to 296,397 in 2022.[4]

Purpose This study aims to build a CKD classification model by combining the 2021 Korea National Health and Nutrition Examination Survey data and regional health databases using machine learning algorithms, select the most appropriate chronic kidney disease classification model, and identify risk factors.

Methods Based on the social determinants of health (Rainbow model), 61 variables were considered as explanatory variables. The risk factors of CKD were explored, and a classification model was built using classification machine learning methods.

Results Boosting method showed the highest predictive power for CKD prediction (accuracy 0.974, precision 0.975, recall 0.974, F1 score 0.968, AUC 0.886). Variable importance identified proteinuria, age, private insurance, hypertension, diabetes, residence, and anemia as important variables.

Conclusion/Implications Variables known as major risk factors for CKD in previous studies were also identified as important variables in machine learning algorithms for classifying CKD. The CKD classification model developed in this study can provide a policy basis for assessing risk groups and participating in the design of prevention programs. It will also be an important tool for providing customized nursing care to patients, and through systematic and accurate management, it will be possible to increase the reliability of nursing, increase patient participation in treatment, and substantially and continuously improve the quality of nursing services.

References

1. Trends in the prevalence of chronic kidney disease, 2011-2021. *Public Health Wkly Rep.* 2023;16(8):238–239. doi:10.56786/PHWR.2023.16.8.3
2. Saran R, Robinson B, Abbott KC, et al. US renal data system 2017 annual data report: epidemiology of kidney disease in the United States. *Am J Kidney Dis.* 2018;71(3):A7.
3. Centers for Disease Control and Prevention. Trends in the number of chronic kidney disease patients and medical expenses, during 2012-2022. *Public Health Wkly Rep.* 2024;17(9):381–382. doi:10.56786/PHWR.2024.17.9.3
4. Kim DH, Hyun YY, Cha JJ, et al. Kidney Health Plan 2033 in Korea: bridging the gap between the present and the future. *Kidney Res Clin Pract.* 2024;43(1):8.

Keywords: Machine Learning, Kidney Disease, Prediction Algorithms, Risk Factors, Korea

IT Transforming Healthcare: Trust, Security, and Privacy Issues Affected by AI among Patients, Employees, and Governance

Mahesh Raisinghani, PhD., MBA, MSc,[1] Consuleo Chicas, MBA, BA,[1] Kenneth Graves, MBA, LSSGB,[1] Bridget Roberts, MBA[1]

[1]Texas Woman's University Merrilee Alexander Kick College of Business & Entrepreneurship, Denton, TX

Background/Significance Artificial Intelligence (AI) is rapidly transforming healthcare, enhancing diagnostics, treatment, and operational efficiencies.[1,2] However, challenges regarding trust, security, and privacy remain significant concerns among patients, employees, and regulatory bodies. This study explores how AI adoption in healthcare impacts these critical factors and the need for stringent regulatory frameworks to ensure ethical AI integration.

Purpose This study examined the implications of AI on trust, security, and privacy in healthcare. By evaluating existing regulations, ethical considerations, and emerging technologies, the study aimed to offer recommendations for improving AI governance and safeguarding sensitive health data protection.

Methods A systematic of peer-reviewed articles, industry reports, and case studies was conducted.[3-5] Sources were evaluated for AI's role in data security, privacy protection, and ethical concerns in healthcare. Special attention was placed on regulatory gaps, compliance requirements, and the effectiveness of AI-driven cybersecurity measures.[6-9]

Results AI applications enhanced efficiency and patient care but poses risks related to data breaches, identity theft, and biased decision-making. Existing regulatory frameworks, like HIPAA and FDA guidelines, lag behind AI advancements, necessitating continuous updates and stricter enforcement. AI-driven cybersecurity solutions, such as encryption and anomaly detection, improve data protection but require robust implementation strategies. Employees expressed concerns over AI monitoring practices, emphasizing the need for transparent policies and informed consent mechanisms.

Conclusions/Implications AI's integration into healthcare necessitates a balanced approach that prioritizes patient trust, security, and privacy. Strengthening regulatory compliance, implementing ethical AI frameworks, and promoting transparency in AI operations are crucial steps for ensuring responsible AI use. Future research should focus on developing AI models that minimize biases, enhance data security, and align with evolving healthcare regulations.

References

1. Bhagat SV, Kanyal D. Navigating the future: the transformative impact of artificial intelligence on hospital management – a comprehensive review. *Natl Libr Med Natl Cent Biotechnol Inf.* 2024. PMC10955674.
2. Cabuyao K. Artificial intelligence and cybersecurity in healthcare (YEL2023). *Int Hosp Fed.* 2023.
3. European Medicines Agency. Artificial intelligence workplan to guide use of AI in medicines regulation. 2023. https://www.ema.europa.eu/en/news/artificial-intelligence-workplan-guide-use-ai-medicines-regulation
4. Wachler & Associates, P.C. AI and healthcare regulatory compliance. 2024. https://www.wachlerblog.com/ai-and-healthcare-regulatory-compliance
5. Sandalow M. First into the breach: ONC final rule addressing AI transparency in health care. Bipartisan Policy Center. 2024. https://bipartisanpolicy.org/blog/first-into-the-breach-onc-final-rule-addressing-ai-transparency-in-health-care
6. Moore S. Ethical considerations in AI-driven healthcare. News Med Life Sci. 2023. https://www.news-medical.net/health/Ethical-Considerations-in-AI-Driven-Healthcare.aspx
7. Ronanki R. Ethical AI in healthcare: a focus on responsibility, trust, and safety. *Forbes.* 2024.
8. Showalter T. Unlocking the power of healthcare AI tools through clinical validation. *Med Econ.* 2023.
9. Wren H. What is AI transparency? A comprehensive guide. *Zendesk*. 2024.

Keywords: AI in Healthcare, Data Privacy, Cybersecurity, Ethical AI, Regulatory Compliance

The Impact of Artificial Intelligence to Determine Clinical Decisions and Pathways

Ronald Samuel, MSN, RN[1], Atiya Threats MSN-NI, RN[1]

[1]Texas Health Resources Hospital, Plano, TX

Background/Significance Artificial intelligence (AI) capacity and strategies for decision making appear as recognized tools to guide and direct nursing care. Presently, the potential of AI is being implemented to improve workflows and determine clinical making decisions and outcomes in four key areas: data acquisition, feature extraction, interpretation, and decision support.[1] Moreover, there is limited evidence on the impact and validation these frameworks are having. Ethical, regulatory, and transparency are vastly being highlighted as challenges, risks, and concerns to ensure patient-centered care.[2]

Purpose To identify if the use of AI in healthcare aids in accuracy of clinical decision support from data for improvement of health care delivery.

Methods A literature search for nursing research studies on the outcomes of AI in nursing was conducted using OVID and the UTSW eResearch systems (Velos and eIRB). Twelve articles published 2019-2025 were selected, specifically referencing the four key areas, and were targeted for extraction.

Results The selected studies addressed current AI tools in use, ethical considerations, user perspectives, and quality of data collection methods. Actionable recommendations from the research are to mitigate bias in the design and testing periods in the user interface segments to address potential issues prior to the deployment of AI systems.

Conclusions/Implications This review collectively provides knowledge that could help better understand the developments and use of AI in healthcare. The tools and concerns found are significant and valuable to the ongoing implementation and use of AI for patients, caregivers, and leaders in decision making. Opening and expanding opportunities to access care, such as remote monitoring, telehealth, and mobile health care applications. Enhancements in clinical decision-making models could improve efficiency and overall patient satisfaction though concerns of security, privacy and bias remain prevalent.

References

1. Sanchez-Martinez S, Camara O, Piella G, et al. Machine learning for clinical decision-making: Challenges and opportunities in cardiovascular imaging. *Front Cardiovasc Med.* 2022;8:765693. doi:10.3389/fcvm.2021.765693
2. Molyneux J. Artificial intelligence and nursing: Promise and precaution. *Am J Nurs.* 2023;123(10): 17-19.

Keywords: Artificial intelligence, Healthcare, Nursing, Impact

Predicting Duration of Hypotension for Early Sepsis Intervention

Raaghul Subramani, MD

University of Pittsburgh, Pittsburgh, PA

Background/Significance Sepsis remains a leading cause of mortality in intensive care,[1,2] and prolonged hypotension is closely linked to adverse outcomes.[3,4] Although recent advances have improved early sepsis detection,[4] most algorithms provide only a binary alert without quantifying the duration over which blood pressure abnormalities persist.

Purpose This study proposes a novel machine learning framework that predicts the duration of hypotensive episodes and assesses their association with sepsis progression. By quantifying the temporal dynamics of blood pressure abnormalities, our approach seeks to extend current sepsis detection models and ultimately support more refined, personalized critical care.

Methods We used a large, publicly available, multi-hospital intensive care unit dataset from the PhysioNet/ Computing in Cardiology Challenge 2019[5] via Kaggle. The dataset comprises hourly vital signs, labs, and demographics for tens of thousands of patients. Hypotension was defined by standard clinical thresholds (e.g., systolic blood pressure < 90 mm Hg or established mean arterial pressure thresholds).[4] Deep time series algorithms predicted the duration of hypotension episodes, with survival analysis addressing censoring. Model performance was evaluated using conventional metrics and a clinical utility-based score that rewards early and accurate duration predictions.[4]

Results Preliminary experiments demonstrated a significant association between prolonged hypotension and worsening sepsis outcomes. Early models estimated hypotensive episode duration within a clinically actionable margin. When combined with demographics and labs, these predictions showed potential to guide timely therapeutic decisions, such as fluid resuscitation and vasopressor administration.

Conclusions/Implications By moving beyond binary sepsis alerts to a dynamic risk assessment that includes quantification of hypotension duration, this research offers a valuable extension to current sepsis detection strategies. Such an approach has the potential to enhance clinical decision support systems, optimize intervention timing, and ultimately reduce sepsis-associated morbidity and mortality.

References

1. Seymour CW, Liu VX, Iwashyna TJ, et al. Assessment of clinical criteria for sepsis: For the third international consensus definitions for sepsis and septic shock. *JAMA*. 2016;315(8):762–774.
2. Shankar-Hari M, Phillips GS, Levy ML, et al. Developing a new definition and assessing new clinical criteria for septic shock (Sepsis-3). *JAMA*. 2016;315(8):775–787.
3. Kumar A, Roberts D, Wood KE, et al. Duration of hypotension before initiation of effective antimicrobial therapy is the critical determinant of survival in human septic shock. *Crit Care Med.* 2006;34(6):1589–1596.
4. Seymour CW, Gesten F, Prescott HC, et al. Time to treatment and mortality during mandated emergency care for sepsis. *N Engl J Med.* 2017;376(23):2235–2244.
5. Reyna MA, Josef C, Jeter R, et al. PhysioNet/computing in cardiology challenge 2019: Predicting in-hospital mortality in ICU patients. 2019. https://www.kaggle.com/competitions/physionet-cinc-challenge-2019/data

Keywords: Sepsis, Hypotension, Machine Learning

Natural Language Processing to Extract Acute Symptom Clusters from Triage Phone Notes with Cancer Patients

Yingzi Zhang, PhD, RN[1], Arthur S. Hong, MD, MPH[1], Calandra Jones, MS[1], Kristine Kwekkeboom, PhD, RN, FAAN[2]

[1]UT Southwestern Medical Center, Dallas, TX; [2]University of Wisconsin-Madison School of Nursing, Madison, WI

Background/Significance Patients with cancer undergoing active treatment frequently visit the emergency department (ED) for cancer- or treatment-related symptoms. Although we characterize patients according to a primary complaint, patients often have more than one relevant symptom. The triage conversations documented in the electronic health record provides a rich source of data to better describe the constellation of symptoms leading to an ED visit.

Purpose The aim of this pilot study was to develop a natural language processing (NLP) methodology that abstracts clusters of symptoms from oncology triage clinical notes.

Methods A sample of clinical notes (N=746) were used. A comprehensive summary of the data mining process is presented in Figure 1. First, we preprocessed clinical notes using spaCy, then extracted symptoms with a biomedical named entity recognition model, BioBERT.[1] BioBERT is a biomedical language representative model designed for text mining tasks such as Named-entity recognition. BioBERT is pre-trained on biomedical domain corpora including PubMed abstracts and PMC full-text articles. We implemented a model that was trained on a dataset consisting of clinical symptom data from hematological patients.[2]

Results We implemented the data mining process successfully on the training dataset. Per note, we extracted an average of 3 symptoms, with a maximum of 42 symptoms. Additionally, 27% of the notes contained five or more symptoms. The main issues encountered were false positive labeling (bioBert does not qualify symptoms preceded by "denies," or "not"); and mislabeled abbreviations (Title of "Ms." mislabeled as a symptom).

Conclusions/Implications It is feasible to apply a pre-trained clinical NLP method to gather added richness to acute symptoms in free-text clinical notes. Additional pre-processing such as abbreviations expansion, spell correction, and stop words removal should be incorporated to address the limitations of BioBERT. We plan to compare model accuracy with human clinician coders, before using these symptoms clusters to predict severity of ED visits and likelihood of hospitalization.

References:

1. Lee J, Yoon W, Kim S, et al. BioBERT: a pre-trained biomedical language representation model for biomedical text mining. *Bioinformatics.* 2020;36(4):1234-1240.
2. Chae S, Bae J, Matira P, Lopez KD, Rakel B. Uncovering hidden symptom clusters in patients with acute myeloid leukemia using natural language processing. https://huggingface.co/pmaitra/en_biobert_ner_symptom

Keywords Cancer Symptom, Natural Language Processing, Clinical Notes

Conference Planning Committee

Mikyoung A. Lee, PhD, RN
Planning Committee Chair
Professor, Doswell Endowed Chair for Informatics and Healthcare Transformation
Texas Woman's University College of Nursing
Dallas, Texas

Marion J. Ball, EdD, FACMI, FAAN, FIAHSI, FAHIMA, FMLA, FLHIMSS, FCHIME, FIMIA
Raj and Indra Nooyi Endowed Distinguished Chair in Bioengineering, Presidential Distinguished Professor and Executive Director
University of Texas at Arlington Center for Innovation in Health Informatics
Arlington, Texas

Eva Bernal, MBA
Nursing Operations Administrator
Texas Woman's University College of Nursing
Dallas, Texas

Sharon Blackerby, DNP, RN, NPD-BC, NI-BC, CPHQ
Clinical Assistant Professor & Professional Development Director
University of Texas at Arlington College of Nursing and Health Innovation
Arlington, Texas

Lorrie Burkhalter, MPH
Program Manager
UT Southwestern Medical Center
Dallas, Texas

Ling Chu MD
Associate Chief Medical Informatics Officer & Associate Professor, General Internal Medicine
UT Southwestern Medical Center
Dallas, Texas

Linda Denke, PhD, RN, CCRC
Nurse Scientist, Magnet Program & Nursing Research
UT Southwestern Medical Center
Dallas, Texas

Thank You!

Susan H. Fenton, PhD, RHIA, ACHIP, FAMIA
Dr. Doris L. Ross Professor, Vice Dean for Education, UT System Distinguished Teaching Professor
UTHealth Houston, McWilliams School of Biomedical Informatics
Houston, Texas

Joshua Flanagan
Digital Content Manager
Texas Woman's University
Denton, Texas

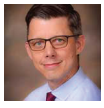
Ashley Hunsucker, RN
Clinical Solutions Specialist - Connexall
Adjunct Professor - Texas Woman's University College of Nursing
Dallas, Texas

Theresa Mendoza
Principal of Data Services & Research
DFWHC Education and Research Foundation
Dallas, Texas

Joni Padden, DNP, RN
Chief Nursing Information Officer
Texas Health Resources
Arlington, Texas

Ayesha Rahman, MSN, APRN, FNP-C
PhD Student & Research Assistant
Texas Woman's University College of Nursing
Denton, Texas

Ranjitha Rao, MBA
Budget/Financial Analyst
Texas Woman's University College of Nursing
Denton, Texas



Jared Vernon
Manager, TWU Dallas Campus & Technology
Texas Woman's University
Dallas, Texas

Jennifer Witten, DNP, RN, NI-BC
Division Director Clinical Informatics, HCA NTX Division
Medical City Healthcare
Dallas, Texas

Exhibitors

COLLEGE OF NURSING
TEXAS WOMAN'S UNIVERSITY

DATA SCIENCE & INFORMATICS
TEXAS WOMAN'S UNIVERSITY

UTA
Center for Innovation
in Health Informatics

HIMSS
DALLAS-FORT WORTH
CHAPTER

Dallas-Fort Worth Chapter
ANIA
Where caring and technology meet

American Nursing Informatics Association
DFW Chapter

UTHealth Houston
McWilliams
School of Biomedical
Informatics

Sigma
GLOBAL NURSING
EXCELLENCE

Beta Beta Chapter