

Team member1: Hari/02/9137108055
Team member2: Darshan/37/74039 90011
Team member3: Henil/49/86929 34883
Team member4: Jenil/51/90760 40405

Domain- Telemedicine and remote health care
Subdomain-
Hari: Mobile Health Apps for Basic Healthcare
Darshan: Remote Patient Monitoring with Wearables
Henil:
Jenil:

Team member 1: Hari:

PICO 1:
Paper Title:
A Systematic Review of Healthcare Applications for Smartphones

Authors of paper:
Abu Saleh Mohammad Mosa, Illhoi Yoo, Lincoln Sheets

Problem Statement:
Smartphones are increasingly adopted in healthcare, but the landscape of applications (disease diagnosis, drug reference, medical calculators, clinical communication, training, and patient self-management) was fragmented. Prior to this review, no systematic classification and evaluation of smartphone-based healthcare applications existed.

Intervention:
A systematic literature review of 55 eligible studies (2003–2011) covering 83 smartphone-based healthcare applications, classified by target users (healthcare professionals, medical/nursing students, patients) and functionalities.

Comparison:
Compared smartphone-based healthcare apps with:

1. Traditional resources (printed references, desktops, PDAs, pagers).
2. Earlier individual studies of mobile healthcare apps without systematic synthesis.
3. Different categories of applications (professional vs. student vs. patient-oriented).

Outcome:

Identified 83 healthcare apps: 57 for professionals, 11 for students, and 15 for patients.

Found smartphone apps most useful for disease diagnosis, drug reference, and medical calculators.

Highlighted apps' role in evidence-based medicine, patient education, and chronic disease self-management.

Concluded that smartphones improve point-of-care decision-making, communication, training, and remote monitoring, but standardization and validation are still needed.

PICO 2:

Paper Title:

Effects of an mHealth voice message service (mMitra) on maternal health knowledge and practices of low-income women in India: findings from a pseudo-randomized controlled trial

Authors of paper:

Nirmala Murthy, Subhashini Chandrasekharan, Muthu Perumal Prakash, Aakash Ganju, Joanne Peter, Nadi Kaonga, Patricia Mechael

Problem Statement:

Maternal mortality and poor maternal health practices remain high in India, especially in low-income urban populations. Traditional health systems struggle to ensure regular antenatal care (ANC), safe delivery, and adoption of preventive maternal practices. While mHealth interventions are emerging, there is limited rigorous evidence on their impact on maternal health behaviors and outcomes, particularly in low-literacy communities.

Intervention:

A voice-message based maternal health program (mMitra), delivering 145 gestational age- and stage-specific audio messages in Hindi/Marathi. Messages covered ANC reminders, nutrition, supplementation, pregnancy danger signs, safe delivery, and infant care. The intervention group received these messages during pregnancy and up to one year postpartum.

Comparison:

Control group received standard care only (no voice messages).

Between-group analysis of maternal knowledge, health practices, and outcomes.

Internal comparisons across timepoints (baseline, postpartum, infant age 1 year).

Outcome:

Positive outcomes: Women receiving mMitra messages were significantly more likely to:

Receive tetanus toxoid injection (OR 1.6, $p = 0.028$)

Consult doctor if spotting/bleeding (OR 1.72, $p = 0.025$)

Save money for delivery expenses (OR 1.79, $p = 0.0001$)

Deliver in hospital (OR 2.5, $p = 0.001$)

Knowledge outcomes: Improved awareness of the need for first-trimester medical consultation (OR 2.13, $p = 0.013$).

Mixed/negative outcomes: Control group performed better in regular rest during pregnancy and skilled attendance at home deliveries.

Clinical outcome (anemia): Could not be conclusively assessed due to incomplete hemoglobin data.

Overall, mMitra voice messages improved adoption of maternal health practices proven to reduce maternal risks in low-resource settings.

PICO 3:

Paper Title: Potential of the World Health Organization's Skin NTDs App to Support and Improve the Detection of Skin-Related Neglected Tropical Diseases: Protocol for a Performance Evaluation and Feasibility Study in Senegal

Authors of paper: Dior Sall, Dominik Jockers, Pauline Dioussé, Jonas Wachinger, Gilbert Batista, Jose Antonio Ruiz Postigo, et al.

Paper Description (PICO):

Problem Statement:

Neglected tropical diseases (NTDs) affect over 1 billion people globally, with skin NTDs disproportionately impacting low-resource settings. Early detection is critical, but there is a shortage of trained dermatologists, especially in rural and underserved areas. Current diagnostic options are limited, and mHealth tools have not been sufficiently evaluated in real-world contexts.

Intervention:

Use of the WHO Skin NTDs App (beta version) with integrated AI algorithms (Broad Skin Condition Screener and Skin NTD Classifier) to classify skin lesions and provide diagnostic suggestions. Complementary qualitative assessment with stakeholders on feasibility, usability, and barriers for implementation in Senegal.

Comparison:

AI-based app diagnosis compared against dermatologist diagnosis (reference standard), older diagnostic models, and current standard of care without AI support.

Outcome:

Quantitative: Diagnostic performance metrics (accuracy, sensitivity, specificity, precision, F1-score, AUC) of the app in detecting skin NTDs and other conditions. Qualitative: Insights into usability, acceptability, and potential integration of the app into Senegal's health system.

Results expected to guide refinement of the app and inform future community-level interventions.

PICO 4:

Paper Title: Quality Assessment Criteria for Mobile Health Apps: A Systematic Review

Authors of paper: Wilasinee Hongsanun and Suppachai Insuk

Paper Description (PICO):

Problem Statement:

Mobile health apps are rapidly growing, with millions available on app stores. However, many lack quality assurance, regulation, or standardized evaluation methods. This poses risks of misinformation, low usability, and potential harm to users. There is limited evidence on rigorous user-centered criteria to assess the quality of mHealth apps.

Intervention:

A systematic review of studies (2008–2017) assessing mobile health apps using user-centered quality criteria. The review identified, extracted, and categorized assessment methods and developed a framework of 15 quality domains.

Comparison:

Existing fragmented or unstandardized app evaluation systems (e.g., marketplace ratings, disease-specific tools, or limited models such as Psyberguide, APA App Evaluation Model).

Outcome:

Identification of 441 quality assessment criteria grouped into 15 domains (Ease of use, Usability, Aesthetics, Connectivity, Functionality, Information, Acceptability, User satisfaction, Error occurrence, Motivation, Engagement, Security and Privacy, Data management, Credentials, and Undesirable events).

Proposal of five recommended steps for future research and standardized evaluation of mobile health apps.

Contribution toward improving app safety, usability, and reliability for patients, healthcare providers, and general users.

PICO 5:

Paper Title: Investigating Usability of Mobile Health Applications in Bangladesh

Authors of paper: Muhammad Nazrul Islam, Md. Mahboob Karim, Toki Tahmid Inan, A. K. M. Najmul Islam

Paper Description:

Problem Statement: Lack of usability is a key barrier for adopting mobile health (mHealth) apps in Bangladesh. Existing studies mostly focus on opportunities and adoption factors, but there is little evaluation of actual usability problems across mHealth apps.

Intervention: A 3-stage usability evaluation: (1) App review and clustering into nine categories, (2) Heuristic inspection using Nielsen's principles on 36 apps, and (3) User studies with 30 participants applying the System Usability Scale (SUS).
Comparison: Compared results across different app categories (General Health, Institutional, Fitness, Physician Info, Mother & Child, Disease-specific, Food & Nutrition, Herbology, Homeopathic). Also compared heuristic evaluation outcomes with SUS scores.
Outcome: Found 406 usability problems, with 61% major or catastrophic. The most violated heuristic was "Aesthetic and Minimalist Design." SUS scores were below acceptable for more than 50% of apps, showing poor-to-marginal usability. Concluded that lack of usability is a major barrier for mHealth adoption in Bangladesh.

Team member 2: Darshan:

PICO 1:

Paper Title: Wearables research for continuous monitoring of patient outcomes: A scoping review

Authors of paper: Kalee Lodewyk, Madeleine Wiebe, Liz Dennett, Jake Larsson, Andrew

Greenshaw, Jake Hayward

Problem Statement:

Despite rapid technological advancements, wearable devices for remote health monitoring (RHM) are not widely integrated into clinical care. Evidence for their clinical effectiveness remains limited and fragmented due to heterogeneous devices, disease contexts, and outcome measures.

Intervention:

A comprehensive scoping review of 80 studies (2001–2024) evaluating wearable devices (e.g., smartwatches, fitness bands) in outpatient/non-hospital settings for monitoring existing diseases or diagnosing new conditions.

Comparison:

Device types: Watches, patches, in-ear sensors, insole sensors, smart clothing;

Conditions

monitored: Neurodegenerative, cardiovascular, respiratory, psychiatric, cancer, diabetes, renal, musculoskeletal disorders; Study designs: RCTs vs. observational studies; chronic vs. new disease

diagnosis; device brands (e.g., Fitbit, Apple Watch, Oura ring).

Outcome:

Clinical Impact: 6 RCTs (8%); 4/6 (67%) showed positive patient outcomes (e.g., diabetic foot ulcer reduction, early disease detection). 97% of observational studies reported at least one significant

correlation between device data and health outcomes. Feasibility & Usability:

Compliance reported

in 64% of studies; Usability assessed in 16%; Technology literacy assessed in only 1%. Key

Findings: Majority (85%) focused on monitoring existing diseases, mainly neurodegenerative (32%) and cardiovascular (13%). 15% studied diagnosis of new diseases, primarily cardiovascular (75%).

Early detection of atrial fibrillation and COVID-19 demonstrated. Large variability in monitoring duration (1 week–1 year) and device data types (steps, HR, ECG, sleep, temperature).

PICO2:

Paper Title: Machine learning-optimized dual-band wearable antenna for real-time remote patient monitoring in biomedical IoT systems

Authors: Umar Musa, Amor Smida, Muhammad S. Yahya, Mohamed I. Waly, Jun Jiat Tiang, Nazih

Khaddaj Mallat, Surajo Muhammad, Abubakar Salisu

Problem Statement:

Existing wearable antennas for biomedical IoT applications face limitations in miniaturization, dual-band performance, bending resilience, and safety compliance (SAR limits).

Computationally expensive simulations and lack of ML integration slow down real-world deployment for continuous health monitoring.

Intervention:

Development of a dual-band (2.4/5.8 GHz) flexible wearable antenna optimized using ensemble machine learning models for rapid design iteration, SAR compliance, and real-time biomedical IoT integration.

Comparison:

Compared with conventional designs requiring iterative simulations; evaluated multiple ML regression models (Decision Tree, Random Forest, XGBoost, Ensemble Regression); tested under bending conditions, on-body placements (arm, chest, lap), and real-time patient monitoring scenarios.

Outcome:

Performance: Achieved 92% radiation efficiency, 3.8–6.0 dBi gain, < -10 dB reflection coefficient, and stable operation under bending/on-body conditions. Safety: SAR values well within

FCC/ICNIRP safety limits. ML Optimization: Ensemble regression achieved highest accuracy ($R^2 =$

97.79%) with 70% reduced computational time. IoT Integration: Real-time monitoring of heart rate

(65–99 BPM) and body temperature (30–37°C) with $< 1\%$ data loss using NodeMCU ESP-32S +

ThingSpeak

PICO 3:

P (Population/Problem):

Patients requiring remote health monitoring (e.g., elderly, post-operative, or chronic disease patients) who need continuous tracking of vital signs outside hospital settings.

I (Intervention):

Use of RemoteHealthConnect, a web-based healthcare system integrated with the Vitaliti™

wearable that continuously monitors multiple vital signs (BP, HR, SpO₂, respiratory rate,

temperature, ECG, PPG, accelerometer data) and provides customizable, interactive data

visualizations for healthcare providers.

C (Comparison):

Traditional monitoring methods or other remote patient monitoring (RPM) systems that lack

advanced visualization, interactivity, or multi-parameter integration.

O (Outcome):

Improved usability and clinician satisfaction (System Usability Scale score: 71.5, above

average usability benchmark)

Faster and more intuitive understanding of vital trends through color-coded, interactive

dashboards

Early detection of anomalies and timely interventions

Potential reduction in hospital readmissions and enhanced patient safety

PICO 4:

P (Population/Problem):

Patients with chronic diseases, elderly individuals, or people requiring continuous health

monitoring who face barriers such as distance, limited access to hospitals, or high cost of

traditional care.

I (Intervention):

Implementation of IoT-based healthcare monitoring systems using wearable sensors, wireless communication (BLE, Wi-Fi, Zigbee, LoRa), cloud storage, and mobile applications

for remote and real-time patient monitoring.

C (Comparison):

Traditional healthcare models that rely primarily on hospital-based, in-person monitoring

and periodic check-ups without continuous IoT-enabled monitoring.

O (Outcome):

Improved quality of life and patient safety

Early detection of health anomalies

Reduced hospital visits and healthcare costs

Better chronic disease management

Enhanced efficiency in healthcare delivery and reduced medical error

PICO 5:

PICO for Telemedicine / Remote Patient Monitoring Study (activeDCM trial)

P – Population:

Patients with dilated cardiomyopathy (DCM) enrolled in the activeDCM randomized controlled trial (n = 95; mean age 50 years, 29% female) .

I – Intervention:

A remote patient monitoring (RPM) system using a consumer wearable (Apple Watch) and smartphone app, which continuously collected sensor-based health data (SHD) and patient-reported outcome measures (PROMs). Patients in the intervention group also received asynchronous physician feedback via push notifications .

C – Comparison:

Control group without feedback (IG–).

Standard monitoring without integration into the RPM system.

O – Outcomes:

Primary: Usability and acceptance of the RPM system (System Usability Scale, patient attitudes).

Secondary: Wearable interaction frequency, completeness of SHD and PROM transmission, and integration into patients

Team member 4: Henil:

PICO 1:

Paper Title: Factors critical for the successful delivery of telehealth to rural populations: a descriptive qualitative study

Authors: Rebecca Barry, Elyce Green, Kristy Robson, Melissa Nott

PICO Format:

Problem Statement (P):

Telehealth use expanded rapidly in rural Australia, especially during COVID-19, but there is limited evidence about the critical factors needed for its successful and sustainable delivery. Rural areas face barriers such as poor connectivity, resource shortages, and limited training for health professionals.

Intervention (I):

Delivery of telehealth services (phone and video consultations) by rural clinicians (nurses, allied health, mental health) in child and family health, allied health, and mental health services.

Comparison (C):

Telehealth vs. face-to-face consultations.

Well-established telehealth services vs. newly adopted services (during COVID-19).

Delivery in large regional centres vs. small rural hospitals and homes.

Outcome (O):

Benefits: Improved access to timely and specialist healthcare, reduced travel burden, support for rural clinicians, greater service flexibility.

PICO 2:

Paper: Telehealth for primary healthcare delivery in rural and remote contexts in high-income countries—a scoping review (Mathew et al., 2025)

Problem (P):

Rural and remote populations in high-income countries face inequitable access to primary healthcare (PHC) due to large distances, limited availability of general practitioners (GPs), high travel costs, and inadequate infrastructure. Traditional face-to-face care is resource-intensive and often unavailable, creating barriers to timely, continuous, and equitable care

Intervention (I):

Telehealth delivery of primary healthcare consultations by GPs using various modalities:

Video consultations

Telephone consultations

Asynchronous messaging/e-consult platforms

Hybrid models combining face-to-face and remote consultations

Comparison (C):

Telehealth consultations vs. face-to-face GP consultations (gold standard).

Different telehealth modalities (telephone vs. video vs. asynchronous).

Rural vs. urban/remote contexts, or well-established vs. newly adopted services (e.g., during COVID-19).

Outcomes (O):

Benefits: Improved access to healthcare, reduced patient travel time and costs, greater convenience and flexibility, increased continuity of care, potential efficiency gains, and improved access to specialists.

PICO 3:

Paper Title:

Primary care patients' experiences of video consultations for depression and anxiety: a qualitative interview study embedded in a randomized feasibility trial

Authors:

Markus W. Haun, Lydia Oeljeklaus, Mariell Hoffmann, Justus Tönnies, Michel Wensing, Joachim Szecsenyi, Frank Peters-Klimm, Regina Krisam, Dorothea Kronsteiner, Mechthild Hartmann, Hans-Christoph Friederich

Problem (P):

Depression and anxiety are highly prevalent and disabling conditions, often managed in primary care. Patients face long waiting times for specialist mental health services, limited access in rural/suburban areas, and stigma. Primary care physicians (PCPs) are overburdened, highlighting the need for accessible, integrated care options

Intervention (I):

Video-based integrated mental health care:

Up to five structured video consultations with a mental health specialist (psychologist/psychotherapist in training) delivered within the primary care setting.

Consultations included diagnosis/monitoring, working alliance building, and stepped-care treatment adjustments.

Patients attended sessions in a private room at their PCP's practice, ensuring technical reliability and a safe environment

Comparison (C):

Video consultations with a specialist vs. treatment as usual (standard care from PCP or referral).

Video consultations vs. in-person specialist consultations (as perceived by patients).

Delivery in familiar primary care practice vs. patient's home setting (patient preference discussed)

12913_2022_Article_9

Outcome (O):

Benefits: Fast access to specialist care, strong therapeutic relationships, reduced travel time/costs (especially for rural patients), safe and confidential environment, lower stigma for those with no prior specialist contact, high usability of video format.

PICO 4:

Paper Title:

Emergency care via video consultation: interviews on patient experiences from rural community hospitals in northern Sweden

Authors:

Lina Ärlebrant, Hanna Dubois, Johan Creutzfeldt, Anette Edin-Liljegren

Problem (P):

Providing emergency care in rural areas is challenging due to long travel distances, limited healthcare resources, and shortages of general practitioners (GPs). Video consultation (VC) has potential to increase access, but little is known about patient experiences with emergency care delivered this way.

Intervention (I):

Emergency care delivered via video consultation:

Registered nurses (RNs) present physically with the patient in rural community hospitals.

GPs consulted remotely via real-time video link.

Comparison (C):

VC vs. traditional face-to-face GP consultations.

Experiences when VC functioned smoothly vs. when it was seen as inadequate.

Dependence on RN competence and role as hub vs. direct GP involvement.

Outcome (O):

Benefits: Patients felt included as part of “a team of three” (patient, RN, GP), valued direct contact with the GP, appreciated reduced travel, and experienced VC as efficient and smooth when technology and RN competence were strong.

PICO 5:

Paper Title:

Community Tele-pal: A community-developed, culturally based palliative care tele-consult randomized controlled trial for African American and White rural southern elders with a life-limiting illness

Authors:

Kristen Allen Watts, Shena Gazaway, Emily Malone, Ronit Elk, Rodney Tucker, Susan McCammon, Michele Goldhagen, Jacob Graham, Veronica Tassin, Joshua

Hauser, Sidney Rhoades, Marjorie Kagawa-Singer, Eric Wallace, James McElligott, Richard Kennedy, Marie Bakitas

Problem (P):

Older adults (≥ 65 years) with life-limiting illness in rural southern USA face poor access to palliative care due to limited workforce, long travel distances, racial inequities, and lack of culturally tailored care.

Intervention (I):

Community-developed, culturally based palliative care tele-consult program:

Delivered via secure videoconferencing with remote palliative care physicians.

Guided by Community Advisory Groups (African American and White community members).

Three structured contacts: initial tele-consult, day 3 follow-up, and day 6 follow-up.

Culturally adapted communication and care planning.

Comparison (C):

Usual inpatient hospital care (hospitalist and subspecialist treatment without tele-palliative consult).

Comparisons between intervention vs. usual care across patient and caregiver outcomes.

Outcome (O):

Primary: Reduced patient symptom burden (measured by Edmonton Symptom Assessment Scale, day 7).

Secondary: Improved patient and caregiver quality of life, satisfaction with care, reduced caregiver burden, lower healthcare resource use (readmissions, ED visits) within 30 days.

Team member 4: Jenil:

PICO1 Summary

Paper Title: Electronic Prescribing: Improving the Efficiency and Accuracy of Prescribing in the Ambulatory Care Setting

Authors: Amber Porterfield, Kate Engelbert, Alberto Coustasse

Problem Statement:

Traditional handwritten or fax-based prescriptions cause errors (illegibility, drug interactions, ADEs), inefficiency, and higher healthcare costs in ambulatory care. Adoption of e-prescribing faces barriers like cost, provider reluctance, system errors, and legal/privacy concerns.

Intervention:

Use of electronic prescribing (standalone or integrated with EHR systems) to transmit prescriptions digitally, reduce errors, and streamline workflow.

Comparison:

Compared e-prescribing with handwritten/faxed prescriptions, standalone vs. integrated EHR systems, and adoption studies across providers/pharmacies.

Outcome:

- Reduced prescribing errors (up to 7-fold decrease).
- Cost savings estimated at \$140–240 billion over 10 years.
- Improved efficiency and patient adherence (10% increase in picked-up prescriptions).
- Barriers: high implementation costs, alert fatigue, privacy, and legal constraints for controlled

PICO2 Summary

Paper Title: Evaluation of the Effectiveness of Electronic Prescription in Reducing Medical and Medication Errors (Systematic Review Study)

Authors: F. Osmani, M. Arab-Zozani, Z. Shahali, F. Lotfi

Problem Statement:

Traditional paper-based prescriptions cause frequent medication and medical errors (illegibility, incomplete information, drug interactions, ADEs). With COVID-19, electronic prescription became more critical, but implementation still faces challenges like high costs, poor adoption, and system issues.

Intervention:

Use of Electronic Prescription Systems (EMS) / Computerized Physician Order Entry (CPOE) with or without Clinical Decision Support Systems (CDSS) to reduce prescription and medication errors.

Comparison:

Studies compared paper-based prescribing vs. electronic systems (EMS/CPOE) across different hospitals, ICUs, wards, and countries. Some also compared EMS with and without CDSS.

Outcome:

- Medication Errors (ME): Reduced significantly in 7 out of 9 studies (13–99% reduction).
- Prescription Errors (PE): Most studies showed major reduction after EMS, except 1 low-quality study.
- Medication Administration Errors (MAE): 2 out of 3 studies showed reduction.
- Adverse Drug Events (ADEs): Reduction between 30–84% in several studies.
- Overall: Electronic prescribing improves patient safety, reduces errors, and enhances efficiency

PICO Summary

Paper Title: Challenges and advantages of electronic prescribing system: a survey study and thematic analysis

Authors: Hamid Bouraghi, Behzad Imani, Abolfazl Saeedi, Ali Mohammadpour, Soheila Saeedi,

Taleb Khodaveisi, Tooba Mehrabi (2024)

Problem Statement (P): Traditional paper-based prescribing is prone to errors (illegibility, omissions, forgery, misidentification) that compromise patient safety. Although e-prescribing has been launched in Iran since 2021, physicians face challenges and satisfaction remains low.

Intervention (I): Implementation of electronic prescribing (e-prescribing) systems across hospitals

and clinics, supported by government agencies.

Comparison (C): Compared with traditional paper-based prescribing methods and physician

perspectives on workflow, satisfaction, and prescribing accuracy.

Outcome (O): Advantages included improved process efficiency, economic benefits, and

enhanced accuracy. Challenges included technical issues (bandwidth, system failures), patient-related delays, healthcare provider skill gaps, human resource shortages, and architectural/design flaws. Overall satisfaction was low (53.6% low satisfaction, 8.3% high

PICO4 Summary

Paper Title: The effect of electronic prescription systems on pharmacy performance through

evaluation of existing infrastructure in Kerman Iran

Authors: Shokoufeh Karimi, Yunes Jahani & Leila Ahmadian (2025)

Problem Statement (P): Paper-based prescriptions often cause errors (illegibility, incomplete

information, non-compliance, delays, lack of access to patient data), leading to disruptions in

pharmacy operations and risks to patient safety. Iran's e-prescribing adoption has been delayed

due to infrastructural and training gaps.

Intervention (I): Implementation of electronic prescription systems across 120 pharmacies in

Kerman (Iran), assessed through cross-sectional descriptive-analytical research using structured

questionnaires and interviews.

Comparison (C): Compared pharmacy performance before and after system implementation, and

evaluated infrastructure (hardware, software, human resources, financial/legal incentives). Also

compared across providers with different educational/work backgrounds.

Outcome (O): Pharmacies showed improved performance in speed (mean 3.51/5) and accuracy

(mean 3.45/5), though ease of use was lowest (mean 3.18/5). Hardware facilities scored higher

than software. Infrastructure, provider training, and internet quality significantly influenced system effectiveness. Challenges included poor internet, limited training, insufficient legal/financial support, and lack of pharmacist-oriented design. Policymakers must strengthen infrastructure, training, and

PICO5 Summary

Paper Title: Challenges and advantages of electronic prescribing system: a survey study and thematic analysis

Authors: Bouraghi et al., 2024

Problem Statement:

Physicians in Iran face multiple challenges with the e-prescribing system, including technical

issues, patient dissatisfaction, increased waiting times, and workload. Despite advantages like improved accuracy and economic efficiency, 71.4% of physicians still prefer paper-based prescriptions.

Intervention:

Implementation of electronic prescribing (e-prescribing) systems in teaching hospitals in Iran.

Comparison:

Traditional paper-based prescribing.

Outcome:

- Advantages: process improvement, economic efficiency, enhanced prescribing accuracy.

- Challenges: technical problems (bandwidth, system errors), patient-related dissatisfaction, design issues, increased visit duration.

- Satisfaction: 53.6% low, only 8.3% high; majority prefer paper.

PICO Summary

Paper Title: Perception of health professionals towards electronic prescription in a teaching hospital

Authors: Ambaye et al., 2025

Problem Statement:

Healthcare professionals in Ethiopia have varying perceptions of e-prescribing. While many

recognize benefits such as time-saving and error reduction, adoption depends on professional role, years of experience, and workload.

Intervention:

Use of electronic prescribing system at Mizan-Tepi University Teaching Hospital.

Comparison:

Conventional handwritten/paper-based prescriptions.

Outcome:

- 78.6% agreed e-prescriptions save time & reduce errors.

- 73.6% improved drug alerts, 66.5% medication alerts, 62.1% support for research.

- Factors for positive perception: general practitioners (AOR=2.21), 16–20 years of experience (AOR=1.42), high prescription workloads.
- Barriers: limited computer skills, inadequate infrastructure