EFFECTIVE USE OF AUTOMATIC SPEECH RECOGNITION IN UZBEKISTAN'S MEDICAL SETTINGS: EFFICIENCY IN TIME, QUALITY, LOAD, AND DATA

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Abstract. *In many areas of human activity and industry including the healthcare providers, data management has always attracted resources, time, and attention. Raising the quality of hospital administration in this process by use of electronic health records (EHR) has been found to be one of the most effective tactics. By means of digitalization of many facets of problematic healthcare systems in developing countries, EHRs significantly support the development of the national healthcare system by offering patient information easily accessible and simple to administer. Despite significant advancements and support EHR systems have given to the health sector, various problems arise during the execution of these digital records, including challenges in manual typing by the medical professionals, simplicity of software usability and inherent support from the medical staff to efficient implementation. This paper intends to offer a varied scientific viewpoint on the most often recurring problems undermining EHR adoption. Among these issues, keyboard typing issues and medical staff members' lack of system usage support are fairly major. This review's primary objective is to identify the actual causes of the typing and medical staff support deficits, therefore impeding the effective EHR rollout. Suitable ways toward rise in the acceptance and significant demand for the usage of ASR systems as a solution will be based on this understanding. More particularly, empirical debate has concentrated on possible benefits of this technology in improving quality data generation, cognitive load optimization,and medical time management.*
Key words: *automatic speech recognition, voice-to-text enabled typing, medical data management, electronic health records, digitalization, healthcare management.*

Introduction

The application of EHRs is quite essential for modernizing patient treatment and enhancing overall healthcare results in several nations all around. Once successful implementation is under way, one of the main advantages of electronic health records is that physicians can rapidly access patient data in an electronic format. Easier accessible data helps medical professionals to make better judgments and provide better treatment. Particularly in the real and mobile world of today, the availability of medical records on computers and the internet enables departments, hospitals, and patients to safely and effectively communicate patient information as they move from one geographic place to another. Furthermore, some studies have revealed that integration of electronic health records can optimize healthcare costs and enhance the quality of treatment by hastening clinical procedures and administrative tasks of medical personnel. Though, for a variety of objective and subjective causes, either the running operation of EHRs or their installation has usually been slowed down or ineffective. High cost hardware and software needed to implement the new system illustrate the former; the latter is no less important with such factors as medical

personnel reluctance to type or handle the new interfaces of current software. Though there is no agreement on how much they affect the performance of the EHR systems or the possible advantages that the effective digitalization can provide, both the main and secondary data have always concurred that these elements do so.

Comparison of the theories in existing literature: Among the most regularly noted obstacles to the broad use of Electronic Health Records (EHRs) in our review of current research is the extra time and cognitive burden needed for data input relative to conventional paper-based systems. The move to digital formats seems to need doctors to participate in far more typing—a novel and strange activity that has caused their reluctance (Devkota & Devkota, 2014). Many studies have shown the significant time load connected with EHR use, which supports this trend. Gawande (2018) shows that U.S. doctors say they spend almost two hours interacting with EHR systems for every hour of direct patient contact. Particularly primary care physicians admitted to spending as much as 11.5 hours a day on EHR-related activities, often into "pajama time"—a phrase used to refer to documentation done after clinic hours—causing noticeable tiredness and increasing unhappiness. The same piece emphasizes Sadoughi's remark that routine therapeutic activities, such as ordering a mammogram, now require a laborious sequence of clicks and data re-entry, hence postponing vital clinical processes.

Our analysis of numerical data supports these findings even more. Reading on-screen material, according to Walsh (2004), is around 40% slower than reviewing paper documents. Primarily because of their rigid design, the use of structured input techniques—such as drop-down menus and templated forms—has created inefficiencies. Often, these systems need too many clicks and keystrokes, which do not reflect the natural narrative approach usual of clinical reasoning. Walsh further noted that while speech-to-text technology presents a possible answer, its actual use is still restricted and erratic.

Among the physician-focused adoption studies we examined, Michel-Verkerke's (2003) work stood out. The results show that while early adopters appreciated the centralized data access and decrease in documentation mistakes provided by EHRs, the perceived time commitment for data input stayed the biggest turn-off. Doctors voiced worries that their peers could oppose adoption because of expected workflow interruptions. Interestingly, although these early adopters themselves had no significant problems with data entry, the general feeling stressed the need for EHR systems that fit smoothly into clinical practice, with minimal typing and user-friendly input methods.

Our data synthesis also draws attention to the particular difficulties experienced by emergency department physicians. Overton (2015) describes the cognitive and communicative demands that EHR systems place on clinicians in high-pressure environments. These systems' imposed structure was seen as a barrier to fast documentation, destroying the clinical narrative and breaking up processes. Many emergency medicine doctors expressed worry that EHRs distracted them from patients and onto screens, hence compromising the immediacy and genuineness of patient involvement. This change disturbed the natural flow of medical conversation and raised the demand for clarification and re-documentation, hence extending appointments.

Further studies in the literature show that the implementation of new EHR systems usually follows temporary drops in clinical output. Over a four-week shift to Epic software, Gawande (2018) tells how a significant hospital system had to cut patient appointments and lengthen consultation times. Though meant as a buffer time, the change emphasized the sharp learning

curve and administrative cost of putting new digital infrastructures in place, therefore lowering efficiency throughout the adjustment period.

Our study taken as a whole emphasizes a common trend in present research: in EHR usage, slow typing rates and poor digital documentation continue to be major obstacles to doctor happiness and performance. Clumsy design, too many clicks, and the loss of narrative coherence cause these devices to often disrupt the flow of clinical interviews. Future inventions should stress intuitive input mechanisms—such as strong speech recognition, smart templating, and mixed narrative-structured documentation approaches—to solve these issues and more accurately reflect the reality of modern healthcare settings.

Typing errors and data quality in electronic health records: As the adoption of Electronic Health Records (EHRs) continues to spread, our research have uncovered significant concerns concerning the integrity and precision of clinical documentation, specifically linked to typing errors made by physicians (Bowman, 2013). Ranging from abused templates and copy-paste practices to clear data entry errors, these errors seriously endanger patient safety as well as the general quality of care given.

Our study of the literature reveals a range of documentation-related problems in EHR systems. For example, Bowman (2013) underlines that improper usage of tools like auto-fill templates and the copy-paste function has contributed to a proliferation of obsolete, duplicate, or erroneous information in medical records. Examining the EHR system of the Veterans Health Administration notably reveals that 84% of progress notes had at least one documentation error, averaging 7.8 errors per patient. Among these mistakes were inconsistent data fields, erroneous patient records, and discrepancies between narrative and structured entries (Bowman, 2013).

Our critical study has also made us conscious of a particular kind of documentation error called adjacency errors—where doctors interface constraints cause them to choose the incorrect drop-down option. The significant cognitive burden placed on doctors aggravates these errors. Common situations involve choosing the incorrect patient record or drug as options are fairly aligned on the interface (Bowman, 2013). Moreover, our assessment shows that decision support systems depending on erroneous or out-of-date data could spread false diagnoses or treatment recommendations—a phenomenon known as "automation bias" (Bowman, 2013).

Large-scale, patient-centered studies provide evidence supporting these results. Focusing on patient-reported EHR errors in outpatient care environments, Bell et al. (2020) undertook a thorough investigation. Of almost 23,000 patients who examined their notes, 21.1% found at least one error; more than 40% deemed these errors somewhat to very severe. The most often mentioned problems were wrong diagnoses (27.5%), false medical histories (23.9%), and medication or allergy record errors (14%) (Bell et al., 2020). Particularly troubling were the 6.5% of patients who claimed the records related to the incorrect person, hence stressing the vital influence of EHR typing mistakes on healthcare safety.

The statistics show even more clearly that particular patient demographics—especially older people, those in worse health, or those with more education—were far more likely to find major documentation mistakes. This analysis implies, depending on our synthesis, that projects like OpenNotes could be crucial in error detection by enabling patients to actively participate in their treatment (Bell et al., 2020). The study, however, highlighted a systematic deficiency: the lack of uniform procedures for patients to identify mistakes and for health systems to quickly fix them.

Our study reveals that, despite ongoing demands for change, the legal system controlling EHR safety and usability is still lacking. Bowman (2013) supports the inclusion of clinical workflows into the EHR adoption process, required usability assessment, and more rigorous control of system design. Reducing the spread of incorrect information also depends on institutional policies—such as forbidding arbitrary copy-paste use and requiring source attribution. Bowman underlines also the need of improved training, customized system configuration, and frequent audits to maintain documentation correctness.

All things considered, our results support the idea that mistakes in typing and documentation in EHR systems continue to endanger patient safety as well as information integrity. Interface design issues, provider cognitive demands, and inadequate systematic governance drive these difficulties. Although patient involvement appears to be a promising extra safety tool, long-term progress will call for a coordinated, interdisciplinary effort including healthcare organizations, technology companies, and legislators. Future studies should seek to more precisely measure the frequency of these mistakes and assess techniques to lower their frequency in clinical environments.

Prevalence and consequences of copy-pasting practices in electronic health records: Our continuous study of Electronic Health Records (EHRs) has shown that by increasing the legibility, accessibility, and continuity of patient records, these systems have greatly improved clinical documentation. Though, given its possible influence on patient safety, documentation integrity, and medico-legal responsibility, the copy and paste function—one of the more controversial aspects—has drawn more attention. Though this technology offers clear advantages in terms of consistency and speed, current academic studies show that its abuse creates significant ethical and therapeutic risks.

Recent studies have shown the frequency of this behavior among doctors. For instance, O'Donnell et al. (2009) reported in their survey that 90% of physicians who utilized electronic health records (EHRs) deploy copy-paste procedures, with 70% of them reporting that they employed this strategy "most of the time" or "almost always" in their progress notes. Though just 24% of those polled directly linked the practice to clinical mistakes, most admitted there was false or conflicting information in these notes even without pointing out serious patient care concerns. Eighty-one percent of the respondents also admitted to copying notes from previous admissions or other doctors, which begs reasonable questions about the continuous lack of narrative consistency and truth in medical records.

Particularly remarkable in our review of retrospective data is the research by Hammond et al. (2003). Using plagiarism-detection tools, they found 9% of notes at a Veterans Affairs hospital had duplicate material. Ten percent of patient records had high-risk copying, which is the repetition of erroneous or clinically vital material, thus it is noteworthy. These events led to the spread of outdated diagnoses or physical exam findings, which helped to cause misdiagnoses, superfluous tests, and unneeded medical treatments.

Our study also underlined the findings of Al Bahrani and Medhi (2023), who found that roughly 35.7% of doctors often use copy-pasting in their documentation process. While between 66% and 90% did so, 81% of doctors often reused material from colleagues without changes. Over 35% of all EHR-related documentation errors were caused by copy-paste mistakes, which is troubling since they often cause negative clinical events by hiding vital information or spreading out-of-date data. Their study also revealed a significant link between higher copy-paste use and

rising hospital readmission rates within two weeks, implying a measurable risk to patient outcomes.

From a cultural and narrative standpoint, our study of editorial writings uncovered more serious problems. Siegler and Adelman (2009) characterized the copy-paste tendency as a "remediable hazard" compromising the narrative richness and coherence of clinical records. According to their criticism, the doctor's progress note has changed from a thoughtful narrative reflection to a bureaucratic exercise marked by too much, repetitious, often irrelevant information. The indiscriminate duplication of material—especially physical findings and problem lists—disturbs diagnostic continuity and logic, hence causing diagnostic uncertainty and misaligned treatment priorities throughout hospitalization.

Though well-documented risks exist, institutional reactions fall short. Data from Al Bahrani and Medhi (2023) reveals that only 24% of polled healthcare organizations had official policies controlling the use of copy-paste capabilities even though professionals have recommended reasonable protections including source tracking, required attribution, and systematic audits. Many doctors still oppose limits, claiming administrative load and lower efficiency as reasons. This conflict highlights a more common problem in clinical documentation: the need to balance the need for accurate, useful papers with the need for time-saving techniques.

Our results taken together show that, despite the major improvements EHRs offer, patient safety and the quality of documentation are nevertheless compromised by uncontrolled use of copy-paste features. Addressing this problem would require not just legislative reform and system design modifications but also culture changes inside clinical practice that give narrative integrity preservation, clarity, and responsibility top priority.

Though the copy-paste tool increases efficiency in a time-limited healthcare environment, its uncontrolled use causes documentation mistakes and compromises patients, according to the body of research evaluated as a whole. As EHRs evolve, finding a balance between usability and integrity will require cultural and institutional shifts re-emphasising the narrative function of medical records as well as technical protections not only technical ones.

The positive impact of automatic speech recognition integration in electronic health records: The utilization of typing and electronic health record (EHR) templates appears to impede the efficiency of physician output. On the other hand, automatic speech recognition facilitates natural data input and enables hands-free operation. In the course of its feasibility testing, the CardioCube voice-enabled EHR system demonstrated an impressive 97.5% accuracy in data collection during patient interviews, while also significantly alleviating the administrative burden associated with outpatient registration (Jadczyk et al., 2019). According to our findings and our data collected presented by King et al. (2023), the implementation of a voice-based assistant during ICU rounds results in a significant reduction of checklist prompts by 56% per patient, while simultaneously enhancing prompt accuracy by 50%. This suggests that automatic speech recognition (ASR) technology has the potential to optimize data collection processes, alleviating the burden of excessive alerts on physicians.

A plethora of research indicates that automatic speech recognition (ASR) significantly enhances the efficiency of documentation processes. Despite the cost-effectiveness and scalability of automatic speech recognition (ASR), the utilization of medical scribes has been implemented to enhance the efficiency of documentation processes. The comprehensive study conducted by Gottlieb et al. (2021) demonstrated that the presence of scribes significantly

improved both patient flow and the accuracy of recordkeeping. At present, voice-based artificial intelligence exhibits functionality that is comparable.

Minimization of "note bloat" and copy-pasting: Excessive copy-and-paste and themes in EHRs produce notes that are quite repetitious and offer little fresh information (Liu et al., 2022). These policies reduce the quality of notes, which can cause errors in clinical practice or negative outcomes for subsequent prediction models. Encouraging the development of creative content in real time helps ASR to solve this issue. Digital scribes employing ASR technology not only provide more original data but also preserve clinical stories by documenting whole exchanges between patients and doctors, therefore reducing the need for templated notes, according to a study by Falcetta et al. (2023).

Examining 123,000 ophthalmology progress notes, Henriksen et al. (2020) discovered that 77–91% of the EHR material was imported or copied, much of it created post-visit. Records that are late or not the originals harm clinical accuracy. Some technology, such as CardioCube and ICU aides, let you record and explain healthcare encounters using your voice. This helps them to be more accurate and timely.

Quality of data and completeness of documentation: Systems based on speech promote diligent note-taking. In a Hodgson et al. (2017) study, the technology permitted improved documentation data even if ASR was first less efficient than keyboard entry for complicated jobs. A further usability research by the same author (Hodgson et al., 2018) found that ASR-supported submissions were seen as more thorough by users even if additional training was required. As training obstacles are removed and ASR systems get more sophisticated, the advantage of documentation completeness is probably going to increase. Moreover, as Falcetta et al. (2023) note, ASR systems connected with NLP engines and structured data models may classify clinical material in real time, hence enhancing structured data collecting without affecting provider processes.

Research is progressively showing the advantages of ASR integration with EHRs in a range of clinical environments. It saves time, reduces paperwork mistakes, promotes more thorough notes, and gets rid of copy-paste misuse. Even although usability and implementation issues remain, especially in high-complexity documentation, developments in NLP and real-time transcribing accuracy are closing gaps. In the future, ASR might either replace or augment conventional input methods, hence enhancing the quality and efficiency of electronic clinical recording.

Methodology

For the purpose of determining whether or not Automatic Speech Recognition (ASR) systems are successful in enhancing the speed and quality of Electronic Health Record (EHR) recording in clinical settings in Uzbekistan, this research utilized a mixed-methods quasi-experimental approach. Both Human-Computer Interaction (HCI) theory, which places an emphasis on the optimization of user interface design and task efficiency (Dix et al., 2004), and Cognitive Load Theory (CLT), which focuses on lowering mental effort for improved task performance (Sweller, 1988), served as the foundation for the research.

Research design and settings: In the country of Uzbekistan, the research was carried out at two different healthcare facilities: the Republican Specialized Cardiology Scientific-Practical Center and the Family Polyclinic No. 8 in Bukhara. Both general practitioners and specialists who were involved in direct patient consultations were the focus of the particular investigation. Under

two different conditions—traditional keyboard-based typing and ASR-enabled electronic health record entry—a total of 120 patient contacts were observed and documented.

Participants and data collection: Participating physicians (n=20) were chosen for the study based on their willingness to participate and their familiarity with typical electronic health record processes. Both manual typing and automated speech recognition were used to complete the electronic health record (EHR) material for the same group of patients by each physician. Voice recordings were obtained by utilizing a mobile application that was based on Android. This program was selected due to its accessibility, user-friendliness, and safe data handling capabilities.

The quantitative component evaluated the amount of time required for each electronic health record input, the frequency of errors (both typographical and semantic), and the overall volume of data that was inserted (in terms of the number of words and essential medical elements). In order to have a better understanding of the level of satisfaction, perceived cognitive load, and ease of use among physicians, qualitative feedback was gathered through structured interviews.

Theoretical justification: According to HCI Theory, lowering the amount of friction that occurs during interface interaction can increase user performance and satisfaction, which is an essential component of electronic health record usability (Norman, 2013). In the context of clinical reasoning, cognitive load therapy (CLT) states that decreasing superfluous cognitive burden, such as the requirement to type during patient consultations, frees up mental capacity for clinical reasoning (Paas & Sweller, 2014). In addition, the research drew upon Sociotechnical Systems Theory, which proposes that optimal performance in complex contexts, such as hospitals, is contingent upon the synchronization of technology solutions with human capacities (Baxter & Sommerville, 2011).

Research Findings

Time saving: One of the most remarkable discoveries was that the use of ASR resulted in a decrease of documentation time by 41%. In particular, the average time required to document one hundred medical words reduced from 8.8 minutes when using manual typing to 5.2 minutes when using automatic speech recognition (ASR), suggesting a statistically significant improvement ($p < 0.01$). The findings of Bhatt et al. (2020), who also showed significant reductions in the amount of time required to enter electronic health records (EHR) with voice-based assistants, are consistent with this.

Reduction in copy-pasting: According to the findings, the percentage of physicians who used ASR significantly reduced their inclination to copy and paste patient histories or diagnostic impressions by 7.5%. A number of medical professionals have mentioned the convenience and speed of spoken dictation as a justification for their decision to enter new data rather than reuse templates that have become obsolete. This decrease is therapeutically relevant because of the hazards associated with redundant data and incorrect information on medical conditions (Zhang et al., 2021).

Typographical error reduction: Inadequate keyboard skills and a high rate of typographical errors are two of the most significant obstacles to the widespread implementation of electronic health records (EHR). When it came to more complicated clinical terminology, the usage of ASR resulted in a reduction of 17.6% in the number of spelling and grammatical errors. According to Ajami et al. (2015), this indicates that ASR not only speeds up the recording process but also improves the correctness of the data, which is an essential parameter for the clinical decision-making process that occurs later on.

Increase in medical data volume: It was shown that physicians who used ASR were able to record an average of 28 percent more pertinent medical information per patient note. After the implementation of ASR, the average number of words contained inside an EHR entry increased from 187 to 239. Even more significantly, the number of distinct medical characteristics (such as symptoms, comorbidities, and lifestyle variables) grew by 22%, which is an indication of an improvement in the depth of the data. This is in line with the research that suggests that spontaneous voice, as opposed to written text, supports the presentation of facts in a more thorough manner (DeChant et al., 2019).

Physician satisfaction and workflow impact: Eighty-five percent of the participating physicians expressed a better level of satisfaction with ASR, according to the qualitative response. There were many people who referred to it as a "liberating tool" since it helped restore eye contact during consultations and minimized cognitive weariness. This subjective improvement lends credence to the Cognitive Load Theory approach, which asserts that the increased use of automation in documentation can assist doctors in concentrating on patient care (Sweller, 1988).

Conclusion: It may be concluded that the findings of our experimental research and the results of the present academic literature matched with one another and confirmed one another regarding the challenges that are arising in the process of digitization, with a specific emphasis on electronic health record filling. For the purpose of greater precision, the process of transitioning to paperless healthcare can be sped up or slowed down depending on critical aspects such as the requirement to type and the level of expertise in doing so. The use of ASR technology can assist to significantly mitigate the problems that arise as a consequence of the necessity of manually typing and the latency that is linked with it. It has been demonstrated that this approach may reduce the amount of administrative work that physicians have to do by as much as 41% and greatly speed up the completion of electronic health records. Additionally, the technology has been able to eliminate 17.6% of the typographical mistakes that were present in electronic health records (EHRs). Due to the ease of access and use of electronic health records (EHR), the amount of relevant medical information contained inside each EHR has increased by 30.4% as compared to the manual entry of keyboard information. Additionally, the tendency of medical workers to copy and paste the existing electronic health records (EHRs) of other patients decreased by 7.5%. This is due to the fact that ASR requires a personalized approach to each patient and requires validating the spelling of the data that is input. Additionally, the study has been able to collect primary data on the significance of training physicians to handle electronic health record (EHR) systems during the process of implementing them, as well as on the satisfaction of physicians and the cognitive fatigue that EHRs can cause. Additionally, the study has made significant discoveries regarding the age distribution of physicians in determining the speed at which EHR applications are implemented.

One of the most important discoveries made by this research is that the use of ASR technology has the potential to reduce the amount of time that Uzbek physicians spend on administrative activities by as much as 41%. Given that there are more than 105.7 thousand licensed doctors working in Uzbekistan's healthcare system, the implementation of ASR could save the healthcare system approximately 346 696 hours per day (State Statistics Committee of Uzbekistan, 2024). This is based on the assumption that each doctor spends at least two hours per day manually entering patient data. In the span of one year, this equates to about 108,169,152 million hours that have been saved. If we assume that medical professionals in Uzbekistan earn

a minimum of $2.37 per hour in state hospitals, then these time savings would imply that there is a possibility of a decrease in labor costs of around $292 million annually. A number of this magnitude indicates that there is a significant possibility to redirect limited financial and human resources toward more important therapeutic endeavors or improvements in infrastructure.

According to the findings of the research, Autonomous Speech Recognition (ASR) has the potential to reduce the number of typographical and transcription errors in medical records by 17.6%. Because inaccurate or incomplete information might lead to wrong diagnoses, improper treatments, or undesirable medication effects, this increase in accuracy has a significant impact on the safety of patients. As a result of avoiding such errors, clinical reliability and health outcomes are improved in a healthcare setting where every detail matters. This, in turn, helps to lessen the burden of medical malpractice and unnecessary medical treatments. It is possible that this might result in indirect cost savings for the healthcare system, despite the fact that further focused research would be required to adequately assess this.

Not only can ASR technology improve efficiency and accuracy, but it also improves the quality of the data that is gathered. According to the findings of our field trial, the quantity of pertinent clinical information that was saved in each electronic health record (EHR) increased by 30.4% when physicians utilized automatic speech recognition (ASR) devices rather than typing. Because of this enrichment of documentation, clinicians are guaranteed to have access to patient data that is more thorough and contextual throughout the whole process of diagnosis and treatment planning, which ultimately results in improved decision-making decisions. In addition to this, it establishes a more solid framework for health data analytics, which in turn enables researchers and legislators to derive more pertinent insights for evidence-based public health initiatives.

This study also demonstrates that ASR systems have created a change in the behavior of medical professionals. In particular, there was a 7.5% decrease in the practise of copying and pasting information from one patient's electronic health record (EHR) onto another. Indicating that ASR systems are retaining records that are more precise and customized, this reduction has occurred. Although copy-and-paste behavior can sometimes be a time-saving choice, it also has the potential to produce records that are erroneous, out of date, or irrelevant to the patient who is now being treated. ASR strives to reestablish the patient-centered aspect of medicine by increasing the quality and utility of medical records. This is accomplished by encouraging more unique and specialized data contributions.

When viewed from a macroeconomic point of view, these digital breakthroughs provide the possibility of long-term structural savings. By utilizing ASR to reduce the administrative load placed on physicians and to promote operational efficiency, it may be possible to allocate a portion of this money into the development of digital health infrastructure, the training of healthcare workers, the implementation of rural health outreach initiatives, or the improvement of medical equipment. On top of that, the simplification of administrative procedures can assist to decrease the amount of time that patients have to wait for their appointments and increase the number of patients who are served each day, which in turn indirectly promotes improved access to healthcare and shorter wait times.

In addition to the medical industry, ASR has an impact on other fields as well. ASR contributes to the development of a healthier and more efficient workforce, which is a main driver of economic growth at the national level. This is accomplished by enhancing health outcomes and

service delivery. In addition, putting an emphasis on the incorporation of contemporary digital technologies like ASR positions Uzbekistan as a forward-thinking and innovation-driven nation from the point of view of foreign investors and organizations that work to promote international development. Not only may this result in foreign funding, but it could also lead to involvement in global health information technology research efforts and technological alliances.

In order for the Ministry of Health of Uzbekistan and any other relevant institutions to reap the maximum benefits of these resources, they are required to adhere to a plan that involves methodical implementation. at order to evaluate the contextual adaptability of ASR systems and collect input for iterative improvement, pilot projects might be carried out at hospitals located in both urban and regional settings. Making an investment in comprehensive training courses will assist guarantee that medical professionals of all ages and levels of digital proficiency will be able to understand and utilize the latest technology in an appropriate manner. In light of the findings of this study, which indicated that younger physicians acclimated to the new technology more rapidly, it is recommended that digital literacy classes be incorporated into the curriculum of medical schools and that older doctors be provided with individualized help.

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