A Patient Centric Approach to AI in Health Insurance

By Scott Damery, ASA, MAAA

As the sun rises over a bustling city, Dr. Smith, an outpatient physician, diligently prepares for another day of providing care to her patients. Dr. Smith is passionate about her work, finding fulfillment in the opportunity to positively impact her patients' lives. She eagerly anticipates a busy day of screenings and procedures. However, her enthusiasm is dampened by a recurring challenge—patient no-shows for scheduled appointments persist despite the best efforts of her and her support staff to optimize scheduling and streamline reminders.

Elsewhere, across the hall of the same healthcare organization, Dr. Jones, a dedicated primary care physician, begins her day by reaching out to her patients. She is particularly concerned about two patients who recently received new prescriptions. Unfortunately, her conversations with both patients end in disappointment. The first patient was unaware of where to obtain their new prescription and had forgotten to contact her office for clarification. The second patient, upon learning about the copay required for the prescription fill, decided against filling it altogether. Despite Dr. Jones's earnest efforts to facilitate access to care and promote medication adherence, healthcare disparities and systemic inefficiencies continue to impede her patients' journey towards optimal health outcomes.

Our fictional doctors both face challenges that can prove frustrating. Despite their dedication, predicting or controlling patient behaviors to achieve optimal outcomes remains challenging. While there are countless solutions to these problems, finding interventions adaptable to each patient's unique needs poses a significant challenge. I propose a solution which aims to identify where interventions can be most effective and deliver them in a manner that patients find actionable and non-intrusive, the integration of AI into insurer apps to serve as a scheduling reminder and logistical coordinator, as well as a research tool to minimize patient costs.

Utilizing AI as a scheduling coordinator within insurer apps presents a dynamic solution to the persistent challenge of patient no-shows. By integrating patients' personal calendars with appointment scheduling functionalities, the AI-driven system would enhance convenience and accessibility, ensuring alignment with individuals' existing commitments. Leveraging geographic data and tools like Google Maps, the platform would proactively generate reminders tailored to each patient's location, optimizing travel routes and estimating travel times based on real-time traffic conditions. The app could also incorporate information on public transportation options, such as bus routes and train schedules, thereby facilitating accessibility for patients reliant on alternative modes of transportation, helping foster equitable access to care. This innovative approach not only enhances patient engagement and adherence but also promotes inclusivity and accessibility within the healthcare ecosystem.

Additionally, we can employ machine learning algorithms to predict patients' likelihood of missing appointments. This proactive strategy could mitigate no-shows and optimize healthcare resource utilization. By analyzing historical data and identifying patterns associated with missed appointments, an AI-driven system can generate predictive models capable of grouping patients

based on their risk of non-compliance. Leveraging these insights, the platform would dynamically allocate resources, identifying opportune moments within physicians' schedules to reach out personally to the most at-risk patients and confirm upcoming appointments. Through personalized communication channels, such as SMS reminders or automated phone calls, the AI-powered system would foster a meaningful patient engagement and encourage proactive participation in healthcare, hopefully reducing the incidence of missed appointments. This innovative approach not only enhances operational efficiency, but also strengthens patient-provider relationships, underscoring the transformative potential of AI in healthcare delivery. Notably, research from Boston Children's University has demonstrated the feasibility of predicting no-shows with an accuracy of up to 83%.[1.]

While AI holds great potential in healthcare, focusing on simpler applications like appointment management and at-risk patient identification presents a more accessible opportunity. Insurers, with their greater resources and established app distribution, are better positioned to implement such solutions effectively. The healthcare system benefits from reduced missed appointments, with estimates suggesting losses of up to $150 billion annually due to no-shows.[2] Utilizing an AI-based scheduling coordinator can alleviate these losses, benefitting providers and insurers alike.

Ensuring patients attend their scheduled appointments is paramount for fostering optimal healthcare outcomes and promoting continuity of care. However, another area where patients could use some support would be medication adherence. To address this need, the integration of AI-powered research tools within insurer apps presents a promising solution. These sophisticated tools could help patients search for the most cost-effective location to fill their prescription. An ideal solution would combine using insurer data to find the best price from a pharmacy, then also check publicly available resources like GoodRx to identify the most cost-effective options for filling prescriptions. Since this AI is housed within an insurer's own app it could take into account factors like the patient's insurance coverage and the specifics of the prescription and could provide tailored recommendations that align with individuals' financial circumstances and healthcare needs.

Moreover, these AI-powered tools could utilize insurer data to validate the accuracy and currency of pricing information, ensuring transparency and reliability in cost estimates that was not easily available to insureds in the past. This validation process would help alleviate concerns regarding discrepancies or outdated information, instilling confidence in patients as they navigate their medication procurement journey. Furthermore, leveraging AI driven communication using channels such as phone calls or emails, the AI-driven system could initiate inquiries with selected pharmacies to confirm the availability and accuracy of the quoted prices. This would work similarly to how OpenTable works for restaurant reservations, the patient would select the pharmacy that works best for their needs, and the application would generate a call or email to that pharmacy to confirm the price and availability of the drug it displayed. This proactive approach not only streamlines the medication procurement process for patients but also fosters trust and transparency in their interactions with healthcare providers and pharmacies alike.

Minimizing the cost of drugs for patients can go a long way to reducing overall healthcare spending. Research done in 2013 showed that roughly 23% of all filled prescriptions involved an overpayment, and that the average overpayment was around $7.50 per script.[3] Applying those numbers to the 6.7 billion reported fills that occurred in 2022[4] we can estimate that overpayments cost patients as much as $11.5 billion in 2022. Helping reduce those overpayments can reduce overall healthcare spending and improve the health of patients if the savings led to greater medication adherence.

By harnessing the transformative potential of AI, insurer apps equipped with these functionalities would empower patients to make informed decisions about their healthcare while navigating the complexities of medication management. This proactive and patient-centric approach not only enhances affordability and accessibility but also contributes to improved medication adherence and healthcare outcomes. As such, the integration of AI-powered tools within insurer apps represents a strategic investment in optimizing patient behavior, and therefore optimizing healthcare spending. This approach represents a non-disruptive way to introduce AI into health insurance, which would provide universal benefits to insureds and lower healthcare costs.

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