WHITEPAPER

Suffocating to Optimize Time with Patients?

How AI Streamlines Workflows for Allergists, Otolaryngologists, and Pulmonologists

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ModuleMD's AI-powered EHR and Practice Management software can streamline administrative tasks, enhance patient engagement, and improve financial performance, allowing practices to achieve better outcomes and sustainable growth.

INTRODUCTION

Many health conditions classified under allergy, otolaryngology, and pulmonology overlap due to their interconnected systems, overlapping symptoms, and the need for integrated treatment approaches. Consequently, comprehensive management and collaboration among specialists is essential for holistic patient care and improved outcomes.

As prevalence rates for these various conditions continue to increase, however, so do the challenges faced by providers who manage them. Asthma and COPD, for example, are among the top ten chronic diseases in the US, with COPD being the third leading cause of death globally.[1,2] Within the next 20 years, the US is expecting to see costs of managing these conditions reach nearly $900 billion.[3,4]

Unfortunately, the impact has placed substantial pressure on pulmonologists, allergists, immunologists, otolaryngologists, and other healthcare stakeholders who manage practices and already face concerns of staffing shortages and physician burnout. Administrative burdens, inefficient workflows, patient engagement difficulties, and the need for seamless telemedicine integration can all lead to decreased productivity, patient dissatisfaction, and financial strain.

The need for intelligent, AI-powered solutions is critical to meet these demands. In response, software companies like ModuleMD are stepping in with innovative digital solutions, including advanced AI-powered medical scribing technology to support clinicians and improve patient care.

TRENDS IN THE MANAGEMENT OF RESPIRATORY/ALLERGY/ENT CONDITIONS

CARE COORDINATION

Respiratory conditions, allergies, and ENT conditions are often studied together due to their anatomical proximity, shared pathophysiological pathways, common risk factors, overlapping symptoms, and integrated treatment approaches. These interconnected systems frequently influence each other; for example, allergic rhinitis can exacerbate asthma and lead to sinusitis.[3] In addition, much of the diagnostic criteria and treatment options are the same. Consequently, it is important for providers who manage these conditions (ie, allergists, otolaryngologists, and pulmonologists) to develop comprehensive strategies for managing patients and collaborating with internal and external colleagues.

Recent analyses and subsequent published literature now report that 30% of all medical care related to asthma and allergic diseases involves wasted spending, which has become an increasing concern amid rising health care costs.[5-7] While providing various benefits to patients, integrated care has proven cost-effective.[8] This is particularly important as researchers are projecting COPD-attributable costs, for example, to rise from $33.5 billion (2020) to $60.5 billion in 2029.[9]

Unfortunately, comprehensive care across these specialties presents with its own list of unique challenges. “Many providers opt to use multiple different systems to address specific needs. The practice operates in silos,” explains Abhinay Rao Penugonda, CEO of ModuleMD. In addition to fragmented electronic health record (EHR) systems with diverse designs, coding systems, naming conventions, and data storage methods employed by different vendors, a practice may deploy a separate specialty-specific Practice Management system.

“EHRs are a backbone of US healthcare IT, a segment with annual spend of $100 billion,” says Penugonda. “They have evolved from simple systems-of-record into comprehensive ecosystems with many mission-critical products and tech-enabled services. However, my team has identified 453 unique vendors tied to the total number of ONC-certified EHRs in use—753 systems.” Penugonda attributes fragmentation largely due to specialty services continuing to operate privately instead of partnering with large hospital networks. Specialty practices seeking to remain private, therefore, need to carefully consider their options for EHR solutions and ensure that the capabilities offered will truly support the success and independence of the practice, emphasizes Penugonda.

Modern EHRs integrate information from various sources through national health information networks and hold a complete record of a patient’s medical and treatment history. Beyond medical

records, comprehensive EHRs automate all essential functions across clinical care, medical billing, practice management, and patient engagement.

PHYSICIAN BURNOUT AND STAFFING SHORTAGES

In addition to keeping pace with the evolving healthcare landscape and navigating complex patient cases that often include care from multiple providers, "physicians must also deal with laborious administrative tasks and the demands associated with running a successful business (ie, remaining compliant to sterile compounding regulations, inventory management, reimbursement, documentation, etc.)," says Penugonda.

Consequently, burnout among healthcare providers is a major challenge. A recent survey shared broadly with physicians in the US in January of 2024 reported that nearly one-in-four providers feel the impact of professional burnout (either knowing of a colleague experiencing physician burnout or experiencing burnout themself), regardless of age and time working in their profession. More shockingly, more than one-in-four providers also shared feelings that their practices do not effectively address staff burnout. Increased workload, resulting in increased expectations, coupled with staffing challenges were among the factors highlighted as triggers to physician burnout.[9] "Because of physician shortages caused by burnout, primary care providers (PCPs) and other specialties have started providing treatments to patients. For example, non-allergists like ENTs and PCPs are now providing allergy-specific treatment to patients," says Penugonda."

"The results of the survey aren't surprising to me," he adds. "Medicine has become more complex and data-driven over the years and burnout among healthcare providers is a very real issue. They are seeking more work-life balance. They are coming out of medical school with a pile of debt and find it easier to take a job with someone else rather than start their own practice. This stresses the importance and ongoing need for better organizational support and resources, and I sincerely hope that artificial intelligence (AI) can somehow make their lives easier."

Fortunately, study findings revealed that physician burnout cases are trending back to lower levels in the age of technologies such as AI.[9]

"The survey responses align with common industry sentiments, reflecting both optimism about AI's potential and concerns about its practical application," Penugonda says. "The level of interest in AI as a tool to reduce administrative burdens and improve patient care is encouraging and suggests a readiness for change with proper support and education."

Implications of addressing burnout are huge. Physician turnover rates have risen from 18% to 30%, resulting in a 15.6% increase in hospital system labor expenses per adjusted discharge.[10]

LEVERAGING AI TO DEVELOP HIGHLY SPECIALIZED, TAILORED SOFTWARE SOLUTIONS

"The opportunity to leverage newer technologies and AI presents a promising avenue for addressing the

challenges practices face and for mitigating the risk of provider burnout," says Penugonda. ModuleMD, as a result, works closely with industry stakeholders to develop various AI-based applications.

With a footprint in cloud-based EHR and practice management software for more than two decades, ModuleMD offers a suite of innovative tools designed to enhance clinical efficiency, patient engagement, and administrative workflows. Its solutions, such as JOSH for dictation AI; Artemis, a versatile app marketplace for vendors and partners; Patient Cost Estimator, used to shorten working capital cycles for practices; and Spock, a front office efficiency tool with appointment automation capabilities, are designed to optimize practice operations and enhance patient engagement.

"Our Assisted Coding solution is backed by algorithms that ensure charges are captured correctly and that nothing is missed," he says. "We also support our customers with Retrieval-Augmented Generation-based tools that combine strengths of traditional information retrieval systems, such as databases) with the capabilities of generative models. For example, chatbots can summarize patient history and identify a potential diagnosis."

Penugonda further highlights ModuleMD's focus on developing Computer Vision applications for diagnosis and capabilities brought forth with JOSH.

"By automating routine administrative tasks, such as documentation, AI can free up valuable time for healthcare providers to focus on patient care and reduce the burden of administrative work that contributes to burnout and, consequently, staffing shortages," says Penugonda. In fact, a report by Accenture indicated that AI solutions could potentially reduce providers' time spent on administrative tasks by 17% and reduce overall annual costs by $150 billion by 2026.[11]

"All of this enables providers to see more patients, be more productive, and do what they have been trained to do—deliver optimal care to patients. We recognize the importance of staying ahead of industry trends while continuing to tailor our solutions to address specialty-specific needs that our clients have today. The focus is to ensure our solutions align closely with the workflows and to streamline administrative tasks."

ModuleMD actively engages with real providers. These direct engagement opportunities are essential to the development of new solutions. For example, discussions with providers about pain points help ModuleMD gain intimate knowledge about industry challenges and design software that can streamline processes and deliver better care to patients. Interestingly, ModuleMD was originally designed by two allergists who were running busy multi-location practices.

ModuleMD has organized a task force of allergists, ENTs, and pulmonologists dedicated to analyzing the entire workflows of providers to obtain data and review use cases for both generative AI and predictive decision-making software. "There is so

much that medical providers can take advantage of by integrating this technology at a fundamental level throughout the healthcare journey," highlights Penugonda.

"Our generative AI solutions have shown promising results in scribing that combines speech-to-text and clinical note preparation. While the technology is still relatively new, we are seeing incredible results," Penugonda says. Documentation resulting from the JOSH application, for example, has been tested across diverse datasets that include multiple providers with varying accents and speech patterns. The application is multi-lingual, and information collected flows directly into the EHR platform. "The other unique thing about our technology is the ability to run multiple patient rooms at the same time. One can pause and resume sessions in JOSH across different patients until their visit ends."

Unlike traditional methods where providers manually input data into EHRs after patient visits, JOSH utilizes voice recognition technology and AI to capture conversations between healthcare providers and patients during appointments. By leveraging advanced natural language processing (NLP) algorithms, the software can accurately interpret and transcribe spoken language, and summarize important aspects of the conversation in a format that is required for clinical documentation through the large language model (LLM) system.

"JOSH serves as a valuable ally to healthcare professionals, significantly streamlining provider workflows and substantially reducing the time spent on documentation tasks," says Penugonda. "Structured clinical notes generated from ModuleMD's speech-to-text technology are easily accessible and readable across various EHR systems."

EMBRACING CHANGE: ADDRESSING MISCONCEPTIONS ABOUT AI IN HEALTHCARE

Despite the benefits of integrating newer technologies and AI into practices, some providers have been hesitant to adopt newer solutions.

"Providers may be hesitant due to concerns about the accuracy and reliability of AI, potential disruptions to established workflows, and the perceived complexity of integrating new technologies," says Penugonda. "There are also concerns about patient privacy and data security, as well as the upfront cost and time investment required for training and implementation."

"ModuleMD's capabilities provide a robust framework for leveraging AI in healthcare while maintaining the highest standards of data integrity, security, and ethical use," assures Penugonda. All of this, he explains, enable stakeholders to have access to real-world, proof-of-concept data.

For example, all data is stored in a single, accessible location to promote transparency among end users. Clearly-defined protocols for data exchange are also established, and comply with various healthcare regulations, including HIPAA. Role-based access controls provide users with assurance that

only authorized users can view or edit sensitive information. Audit trails further provide detailed logs of data access and modifications.

To help ensure the quality and integrity of data, ModuleMD's platforms feature validation rules and data cleaning tools. Furthermore, ModuleMD continuously oversees its applications and is prepared to address challenges and improve systems to meet rapidly evolving demands of providers. "We are working with our legal teams to understand the evolving data privacy landscape," highlights Penugonda.

"The key lies in using AI to augment human capabilities, not replace them," advises Penugonda. In the context of ambient clinical documentation, AI serves as a valuable assistant, allowing providers to dedicate more time to meaningful patient interactions and informed clinical decision-making. With proper training and education, providers can harness AI to elevate healthcare delivery. "It's about finding the delicate balance between leveraging technology for efficiency gains while preserving the human touch in patient care and making AI a tool to help us become more human in medical care settings."

Providing robust training and support mechanisms is critical to ensuring that clinicians feel confident and competent in utilizing AI tools effectively. Education and ongoing support should focus not only on the technical aspects of implementing AI but also on addressing any concerns or misconceptions that physicians may have about its role in their practice and in patient care by providing practical use cases. "There needs to be a demonstration of tangible benefits that AI can bring to practices and quality of life for the provider. Clinicians are understandably cautious about incorporating new technologies into their workflows, so it's essential to show how AI can enhance efficiency, improve patient outcomes, and alleviate the pressures that contribute to burnout," suggests Penugonda.

Fostering a culture of collaboration and feedback is also important in the adoption of AI into the field. "Practitioners must be deeply involved throughout the implementation phase to guarantee that these innovations seamlessly align with their clinical workflows. Their active engagement not only ensures the practical applicability of newer technologies, like AI solutions, but also yields invaluable insights into addressing real-world challenges effectively. This collaborative approach fosters a deeper understanding of the potential impact of technology as a whole and cultivates trust among healthcare professionals."

"I am incredibly optimistic about the possibilities that generative AI offers, especially for the next generation of providers who are coming up in an AI-integrated healthcare environment" says Penugonda. "With AI handling routine administrative tasks like documentation, providers can purely focus on enhancing the level of patient care."

CONCLUSION

The increasing prevalence of chronic respiratory, allergy, immunology, and ENT conditions has amplified the challenges faced by healthcare providers, leading to administrative burdens, inefficient workflows,

and physician burnout. These issues contribute to suboptimal patient care and financial strain, underscoring the urgent need for scalable solutions. Companies like ModuleMD are addressing these challenges by developing advanced AI-driven tools that streamline administrative tasks, improve care coordination, and enhance patient engagement. Despite initial resistance to adopting AI, the integration of these technologies offers promising benefits, including reduced physician burnout, improved patient outcomes, and enhanced clinical efficiency. By leveraging AI, healthcare providers can focus more on patient care, ultimately fostering a more effective and human-centric healthcare environment.

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