

TRANSFORMING THE HEALTHCARE EXPERIENCE

Conversational AI, the key to faster and better services for the entire healthcare continuum

Transforming the healthcare experience

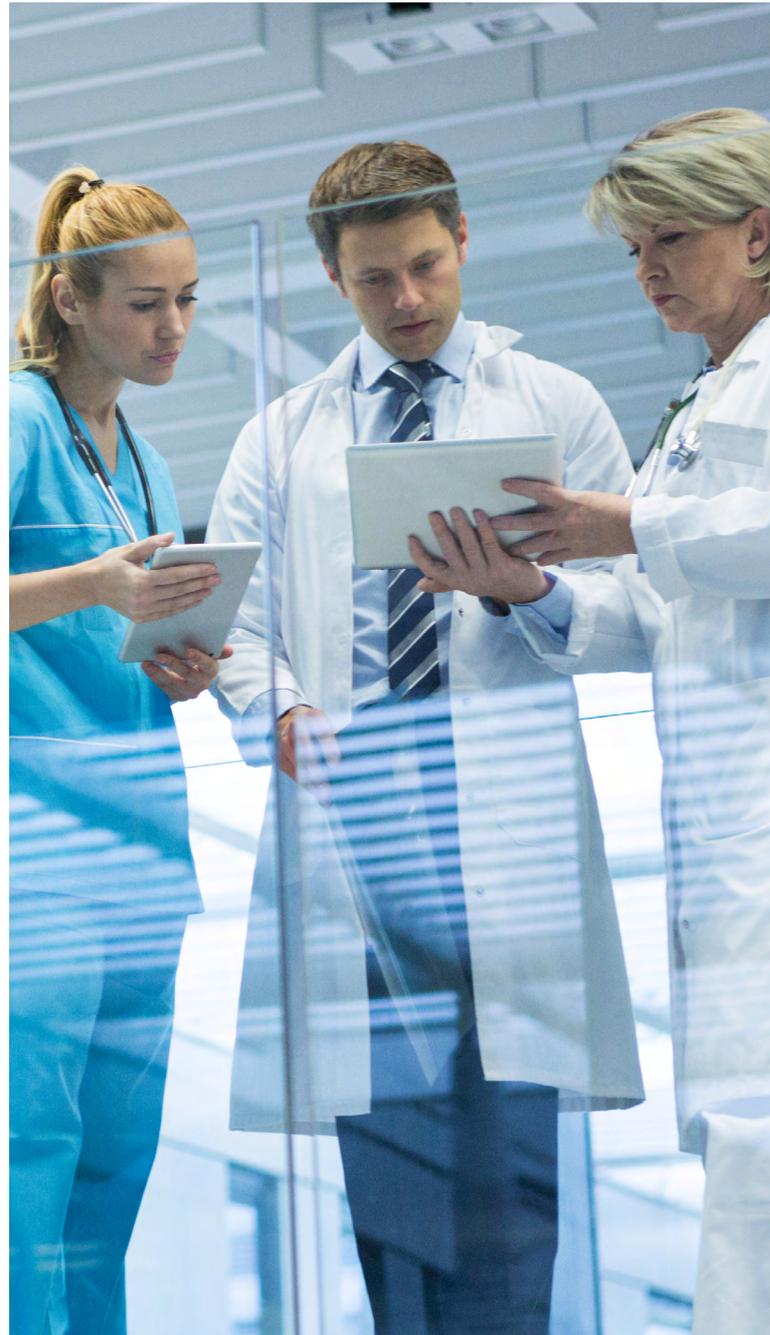
Healthcare is one of the greatest impactors of how individuals perceive their quality of life. It is also one of the sectors that face the highest number of challenges and transformations in the coming years.

Digitalization across the international healthcare system accelerated beyond belief since the beginning of the COVID pandemic.

Globally, advances in medicine mean that people live longer than ever before – the average life expectancy in OECD countries has now reached 80 years and continues to grow. The caveat is that, while they are living longer, people are doing so with chronic disease, which puts colossal cost pressures on global economies. Almost invariably, across the world, spending on healthcare grows faster than the GDP, and public funding proves, in many countries, to be insufficient to cover this continuously escalating cost.

Moreover, even as demand increases, there is a global shortage of medical professionals. In countries with either substantial populations or, conversely, vast territories and low population density, this shortage combines with accessibility issues. In ever more cases, the need for easy access to health services must be balanced against the costs of operating small medical facilities, where economies of scale are impossible.

These healthcare-specific challenges additionally materialize against a backdrop of a rapidly changing global society. For the longest time, access to healthcare was individual and highly personal, with a very traditional operating model based on direct, physical interactions. Today, healthcare is among the last industries to still be supply-driven. But what patients want, expect, and progressively demand is changing.



Like many industries before it, healthcare is facing the pressure to shift to a more consumer-driven industry. Patients are better informed and more connected than ever. They are increasingly taking an authoritative role in their healthcare journey and ask for transparency in information about their care and access on their own terms. They are demanding the transition to an industry that answers their

needs, hopes, fears, and aspirations.

The COVID pandemic has also led to such profound and potentially irreversible habit changes. In such a short period, the healthcare landscape is becoming so dramatically different, and technology seeps into almost every aspect of patient care to render it unrecognizable.

Global healthcare sector issues in 2021

Digital transformation and interoperable data

- Transitioning from standardized clinical protocols to personalized medicine
- Leveraging AI to provide real-time care, interventions, and nudges to change consumer behavior and patterns

Work and talent

- Introduction of new business models, exponential technology, and agile ways of working
- Capacity and demand analysis to match the pandemic's needs
- Utilization of remote staff (clinical and nonclinical)

Socioeconomic shifts

- Programs to support a person's holistic well-being
- Recognition of the need to focus on underserved populations and work with governments to modify policies and programs

Consumers and the human experience

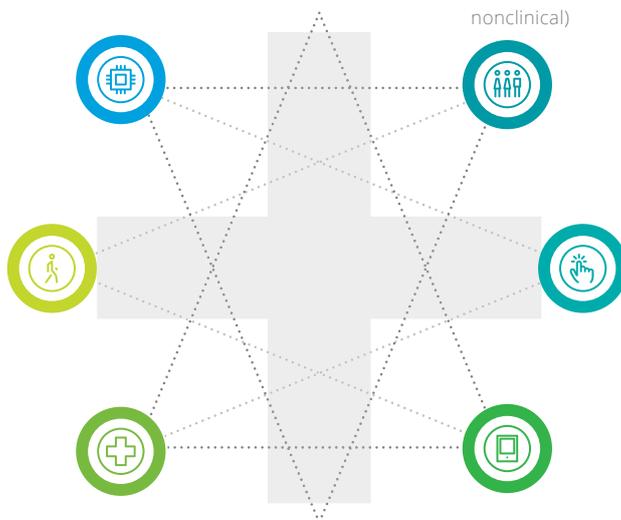
- Consumers' increased ownership of their health and data
- Provision of clear and concise information on treatment care and cost
- Balance between virtual visits and a trusted physician's relationship

Care model innovation

- Changing focus from acute care to prevention and well-being
- Transitioning from standardized clinical protocols to personalized medicine
- Evolving payment models: value-based/ outcome-focused; universal coverage
- Making financial operation and performance improvements

Collaborations

- Ecosystems that enable real-time data and analytics and serve as centers for education, prevention, and treatment
- Ecosystems that connect consumers to virtual, home, in-person, and auxiliary care providers



Source : Deloitte analysis.

What do patients want?

Nowadays, mobile phone penetration reaches 90% in almost every developed country globally, while nearly half the planet has smartphones. Mobile has become increasingly pervasive and indispensable, with consumers the world over enthusiastically embracing its potential.

More than one-third of consumers worldwide said they check their phone within five minutes of waking up in the morning, and 20 percent of them check their phone more than 50 times a day.

This heavy reliance on smartphones has changed consumer habits, opening the avenue for the exponential growth in social media usage, online shopping, mobile banking, and many other digital services. Increasingly, with a mobile phone permanently close at hand, consumer expectations are changing to demanding instant, easy to access, and all-encompassing experiences within all their interactions.

It was only a matter of time until demands for healthcare to catch up to this development grew, and the 2020 pandemic only accelerated this timing. COVID-19 has challenged consumers' sense of wellbeing and bolstered their resolve to become more engaged and empowered in managing their health and interacting with medical service providers.

Today, in healthcare, like in many other industries, people want convenience, direct access, security, transparency around their care, and costs. Consumers' needs and goals are now entirely driving innovation in health-related products and services and the development of digitally enabled, on-demand, and seamlessly connected caregiver-patient interactions.



20% of consumers worldwide check their phone more than 50 times a day

Deloitte – Global Mobile Consumer Trends

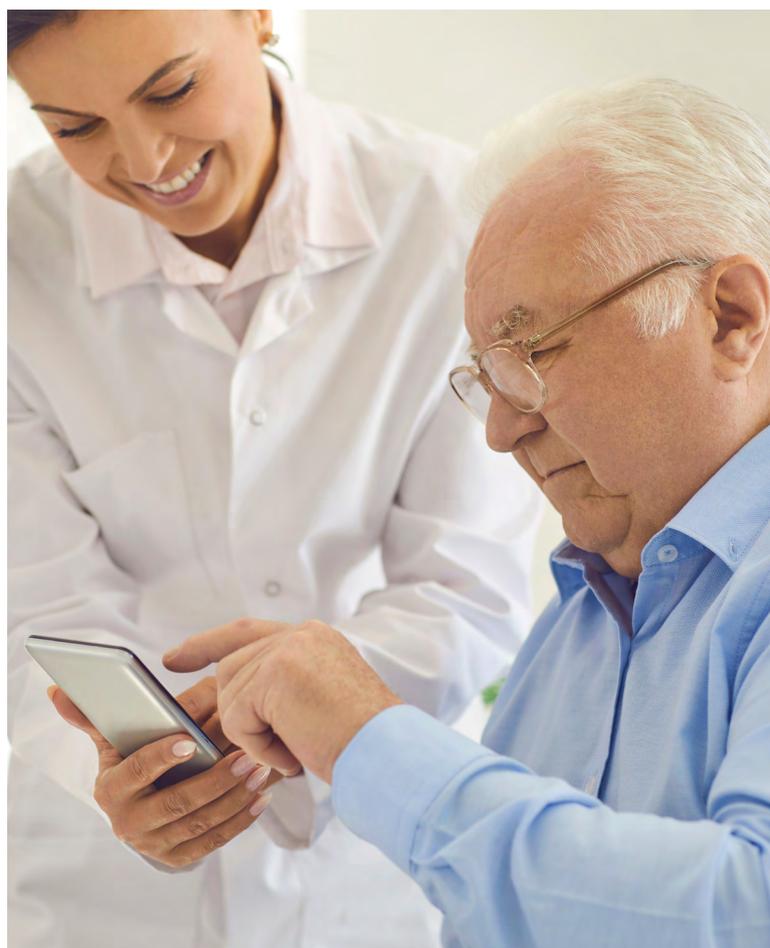
The limitations on travel and physical movements imposed by the pandemic have also increased the demand for virtual visits more than ever. On average, 80% are likely to schedule virtual visits even post COVID-19.

Yet, beneath the digital tools that facilitate access and convenience, relationship- and trust-building remain of paramount importance.

The key to successfully introducing technology to improve the healthcare experience, from the consumers' perspective, focuses on providing the same personal experience during an in-person visit and building the entire process entirely centered on the patient.

80% of patients are likely to schedule virtual visits even post COVID-19

McKinsey – Telehealth: a quarter-trillion-dollar post-COVID-19 reality?



INDUSTRY CHALLENGES

What do medical institutions and caregivers need?

As the request for specialized care services has risen in the past decade and, with the advent of more accessible and cheaper travel, physical distances have become less daunting, the modern medical care environment has become highly competitive. Thus, crafting and delivering a unique value proposition that guarantees the perfect consumer experience that patients expect is an increasingly difficult task. In the context of rising healthcare costs, healthcare institutions are looking for solutions to improve operational efficiencies while also keeping costs under control.

At the same time, the WHO estimates a shortage of over 4 million doctors and nurses worldwide, which doesn't bode well for patients' wellbeing. This means that even the most developed medical systems increasingly need to deal with personnel shortages. At the same time, health professionals are overworked and lack the time required to deal with the complexities of each individual case, making errors and negligence more common occurrences.

And then there is the data. Currently, the healthcare industry generates approximately 30% of the world's data and, by 2025, the compound annual growth rate for data in healthcare will reach 36%. That's 6% faster than manufacturing, 10% faster than financial services, and 11% faster than media & entertainment.

The major challenge with all of this data is its dispersion across different applications, silos, and storage systems. Thus, it is challenging to access all this data in a correlated manner to

create a coherent perspective and harness its power to generate the accurate insights that high-quality patient care requires.

30% of the world's data is generated by the healthcare industry at a CAGR that will reach 36% by 2025.

IDC - The Digitization of the World, from Edge to Core



AI-DRIVEN SOLUTIONS

How can conversational AI technology help the global healthcare environment mitigate the challenges?

Until the present moment, the healthcare industry has often made the difficult choice between affordability, accessibility, and effectiveness. Striking a balance between the pressures on clinicians and the transition to patient-centric models that enhance the patient experience has led healthcare institutions to

realize that they can no longer thrive without the help of the right technology. Especially recently, during the COVID-19 pandemic, the healthcare industry has been rapidly opening up to the potential of conversational AI to become more affordable, more accessible, and more effective.

The main benefits of conversational AI



For patients

- ➔ Extended access to quality medical services.
- ➔ Better, personalized, and frictionless healthcare service experience.
- ➔ Easily schedule the right virtual or in-person medical appointment leveraging an AI guided conversation that simultaneously conducts medical triage.
- ➔ Avoid unnecessary trips and lengthy waiting rooms queues by simply asking and receiving healthcare-related answers to FAQs from the comfort of their homes.
- ➔ Achieve a new level of mobility and convenience by managing their health journey directly through self-service capabilities.
- ➔ 24/7 access from anywhere to a consolidated HER (Electronic Healthcare Record).
- ➔ Quickly build their health journey to fit their needs, schedules, and wellness expectations.



For caregivers

- ➔ Automate time-consuming tasks and focus more on proactive patient-centered care and interactions to transform transitory patients into loyal customers.
- ➔ Reduce operational cost, save time, and make errors less likely to occur.
- ➔ Reduce overwork and mitigate the medical personnel shortage without reducing the quality of healthcare services.
- ➔ Process significant amounts of data in a shorter timeframe, allowing for more efficient treatments and a substantial increase in the quality of medical care.
- ➔ Access patient history faster and track patients post-treatment easier, lessening the need for physical checkups, reducing the readmission rates.
- ➔ Successfully deploy remote self-care for chronic patients or long-term treatment schemas.
- ➔ Generate new revenue streams with customized healthcare services and insurance packages based on medical history.

By 2026, top AI applications may save the healthcare industry \$150 billion per year.

Accenture

What AI chatbots looks like in healthcare

1. Intelligent healthcare assistant equipped with on-the-fly medical triage

One of the most considerable cost pressures in outpatient medical institutions occurs when human resources are tied up by patients with minor health conditions, which would otherwise very easily be treated remotely and with over-the-counter medication. In this context, intelligent virtual assistants can make a world of difference and save valuable time by offering patients the alternative to interact remotely, in an app, or directly on the medical provider's website, and go through the symptoms to predict potential diagnosis.

With built-in intelligence for data extraction within a patient's context, the ability to conversationally ask questions like an actual doctor, image understanding and matching, medical triage based symptom collection, emergency data identification, and much more, a chatbot can be trained to make complex decisions faster, and better than human employees. In this way, they can take the burden off medical professionals with quickly solvable health management issues.



Alternatively, it can recommend the right specialists upon triage of symptoms and save time during the consultation with the help of a pre-consult questionnaire. The pre-screening capability proved highly beneficial during the COVID-19 pandemic to ensure the safety of both patient and doctor before a physical visit.

The same solution can be customized to enhance the experience of chronic patients who need healthcare support regularly or to help patients prepare for medical interventions by delivering the required information and keeping their families updated during the actual procedure.

2. Reinvented patient onboarding and conversationally updated patient data

Digital-first customers expect simpler and faster engagement, especially when they are acting to enhance or preserve their wellbeing. Although the healthcare industry is highly regulated, with full audit trails and complex procedures, this is no excuse for a bad customer experience right at the beginning of the customer journey.



Chatbots can act as an efficient and scalable solution to disrupt the omnichannel onboarding experience while maintaining HIPAA/HL7 standards and ensuring the protection of personal healthcare information.

Leveraging AI-driven technologies like OCR, advanced image processing, KYC (Know Your Customer), document generation features, e-signature/consent component, and route-to-human functionalities empower chatbots to deliver a fully digital, and above all, uncomplicated onboarding process, in less than 10 minutes.

AI-powered chatbots now leverage the power and simplicity of conversational forms to update patient data. Extracting patient information using easy questions about their name, address, phone number, healthcare symptoms, allocated doctor, or insurance policy details and updating information systems has never been easier.

Running an automated, intuitive, and frictionless data collection greatly facilitates patient admission, improves symptom tracking, enhances doctor-patient engagement, and ensures more accurate medical record keeping.

3. Total freedom to schedule and manage medical appointments

Chatbots work seamlessly integrated into the healthcare provider system to extract information about physicians, available time slots, clinic locations, or pharmacy schedule to intelligently facilitate the booking, changing, or canceling medical appointments.

By asking patients in a friendly manner about their health condition, chatbots can recommend the best match for an appointment and can even send reminders and updates about medical appointments.

4. A new level of customer service and patient self-service

In many industries where customers demand instantly accessible service and information, chatbots are replacing traditional customer experience centers, and healthcare is no exception.

Chatbots make it simple for patients to connect anytime and anywhere, schedule appointments, find a clinic, or pick a relevant doctor they wish to see, trimming operational costs without compromising the healthcare service quality.

Moreover, any customer can receive on-the-fly answers to FAQs like medical test preparation, clinics' schedules, services, and prices based on the user's subscription, special procedures, and even see the doctors' profile, all without losing the grip on health-related compliance standards.

Based on the patient's EHR (Electronic Healthcare Record) bots can even provide patients with wellness recommendations and tips. Also, they can offer guidance on pill intake, restrictions, side effects, schedule, dosage, or interaction with other medications.

Further enhancing the patient's experience, chatbots can now leverage advanced NLP (Natural Language Processing) and machine learning algorithms to automatically identify intent or emotions and intelligently route the conversation only if necessary to the appropriate specialist working in a CoE (Center of Excellence) or a Contact Center, further increasing productivity.

Healthcare business executives hope to automate tasks such as routine paperwork (82 %), scheduling (79 %), timesheet entry (78 %) and accounting (69 %) with AI tools.

PricewaterhouseCoopers



5. Streamlined administrative tasks

Intelligent virtual assistants can also make a direct difference to the bottom line by automating back-office tasks like the billing and collection process. Integrating AI chatbots with existing internal finance systems allows healthcare providers or insurance companies' staff to manage the entire invoicing process seamlessly.

The automated conversational flow creates and allocates tasks for back-office personnel and triggers RPA robots that notify the responsible people, significantly reducing human errors, speeding up the process, and streamlining cash flow. Moreover, patients can have complete visibility on their treatment costs and receive automatic reminders on how and when they are due.

6. Access to a 360° view of EMR data as simple as asking a question

Increasingly, customers expect round-the-clock access to personalized, individual information. Offering this type of experience is time and cost-intensive to cover with human teams.

Chatbots can be used to build the patient's EMR (Electronic Medical Record) and facilitate access to healthcare-related data like medical appointments, medical test results, clinical notes, hospital admission forms, medical events si tracking, prescriptions and medications, payment, and billing details. Leveraging intelligent RPA processes that seamlessly aggregate healthcare data from various



back-end systems and state-of-the-art NLP, an AI-driven chatbot can display a 360° view of a patient's EMR data in a technology-agnostic chat window.

All this has the power to bring considerable advantages around time savings for both the internal team and the customer, higher client satisfaction levels, and an overall simplified and accessible customer experience.

7. Faster and better decisions with an AI chatbot assistant

Many healthcare providers struggle with internal complexity in today's day and age, complicated organizational structures, slowed down internal processes, and an inability for teams to cut through the red tape and get valuable work done. Ensuring meaningful, dynamic collaboration flows to improve work processes while keeping context is key to rebalancing user experience and supporting workplace productivity.

Consequently, every line of business must focus singularly on enhancing and simplifying workflows, especially at the senior level, where the value-added they can bring directly impacts overall healthcare business performance.



Chatbots can use NLP to operate beyond pre-defined sets of questions and answers and scour different concurrent IT systems for the needed information to deliver real-time insights, analytics, and reporting. Thus, managers benefit from simple, straightforward, and intelligent responses that can lead to substantial time savings daily.

At the same time, such back-office chatbots can automate booking meetings and appointments for managers.

They increase the speed and efficiency with which managers may dispense with routine yet time-consuming tasks like leave requests, expenses, budget approvals, contracts, and salaries.

Moreover, chatbots can be used directly by doctors to generate health records or execute reports during a patient's examination, significantly increasing the quality of healthcare services. In daily medical practice, virtual assistants can help physicians to automatically fill out medical documents like drug prescriptions and refillings, visit reports, or referral letters.

Thus, doctors will gain more time for quality interaction with their patients for genuinely personalized and patient-centered healthcare.

The top three applications that represent the greatest near-term value are robot-assisted surgery (\$40 billion), virtual nursing assistants (\$20 billion) and administrative workflow assistance (\$18 billion).

Accenture

Conclusion

The deployment of conversational technology to healthcare is gaining momentum, fueled by changing customer expectations, the increasing popularity of mobile health applications, and the desire for increased engagement and usability. The benefits are multiple, from reducing costs worldwide to less pressure on healthcare professionals and more efficiently allocating resources.

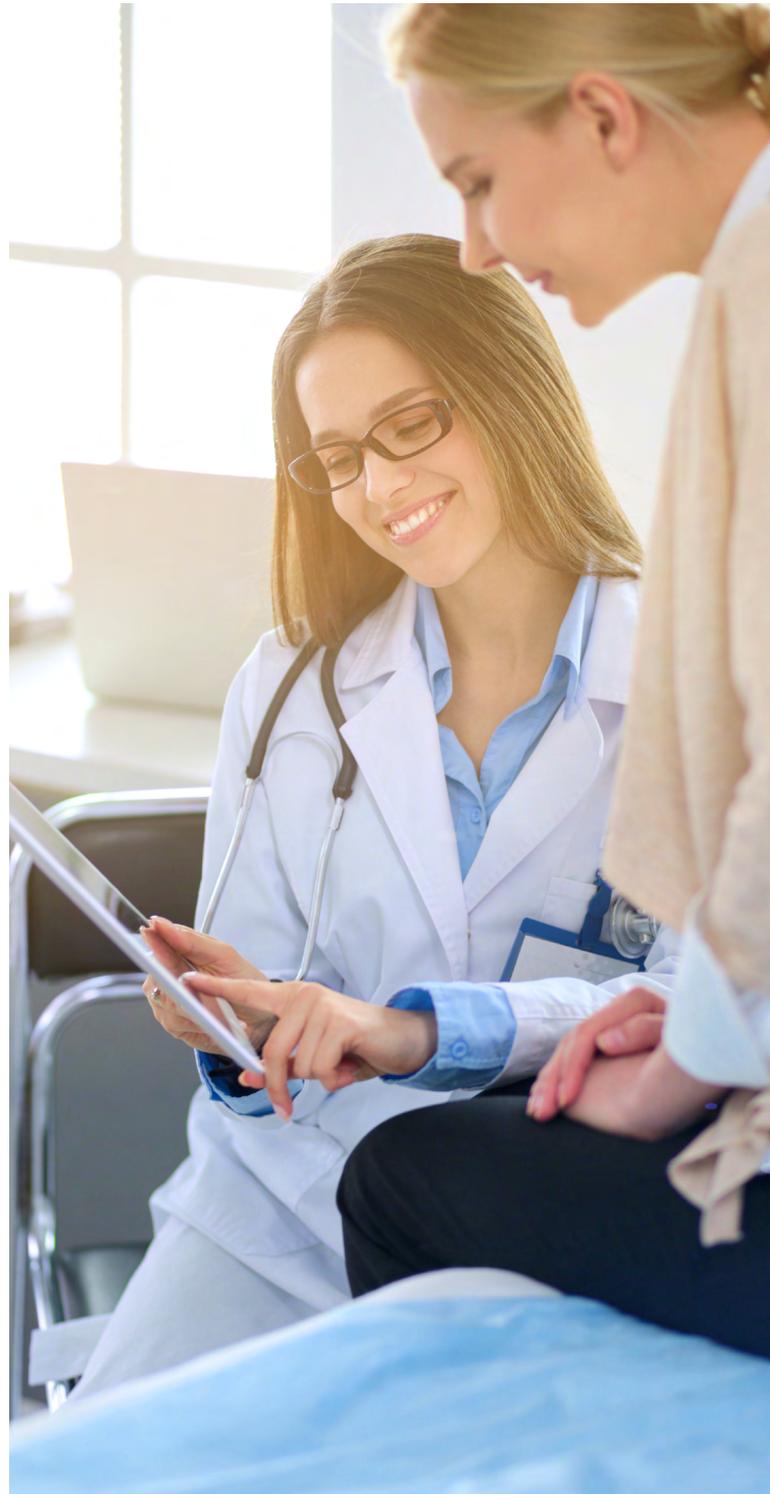
However, the single most significant benefit is improved patient outcomes – the ultimate goal of all health services and medical care.

Patients can feel more engaged and receive faster and better information on a proactive basis as well. On a broader level, outcomes are improved by collecting and analyzing large quantities of data, enabling healthcare decision-makers to diagnose better, treat, and understand the efficacy of therapies and treatments, often in real-time.

In short, chatbots have the potential to revolutionize healthcare. Providers are just in the early stages of an exciting digital transformation journey, in which conversational technology will play a substantial role.

\$524.3 million, the global healthcare chatbots market by 2026, with a CAGR of 20.5%.

Data Bridge Market Research





Joe Nieto,
Director of
Customer Engagement

elementBlue

// DRUID chatbot deployment at Texas Children's Hospital is a significant accomplishment for Element Blue as it expands our portfolio with exciting technologies that bring the doctor-patient relationship closer together. We will be building on this success in bold and creative ways that we believe will significantly benefit healthcare. Doing business with a hospital will become easier and faster, which means more revenue for the hospital and better patient retention. Texas Children's Hospital will see its device testing process evolve into Generation 2 with better control over the patient journey while protecting personal health information and compliance with HIPAA. TCH will also benefit from a platform on which more chatbots will be published in rapid succession supporting Virtual Waiting Rooms, Afterhours Customer Service, Complaint Reporting & Management and more. //

DRUID Enterprise Digital Assistant.

The Digital Future of Healthcare. Delivered Today.

About DRUID

DRUID is an AI conversational technology company that develops intelligent virtual assistants for Enterprise organizations.

Through its native integration with UiPath, DRUID enables complex process automation in which computer systems exchange information with human users in natural language through any digital communication channel.



www.druidai.com

