# Common AI Use Case by Industry: Healthcare

In the table below we list the most common AI uses cases by industry. The ‘Business Value Score’ column rates expected business impact on a scale from 1 (least impact) to 10 (highest impact). The ‘Difficulty to Implement Score’ column rates the difficulty to implement (time, cost, effort, etc.) on a scale from 1 (easiest to implement) to 10 (hardest to implement). Note these are estimates and will vary from customer to customer.

| **Business Metric** | **Use Case** | **Description** | **Azure AI Services** | **Azure AI Services Description** | **Business Value Score** | **Difficulty to Implement Score** | **Enhance with Azure OpenAI** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Diagnostic Accuracy | Diagnostic Assistance | AI analyzes medical images to assist in accurate diagnosis. | Vision, Azure Machine Learning | Analyzes medical images to assist in diagnostics and provide insights. | 9 | 7 | Employ advanced language models to analyze and interpret medical literature and patient data, providing deeper insights that aid in accurate and early diagnosis. |
| Patient Outcome Improvement | Patient Risk Prediction | AI predicts patient risks using EHR data for early intervention. | Azure Machine Learning | Develops predictive models to assess patient risk based on various health data. | 8 | 6 | Leverage language models to analyze extensive patient data and clinical notes, enabling more precise and proactive risk assessments. |
| Treatment Effectiveness | Personalized Treatment Plans | AI tailors treatment plans based on individual patient data. | Azure Machine Learning | Tailors treatment plans using predictive analytics and patient data. | 9 | 8 | Use advanced natural language understanding to analyze diverse patient data and research, facilitating the development of tailored treatment strategies that are highly specific to individual patient needs. |
| R&D Efficiency | Drug Discovery and Development | AI accelerates molecule behavior prediction and treatment efficacy. | Azure Machine Learning, Azure AI Search | Accelerates drug discovery through predictive modeling and data analysis. | 10 | 9 | Utilize sophisticated language and pattern recognition models to analyze vast datasets of chemical structures and biological interactions, accelerating the identification of promising compounds and their potential therapeutic effects. |
| Operational Cost Reduction | Operational Efficiency | AI optimizes resource allocation and patient flow in hospitals. | Azure Machine Learning, Document Intelligence | Automates data entry and optimizes resource allocation and workflow. | 7 | 5 | Apply advanced language models to optimize administrative workflows, analyzing and automating routine tasks, and streamlining patient data processing for faster and more efficient healthcare delivery. |
| Patient Monitoring Efficiency | Remote Patient Monitoring | AI monitors patient data remotely, enabling proactive care. | Azure Machine Learning, Azure IoT Central | Collects and analyzes data from remote monitoring devices for health tracking. | 8 | 6 | Utilize language models to analyze real-time data from wearable devices and patient reports, enabling personalized alerts and interventions based on individual health trends and anomalies. |
| Research Accuracy | Clinical Trial Research | AI streamlines clinical trial design and participant recruitment. | Azure Machine Learning, Azure AI Search, Azure OpenAI | Analyzes trial data, extracts insights from documents, and automates analysis. | 7 | 8 | Leverage language models to analyze vast amounts of research data and patient documentation, helping to identify optimal clinical trial candidates and predict outcomes more efficiently. |
| Cost Savings | Fraud Detection | AI detects and prevents fraudulent claims and billing practices. | Azure Machine Learning | Builds models to detect anomalies and potential fraud in healthcare transactions. | 6 | 5 | Apply advanced natural language processing capabilities to analyze claims and billing data, detecting patterns and anomalies indicative of fraudulent activities more effectively. |
| Patient Engagement | Chatbots for Patient Engagement | AI-driven chatbots provide 24/7 patient support and information. | Bot Service, Azure OpenAI | Creates interactive chatbots to engage with patients and provide information. | 5 | 3 | Utilize sophisticated language models to power chatbots that provide personalized, context-aware responses to patient inquiries, thereby improving engagement and satisfaction. |
| Public Health Safety | Outbreak Prediction | AI tracks and predicts disease outbreaks from global health data. | Azure Machine Learning | Predicts disease outbreaks using epidemiological data and machine learning. | 8 | 7 | Leverage advanced language models to analyze global health data and trends, enabling early detection and forecasting of disease outbreaks with increased accuracy. |
| Administrative Efficiency | Appointment Scheduling and Management | AI manages and optimizes scheduling of patient appointments. | Bot Service, Language, Azure OpenAI | Manages and schedules appointments through interactive chatbots and NLP. | 6 | 4 | Use language models to streamline communication, analyze scheduling requests, and optimize appointment bookings to reduce wait times and improve healthcare access. |
| Billing Accuracy | Billing Optimization | AI automates accurate medical billing and coding for claims. | Document Intelligence, Azure Machine Learning | Automates billing processes and detects anomalies to optimize billing operations. | 6 | 4 | Utilize advanced language models to automate and refine the processing of billing codes and claims, ensuring accuracy and reducing errors for faster reimbursement. |
| Patient Support Efficiency | Healthcare Chatbots for Basic Queries | AI chatbots handle routine inquiries, improving patient communication. | Bot Service, Azure OpenAI | Handles patient inquiries through chatbots providing basic healthcare information. | 5 | 3 | Use language models to power chatbots that provide accurate, instant responses to common healthcare questions, thereby improving patient service and freeing up medical staff for more complex tasks. |
| Data Management Efficiency | Patient Data Management | AI organizes and manages comprehensive patient data securely. | Document Intelligence, Azure Synapse Analytics | Extracts and manages data from medical records, integrating various data sources. | 7 | 4 | Employ language models to intelligently categorize, sort, and analyze vast amounts of unstructured patient data, streamlining access and improving the accuracy of medical records management. |
| Hospital Readmission Rates | Readmission Risk Reduction | AI analyzes data to identify high-risk patients and reduce readmissions. | Azure Machine Learning | Predicts patient readmission risks and suggests preventive measures. | 7 | 5 | Utilize advanced language models to analyze patient histories and ongoing health data, enabling the prediction of potential readmission risks and facilitating timely preventive interventions. |
| Patient Compliance | Medication Management | AI tracks and alerts patients and providers about medication schedules. | Azure Machine Learning | Monitors and manages patient medication adherence through predictive analytics. | 6 | 4 | Leverage language models to process and analyze patient data and medication schedules, enabling the system to send timely and personalized medication reminders and alerts to patients and caregivers. |
| Mental Health Outcomes | Mental Health Monitoring | AI monitors patient interactions to detect early signs of mental health issues. | Language, Azure Machine Learning, Azure OpenAI | Analyzes patient communications and provides insights for mental health monitoring. | 7 | 5 | Use language models to analyze patient communications and behavioral data, enabling early detection of mental health issues through nuanced understanding of mood and sentiment changes. |
| Patient Health Outcomes | Nutritional Advice | AI provides personalized dietary recommendations based on health data. | Azure Machine Learning | Provides personalized nutritional recommendations based on patient data. | 5 | 3 | Use language models to analyze individual health profiles and dietary preferences, generating personalized nutritional recommendations that align with specific health conditions and goals. |
| Public Health Awareness | Health Awareness Campaigns | AI tailors public health campaigns based on demographic data analysis. | Language, Bot Service, Azure OpenAI | Analyzes public response to health campaigns and engages the public interactively. | 6 | 4 | Leverage advanced language models to analyze demographic and health trend data, enabling the creation of highly targeted and effective public health messages that resonate with specific audiences. |
| Patient Recovery Rates | Automated Patient Follow-Up | AI automates routine follow-ups to check on patient recovery and treatment adherence. | Bot Service, Azure Machine Learning, Azure OpenAI | Automates follow-up communications and determines follow-up needs using analytics. | 6 | 4 | Utilize language models to automate communication with patients post-treatment, providing tailored follow-up instructions and reminders based on individual recovery profiles and improving adherence to care plans. |