AI+ Healthcare Administrator (1 Day)
Program Detailed Curriculum

AI CERTs®

AI⁺
Healthcare
Administrator™

Executive Summary

The AI+ Healthcare Administrator certification prepares professionals to lead the integration and management of AI technologies in healthcare organizations. Focusing on both technical and administrative aspects, the certification covers key areas such as AI implementation, healthcare data management, patient care optimization, and regulatory compliance. Participants will learn how to leverage AI for enhancing operational efficiency, improving decision-making, and ensuring patient privacy and data security. The program also addresses ethical concerns, sustainability, and AI governance, providing administrators with the tools to drive digital transformation while maintaining high standards in healthcare delivery and administration.

Prerequisites :

- **Basic Understanding of Healthcare Systems:** Familiarity with healthcare operations and structures.

- **Fundamental Knowledge of AI Concepts:** Understanding machine learning and AI fundamentals.

- **Data Privacy and Security Awareness:** Knowledge of HIPAA and data protection laws.

- **Project Management Skills:** Ability to manage healthcare AI implementation projects.

- **Familiarity with Healthcare Software:** Experience with electronic health records (EHR) and healthcare platforms.

Module 1

Fundamentals of AI for Healthcare Administrators

1.1 Understanding of AI

- **Definitions: AI, Machine Learning, Deep Learning, RPA:** Explains key AI terms such as AI, ML, DL, and RPA, differentiating their applications in healthcare settings, and illustrating each with examples relevant to hospital and clinical environments.

- **Misconception vs. Reality:** Debunks common myths about AI, such as AI replacing humans in healthcare, emphasizing the practical roles AI plays, and addressing fears around automation and job displacement in the healthcare sector.

- **Benefits of AI in Healthcare: Accuracy, Speed, and Compliance:** Highlights the advantages of AI in improving diagnostic accuracy, accelerating workflows, and ensuring compliance with regulations, demonstrating AI's transformative potential in enhancing patient care and hospital operations.

- **The Role of the Administrator in the AI Revolution:** Explores the critical role of healthcare administrators in managing AI adoption, overseeing implementation, and ensuring that AI solutions align with operational goals and ethical standards within healthcare systems.

1.2 AI in Healthcare Operations

- **Overview of AI-Powered Workflows in Hospitals and Clinics:** Provides an overview of how AI is transforming administrative and clinical processes, such as patient intake, diagnostic support, and resource allocation, and how administrators can leverage these improvements.

- **AI for Scheduling, Triage, and Document Management:** Demonstrates how AI enhances scheduling efficiency, prioritizes patient triage based on urgency, and automates document management, resulting in reduced wait times, improved accuracy, and operational cost savings.

- **Use Case Examples:** DeepMind, Olive AI, Qventus: Examines real-world AI applications such as DeepMind's medical imaging, Olive AI's administrative workflow automation, and Qventus' patient flow optimization, illustrating their operational benefits in hospital settings.

1.3 Case Study

- **Case Study 1: DeepMind Health – AI-Based Early Detection of Acute Kidney Injury (AKI):** Describes how DeepMind's AI model detects AKI up to 48 hours before onset, improving patient outcomes by enabling earlier intervention and reducing treatment costs through predictive analytics and integration into hospital **workflows.**

- **Case Study 2:** Mount Sinai's AI-Enhanced Diagnosis and Risk Prediction Platform: Showcases Mount Sinai's AI-powered system for predicting medical conditions like cancer and diabetes, improving diagnostic accuracy, patient risk stratification, and clinical decision-making, with a focus on operational efficiency.

1.4 Hands-On: No-Code AI-Based Chest X-ray Classification for COVID-19 and Lung Conditions Using Google Teachable Machine

- Learners will use Google Teachable Machine to create a no-code AI model for classifying chest X-ray images to detect conditions like COVID-19 and pneumonia, applying AI in a real-world diagnostic scenario.

Module 2

Data Literacy for Healthcare Admins

2.1 Understanding Healthcare Data Types

- **Structured vs. Unstructured Data:** Explains the differences between structured and unstructured data, focusing on how each type is used in healthcare systems and how AI tools handle them differently for operational efficiency.

- **Data Sources: EHRs, HIS, Financial Systems:** Discusses key data sources in healthcare administration, including Electronic Health Records (EHR), Hospital Information Systems (HIS), and financial systems, and their role in supporting AI-driven processes.

- **Importance of Data Quality in AI Outcomes:** Focuses on how data quality impacts the performance of AI tools in healthcare, emphasizing the importance of clean, accurate data for reliable predictions, decision-making, and operational outcomes.

- **Demo: Match Data Types to Potential AI Application (using Vizly.ai):**
  Provides a hands-on demonstration using Vizly.ai, allowing learners to match structured and unstructured data with appropriate AI use cases in healthcare, enhancing their practical understanding of data applications.

2.2 Using Data for Decisions

- **Basics of Dashboards and Visualizations:** Introduces the basics of creating and using dashboards and visualizations in healthcare, explaining how these tools help administrators interpret data and make informed decisions quickly and efficiently.

- **Identifying Trends: Occupancy, Discharge, Billing Cycles:** Teaches how to identify key operational trends such as occupancy rates, discharge times, and billing cycles, enabling administrators to optimize resource allocation and improve hospital workflows.

- **Introduction to KPIs and AI Metrics for Admins:** Explains the importance of Key Performance Indicators (KPIs) and AI-driven metrics for hospital administrators, helping them track hospital performance, identify improvement areas, and align strategies with organizational goals.

2.3 Case Study 1: Apollo Hospital's AI-Based Discharge Management System

- Examines how Apollo Hospital implemented AI to optimize discharge processes, reduce delays, and improve bed turnover, resulting in more efficient patient flow and better resource management.

2.4 Case Study 2: Cleveland Clinic's AI Integration for Medical Billing Optimization

- Looks at how Cleveland Clinic integrated AI to streamline the medical billing process, reducing claim rejections, accelerating payment cycles, and enhancing overall revenue cycle management.

2.5 Hands-On: No-Code Exploration of a Hospital Analytics Dashboard Using Vizly.ai

- Provides practical experience using Vizly.ai to explore hospital data, create visualizations, and generate insights through natural language queries, empowering administrators to make data-driven decisions without technical expertise.

Module 3

AI in Operations Optimization

3.1 Streamlining Patient Flow and Resource Optimization

- **AI for Bed Management and Patient Movement:** AI optimizes bed assignments by predicting discharge times, automating housekeeping coordination, and matching patients with appropriate beds, reducing delays, improving resource allocation, and enhancing the patient experience.

- **Predictive Tools for No-Shows and Admission Surges:** AI predicts patient no-shows and surges by analyzing historical and real-time data, enabling hospitals to proactively adjust schedules, optimize resources, and minimize disruptions, improving both operational efficiency and patient satisfaction.

- **Demo Concept:** Adjust Staffing Based on AI Forecasts: Demonstrates how AI-driven forecasting adjusts staffing levels based on predicted patient volume, ensuring optimal resource allocation, minimizing wait times, and preventing staff burnout during peak times or emergency situations.

3.2 Inventory, Maintenance, and Procurement

- **AI-Driven Supply Chain and Procurement Tools:** AI improves supply chain management by predicting demand, optimizing procurement schedules, and automating ordering processes. It reduces waste, prevents shortages, and streamlines purchasing, leading to cost savings and enhanced operational efficiency.

- **Predictive Maintenance for Medical Devices:** AI monitors medical devices in real time, predicting failures before they occur. It ensures timely maintenance, reduces downtime, and extends equipment lifespan, preventing disruptions in patient care and minimizing operational risks.

- **Case Study 1: AI-Powered Emergency Interhospital Transfers:** A case study showcasing how AI optimizes emergency patient transfers between hospitals, reducing response times, improving coordination, and enhancing the speed of treatment in critical care situations, ultimately improving patient outcomes.

- **Case Study 2:** AI for Inventory Waste Reduction in Hospital Supply Chains (Mayo Clinic, Cleveland Clinic & Rush University): This case study demonstrates how AI, combined with IoT and RFID technology, reduces inventory waste by predicting supply needs, optimizing procurement, and ensuring proper stock levels, leading to cost savings and improved efficiency.

- **Hands-On: AI-Driven Hospital Operations Optimization:** A No-Code Predictive Interface Using Julius AI: Learners will use Julius AI to create a no-code predictive model for hospital operations, analyzing data on patient admissions, bed occupancy, and staffing to forecast resource needs and optimize hospital workflows in real-time.

Module 4

NLP and Generative AI in Admin Work

4.1 Foundations of NLP and Chatbots

- **What is NLP? Key Concepts:** Introduces Natural Language Processing (NLP) as a subset of AI, focusing on how it enables machines to understand, process, and generate human language, forming the basis for chatbots and virtual assistants.

- **Practical Uses: Chatbots for HR, FAQs, Scheduling:** Explores how NLP-powered chatbots handle HR queries, FAQs, and appointment scheduling in healthcare administration, streamlining operations, reducing manual workload, and improving accessibility to information for staff and patients.

- **Risk Factors and Ethical Challenges:** Discusses potential ethical issues in using NLP, such as chatbot hallucinations, biases, and privacy concerns, and explores how to mitigate these risks to ensure AI-driven tools are used responsibly in healthcare.

4.2 Writing and Communication Tasks with Generative AI

- **Automating Emails, Memos, and Policy Documents:** Highlights how generative AI tools automate routine communication tasks such as drafting emails, memos, and policy documents, saving time, reducing errors, and maintaining consistent, professional communication across departments.

- **Prompts for Summarizing Long Meeting Notes:** Teaches how to use AI to automatically summarize long meeting notes into concise, actionable summaries, ensuring key decisions, actions, and deadlines are captured efficiently and distributed without delay.

- **Tools: ChatGPT, Google MedLM, Microsoft Copilot:** Introduces popular generative AI tools like ChatGPT, MedLM, and Microsoft Copilot, explaining their applications in healthcare administration for generating documents, summarizing content, and boosting productivity across multiple platforms.

4.3 Case Study: Implementing AI-Powered HR Automation in a Multi-Speciality Hospital

- This case study demonstrates how a multi-specialty hospital implemented an NLP-powered HR chatbot to automate FAQs and onboarding, improving efficiency, reducing manual workload, speeding up processes, and enhancing employee satisfaction with 24/7 support.

4.4 Case Study: AI-Driven Meeting Summarization for Compliance & Policy Updates

- This case study highlights how a healthcare organization used AI-driven meeting summarization, integrating NLP and Generative AI, to automate transcription, summarize compliance discussions, and improve accuracy, speed, and consistency in report generation.

4.5 Hands-On: Meeting Summarization Assistant for Healthcare Admin

- Provides a hands-on experience in building a custom AI-driven meeting summarization tool using no-code platforms, enabling healthcare administrators to automatically generate structured meeting summaries with key actions and compliance notes.

Module 5

AI in Billing, Coding & Claims

5.1 AI in Medical Coding and Documentation

- **CPT/ICD Coding Support Tools:** AI tools assist with medical coding by automatically extracting relevant diagnosis and procedure codes from unstructured clinical documentation, improving accuracy, reducing coder workload, and ensuring timely and compliant billing processes.

- **AI for Documentation Improvement and Audits:** AI enhances clinical documentation by identifying gaps, ensuring coding accuracy, and providing real-time feedback to clinicians, improving the quality of documentation, reducing coding errors, and ensuring compliance with healthcare regulations.

- **Use Case Example: Review AI-Suggested Codes for Sample Encounter Notes:** A practical use case where AI analyzes clinical notes and suggests accurate CPT and ICD codes, illustrating how AI assists coders by improving efficiency, consistency, and accuracy in medical billing workflows.

5.2 Claims Management and Fraud Detection

- **Predictive Analytics for Denial Prevention:** AI predicts claim denials by analyzing historical claim data and patient profiles, identifying high-risk claims before submission, and enabling proactive adjustments to documentation, reducing denials and accelerating the reimbursement process.

- **Pattern Recognition in Fraud Detection:** AI-powered fraud detection systems identify anomalous billing patterns by analyzing large datasets of claims, helping to detect and prevent fraudulent activities, such as upcoding, phantom billing, and identity theft, in real-time.

- **Case Study – Insurance Companies Using AI to Flag Outliers:** UnitedHealth Group implemented AI-powered outlier detection using autoencoders, isolation forests, and NLP to identify fraud and anomalies in insurance claims. This system automated 98% of claims reviews, reducing fraudulent payouts and improving efficiency.

5.3 Hands-On: No-Code AI-Powered Medical Claims Denial Prediction

- A hands-on exercise using a no-code platform (Make.com) to create a workflow that predicts medical claims denial, enabling healthcare administrators to automate claims validation and reduce revenue loss through proactive denial management.

Module 6

Ethics, Bias & Regulation in Admin AI

6.1 Identifying Bias in Administrative AI Tools

- **Types of Bias: Racial, Gender, Socioeconomic: Identifies key bias types**—racial, gender, and socioeconomic—that impact AI tools in healthcare, highlighting how biased data leads to inequitable outcomes and affecting patient care, staff scheduling, and billing.

- **Use Case Example: Biased Triage Systems and Insurance Algorithms:** Examines real-world examples of biased triage systems and insurance algorithms, demonstrating how AI's reliance on historical data can perpetuate biases against marginalized populations and impact healthcare delivery.

- **Evaluate a Scenario for Hidden Bias:** Provides a framework for evaluating hidden biases in AI systems. This section walks learners through a real-world scenario, identifying red flags and using a checklist to propose bias mitigation strategies.

6.2 Legal & Compliance Considerations

- **HIPAA, GDPR, CMS Rules for AI Use:** Explains the legal and regulatory frameworks, including HIPAA, GDPR, and CMS, that govern AI usage in healthcare. It ensures AI systems comply with privacy, consent, and audit requirements in healthcare environments.

- **Documentation for Audit Readiness:** Discusses the importance of maintaining comprehensive documentation for AI decisions in healthcare, ensuring that every action, from patient triage to claims processing, is traceable and legally defensible during audits.

- **Creating a Basic AI Policy for Admin Use:** Guides administrators in creating AI policies to govern AI use in hospital settings. It covers policy creation, including compliance with legal frameworks and ethical guidelines, to ensure fair and accountable AI deployment.

- **Use Case: AI Error and Hospital Liability in Administrative Workflows:** This use case highlights the risks of unchecked AI in hospital workflows, emphasizing the importance of governance, override systems, audit trails, and ethics to prevent liability, legal issues, and patient harm in healthcare operations.

6.3 Case Study: AI Triage Failure and Legal Exposure at North Bridge Hospital

- Highlights how AI misclassification in a hospital triage system led to delayed treatment and patient harm, emphasizing the need for human oversight, transparency, and a strong governance framework in AI deployment.

6.4 Hands-On: Analyzing Hospital Admission Bias with Claude AI

- A practical exercise using Claude AI to detect bias in hospital admission data, enabling learners to apply real-world data analysis to identify patterns in triage decisions, highlighting disparities by race, gender, and socioeconomic status.

Evaluating and Procuring AI Tools

7.1 Assessing AI Tools for Quality and Relevance

- **Understanding Accuracy, Precision, and Recall:** Explains key performance metrics for AI tools, focusing on accuracy, precision, and recall, and how these metrics impact the effectiveness and reliability of AI tools in healthcare environments.

- **ROI Metrics and Cost-Benefit Analysis:** Covers the importance of evaluating the financial implications of AI tools through ROI and cost-benefit analysis, helping healthcare administrators understand the long-term value and sustainability of AI investments.

- **Red Flags in Vendor Pitches:** Identifies common warning signs in AI vendor pitches, such as overpromised accuracy, lack of transparency, and hidden costs, guiding administrators to make informed procurement decisions and avoid costly mistakes.

7.2 Implementation Planning and Procurement

- **RFP Essentials for AI Tools:** Teaches how to draft an effective Request for Proposal (RFP) for AI tools, ensuring that vendors meet the technical, clinical, and regulatory requirements necessary for successful AI deployment in healthcare.

- **Stakeholder Engagement:** Discusses the importance of engaging all relevant stakeholders, including clinicians, IT, legal, and finance teams, in the AI procurement process to ensure the solution meets clinical, operational, and strategic goals.

- **Milestones and Pilot Testing Phases:** Focuses on the role of milestones and pilot testing in AI implementation, emphasizing risk management, performance validation, and the importance of phased rollouts to ensure successful integration into clinical workflows.

7.3 Case Study 1: AI-Powered Cancer Detection at Tata Memorial Hospital

- Examines how Tata Memorial Hospital implemented AI for cancer detection, improving diagnostic accuracy and reducing report turnaround time, demonstrating the successful integration of AI in high-stakes clinical environments.

7.4 Case Study 2: AI-Powered Eye Screening by Forus Health and Microsoft

- Explores the collaboration between Forus Health and Microsoft in developing an AI-powered eye screening solution for diabetic retinopathy, showcasing the impact of AI in affordable, large-scale public health initiatives.

7.5 Hands-On: Healthcare Data Visualization with No-Code BI Tools

- A hands-on exercise using no-code platforms like Power BI to visualize healthcare data, helping learners create dashboards that highlight key performance indicators, trends, and areas for operational improvement in hospital settings.

Telehealth, Virtual Care, and Cybersecurity in the Age of AI

8.1 Understanding Cyber Threats in AI-Driven Healthcare

- **Overview of Healthcare Cybersecurity Risks:** Explains how cyber threats like ransomware, phishing, and data breaches affect healthcare, emphasizing patient safety risks and regulatory consequences, with a focus on AI's vulnerabilities and the need for comprehensive cybersecurity strategies.

- **AI-Specific Risks:** Focuses on unique AI vulnerabilities like data poisoning, adversarial attacks, and model inversion, demonstrating how these risks impact patient safety, diagnostic accuracy, and the integrity of healthcare operations and decision-making.

- **Why Administrators Must Own Part of Cybersecurity Strategy:** Highlights the critical role of administrators in overseeing AI-related cybersecurity in healthcare, ensuring compliance, vendor risk management, and AI governance to mitigate threats and protect both patient data and operational continuity.

- **Real-World Incidents and Impact on Operations:** Analyzes real-world cyberattacks, such as ransomware incidents, showcasing the operational, financial, and reputational impacts on healthcare organizations and underlining the need for robust cybersecurity measures in AI-driven systems.

8.2 Building a Secure AI-Operations Environment

- **Best Practices for Cybersecurity Hygiene:** Discusses the key practices for securing AI operations, including multi-factor authentication, role-based access control, regular patching, and continuous monitoring, to mitigate AI-specific vulnerabilities and safeguard patient data.

- **Security Questions to Ask Vendors:** Guides healthcare administrators on evaluating third-party AI vendors by asking crucial security questions about data encryption, regulatory compliance, AI model testing, and incident response, ensuring vendor security aligns with organizational needs.

- **Collaborating with IT and Compliance Teams:** Explains the importance of cross-functional collaboration between administrators, IT, and compliance teams to create a robust cybersecurity framework, ensuring AI systems meet regulatory standards, are secure, and operate smoothly in healthcare environments.

- **Creating an Incident Response Plan for AI-Related Breaches:** Focuses on developing a tailored incident response plan for AI-related breaches, emphasizing the unique challenges of AI systems, ensuring rapid containment, recovery, and adherence to compliance requirements like HIPAA and GDPR.

8.3 Case Study 1: WannaCry Attack on NHS (2017)

- Examines the NHS WannaCry ransomware attack, its impact on operations, patient care, and the lessons learned. This case study highlights the importance of timely patching and strong cybersecurity in healthcare environments.

8.4 Case Study 2: Universal Health Services Ransomware Attack (2020)

- Investigates the Universal Health Services ransomware attack, focusing on its operational disruption, financial loss, and the lessons learned for healthcare organizations in terms of vulnerability management, incident response, and recovery strategies.

8.5 Hands-On: AI Cybersecurity Risk Dashboard Implementation Using Google Looker Studio

- A hands-on session where learners build a no-code AI cybersecurity risk dashboard using Google Looker Studio. Participants visualize risks, incidents, and mitigation strategies, enabling real-time decision-making and enhancing organizational awareness of cybersecurity threats.

Becoming an AI Champion in Admin Settings

9.1 Introduction: Why This Module Matters Now

- **What Does It Mean to Be an AI Champion?:** Explains the role of an AI Champion as a non-technical leader who drives AI adoption, aligns departments, and facilitates AI implementation by addressing challenges, fostering understanding, and ensuring cross-functional collaboration.

- **The AI Opportunity Gap in Healthcare Admin Roles:** Discusses why many healthcare administrators miss out on AI opportunities, addressing challenges like interdepartmental silos, change resistance, and unclear ROI, while highlighting how administrators can bridge this gap through AI pilot programs.

- **Audience Engagement:** Making AI Real for Hospital Staff: Teaches strategies to engage healthcare staff in AI adoption, focusing on real-world prompts, role-play scenarios, and examples to illustrate how AI can solve daily operational challenges and reduce inefficiencies.

9.2 Leading Small-Scale AI Pilots

- **The Role of the Administrator in AI Pilots:** Describes the crucial role of healthcare administrators in initiating and managing small-scale AI pilots, including identifying problems, aligning stakeholders, and monitoring outcomes to demonstrate AI's value before full implementation.

- **Why Pilots Work: Benefits of Starting Small:** Explains the advantages of starting with small, low-risk AI pilots, such as reduced operational disruption, faster feedback loops, controlled costs, and building confidence among staff before scaling up AI solutions.

- **Ideal Characteristics of an AI Pilot Project:** Outlines key features of an ideal AI pilot project, including clear objectives, accessible data, low clinical risk, and short timelines, ensuring that the pilot is focused and aligned with organizational goals.

- **Real-World Examples of Pilot Opportunities:** Provides examples of suitable AI pilot projects in healthcare departments, such as predictive modeling for patient no-shows, AI for billing denial prediction, and chatbots for front desk queries, demonstrating practical applications.

- **A No-Code Revolution: Empowering Admins to Lead Pilots:** Introduces no-code platforms that allow administrators to lead AI pilots without needing technical expertise. These platforms enable easy integration of AI tools for tasks like data analysis and predictive modeling.

9.3 Identifying Pilot Opportunities in Departments

- **What Makes a Department Ready for AI Piloting?:** Describes the criteria for selecting departments suitable for AI pilots, such as operational bottlenecks, data availability, staff openness, and low-risk environments, ensuring pilot success with high impact and minimal disruption.

- **Practical Examples: AI Pilot Ideas:** Provides specific examples of AI pilot ideas, including predictive scheduling models, automated billing claim analysis, and inventory management, tailored to address common operational issues in various hospital departments.

- **Realistic Scenario:** Offers a scenario in which a healthcare administrator launches an AI model to predict and reduce billing denials, demonstrating how a well-chosen pilot can improve operational efficiency and reduce costs.

- **The Role of Surveys and Staff Interviews:** Explains how surveys and staff interviews help identify pain points and potential AI pilot opportunities, emphasizing the importance of staff feedback in ensuring the chosen pilot addresses real operational challenges.

9.4 Stakeholder Alignment: IT, Compliance, Frontline Staff

- Pilot Timeline: From Proposal to Evaluation: A structured pilot timeline—covering ideation, data readiness, deployment, iteration, evaluation, and communication—ensures clear ownership, maintains momentum, manages risks, and enables consistent, evidence-based decision-making.

9.5 Building Organizational Readiness

- Organizational readiness ensures AI success by aligning leadership, empowering staff, adapting processes, addressing resistance, establishing governance, nurturing champions, and continuously measuring cultural and operational preparedness for sustainable, organization-wide AI adoption and transformation.

9.6 AI Champion Roles: Who Leads What?

- **Training Staff to Use AI Tools Confidently:** Training builds confidence through hands-on practice, role-specific examples, myth-busting, and supportive learning environments, helping staff embrace AI as an enabler rather than a threat.

- **Change Management During AI Transition:** Effective change management addresses emotional reactions, clarifies benefits, ensures ongoing communication, supports frontline participation, and embeds AI into culture and workflows sustainably.

9.7 Step-by-Step Guide: No-Code AI for Medical Claim Denial Prediction Using Relevance AI

- Using Relevance AI, administrators create an agent, upload datasets, test predictive prompts, interpret insights, and iteratively refine denial-prediction workflows—achieving practical AI automation without coding expertise.