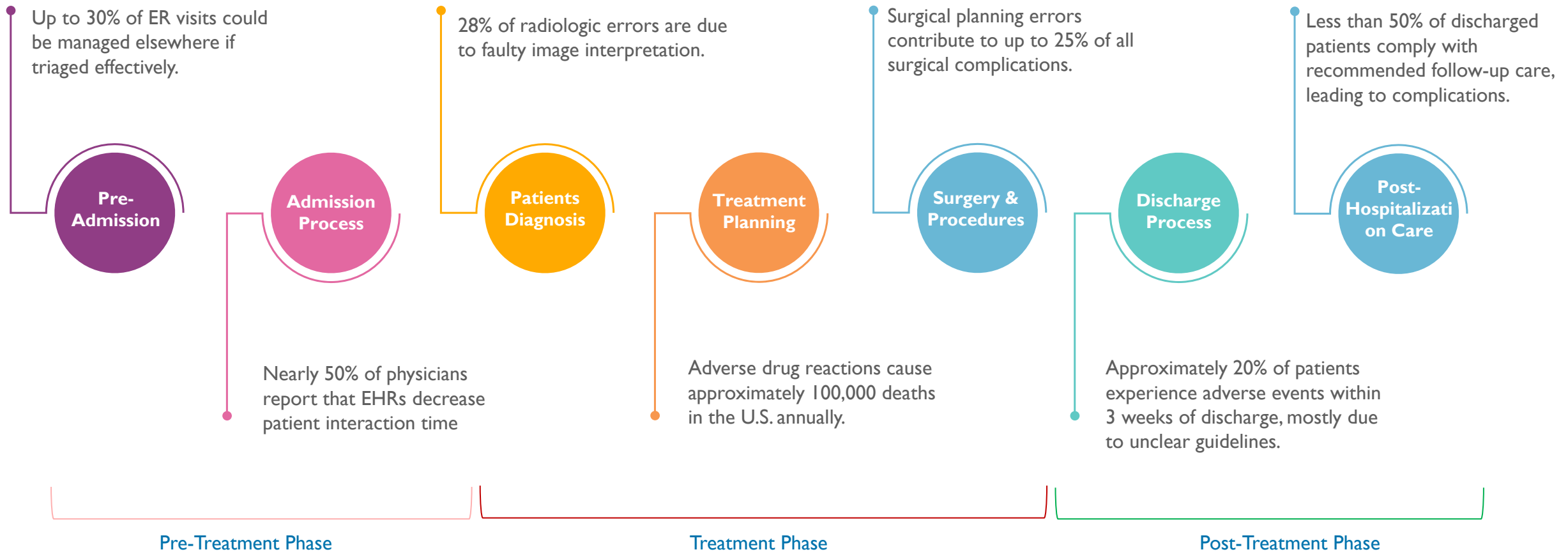# HARMAN HEALTHCARE & LIFESCIENCE
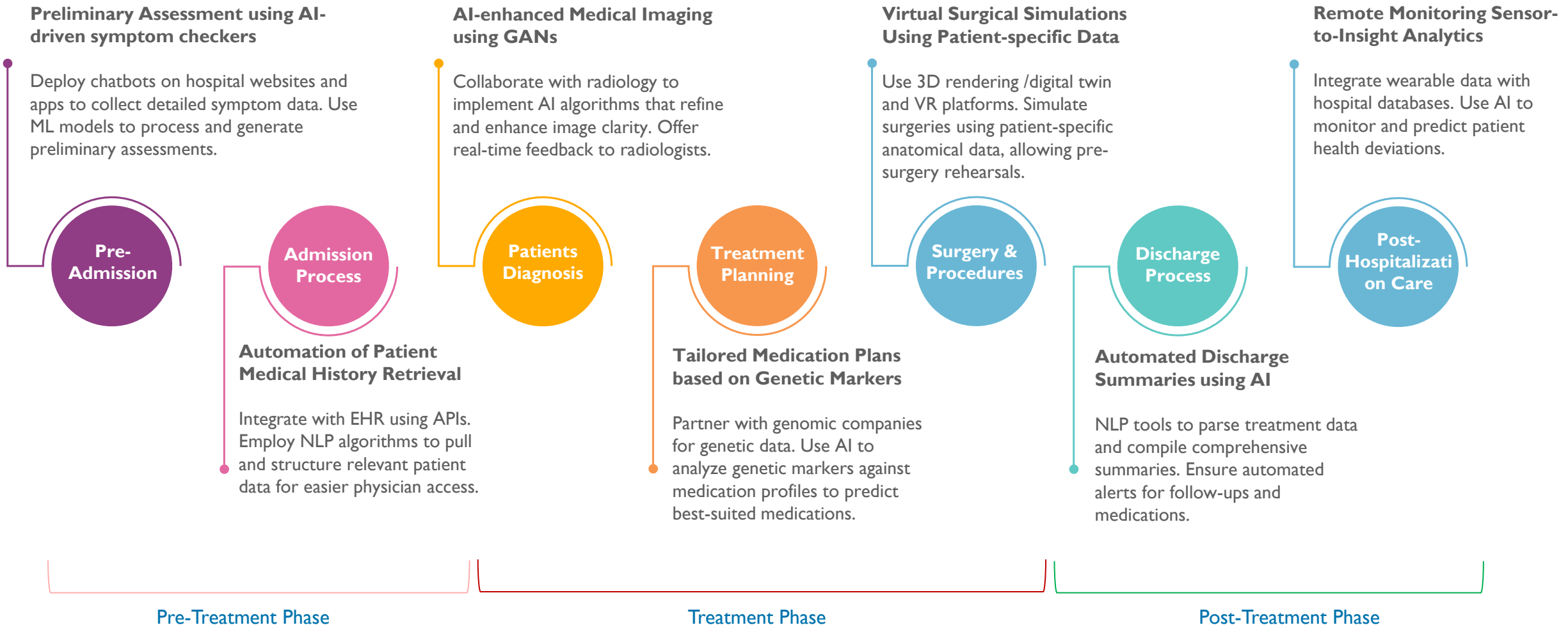
- Wednesday, 20 March 2024

- **PATIENT 360**

Challenges across Provider Landscape

Across providers, ~50% of physicians find EHRs limit patient interaction, 28% of radiology errors arise from image interpretation, and ~20% of patients face adverse events within 3 weeks of discharge, collectively contributing to a reduction in the quality of care, increasing cost and adverse patient's outcome

Up to 30% of ER visits could be managed elsewhere if triaged effectively.

28% of radiologic errors are due to faulty image interpretation.

Surgical planning errors contribute to up to 25% of all surgical complications.

Less than 50% of discharged patients comply with recommended follow-up care, leading to complications.

Pre-Admission

Admission Process

Patients Diagnosis

Treatment Planning

Surgery & Procedures

Discharge Process

Post-Hospitalization Care

Nearly 50% of physicians report that EHRs decrease patient interaction time

Adverse drug reactions cause approximately 100,000 deaths in the U.S. annually.

Approximately 20% of patients experience adverse events within 3 weeks of discharge, mostly due to unclear guidelines.

Pre-Treatment Phase

Treatment Phase

Post-Treatment Phase

3

GEN-AI solutions – Mitigating challenges

Empowering Provider landscape with AI – Transforming triage, optimizing operations, and enhancing post-care through intelligent predictive systems and analytics

Preliminary Assessment using AI-driven symptom checkers

Deploy chatbots on hospital websites and apps to collect detailed symptom data. Use ML models to process and generate preliminary assessments.

AI-enhanced Medical Imaging using GANs

Collaborate with radiology to implement AI algorithms that refine and enhance image clarity. Offer real-time feedback to radiologists.

Virtual Surgical Simulations Using Patient-specific Data

Use 3D rendering /digital twin and VR platforms. Simulate surgeries using patient-specific anatomical data, allowing pre-surgery rehearsals.

Remote Monitoring Sensor-to-Insight Analytics

Integrate wearable data with hospital databases. Use AI to monitor and predict patient health deviations.

Pre-Admission

Admission Process

Patients Diagnosis

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Surgery & Procedures

Discharge Process

Post-Hospitalization Care

Automation of Patient Medical History Retrieval

Integrate with EHR using APIs. Employ NLP algorithms to pull and structure relevant patient data for easier physician access.

Tailored Medication Plans based on Genetic Markers

Partner with genomic companies for genetic data. Use AI to analyze genetic markers against medication profiles to predict best-suited medications.

Automated Discharge Summaries using AI

NLP tools to parse treatment data and compile comprehensive summaries. Ensure automated alerts for follow-ups and medications.

Pre-Treatment Phase

Treatment Phase

Post-Treatment Phase

Quick-wins: a subset of the patients-360 GEN-ai use cases for MVP/piloting

Pre-Treatment Phase	Treatment Phase	Post-Treatment Phase
Medical History retrieval and insight	**Tailored Medication Plans**	**Launch and Post Market Surveillance**

Medical History retrieval and insight

Personalized Patient's Pathway Generations

- **Use Case** – LLM-powered solutions to generate a detailed and personalized triage for patient care, optimizing resource allocation to reduce ER admissions

- **Benefits** – Reduction of unnecessary ER admission by 30%

Dynamic Generation of Patients-centric Admission Plans

- **Use Case** – In integration with EHR / EMR and analyzing both current patients' data and historical admission patterns, generate detailed admission plans ensuring patients receive a tailored care plan

- **Benefits** – 50% increase in physician-patient interaction time

Tailored Medication Plans

Personalized treatment generations

- **Use Case** – Design GEN-AI that can process multi-modal data sources, including genomics sequences, radiological imagery, EHR/EMR data, and known (Oncology/cardiology) pathways to generate tailored treatment strategies for patients that can optimize therapeutic efficacy.

- **Benefits** – 35% reduction in treatment-related complication

Dynamic Care Pathway generation for hospitalized patients

- **Use Case** – Self-learning Gen-AI system that creates dynamic care pathways for in-hospital patients based on real-time health metrics through the remote monitoring data

- **Benefits** – 35% enhancement in in-patients care quality

Launch and Post Market Surveillance

Discharge summary synthesizer

- **Use Case** – Leverage private LLM models (i.e. HARMAN HealthGPT) to implement a hyper-personalized discharge and therapeutics adherence summary report by leveraging healthcare-optimized transformer models. This platform will harness structured and unstructured data from multi-model HER data, lab results, medication database, physician free-text notes, and imaging report narratives.

- **Benefits** – Reduction in manual entry errors by 40%, expedited clinical workflow by 60%. Reduce readmission rates within the 1st 3 weeks significantly.