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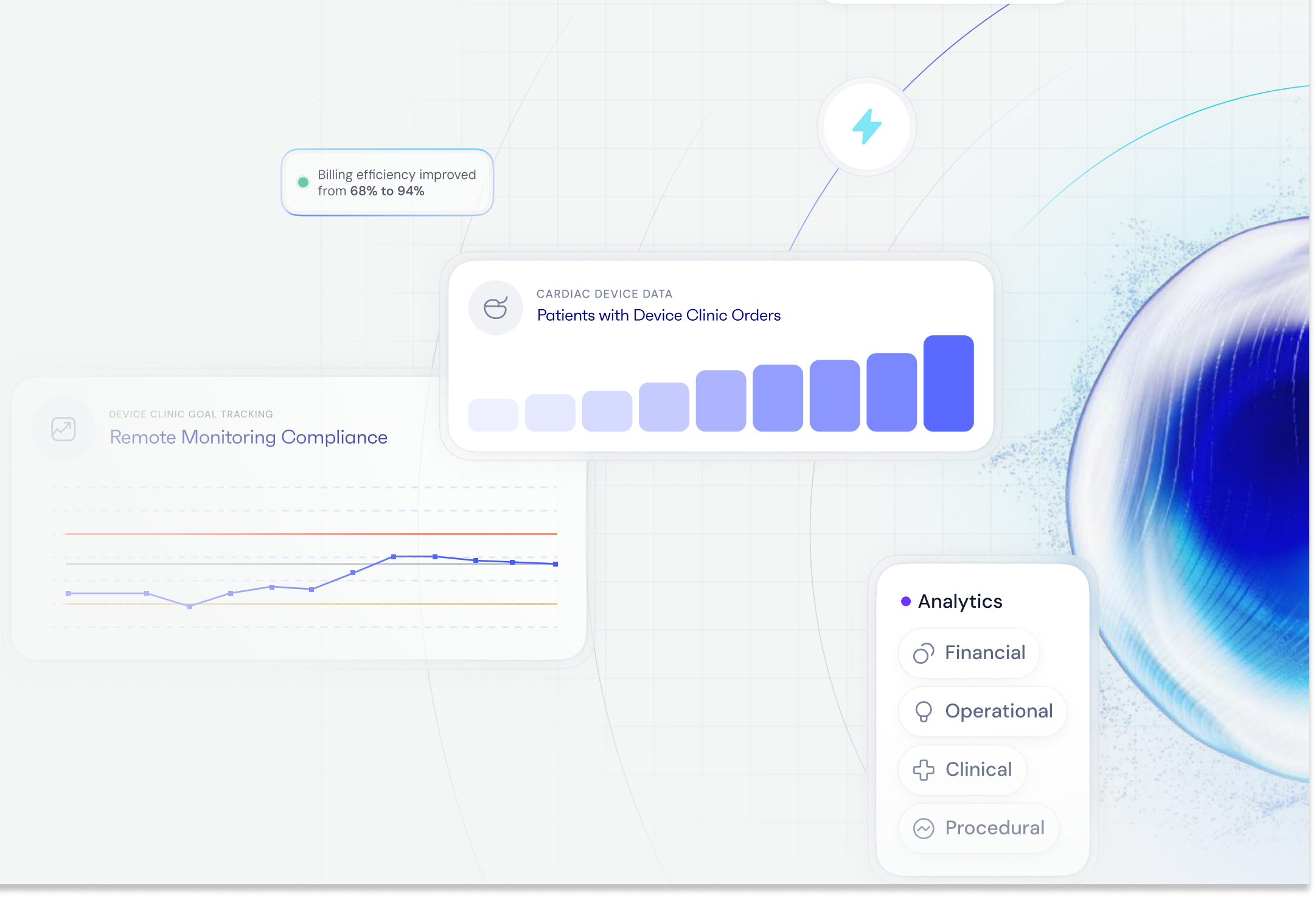
Case Study:

Lehigh Valley Heart & Vascular Institute's Strategic Implementation of Octagos

Database Optimization



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Transforming Remote Cardiac Monitoring at Scale

Executive Summary

Faced with rising demands on its device clinic and stagnant infrastructure, Lehigh Valley Heart & Vascular Institute (LVHVI) sought a transformative approach to remote cardiac monitoring. Through a strategic partnership with Octagos, LVHVI implemented a high-performance platform that significantly increased billing efficiency, improved staff morale, and redefined clinical workflows.

Within 90 days of Go-Live

- Billing efficiency improved from 68% to 94%
- 7,718 patients successfully migrated on day one
- Time-to-sign and alert fatigue decreased across the board
- New referral pathways unlocked for atrial fibrillation and heart failure care
- Average monthly collections increased 31%

This case study outlines how intelligent automation, EMR integration, and data-driven insights enabled scalable, high-value remote monitoring.

Organizational Profile

Lehigh Valley Heart & Vascular Institute (LVHVI) is one of the most comprehensive cardiovascular care networks in eastern Pennsylvania. The Institute operates across 11 hospital campuses and 19 regional cardiology practices, providing high-touch, high-tech cardiac care to a large and growing population.

At the center of its electrophysiology (EP) program are 9 board-certified electrophysiologists and 6 dedicated EP labs, supported by a team of 10 full-time device clinic professionals. This team manages a remote monitoring population of approximately 8,000 patients with cardiac implantable electronic devices (CIEDs), including pacemakers, defibrillators, and loop recorders.

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Organizational Snapshot

Metric	Value
Hospital Campuses	11
Regional Cardiology Practices	19
Electrophysiologists	9
Electrophysiology Labs	6
FTE Device Clinic Staff	10
Device Patients	~8,000

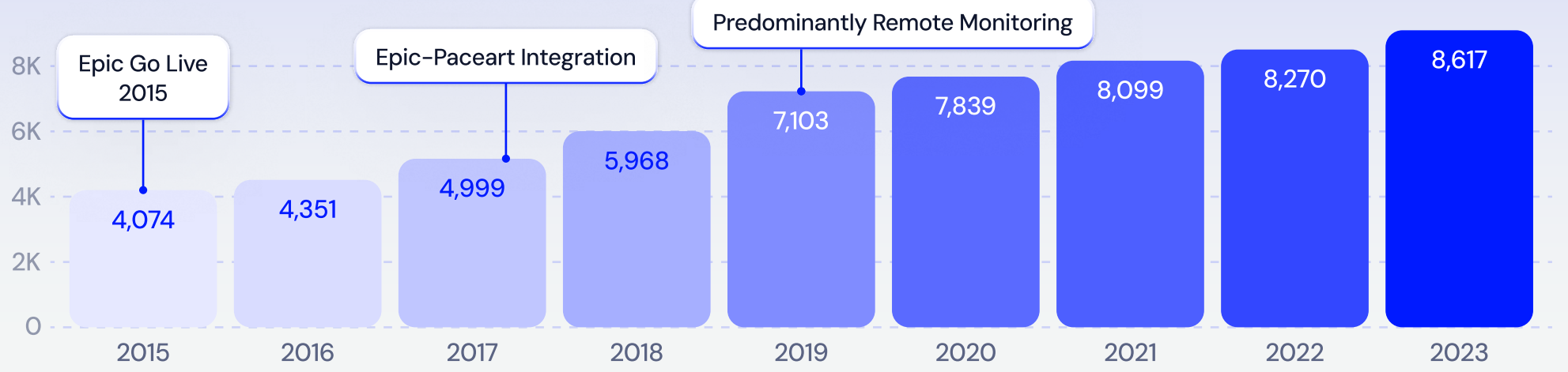
The Problem: a Program at Capacity

Despite a longstanding commitment to remote monitoring, LVHVI's remote monitoring infrastructure had not seen a significant upgrade since 2017 with the integration of Paceart.

Rapid Expansion in Remote Patient Volume Stressed Resources

Epic (EMR) Reporting

Patients with device clinic orders between 1/2015 and 10/2023 by year



The shift to predominantly remote workflows (2019–present) exposed several key operational deficiencies:

- Alert triage, patient communication, and daily transmissions were handled manually
- Clinics had to extend billing and scheduling windows, accepting revenue loss to accommodate volume
- Capacity constraints limited expanding heart failure (HF) monitoring
- Nonactionable alerts and missed transmissions remained unaddressed for long periods
- Missed transmissions were handled passively, causing further delays in patient care
- Monitoring connectivity and compliance suffered due to fragmented workflows

The Solution

Strategic Alignment with National Guidelines

Informed by the 2023 HRS Expert Consensus Statement on Remote Monitoring, LVHVI reassessed its strategy and identified the following priority actions:

- Delegate non-clinical and administrative tasks to technology-enabled systems
- Eliminate non-actionable transmissions and streamline alert burden
- Integrate clinical interpretations into the electronic medical record (EMR)
- Monitor compliance systematically
- Achieve recommended staffing ratios (3:1,000 patients), which would otherwise require a 140% increase in staff

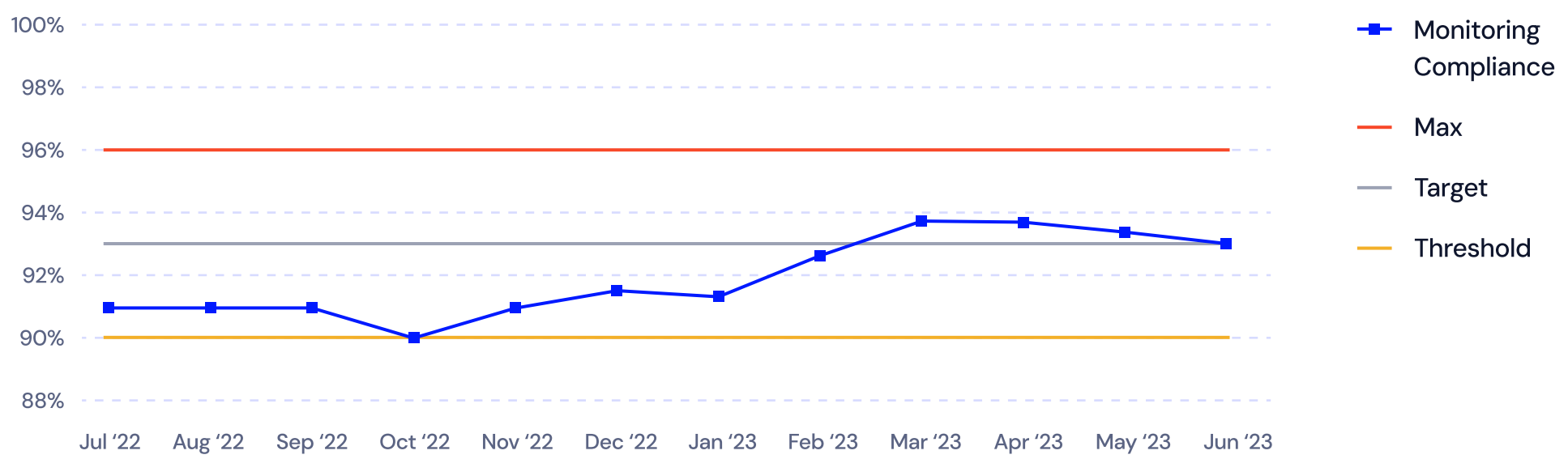
Planning & Preparation: Database Optimization

A comprehensive cleanup of the existing Paceart database was conducted to ensure a smooth transition and reliable system performance post-migration. Key activities included:

- Validating and correcting critical 'handshake' data fields are essential for interfacing with the EMR
- Eliminating duplicate or outdated patient records to streamline workflows
- Cross-referencing and updating patient monitoring compliance status
- Reorganizing device patient assignments to ensure accurate scheduling and reporting
- Ensuring that patients eligible for remote monitoring were fully enrolled and connected

This effort improved data quality and established a foundation for enhanced program scalability and compliance monitoring once Octagos was deployed.

FY23 Device Clinic Goal Tracking: Remote Monitoring Compliance



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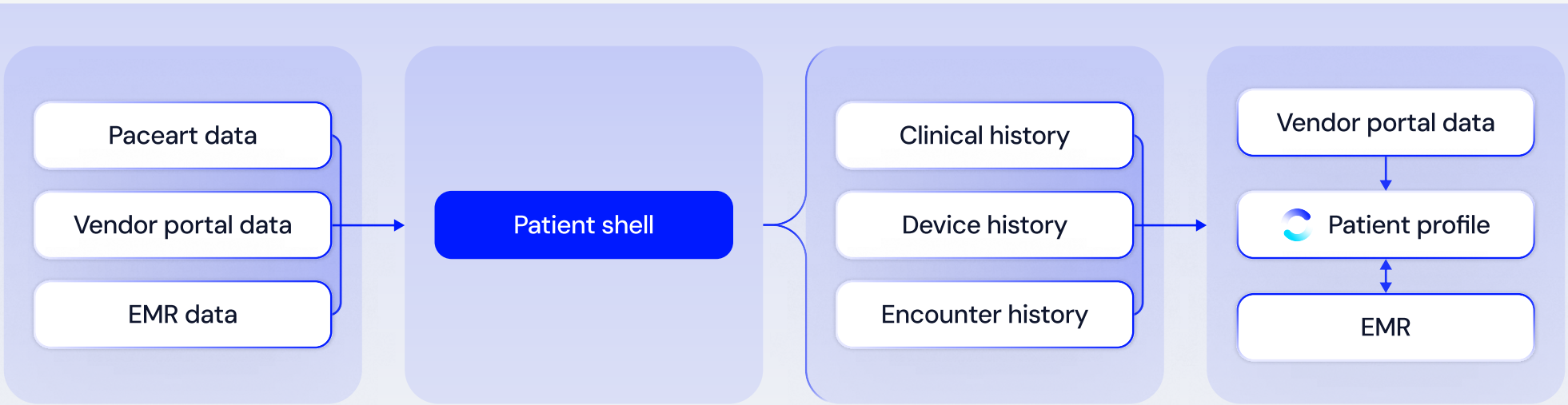
Optimizing Data Migration

Before Octagos, patient data was fragmented across three manually maintained databases.
With Octagos, all historical Paceart data was securely migrated and retained.
Post-integration, data sources now communicate automatically through bidirectional connections, delivering continuous synchronization across the EMR, vendor systems, and Octagos – eliminating manual effort and ensuring unified and reliable data.



Data Matching Zone

Critical to migration and most susceptible to error

Click Point

Cross-reference sources identifiers

Data Migration Zone

Map fields of interest and link to patient shell

Integration Endpoint

Interfacing with sources for long-term management

Vendor Selection and Implementation Planning

Octagos was chosen through a weighted RFP process
for its purpose-built platform, strong AI/ML capabilities, and proven success in EP programs.
Pre-implementation planning included:

- A full audit and cleanup of the Paceart database
- Cross-referencing key data fields to ensure handshake accuracy
- Maximizing remote monitoring compliance ahead of migration
- Joint project planning between Octagos analysts and LVHVI I/S, revenue cycle, and clinical teams
- Establishing project governance through a defined charter and coordinated timeline

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Weighted RFP

	A	B	Octagos
Automatic billing in Epic at regular intervals	✗	✓	✓
Electronic signature options for physician, single-sign on Epic access, cloud-based	✗	✓	✓
Ability to quickly visualize episodes (current and past) from EMR	✗	✓	✓
Ability to produce HF specific diagnostic reports / integrates with CardioMEMS	✗	**	✓
Ability to send ED and inpatient device checks to EMR	*	✓	✓
Options for customizable analytics reporting and patient identification dashboard	✗	***	✓

* Only using a workaround ** Additional fee *** Enhanced reporting at an additional fee and real-time data not offered

Business Case for Octagos

The decision to implement Octagos was grounded in a clear set of business objectives: enhance clinical throughput, recover lost revenue, and improve patient and provider experience. By aligning operational goals with platform capabilities, LVHVI built a strong case for investment grounded in ROI, clinical quality, and long-term scalability.

Clinical Benefits

- Accessibility and timeliness of data
- Improved patient care and clinical outcomes
- Clinical program development
- Improved billing efficiency
- EMR integrated reporting

Operational Benefits

- Improved operational efficiency
- Automated scheduling and charge capture
- AI/ML supported workflows
- Accelerated provider time-to-sign
- Reduction in administrative burden

Financial Benefits

- Improved revenue capture
- Maintain routine check/billing windows
- Scalable infrastructure without expanding FTE count
- Enhanced reporting and data visibility.
- Optimized billing efficiency

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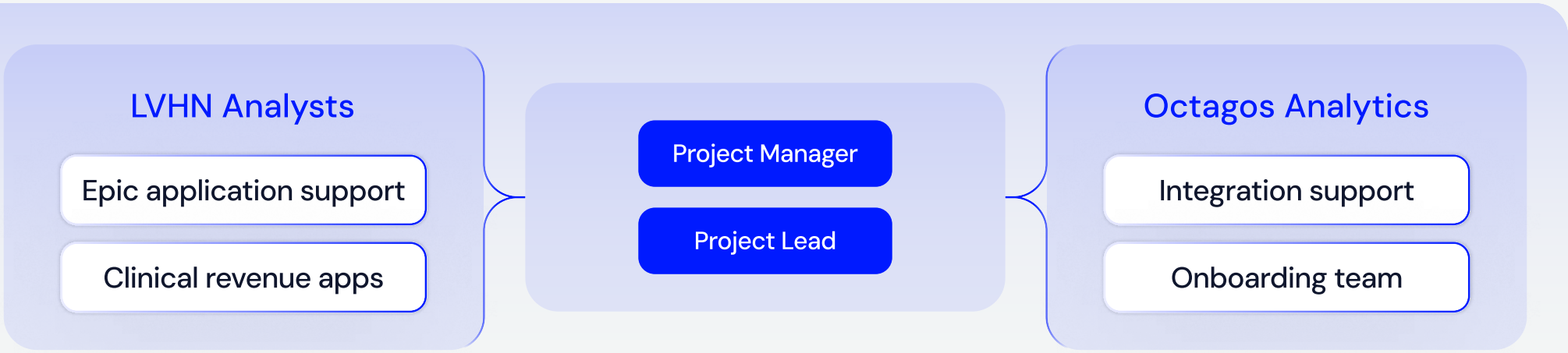
Strategic Gains

- Improved colleague retention and morale
- Higher patient satisfaction
- Enhanced reporting and data visibility
- Expanded access for general cardiology, emergency medicine, and hospitalist team
- Strengthened institutional reputation and community service delivery

Implementation Timeline

Implementation officially began in March 2024 and was structured for efficiency and alignment across teams. Leveraging project management software, Octagos facilitated a parallel workstream model within LVHVI to accelerate progress without compromising quality. Key tasks occurred simultaneously, including clinical onboarding and workflow development, internal systems build and testing, and the migration of Paceart data alongside vendor portal integrations. This synchronized approach enabled the team to maintain momentum while preparing the infrastructure, people, and processes necessary for a successful go-live.

EMR Integration Project – Assemble Team



Go Live: Day 1

- Patient Dashboard: 7,718 patients onboarded
- Vendor Portal Connectivity: Fully integrated
- Paceart Database: Fully migrated
- E-signing: Reports succesfully signed and uploaded
- Billing: Autobilling with the last bill date available
- Communications: Patient communications sent
- EMR Integrated: Orders and results interfacing completed

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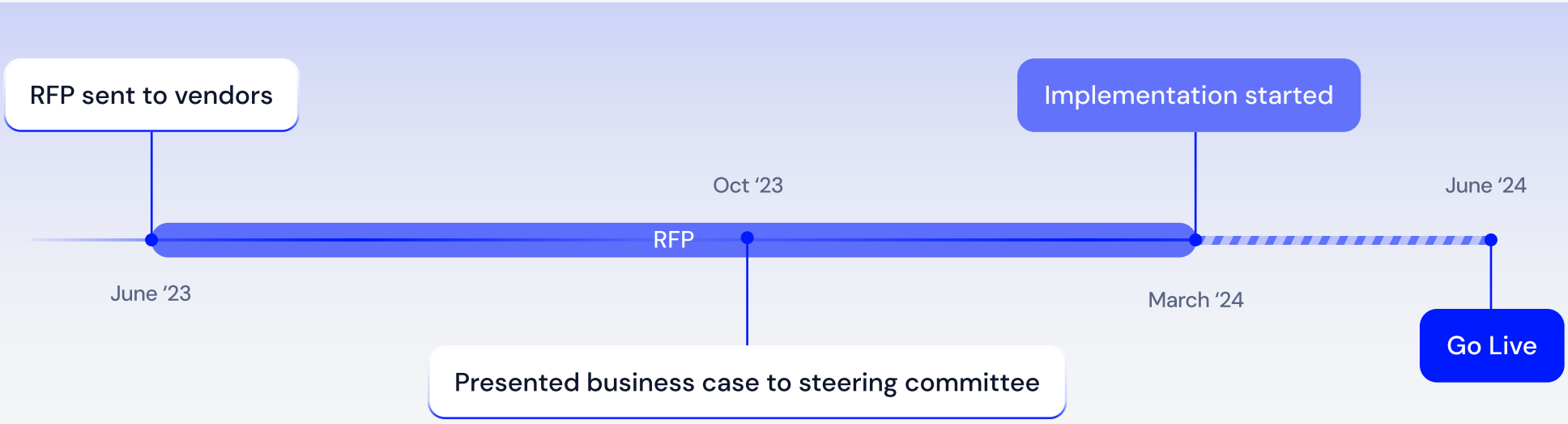
Octagos – Timeline



Results and Impact

Operational Efficiencies Realized

- Billing efficiency increased from 68% to 94% across pacemakers (PPM), implantable cardioverter defibrillators (ICD), and implantable loop recorders (ILR)
- Improved interoperability between the Octagos platform and Epic EMR
- Patient communications and provider education streamlined
- Continuous feedback loops are maintained to optimize functionality
- Average monthly collections increased 31%

Clinical Program Development

- Procedure ID in-platform analytics generates referral lists for targeted interventions (e.g., AFib, LAAO). As of the date of the case study:
  - AFib Center of Excellence reviewing 225 patients for ablations
  - LAAO coordinator reviewing 166 patients for intervention
- Collaboration with heart failure clinics leading to improved workflows and expanded HF monitoring capabilities

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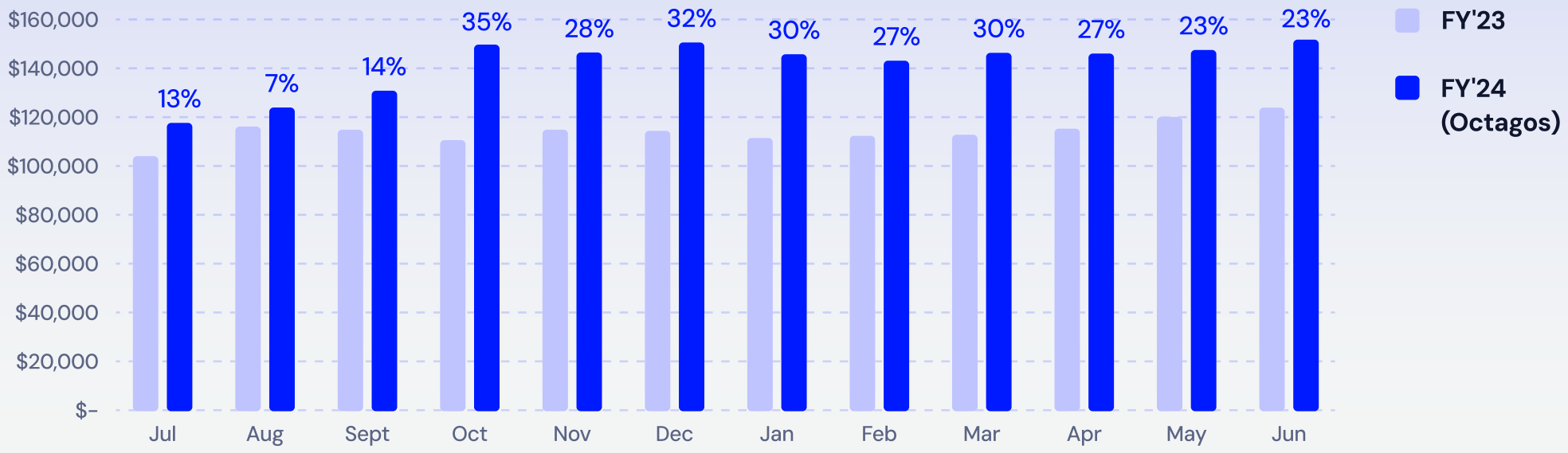
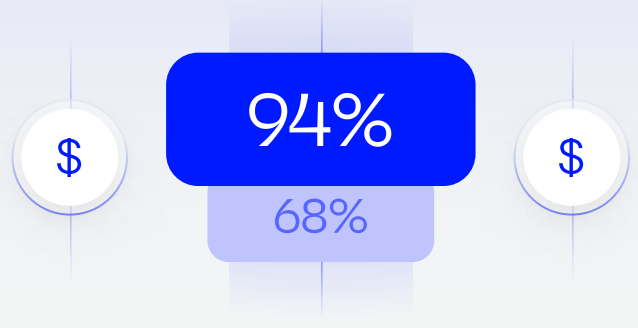
Revenue Increase versus Prior Period (Rolling Average)



31% Higher Revenue Capture

>$330K in recovered revenue over first 12-months

Billing Efficiency Increase with Octagos (PPM, ICD, ILR)



Lessons Learned

Change Management is Essential

A strong internal project charter and multidisciplinary governance ensured buy-in across teams.

Integration is an Ongoing Process

Post-launch support and refinement were critical to address export settings, gap migration, and interfacing nuances.

Technology Enables – *but Doesn't Replace* – Clinical Strategy

The platform succeeded not by replacing staff, but by optimizing their capabilities.

Conclusion: a Results-Driven Model for Scalable Remote Monitoring

LVHVI's collaboration with Octagos delivered measurable, strategic wins across clinical quality, operational efficiency, and workforce sustainability. The transition enabled the Institute to scale remote cardiac monitoring without increasing staff, reduce revenue leakage, and proactively identify patients for life-altering interventions.

Billing performance reached a 94% efficiency threshold, with built-in charge capture and streamlined workflows

Over 7,700 patients were onboarded with no disruption to care, enabling full continuity through EMR-integrated results

Alert fatigue was dramatically reduced, giving time back to providers and enabling faster, data-driven decisionsc

AFib and HF referral pathways were modernized through analytics-based patient identification

LVHVI created a modern, scalable, and high-value care delivery model by combining technology purpose-built for electrophysiology with strong internal governance and preparation. Octagos delivers high-value functionality tailored to electrophysiology – seamless Epic integration, automated workflows, and real-time analytics that directly support clinical and operational goals. For programs seeking to scale remote monitoring without expanding staff, it offers a practical, proven path to efficiency, accuracy, growth, and exceptional results.

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