

Project Summary

Tristate Health Data needed a reliable way to automate chronic care chart review for case managers across multiple practices. The workflow had to extract signed clinical notes from source EHRs, convert them into standardized CCM review comments, post them to Tristatecare, and keep the tracking sheet in sync without duplicate processing.

We designed a production-ready .NET automation service with adapter-based EHR integration, queue-driven job handling, Google Sheets control updates, audit logging, PHI masking, and idempotent error handling. The solution is structured to start with eCW and extend to DrChrono, using secure secret management and deployment-ready packaging. The result is a scalable, audit-friendly workflow that reduces manual effort and improves consistency.

Problem Statement

Manual chart review was slowing case managers down and creating inconsistent output across practices. Each review needed to pull the right encounter, extract the right note sections, format them into a standardized CCM comment, and record status changes in the control sheet. The process also needed to avoid duplicate posts, preserve auditability, and keep PHI out of logs. In addition, Tristate needed a design that could start with eCW and extend to DrChrono without rebuilding the workflow. The attached proposal and workbook point to a queue-based .NET implementation with Google Sheets sync, audit logging, and secure secret handling as the core requirements.

Approach / Solution

We used a layered .NET 8 worker architecture with an adapter interface for each EHR source, allowing eCW and DrChrono to share the same downstream posting flow. Job intake, pickup, retry, and completion were modeled through a queue/database layer so concurrent processing remains safe and duplicates are skipped.

Extracted clinical data is transformed into a standard CCM review payload and posted to Tristatecare through an idempotent API client. Google Sheets remains the operational control plane for status tracking, while logs are redacted and secrets are stored in managed vaults. The result is a secure, extensible workflow designed for repeatable chart review at scale.

Technical Challenges

- Challenges

- ★ Supporting multiple EHR sources with different access patterns and field structures.
- ★ Preventing duplicate chart review posts and keeping queue processing safe under concurrency.
- ★ Keeping PHI secure while still giving operations visibility into job status and outcomes.

- How We Solved It

- ★ Built an adapter-based design so eCW and DrChrono can share the same processing pipeline while preserving source-specific extraction rules.
- ★ Used job locking, idempotency checks, retry logic, and immutable process logging so each chart is handled once and only once.
- ★ Applied secret management, PHI masking in logs, and status-only sheet updates so sensitive content stays out of non-clinical systems.

Learning

Adapter-first architecture is critical when one workflow must support multiple EHRs. Idempotency and queue locking should be treated as core requirements, not add-ons. PHI-safe logging and secret management must be built in from the first sprint. Operational control sheets work best when they store status and audit data, not clinical details.

Tristate Chronic Care Chart Review Automation