Revolutionizing the Clinical Research Revenue Cycle with G.E.M.S.
A Cross-Functional Tool Mapping Hospital and Research Chargemasters to Enhance Workflows with Automation

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Background

- Accurately capturing research procedure costs is critical to maintaining revenue integrity, securing adequate funding, and preventing underbudgeting
- A more comprehensive mapping of our research chargemaster (OnCore CDM) to hospital chargemaster (Soarian CDM) was key to strengthening budget builds and downstream clinical research revenue cycle processes
- The most challenging endeavor of this CDM update project was how best to effectively capture the hospital charges from the Soarian CDM into the OnCore CDM

Goals

The main goal was to collaborate with our clinical and revenue cycle (RC) research teams to develop a standardized CDM mapping system to enhance efficiency, accuracy, and compliance in subject calendar and budget builds, visit certification, invoicing and billing.

Solutions and Methods

- Collaboration led to a mapping system which mapped more generalized procedure fields within the OnCore CDM budget event to the Soarian CDM charge code fields, as the research budget analyst (BA) is not always able to use specific charge codes when budgeting
- Seen as the "Golden Egg" to enhancing all RC processes, the system was named the "**G**olden **E**gg **M**apping **S**ystem", or G.E.M.S. (GEMS), and became the foundation to rebuild the OnCore CDM
- GEMS was created in Excel and included all active fee types, their cost centers per charge code and pricing which were meticulously mapped to and imported into OnCore
- Commonly-used calendar procedure names were also mapped to their corresponding budget events in GEMS
- An SOP and training were developed to educate teams on usage of GEMS, and a web form was also created to submit and document ad hoc OnCore CDM requests.

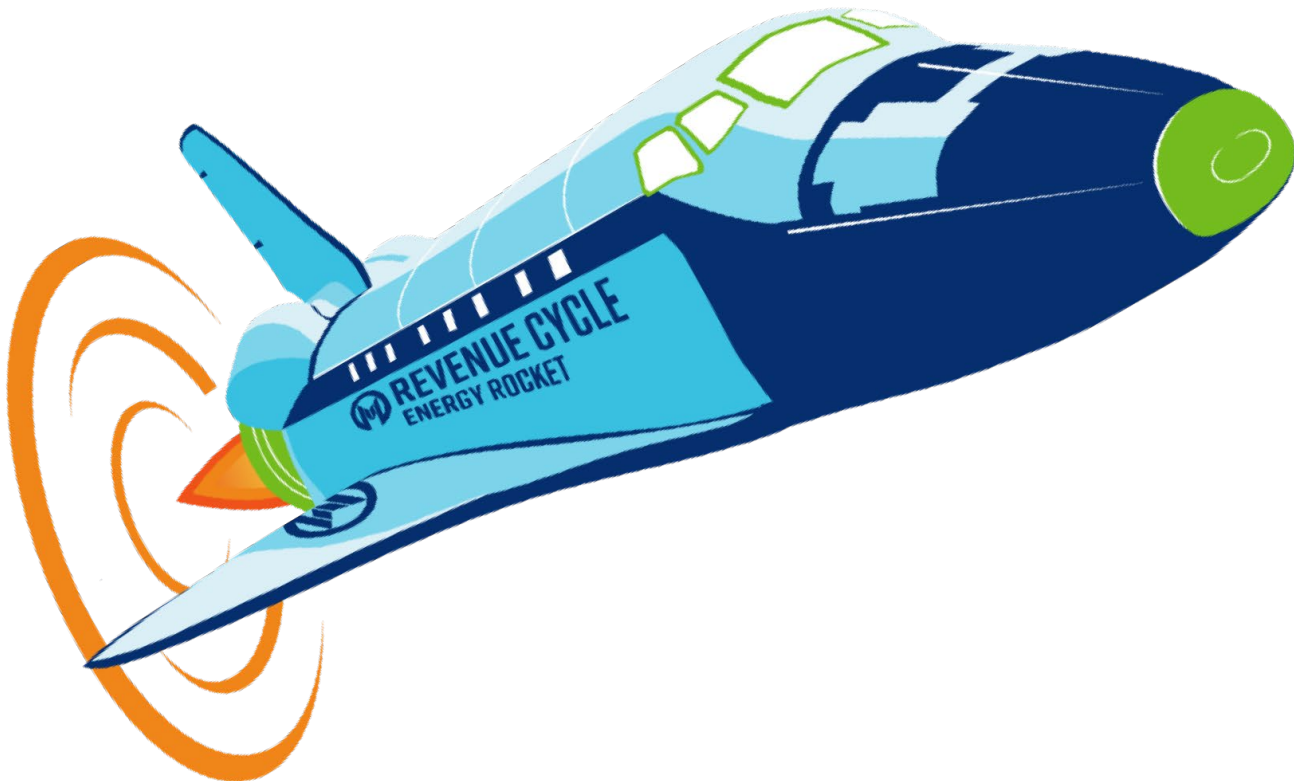## Automation to Streamline OnCore Budget Builds

- A Visual Basic for Application (VBA) macro was developed to automatically add budget events and items mapped in GEMS to these calendar procedures listed in the OnCore calendar build which created consistency, accuracy, and saved the BA time from adding them manually
- Another macro was created which synced the pricing from GEMS for hospital charges to an OnCore budget, allowing storage of retail pricing outside of OnCore and maintained within GEMS

Example GEMS Mapping

CPTRevCd	CPTRevMne	CalendarProcedure	EventCd	EventDesc	ItemCd	ItemDesc	CC	Price
71045	X-RAY EXAM CHEST 1 VIEW	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest	X-Ray Chest	11301	Redacted
71045	X-RAY EXAM CHEST 1 VIEW	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest	X-Ray Chest	11314	
71045	X-RAY EXAM CHEST 1 VIEW	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest	X-Ray Chest	11312	
71045	X-RAY EXAM CHEST 1 VIEW	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest	X-Ray Chest	11310	
71045	X-RAY EXAM CHEST 1 VIEW	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest-PF	X-Ray Chest-PF	46001	
71046	X-RAY EXAM CHEST 2 VIEWS	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest	X-Ray Chest	11301	
71046	X-RAY EXAM CHEST 2 VIEWS	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest	X-Ray Chest	11312	
71046	X-RAY EXAM CHEST 2 VIEWS	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest	X-Ray Chest	11314	
71046	X-RAY EXAM CHEST 2 VIEWS	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest	X-Ray Chest	11310	
71046	X-RAY EXAM CHEST 2 VIEWS	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest-PF	X-Ray Chest-PF	46001	
71047	X-RAY EXAM CHEST 3 VIEWS	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest	X-Ray Chest	11301	
71047	X-RAY EXAM CHEST 3 VIEWS	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest-PF	X-Ray Chest-PF	46001	
71048	X-RAY EXAM CHEST 4+ VIEWS	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest	X-Ray Chest	11301	
71048	X-RAY EXAM CHEST 4+ VIEWS	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest	X-Ray Chest	11310	
71048	X-RAY EXAM CHEST 4+ VIEWS	Chest X-Ray	X-Ray Chest	X-Ray Chest	X-Ray Chest-PF	X-Ray Chest-PF	46001	

ROADMAP TO THE FUTURE

Research Billing Automation:

Apply NCT coding for SOC charges to potentially decrease CRRI manual application of billing codes workload by 50% or more

Reverse and create stat charges for billable to research procedures to potentially decrease CRRI manual workload by 50% or more

Calendar Upgrade Macro:

Shows latest signed consents per subject prior to calendar upgrade

Ensure all protocol subjects are on the correct calendar version

Shows current subject calendar version and protocol versions tied to each calendar upgrade for verification

Visit Certification Tools:

Visit Certification:
GEMS and Soarian charge data extracts to assist with Visit Certification completion and accuracy

Visit Recertification:
Macro will recertify the same visit and re-enter all original visit AND form data

Used to delete/recertify a visit to reflect a new budget version

Outcomes

GEMS implementation has:
- Accelerated the possibilities of RC workflow automation
- Introduced essential reporting opportunities such as trial income revenue and cost analysis
- Enhanced budgeting consistency and expedited budget completion timelines by 30% compared to the past two years

Lessons Learned and Roadmap to the Future

- Collaboration among our clinical and financial teams was crucial to gain perspective from all RC workflows, allowing us to address process improvement opportunities and result in an innovative hospital-to-research CDM mapping system
- The teams will discuss future strategies needed to maintain GEMS mapping and additional methods of measuring and projecting business impact as more data is collected on final negotiated budgets and billing compliance using the updated OnCore CDM