Automating Population Health
Integrating Rhapsody into Pop Health Applications

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Agenda

Population Health Overview

Technical Project Overview

Automated Ordering Project

Email Notification Project
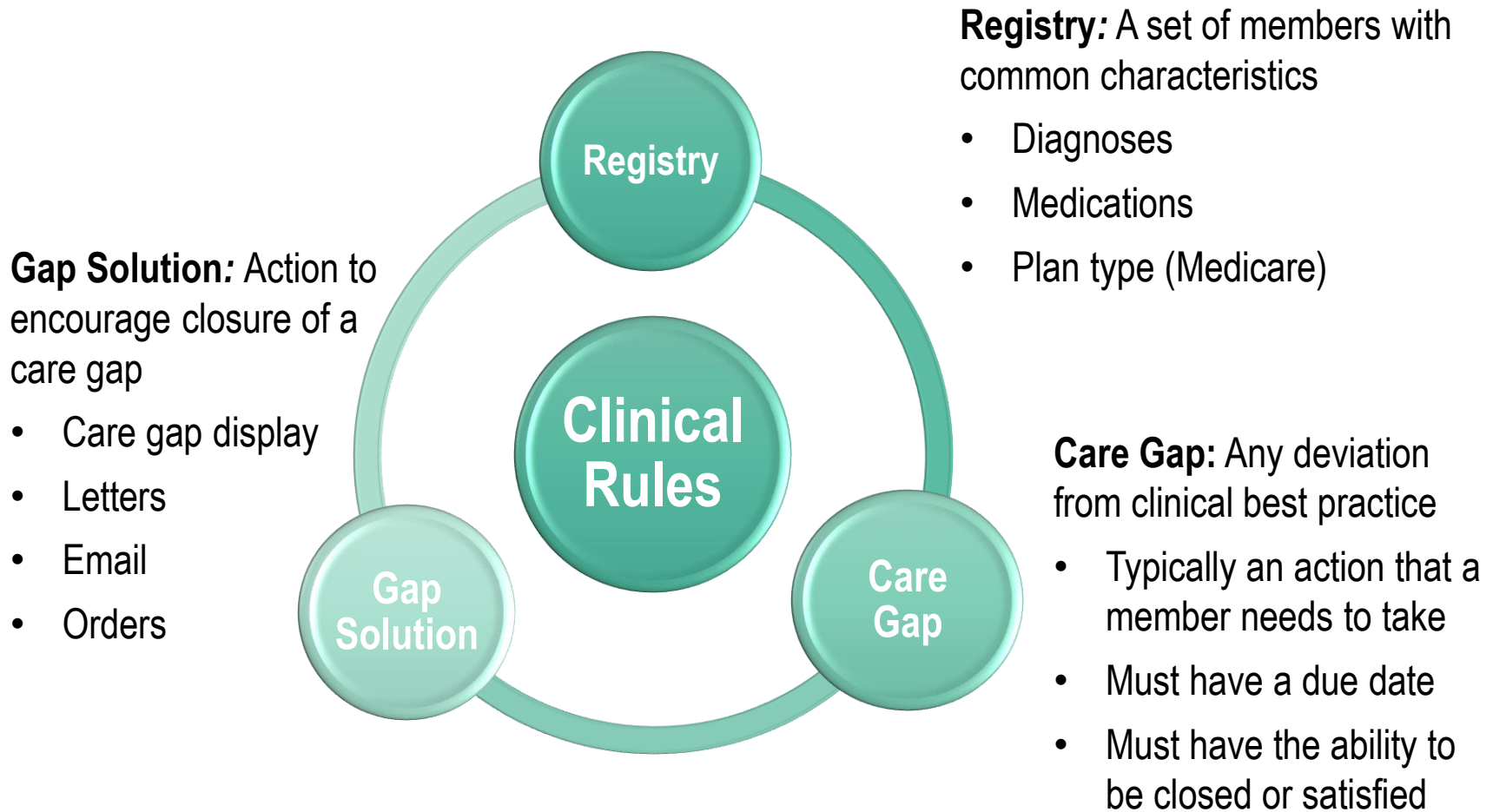
Gap Solution Impacts

Final Thoughts

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Population Health Overview
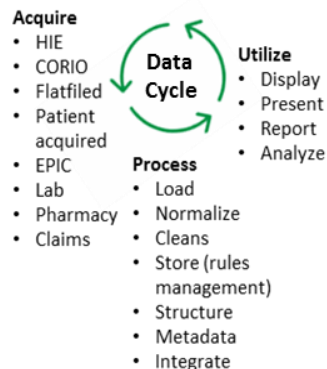
Population Health Philosophy

- Automate routine tasks to allow clinicians to focus on health care

- Apply evidence-based best practices to populations

- Enable members to take responsibility for their own health

- Evaluate programs by clinical outcome rather than activity
  - Total health is the goal

- Don't burden IT with maintenance and monitoring

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Population Health Definitions

Registry: A set of members with common characteristics

- Diagnoses
- Medications
- Plan type (Medicare)

Gap Solution: Action to encourage closure of a care gap

- Care gap display
- Letters
- Email
- Orders

Registry

Clinical Rules

Gap Solution

Care Gap

Care Gap: Any deviation from clinical best practice

- Typically an action that a member needs to take
- Must have a due date
- Must have the ability to be closed or satisfied

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Clinical Decision Support Ecosystem

- Clinical Decision Support requires the integration and application of capabilities to fully achieve a mature ecosystem

- Kaiser Permanente has many existing capabilities

- There are opportunities to accelerate and integrate more capabilities

Technical Project Overview

Key Technical Project Concepts

- Simple solutions are easier to maintain

- Database-centric, with limited application code

- Automate whenever possible

- Utilize stored procedures and reusable components

- Leverage existing systems and functionality

- Use the appropriate technology and tools for the job

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Gap Solution Projects

- **Automated Ordering** – Automatically places lab and radiology orders in EMR as soon as or prior to when they are due

- **Email Notification** – Sends emails to patients who are due for labs or procedures directing them to a website to view details on what their next steps should be

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Gap Solution Data Flow
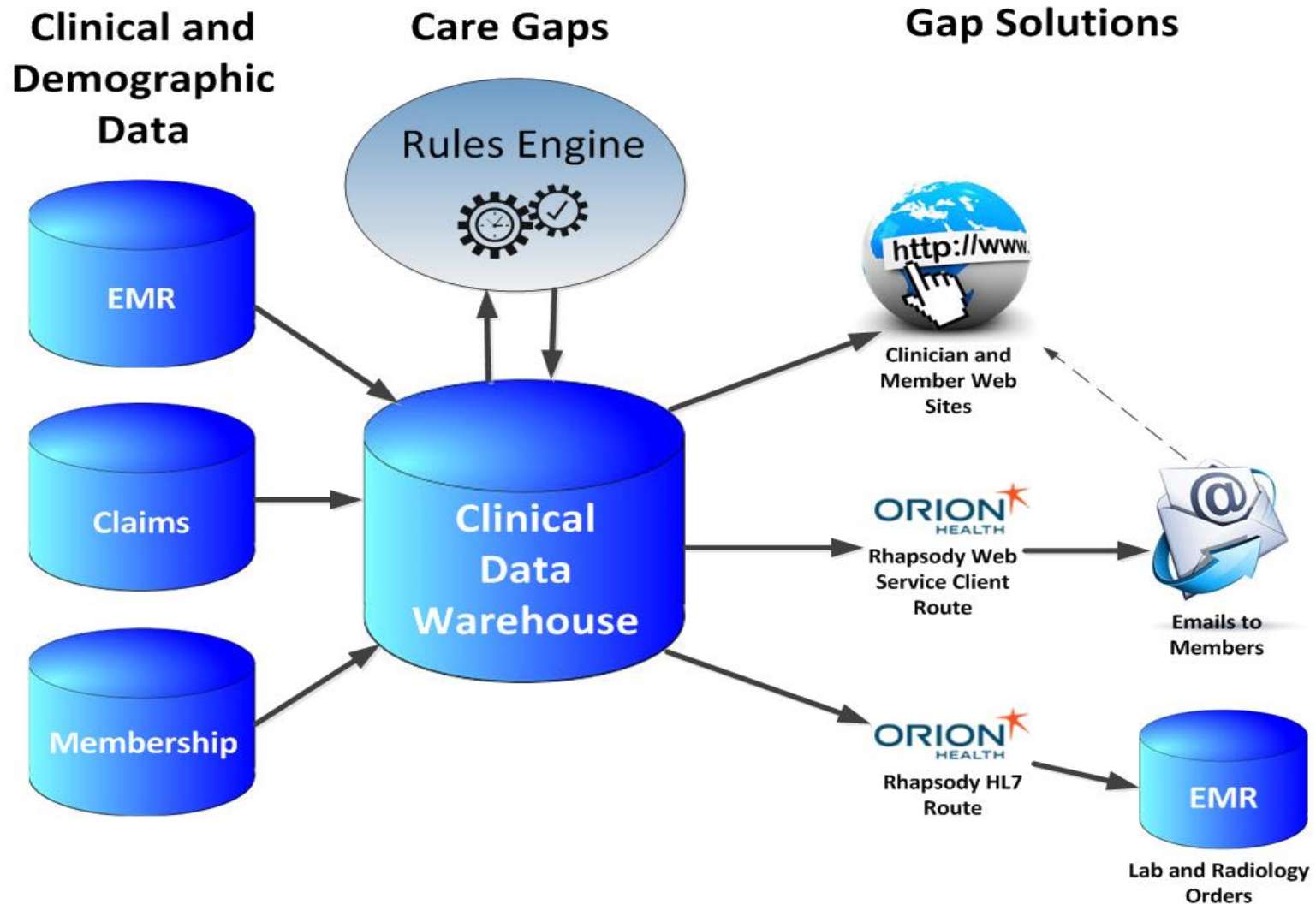
Use Case – Automate Routine Actions
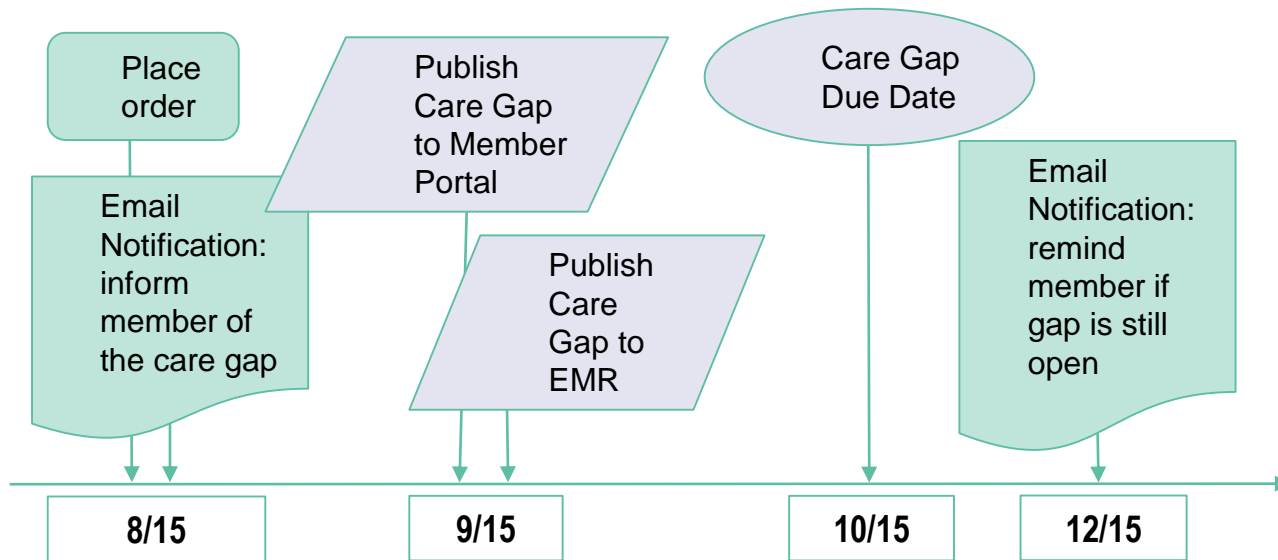
Breakthrough

- Automating routine member communication, lab order and negative results management

Value

- Consistent, timely execution of Population Health Management activities
- Frees clinician time for more valuable activities

Timeline elements:

- Place order
- Email Notification: inform member of the care gap — 8/15
- Publish Care Gap to Member Portal
- Publish Care Gap to EMR — 9/15
- Care Gap Due Date — 10/15
- Email Notification: remind member if gap is still open — 12/15

Principle: Identify manual actions that are routinely performed and devise methods of automating

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Automated Ordering Project

Automated Ordering Key Features

- Fully automated database/Rhapsody system

- Clinicians do not have to spend time placing routine orders

- Lab and radiology order types

- Orders are based on individualized care gaps

- Orders are available for patients as soon as they are due (or even prior)

- Real-time status changes reflected in the application

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Rhapsody Key Features

- The technology is the easy part (it just works)

- No application code to write

- Reliable – runs on Linux server in the cloud

- Scheduling – New orders limited to non-business hours

- Throttling – Limit rate of orders based on type

- Rhapsody variables – Allow easy port from Test to Prod

Create or Cancel Order
Rhapsody Route
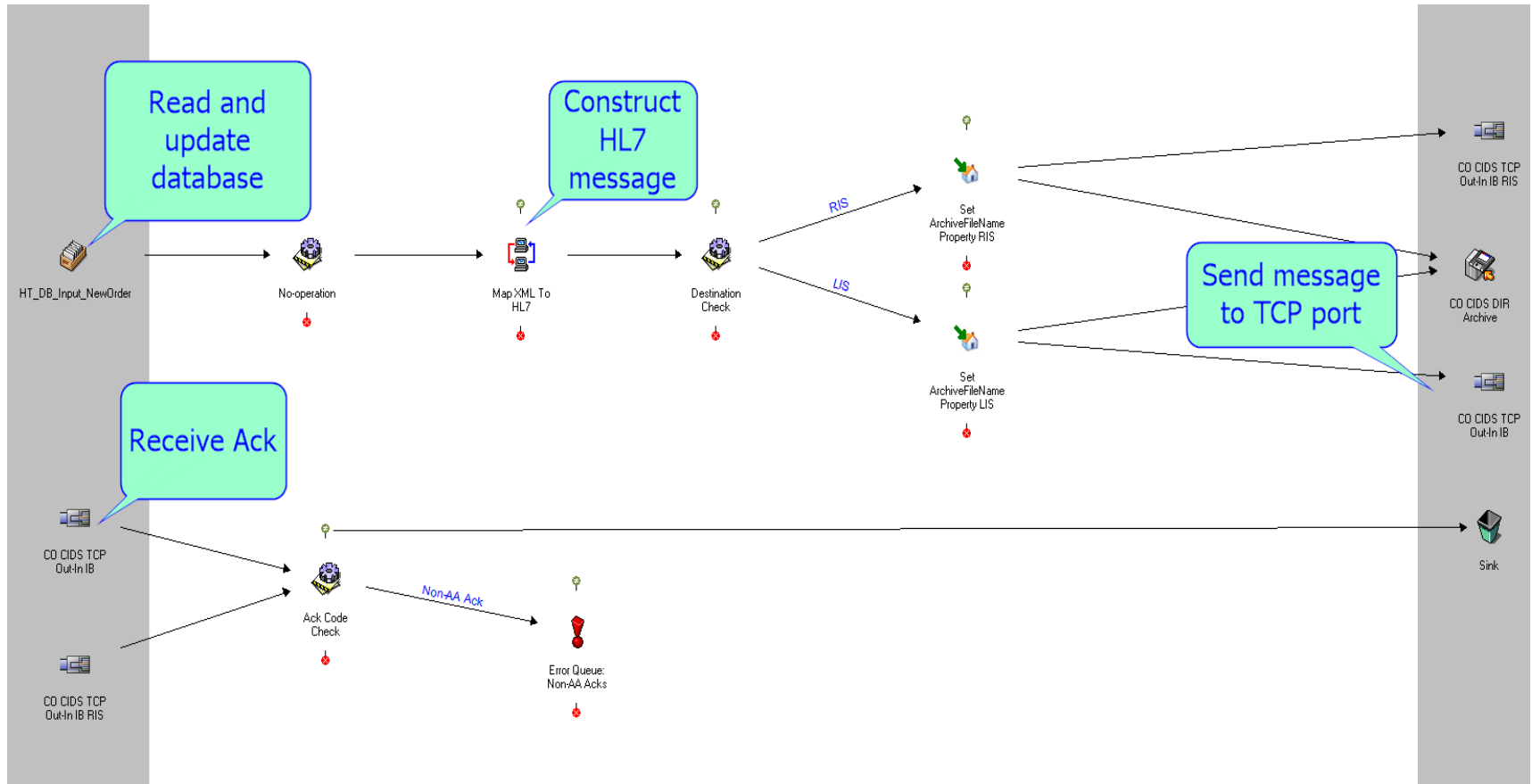
Create or Cancel Order
Rhapsody Database Config
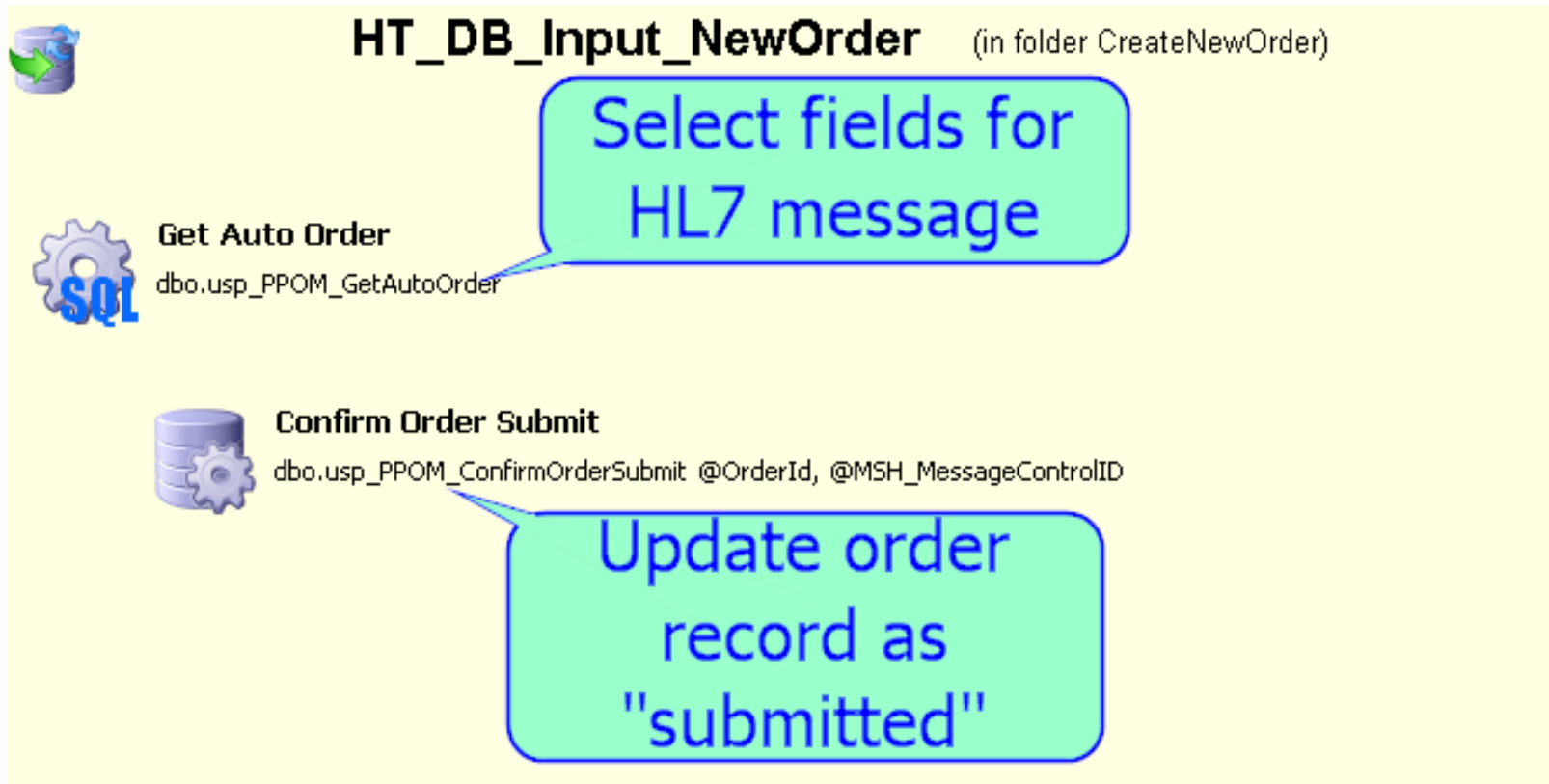
Receive Order Update
Rhapsody Route
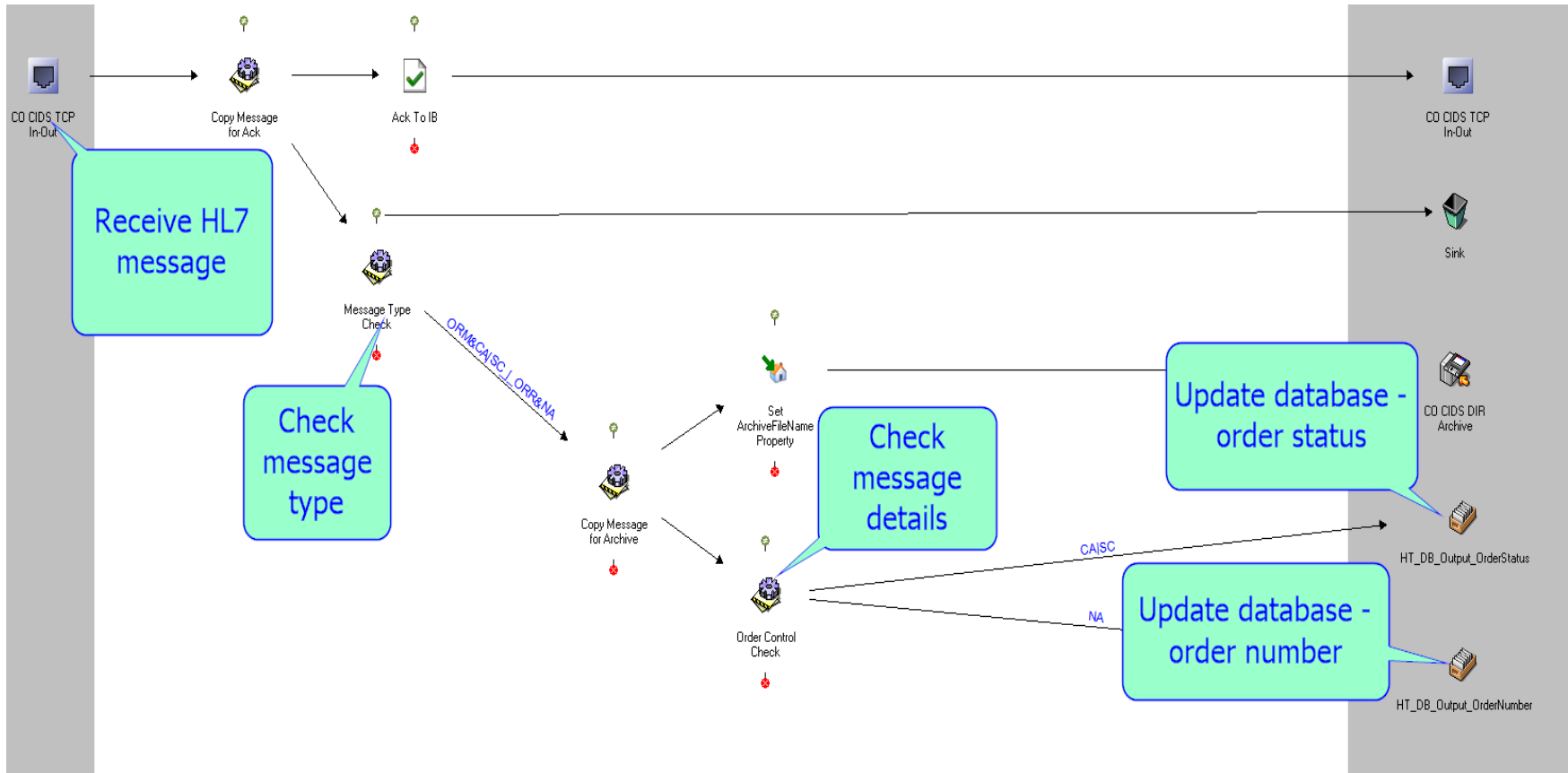
Email Notification Project

Email Notification Key Features

- Email message directs members to website for details

- Based on overdue care gaps

- Fully automated

- Leverages existing SOA functionality, maintained by national IT

- Database-driven solution, no application code

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Email Notification Request
Rhapsody Route
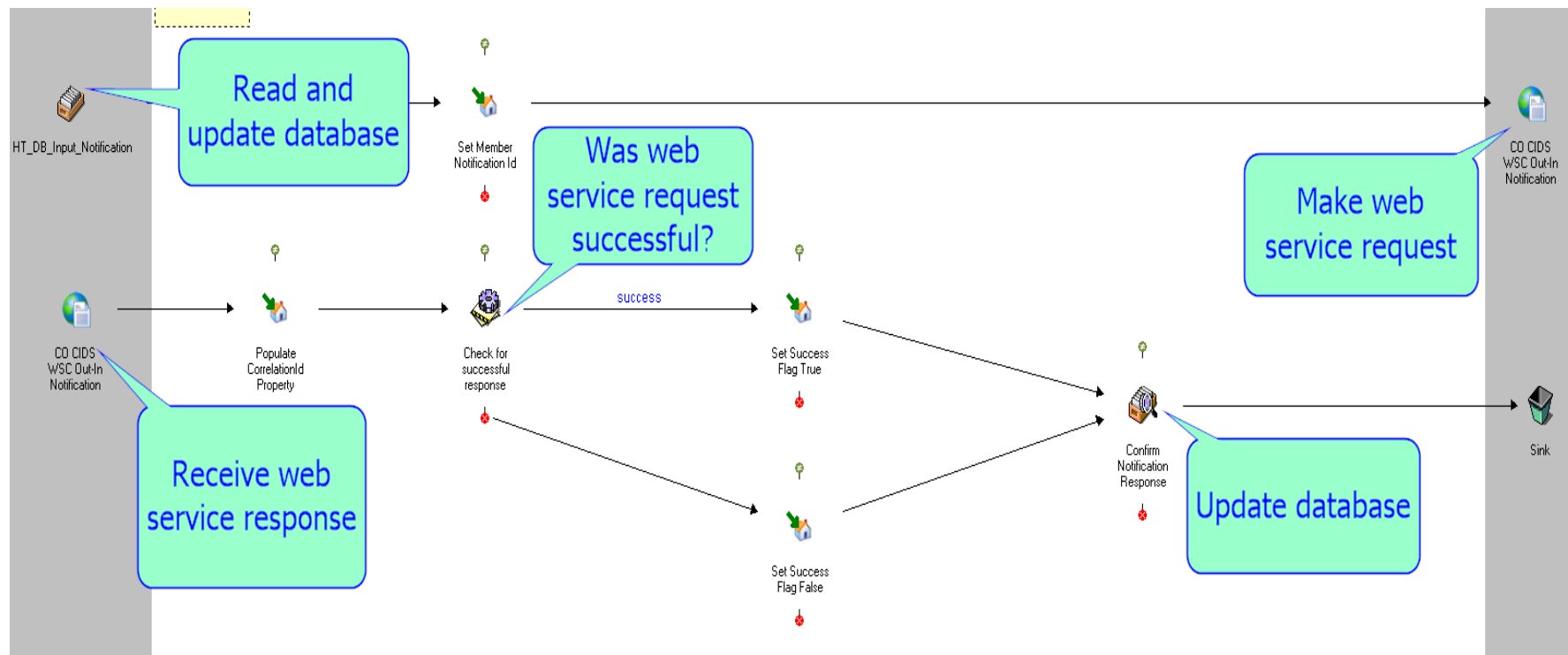
Email Notification
Rhapsody Database Config

HT_DB_Input_Notification (in folder CO CIDS Notification)

Database Communication Point (Input)

Get Member Notification
dbo.usp_GetMemberNotification

Confirm Notification Submit
dbo.usp_ConfirmNotificationSubmit @MemberNotificationId

Email Notification
Web Service Client Config

Email Notification
Web Service Client Config

Gap Solution Impacts

Provider Care Gap View

Member Care Gap View

♥ Cholesterol test

Due as of 04/08/17

How:

Go to any Kaiser Permanente lab for a blood draw. You do not need to contact your personal physician or make an appointment with the lab in advance. You do not need to fast for this test.

Why:

A cholesterol test measures the fats in your blood and helps assess the health of your heart, blood vessels, and risk for heart attack or stroke. It can also show if medications are working. Learn more about this test.

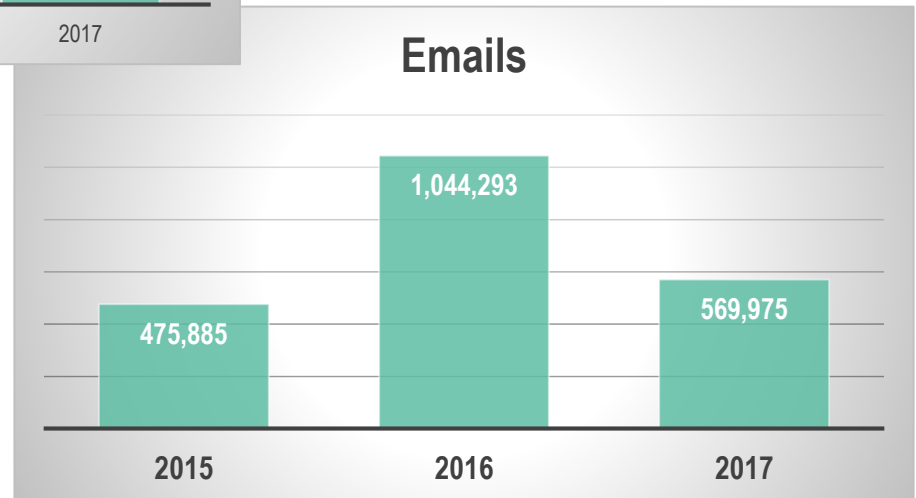**View less <**

♥ A1C test

Due as of 04/09/17

How:

Go to any Kaiser Permanente lab for a blood draw. You do not need to contact your personal physician or make an appointment with the lab in advance. You do not need to fast for this test.

Why:

A1C is a test that tells you if your blood sugar is in the healthy range. Learn more about this test.

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Message Volume

Orders

- 2014: 704,033
- 2015: 875,799
- 2016: 884,955
- 2017: 809,943

Emails

- 2015: 475,885
- 2016: 1,044,293
- 2017: 569,975

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Screening Response
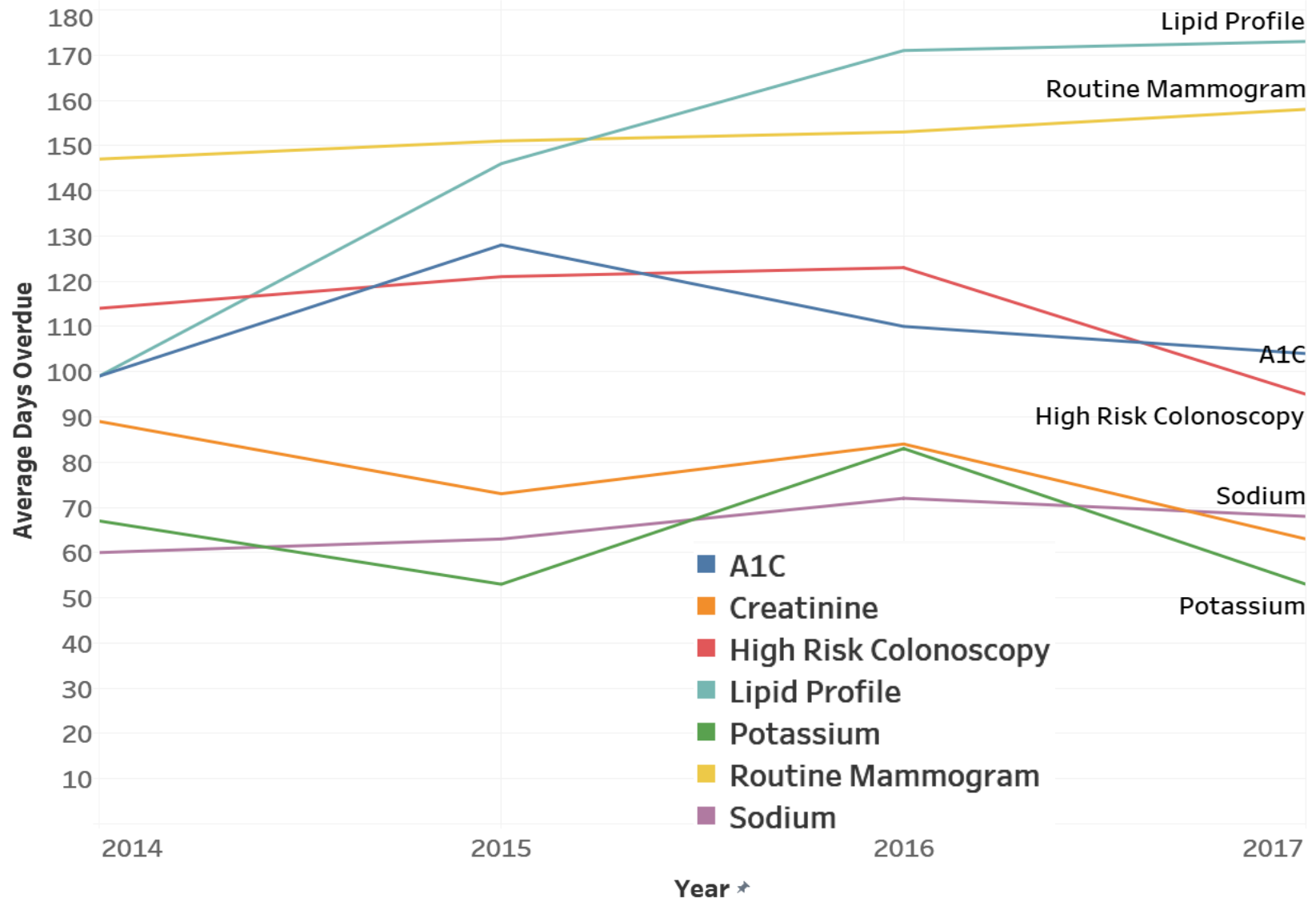
Final Thoughts

Key Technical Learnings

- Take Rhapsody training
  - Online or on-site
- Log actions in the database
- Utilize stored procedures
- Deploy functionality incrementally

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Future Rhapsody Projects

- PCP linking synchronization

- Automated secondary care team assignment

- Specialist referral order

- Outreach encounters in EMR

- Use of FHIR and REST services

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Questions?

Thank you!

Pete Champlin & Laurence Mapp

Kaiser Permanente, Population Health Informatics Services