Integrating Medical and Pharmacy Claims in a Data Warehouse

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Objectives of this Presentation

1. Discuss benefits that can be realized by healthcare organizations by integrating Pharmacy and Medical Claims Data.

2. Illustrate approach, architecture and lessons learned by examining a real-life project recently completed at a health plan.
Overview

- Background on integrating medical & pharmacy claims data
- Case Study Overview
- Initial Project Objective & Goals
- High-Level Approach, Plan & Organizational Structure
- Lessons Learned
- Conclusions
Background

- Health Plans, Pharmacy Benefit Managers (PBM’s) and other healthcare entities have invested heavily in Data Warehousing over the past 10 years.

- By utilizing Data Warehousing concepts and tools, payors and providers have evolved their capabilities in management of their data.

- The objectives of many healthcare entities are now focusing on integrating additional sources of data with their own, to provide even more valuable information.

- Health plans, PBM’s, and other healthcare entities are increasingly interested in the ability to integrate medical claims and pharmacy claims data.
Benefits of Integrating Claims Data

- Perform robust financial and clinical analysis

- Meet an increasing number of requests for benefit plans which combine medical and pharmacy benefits

- Competitive advantage, enabling the capture of additional market share and more efficient operations
Case Study Overview

**Business Need:**
- Health plan managing millions of members sold numerous large accounts a benefit plan design that integrated medical and pharmacy out-of-pocket maximums and infertility treatment benefit limitations.
- Had nine months to develop and implement an optimal method to meet their obligations to clients.
- Required receipt and storage of pharmacy claims data from multiple PBM’s, integrating pharmacy claim amounts into accumulation processes in their medical claim adjudication system and supplying data back to the PBM’s.
- Wanted to also leverage the valuable resulting information (within HIPAA and contractual constraints).

**The Solution:**
- An Operational Data Store (ODS) to enable the integration of pharmacy and medical claims data.
Initial Project Goals & Objectives

- Design and develop a pharmacy claims ODS that is based on the HIPAA mandated NCPDP version 5.1 format.

- Implement the ability to receive pharmacy claims data from multiple PBM’s, in multiple formats, and load to the pharmacy claims ODS.

- Implement the ability to receive pharmacy claims reference data to identify drug information, prescriber information and pharmacy information.

- Implement the ability to perform multi-level member matching, to ensure pharmacy claims data received from PBM’s is properly linked to the member ID of the health plan.

- Implement the ability to read the Pharmacy Claims ODS, creating an interface to the medical claims adjudication system resulting in updates to the appropriate benefit accumulators.
Initial Project Goals & Objectives

- **Modify the claims adjudication system to produce a file on a daily (no less frequently than weekly) basis containing a list of families and/or patients who have exceeded their out-of-pocket maximum and/or infertility benefit limit.**

- **Work with appropriate departments to develop relevant reporting capabilities:**
  - Medical Management / access and reporting capabilities.
  - Actuarial/Underwriting / trend reporting capabilities.
  - Account Reporting / account reporting capabilities.

- **Develop appropriate security policies for data access across all affected groups, incorporating these policies into the enterprise security infrastructure.**

- **Load historical pharmacy claims for reporting and analytical purposes, particularly the groups that have requested integrated disease and case management functions.**
Extract of Members who’s Out of Pocket Max, and/or Benefit Specific Limit has been met
Establish an effective project management approach to unify project stakeholders with the project delivery team.

- Project steering committee
- Effective communications and issue resolution
- Develop a detailed project plan and budget
- Establish project metrics and milestones
- Balance process with velocity

Build a project delivery team consisting of internal health plan resources and consultants that optimally leverages the knowledge and expertise of both.

- Assign health plan staff where possible, realizing staff availability is limited
- Leverage consultants with extensive experience in healthcare, prescription benefits and Data Warehousing
Project Approach

- Design a solution that seamlessly integrates with the health plan’s existing standards, meeting business needs and objectives
  - Maintain consistency with infrastructure, architecture and IT standards while leveraging best practices
  - Constantly focus on meeting business needs and objectives

- Effectively manage development and testing activities to ensure the highest levels of quality are achieved.
  - Leverage subject matter expertise and experience to manage and deliver results
  - Incorporate quality assurance and testing principles throughout the project

- Ensure a smooth and successful implementation
  - Define a detailed and thorough Implementation Plan
  - Phase the implementation where practical
  - Ensure a focus on post-implementation support
# High-Level Project Plan

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<td>Assemble Team</td>
<td>Define Overall System Architecture</td>
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<td>Define Project Communication Strategies</td>
<td>Design Physical Data Model of the ODS</td>
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<td>Define Detailed Requirements</td>
<td>Create Low-Level Design of all ETL Processes</td>
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<td>Create Detailed Project Plan &amp; Project Budget</td>
<td>Low-Level Design of Rtpg &amp; Extract Processes</td>
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<td>Low-Level Design of Claims Adj. Processes</td>
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- **7 Weeks**
- **7 Weeks**
- **34 Weeks**
- **10 Weeks**
- **10 Weeks**
Key Milestones

Step 1 – Requirements Definition

- Assemble Core Team, Define Project Roles and Responsibilities
- Develop Project Communication Strategies
- Identify and Document Detailed Business and Technical Requirements
- Create and Publish a Detailed Project Plan and Budget
Key Milestones

Step 2 – Analysis & Design

- Document Overall Architecture and High-Level Design
- Design Physical Data Model of the ODS in Erwin
- Create Low-Level Design for ETL Processes including Member Matching Processes
- Create Low-Level Design for Reporting and Extract Process to claims processing system
- Create Low-Level Design for Extract Process from claims processing system to PBMs
- Define Unit Test Plans
Key Milestones

Step 3 – Development

- Set Up Hardware, Technologies and other Infrastructure
- Implement Data Model
- Develop and Unit Test ETL Processes Including Member Matching Functionality
- Develop and Unit Test Reporting and Extract Processes to the claims processing system
- Develop and Unit Test Extract Processes from claims processing system to PBM’s
Key Milestones

Step 4 – Testing & Implementation

- Execute System Test Plan
- Develop Implementation Plan
- Implement the Solution
- Provide Post-Implementation Support
Project Organizational Structure & Staffing
**Project Organizational Structure & Staffing**

- **Executive Sponsorship:** Key decision makers who ensure organizational support is in place for the project

- **Project Stakeholders:** Individuals who have a vested interest in the outcome of the project, providing strategic direction and subject-matter-expertise

- **Project Owner:** Provides strategic management and direction of the project delivery team

- **Project Manager:** Provides day-to-day management and direction of the project delivery team

- **PBM / DW Subject-Matter Expert:** Provides subject-matter expertise for Data Warehousing of pharmacy claims

- **Business Analyst / Data Modeler:** Provides business analysis and designs all logical and physical data models
Project Organizational Structure & Staffing

- **Technical Architect**: Designs and develops overall architecture, ensuring all components are developed to work seamlessly together

- **ETL Analyst**: Designs and develops all extract, transform and load processes into the ODS (including member matching functionality)

- **Reporting and Extract Analyst**: Designs and develops all extract processes out of the ODS as well as Cognos reporting capabilities against the ODS

- **System Administrator**: Definition and setup of environments to support development, testing and production

- **DBA**: Assists in physical design of the data model and configures / implements the ODS database

- **Claims System Analyst/ PA**: Designs and develops processes to update accumulators in the claims adjudication systems, as well as extracts to PBM’s

- **QA Lead**: Creates the system test plans and participates in testing activities
Lessons Learned

1. Organizational Knowledge and Subject Matter Expertise in Pharmacy Claims Data
   • Internal knowledge of medical claims data and internal systems
   • Virtually no internal subject-matter expertise on pharmacy claims data
   • Solution: Blended team of health plan’s staff and external consultants knowledgeable on pharmacy claims data, leveraging the expertise of both groups.

   • Lesson Learned: Build a blended team of external consultants with appropriate subject-matter expertise and internal staff.
2. Scope Containment.
   • Defining and containing scope on-going concern
     ✷ Unknown elements of the project
     ✷ Coordination necessary with external entities
   • Initially the scope changed numerous times resulting in delays and confusion of team members.
   • Solution: Phased approach

   ✷ Lesson Learned: Place a huge emphasis on scope management and follow a phased implementation approach.
3. Integration with other Organizational Initiatives
   • Overlap with other organizational initiatives under-estimated resulting in delays during requirements definition and design activities.

   Lesson Learned: Evaluate the overlap with other organizational initiatives early in the project, then establish a risk mitigation strategy for interdependencies.
4. Coordination with PBM’s
   - Each PBM requires different formats for data exchange
     - Communication process was too formal
     - Initial communication sparse and ineffective
   - Solution: Establish a working relationship with key staff at the PBM’s and communicate in a less formal manner.

  - Lesson Learned: Establish relationships and effective communication processes with all external entities.
Lessons Learned

5. Manual Processes Required
   • Business stakeholders’ initial expectations of totally automated system
   • Extent of manual processes necessary to review and scrub data from the PBM underestimated
   • Solution: Establish a data steward function to perform the manual tasks of scrubbing data that couldn’t be automatically loaded into the ODS.
     ✷ Delegated to the same department that does manual claims processing.

    ✷ Lesson Learned: Ensure expectations of the amount of manual review and scrubbing of data is understood and delegate a data steward function to perform the manual process to a department with the capability and incentive to effectively perform the function.
6. Constraints on Pharmacy Data Usage
   • Numerous constraints on pharmacy claims data usage
     ✷ Some HIPAA related
     ✷ Most due to contractual constraints imposed by the PBM’s
   • Sensitive issue with groups that wanted to perform disease management, case management and other in-depth clinical analysis.

   ✷ Lesson Learned: Ensure expectations of all stakeholders are clear on constraints of data usage.
Lessons Learned

7. Architecture Integration Issues
   • Organizational desire to tightly integrate the solution with existing systems and infrastructure
   • Unique nature of acquiring external data
   • Delays encountered during design while trying to “fit” pharmacy claims data into medical claims data systems
   • Solution: Unique systems and data models were developed to store the pharmacy claims data.

   • Lesson Learned: New sources of data won’t fit well with existing systems and infrastructure. Don’t be afraid to bend the rules.
Conclusions

- Initial phase successfully implemented

- Benefits realized and the anticipation of future benefits are beyond the initial expectations

- Efforts for the next phase in progress, focused on reporting and analysis capabilities

- Future plans:
  - Up sell existing accounts to utilize the new capabilities
  - Add additional PBM’s to the processes established
  - Implement enhanced reporting and analysis capabilities with a particular focus on disease and case management