Pharmacist Key Performance Indicator Database Model - Business Requirements Document

Contents

Objective

Create a database model for the Pharmacist Key Performance Indicator Database & Dashboard

System Overview

Care One-to-One is a contracted medication therapy management (MTM) program for one primary client, whose population consists of approximately 5.4 million lives. The program must meet specific performance guarantees and contractual obligations. These obligations include performing disease state assessments (DSAs) and identifying medical related problems (MRPs) for patients in our program.

The Pharmacist Key Performance Indicator Database & Dashboard (PKPID) will be used to track and report information regarding the program performance guarantees, contractuals, as well as provide information on team and individual pharmacist performance. Individual performance is also tied to annual merit increases and bonuses for the pharmacist team.

The system consists of the following domains:

- Demographics: demographic information such as names, DOB, insured identification numbers, and other important information regarding pharmacists, managers or patients.
- Medication Claims: medication information such as medication name, indication, dosage, and other related information.
- Labs: patient lab information from a licensed laboratory, doctor's office or hospital.
- Scheduling: patient appointment date, time, and appointment type.
- Evaluation: information collected by the pharmacist during a patient visit/encounter, which includes medical related problems (MRPs), disease state assessments (DSAs), and progress notes.

The pharmacists who meet with patients are responsible for performing and completing evaluations regarding the patients' medication protocol. They must identify MRPs and perform mandatory DSAs, as well as write care plans. They

must also meet other program requirements so that the program continues to grow (e.g. number of new patient appointments per day).

The director and manager of the MTM program would like to have an online database and dashboard created with these KPIs that show individual performance as well as team performance. The director currently receives this information from a team of analysts in the form of emails and multiple spreadsheets containing different sets of data. This will reduce or eliminate the number of emails and spreadsheets being tracked and create a one-stop shop for all pharmacist KPI data.

This dashboard should contain updated monthly metrics by the 15th of the following month, and should contain updated quarterly metrics by the 15th of the 2nd month following quarter-end. This should also display KPI ratings for each quarter on an individual and team basis as well.

System Goals

- Create a flexible system where end users can access all pharmacist KPI information from one place.
- Simplify the analytics process to produce reports based on the same sets of data without running the same processes more than once.
- Reduce redundancies in business processes regarding the number of communications sent and gather disseminated business information.

System Requirements

- All data is exported from electronic health record application, an external system from the PKPID.
- Only patients with appointments from the current reporting month or quarter are included in that month or quarter's reports.
    - Patient must have completed 1 visit with a pharmacist.
    - For labs, the collection date on the lab documentation must have occurred within the reporting month or quarter.
- The pharmacists included in the current reporting month or quarter must be active employees.
    - Employees on PTO or FMLA for more than a calendar month are not included in that month's reporting.
    - Employees who leave the company mid-month are still included in monthly reporting, however, they are not included in quarterly reporting.
- Patients may meet with a pharmacist multiple time per month or quarter, however, specific MRPs and DSAs are only counted with 1 of these appointments.
    - The MRP and DSA evaluation dates must match the appointment date within 4 business days on or after the appointment date.
- Labs must not be self-reported by the patient.
    - Labs must come from a licensed laboratory, doctor's office, or hospital.
- Medication information may come from the patient or through the adjudication system (existing system - not part of the design scope for this database).
- There will be two types of reports with two timeframes:
    - Timeframe:
        - Monthly
        - Quarterly
    - Types:
        - Team information by metric
        - Individual information by pharmacist
- The system includes a dashboard where end users can select the report type, timeframe, and individual by name.

Functional Requirements

- Load Appointments, MRP, DSA, Progress Notes & Lab information to database for current month or quarter
- Set reporting month timeframe
- Set reporting quarter timeframe
- Check status (active/inactive) of employees
- Match MRP information to completed appointment (on or 4 business days after appointment)
- Match DSA information to completed appointment (on or 4 business days after appointment)
- Match Progress Notes information to completed appointment (on or 4 business days after appointment)
- Verify lab self-reported attribute is set to No
- Check that Lab collection date is within reporting period
- Generate monthly reports
- Store monthly reports
- Generate quarterly reports
- Store quarterly reports
- Create dashboard with drop-down selections for report timeframe, report type, and report name
- Select report timeframe, report type, and report name
- Display selected report

Entities

Entity	**Entity_Description**
Employees	List of all Care One-To-One employees
Employee_History	Employee's history of start/end dates, training dates and leave of absence dates
Role	Role of employee in system
Patient	Patient Information
Appointments	Patient appointment information
MRP	Patient Medical Related Problems information
DSA	Patient Disease State Assessment information
Lab_Coll_Offices	Office where lab procedure(s) were performed & specimens were collected
Lab_Contact	Contacts at lab office
Lab_Summary	Lab information
Lab_Detail	Patient Lab values and information
Progress_Notes	Pharmacist provided Progress Notes for visit with patient

Attributes

Entity	**Attributes**	**Attribute_Notes**
Employees	Emp_UserID	Unique user identification number provided at time of hire
	Last_Name	Employee last name
	First_Name	Employee first name
	Initials	Employee initials
	Role_Type	Employee role (manager, pharmacist, admin)
	Start_Date	Employee hire date
	Train_Cmpl_Date	Date that employee completes training period

	End_Date	Date employee leaves company
	Leave_Date	Date employee begins leave of absence
	Status	Employee status: Active, On Leave, Inactive
Role	Role_Type	Role of employee: mngr, rph, admin. Only mngr will access the db, but roles may be used for permissions to DB later.
	Role_Name	Full name of role: manager, pharmacist, administrative
Patient	Insrd_ID	Unique insured identification number from benefit plan
	Patient_Name	Patient full name
	Patient_DOB	Patient date of birth
Appointments	Appt_Sequence	Compilation: Insrd_ID+Appt_Date+Appt_Time
	Insrd_ID	Insrd_ID from Patient table
	Appt_Date	Appointment date
	Appt_Time	Appointment time
	Appt_Type	Appointment type: Initial or Follow-up
	Appt_Status	Appointment status: Scheduled, Missed, Canceled, or Completed
	Emp_UserID	Emp_UserID from Employee table
MRP	MRP_ID	Primary key
	Insrd_ID	Insrd_ID from Patient table
	MRP_Type	Indication, Safety, Effectiveness, Adherence
	Create_DateTime	Date MRP is created
	Create_Emp_UserID	Emp_UserID from Employee table; employee who created MRP
	Resolution_DateTime	Date MRP is resolved
	Resolve_Emp_UserID	Emp_UserID from Employee table; employee who resolved MRP
	MRP_Note	Notes related to MRP
DSA	DSA_ID	Primary key
	Insrd_ID	Insrd_ID from Patient table
	Assessment_DateTime	Assessment date and time
	Assessment_Category	Assessment category (refers to clinical indication, such as hypertension, diabetes, asthma/copd, etc.)
	Assessment_Question	Assessment question
	Assessment_Response	Assessment response
	Create_Date	Date DSA was created
	Create_Emp_UserID	Emp_UserID from Employee table
	DSA_Response_Note	Note regarding DSA response
Lab_Coll_Offices	Office_ID	Primary key
	Office_Type	Lab office type: lab, doctor's office, or hospital
	Office_Name	Name of office where lab was collected
	License_Number	License number or NDC of primary supervising doctor; possible 2nd primary key if readily available
	Address1	Lab office address line 1
	Address2	Lab office address line 2
	City	Lab office city
	State	Lab office state
	Zip_Code	Lab office zip code
	Phone_Number	Lab office phone number
	Fax_Number	Lab office fax number
	Contact_Name	Name of primary office contact
Lab_Summary	Lab_ID	Primary key
	Insrd_ID	Insrd_ID from Patient table
	Ordering_Provider	Physician or health provider that ordered labs for patient

	Received_Date	Date lab was received by Care One-to-One office
	Coll_Office_ID	Office_ID in Lab_Coll_Offices table
	Collection_Date	Date specimens were collected
Lab_Detail	Lab_ID	Lab_ID from Lab Summary table
	Lab_EntryID	Primary key
	Lab_Category	Lab area or panel
	Lab_Item	Lab item tested
	Lab_Value	Value of lab item
Progress_Notes	ProgNote_ID	Primary key
	Insrd_ID	Insrd_ID from Patient table
	Create_Date	Date progress note was created
	ProgNote_Entry	Progress note text
	Create_Emp_UserID	Emp_UserID from Employee table

Business Rules & Compliance Criteria

Business Rule	Compliance Criteria
1. All data is exported from electronic health record application, an external system from the PKPID.	This occurs outside of the data model.
2. Only patients with appointments from the current reporting month or quarter are included in that month or quarter's reports.	Appointments captures Appt_Date (appointment date).
3. Patient must have completed 1 visit with a pharmacist.	Appointments table captures appointment date, time, and phamaracist (Insrd_ID, Appt_Date, Appt_Time, Emp_UserID.
4. For labs, the collection date on the lab documentation must have occurred within the reporting month or quarter.	Lab_Summary table captures Collection_Date.
5. The pharmacists included in the current reporting month or quarter must be active employees.	Employees table captures Status (employee status).
6. Employees on PTO or FMLA for more than a calendar month are not included in that month's reporting.	Employees table captures Status (employee status).
7. Employees who leave the company mid-month are still included in monthly reporting, however, they are not included in quarterly reporting.	Employees table captures Status (employee status) and End_Date (date employee leaves company).
8. Patients may meet with a pharmacist multiple time per month or quarter, however, specific MRPs and DSAs are only counted with 1 of these appointments.	MRP table, DSA table, and Appointment table all capture date, and MRP & DSA dates can be matched to appointment date.
9. The MRP and DSA evaluation dates must match the appointment date within 4 business days on or after the appointment date.	MRP table, DSA table, and Appointment table all capture date, and MRP & DSA dates can be matched to appointment date.
10. Labs must not be self-reported by the patient.	Entity Lab_Coll_Offices captures attributes of a licensed lab (License_Number, Office_Type)
11. Labs must come from a licensed laboratory, doctor's office or hospital.	Entity Lab_Coll_Offices captures License_Number & Office_Type

12. Medication information may come from the patient or through the adjudication system (existing system - not part of the design scope for this database).	This occurs outside of the data model.
13. There will be two types of reports with two timeframes:	
A. Timeframe: Monthly, Quarterly	Date fields allow for timeframe parameters in reporting (Appointments: Appt_Date, MRP: Create_DateTime, MRP: Resolution_DateTime, DSA: Assessment_DateTime, Lab_Summary: Collection_Date, & Progress Notes:Create_Date)
B. Types: Team information by metric, Individual information by pharmacist	Data can be aggregated over multiple individuals, individual informatino by pharmacist supported by employee ID in multiple tables (Appointments: Emp_UserID, Employees: Emp_UserID, MRP: Create_Emp_UserID, MRP: Resolve_Emp_UserID, DSA: Create_Emp_UserID, Progress Notes: Create_Emp_UserID)
14. The system includes a dashboard where end users can select type, timeframe, and individual report by name.	This would be part of a query or reporting module. Appointments, DSA, MRP, and Progress Notes have date fields (Appointments: Appt_Date, MRP: Create_DateTime, MRP: Resolution_DateTime, DSA: Assessment_DateTime, Lab_Summary: Collection_Date, & Progress Notes:Create_Date) that support parameters for timeframe and for employee (Appointments: Emp_UserID, MRP: Create_Emp_UserID, MRP: Resolve_Emp_UserID, DSA: Create_Emp_UserID, Progress Notes: Create_Emp_UserID). Type of report is based on the report itself, and the date parameters would still be based on the date attributes as well.

Reviews and Signatures

Reviewed By:	
First Review Date:	
Second Review Date:	

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Second Review Date:	

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First Review Date:	

Second Review Date:	

Revision History

Date	Version No.	Revision Detail
2016-05-31	1.0	Initial Document