University Health Center - Information System

05.09.2020

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Table of Contents

Part 1: Executive Summary

About UMD Health Center

The University Health Center provides high-quality, cost-effective health care and wellness programs in order to promote the health of the University community and support academic success.

The University Health Center was founded in 1901. They continue to be proudly accredited by the Accreditation Association for Ambulatory Health Care for over 30 years. The Human Rights Campaign has also designated the University Health Center as a Leader in LGBTQ Healthcare Equality, and are Green Office Silver level certified.

Client Background

The 50,000 square foot facility is home to clinical, behavioral health, sexual misconduct resources, complementary and alternative medicine, health promotion and wellness, and ancillary services including pharmacy, x-ray, physical therapy, and lab, among other services and programs.

The University Health Center is staffed by over 100 diverse college health and wellness professionals who serve a myriad of student, staff and faculty needs.

Project Sponsor**:** John Randrian - Assistant Director, Business and finance, UHC

Steering Committee:

1. David McBride - Director, UHC
2. Elizabeth Zapata - Human Resources and Business Coordinator
3. Heather TeitelBaum- Clinical Director

Opportunity

The system would improve if we integrate the business processes of myuhc.umd.edu with health.umd.edu and add additional functionalities to the main system to benefit the end user by simplifying tasks and creating a more user friendly UI.

Part 2: Statement Of Work

PROJECT STATEMENT OF WORK		
COMPANY NAME	Team ChARM	
SOW VERSION	Version 1.1	
DATE SUBMITTED	03/07/2020	
EMAIL	teamcharm@gmail.com	
ORGANIZATION		
CLIENT NAME	University of Maryland Health Center	
CLIENT PHONE	(301) 314-8184	
CLIENT EMAIL	health@umd.edu ; david.mcbridge@umd.edu	
CLIENT MAILING ADDRESS	University Health Center, Building #140 University of Maryland College Park, MD 20742	
PROJECT		
PROJECT NAME	Project Xeno	
CLIENT	UMD UHC	
PRODUCT	A web-based integrated health information system	
BEGIN DATE	**END DATE**	**PROJECT DURATION**
02/10/2020	08/10/2020	130 days
ASSUMPTIONS		
1. The current system is an on-premise system.		
2. Confidential patient information is encrypted and stored on secure systems.		
SCOPE OF PROJECT		

The scope of the new system is to create a hybrid, web-based integrated health management system which would benefit the end user by simplifying tasks and creating a more user friendly UI.		
PROJECT DELIVERABLES		
1. Addition of Process 1.1: Better representation of OTC drugs		
2. Addition of prcess 1.2: Auto-populating insurance data		
3. Addition of process 1.3: Automation of immunization records.		
4. Integration of Process 2.1: SSO for health.umd.edu		
5. Integration of process 2.2: Booking appointments		
6. Integration of process 2.3: Refilling subscriptions from pharmacy		
MILESTONES		
ESTIMATED DELIVERY DATE	**PROJECT MILESTONE TITLE**	
03/27/2020	Planning Stage Completed.	
05/12/2020	Analysis stage completed	
05/20/2020	Design Stage Completed.	
08/10/2020	Implementation Stage Completed.	
FEASIBILITY ANALYSIS		
TECHNICAL FEASIBILITY:		
	Cloud Based	**Hybrid**
Infrastructure	Low	Medium
Integration	Medium	Medium
Operations	Medium	Medium
Security	Medium	Medium
Economic Feasibility: Costs		
	Cloud Based	**Hybrid**
Server Hardware and Software Costs	Low	Medium
Development team salaries	High	Medium
Hardware Repairs and upgrades	High	Medium
Training and Maintenance	High	Medium
Data Conversion costs	High	Medium

Economic Feasibility: Benefits		
	Cloud Based	**Hybrid**
Reduction in Staff	Yes	No
Reduction in Inventory	Yes	Maybe
Faster task processing	Yes	Yes
Improved customer service	Yes	Yes
Higher quality products(services)	Yes	Yes
REQUIREMENTS		
Business Requirements	Develop a hybrid web-based system that will be used by students and faculty of UMD-College Park for health center related functions(The current system is hosted on local servers. So, implementing a pure cloud based system will require a huge amount of data transfer cost while also increasing training costs and time. So, a Hybrid system is to be developed keeping all costs in check).	
User Requirements	Users should be able to login using UMD SSO and perform health-center related functions. Users should be able to book appointments, fill forms, search for drugs. Users should be able to access their information.	
Functional Requirements	Create a data backup after initiation and update the backups every day, maintain up to date claim status, execute query results and register payment information. Fetch and provide data to and from insurance agencies	
Non-Functional	Displays status of appointments, claim status, send notification alerts, accept patient entries for appointments, store confidential patient information in an encrypted format.	
HUMAN RESOURCES		
JOB TITLE / DESCRIPTION	**SKILLS / KNOWLEDGE REQUIRED**	**NUMBER OF PERSONNEL**
Website Admin	Technical Skills, Soft Skills, Eye for detail	1
Server Administrator	Technical Skills, Soft Skills	1
Systems Analyst	Technical Skills, Business Knowledge	1
Database Architect	Database architecture, Technical Skills	2
Database Developer	Database development, Business Process understanding	2
Cloud Architect	Cloud Computing Expert, Technical Skills	2
Cyber Security Expert	Technical Skills, Soft Skills	2

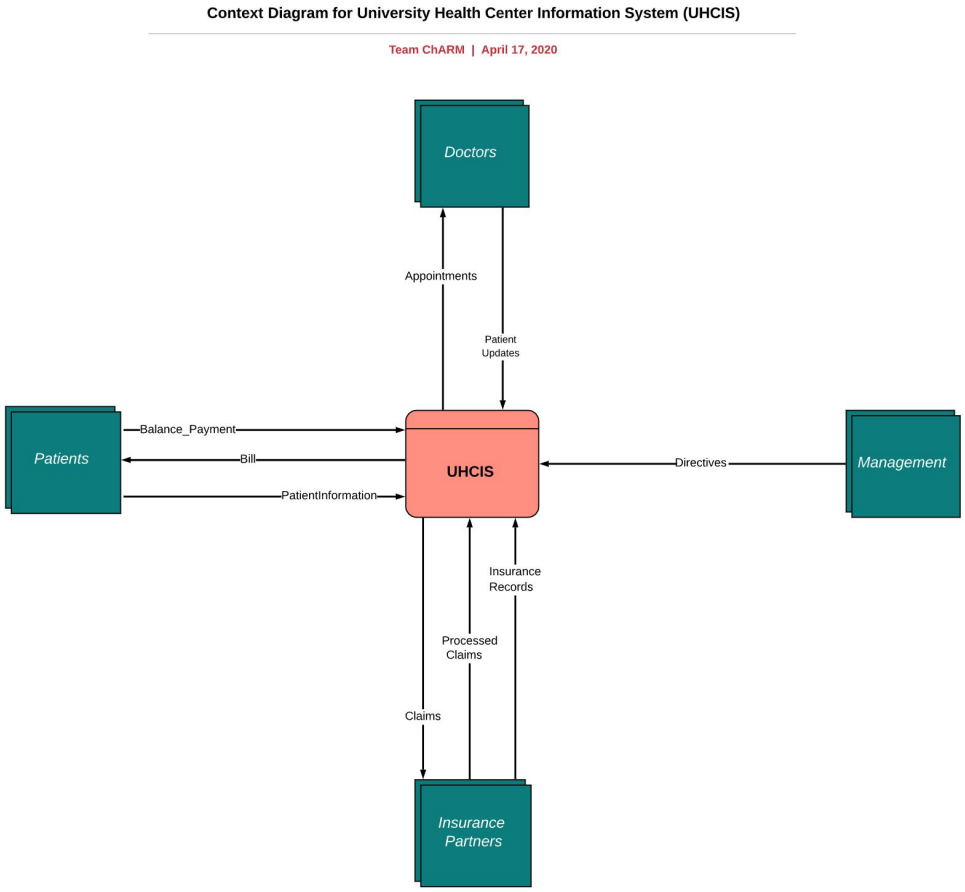
Web Developers	Technical Skills, Soft Skills	2
RESOURCE TITLE / DESCRIPTION		
Technology/Personnel for Outsourcing Automation of Repetitive Tasks/Tests		
Documentation of current system and specifications		
Patient records (Vaccination summary)		
Additional System Requirements (Advanced hardware and software for higher computational capabilities)		
DELIVERABLES & DELIVERY SCHEDULE		
DELIVERABLE START DATE	**DELIVERABLE DATE DUE**	**DELIVERABLE DESCRIPTION**
05/29/2020	06/24/2020	Better representation of OTC drugs
06/24/2020	7/8/2020	Automation of immunization records.
7/8/2020	07/15/2020	Auto-populating insurance data
07/15/2020	07/22/2020	SSO for health.umd.edu
07/22/2020	07/29/2020	Booking appointments
07/29/2020	08/06/2020	Refilling subscriptions from pharmacy
RATE SCHEDULE		
ESTIMATED COST	**DESCRIPTION**	**ASSUMPTIONS**
$24,000	Web Development Team	3 personnel x 25 Days x 8 hrs/day x $40/hr
$40,500	Database Management and Design Team	4 personnel x 23 Days x 8 hrs/day x $55/hr
$10,000	System Analysts and Design Team	2 personnel x 14 Days x 8 hrs/day x $30/hr
$15,000	Administration Team	3 personnel x 21 Days x 8 hrs/day x $30/hr
$30,000	Cloud and Server Maintenance	4 personnel x 14 Days x 8 hrs/day x $60/hr
PAYMENT TERMS		
COMPLETION DATE	**PAYMENT DUE**	**PHASE / WORK DESCRIPTION**
02/12/2020	20%	Initiation
03/27/2020	20 %	Planning Stage

05/12/2020	20%	Analysis stage
05/20/2020	20%	Design Stage
08/10/2020	20%	Implementation Stage
BUSINESS TERMS / CONDITIONS		
DURATION OF SERVICES	130 days	
TERMS OF PAYMENT	Partial Payments (in defined % of installments)	
EXPENSES	The Client will reimburse the Supplier for all pre-approved, reasonable, and necessary expenses incurred in performing the SOW. In no event will Client be invoiced for hourly fees for time spent traveling. The Supplier will provide the Client with satisfactory documentation supporting all expense requisitions.	
CONTRACT MODIFICATIONS	Except as otherwise provided in this Agreement, this Agreement may only be modified, amended, rescinded or terminated by a written agreement executed by all parties to this Agreement and no oral statement shall in any manner modify or otherwise affect the terms and conditions set forth herein.	
CONFIDENTIALITY	The phrases and circumstances of this Agreement are completely confidential between the parties and shall not be disclosed to anybody else. Any disclosure in violation shall be deemed a breach of this Agreement	
TERMINATION	Either party may terminate this contract at any time, upon presentation of a 30 days notice given to the other party. Amounts due and options purchases of shares will be delivered when calculated on a pro-rata to the time elapsed since the last payment or the last deliverable.	
AUTHORIZATION		
CLIENT PRINTED NAME	**University of Maryland- Health Center**	**PROVIDER PRINTED NAME: Team ChARM**
CLIENT DATE	**03/07/2020**	**PROVIDER DATE: 03/07/2020**

Part 3: System Analysis Report

- All the information to develop the new University HealthCare system is inspired from the current US HealthCare systems and Insurance company records.
- The process of retrieval of immunization records was inspired by the procedures followed by us during our admission process.
- Data flow across various entities are created by referring to the past system and enveloping all the new functionalities of our proposed system.

Context Diagram



External Entities

1. **Patients:** This external entity represents the patient that comes in to consult the doctor and get treatment.

2. **Doctors:** This external entity helps the patient in diagnosing their illness and provides the treatment.

3. **Management:** This external entity carries out the overhead tasks like approving schedules, approving insurance claims.
4. **Insurance Partners:** This external entity provides insurance to patients.

System Inputs

From Patients:

Patient Information, Balance_Payment (Like patient name, and payment that the patient has to make to the system)

From Doctors:

Patient updates(updates to the patient record like prescriptions)

From Management:

Directives (Would include claim approvals, schedule approval)

From Insurance Partners:

Processed Claims, Insurance records (Insurance details, amount payable)

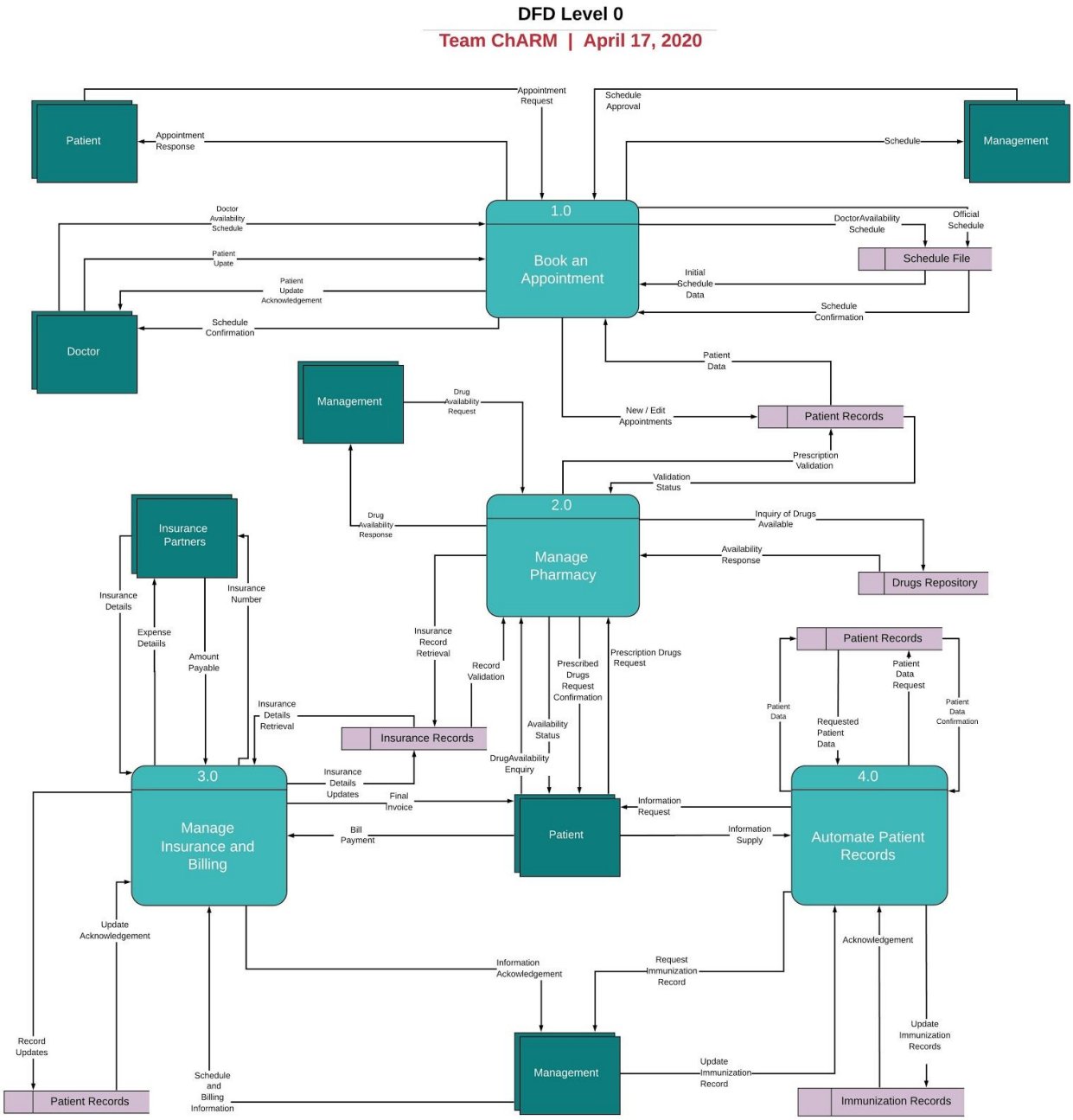
System Outputs:

To Patients: Bill

To Doctors: Payment Update

To Insurance Partners: Claims

DFD Level 0


DFD Level 0
Team ChARM | April 17, 2020
Patient
Doctor
Management
Management
Insurance Partners
Appointment Request
Appointment Response
Schedule Approval
Schedule
Doctor Availability Schedule
Patient Upate
Patient Update Acknowledgement
Schedule Confirmation
1.0
Book an Appointment
DoctorAvailability Schedule
Official Schedule
Schedule File
Initial Schedule Data
Schedule Confirmation
Patient Data
New / Edit Appointments
Patient Records
Drug Availability Request
Prescription Validation
Validation Status
Drug Availability Response
2.0
Manage Pharmacy
Inquiry of Drugs Available
Availability Response
Drugs Repository
Insurance Details
Insurance Number
Expense Details
Amount Payable
Insurance Record Retrieval
Record Validation
Prescribed Drugs Request Confirmation
Prescription Drugs Request
Insurance Details Retrieval
Insurance Records
Availability Status
DrugAvailability Enquiry
Patient Records
Patient Data Request
Patient Data
Requested Patient Data
Patient Data Confirmation
3.0
Manage Insurance and Billing
Insurance Details Updates
Final Invoice
Bill Payment
Patient
Information Request
Information Supply
4.0
Automate Patient Records
Update Acknowledgement
Information Ackowledgement
Request Immunization Record
Acknowledgement
Record Updates
Schedule and Billing Information
Management
Update Immunization Record
Update Immunization Records
Patient Records
Immunization Records

The external entities from the context diagram have been retained in the level 0 diagram. The information system has been expanded to show 4 processes and 5 data stores.

Data Stores:

1. Schedule File:
   This data store stores the official schedules of each doctor employed by the health center. The doctor initially shares their availability schedule with the management and then an official schedule is finalized and stored in this database. When an appointment needs to be booked, the system will access this data store to identify available slots.

2. Patient Records:
   This data store contains the private confidential health data of each individual patient. The health history of each patient will be stored in this data store.

3. Insurance records:

   This data store will consist of insurance data of each customer. It will consist of insurance number, provider, type of coverage, and expiry date.

4. Immunization records:

   This data store will consist of the vaccinations taken by each patient. This is an important data store since international students are compulsorily required to take a few vaccinations before coming to the States.

5. Drugs Repository:
   This data store will be used for inventory management by the pharmacy. One main functionality of our new system was to provide information about availability of OTC drugs to the patient easily.

Processes:

1. Book an appointment:

   This process is used to book appointments by the patient. The external entities involved are Patient, Doctor, and Management. The data stores used are Patient records to update information about the appointment and the prescription received by the doctor. The second datastore used is a Schedule file which contains the official finalized schedule of the doctor.

   ### Process Inputs:

   From Patient: Appointment Request

   From Doctor: Doctor Availability Schedule, Patient Updates

   From Management: Schedule Approval

   From Schedule File: Initial Schedule Data, Schedule Confirmation

   From Patient Records: Patient Data

   ### Process Outputs:

   To Patient: Appointment Response

   To Doctor: Patient Update Acknowledgement, Schedule Confirmation

   To Management: Schedule

   To Schedule File: Doctor Availability Schedule, Official Schedule

   To Patient Records: New/Edit Appointments

2. Manage Pharmacy:

   This process is responsible for maintaining the drug repository datastore and validating the patients prescription received by the doctor. The insurance records datastore is also used to validate insurance coverage. This process is also responsible for allowing the user/patient to check the availability of OTC drugs. This was another one of the new functionalities we are supposed to implement in the new system.

Process Inputs:

From Patient: Prescription Drugs Request, Drug Availability Enquiry

From Patient Records: Validation Status

From Management: Drug Availability Request

From Drug Repository: Availability Response

From Insurance Records: Record Validation

Process Outputs:

To Patient: Availability Status, Prescribed Drugs Request Confirmation

To Management: Drug Availability Response

To Insurance Records: Insurance Record Retrieval

To Patient Records: Prescription Validation

To Drugs Repository: Inquiry of Drugs Available

3. Manage Insurance and Billing:

This process is responsible for maintaining the insurance and billing information associated with the patient. The insurance partner affiliated with the Health center will be responsible for auto populating the insurance data on the input of the insurance number by the patient. The final invoice generated will consist of charges after deduction by the insurance payout. The bill will be stored in patient records.

Process Inputs:

From Patient: Bill Payment

From Patient Records: Update Acknowledgement

From Management: Schedule and Billing Information

From Insurance Partner: Amount Payable, Insurance Details

*From Insurance Records:*Insurance Detail Retrieval

Process Outputs:

To Patient: Final Invoice

To Management: Information Acknowledgement

To Insurance Records: Insurance Details Updatesl

To Patient Records: Record Updates

To Insurance Partners: Expense Details, Insurance Number

4. Automate Patient Records

This process is responsible for maintaining the patient, insurance and immunization records of the patient. Another one of the new functionalities included making a system that automatically maintained the patient records.

Process Inputs:

From Patient: Information Supply

From Patient Records: Requested Patient Data, Patient Data Confirmation

From Management: Update Immunization Records

From Immunization Records: Acknowledgement

Process Outputs:

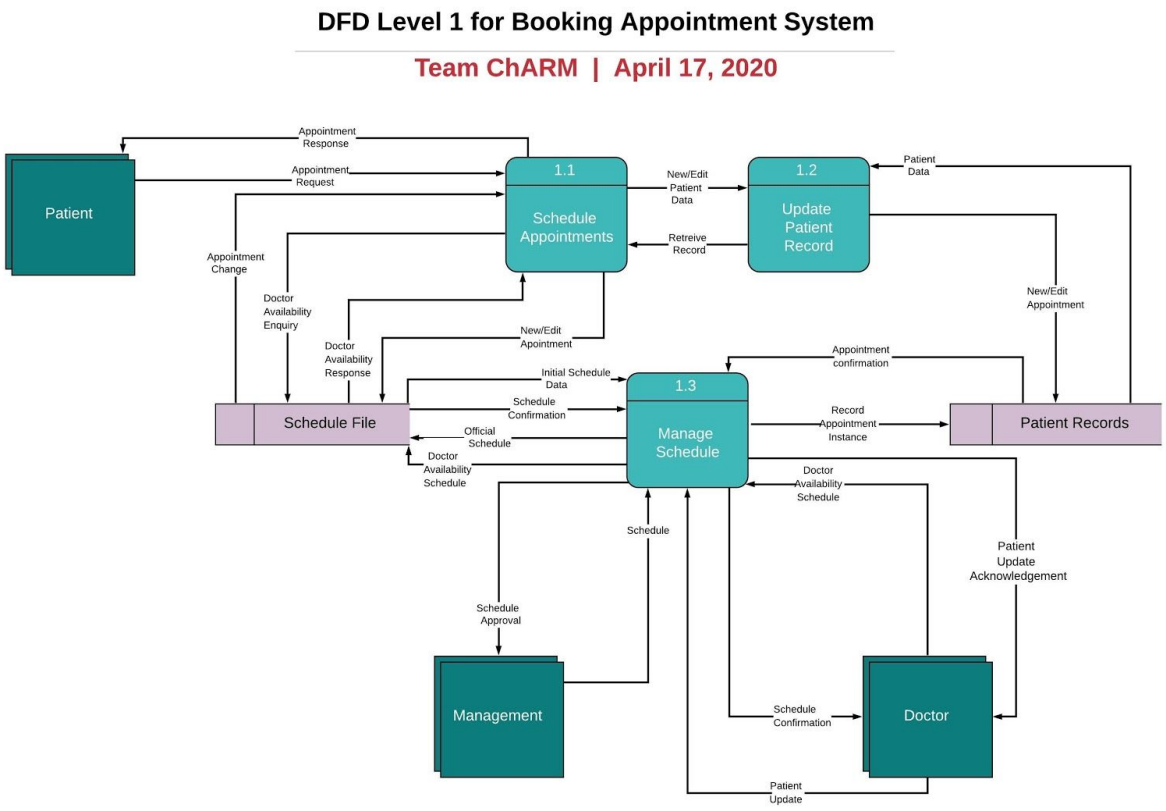
To Patient: Information Request

To Management: Request Immunization record

To Immunization Records: Update Immunization Record

To Patient Records: Patient Data, Patient Data Request

DFD LEVEL 1: Booking Appointment System:



This diagram represents the process of booking an appointment at the University Health Center. This process can be split into three main components.

1.1 Schedule Appointments

In this process, the patient will successfully be able to receive an appointment confirmation on their request. This process will further provide patient information for the updation of patient records.

Process Inputs :

from patient : Initial appointment request

from Schedule file : Appointment change confirmation

from Schedule File : Response regarding doctor availability

from Update Patient Record : Retrieval of updated patient record

Process Outputs :

To Patient : Appointment Confirmation

To Schedule File : Appointment change request

To Schedule File : Enquiry regarding doctor availability

To Update Patient Record : Patient information to be updated

1.2 Update Patient Record

This process is responsible for collecting patient information from the previous process and updating the patient record.

Process Inputs :

From Schedule Appointment : Patient information to be updated

From Patient Records : Patient record from data store

Process Outputs :

To Schedule Appointment : Updated patient record

To Patient Records : Storing updated record to patient record data store.

1.3 Manage Schedule

This process is responsible for checking doctor availability and accordingly schedule an appointment in correspondence with the management and patient records.

Process Inputs :

From Schedule File : Initial Doctor schedule

From Schedule File : Final Schedule confirmation

From Doctor : Current Doctor Availability Schedule

From Doctor : Updates regarding patients' diagnosis

From Management : Approved Doctor schedule from Management

From Patient Record : Final Appointment confirmation of the patient

Process Outputs :

To Schedule File : Storing Doctor availability schedule in the data store

To Schedule File : storing final schedule in the data store

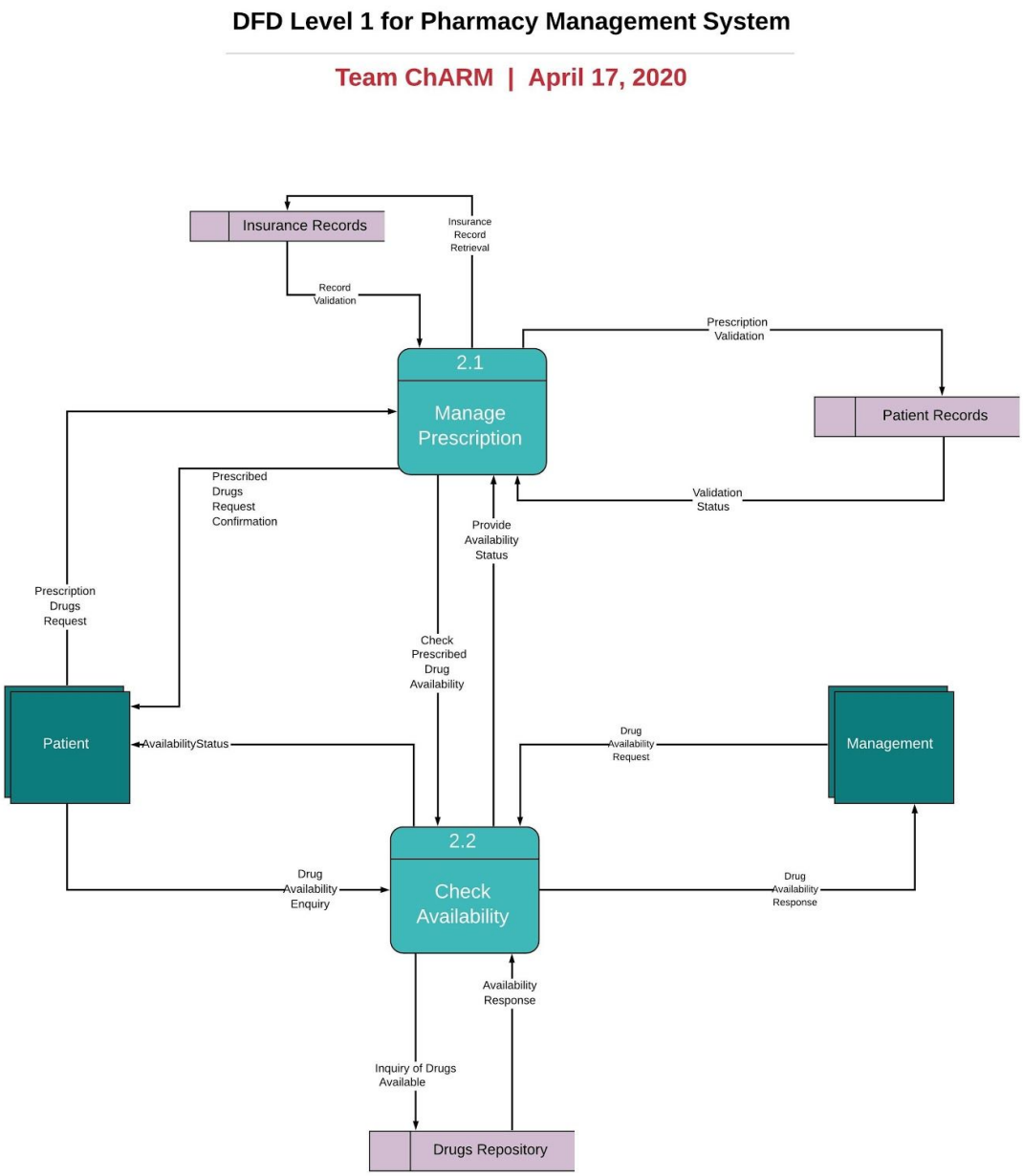
To Doctor : Patient update confirmation

To Doctor : Doctor Availability schedule confirmation

To Management : Doctor schedule for approval

To Patient Record : Storing appointment instance in the data store

DFD Level 1: Pharmacy Management System



This diagram depicts the Manage Pharmacy Process. This process is responsible for providing prescribed drugs to the patient after verifying their insurance validity and also verifying the prescription provided by the patient from the patient records. This process can be divided into two sub processes.

2.1 Manage Prescription

This process is responsible for heeding to the patient's prescribed drugs request and providing the prescribed drug availability status to the patients. It is managed by Pharmacy staff at the Health Center.

Process Inputs:

From Insurance Records: Insurance Records of the Patient.

From Patient: Request for the prescribed drugs.

From Patient Records: Acknowledgement for successful updation of patient records.

From Check Availability: Provide the availability status of the requested drugs.

Process Outputs:

To Insurance Records: Request to retrieve the insurance record of the Patient.

To Check Availability: A request to check the availability of prescribed drugs.

To Patient: Confirmation of patient's request for drugs.

To Patient Records: Update regarding the patient records after a drug has been provided.

2.2 Check Availability

This process is carried out to check the availability of requested drugs from the Drugs repository. It is managed by Pharmacy staff at the Health Center.

Process Inputs:

From Manage Prescription: Request to check the availability of certain prescribed drugs.

From Patient: Enquiry for availability of over the counter drugs.

From Drugs Repository: Availability information of the requested drugs.

From Management: Availability request of all drugs to maintain the drugs repository.

Process Outputs:

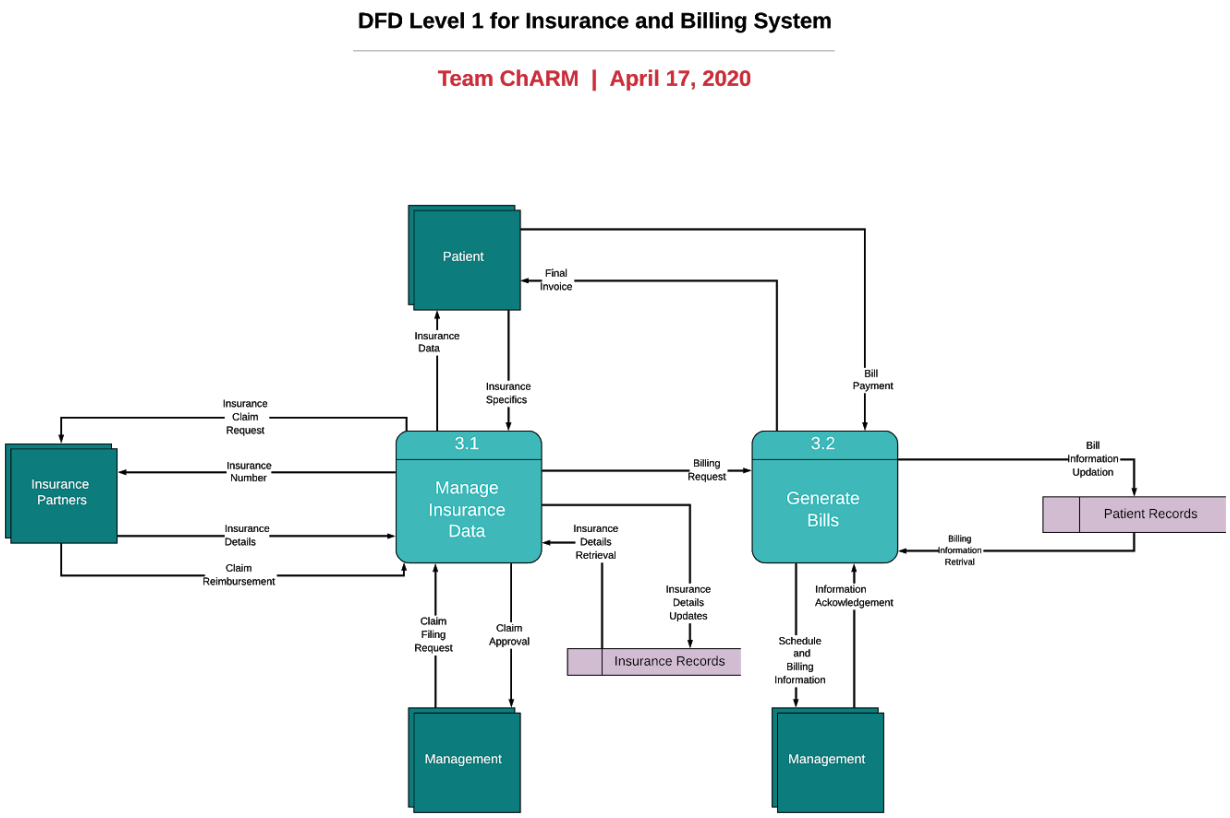
To Manage Prescription: Provide the availability status of requested drugs.

To Patient: To provide the availability status of requested over the counter drugs.

To Drugs Repository: Inquiry for availability of requested drugs.

To Management: Availability status of all the drugs in the repository.

DFD Level 1: Insurance and Billing System



This process is responsible for getting insurance specifics as well as bill payment. It will in turn manage insurance data and provide a final invoice to the patient for the payment. This process is divided into 2 process which are:

3.1: Manage Insurance Data

System Inputs:

From Patients: Insurance Specifics (Information about coverage, type and provider)

From Insurance Partners: Insurance Details, Claim Reimbursement (Coverage Information, Decision of claim reimbursement after request from management)

From Management: Claim Filing(files claim for a particular patient), Insurance Details

From Insurance Records (Data Store): Insurance Details Retrieval

System Outputs:

To Patients: Insurance data (Information about insurance decision by insurance partners)

To Insurance Partners: Claim Approval, Insurance Claim Request, Insurance Number (taken from patient and filed by management)

To Management: Claim Approval(detail of insurance approval from insurance partners)

To 'Generate Bills' Process: Billing Request (Billing information based on data from insurance records and partners)

To Insurance Records: (Data Store): Insurance Details Retrieval (Updates on insurance activities)

3.2: Generate Bills

System Inputs:

From Manage Insurance Process: Billing Request(Bill information after completion of manage insurance process)

From Management: Information Acknowledgement (Details about bill)

From Patients: Bill Payment (Payment of outstanding amount)

From Patient Records: Billing Information Retrieval (providing bill information after generation)

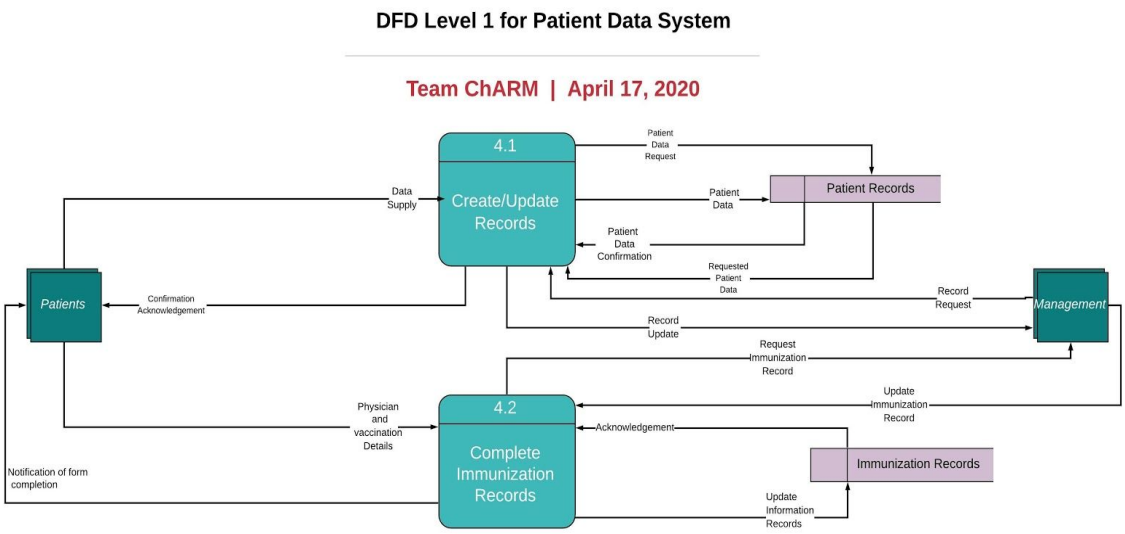
System Outputs:

To Patients: Final Invoice (Receiving final invoice with outstanding dues)

To Management: Claim Approval (approving bill details received after completion of manage billing)

To Patient Records: Bill Information Updation (Receiving bill information after generation)

DFD Level 1: Patient Data System



This diagram depicts the Patient Data management process. It is responsible for maintaining patient's medical and immunization records as well as notifying the patients about successful updation. It is looked after by the management.

4.1 Create/Update Records

This process is responsible for creating and updating patient records which consists of information coming from the patient like pre-existing health conditions.

Process Inputs:

From Patients: Information regarding pre-existing conditions.
From Patient Records: Confirmation that the patient's pre existing conditions data has been stored.
From Patient Records: Requested patient records by the management.
From Management: Request for patient records.

Process Outputs:

To Patient Records: Request for patient records to provide to the management.
To Patient Records: Patient data regarding the patient's pre-existing conditions.
To Patient: Acknowledgement for the successful storage of patient data.
To Management: Requested patient records.

4.2 Complete Immunization Records

This process deals with fetching the details of the patient's physician and updating all the immunization records.

Process Inputs:

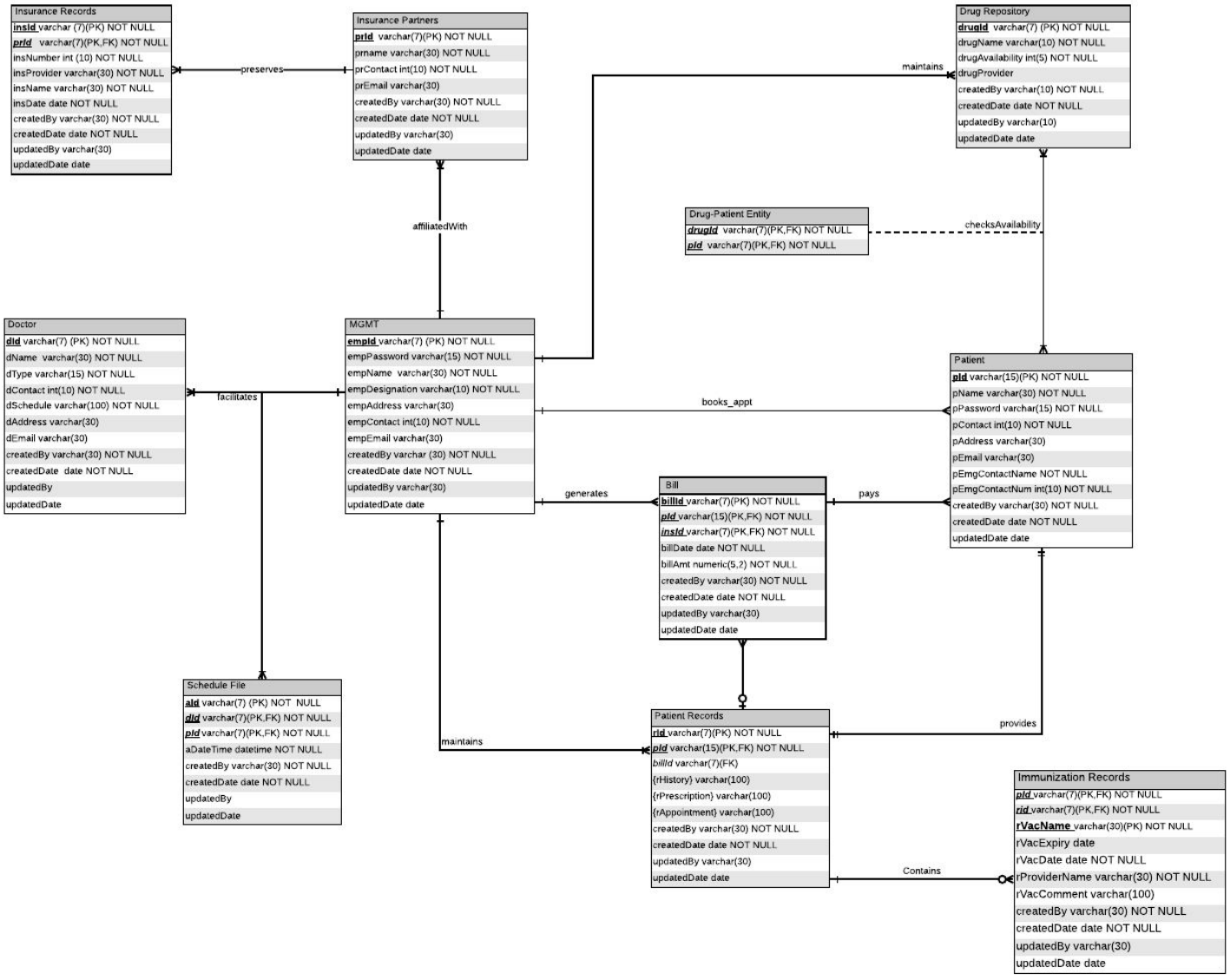
From Management: New updates to the Patient's immunization record.
From Patient: Details of the patient's physician who gave them vaccinations.
From Immunization Records: Acknowledgement that the immunization records have been updated successfully.

Process Outputs:

To Management: Request for updates to the patient's immunization record.
To Patient: Confirmation of the completion of immunization form.
To Immunization Records: Updation of patient's immunization records.

Part 4: Physical ERD and Design Architecture

ER Diagram



Entities

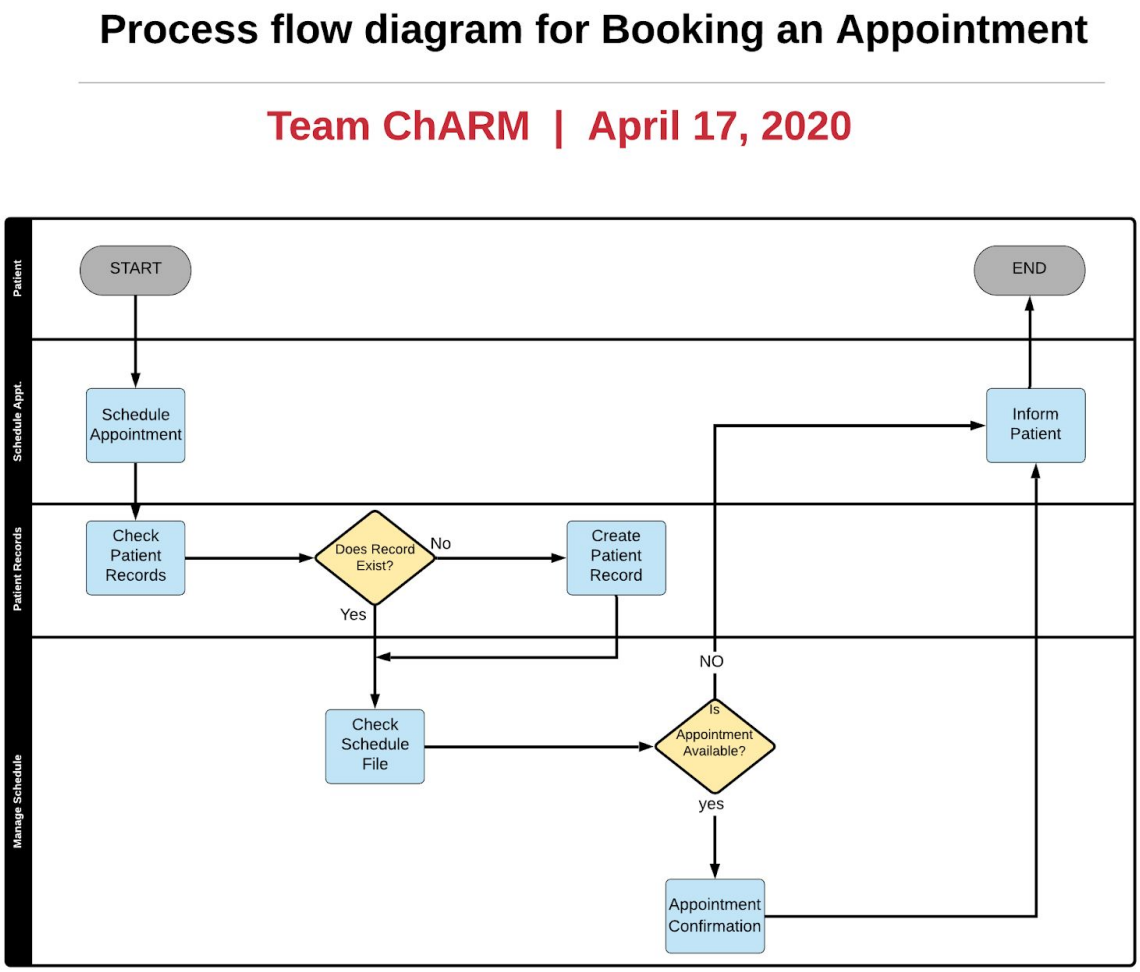
The ER diagram consists of 9 entities :

- Doctor
- Patient
- Management (MGMT)
- Insurance Partners
- Drug Repository
- Schedule File
- Patient Records
- Insurance Records
- Immunization Records

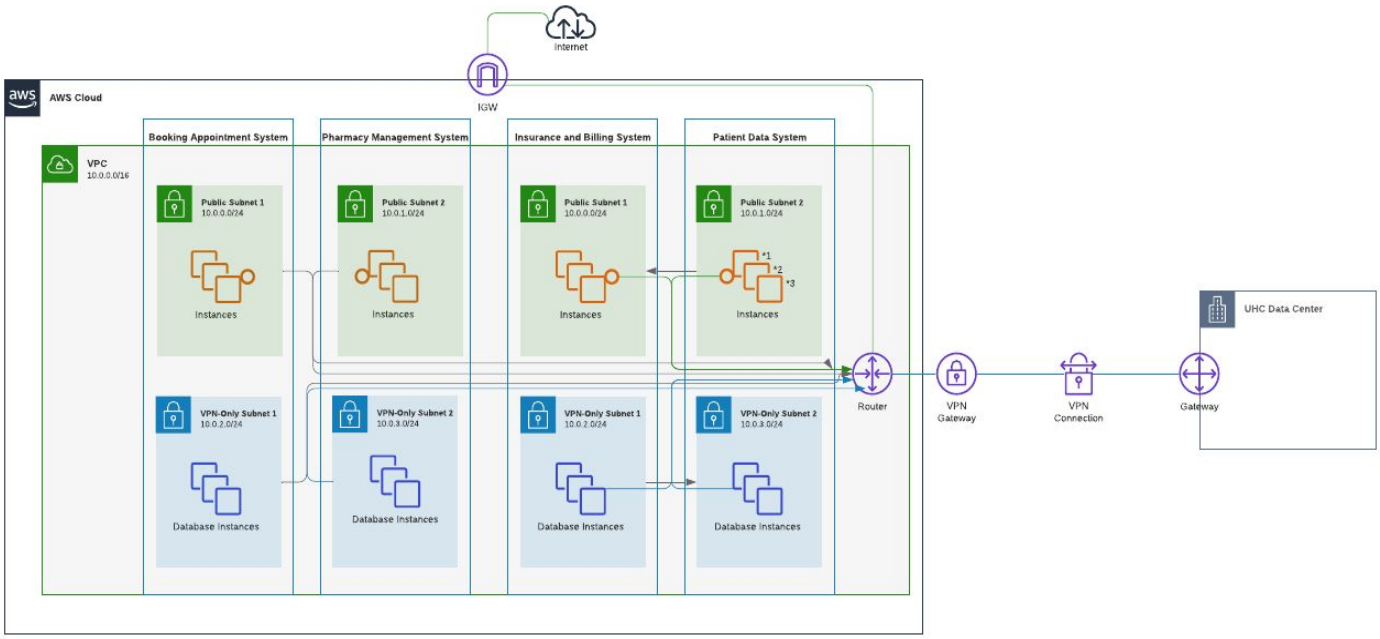
Relationships

1) There is a many to many relationship between patient records and Immunization records. Without patient records, immunization records cannot exist. Therefore, Immunization records is an associative entity.
2) There is a many to many relationship between patient records and insurance records. Without patient records, insurance records cannot exist. Therefore, Insurance records is an associative entity.
3) There is a ternary relationship between Doctor, Schedule and management which facilitates the retrieval and storage of doctor's schedule across the system.
4) There is a ternary relationship between Management, patient and patient records which maintains the patient data throughout the system.
5) There are 3 binary relationships as follows :
    - One to many relationship between Management and Insurance Partners.
    - One to one relationship between Management's pharmacy and Drug Repository.
    - One to many relationship between the Drug repository and Patient.

Process Flow Diagram



Design Architecture: Hybrid Cloud Architecture



Hybrid Cloud Architecture:

As mentioned in our SOW, we have decided a hybrid model for our information system. The hybrid cloud based architecture will allow us to store confidential patient records on a secure database on site and the rest of the databases will be present on the cloud.

Selection of AWS as cloud Vendor:

- AWS is the most widely used cloud based services employed by various organizations throughout the world.
- AWS is not only a reliable brand name but is also employed by other Health institutions. This makes them experienced with handling private and confidential information.

The implementation of Hybrid Architecture will be carried in bursts, where the existing on premise system will be shifted in Small bursts of Units on the cloud in the presence of the System Analyst, Cloud Architect, Cloud Engineer and their team.

Part 5: Implementation Details

Establishment of Project Team

- Physician(s) / Medical Field Experts
- Project manager
- IT Head
- Super Users
- Workflow Coordinator

Development of Project Plan

- Scope document
- Implementation schedule/timeline
- Roles and responsibilities
- Change management process
- Issue tracking and management process

Communications

- Setup scheduled meetings with cloud vendor and implementation staff
- Provide your practice staff regular updates
- Post implementation timeline in break room and mark overall progress
- Utilize newsletters, email, etc. to address specific topics or issues

Mapping of Critical Practice Workflows

- Identify problem areas and bottlenecks
- Re-map practice workflows based on incorporation of electronic records.

Handling of Existing Data

- Identify key information and documents that need to be in system
- Develop plan for entering them into system
- Develop plan for handling new, outside documents and information

Transition

- Identify activities required to transition from the current “As Is” to the new “To Be” hybrid cloud environment.
- Establish a mechanism to identify and track completion of transition activities. • Review/update the relevant processes and governance.
- Establish training requirements for new technologies, tools, processes, governance, etc.
- Establish/update staffing requirements if any changes.
- Prepare facilities for new equipment or staff, and ensure the facilities can handle any changes that impact the physical structure.
- Over-communicate transition events with supported and supporting organizations.
- At the time of transition, arrange for turnover of key materials such as passwords.

Training

- Assess PC and keyboarding skills of staff
- Establish plan for developing staff’s PC and keyboarding skills
- Have vendor conduct general overview of system for all staff prior to formal training
- Conduct multi hands-on, task oriented sessions tailored to staff responsibilities
- Identify “super users” and ensure they receive additional training sessions
- Allow staff on-the-job learning time to familiarize themselves with system
- Develop appropriate education material, such as cheat sheets, quick reference

System Testing

- Conduct unit testing (i.e. single module)
- Conduct integration testing (i.e., interaction between two or more modules)
- Conduct system stress/ load testing
- Ensure testing plans cover different scenarios and situations

Contingency Planning

- Develop disaster recovery plan
- Test ability to restore system from backups prior to go-live
- Ensure system backup plan in place and running
- Arrange for regularly scheduled pick up and off-site storage of backups

Go-Live Planning

- Determine the amount doctors' schedules will be reduced.
- Determine system rollout approach.
- Ensure sufficient resources available to support staff and doctors.
- Make sure staff and physicians know who they can go to for assistance
- Inform third parties and other vendors.
- Schedule end-of-day debrief to identify and address issues

Part 6: Testing documents/Test Plans

Click Here

Part 7: Implementation Plan

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Part 8: Lessons Learned

The hands on experience with building and visualizing activities comprising this project lead to an improved understanding of the various intricacies that are a part of designing as well as analysis of various business processes. The SOW created initially was a great resource for collecting, understanding as well as communicating business needs and conditions. We used several UML diagrams starting with Context Level that sets the context of the system, followed by Level 0, Level 1 DFDs which consequently got more and more detailed and helped breakdown our system aiding the process understanding in depth. It included processes that perform computations, make decisions, summarize, organize(reports), etc. Following this, we went on to create the ERD as well as physical ERD helping us understand the entities, the connections between them as well as the data these entities would have. Also, we learnt the business rules that our system would work on. Then, we went on to create the process flow diagram which helped us identify the various functional groups that we should ideally involve in the process and assignable tasks to those respective groups.