IT 510 Final Project

System Proposal for New Century Wellness Group

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I. INTRODUCTION

Background

Just about every major industry has made large strides towards computerization. More and more Americans rely on computer networks to do things like shop, request services, and even earn degrees. Technology has transformed and improved our lives in so many ways, yet our healthcare system seems to be lagging behind this trend. In order to keep up with a technology driven society, we need to incorporate computerization into our medical practices. New Century Wellness Group is a cutting edge medical provider offering a holistic approach to healthcare focusing on preventative and traditional medical care. The clinic has a patient base of 8,000 patients coming from 325 different employers who, for the most part, provide healthcare benefits to their employees. New Century is currently accepting health insurance plans from 25 different insurance carriers. Because of their success, New Century is now considering opening a new location.

Being that the medical field thrives on information and communication, it is time New Century makes technology work for them too. With an Electronic Medical Record (EMR) system in place New Century could better serve patients' spending less time trying to keep an out-of-date filing and billing system in order, and focusing more on their health and wellbeing.

PROBLEM STATEMENT

Currently, New Century Wellness Group is using a mixture of paper-based and fragmented computer systems to keep track of patient records (Rosenblatt, 2014). Lisa Sung manages patient appointments and initiates patient files, and then Susan Gifford maintains the physical patient records and ensures completion. Carla Herrera orders replacement supplies after patient visits. Tammy Alipio begins the billing process, and Tom Capaletti follows up on claims

made to make sure the office is getting paid. Fred Brown is charge of human resources and employee benefits. Corinne Summers who reports of Fred, works with payroll, tax reporting, and profit distribution (Rosenblatt, Systems Analysis and Design, Tenth Edition, 2014). This workflow has worked up until now, but with the changes to the healthcare system, ever-growing number of patients and influx of patient data, these people of overworked and stressed out. The growing amount of work causes employees to have to devote six hours of overtime each week just to keep up. This system results in about three file errors each day, and each error takes twenty minutes to correct. At this rate, the clinic will need to hire another clerical person.

Continuing to run the office this way is inefficient and not cost effective, and makes New Century vulnerable to human errors and can negatively impact our patients' care and experience. To improve operations and keep workflow running smoothly, we need to implement an Electronic Medical Records (EMR) system. This new system will support our patients' sensitive data, improve how the providers dictate orders for patients through the Computerized Provider Order Entry (CPOE), and allow providers to give the best possible care to patients through a Clinical Decision Support System (CDSS).

"An EMR contains the standard medical and clinical data gathered in one provider's office" (HealthIT.gov, 2014). EMRs are used to track patient data over time, identify patient needs for preventative care and screenings, monitor how patients compare to certain parameters like vaccinations and blood pressure readings, and improve overall quality of the care we provide (HealthIT.gov, 2014). This system would also provide a Computerized Provider Entry (CPOE) system. CPOE is an application that would allow our providers to enter medical orders into the computer system instead of using traditional methods such as paper prescriptions and verbal instructions. This way, our providers can electronically specify medication orders, laboratory

orders, hospital or trial admissions, referrals, and procedural orders (Dixon & Zafar, 2009). This eradicates many of our office's paper needs and ensures patient safety by making sure that orders are clear and easy to read. The system would also include a Clinical Decision Support System (CDSS). CDSS provides clinicians with real-time feedback about a wide range of diagnostic and treatment-related information as orders are entered into the CPOE. It includes the latest information regarding patient allergies and drug interactions that have been identified by the system. By running a set of electronic rules in the background, the CDSS can check a variety of potential risk factors that doctors might miss or patients might forget to mention (Dixon & Zafar, 2009). Finally, the system would include a human resources (HR) module to keep track of employee data as well. The EMR, CPOE, CDSS and HR module would allow the entire New Century staff to work more efficiently and cut costs.

In my professional opinion implementing this system is vital for New Century's continued success. This type of system is designed to store all pertinent patient information with all authorized providers at New Century Wellness Group involved in their care. EMRs can be created, managed and consulted by all authorized providers and staff within the office. Furthermore, the system will be fully integrated so that it is fully operational immediately, and will allow for the implementation of an Electronic Health Record (EHR) system and other necessary modules in the future. By joining the growing number of healthcare facilities that have also implemented EMR systems, New Century would be stepping into the digital age and helping to build a better future for the healthcare industry.

AUDIENCE

The intended audience for this proposal is the entire staff of New Century Wellness Group, including those who may not be technologically inclined. The proposed system is

designed to make life easier for providers, staff and patients alike. With more complete patient information, our doctors, practitioners, and staff members will be able to better serve our patients providing more comprehensive care.

II. SYSTEMS REQUIREMENTS

REQUIREMENTS MODELING

The system New Century Wellness Group is currently using is not only outdated but also not working for the staff. It is a mixture of paper-based and legacy systems that depends entirely too much on the staff for accuracy and completion. New Century staff includes four primary care physicians, one nurse practitioner, four physical therapists, one registered nutritionist, eight nurses and eight staff members caring for a patient base of 8,000 from 325 different employers who cover employees' health and maintenance. New Century currently accepts 25 different health insurance providers. On top of all this, they are planning to open another branch. Each staff member is responsible for different aspects of how the business is run and there is too much room for error. At this rate the current staff will have to start putting in overtime and they will need to hire at least one more staff member.

Currently, Anita Davenport, the office manager, supervises the seven-member staff. Fred Brown is in charge of human resources and oversees employee benefits. Corinne Summers reports directly to him and is responsible for payroll, tax reporting and profit distribution among the associates. Susan Gifford maintains the patient medical records. Tom Capaletti oversees accounts receivables. Tammy Alipio is a billing specialist and takes care of insurance billing. Lisa Sung, the receptionist, manages appointments, contacts patients to remind them of upcoming appointments and prepares each provider's daily appointment list. Last but not least,

Carla Herrera orders replacement medical supplies after patient visits (Rosenblatt, Systems Analysis and Design, Tenth Edition, 2014). The staff is overworked and they will soon need to hire more staff if something is not done to change this.

To improve this situation, Dr. Jones has asked that we create an in-house system so that the providers and the staff can work more efficiently. We are going to implement a business solution system and an EMR system that will work together. They want a medical practice software solution that allows office staff to streamline scheduling, billing, accounting, and payroll as well as support an Electronic Medical Record (EMR) system, Computerized Provider Order Entry (CPOE) system, and Clinical Decision Support System (CDSS). A prebuilt EMR software system was presented and considered, but Dr. Jones prefers that we build the system in-house so that they can customize it and possibly upgrade to an EHR system in the future. The integrated system we are building will work as follows:

When a patient calls in, Lisa Sung will schedule an appointment with an appropriate provider dependent upon services requested. When they come to their scheduled appointment, their provider is notified and an EMR is initiated which will include their patient demographics, medical history, and insurance information. This also creates a daily list of appointments. Whichever provider the patient sees will then enter any medical orders and/or prescriptions into the EMR with the CPOE system. Their input is supported by the CDSS to ensure proper care is administered. Patients then schedule a follow up appointment with Lisa. Susan Gifford reviews the EMR to make sure records are complete and entered correctly. Carla Herrera orders supplies to replace items used for patient visits. Tammy Alipio will then bill their insurance provider based on services rendered. Tom Capaletti follows up on billing to ensure claims are paid. The

system should also include modules for HR and payroll capabilities for Fred Brown and Corinne Summers (Rosenblatt, Systems Analysis and Design, Tenth Edition, 2014).

The requirements for the system are as follows:

System Inputs:

- Patients' personal information: name, address, phone number, birth date, insurance information, marital status, etc.
- Medical history: medications, past surgeries, lab results, etc.
- Appointment times
- Employee information: name, contact information, title, pay, work schedule

System Outputs:

- Billing/insurance claims: patient's procedures at the time visit sent to their insurance company with corresponding billing codes
- Prescriptions, orders for lab testing, referrals to other medical providers
- Supply orders
- Daily provider appointment lists
- Employee paychecks and benefits

System Processes:

- Each patient's procedures are properly coded for accurate billing and follow up procedures
- Medication and patient medical information are cross referenced to minimize negative drug interactions or overlapping care
- If there is a conflict between patient history and new medical orders the system will immediately alert the provider via a message on the screen

- Patient appointments entered into schedule, and daily appointment lists are generated

System Performance:

- System should be fully functional during business hours and any hours of operation
- System transactions should be fast and smooth

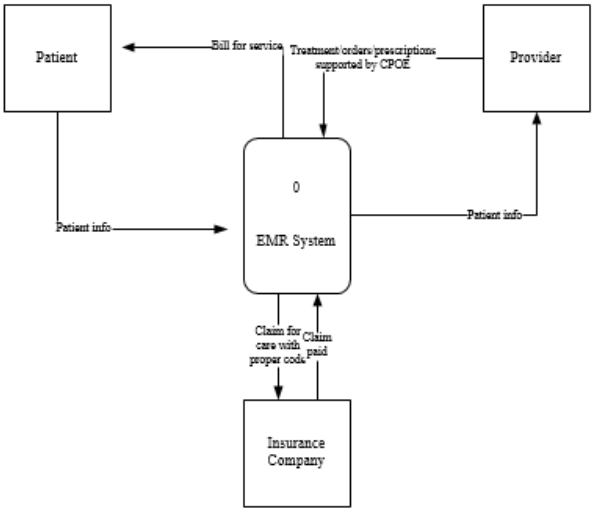
System Control:

- Each staff member should have unique login credentials with varying layers of access; for example, should not have the same level of access to patient records as providers
- Each staff member's access and capabilities should correspond to their responsibilities

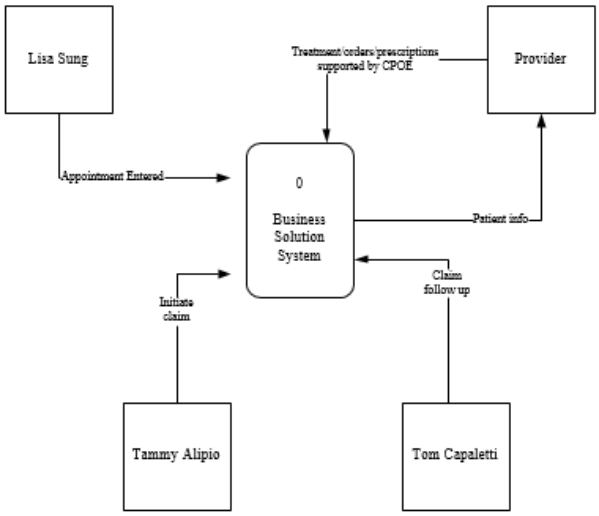
DATA PROCESS MODEL

The following diagrams are representative of the various processes that the new system will perform. There will be an EMR process, business solution process, Clinical Decision Support process and a human resources module for in house staff solutions.

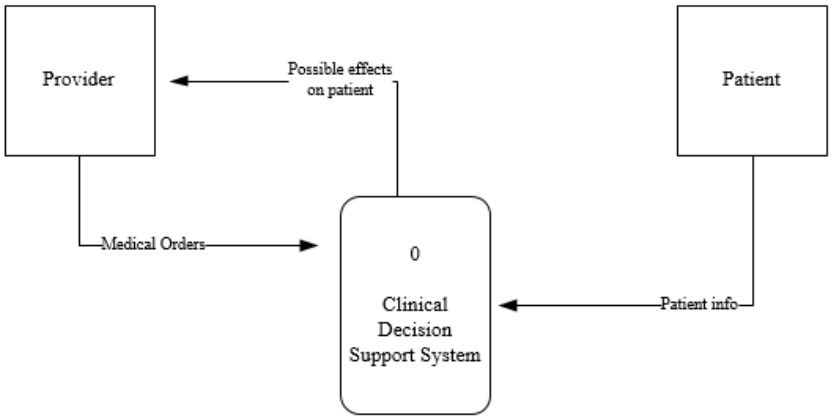
EMR Process



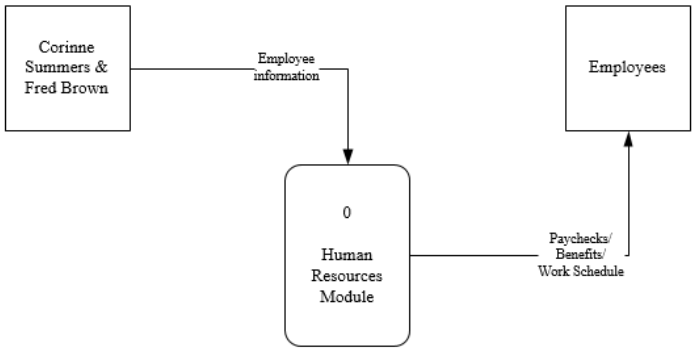
Business Solution Process



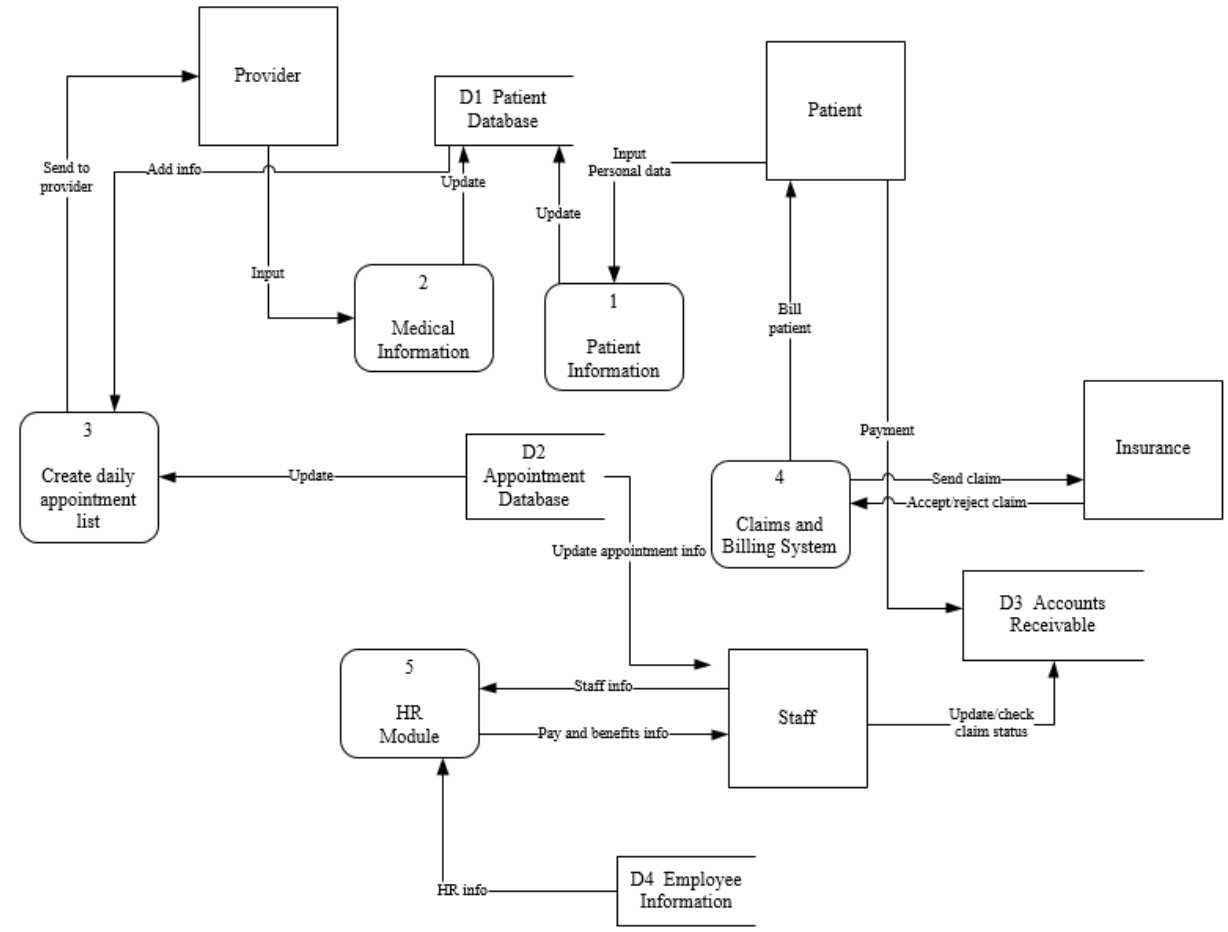
CDSS Process



HR Module



DATA FLOW DIAGRAM



DATA DICTIONARY

Data Stores

1. Patient Database: Stores all personal and medical information for each patient. Staff and providers use this database to identify each individual patient in terms of contact information and medical history use this information.
2. Appointment Database: Stores appointment dates and times. Takes personal information about patients and creates daily appointment lists for providers.

3. Accounts Receivable: Stores payment and insurance information for each patient. Sends claims for patients to their respective insurance companies, receives notification of acceptance or rejection of said claims, and generates bills for patients.
4. Employee Information: Stores all personal information regarding staff members. Used to identify staff members and determine pay and benefits.

Data Flows

Input personal data

Update

Input

Send to provider

Bill patient

Payment

Update

Update appointment information

Send claim

Accept/reject

Staff information

Pay and benefits information

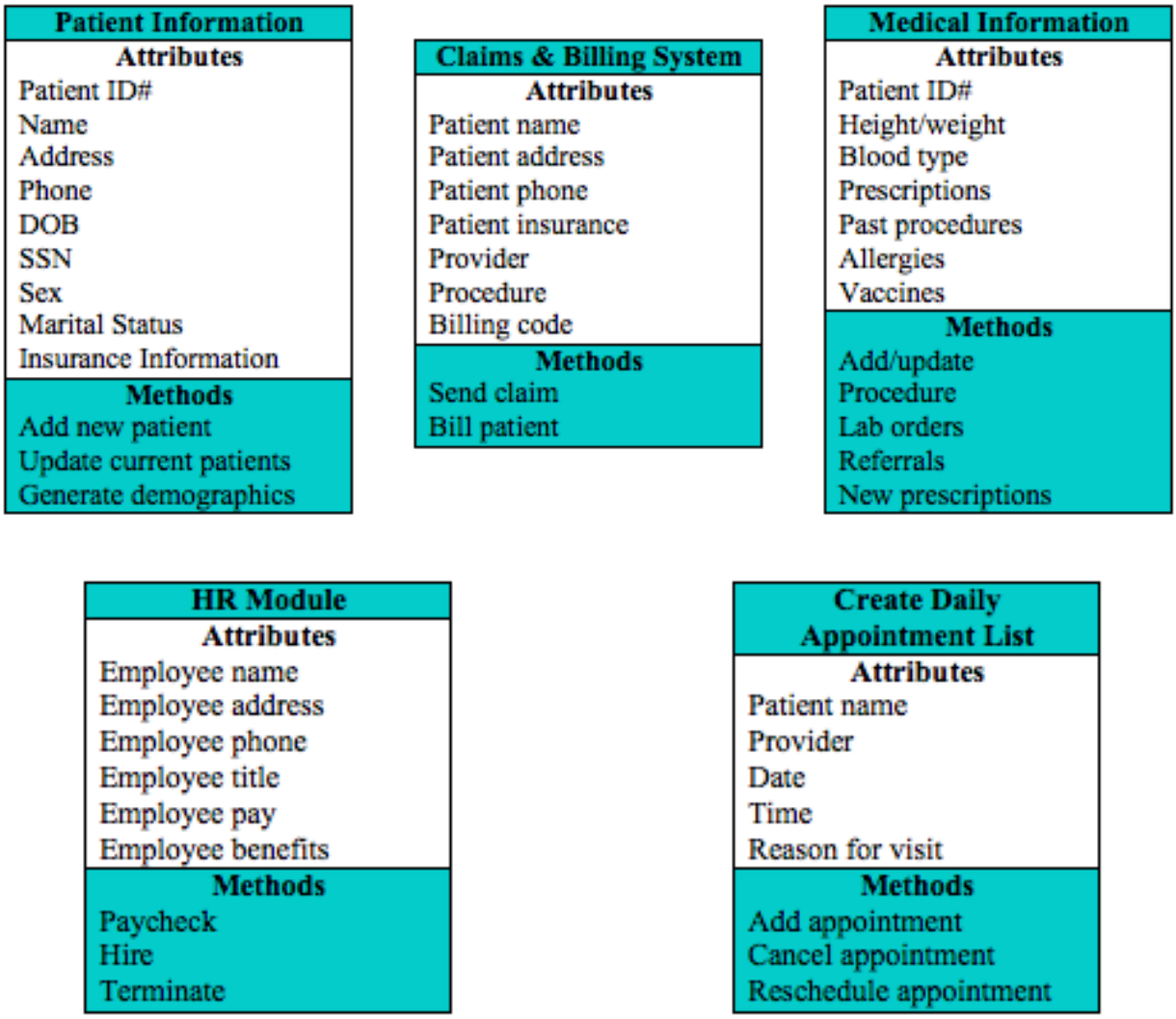
Update/check claim status

HR info

OBJECT MODELING

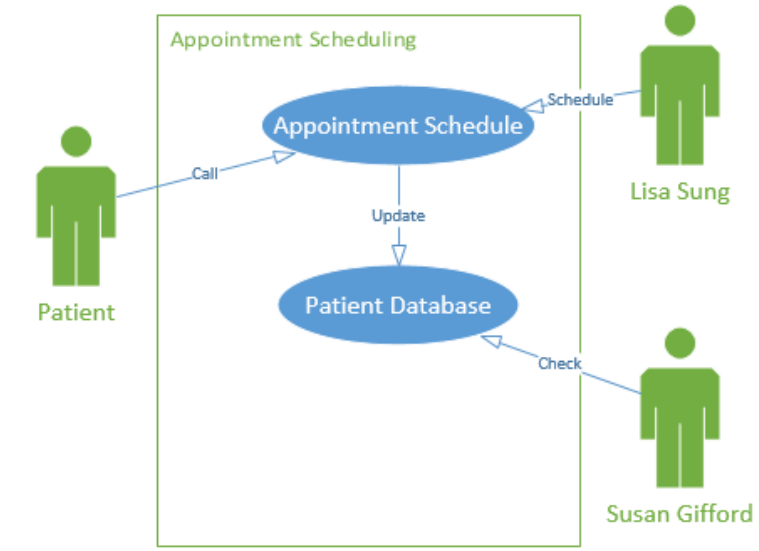
The objects included in this system are patient information, claims and billing, medical information, human resources module, and the creation of the daily appointment lists. Each of

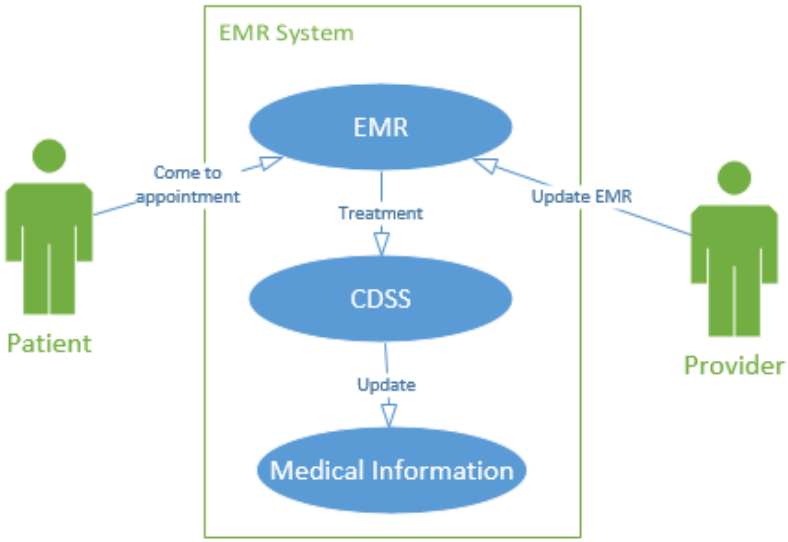
the objects have attributes telling what information is included and methods detailing what the system will do that information.

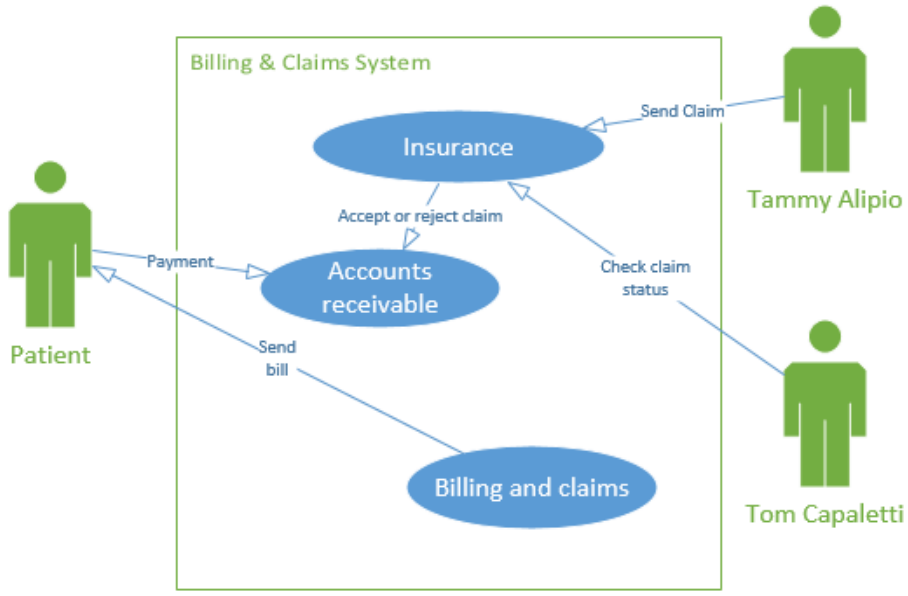


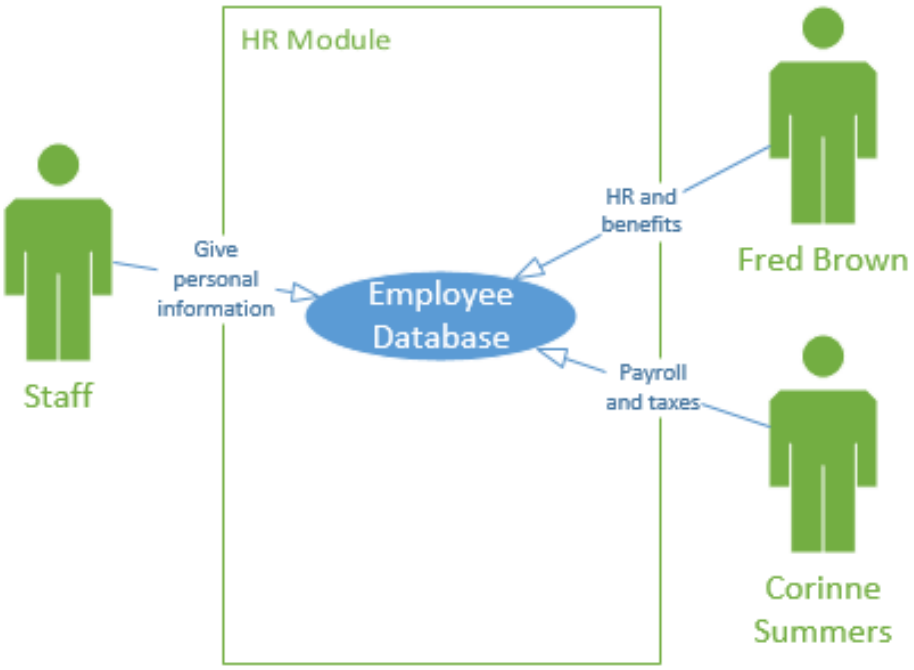
USE CASE DIAGRAMS

Each of the following use case diagrams (UCD) will indicate the user processes of this system. I will be including a UCD for the scheduling system, the EMR system, the billing system, and the HR module. These diagrams will detail how each user will operate various parts of the system.


Appointment Scheduling
Appointment Schedule
Schedule
Call
Update
Patient Database
Check
Patient
Lisa Sung
Susan Gifford


EMR System
EMR
Come to appointment
Treatment
Update EMR
CDSS
Update
Medical Information
Patient
Provider


Billing & Claims System
Insurance
Send Claim
Tammy Alipio
Accept or reject claim
Payment
Accounts receivable
Check claim status
Patient
Send bill
Billing and claims
Tom Capaletti


HR Module
HR and benefits
Fred Brown
Give personal information
Employee Database
Staff
Payroll and taxes
Corinne Summers

III. SYSTEMS DESIGN

SPECIFICATIONS

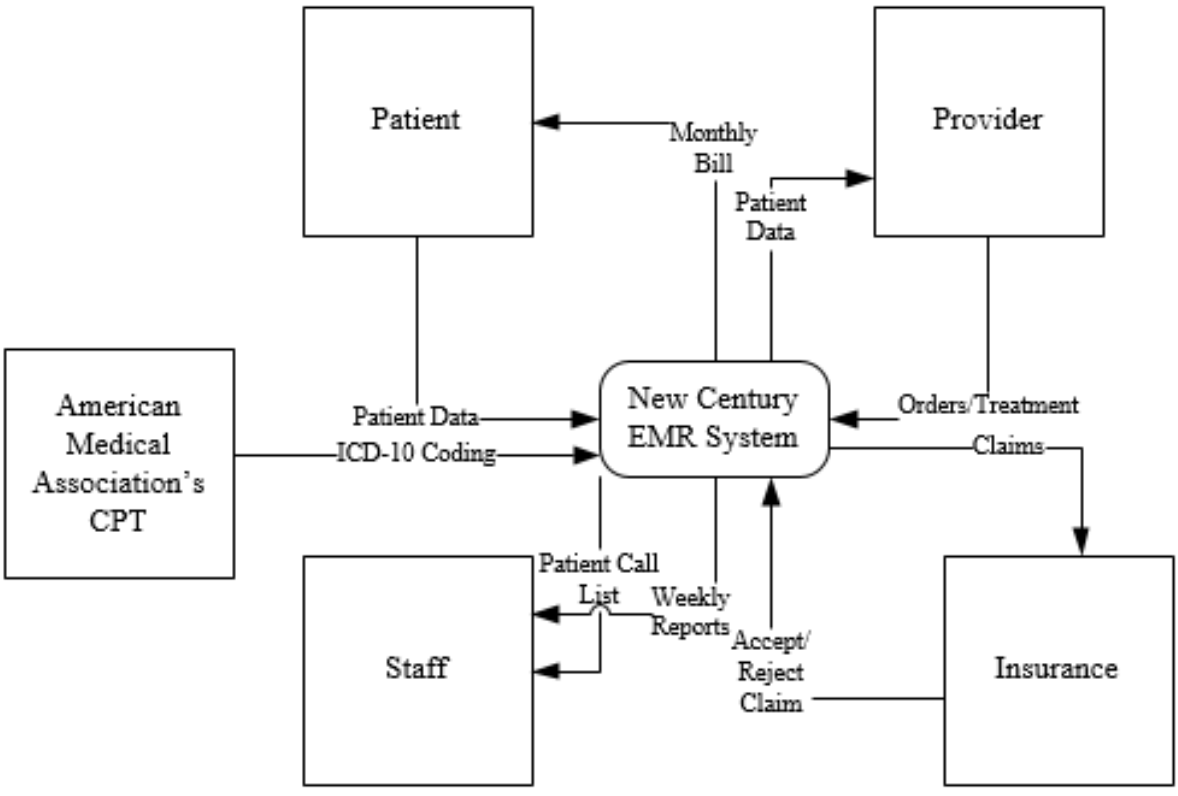
At the moment New Century Wellness Group requires six hours of office staff overtime and they will have to hire another clerical person within six month just to keep up with all of the work. New Century needs a computer system in place to eliminate the need for overtime work and a new hire. It will also significantly cut down on the number of errors made to each file. Currently, New Century sees an average of three errors per day and each errors takes about twenty minutes to correct.

My investigation into what type of system would be best for New Century began with several face-to-face meetings with Dr. Jones and Anita Davenport. Together we reviewed office records and accounting records. As far as business solutions go, I was able to deduce that the four key areas that most needed improvement were patient scheduling, billing and accounts receivable, human resources and payroll. These areas are highly interactive and therefore an integrated system would be best (Rosenblatt, Systems Design and Analysis, 10th Edition, 2014). Dr. Jones also expressed interest in an EMR system, but after research and careful consideration we decided a separate system for this would work best. I wanted to make sure every member of staff who will use this system has a sense of ownership so in my further investigations I was sure to take everyone's needs and wants into consideration when coming up with this plan. I conducted staff interviews, reviewed office reports, and observed office workflow and believe I have come up with the best solution for New Century's currently patient load, and future growth.

The medical services and procedures currently performed by New Century's medical staff are coded in accordance with the American Medical Association's Current Procedure Terminology (CPT). A CPT code is made up of five numeric digits and a two-digit suffix. These codes are required by most insurance companies to ensure proper paying and billing

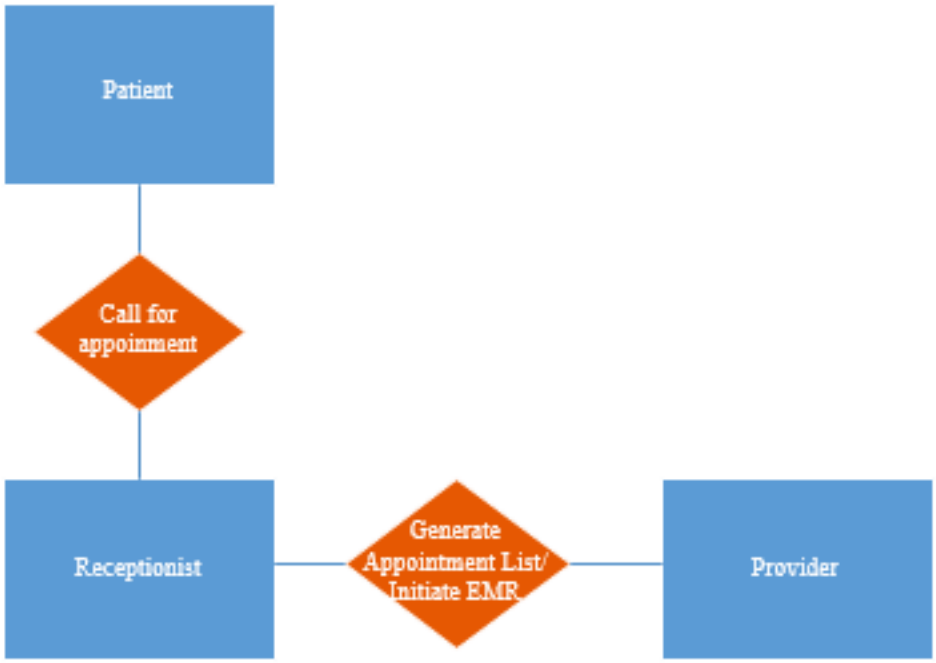
procedures. The new EMR system will be able to handle the new ICD-10 procedure coding system, which has been a requirement of the Centers for Medicare & Medicaid Services (CMS) since October 1, 2014. The new codes will consist of seven alphanumeric characters to be electronically transmitted and received. The system must also interface with twenty-five California health insurance providers. With this new system in place, New Century will be able to cut costs and patients will be able to go online to update their medical information, schedule appointments, and request medical records (Rosenblatt, Systems Analysis and Design, 10th Edition, 2014).

Below is a diagram of how the system will work.

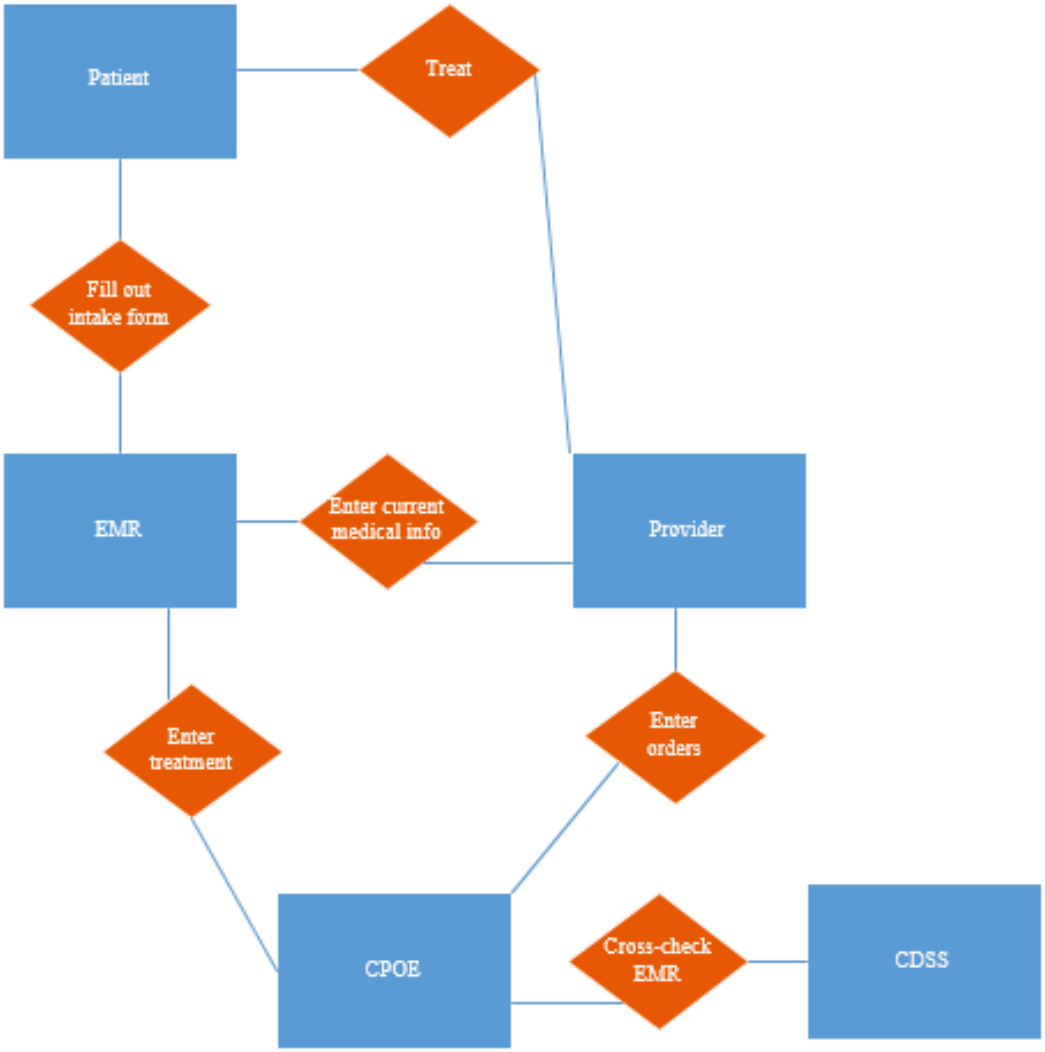


DATA DESIGN

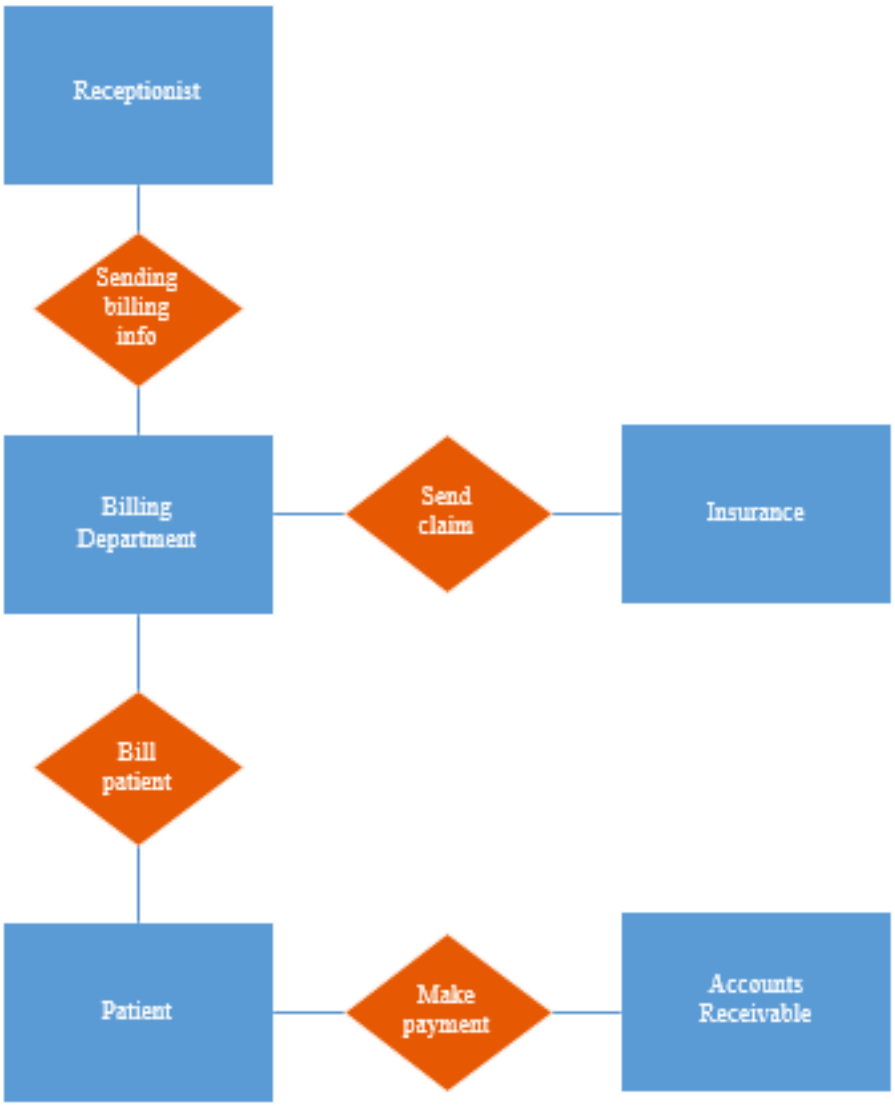
The following entity relationship diagrams (ERD) outline my proposed solution for New Century. The first ERD describes the patient scheduling component of the system. The patient speaks to the receptionist scheduling an appointment with an available provider. The system then generates an Appointment List for providers and initiates an EMR for the patient.



The next ERD displays the provider's interaction with the EMR. When the patient comes to their scheduled appointment they fill out a patient intake form asking for further personal information, medical history, and insurance information. This information is entered into their EMR and the provider enters current medical information pertaining to the visit. The provider can then use the CPOE system to enter medical orders for the patient. The CDSS then uses the information in the EMR to ensure proper care is given.



After the appointment comes the billing process. Using the information entered by the provider, the receptionist sends the billing codes and information to Tammy Alippio the billing specialist. The claim is sent to the insurance company for processing. Any copays or remaining balance not paid by insurance is then billed directly to the patient. When the patient pays their bill the funds are submitted to accounts receivable where Tom Capaletti can review it.



Next I have a series of third normal function (3NF) charts. The primary key is going to be patient ID generated by their initials and the last four digits of their social security number. Each ID is unique to each patient. Using this patient ID, databases are generated pertaining to the provider(s) have seen, the Appointment List, and their billing status. I'll first start with an example of the personal information of two fictional patients.

Patient ID	Name	SSN	DOB	Address	Phone	Insurance	Providers
JD1234	Doe, John	198-76-1234	01/01/1980	123 Penny Ln	215-555-2425	Yes	Jones
AS4321	Smith, Alicia	678-34-4321	02/02/1986	710 Columbus St	215-555-3254	Yes	Garcia

Using this information, the system can generate an Appointment list for the providers. Lists will be generated daily and will be specific to each provider. When providers login to the system they will see their personal schedule for that day. Each patient ID will be linked to the information found in the above database. Note: Date and Time can be populated by the database instead of being entered by hand to cut down on occurrences of human errors.

Patient ID	Provider	Date	Time
JD1234	Jones	6/1/2016	10:00 AM
AS4321	Garcia	6/2/2016	10:30 AM

The system will also be able to keep track of billing records. When a patient is billed, the system will show the billing code, when bill was sent, when it is due and whether or not payment has been received. Again, the patient ID links all of this. Note: Dates and times can be populated by the database as opposed to being entered by hand, and the Payment Received column can either feature a Yes or No response, or a checkbox. These options are meant to reduce human error.

Patient ID	Billing Code	Bill Sent	Bill Due Date	Payment Received
JD1234	BM5555	6/6/2016	7/1/2016	Yes
AS4321	GH6565	6/7/2016	7/2/2016	Yes

USER INTERFACE DESIGN

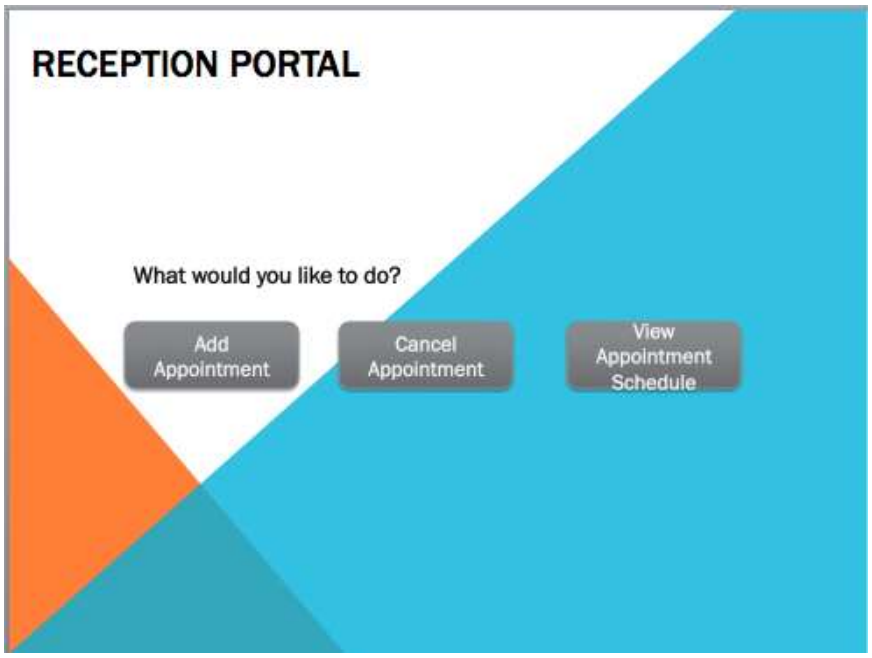
The User Interface is one of the most important parts of this report because it will show the users what the system will look like. I have done my best to create a system that will be easy for all staff members to use and that will address all system requirements. I have drawn some

mockups of the proposed system. You will notice that I have included buttons for various portions of the system. I have included a login and password page where staff members will enter their unique login credentials each time they access the system.

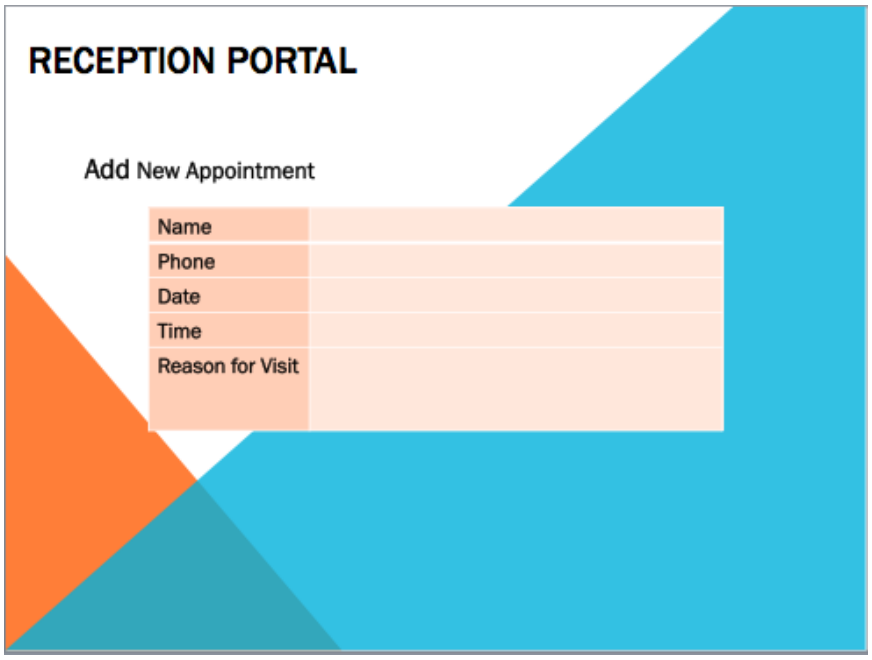
Next I have included a welcome page for each user to choose a portal that will best suit their purpose for using the system. There is a button for doctors, nurses, reception, HR, patient records, and employee schedule. Each button will then take the user to the selected area of the system. The Doctor Portal will contain patient records sorted by the six-digit Patient ID previously discussed. Here, he or she can see any and all medical information New Century has for each patient at any time. They can also see their daily appointment lists here. Nurses can also view patient information under the Nurse Portal. They can also see various schedules pertaining to the patients they will see each day. The Reception Portal allows the receptionist, Lisa Sung, is see all scheduled appointments and allows her to schedule and cancel appointments for patients. The HR portal will have all employee records and payroll information. There,

employees will also find their paystubs, employee schedule, and information regarding benefits. Patient Records will provide a view of patient records for Susan Gifford, who keeps and maintains patient records, again sorted by Patient ID. Carla Herrera will also have access to this portal so that she can order replacement supplies after appointments. Weekly Reports will generate the requested office reports such as Daily Appointment Lists, Daily Call List, and Weekly Provider Reports. Accounting will contain accounts receivable information, patient statements, Claim Status Summaries, and will generate Weekly Insurance Reports.

When a patient calls in to schedule an appointment, Lisa will click the Reception Portal button and be taken to another screen where she will be presented with another set of options. Here she can click a button for Add Appointment, Cancel Appointment, or View Appointment Schedule. Screenshots of these screens are shown below.



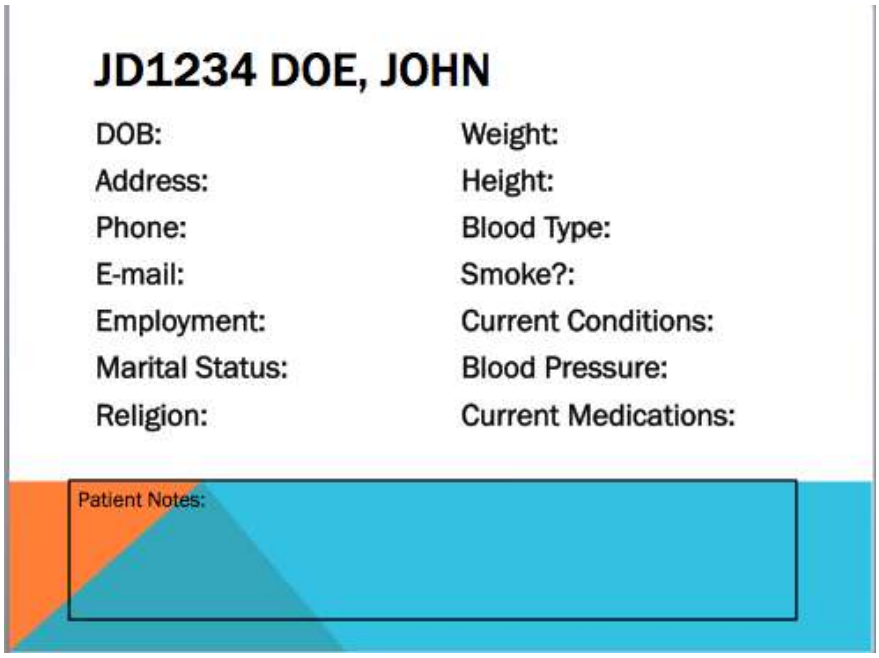
If Add Appointment is clicked, she will be taken to a screen where she can add all pertinent patient information, i.e., name, phone number, date, time, and reason for their visit. If it is a new patient, a patient ID will be generated when they fill out a patient intake form. They will have the option to fill this form out online, or at the time of their visit. If it is a returning patient, the system will recognize their name and add their patient ID.



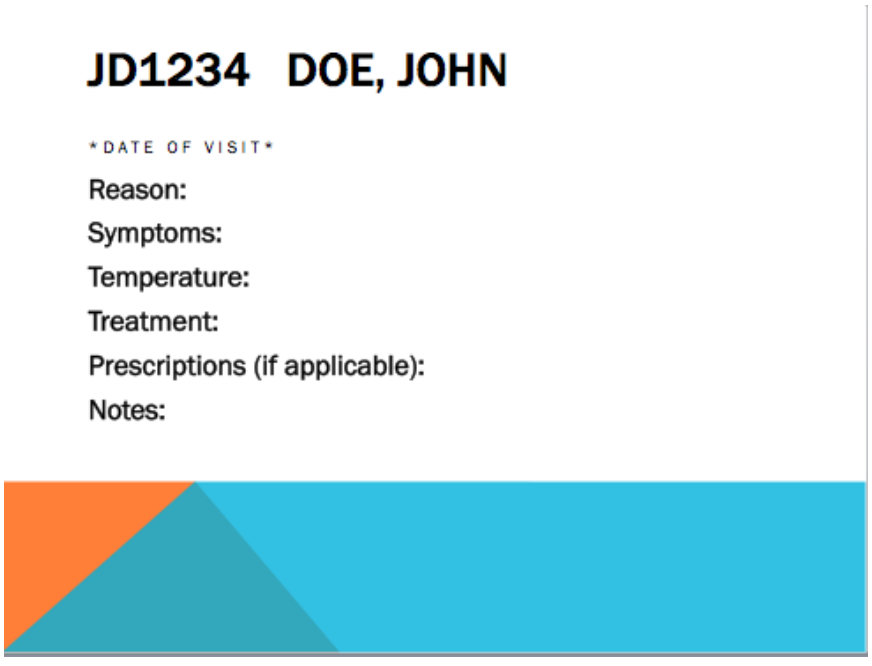
The addition of appointments will generate a master list of all scheduled appointments. This master list can be reviewed and edited when necessary. The Cancel Appointment button and View Appointment Schedule button both lead to this list. If Ms. Sung has to cancel or reschedule an appointment she can simply double click the person's name from the list and a window will appear with options for cancellation or rescheduling. Canceling will result in another window for verification of canceled appointment, and rescheduling will take her back to the original Add Appointment screen.

Next, I have included a suggested Provider Appointment List. It shows patient ID, patient name, appointment date, appointment time, and reason for visit. Each Patient ID will also service as a link to their various medical records for easy review.

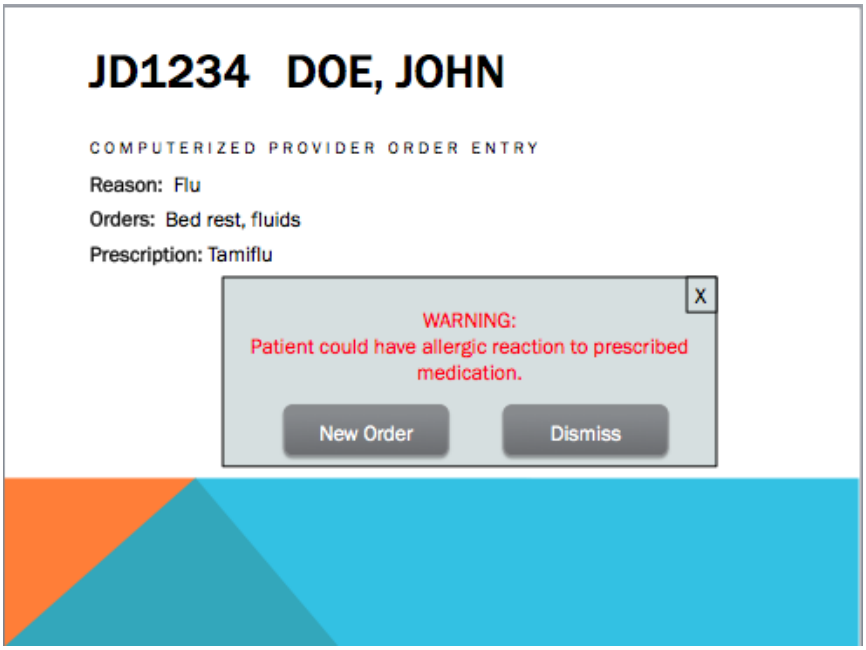
A patient EMR would like the picture below. It will include all personal and medical information for each patient. There is also an area for notes about the patient.



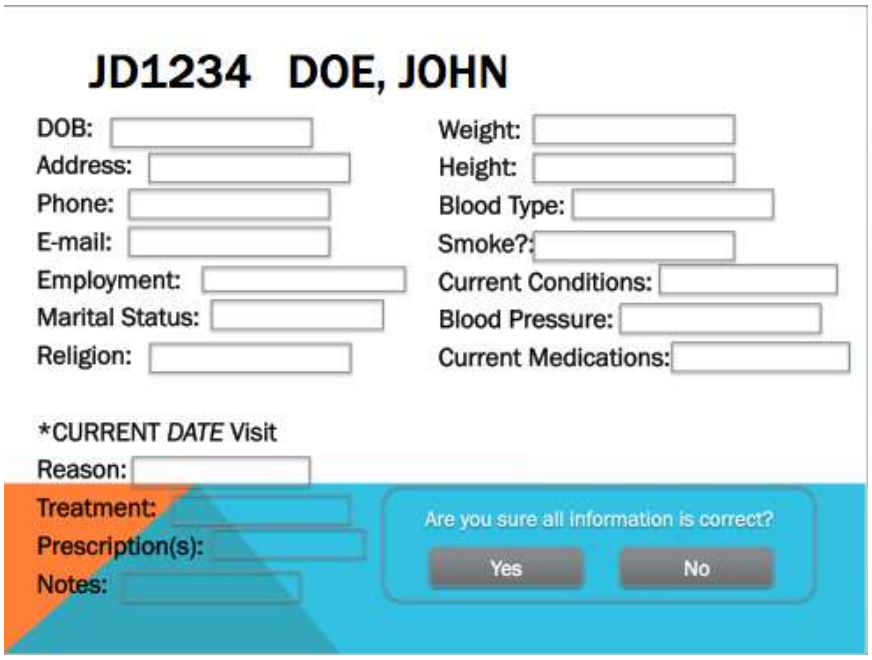
Next, is my suggested interface for patient appointment documentation. When the patient comes for an appointment, the provider will be able to review the patient EMR, and during the visit they will have various orders and take notes about what is discussed. On this page the CPOE and CDSS will come into play.



If the provider will use the CPOE to enter medical orders and order prescriptions supported by the CDSS. If provider makes an order that will negatively interact with patient's current conditions or medication, a window will pop up alerting provider. The provider will be able change their order(s) if necessary, or they can dismiss the suggestion pursuant to their medical expertise.



Lastly, there will be a verification page so that the provider can be sure they have included all necessary information. If provider notices anything missing they can easily go back and make necessary changes.



I concentrated on the patient records because that section is the most important. The other portals for HR and employee records will be built similarly. A verification page for information review will follow every change or addition made to all employee records as well. Patient appointment schedules will all look like the one demonstrated above.

SYSTEM ARCHITECTURE

Each of the twenty-five staff members at New Century currently has their own workstation. To ensure this system is efficient we will need to make sure each one is compatible with the new system. This will most likely require new hardware. Specifically speaking, the nurses work from one of three nurses' stations throughout the day. Each station should have at least three computers and one high-volume network laser printer/scanner. The reception area will have an impact printer for medical forms and a network printer. The system will also

include an online backup service and Internet service via cable modem. We will also have a computer installed in each exam room and procedure room that all have access to the EMR. For providers' convenience, they will each be equipped with network-enabled portable computers and tablets so that they can easily move from room to room, and from patient to patient so they have constant access to patient records (Rosenblatt, Systems Analysis and Design, 10th Edition, 2014). In total the system will require a network server, twenty-seven workstations, and five network printers.

Working full time for twelve weeks at the agreed upon rate of $35.00 per hour and the DBMS will have a start up cost of $19,300.00.

As I previously stated, each staff member will have his or her own unique login ID and password. Their password will give them access to various areas of the system that have to do with their respective position at New Century. For example, company partners will have access to all areas of the system to include patient records, appointment schedules, accounts receivable, and HR. HR staff will have access to the HR module, but not the other areas of the system because that area does not apply to their job.

FEASIBILITY ANALYSIS

This is the best solution for New Century Wellness Group. It not only allows them to have a large impact on the design of their system, it is also best way for them to make their office run more efficiently. My solution is the most feasible because it addresses all system requirements without breaking the bank. We are effectively modernizing New Century while making the day-to-day operations of the business easier. I have outlined below each of the ways this system will help New Century and its staff.

Operational Feasibility

This system is tailor-made so that staff members can be easily trained to use the system and begin implementing it right away. Once I show them the basics, operation will be fairly straightforward. I estimate that staff will need about ten hours of training each week for the first three months, and then they will be able to successfully navigate the system without difficulty. They will also be able to perform routine maintenance, file backups, and system updates. This system will eliminate the need for employee overtime because it is faster and more efficient than the traditional filing system currently being used.

Technical Feasibility

New Century will need new hardware installed to support this new system. My team and I will be happy to take care of this during our allotted build time. This way we can ensure all workstations are up-to-date, and compatible with the system and can communicate with each other. This system adds more mobility so the providers can move from patient to patient quickly without having to shuffle through papers and physical files.

Economic Feasibility

Currently, at least one member of the New Century staff is working six hours of overtime each week. At $15.00 per hour, that is totals $4,320.00 above regular pay per year. Staff is also making about three errors each day, and each taking twenty minutes to correct; that is an extra five hours of wasted time costing $3,600.00 per year. At this rate, New Century partners are aware that they will need to hire a new full time clerical worker in the next six months to keep up with the workload. The base annual salary for this person will be approximately $31,200.00, assuming they start at $15.00 per hour. This does not include their benefits or the training period this person will need.

My system is much more economical. Working full time at our agreed upon rate of $35.00 per hour for twelve weeks will cost $16,800.00. That, and the cost of the DBMS, which is $2,500.00, I estimate my services will total $19,300.00.

Schedule Feasibility

I will be bringing on two programmers to help me with the system build and implementation. This will keep my build on schedule and will ensure timely delivery. It is of the utmost importance that we keep you, our client, happy. We will work diligently to stay on schedule and complete this system in a timely manner. We are aware that New Century Wellness Group is a thriving business with a growing patient base so we can assure you that our work will not impair your business operations in any way.

IV. PROJECT PLAN

WORK BREAKDOWN STRUCTURE

The Work Breakdown Structure (WBS) is a hierarchical decomposition of the project objectives into deliverable-oriented tasks that are executed by the project team to accomplish the overall project goals (Piscopo, 2012). An undertaking such as this is quite large and will take some time to complete. The WBS divides the project into smaller, more manageable portions to make sure my team and I can maintain control and complete the tasks in a timely and organized manner. Beginning with higher-level tasks and moving downward, the tasks start off broad and gradually become more detailed. I designed the WBS so that you can follow our progress and see when tasks will be completed. Below is my propose WBS for your EMR system. My team and I will do our best to stick to this schedule so that you are aware of everything that is going on, and if issues arise I will immediately alert you when necessary.

	WBS	Task Name	Duration	Predecessors
1	**1**	**New Century Wellness Group EMR Project Plan**	**173.75 days**	
2	**1.1**	**Discovery Phase**	**5 days**	
6	**1.2**	**Systems Analysis Phase**	**20.75 days**	
24	**1.3**	**Design Phase**	**8 days**	
32	**1.4**	**Systems Development Phase**	**17 days**	
41	**1.5**	**Planning Phase**	**7 days**	
49	**1.6**	**Systems Implementation Phase**	**60 days**	
50	1.6.1	Hire programmers	10 days	48
51	1.6.2	Review DFDs, O-Os, ERDs, and tables	5 days	50
52	1.6.3	Installation	10 days	51
53	1.6.4	Testing	15 days	52
54	1.6.5	Evaluation	5 days	53
55	1.6.6	Train Staff	15 days	54
56	**1.7**	**Systems Support and Security**	**60 days**	
57	1.7.1	Routine Maintenance, File Backups, Updating	60 days	55

You will notice I have listed the previous phases of this project, Discovery, Systems Analysis, Design and Systems Development along with their durations. I have created task lists for each of those phases, but because we are concerned with my implementation of this system, I chose to leave those lists collapsed. I would be more than willing to provide that information upon request. In looking at this WBS, you will see that each task has a WBS number. That number indicates when each task can begin. Our next task is 1.6 Systems Implementation Phase. I am estimating that this will take about 60 days working full time. I have hired two programmers, Celia Goldring and Bill Miller, to assist me in this endeavor. Together we will review all company documents you have already provided to me, install the hardware and software, test the system, evaluate it, and then train the staff to use it. You can also see a column entitled Predecessors. These tasks cannot start until their predecessor tasks are complete. For example, task 52 Installation cannot begin until its predecessor, task number 51 Review DFDs, O-Os, ERDs, and the tables are complete. This helps up stay on task and allows me to update New Century staff of our progress.

PROJECT MONITORING & CONTROL PLAN

As the systems analyst for this project, I am also acting as the project manager. It is my job to make sure that this project runs smoothly and that my client, New Century Wellness Group, and my programming team, Celia Goldring and Bill Miller, are satisfied. I want to start by implementing structured walk-throughs. A structured walk-through is a review of a project team member's work by other members of the team (Rosenblatt, Systems Analysis and Design, 10th Edition, 2014). The programmers will review each other's work and my plans, and I will review their work as well. Testing each other's codes and designs will ensure proper system implementation.

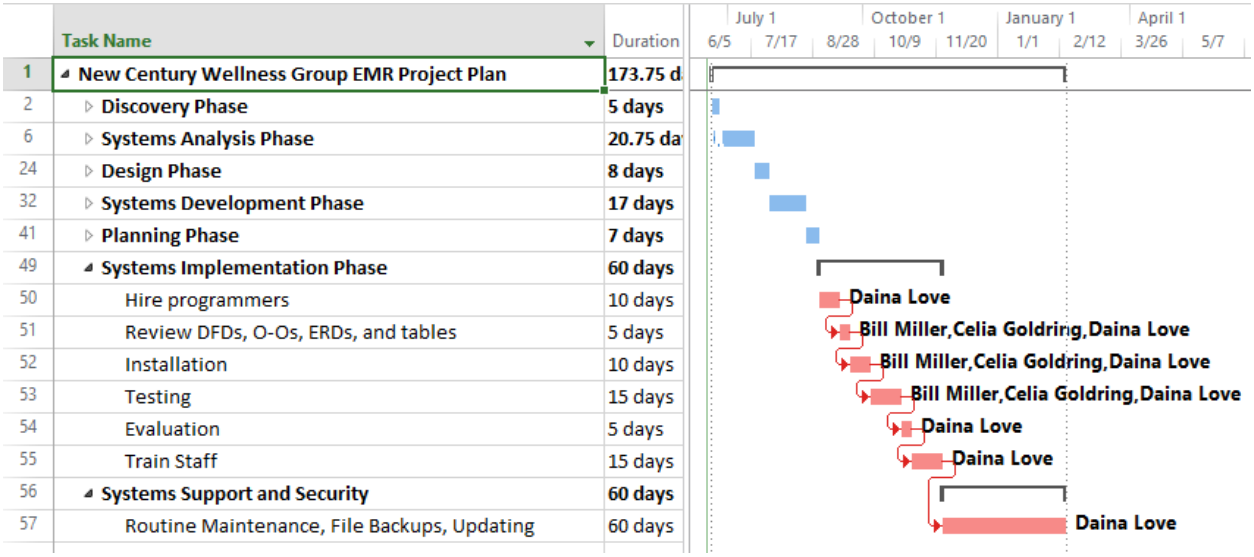
As the lead on this project, it is my job to expect the unexpected. Just as in life, sometimes projects have issues. By mapping out my System Development Life Cycle (SDLC) in my WBS, I can begin to anticipate potential issues. This type of forward thinking can help me minimize setbacks and stay on schedule and on budget. I plan on following a Program Evaluation Review Technique, or PERT, chart to help my team stay on schedule. The PERT chart will map out exactly what needs to be done to ensure the new system is implemented properly (Rosenblatt, Systems Design and Analysis, 10th Edition, 2014). Keeping this chart will also allow me to keep New Century's partners and staff apprised of our progress. PERT charts display all necessary tasks, task patterns and their durations; it will also help me know if and when critical elements and milestones are not being met.

I will also be sure to meet with my team often to assess their progress. Through regular project status meetings with Bill and Celia, I will be able to collect, verify, organize and evaluate information about the project. I will be able to relay any necessary information to Dr. Jones and the New Century staff. These meetings will also allow my team and I to brainstorm solutions to any problems that arise. Should the New Century staff prefer documented progress, these meetings will allow me to create reports detailing exactly where we are in the implementation process and answer any questions they may have. I also plan on meeting with Dr. Jones throughout implementation to answer any questions he and partners may have. I want to make sure he feels comfortable with the progress we are making and the systems we are building for his practice.

My critical path, or the sequence of stages determining the minimum time needed for an operation, especially when analyzed on a computer for a large organization can be seen below in my Timeline section.

TIMELINE

I estimate implantation will take 12 weeks or 60 working days. To exhibit this I have included a Gantt chart on the next page for your convenience. It is a horizontal bar chart representative of the systems implementation tasks (Rosenblatt, Systems Design and Analysis, 10th Edition, 2014). The chart also includes a specific task list from my previous WBS and the duration of each task. You will also notice that the section of the bar chart next to implementation tasks is red. These are critical tasks. These tasks are key to the project's timely completion.



As you can see, my team and I will be handling those critical tasks. The chart also gives a timeframe for when we will be done which I am estimating to be this coming February.

Next I have included a Resource Sheet and Cost sheet detailing all parties involved in this project and costs associated with this project.

RESOURCE SHEET

	Resource Name	Type	Initials	Max.	Std. Rate	Ovt.	Accrue	Base
1	Daina Love	Work	D	100%	$35.00/hr	$0.00/hr	Prorated	Standard
2	Anita Davenport	Work	A	100%	$0.00/hr	$15.00/hr	Prorated	Standard
3	Lisa Sung	Work	L	100%	$0.00/hr	$15.00/hr	Prorated	Standard
4	Susan Gifford	Work	S	100%	$0.00/hr	$15.00/hr	Prorated	Standard
5	Tom Capaletti	Work	T	100%	$0.00/hr	$15.00/hr	Prorated	Standard
6	Carla Herrera	Work	C	100%	$0.00/hr	$15.00/hr	Prorated	Standard
7	Fred Brown	Work	F	100%	$0.00/hr	$15.00/hr	Prorated	Standard
8	Corinne Summers	Work	C	100%	$0.00/hr	$15.00/hr	Prorated	Standard
9	Dr. Jones	Work	D	100%	$0.00/hr	$15.00/hr	Prorated	Standard
10	Tammy Alipio	Work	T	100%	$0.00/hr	$15.00/hr	Prorated	Standard
11	Celia Goldring	Work	C	100%	$0.00/hr	$15.00/hr	Prorated	Standard
12	Bill Miller	Work	B	100%	$0.00/hr	$15.00/hr	Prorated	Standard

COST SHEET

	Task Name	Fixed Cost	Total	Baseline	Variance	Actual	Remainir
1	**New Century Wellness Group EMR Project Plan**	**Prorated**	**$45,080.00**	**$0.00**	**$45,080.00**	**$70.00**	**$45,010.00**
2	**Discovery Phase**	**Prorated**	**$1,400.00**	**$0.00**	**$1,400.00**	**$0.00**	**$1,400.00**
6	**Systems Analysis Phase**	**Prorated**	**$3,360.00**	**$0.00**	**$3,360.00**	**$70.00**	**$3,290.00**
24	**Design Phase**	**Prorated**	**$2,240.00**	**$0.00**	**$2,240.00**	**$0.00**	**$2,240.00**
32	**Systems Development Phase**	**Prorated**	**$4,760.00**	**$0.00**	**$4,760.00**	**$0.00**	**$4,760.00**
41	**Planning Phase**	**Prorated**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
49	**Systems Implementation Phase**	**Prorated**	**$16,520.00**	**$0.00**	**$16,520.00**	**$0.00**	**$16,520.00**
50	Hire programmers	Prorated	$2,800.00	$0.00	$2,800.00	$0.00	$2,800.00
51	Review DFDs, O-Os, ERDs, and tables	Prorated	$1,120.00	$0.00	$1,120.00	$0.00	$1,120.00
52	Installation	Prorated	$2,800.00	$0.00	$2,800.00	$0.00	$2,800.00
53	Testing	Prorated	$4,200.00	$0.00	$4,200.00	$0.00	$4,200.00
54	Evaluation	Prorated	$1,400.00	$0.00	$1,400.00	$0.00	$1,400.00
55	Train Staff	Prorated	$4,200.00	$0.00	$4,200.00	$0.00	$4,200.00
56	**Systems Support and Security**	**Prorated**	**$16,800.00**	**$0.00**	**$16,800.00**	**$0.00**	**$16,800.00**
57	Routine Maintenance, File Backups, Updating	Prorated	$16,800.00	$0.00	$16,800.00	$0.00	$16,800.00

New Century Wellness Group is a thriving medical clinic. It is my belief that with the help of my system, New Century could be even more successful. My system will help the office run more efficiently and taken some of the burden off of the staff so that their main concern can be the patients. Thank you for your time and consideration. If you should have any further questions please do not hesitate to contact me.

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