

Digital Patient Database

Project 1: Problem Statement

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When one visits the doctor's office in 2013, a lot of time-consuming paperwork has to be filled time and time again. If someone were to switch doctors for whatever reason, the records would have to be transferred from one doctor to the next, often leading to a lot of hassle for both the doctors and the patients. This process is intensely time consuming; often spanning over the course of weeks if not more. Furthermore, human errors are bound to cause inaccuracies and other major complications resulting in deterrence in patient care.

It is our belief that such problems and procedures can be eliminated and made hassle-free by enabling the use of a digitized system allowing for the resolution of many issues that medical professionals and patients face today. With this system, the flow of patients in and out of the offices would be streamlined and greatly improved. Data transfers could be made in minutes instead of days or weeks and with far fewer errors. Comments from individual doctors could be transferred back and forth quickly; this way, medical mistakes can be avoided.

The clientele for this system would consist of major hospitals, small doctor's offices, medical centers, and also dentist's offices. The objective of our customer is to have access to all information with no problems along the way. We would make the entire experience smoother for not only the patients, but doctors, dentists, nurses, and staff as well. The more efficient the system is, the more patients will want to come to the office for a smooth visit. Patients, when they go to a doctor's office, want their visit to be as quick and enjoyable as possible. The last thing they want to do when facing an ailment is to jump through additional hoops to introduce themselves to new doctors, even if the medical facility is the same.

There are additional stakeholders involved with this ecosystem. Our product would not only affect the hospital, but also government agencies and research laboratories. This system would better facilitate and keep track of the payment and billing process, as all the patient's

information can be sent quickly, including procedures performed and cost of the procedures.

The users for our system will be everybody involved with the medical field. This includes patients past, present and future, doctors/dentists, medical students, nurses, and staff. Hundreds of people can be using this system at any given time, or as few as 2 people can be on the system. Users can be young patients to senior citizens using a computer for the first time. This system will be able to be used by the most technology illiterate people, yet still effectively communicate the data needed for a streamlined and efficient visit to the office. Patients will only be required to enter their information once into the system. From then on, this information can be passed from doctor to doctor, and from one medical institution to the next. On next visits, the user can simply log in to the system, quickly verify that their information is up to date, and receive a patient number. Once they log in, receptionists and nurses can see which patients are waiting to see a doctor, and make necessary preparations before the doctor sees them. Meanwhile, doctors can see which patients are waiting to see them, and make additional preparations for the patients based on the abundance of new information gathered by our system. When they are ready, they can notify the receptionist/nurses through the system which patient should come back. This also reduces the time necessary to physically walk between people to let them know what is going on - it can happen all through the system.

Making the transition from where the medical field is today to a point where they would be using our system is not easy. There will be several constraints that prohibit this type of system from being used overnight. Hospitals have countless pieces of information regarding their patients that would need to be migrated from whatever they're using now to a more centralized system that we are offering. Another constraint would simply be whether or not a patient is comfortable with entering their personal information into a centralized database. To some, the

digital realm is completely outside of their comfort level. As far as hardware and operating system constraints go, the customer may have an ongoing relationship with a certain software or hardware company resulting in a more expensive or time consuming process to set it up than it has to be. Lastly, this is a pretty large change so inherently people are resistant to change, especially when they're so used to the status quo.

We can assume that a lot of our customer base is using outdated pieces of hardware and software. To assume that though, one must also assume that they're not using pen and paper still. Hopefully this system isn't simply an executive idea that doesn't have much enthusiasm from the receptionists, nurses, and other doctors that would actually be using it more often. Assumptions can be verified with meetings with not only the executives of the business, but also by talking to the staff and users that will use this system on a day-to-day basis. If these assumptions are true, the system will have to be redesigned to work well with everyone, no matter what systems they are using at the moment. With these assumptions also come some risks. These risks include scheduling constraints such as when it would be acceptable to implement such a drastic change, especially since medical facilities have such abstract schedules. Then, once it is fully implemented in the business, all medical professionals that will be using it must be formally trained. Resource constraints would simply be the vast amount of money required to fund such a change.

Some of the benefits to this new system is most obviously, access to healthcare professionals will improve. Secondly, it frees up staff's time to concentrate on therapeutic tasks. Also, improving access will lead to improved patient satisfaction, helping to achieve the targets set by the stakeholders. The regular skill mix reviews can provide development opportunities for staff. Another benefit to the new system is that patients will spend significantly less time in line.

This new system may also free up receptionist time so they can work in other areas. The system also manages patient expectations. This may manifest itself by telling the patients wait time for their visit. This system also gives the option to have multiple screens in multiple locations. Patients also may feel more comfortable entering personal information into a screen as opposed to handing personal information to a receptionist. These screens could also eliminate language barriers by being multi-lingual.

There are, however, a number of drawbacks. Patients may have concerns about lower grade staff taking on these more complicated, new roles of running the new system. Another issue is cost effectiveness establishment. A revised skill mix is not necessarily more cost effective than more traditional, analog methods of record keeping. Also, a skill mix approach can blur the role of boundaries between staff, which may threaten professional identity. In other words, this new system could have adverse effects on teamwork. Another perspective may reveal that investment in training in both time and money may be necessary to teach the new needed skills to the staff. Going off of that point, some staff may not have the technical skill to use the system. In a related point, this system may not be ideal for patients with sight problems or the elderly. Some patients also prefer traditional face-to-face conversation as opposed to the new technology. Thinking about privacy and confidentiality, some patients may be apprehensive to enter personal information in a computer system. It may feel like it could be available to all of the users. There is also space concerns in smaller practices and specific rooms in the practice. These kiosks may also have additional maintenance costs. In another case, these kiosks may cost an upwards of \$3,000 to set up and \$620 a year to maintain.