

Final Report

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IN4MATX 281 User Needs Analysis

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Introduction

The allergy and asthma center studied in this contextual inquiry, is a practice that aims to help patients identify and alleviate their symptoms. The main procedure used to identify a patient's allergies is skin prick testing. This is then divided into two subcategories of environmental and food allergies. There can also be blood labs ordered but taken at a separate facility. Once these allergies are identified, depending on what they are and the patients' symptoms, there are several treatment options. There are mainly two forms of immunotherapy such as allergy shots and oral immunotherapy (OIT). Both immunotherapies are essentially small doses of the specific allergen serum given to the patient at first on a weekly basis, then subject to the care needed, monthly over the course of several years. All the identification and treatment procedures are administered by medical assistants. The focus of this research is based on the point of view of the medical assistants and observations of their work.

The main project focus is:

How does communication and coordination happen between medical assistants at an allergy and asthma practice to conduct the multiple courses of procedures for patient care?

With this project focus there are several insight topics that have been found. The first is that no matter how much technology advances, reverting to human intervention and manual processes will always be needed. Then, the physical space of the practice directly influences the means of communication between medical assistants. Lastly, the allergy shot room operates as its own subset of the practice with a hierarchy of medical assistants taking place for the need of a provider.

Methods

The methods used for this project was a series of contextual inquiry. The first method used for understanding context was observations. Personal appointments were used as the multiple observation settings. These observations at first spanned over the duration of the entire time physically in the office. From checking in to, the waiting room experience, checking vitals, meeting with the doctor, skin prick testing procedure, and diagnosis. However, as observations proceeded, the focus primarily became the skin prick testing and analysis process. These observation sessions were documented by the method of handwritten jottings. These jottings were quite extensive and were taken for the duration of each of the three appointments. Immediately following each session, these jottings were expanded on to be referenced later as field notes.

The other method used for contextual inquiry were individual interviews with three medical assistants. These interview questions were compiled with a formal interview protocol that was based on previous observations. It is important to note the interview question structure was crafted to ensure there was no leading questions or bias. For each interview the same outline of questions was asked, aside from once the interview led down a more specific path to get further clarification. The practice organized a time and date for this to occur and notified their staff about who would be interested in doing an interview for this study. With that context there were three medical assistants that were interested and allocated 30 minutes of their day to be interviewed.

The analysis of this data was done in several ways. The interviews were transcribed and annotated for data by coding the responses. These were expanded on to uncover patterns, relationships, and processes by creating work models. The specific models used were physical, collaboration, and sequence. They can be found to reference at the end of this report. These models were selected based off prior data analysis to visualize the data found. The physical model was intentionally chosen to highlight how the physical space of the practice influences how medical assistants communicate, and to show the general path used for a patient. The collaboration model was created to focus on the amount of collaboration and communication needed to execute patient care. This model highlights other key influences that were not interviewed for this study but were talked about from the medical assistant's point of view such as the doctor and physician assistants. The sequence model was chosen to uncover the communication that occurs between medical assistants when conducting specifically skin prick testing. The original project focus was on the procedure and analysis of the technology used for skin prick allergy testing, however after creating the multiple models and annotating the interview transcripts, this was too narrow. The collaboration and physical models were broadened to derive more valuable insights.

Findings

No matter how much technology advances, reverting to human intervention and manual processes will always be needed.

The interviews conducted with each medical assistant divulged that various technological tools used at the practice will inevitably fail at some point. Once this occurs, they have a way to circumnavigate the issue at hand with little to no interruption to patient care. One notion a medical assistant had was specifically regarding the Electronic Medical Record (EMR) software, called Summit, and how the system was mismatching the Medical Record Numbers (MRN) for every patient.

“...there was some type of glitch with Summit...they messed up the MRN numbers, so that was a big deal, so we had to keep going into Athena to make sure, is this actually this patient, okay it is, then we had to go in manually and change the MRN directly...”

This shows the reliability of technology is not always there and, in this case, used another patient communication software, Athena, to check the MRN numbers and manually enter the correct numbers back into the other charting software, Summit. In another similar circumstance, the medical assistant describes another verification about giving the correct patient the correct dosage and vials.

“...just looking at them. Taking out the vials, making sure this is the patient, this is the date of birth and in fact making sure against the chart the same one. It takes longer but that is the most legitimate way to do it.”

In context, this is when the medical assistant is administering an allergy shot to a patient. It is crucial that the correct dosage is given as a core part of immunotherapy, where the amount of allergen administered is built up over time. The detail the medical assistant takes to physically check the MRN number to the patient and ask the patient to verify this information, is in place of when they would typically scan the MRN number and scan the vial. Another similar example is when a new machine was added to take vitals, such as height, weight, blood pressure, and heart rate, the process to properly use this machine interrupts the flow of patient care.

“...We’re getting used to this new technology of it syncing. Or sometimes again, you have to long into the computer, you have to pull up the chart, you have to do all these little steps, by this time I already wrote them all down on a sticky, let’s go.”

This new technology was designed to synchronize the patient vitals without the need to write them down to chart later, to automatically upload to the chart when recorded from the machine. The medical assistant describes this as an issue when the machine doesn’t sync right or takes too long when the office gets full of patients.

From observation sessions as well, there are field notes describing the physical note taking of these vitals.

She asks me to step up on the scale to take my weight...She records the number by writing it down with a pen on a clipboard she is holding. She then asks for my height...She writes it down.

The interviews and field notes are empirical evidence to the insight that when technology fails, there is still a need for that human intervention to provide the most accurate patient care. The medical assistants have multiple means of manual processes they can rely on when these technical errors occur. Physically writing vitals down sometimes is the most efficient. Also, manually checking patient information is imperative to proper care. This highlights the importance for medical assistants that are detailed and attentive to the procedures they are conducting. Having an individual that is intuitive to problem solve when things do not go as planned can have a direct impact at a practice.

The physical space of the practice directly influences the means of communication between medical assistants.

The interviews, field notes, and work models are direct evidence that led to the insight of the physical space impacting forms of communication. For reference, the specific space is the back office which consists of 12 exam rooms, two nurse stations, and one vitals station. This back office also has a total of three providers that see patients in this space. One medical assistant highlighted how communication happens here,

“... doctor comes out and says room two needs a skin test, all environmental. But I’m already starting on a skin test in room one, and I need to go. I write down what he says, and I put the sticky on the computer. So, whoever steps out next sees, hey this is what’s next.”

The physical space here of the exam room that one medical assistant is already working in, limits the form of verbal communication and is instead replaced with a sticky note on a computer screen. The shared nurse station is the main computer in the area that up to five medical assistants are sharing. “Through Athena [software] we can message each other but again, not everybody is on a computer”. The use of technology to communicate is limited in this setting because the physical space does not accommodate for each medical assistant to have their own computer. “We also have phones, can call each other from this one to another nurse station, that way we aren’t all huddled up on one nurse station.” The phone system is another form of communication that happens between medical assistants and is also tied to the nurse station like the computer. Both stationary desks are hubs that multiple medical assistants share and use to interface.

The data from field notes spotlights when in the exam room, how a medical assistant uses the computer,

The computer she is typing on is a Dell that is mounted to the wall with a tray that hold the keyboard and mouse. There is also a rest pad at the end of the keyboard, the entire set up is black and movable to move off and collapse against the wall. She then finishes typing, she submits the chart on a webpage, and locks the computer.

Most of the individual charting occurs in the exam room on the Summit electronic medical record (EMR) software. This setup is also visualized in the physical work model by showing the layout of each exam room and a close-up of this setup described. With the usage of these exam room computer stations, the nurse stations don't become as crowded unless follow up charting is needed.

Overall, between the exam rooms and the two nurse stations, these spaces impact how medical assistants communicate. This is a relevant insight because it shows a way that communication could be improved. There has been a sticky note system in place that the medical assistants have created but could easily be misinterpreted or have room for miscommunication if left up.

The allergy shot room operates as its own subset of the practice with a hierarchy of medical assistants taking place for the need of a provider.

The interviews with the medical assistants and the collaboration model were the main sources of evidence for this insight. The allergy shot room is run by a senior medical assistant with typically two or three other supporting medical assistants. This room has its own schedule that is essential to stick to due to the number of patients that visit and the frequency. A quote from one medical assistant describes this in more detail.

“Every five minutes there is a new patient. That's the block. And you can imagine sometimes it is five minutes. Or sometimes you get a kid who just doesn't feel like getting shots today, so he'll be in here for forty minutes...so if I'm going to be forty minutes on one side with one patient, the other girl [medical assistant] probably is going to do like five patients while I only do one.”

This showcases the frequency of the patients that are seen in this individual room with two shot stations. The senior medical assistant touches on the fact that some patients may take longer, and they account for that by offsetting the number of patients each

medical assistant sees. This also touches on the quantity of patients that are on the typical schedule for an individual day, “The shot room is very independent, there is really no micromanaging. It’s your schedule, you have 70 patients you are injecting today, that’s what you’re going to do all day”. This room works independently of the rest of the practice aside from the providers recommending patients as candidates for immunotherapy treatment. The senior medical assistant also outlines the daily tasks this room is responsible for too, “We administer shots, once you’re done, bill them, and then we have to prep for the next day. Get the schedule ready, pull all the vials for tomorrow...”. Referencing here the responsibilities of this room and showing how it operates independently without needing provider intervention or guidance.

The collaboration work model is another example to visualize the relationships between a senior medical assistant, medical assistants, and providers. In the rest of the office outside of the shot room this hierarchy is shown in this model. The providers, doctor or physician assistant, direct the medical assistants verbally on exactly what to do. In one interview a medical assistant clarifies the expectation for the practice, “As a medical assistant we are not allowed to assess...we are literally their [provider] assistant. We do everything they instruct us to do, and they have to be in this building.” This highlights the contrast between the independent shot room and the rest of the practice.

Overall, the interviews and collaboration model are direct evidence in which the hierarchy of medical assistants takes the place of a provider in the independently operated shot room. This is pertinent to the practice to acknowledge the hierarchy in place to ensure this room is given the proper support. The medical assistants in place follow a precise standard that ensures the quantity and frequency of patients daily are designated adequate patient care.

Future Work

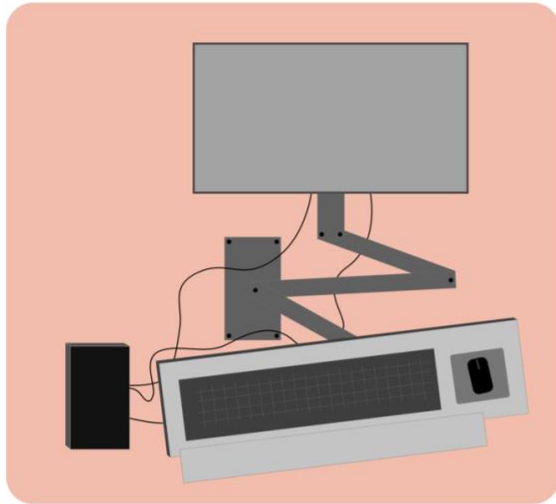
This allergy and asthma office as a contextual inquiry study showcased several insights that could be beneficial to acknowledge for further application. Using human intervention to ensure that technology is checked before a procedure begins is key to ethical patient care. There have been multiple excerpts of evidence that highlight this and are quickly resolved or worked around by medical assistants that know how to problem solve. This could be greatly researched further by looking at the exact software programs used such as Athena and Summit. This research could help to better understand how these two programs are used daily. Another subject to study would be the vitals machine that synchronizes to the patient’s chart. This technology still needs lots of set up to be able to use that impacts the flow of the practice. This can be crucial when there are lots of patients that need to be seen.

The insight in which the physical space of the office has an impact on the means of communication between medical assistants points out multiple communication mediums. Verbally in person, sticky notes, and chat software are the most common. The relevancy of the need for computers or means to chat with brings up the topic that a larger space, mobile stations, or tablets could suffice as alternatives to the current communication work-arounds. These communication styles could be studied at a much greater depth by having multiple observation sessions in the back-office environment, along with a wider range of interviewees.

The insight regarding the medical assistant hierarchy within the shot room, could be looked at further with observations of this room. If given more time, there could be better outlines to understand the responsibilities that play into the medical assistant hierarchy and more in depth on the exact communication that needs to happen for this room to run as efficiently as it does. This room could then possibly serve as a model to run the back office in a similar manner when overloaded with patients. Although there are more variables at play in the back office than the shot room, there may be deeper insights to understanding the system they have established.

The comprehensive contextual inquiry of this allergy and asthma office led to multiple insights and has room for further research. Further research may add more supportive data to the project focus of the communication and coordination between medical assistants to conduct the multiple courses of procedures for patient care.

Physical Model



Close up of the computer used in each exam room.

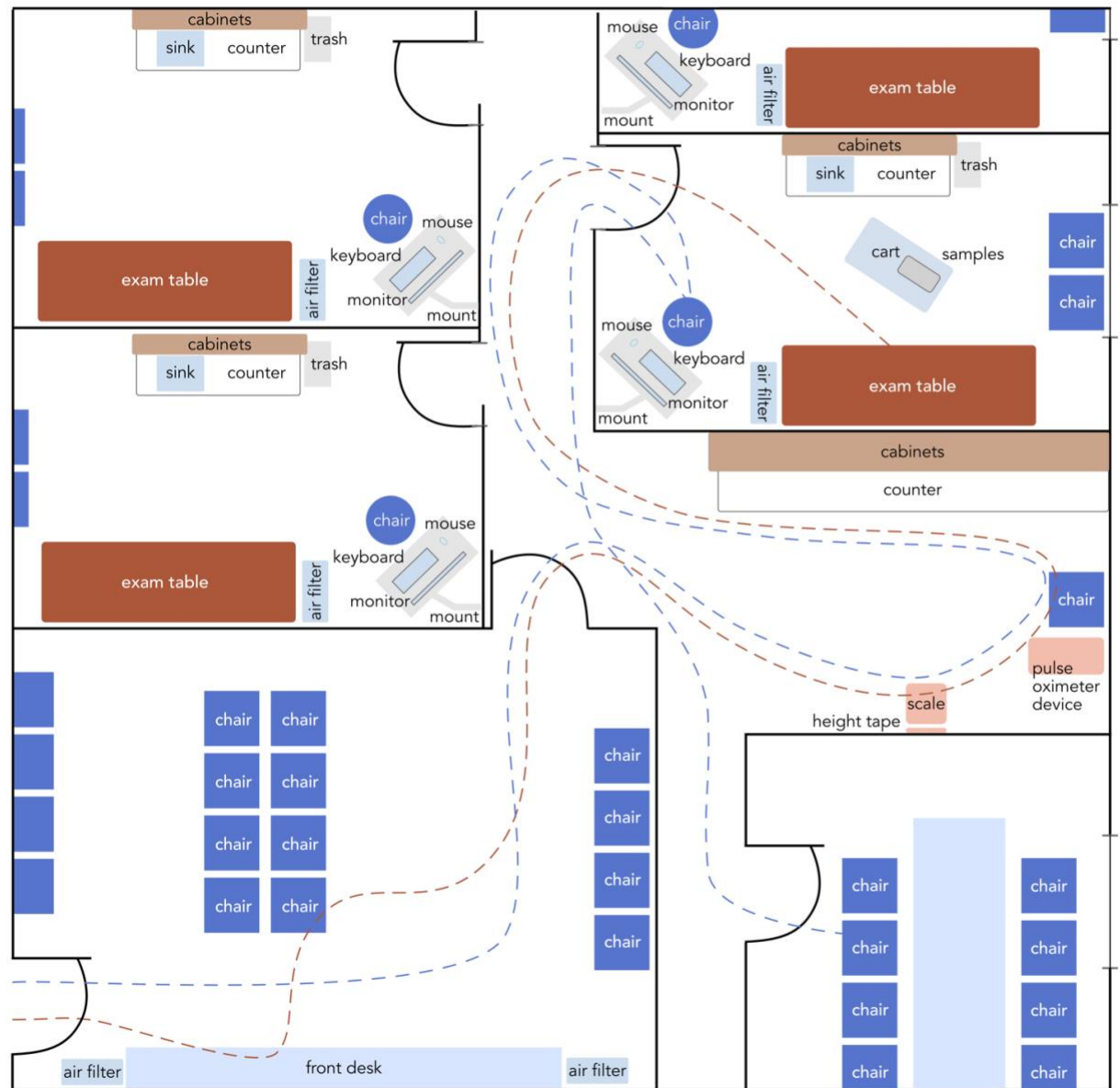


Patient Path



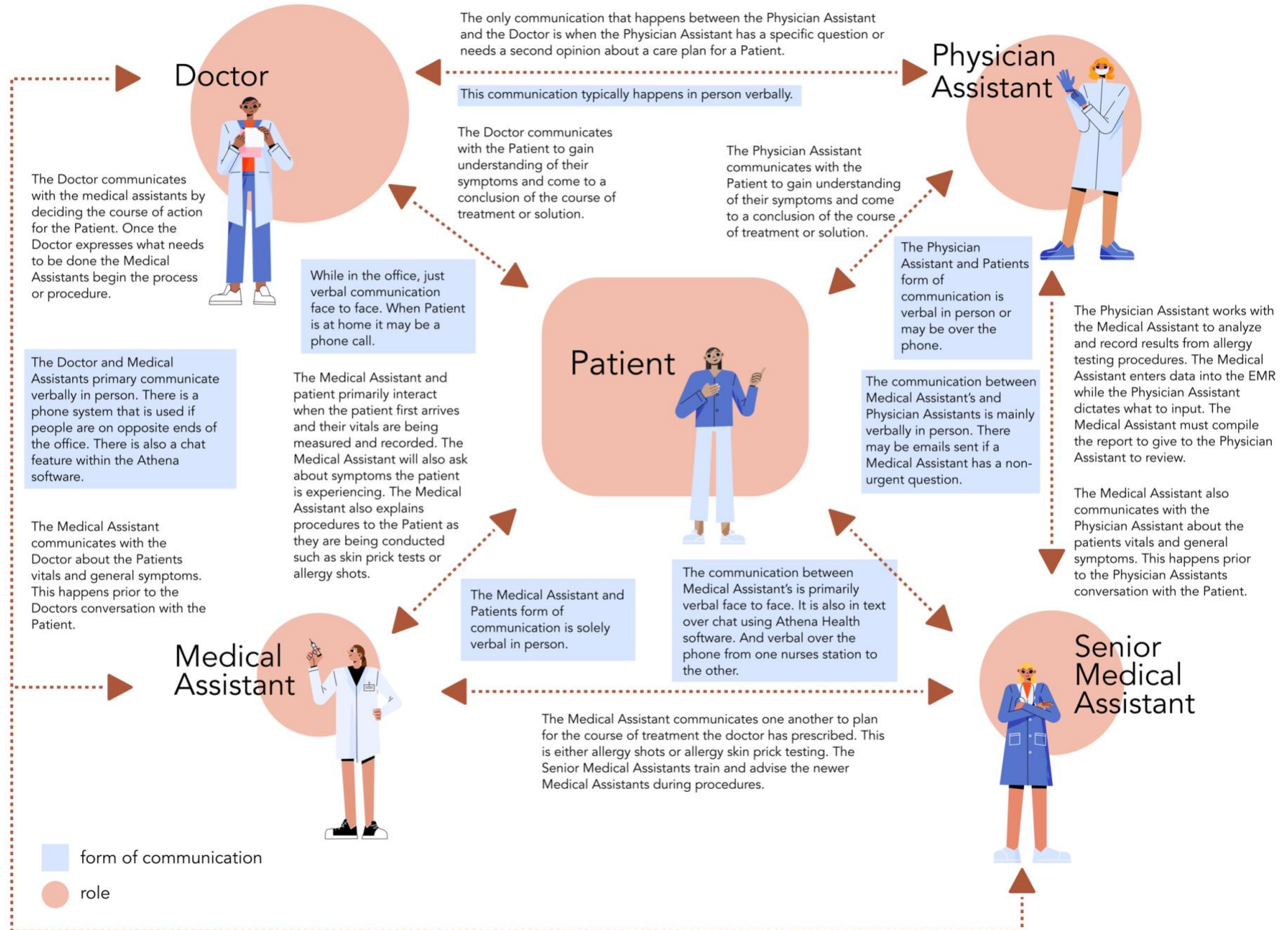
Medical Assistant Path

allergy & asthma practice blueprint



Collaboration Model

roles of the allergist's practice



conducting allergy skin prick testing

Intents

Provider wants to help patient figure out what they are allergic to.

Medical Assistant wants to make sure the patient is comfortable and gives a space for them to ask questions.

Medical Assistant intends to provide an explanation as the procedure occurs.

Medical Assistant intends to notify the patient as a warning that they are going to begin with the pricking and it may be painful.

Medical Assistant intends to administer the samples efficiently to reduce length of time the patient is in pain or discomfort.

Senior Medical Assistant intends to establish empathy with the patient.

Medical Assistant establishes a line of communication with the Senior Medical Assistant.

Medical Assistant and Senior Medical Assistant intend to conduct the reaction analysis efficiently and effectively by a system that utilizes physical and verbal communication.

Senior Medical Assistant intends to reduce the reaction the patient is having once analysis is complete.

Steps

Trigger | Provider orders skin prick testing to be conducted

Medical Assistant (MA) staff is notified that a patient will need allergy skin prick testing done.

MA is available and asks the provider what category of allergy testing is needed.

Provider responds with environmental.

MA begins to prepare the cart.

Adds the environmental test kit, markers, gloves, alcohol wipes and mini trash can to the cart.

Wheels cart from prep area down the hall.

Enter into patient's exam room.

Gives an overview explanation of the procedure.

Asks patient if they have any questions.

Puts gloves on.

Tells patient they are going to wipe down their back and it may be cold.

Wipes down patients back with alcohol wipe.

Discards wipe in small bin on cart.

Opens marker.

Explains that they are going to chart off their back to label where the allergens will be pricked.

x78 Writes the number one about half an inch big on patients back.

Places marker back on cart.

Explains to the patient that they will now begin doing the pricking and to notify them if a break is needed.

Opens the top tray of the sample kit.

Takes out the allergen sample corresponding to the number one.

x78 Pricks the patient's back by pressing down firmly in the spot allocated next to the number one.

Discards the prick sample in the bin on the cart.

Notifies the patient that the skin pricking is complete and that 15 minutes needs to go by before the reading can be done.

Removes gloves and discards them in the bin on the cart.

Wheels cart out of room and returns to prep area.

Sets a timer on phone for 15 minutes.

Discards the entire bin, sample tray, and marker into the bio waste bin.

Notifies the senior MA that the procedure is complete and the patient will need analysis in 15 minutes.

15 minutes pass.

MA and senior MA enter back into the patient's room.

The senior MA asks how the patient is doing.

The senior MA explains that the next step is the analysis of the reactions.

The MA logs into the computer to the Summit Software EMR system.

The MA pulls up the patient's chart and the template for environmental skin prick testing analysis.

The MA notifies the senior MA that they are ready to begin recording.

Senior MA says the number.

MA enters the number in chart.

MA hits tab button.

MA nods.

Senior MA says the wheal size number.

MA enters the wheal size number in chart.

MA hits tab button.

MA nods.

Senior MA says the flare number.

MA enters the flare number

MA hits enter button.

x78 MA nods.

Senior MA says the analysis is complete and the MA will just need to stay for a bit to finish charting.

Senior MA wipes down the patient's back with alcohol wipe.

Senior MA applies hydrocortisone cream to the effected areas of the patient's back.

Senior MA leaves the patient's exam room.

MA continues to chart and save the document to the patient's profile.

MA locks the computer.

MA turns to patient to tell them they can get dressed and the PA will be back to go over results.

MA leaves the patient's exam room.

