Renewal™

Rx Fulfillment

Research Report

December 2019

Walgreens Boots Alliance

Contents

Innovating the way we care for patients

P-20793 _ 00002

TCS00000197

Contents

Innovating the way we care for patients

Research Timeline

P-20793 _ 00004

TCS00000199

INITIAL PLAN

Based on initial project discussion the following research plan was developed

- Onsite Observations

    - Our observation methodology includes a mix of quantitative observations of common behaviors to establish behavioral frequency and qualitative observations to inform behavioral insights

    - 4 TCS researchers would be available for conducting onsite observations

        - Researchers were located in Chicago IL, Lansing MI, and New York City NY

    - The observations would take place over the course of 2 weeks with each researcher visiting 4 locations over the two weeks

    - To visit as many types of pharmacies as possible we tried to coordinate for 2 Specialty Pharmacies, 2 Hospital Pharmacies, 4 Tier 1/2 Pharmacies, 4 Tier 3/4/5 Pharmacies, and the Power Fulfillment Center

Innovating the way we care for patients

5

Highly Confidential

TCS00000200

INITIAL PLAN

Based on initial project discussion the following research plan was developed

- Onsite Observations

  - Pharmacy visits would last 6 hours and would occur at different times of the day to account for variations in pharmacy activity based on time

  - Observations would be conducted inside the pharmacy

Innovating the way we care for patients

P-20793 _ 00006

TCS00000201

INITIAL PLAN

Based on initial project discussion the following research plan was developed

- Contextual Inquiries

  - Contextual inquiry is a mixed methods research technique employing elements of semi-structured interview and task observation with Think Aloud protocol

  - Contextual Inquiries would be conducted with one employee after pharmacy hours

  - These would occur at the same pharmacy that the observation sessions were held

  - A mix of Technicians, Pharmacists, and Pharmacy Managers would be sought for the Contextual Inquiry Sessions

  - Each session would last 90 minutes and would cover common tasks within the pharmacy

- Pharmacy Self-reports

  - Self-report sheets would be given to pharmacy employees to establish frequency of different behaviors

Innovating the way we care for patients

P-20793 _ 00007

TCS00000202

INITIAL PLAN

Based on initial project discussion the following research plan was developed

- Pharmacy Self-reports

  - Self-reports were designed to require minimal notation (e.g. a check mark) while establishing user perceptions

    - Necessitated minimal interaction to respect employees' time

    - Used quantitative measures to establish subjective perceptions (i.e. how overwhelmed users felt by tracking frequency of task interruption)

  - Self-report sheets would be given to pharmacy employees to establish frequency of different behaviors

Innovating the way we care for patients

P-20793 _ 00008

TCS00000203

RESEARCH BARRIERS

Research planning revealed a number of unexpected barriers which required modifications to the research plan

- Pharmacy Access

  - Lead time for pharmacy access was 6 weeks

    - This would have extended the research phase and the overall project plan

  - We were unable to perform the Onsite Observations in the pharmacy due to restrictions on access

  - We would only be able to visit Tier 1/2 & Tier 3/4/5 pharmacies

  - Pharmacy visits could only occur from 10:00 AM - 3:00 PM

RESEARCH BARRIERS

Research planning revealed a number of unexpected barriers which required modifications to the research plan

- Employee Access

  - We were unable to conduct Contextual Inquiry sessions with Pharmacy Employees

  - The Self-Reports largely went unfilled as there was not enough time for employees to use them

  - Interview sessions could only be conducted during lunch breaks which was a more stressful context than we were targeting

  - We were unable to record research sessions, photograph the pharmacy, or produce screen captures

- Total Participant Number

  - Access restrictions meant that we were unable to visit as many locations as we initially targeted

  - We were unable to involve as many participants in research sessions as we initially targeted

Research Methodology

Innovating the way we care for patients

P-20793 _ 00011

TCS00000206

screen target users

contextual inquiries

artifact analysis

persona creation

define

touchpoint analysis

Innovating the way we care for patients

P-20793 _ 00012

TCS00000207
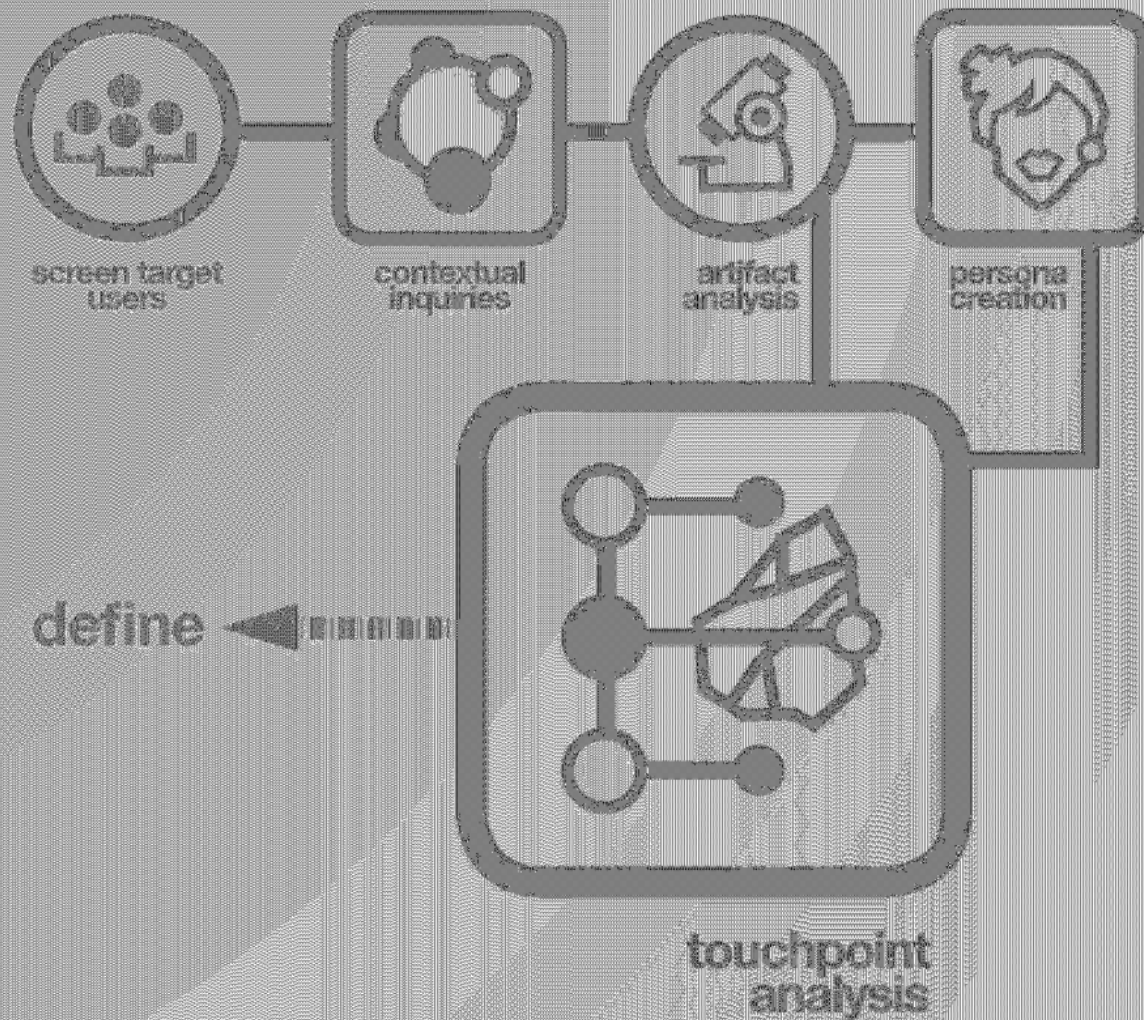
RESEARCH PLAN

Once we fully understood the existing barriers we modified our research plan

- Onsite Observations

  - 3 TCS researchers conducted Onsite Observations at pharmacies in the greater Chicago area

    - Travel needs reduced the total number of available researchers

  - Observation session took place over the course of 2 1/2 weeks

  - Observations began at 10:00 AM and ended at 3:00 PM with individual discrete sessions lasting 20 minutes

  - 8 pharmacies representing Tier 1/2 & Tier 3/4/5 pharmacies were conducted

  - Observations were conducted in the patient waiting area

    - To account for the limited visibility afforded by the patient area we employees two researchers at each location when possible with two different vantage points

Innovating the way we care for patients

P-20793 _ 00013

TCS00000208

Field Observation

Start Time_____   Date _____

End Time_____   Location _____

A prescription was filled by a pharmacy employee

_____

A customer dropped off a prescription.

_____

A customer picked up a prescription.

_____

A pharmacists gave a customer consultation.

_____

A pharmacy employee asked for help with a task.

_____

A pharmacy employee was on a phone call.

Secondary Notes

If you have any extra details for supplementing observations you may note them here.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

P-20793 _ 00014

TCS00000209

RESEARCH PLAN

Once we fully understood the existing barriers we modified our research plan

- Pharmacy Self-reports

  - Due to significant pharmacy activity most self reports were not filled out

  - Rather than functioning as a primary data source the filled self-reports were used to validate the observations made as the corresponding pharmacy

- Interviews

  - 8 total interviews were conducted with current and former pharmacy employees

  - Interviews were based on a modification of the Contextual Inquiry

  - We conducted 90 minutes interview sessions with available pharmacy employees at observation locations

  - We also conducted 90 minute interview sessions with former pharmacy employees current working at the 1435 building

Innovating the way we care for patients

P-20793 _ 00015

TCS00000210

Self Report Notes

Date _____

Role _____

Location _____

Please note each instance of the events listed below with a check or scratch mark. If you are unable to note the event when it happens without disrupting your current task, please note the event soon after your current task is completed. All responses will be anonymized and any identifying data will be removed prior to inclusion in research reports.

A task was interrupted before I could finish it.

We were below 15 minutes/prescription.

I was not sure what my next task should be.

I had to delegate a task to someone else.

Secondary Notes

If you have any notes you want to share regarding the events listed on the front you may share them here.

CONTEXTUAL INQUIRY

Introduction

Hi. Thank you for taking the time to today to help us. My name is (name) and I'm with Tata Consultancy Services. We are a third party consulting group that has been hired by Walgreens to help with the Prescription Fulfillment redesign initiative. None of your responses today will have your name attached to them, and any feedback we end up using will be anonymized with a participant number, so be as honest as possible. We want to make the new system as easy to use as possible, so anything you can give us will go towards making your life easier.

Today we will be doing something called a Contextual Inquiry. A Contextual Inquiry has two parts; a set of interview questions and a semi-structured task session. For the interview portion I'll just be asking questions about you, your role, and daily responsibilities to establish context for the research. For the semi-structured tasks, I'll ask you to take me through how you would normally do the tasks during your workday. Think of it as teaching me how to use this system as though I will need to do the kinds of tasks that you do. We'll also be doing something called Think Aloud Protocol. While we are going through the tasks I want to vocalize your inner monologue. A lot of what we do is somewhat subconscious, so it might be a little difficult but I'll help you out. For example, if you know where to find an icon to click, walk through that process in detail. "I know I'm going to need to click on the status icon to get the message to leave, so I ignore the message and just click on the status icon right away." Given the physical space of the pharmacy I also want you to move around the pharmacy when that would be necessary for the task. And once again, if there are things you do or work-arounds you use that aren't in line with official or unofficial guidelines it's important that we understand that process.

Do you have any questions?

1

Interview Guide (Wording and order of questions may differ. Other questions not listed here may also be asked.)

- Describe your typical responsibilities.

- How often are you using the prescription fulfillment system?

2

Innovating the way we care for patients   17

Tata Consultancy Services, Inc.

- What are other common tasks which do not involve the prescription fulfillment system?

- What does filling a prescription typically look like? Include any other tasks which you might be doing at the same time or which might interrupt filling a prescription?

3

Tata Consultancy Services, Inc.

- How do you typically communicate with other employees?

- How do you coordinate with other employees to complete tasks done?

4

Innovating the way we care for patients

Highly Confidential

TCS00000213

P-20793 _ 00018

Tata Consultancy Services, Inc.

- How do you manage the list of pharmacy tasks?

- Thinking of the current system, what works well?

Tata Consultancy Services, Inc.

- Thinking of the current system, what doesn't work well for you?

- Thinking of the current system, what tasks aren't supported? What kinds of features or functions are missing?

5

6

P-20793 _ 00019

TCS00000214

RESEARCH PLAN

Once we fully understood the existing barriers we modified our research plan

- Contextual Inquiries

    o 2 Contextual Inquiry sessions were conducted at the Innovation Lab

    o These sessions were used to fill the hands-on gap of the missing onsite Contextual Inquiries and to validate Observation and Interview findings

Innovating the way we care for patients

Research Summary and Risks

RESEARCH EFFORTS

We were able to complete the following research activities

- 8 Onsite Observations

  - Pharmacies represented Tier 1/2 & Tier 3/4/5

  - Located in the greater Chicago area

  - Observations were conducted in the patient waiting area

- 8 Interviews

  - Conducted with current and former Pharmacists, Technicians, and Pharmacy Managers

- 2 Contextual Inquiries

  - Conducted at the Innovation Lab

Innovating the way we care for patients

P-20793 _ 00022

TCS00000217

RESEARCH ARTIFACTS

Based on our research analysis we produced the following research artifacts

- 1 Touchpoint Analysis

- 3 Personas

  - Technician

  - Pharmacist

  - Pharmacy Manager

- 1 Sitemap

Innovating the way we care for patients

P-20793 _ 00023

TCS00000218

RESEARCH RISKS

The research plan modification presented several risks to the research conclusions

- Reduced total pharmacy locations and research participants

  - Increased possibility of outliers biasing results

  - Reduced ability to incorporate regional differences

  - We were unable to directly experience the differences of Specialty and Hospital Pharmacies

- Limited pharmacy access

  - Observation vantage point resulted in the need to approximate unobserved behaviors in the back of the pharmacy

  - Contextual Inquiries could not incorporate the physical aspects of pharmacy activities or some key tasks such as processing insurance

  - Reliance on Interviews over Contextual Inquiries raises the possibility of participant bias in answers

P-20793 _ 00024

TCS00000219

RESEARCH RISKS

The research plan modification presented several risks to the research conclusions

- No direct recordings of Interviews, Contextual Inquiries, or Observations

  - Reliance on researcher notes and rough transcripts increases the possibility of human error and missed data points

  - Images and videos of the current system did not follow the specific Contextual Inquiry guide, researchers adapt the existing artifacts to fit the desires task flow

Innovating the way we care for patients

Highly Confidential

TCS00000220

RISK MANAGEMENT

We took the following steps to mitigate risks to research results

- Included multiple researchers during research sessions when possible

- Validated onsite observations during Interviews sessions

- Compared quantitative observational data with similar user metrics when available

- Incorporated more SMEs to validate research findings

- Added additional research time to maximize pharmacy access

- Added an additional researcher to focus on regional differences, specifically focusing on regulations and protocols

©2018 Walgreens Boots Alliance. Confidential. Do not release or distribute without the approval of Renewal.

Highly Confidential

TCS00000221

P-20793 _ 00026

Observation High Level Findings

Innovating the way we care for patients

P-20793 _ 00027

TCS00000222

PHARMACY DIFFERENCES

Based on observations and subjective perspectives of Interviews subjects we identified the following differences between efficient and inefficient pharmacies

- Efficient pharmacies tended to

  - have employees focus on specific tasks for longer periods of time

  - require infrequent direct coordinate with other employees

  - need less employee assistance when processing patients

  - have one person directing pharmacy tasks

  - require less focus on waiters to stay within promise time

  - have fewer employees significantly moving around the pharmacy

  - address call backs earlier in the day

Innovating the way we care for patients

P-20793 _ 00028

TCS00000223

PHARMACY DIFFERENCES

Based on observations and subjective perspectives of Interviews subjects we identified the following differences between efficient and inefficient pharmacies

- Inefficient pharmacies tended to

  - show more frequent employee task switching

  - require more direct communication between employees

  - have employees processing patients require assistance

  - lack a singular voice directing the pharmacy

  - be disrupted by patient arrivals

  - have more movement around the pharmacy by technicians

Innovating the way we care for patients

TCS00000224

CONSISTENT BEHAVIORS

Several observations were consistent across pharmacy locations

- An outsized portion of employee time is spent on the phone

  - Answering incoming calls was the most time consuming aspect

- Informal 'consultations' (i.e. taken at the consultation window without an accompanying prescription) often seem largely unnecessary to Pharmacists to take

- There is a consistent difference between Morning and Afternoon tasks

  - Morning involves more calls and removing individual tasks from the task list

  - Afternoon involves more patient interaction and working away at persistent tasks

- Certain tasks, typically sorting prescriptions, function as in-between tasks which are addressed when moving between other primary tasks

Innovating the way we care for patients

Interview High Level Findings

HIGH VARIATION IN PERCEPTION OF PHARMACY EFFICIENCY

There were marked differences between senior staff and non-management staff

- Senior Technicians and Pharmacy Managers claimed that Core Workflow "almost always gets it right"

  - There was a belief that a lot of inefficiency stemmed from not following the task recommendations

  - They shared a general perception that users overestimated their ability to properly address task order

- Technicians and Pharmacists believed that they understood the most efficient approach to managing pharmacy tasks

  - Tended to prioritize tasks they were comfortable with

  - Generally distrusted the recommendations and intelligence of the system

  - Perceived required tasks such as Smart Count as unnecessary

Innovating the way we care for patients

HIGH VARIATION IN PERCEPTION OF PHARMACY EFFICIENCY

Significant gaps in trust

- There was widespread mistrust of inventory numbers both when reported by the system and other staff members

- A majority of Pharmacists we spoke with thought they understood laws and regulations better than the system

  - The Pharmacy Managers suggested that such confidence was misplaced and that it is easy for misunderstandings to spread and persist in individual pharmacies

- It was reported that improper overrides for coupons occurred because users did not trust the system to properly process coupons and trusted their understanding of the coupons system more

- Users reported that they felt their coworkers were less capable or knowledgeable than them, with the exception of new hires

  - This was true markedly true between more senior Technicians and Pharmacists, with Technicians suggesting that they are more important to keeping the pharmacies running and Pharmacists suggesting that they have to cover for Technician errors

Highly Confidential

TCS00000228

P-20793 _ 00033

HIGH STRESS

Errors resulting from stress

- We heard multiple reports of improper behavior which was largely attributed to the desire to keep below promise time

    - We were told that pill bottles had been found to contain more than one medication

    - We also heard that prescriptions returned to the shelf were sometimes poured back into the stock bottles, including one instance of this occurring with a liquid medication

- All participants expressed a high level of stress in trying to meet promise time and the belief that, given current levels of staffing, promise time was unreasonable while following proper procedure

    - Two participants claimed that they don't believe that the corporate teams care for them and are too focused on promise time

        - One said that they are concerned about taking their lunch break as they feel they are judged for not making promise time following the lunch break and cut their break short

Innovating the way we care for patients

Highly Confidential

TCS00000229

ARBITRARY BARRIERS

Design decisions seem to artificially frustrate tasks

- Users claimed they did not understand the need to have tasks, such as administering vaccinations, spread across multiple systems

- Similarly, they were frustrated by the need to navigate through multiple pages to complete basic tasks

- To get around some restrictions users reported adding unrelated information to data fields which could cause issues in the future

  - i.e. adding special instructions to the address line separated by an *

- There was frustration expressed that identifying certain pieces of information, such a how much stock of a generic is made by a specific manufacturer, requires going to the shelf instead of being directly represented on the screen

- Users want to have more direct information regarding task item and the ability to manipulate them directly

- Triggers for system actions, such as leaflet printing, are not understood and often surprise users

P-20793 _ 00035

TCS00000230

Contextual Inquiry
High Level Findings

Innovating the way we care for patients

NAVIGATION FRUSTRATION

There are significant barriers to efficient navigation

- Hotkeys were identified as helpful for navigation, but participants only could identify the function of 5 hotkeys without assistance

- The ability to navigate through clicks vs. tabs is inconsistent across pages

- Tasks which require information from multiple pages are disrupted by hard navigation shifts

- Specific tasks, such as processing vaccines, seem to have arbitrary design restrictions

- The primary navigational methods require hard tasks shifts which unnecessarily increases cognitive load

- Navigating by the characteristics of specific items (i.e. patient) are arbitrarily restricted to single items

Innovating the way we care for patients

P-20793 _ 00037

TCS00000232

PAGE CONTENT

There are significant deficits in informational content on pages

- Prescription fulfillment may need aspects of prescriber details, insurance details, and medical history

- Differences between calls involving patients, prescribers, and insurers are not present

- Methods of addressing insurance errors or blocks are not readily accessible

- Explanations of visual elements of the application are lacking

- Unnecessary and disabled icons are persistent across many screens

- Lack of consistent look and feel across all aspects of the application

  - Informational content varies between screens

  - Interaction can vary across data fields with no significant visual distinguishers

Innovating the way we care for patients

TCS00000233

TASK SEGMENTATION

Workflows are consistently interrupted

- Steps in specific tasks are spread across multiple pages

- Taking users away from the context which prompted the initial action causes unnecessary strain

- When task switching is necessary, such switches are hard to make while the previous state for easy access

Innovating the way we care for patients

Highly Confidential

TCS00000234

Research Deliverables

P-20793 _ 00040

TCS00000235

TOUCHPOINT ANALYSIS

Methodology

- A Touchpoint Analysis is a UX exercise which identifies why and how frequently people come to a system using certain characteristics

  - Touchpoint - The reason a user comes to a system

  - Frequency - How often that reason drives a user to a system

  - Driver - The situation which prompts the Touchpoint

  - Info Context - The information needed to address the Touchpoint

  - Design Patterns - The functions needed to achieve the Touchpoint

Innovating the way we care for patients

TCS00000236

TOUCHPOINT ANALYSIS

Methodology

- The Touchpoint Analysis is used to inform design choices

  - Information architecture

  - Arrangement of design elements

  - User workflows

  - Primacy of functionality

- We initially conducted 2 Touchpoint Analyses to separately cover Prescription Fulfillment and Task Management, but further analysis suggested they be combined into 1 overall Touchpoint Analysis

Innovating the way we care for patients

P-20793 _ 00042

TCS00000237

Some Common Interaction Design Patterns

Achieve	User reaches goals and gets rewards (badges, social annoucements, discounts, etc.). Often pairs with the Share pattern.
Alert	Make the user aware of an unusual condition with the real world or the system. A sub-pattern of notification. Can take many forms (e.g. email, banners, notifications)
Apply	The user submits an application for something (e.g. login credentials)
Approve	Something that was submitted is approved by another person
Capture	User documents something (e.g. with notes, pictures, audio, etc.)
Collect	The user collects items of interest to them (e.g. for comparison)
Compare	Often paired with the Collect pattern. Show user the salient differences (from user POV) of a set of items.
Confirm	Confirm an operation with the user. Used where a mistake would be costly.
Contact	User needs help, clarification, etc. Denotes one-way communication. Can be email, text phone number disclosure, etc.
Discuss	Two way communication between the user and the organization and /or among users. Think chat, VoIP, phone, etc.
Filter	Display only specific categories within a dataset, categories derived from the users' model, of course.
Identify	A user's identity is confirmed in some fashion (e.g. password, face, fingerprint).
Locate	Fix the user in space (i.e. address or coordinates) through various means (e.g. WiFi router DB, cell tower triangulation, GPS, ask them)
Map	A subset of the Visualize pattern. Provide natural display and manipulation to geographically tagged data.

Master/Detail	Displays a set of items and allows examination/editing of a selected item's details
News	Display anecdotal information to the user. Can often be effectively combined with alerts.
Note	User can annotate selected items
Notify	Make the user aware of a condition with the real world or the system. Can take many forms (e.g. email, banners, notifications)
Pay	User can pay for goods / services via one or more means
Personalize	The user modifies persistent aspects of their relationship with the system (e.g. name, address, credit card, preferences).
Poll	Users can participate in an on-line poll
Proximity	Given a goal/target, how close am I? How soon might I get there?
Rate	User can rate an item (e.g. iTunes, Spotify)
Search	Find items of interest within a dataset.
Share	One way communication from the user to his network (e.g. twitter, Facebook, email)
Shopping Cart	A subset of the Collect pattern. In this case, we add accrued totals, computed taxes, estimated shipping, etc.
Suggest	The system offers advice to the user (e.g. Amazon's Suggested for You).
Tag	Allow users to apply their own keys to items. Then, they can nevigate a dataset via their own or their sub-group's taxonomy.
Timeline	A subset of the Master - Detail pattern. Display chronologically organized data with ability to zoom into events or timeframes.
Tour	User is walked through a product, process, concept or procedure.

Innovating the way we care for patients

Prescription Fulfillment

I want to...	Frequency (times / day)	Drivers	Info Context	Pharmacist	Patterns Pharmacy Technician	Pharmacy Manager	Notes
refill a prescription	50.0	Patient walked in with empty bottles for a refill Patient walks in requesting prescription Prescriber called in refills for a patient I was notified an auto-refill is due	prescription history my pharmacy stock for this prescription see if another location has a drug see all versions, generic and brand	notification search notify master / detail timeline map filter	same	same	Double check if added to nationwide system. Can we obtain prescriber information from national feed? Is the NPI on every prescription? Explore what else would be useful to capture a prescriber?
decide what to work on next	30.0	I am opening the pharmacy I arrived for my shift I returned from lunch I received a delivery I was notified that promise time is too long I need to prioritize a waiter I was made aware that today's schedule changed It's time for me to check my work	My responsibilities Suggested pharmacy location Task list Suggested task priority Current promise time	Alert Filter Master/Detail Suggest Timeline Triage Proximity	same	same	Checking process. Can this all be completed in
update a patient's information	23.0	the patient moved the patient has a new phone number insurance has changed patient walked in + dropped of a prescription doctor's office called in a prescription patient new to Walgreens check for any drug interaction notes patient wants to know their prescription history check prescription history	insurance prescriber prescription history instructions patient details relationships medical context	master / detail search filter confirm	same	same	Proximity to show bin time countdown. Recommend eRx auto-add to patient profile
complete a task	15.0	I'm done with a task I forgot to report that I completed something a while ago	Task list	Confirm Filter Master/Detail Search	same	same	What is in medical context? Patient's current prescriptions Age DOB Illnesses Allergies Filter?
add a prescription	14.0	Patient dropped off a prescription A prescription was faxed in eRx prescription was received	Scanned prescription image Patient medical context Patient name Patient DOB Substitutions allowed?	search master / detail filter capture	same	same	Send map to phone

Innovating the way we care for patients

Prescription Fulfillment

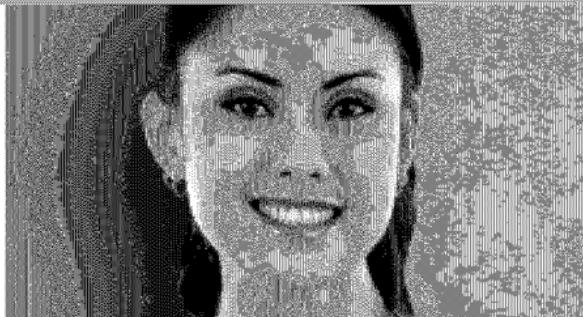| I want to...	Frequency (times / day)	Drivers	Info Context	Pharmacist	Patterns — Pharmacy Technician	Pharmacy Manager	Notes
review team performance	6.0	It is time for me to review my team's performance I was notified that we have exceeded promise time I was made aware that the pharmacy task list exceeded projections I was made aware that completed tasks have not been cleared	Employee list Task list Suggested task priority Suggested employee location Suggested employee tasks Current promise time			Alert Confirm Filter Master/Detail Proximity Timeline	Users may find the confirm annoying. Given the frequency the trade-off of requiring a confirmation vs. more likely human error seems to favor requiring a confirmation. Some tasks may require a confirm whereas other may not. - First call back vs. Final call back Task removal has many opportunities for automation which are not currently employed.
return a prescription to shelf	3.5	Patient could not afford + requests to return it Incorrect manufacturer Patient declined Exceeded bin time	filter triage confirm timeline proximity	same	same	Sent back before it expires to save money
I need to record a vaccination	2.0	Walk in patient has requested a vaccination Scheduled patient has arrived					
return a defective product	1.5	A device didn't work properly A package was missing parts	complaint from patient damaged box	notify proximity	same	Alert Filter Master/Detail Suggest Timeline Triage Proximity	Pharmacy Managers will likely need more alerts than Technicians and Pharmacists. Proximity relates to promise time. Passive task
reprioritize work	1.4	I was made aware the drive thru is backed up I was notified a workstation is down I noticed an employee is having significant difficulties with a task	Current promise time Suggested task priority Task list Call back list Current waiters Prescription errors Defective item returns Stock item returns			Alert Undo? / Confirm? Master/Detail Suggest Timeline Proximity	Some tasks may require a confirm whereas other may not. - First call back vs. Final call back Task removal has many opportunities for automation which are not currently employed. "Proximity relates to promise time. Consider a mechanism to account for lunch and other break types. Is there a store schedule we could get interface to so we can do better auto prioritization and/or queue balancing. Check with Pharmacy Managers for more detailed "

Innovating the way we care for patients

Prescription Fulfillment

I want to...	Frequency (times / day)	Drivers	Info Context	Pharmacist	Patterns Pharmacy Technician	Pharmacy Manager	Notes
update our prescribers	1.0	I'm entering a patient whose prescriber wasn't captured. prescriber's details have changed	prescriber name address phone number (NPI) National Provider Identifier	search filter confirm	same	same	Users may find the confirm annoying. Given the frequency the trade-off of requiring a confirmation vs. more likely human error seems to favor requiring a confirmation. Some tasks may require a confirm whereas other may not. - First call back vs. Final call back. Task removal has many opportunities for automation which are not currently employed.
return stock to distributer	1.0	Ordered too much of a medication. More arrived than I ordered. A special-order patient left this pharmacy.	Inventory amount of unused medication	search notify proximity	same	same	Proximity relates to promise time. Consider a mechanism to account for lunch. Check with Pharmacy Managers for more detailed

Innovating the way we care for patients

P-20793 _ 00046

Highly Confidential

TCS00000241

PERSONAS

- We develop our Personas to represent people who exist outside of their job and express a full emotional range

    - Fictional but based on research findings and direct interface with end users

    - Incorporate the world outside of the screen

    - Represent frustrations and pain points as the end user would describe them

    - Allow our designers to ask "What would make her job easier?"

    - Locate external sources of common issues

- We identify key skills needed for our persona's role and the current expected proficiency level

- Our Personas inform our User Stories in the development of the Clickable Design Mockup

    - Help us identify process solutions to common issues

Innovating the way we care for patients

P-20793 _ 00047

TCS00000242

TECHNICIAN

Abby

ABOUT

Abby has only been working as a technician for a few months. It has been difficult getting acclimated to the pharmacy because she doesn't have any educational background in pharmacology. She feels comfortable working with patients but gets a bit nervous whenever she has to go into IC Plus. She frequently needs to ask for help from a pharmacist or another technician when using IC Plus which slows down the whole pharmacy. Navigating the stock shelves isn't too hard, and she is adept at measuring out medication, but when Core Workflow suggests she start answering phones or clearing out the work queue, she asks another technician to switch with her. She wants to get better at using IC Plus but doesn't have the time at the pharmacy to get comfortable with it and hasn't been able to get all the way through the training modules. When she is doing work she is comfortable with the pharmacy it runs smoothly, but when the call list starts backing up or she gets stuck trying to run insurance she gets frustrated with IC Plus very quickly.

"Instead of going somewhere in 1 step it takes 7 steps. We don't have time for that."

Age	27
Time with Walgreens	4 Months
Pharmacy Type	Tier 3
Education	Certified PT

Friendly
Anxious
Energetic

Pharmacy Proficiency

Rx Data Entry

Measuring Medications

Processing Rx Sale

Call Backs

Managing Stock

STRUGGLES

- Lack of training makes IC Plus difficult to navigate

- Is frequently confused by insurance issues

- Has trouble applying coupons

- Doesn't like having Core Workflow redirect her to work on prescription processing as she prefers to work directly with patients

- When the pharmacy falls behind in the Work Queue problems quickly add up

- Feels uncomfortable making calls because she forgets how she is supposed to leave messages

DESIRES

- Allow me to navigate between different IC Plus pages more easily

- Provide clear direction for addressing insurance issues and prescription rejections

- Ensure that the medication counts in the system reflect the actual pharmacy stock

- Reduce all the slowdown and crashes

- Let me look through the Work Queue list without having to clear items first

- I need more time for training without needing to handle pharmacy tasks

- Meet like-minded people to befriend and travel with

PHARMACIST

David

ABOUT

Pharmacist with 10 years of experience in pharmaceutical services, and graduated from The University of Baltimore in Pharmacy with a B.S. He enjoys balancing work and personal life. David is also organized and structured. He has to manually keep track of the Core Workflow Task List to avoid falling into the red zone. He would like an automated system where task items have to be checked off as they are completed by the designated staff member. Each staff member should then have alert notifications of pending task items before the end of their shift.

At times having to juggle multiple tasks and simultaneous take care of F4 can become overwhelming. He can't over-stress the need for a robust system with automation and simplified processes that is stable and not be impacted by lack of performance-freezing.

"Everyone should be following the proper workflow."

Age   35

Time with Walgreens   2 Years

Pharmacy Type   Tier 2

Education   B.S. Pharmacy

Focused

Independent

Jaded

Pharmacy Proficiency

Prescription Review

Patient Consultations

Filling Prescriptions

Taking Calls

Call Backs

STRUGGLES

- System crashes, interacting with multiple systems

- No patient appointment alerts

- Lack of updates on out-stocks, partial fills, and other exceptions

- No process to hire, train, and develop pharmacy technicians

- No easy way to log issues so they get resolved

- Time consuming processes of coordinating, providing immunizations, and handling compounds

DESIRES

- Staying ahead of things so I can complete my primary tasks, like filling prescriptions

- Ensure each patient gets their correct meds and takes them properly

- Complete my tasks (intake of walk-in scripts, taking calls, stocking, etc.) as quickly as possible

- Have unnecessary call taken care of by the system so they don't interrupt important tasks

- Having better channels for communication would be great to keep my staff engaged

- Need a way to view all the tasks for the day so I can prioritize and plan accordingly

P-20793 _ 00049

TCS00000244

PHARMACY MANAGER

Owen

ABOUT

Owen has been working as a Pharmacist for a long time and he seen what does and doesn't work. He has been a Pharmacy Manager at his current pharmacy for the past 4 years and runs a very tight ship. His pharmacy is informally known as the training pharmacy for his region so new Pharmacists and Technicians tend to come and go. This can make things difficult, especially when Technicians or Pharmacists know how to do some tasks really well and try to avoid having to learn the other important aspects of the job. He tries to be helpful with new hires, but also knows that he has to be firm, otherwise the pharmacy would quickly fall behind. To keep up everyone has to be moving all the time. He does wish that some of the busy work could be filtered out, like taking unnecessary patient phone calls or automating parts of the prescription filling process, as that would give everyone more time to help each other out. It can be draining to always be moving, but it's better than finding yourself overwhelmed halfway through the day.

"I don't want to be the pharmacy manager that enforces tardiness."

Age	38
Time with Walgreens	2 Years
Pharmacy Type	Tier 5
Education	M.A. Pharmacy

Structured

Confident

Helpful

Pharmacy Proficiency

- Team Coordination
- Training Employees
- Prescription Review
- Filling Prescriptions
- Patient Consultations

STRUGGLES

- The lack of sufficient training in IC Plus, especially for Technicians, slows us down

- It is difficult to get people to follow the recommendations in Core Workflow

- When waiters start backing up there isn't a way to easily address just those prescriptions

- Tasks frequently get backed up to a point where we have to divert people away from their current work

- We spend way too much time on the phones

- It's hard to fix mistakes in the system, like inventory counts

DESIRES

- Have IC Plus explain how to perform tasks

- Help users understand why tasks are suggested to them, not just recommend them

- Allow me to search through and sort the task list

- Get users to properly check off tasks when they are completed

- Let us know when something is going to get backed up before it becomes an issue

- Reduce all of the navigation between different systems

- Meet like-minded people to befriend and travel with

Innovating the way we care for patients

COMBINED PERSONAS

- Based on discussions with the UX and Business teams we decided to adapt our Personas to the existing poster format

  - Maintain consistency with the widely accepted names, faces, and image format

  - More easily incorporate into the project going forward

  - Extending this consistency to the Clickable Mockup Story will also improve it's acceptance among the broader teams

- Represented the new proficiencies

- Changed the Struggles and Desires to fit the current text format

- Removed the biographical About section to fit the minimalist text approach

Innovating the way we care for patients

"Instead of going somewhere in 1 step it takes 7 steps. We don't have time for that."

Abby

THE New PHARMACY TECHNICIAN

It's easy to get confused by insurance rejections and coupon errors.

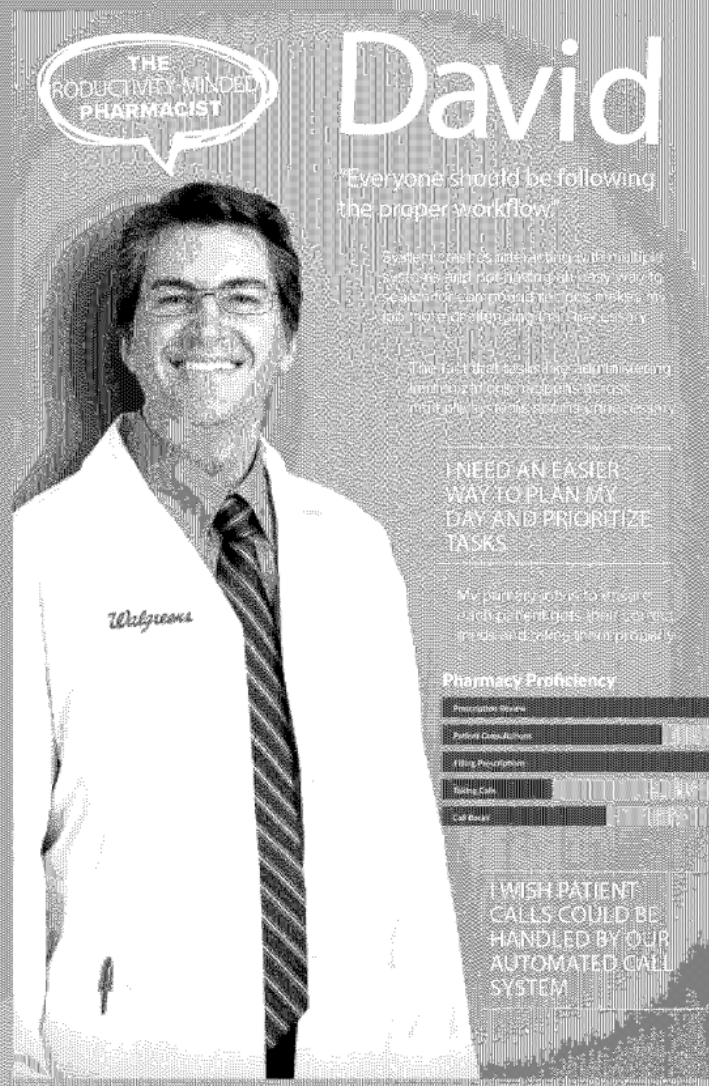I don't like being told what to do. I know what I'm most comfortable with.

I prefer digital holidays but I wish there was an easier way to navigate.

It feels like I can trust myself more than I can trust the system.

I need more training time to feel comfortable on my own.

Pharmacy Proficiency

P-20793 _ 00052

TCS00000247

THE PRODUCTIVITY-MINDED PHARMACIST

David

"Everyone should be following the proper workflow."

I NEED AN EASIER WAY TO PLAN MY DAY AND PRIORITIZE TASKS

Pharmacy Proficiency

I WISH PATIENT CALLS COULD BE HANDLED BY OUR AUTOMATED CALL SYSTEM

Innovating the way we care for patients

Owen
THE EXPERIENCED PHARMACY MANAGER

"I don't want to be the pharmacy manager that enforces tardiness."

Having to fill in training gaps really slows us down"

I WISH THE TASK LIST WAS EASIER TO SORT AND MANAGE

Currently there are 15 different systems that I have to interact with—having better integration would make my store more efficient and easier to staff

If people would follow Core Workflow we wouldn't get so back up

IT WOULD BE GREAT IF IC PLUS EXPLAINED THINGS

Pharmacy Proficiency

Team Coordination

Training Employees

Prescription Review

Filling Prescriptions

Patient Consultations

Innovating the way we care for patients

Highly Confidential

P-20793 _ 00054

TCS00000249

Research Insights

Innovating the way we care for patients

P-20793 _ 00055

TCS00000250

USER PERCEPTIONS

Lack of trust in the system

- There is trust gap between management and other employees

  - Senior Technicians and Pharmacy Managers tend to trust the system

  - Other employees have less trust in the system to make appropriate task recommendations and properly represent protocol and regulations

- This lack of trust fosters the development of inefficient behaviors and 'tribal knowledge'

  - There are misconceptions regarding legal restrictions on medication approval and sale

    - Proper system stops (i.e. blocking an inapplicable coupon) are frequently overrode

    - Allowable behavior (i.e. filling a prescription within the early fill time) may be blocked arbitrarily

Innovating the way we care for patients

TCS00000251

P-20793 _ 00056

USER PERCEPTIONS

Lack of trust in the system

- Recommended task flow is often ignored

  - Widespread adoption of recommended task flow is required to ensure efficiency, and the lack of such adoption gives the false impression that the recommendations are incorrect

- Mistrust encourages misunderstanding of the system

  - Many users misunderstand how items are chosen for Smart Count and don't believe it has value

  - Triggers for things such as automatic leaflet printing are not clearly understood and as such users do not plan around avoid or responding to them

- Users assume that their way of working is better than the system's recommendations

  - Users prioritize tasks they are familiar with

  - Significant variation between pharmacies with respect to operation and team coordination

Innovating the way we care for patients

TCS00000252

USER PERCEPTIONS

Users are typically responsive instead of proactive

- There is a widespread perception that there is not enough time to respond to all pharmacy tasks

  - Proper procedures are sometimes skirted or completely ignored due to worries of meeting promise time

    - These can be as serious as returning medication to stock bottle instead of properly restocking

- Users prioritize task comfort due to the perception that engaging in new or unfamiliar tasks will drag down pharmacy performance

  - In the long term this reduces user skill and significantly impacts pharmacy efficiency

- Unusual task load or unexpected changes in the pharmacy environment are very disruptive to less efficient pharmacies

  - Not enough buffer time to accommodate such changes

Innovating the way we care for patients

Highly Confidential

TCS00000253

P-20793 _ 00058

USER PERCEPTIONS

Users believe that corporate doesn't understand their needs

- When there is not a strong leadership voice users think that corporate expectations are impossible to achieve

  - Promise time is thought to be unreasonable given necessary tasks

  - Training is seen as insufficient prior to working in the pharmacy

  - Users expect that turnover is unsustainable given then learning curve of new Technicians

- Users feel that the issues with IC Plus and Core Workflow should be obvious and easy to solve

  - Hard separation of information across windows, tabs, and Store Net is seen as arbitrary and unnecessary

- Many tasks, such as responding to patient calls, are seen as a waste of time that should be handled in other ways

Innovating the way we care for patients

P-20793 _ 00059

TCS00000254

INFORMATIONAL GAPS

Information is segmented in arbitrary ways

- Information required for common work flows are arbitrarily separated

  - Navigation between types of information are 'hard shifts' which increase cognitive load and reduce the ability to smoothly move through task steps

  - Changes to information often are prompted by tasks that begin in one area of IC Plus but are completed in another area

  - Information related to the same subject (i.e. a single patient) cannot be viewed in one location

- Uncommon or specialized information (i.e. password required for pickup) is currently put into unrelated data fields

  - These fields may not always be visible during the relevant task

    - If password information is stored in the address line but a user doesn't scan all the way across the information field after initial confirmation the password could be missed

Innovating the way we care for patients

P-20793 _ 00060

TCS00000255

INFORMATIONAL GAPS

Information regarding system function and status is missing

- Users are not aware of where to find an explanation of system status colors

- Inactive icons and buttons are not explicitly labeled as such and take up unnecessary space

- Hotkeys are not readily explained in the system and require users to rely on muscle memory

  - A physical keyboard artifact was used to bridge this gap, but when they are unavailable there is no informational replacement in the system

- Users cannot easily view details of items within work queues

  - Pushing important items such as waiter prescriptions is difficult

  - There is a lack of organizational tools for work queue items beyond the order when items were introduced to the system

TCS00000256

INFORMATIONAL GAPS

Helpful information in unavailable

- Call back scripts and guides currently need to be memorized

  - Is it okay to leave a voicemail?

  - What kind of patient information can be discussed?

  - What is the necessary informational content of the phone call?

- What are the causes of insurance issues and how to address them

- What are the causes of issues processing coupons and how to address them

- What is the recommended order of tasks which require multiple multiple interactions to complete i.e. fully adding a new patient to the system

- Which manufacturers made which versions of generics on the shelf

Highly Confidential

TCS00000257

NAVIGATIONAL ISSUES

Navigation is inconsistent and made arbitrarily more difficult

- Tabbing works differently across different pages

- Clicking or selecting items functions differently on different pages

- The segmenting of tasks across the current system and areas of Storenet significantly increases the time required to complete tasks

- Many navigation methods are unexplained and up to the user to figure out

  - The gap in understanding of some navigational methods, even among senior employees, has led to some navigation methods being completely unknown

Innovating the way we care for patients

TCS00000258

TRAINING GAP

Current training is seen as insufficient by new users and managers

- Users expressed that current training does not prepare them for actually working in the pharmacy

- The need to have employees quickly onboarded results in rushed and incomplete training

- Current training is not seen as 'hands on' enough and does not present realistic system usage

- Users estimate it takes 5-7 months after initial training is supposed to be completed before developing full competency

- Senior Technicians and Pharmacy Managers feel that they become de facto teachers to new Technicians which is major burden on them and a drag on pharmacy efficiency

- There is a large deficit in user guidance within the current design which could bridge this training gap

Innovating the way we care for patients

P-20793 _ 00064

TCS00000259

TECHNICAL ISSUES

Users deal with common performance issues

- System freezes and crashes

  - User changes prior to freezes and crashes may not be preserved

- There seems to be miscommunications between inventory and delivery

  - Users report that items may incorrectly represent the total number of available stock, including showing available medications as out of stock

- System slowdown is also described as common enough to impact user performance

Innovating the way we care for patients

Highly Confidential

TCS00000260

Design Recommendations

TCS00000261

Redacted - Highly Confidential Trade Secrets

Redacted - Highly Confidential Trade Secrets

Redacted - Highly Confidential Trade Secrets

Redacted - Highly Confidential Trade Secrets

Redacted - Highly Confidential Trade Secrets

Redacted - Highly Confidential Trade Secrets

Clickable Mockup Story

Innovating the way we care for patients

MOCKUP STORY PURPOSE

The mockup story is developed from the Personas and guides the design process

- Represents a 'day in the life' of the Personas

- Extends the design value of the realistic Persona into the phase of more detailed design

- Based on common workflows and details gathered from Interviews

- Defines the user tasks built into the clickable mockup story

- Prioritizes the most important aspects of the system to maximize review and iteration time

- Provides a roadmap for interacting with the clickable mockup

Innovating the way we care for patients

P-20793 _ 00074

TCS00000269

DAY IN THE LIFE

Abby arrives to open the pharmacy with David (a Pharmacist) and Owen (another Technician). She checks the list of tasks and there are 42 items on the list. After looking through the list she sees that there are 20 items in the F1 queue, with a mix of some left over from yesterday and some that came in overnight and 6 items in the F4 queue. There are 11 call backs (a mix of prescriber call backs and patient call backs), 5 prescriptions that need to be restocked, and the Smart Count for the day. She feels most comfortable in the back area of the pharmacy and the Task Manager suggests she handle the Smart Count and restocks, so she gets started on those. After checking off the Smart Count and she gets started on returning items to stock. Even though she usually remembers to properly restock them, it is still helpful to have the system remind her which to mark the bottle with an 'X' and rubber band it to the stock item.

Innovating the way we care for patients

P-20793 _ 00075

TCS00000270

Having the system tell her the specific manufacturer and automatically remove the item from the task list when she scans it also is nice, even though it only saves her a few seconds.

Once she has finished those she checks the F1 and sees it's already gone down by 10 items. Since no one has shown up to wait for a prescription yet the system recommends she start going through call backs. She still doesn't feel completely comfortable on the phones, but having a call back script and reminders about when she can leave messages is very helpful and she no longer has to bother the other Technician with call back questions.

3 patients have come into the waiting area, so she moves over to start helping them. The first patient is new to Walgreens so they need to be entered into the system.

Innovating the way we care for patients

DAY IN THE LIFE

After entering all of their information and adding the prescription to it, she marks it as a waiter and hands it off to the other Technician. The next patient is picking up a prescription that was filled yesterday. She grabs it off the shelf and tries to run the insurance but gets an error. She used to have a lot of trouble with insurance, but now that the errors are explained on the screen she is able to explain to the patient that they need to call their prescriber and have them send the insurance company a prior authorization.

After helping the last patient she sees that the number of prescriptions waiting to be filled has gone up to 20 and is showing mild severity so she goes into the back of the pharmacy and starts filling them. Looking at the list she sees that one of them is for the waiter and the system is suggesting that the leaflets be printed in preparation of being filled, so she notes that she wants the waiter leaflet printed first, starts them printing, and gets to filling.

DAY IN THE LIFE

The third Technician arrives soon after and checks in. Abby does a quick check of the Task Manager to see if her suggested tasks have changed, but it still recommending she keep filling. Even though she started the day feeling a little frazzled she's made it halfway through the day and everything is going smoothly and she is feeling much more at ease.

Innovating the way we care for patients

MOCKUP STORY STEPS

- Check Task List - 42 items

  - 20 F1 Queue items

    - Some arrived overnight

  - 6 F4 Queue items

  - 11 Call Back items

  - 5 prescriptions restocks

  - Smart Count

- Complete Smart Count and remove from list

- Restock items (removed when items scanned)*

Innovating the way we care for patients

P-20793 _ 00079

TCS00000274

MOCKUP STORY STEPS

- Check F1 -10 items

- Complete 1 call back

  - Script & Instructions

- Add patient

- Insurance issue with prescription refill

- Prescriptions waiting to be filled

  - Mild severity

- Check recommended task(s)

Innovating the way we care for patients

TCS00000275

Next Steps

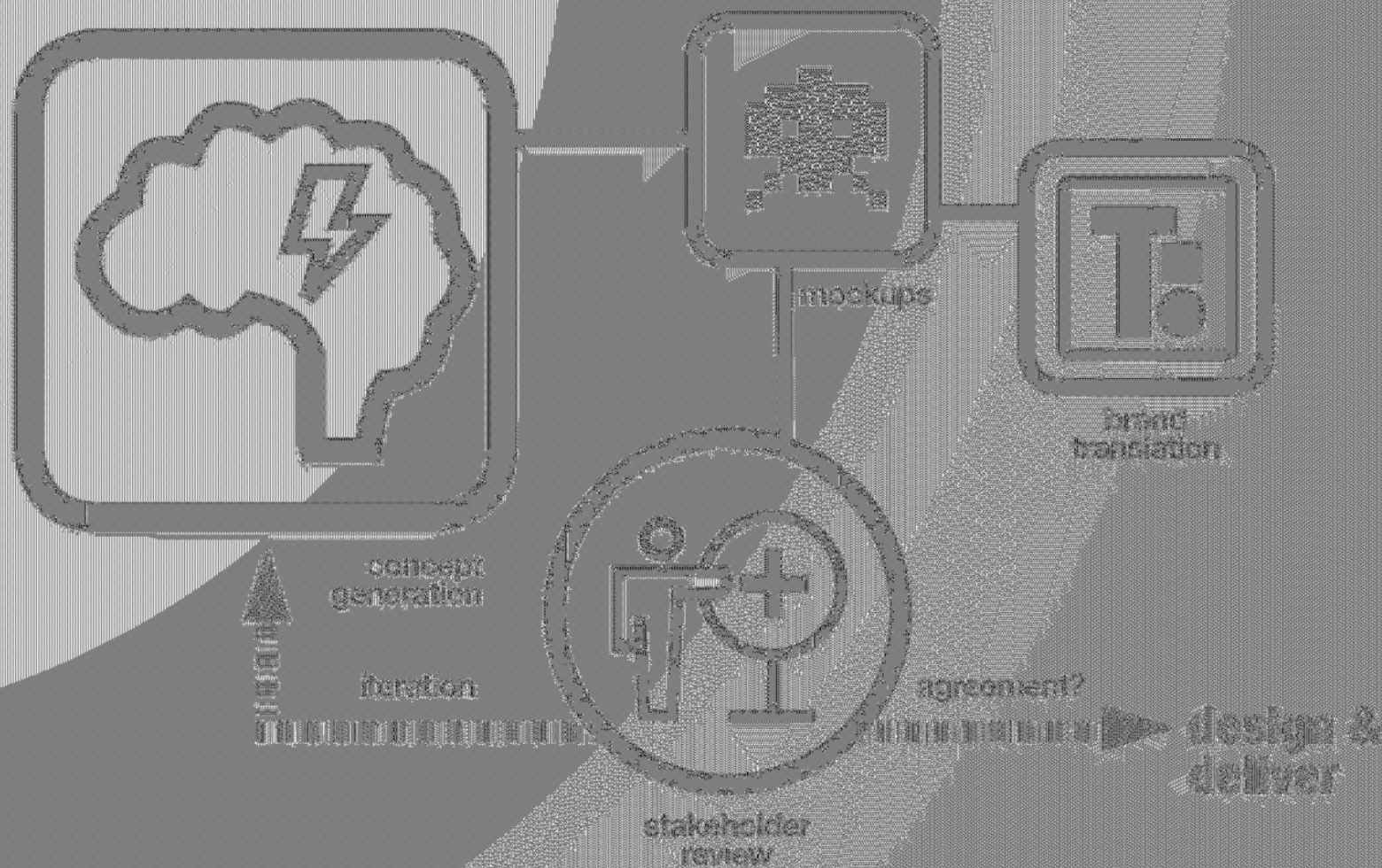*Innovating the way we care for patients*

FUTURE RESEARCH EFFORTS

- Power Fulfillment Center visit

  - We currently are scheduling a visit to the Power Fulfillment Center to capture the unique needs of those users through Contextual Inquiry

- Clickable Mockup User Test

  - Following design milestone 1 first iteration we will be conducting User Tests with former Technicians and Pharmacists to inform the second design iteration

- Customer Survey

  - We will design a short customer survey to identify ways we can address the comfort and duration of the customer experience, as well as the framework for analyzing the data

- Design Sprint User Tests

  - Every 4-5 development sprints we will be using Research in a Box for conducting User Tests

Innovating the way we care for patients

TCS00000277

FUTURE RESEARCH EFFORTS

- Validation of initial findings

  - We will develop a short set of interview questions to administer in upcoming Walgreens research sessions to validate our findings with a larger sample size

Innovating the way we care for patients

P-20793 _ 00083

TCS00000278

mockups

brand translation

concept generation

iteration

stakeholder review

agreement?

design & deliver

Innovating the way we care for patients

FUTURE DESIGN EFFORTS

- Clickable Design Mockup

  ○ The mockup story is serving as the based for the current clickable design

- Design Milestone 1

  ○ We will be conducting a milestone meeting to gather stakeholder feedback on the Clickable Mockup in project week 9

- Design Iteration 2

  ○ Based on the results of the User Tests conducted in week 10 we will be engaging in a second round of iteration on the clickable design mockup

- Detailed Design Prints

  ○ Following the final review of the clickable mockup we will begin the development and implementation of the user stories for design sprints

Innovating the way we care for patients

P-20793 _ 00085

TCS00000280

Thank you.