

# **TEAM** Malayaliano

**WEEK 4**

Ishaan

Jeremy

Mohak

Prafulla

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01 Problem Statement and Research

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# **Problem Statement** and Research

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Ineffective communication between doctors and patients leaves patients with insufficient understanding of their condition, treatment and leaves them unable to perform subsequent self-care. Doctors have to diagnose on incomplete or inaccurate information.



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Communication and  
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Patient Condition  
and Treatment

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Ineffective  
Communication and  
Documentation

Patient Condition  
and Treatment

Compliance and  
Self-Care

# Research

11

Patients

3

Doctors

3

Pharmacists

# **Target** Demographics

# Target Demographics



# Target Demographics



- 01 Semi-Urban
- 02 Tier 2, Tier 3 Cities
- 03 Medium to Low Income Households
- 04 Limited Healthcare Infrastructure
- 05 Crowded Healthcare Facilities
- 06 Limited Education and Literacy

# Personas



# Personas

01



**Mammooty**

- 24, Male, Educated
- Unlikely to Self-Medicate
- Avid Smartphone User
- Trusts Doctors
- No Chronic Illnesses

02



**Mohanlal**

- 78, Male, Literate
- Self-Medicates Often
- Uses a Feature Phone
- Does Not Trust Doctors
- Chronic Diabetic

03



**Manju**

- 47, Female, Uneducated
- Unlikely to Self-Medicate
- Smartphone User
- Trusts Doctors
- Diabetes and Hypertension

04

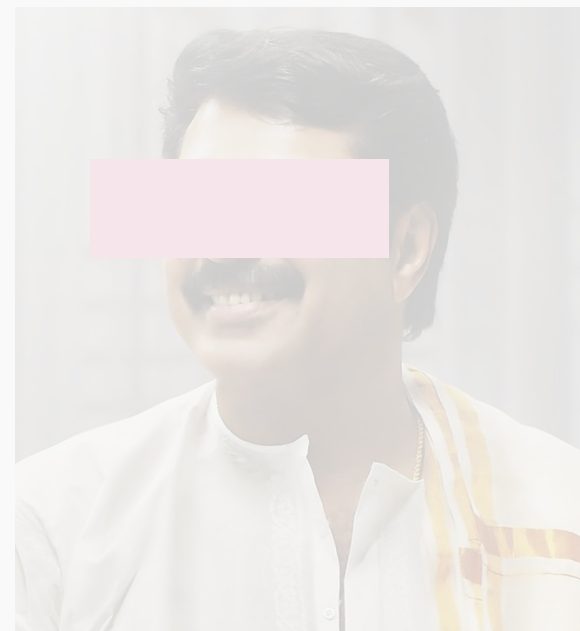


**Mamta**

- 35, Female, Educated
- Self-Medicates
- Smartphone User
- Somewhat Trusts Doc
- Has chronically ill family members

# Personas

01



**Mammooty**

- 24, Male, Educated
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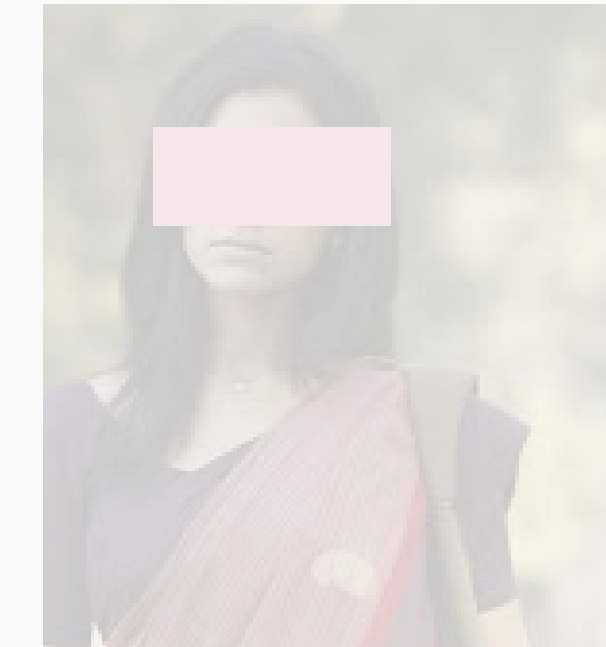
**PRIMARY**



**Manju**

- **47, Female, Uneducated**
- **Unlikely to Self-Medicate**
- **Smartphone User**
- **Trusts Doctors**
- **Diabetes and Hypertension**

04



**Mamta**

- 35, Female, Educated
- Self-Medicates
- Smartphone User
- Somewhat Trusts Doc
- No Chronic Illnesses but has chronically ill family members

# Primary Persona



**Manju K S**

**47, Female**



Paddy Farmer



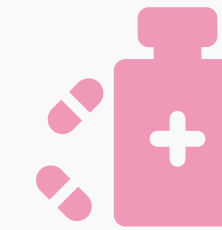
Hirebidanur



Literate in Kannada



Diabetes and Hypertension



Cannot Self Medicate  
due to English Instructions



Emergent Smartphone User



Trusts her Doctor implicitly

**Ideation**

# Ideation

**Patient**

**Doctor**

**Pharmacy**

**Medicine**

# Ideation

Patient

Doctor

Pharmacy

Medicine

# Ideation

Patient

Doctor

Pharmacy

Medicine

# Ideation

Patient

Doctor

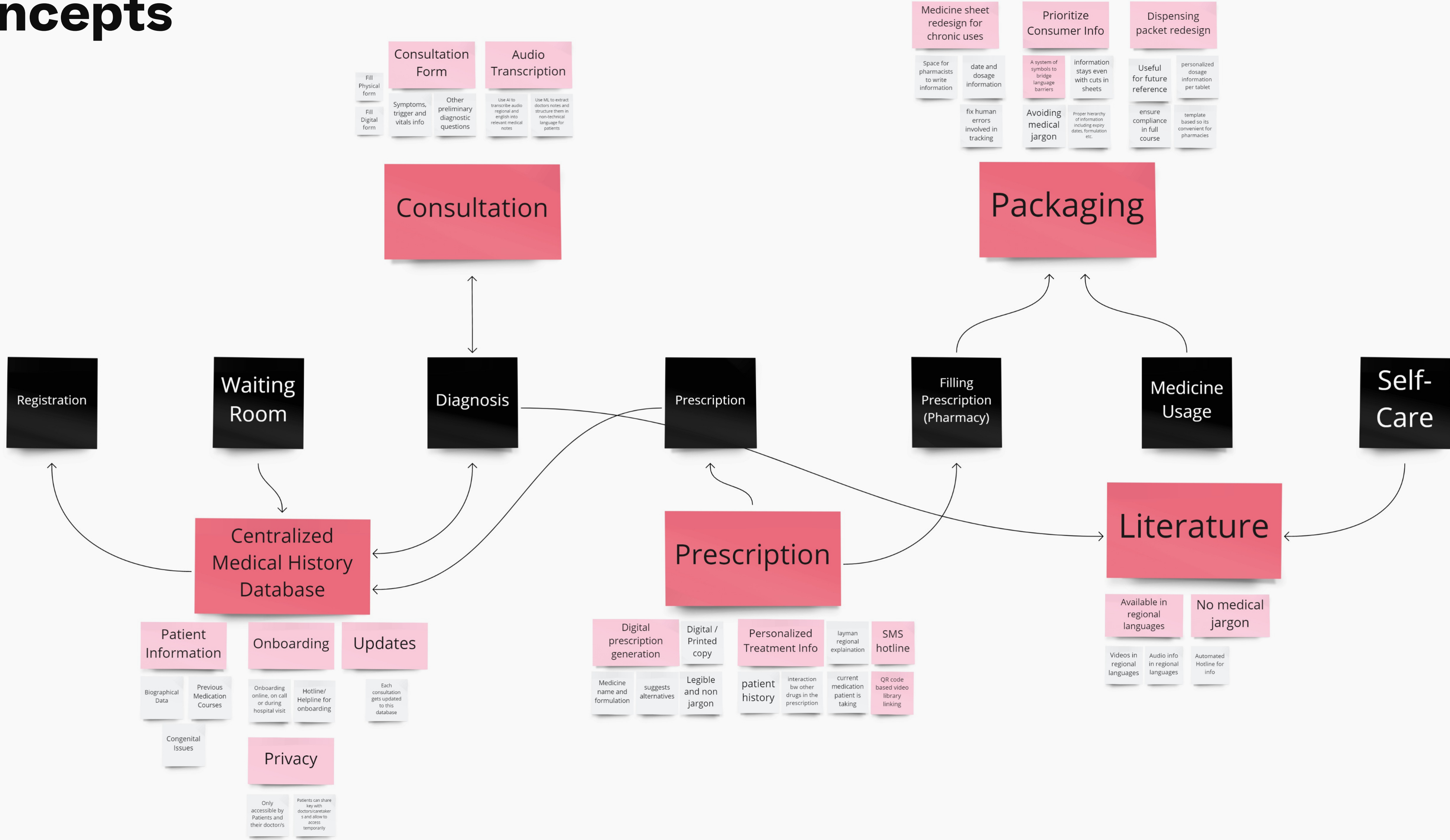
Pharmacy

Medicine

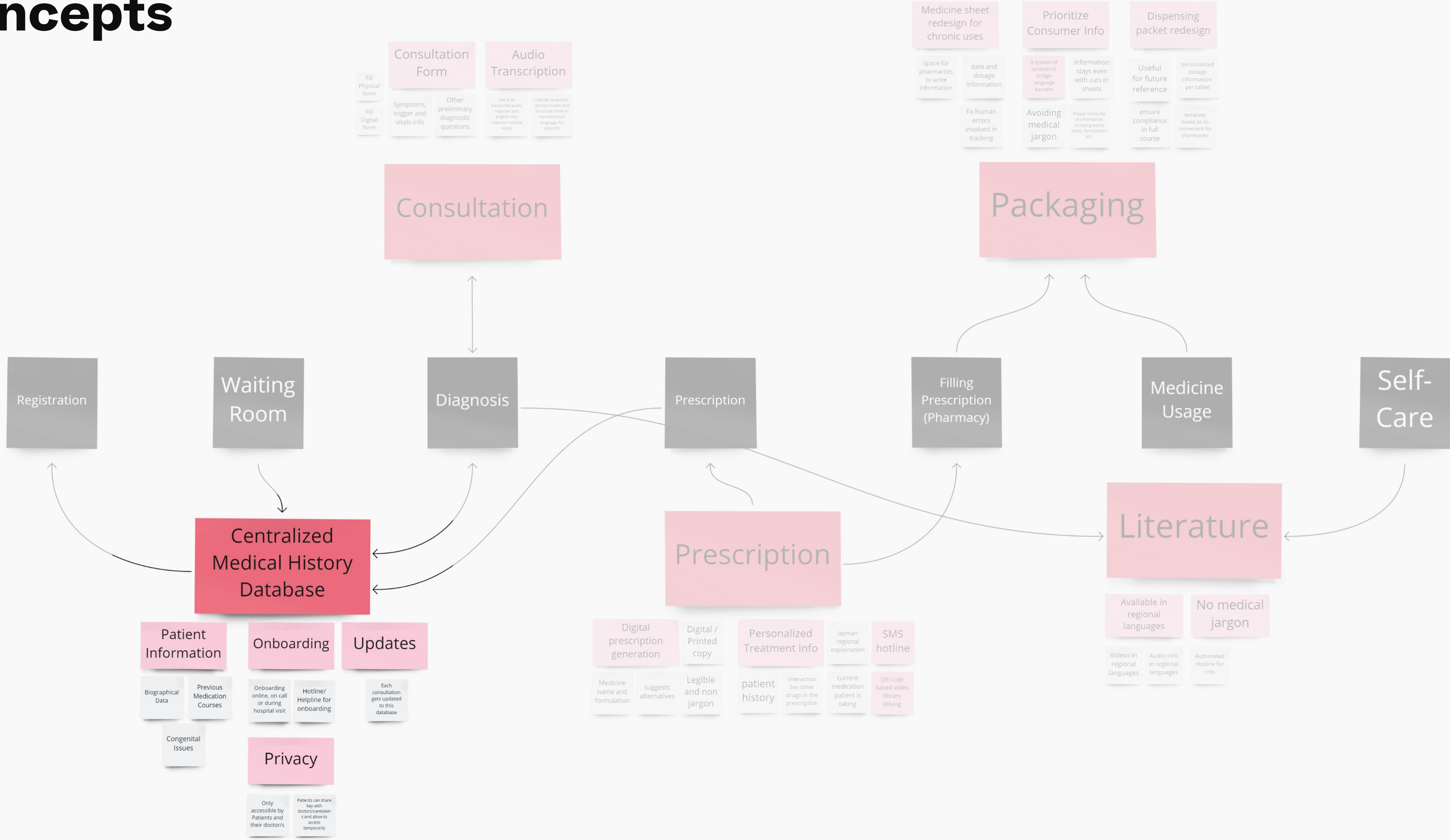


# **Design** Solution

# Concepts



# Concepts

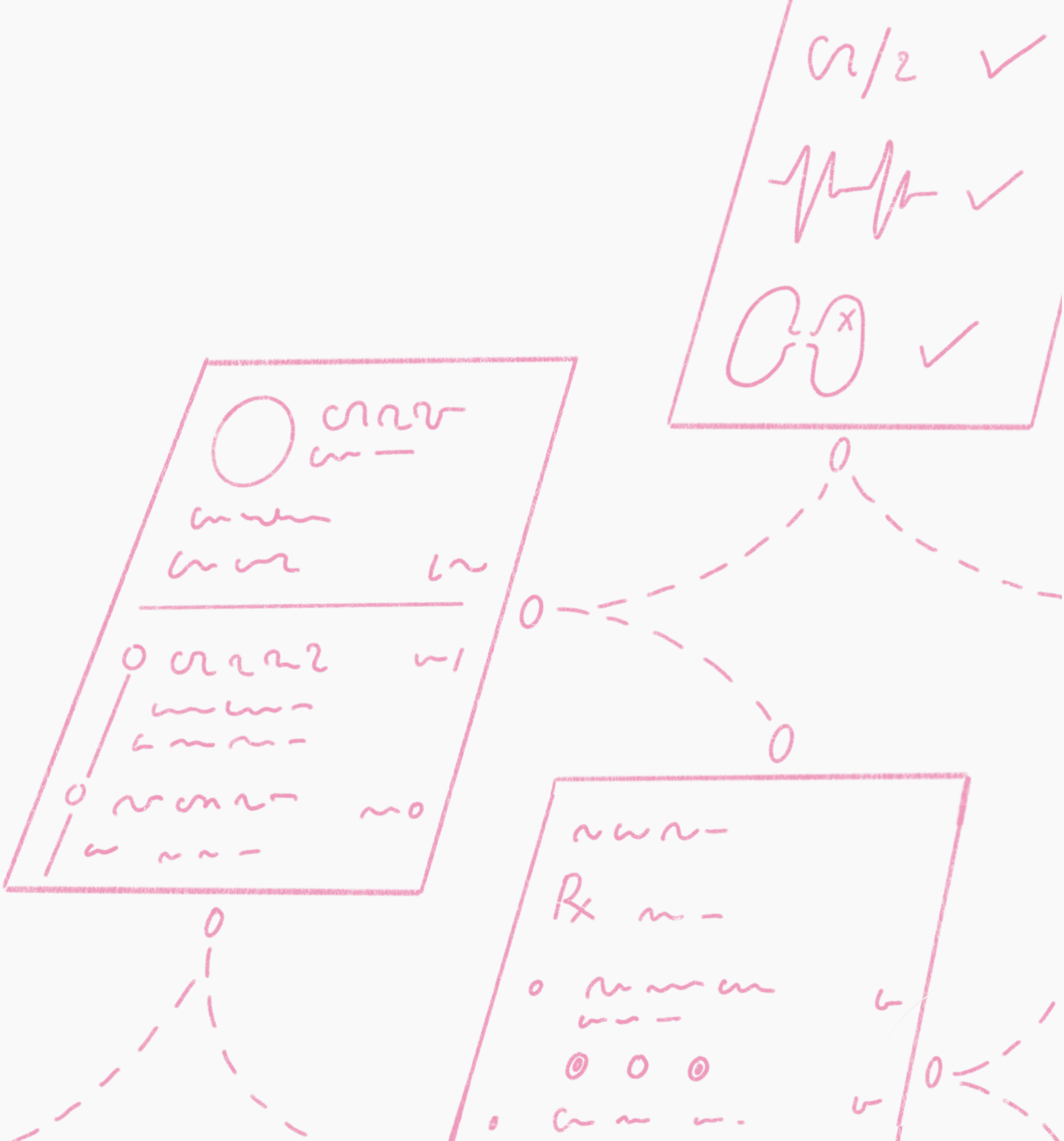


# Concepts

## Medical History Database

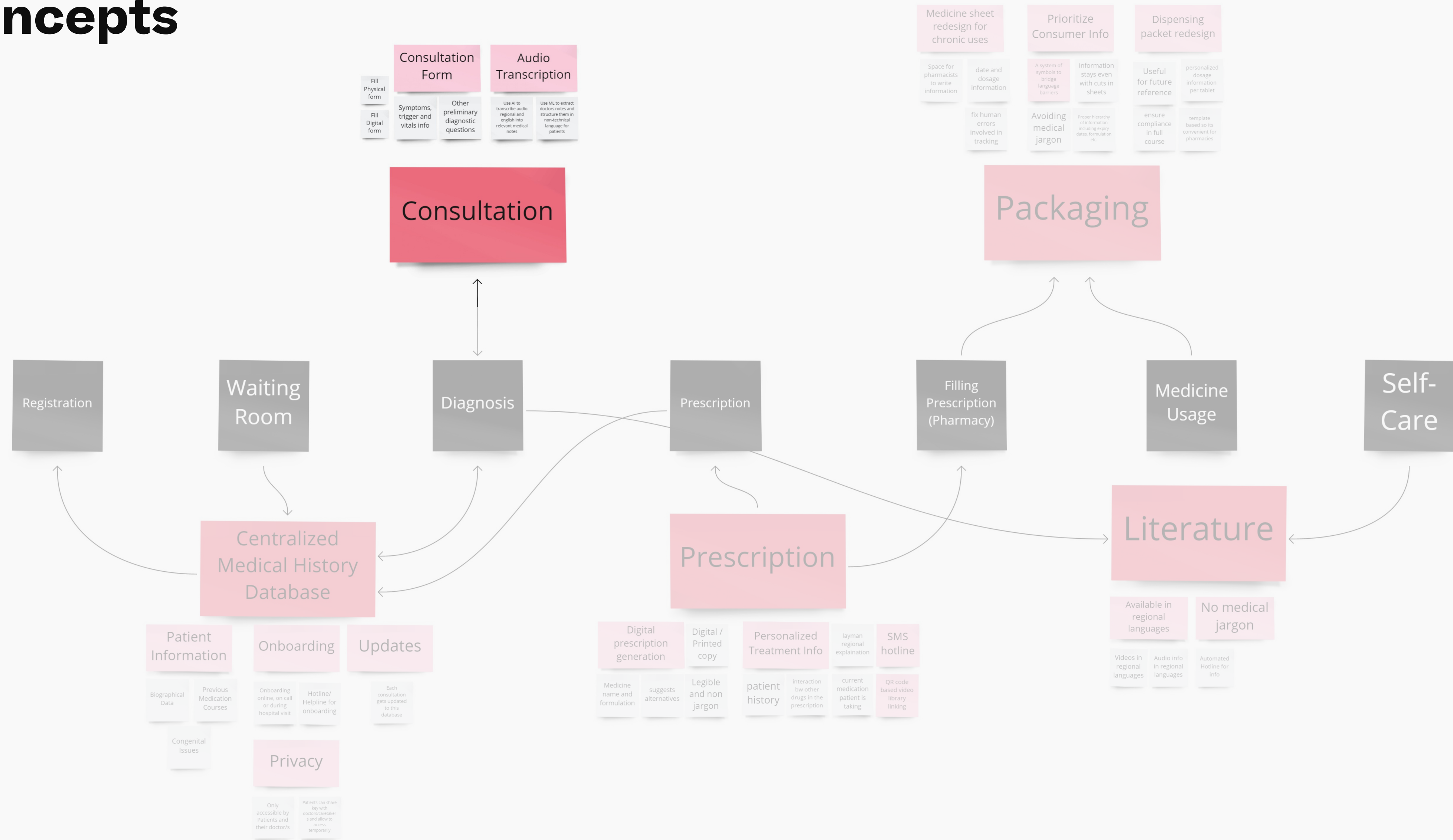
Centralized Database of Patient History

- + Biographical Data
- + Previous Medication Courses
- + Lifestyle Information (Alcohol, Tobacco, etc)
- + Ongoing Medical Conditions
- + Congenital Issues





# Concepts



# Concepts

## Pre-Consultation Form

A basic summary of patient illness to help start the diagnosis

- + Identified Symptoms
- + Triggering Event
- + Lifestyle Information
- + Duration of Symptoms
- + Type of Pain



# Concepts

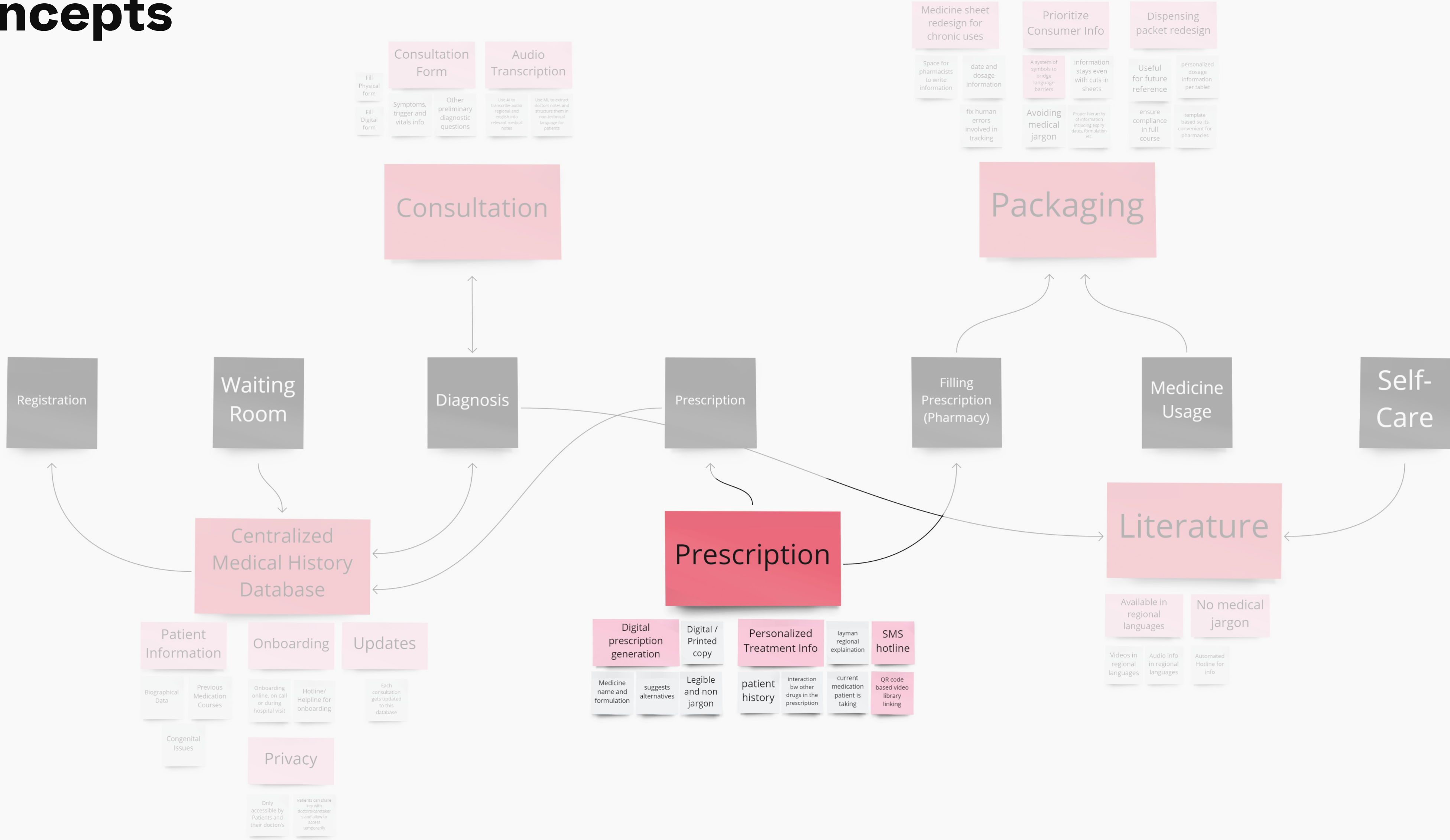
## Consultation Transcription

Audio transcription of  
consultation

- + Preserving Vital Treatment Information
- + Patients uncomfortable asking questions
- + Allows caregivers access to detailed info
- + Important documentation for future reference



# Concepts





# Concepts

## Prescription and Personalized Literature

### Digitizing Prescriptions

- + Current prescriptions not legible
- + Only used as a medicine purchase token
- + Lacks vital usage information

The image shows a handwritten medical prescription form. At the top, there is a header with the name of the hospital or clinic, which is mostly illegible due to blurring. Below the header, there are fields for patient information: Name, Date, H/O, ALLERGY, Age, and Sex. The 'Name' field contains 'N. P. ...' and the 'Date' field contains '27/10/20'. Below these fields is a section for 'ROUTINE MEDICINES'. This section contains a table with three columns: 'Rx', 'AM', and 'PM'. The table has four rows of handwritten entries. The first row is '2 200mg B', the second is '2 100mg B', the third is '2 50mg B', and the fourth is '2 100mg B'. The 'AM' and 'PM' columns have '1' and '1' written in them respectively for each row. At the bottom of the form, there is a footer with some small text and a date '2024 03 25'.

Rx	AM	PM
2 200mg B	1	1
2 100mg B	1	1
2 50mg B	1	1
2 100mg B	1	1

# Concepts

## Prescription and Personalized Literature

### Digitizing Prescriptions

- ✗ Current prescriptions not legible
- ✗ Only used a medicine purchase token
- ✗ Lacks vital usage information
- ✗ Jargon and generalized information

Presented in order of decreasing seriousness.

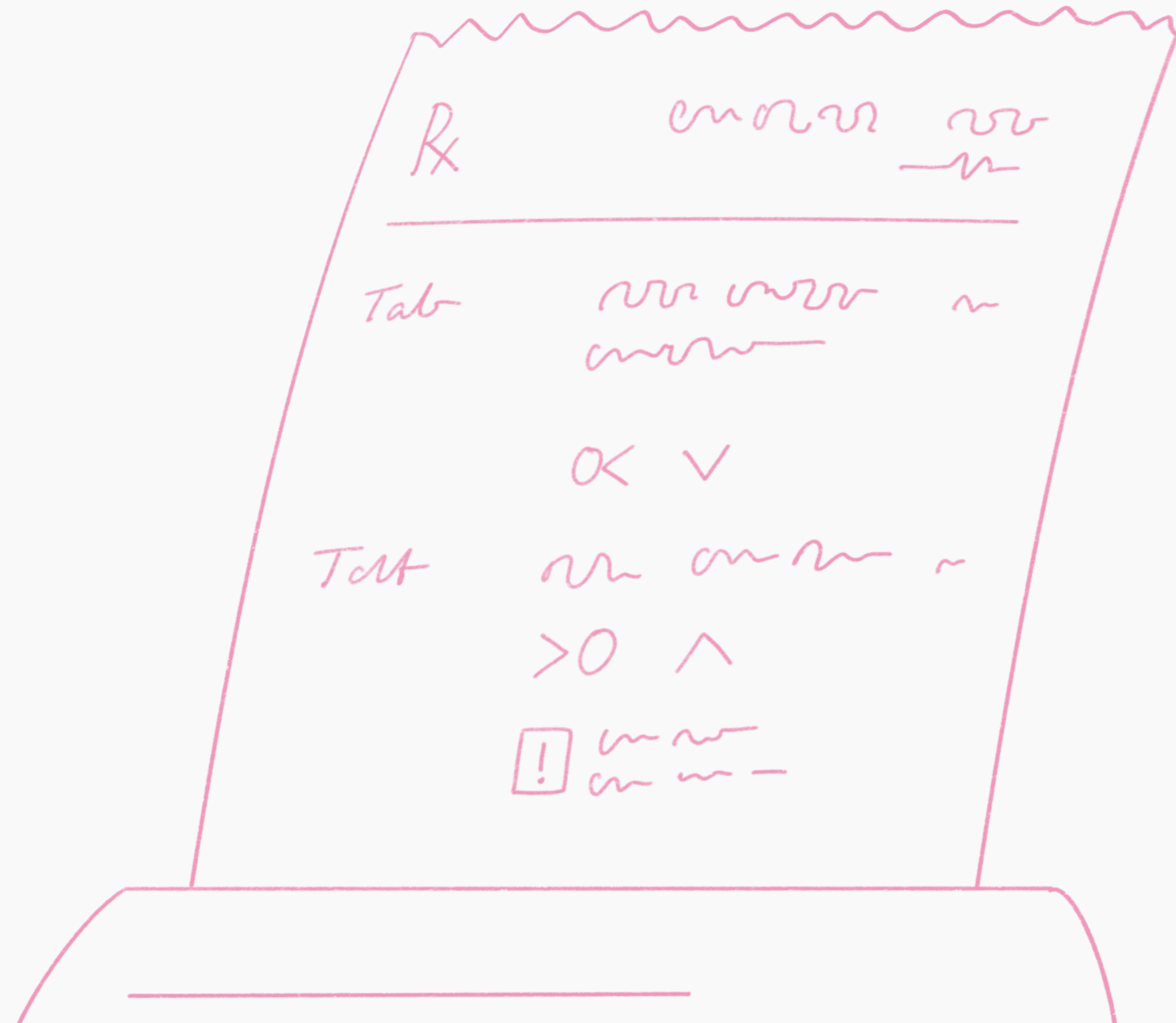
MedDRA System organ class	Common	Uncommon	Rare	Very rare	Not known (cannot be estimated from the available data)
Infections and infestations	Urinary tract infection	Vaginal infection Cystitis			
Psychiatric disorders					Insomnia*
Nervous system disorders	Headache* Dizziness*				
Eye disorders			Eyelid oedema		
Cardiac disorders	Tachycardia	Palpitation Atrial fibrillation			
Vascular disorders				Hypertensive crisis*	
Gastrointestinal disorders	Nausea* Constipation* Diarrhoea*	Dyspepsia Gastritis	Lip oedema		
Skin and subcutaneous tissue disorders		Urticaria Rash Rash macular Rash papular Pruritus	Leukocytoclastic vasculitis Purpura Angioedema*		
Musculoskeletal and connective tissue disorders		Joint swelling			
Renal and urinary disorders			Urinary retention*		
Reproductive system and breast disorders		Vulvovaginal pruritus			
Investigations		Blood pressure increased GGT increased AST increased ALT increased			



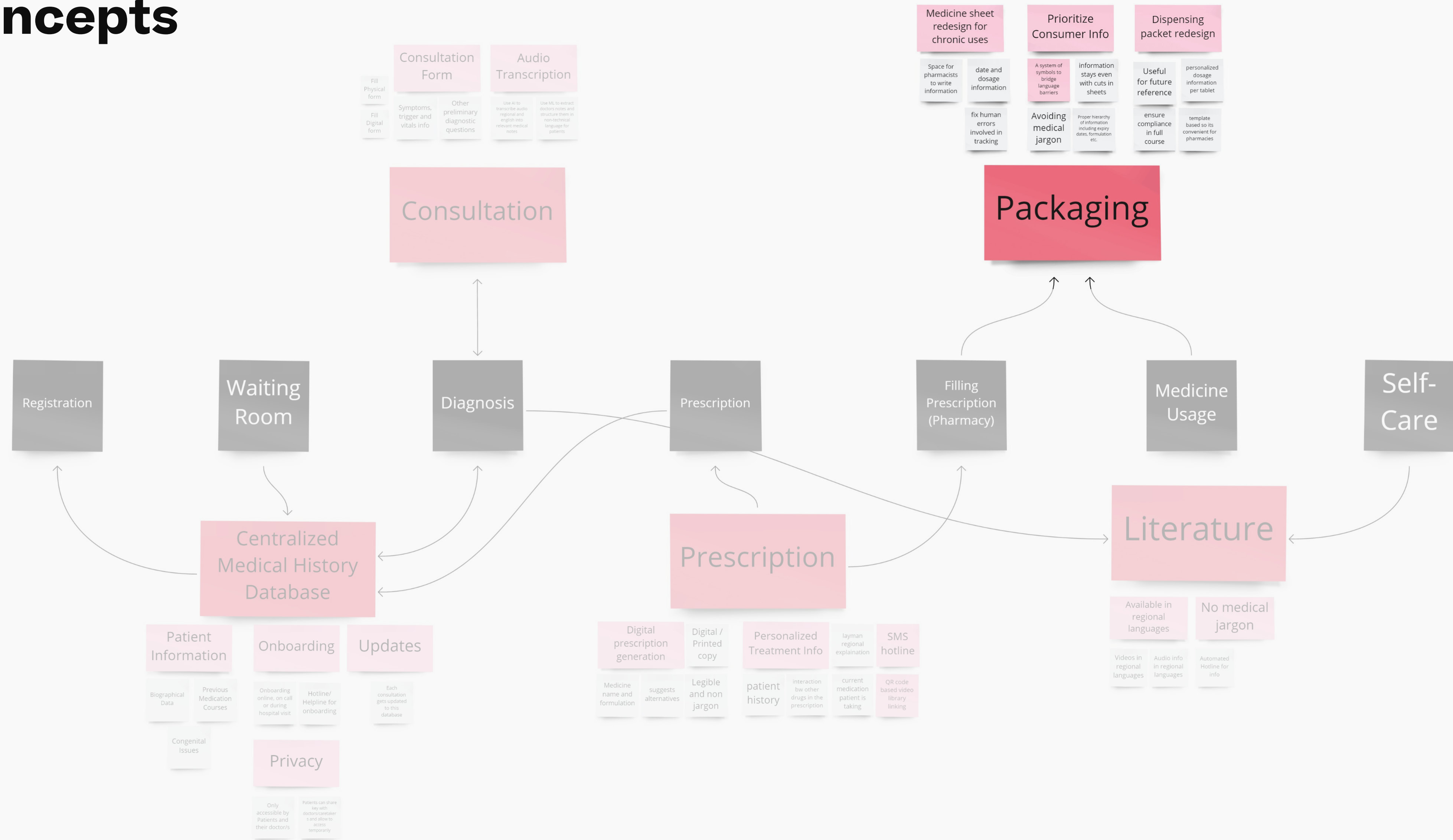
# Concepts

## Prescription and Personalized Literature

- + Digital Prescription
- + Fixes Legibility Issues
- + Personalized by linking to Medical History
- + Factors in:
  - Medicine Formulation
  - Dosage Instructions
  - Warnings
  - Dietary Restrictions
  - Bioequivalent Alternatives
  - Drug Interactions



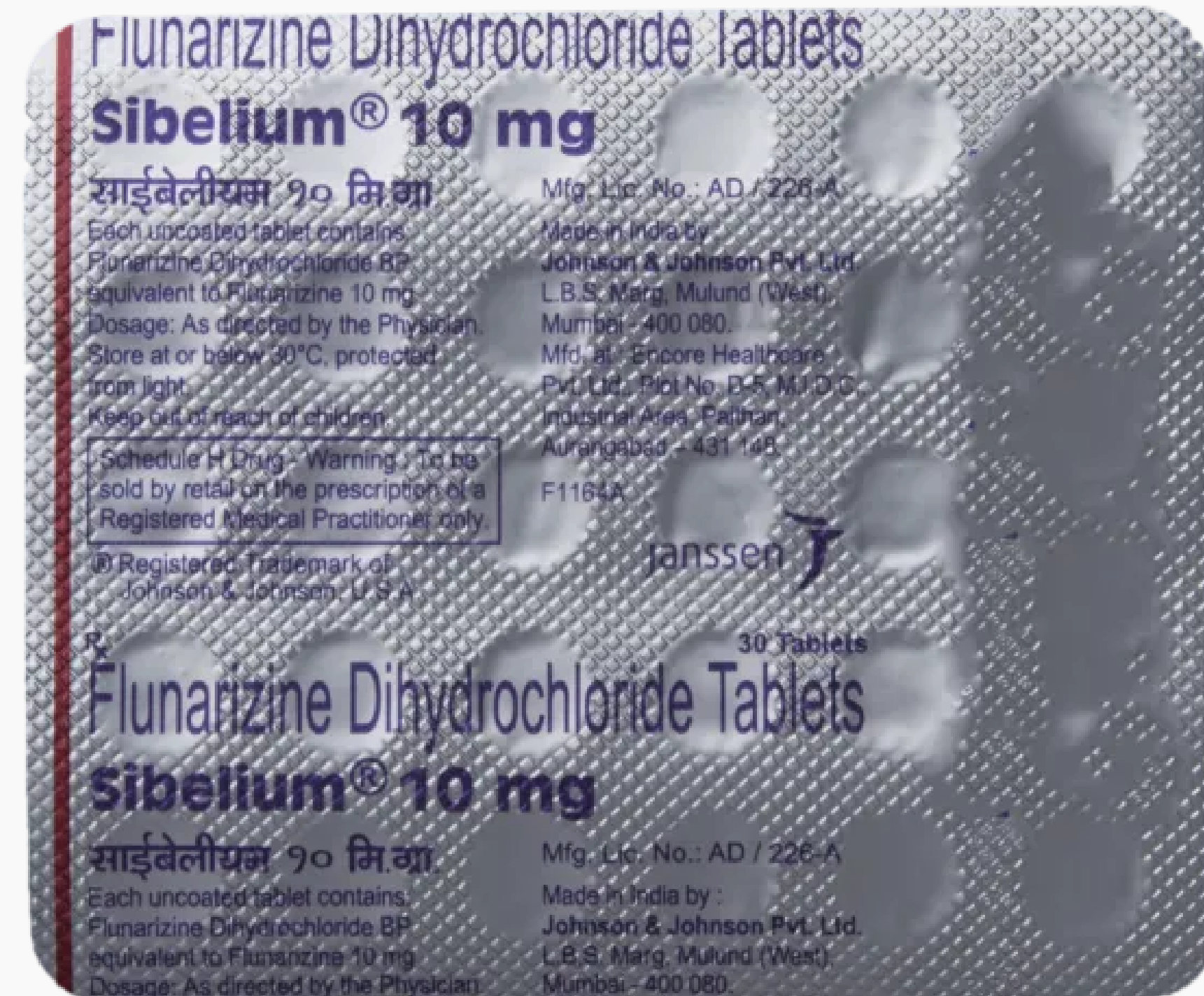
# Concepts



# Concepts

## Packaging

- ✗ Useless information for patients
- ✗ Poor visual accessibility and chunking
- ✗ Popping pills tears out information
- ✗ Cutting pills also losses information



# Concepts

## Packaging

- + Segregating User and Pharma Info
- + System of symbols for language independence
- + Information printed on each cell to accommodate pill cutting



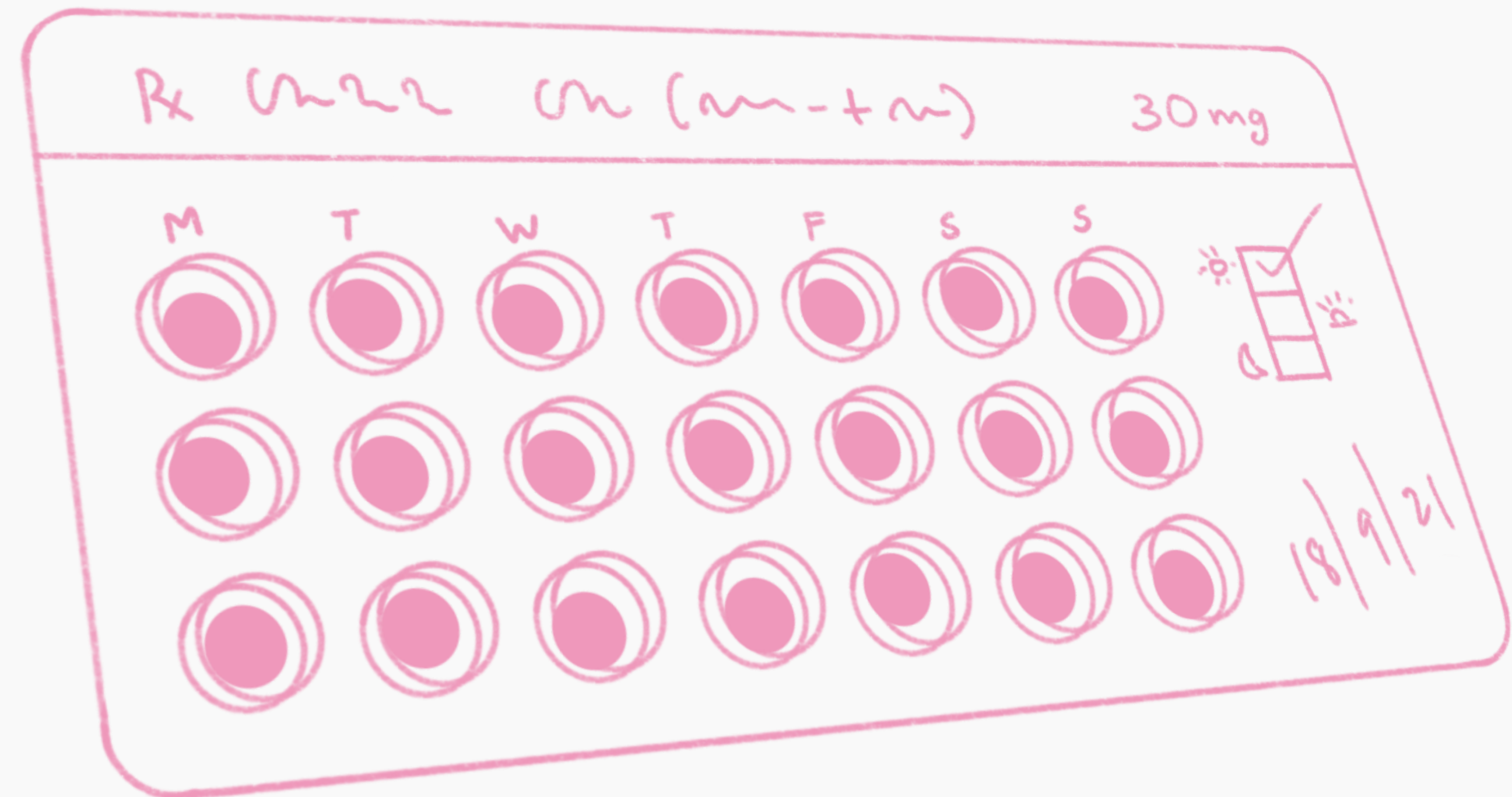


# Concepts

## Packaging

Redesign for Chronic Meds

- + **Chronic Medicines**
- + **Medicine Tracking for long term illnesses**
- + **Date and Dosage information encoded onto strips**



# Concepts

## Packaging

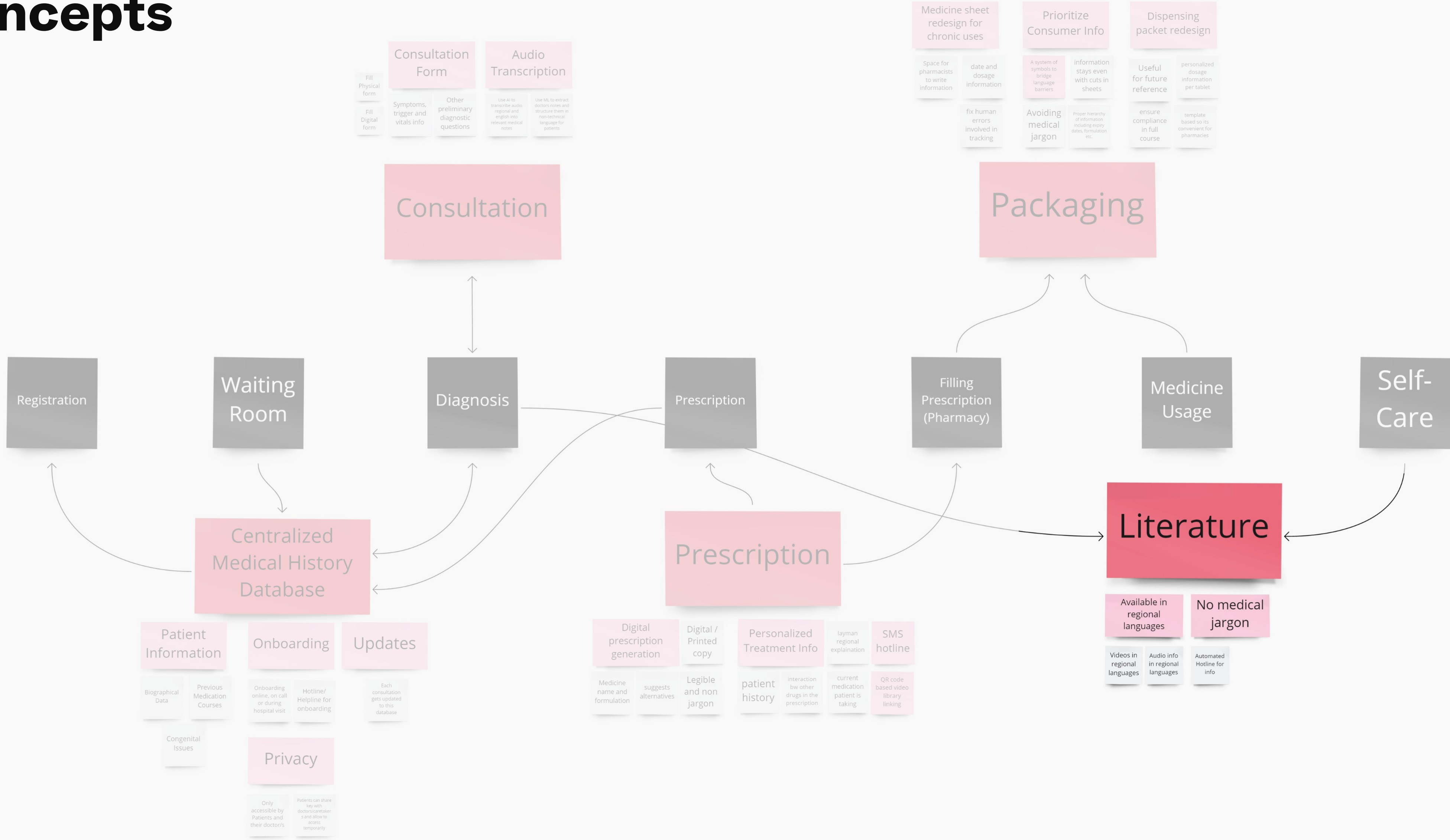
Printed Medical Envelopes

- + Accomodating Strip Cutting
- + Independent of Literacy constraints
- + Personalized dosage and usage instructions





# Concepts



**Consultation Form**

- Fill Physical form
- Fill Digital form
- Symptoms, trigger and vitals info
- Other preliminary diagnostic questions

**Audio Transcription**

- Use AI to transcribe audio regional and english into relevant medical notes
- Use ML to extract doctors notes and structure them in non-technical language for patients

Consultation

**Medicine sheet redesign for chronic uses**

- Space for pharmacists to write information
- date and dosage information
- fix human errors involved in tracking

**Prioritize Consumer Info**

- A system of symbols to bridge language barriers
- information stays even with cuts in sheets
- Avoiding medical jargon
- Proper hierarchy of information including expiry dates, formulation etc.

**Dispensing packet redesign**

- Useful for future reference
- personalized dosage information per tablet
- ensure compliance in full course
- template based so its convenient for pharmacies

Packaging

**Patient Information**

- Biographical Data
- Previous Medication Courses
- Congenital Issues

**Onboarding**

- Onboarding online, on call or during hospital visit
- Hotline/ Helpline for onboarding

**Updates**

- Each consultation gets updated to this database

**Privacy**

- Only accessible by Patients and their doctor/s
- Patients can share key with doctor/caretaker and allow to access temporarily

**Digital prescription generation**

- Medicine name and formulation
- suggests alternatives

**Digital / Printed copy**

- Legible and non jargon

**Personalized Treatment Info**

- patient history
- interaction bw other drugs in the prescription
- current medication patient is taking

**layman regional explanation**

- QR code based video library linking

**SMS hotline**

**Available in regional languages**

- Videos in regional languages
- Audio info in regional languages

**No medical jargon**

- Automated Hotline for info

# Concepts

## Literature

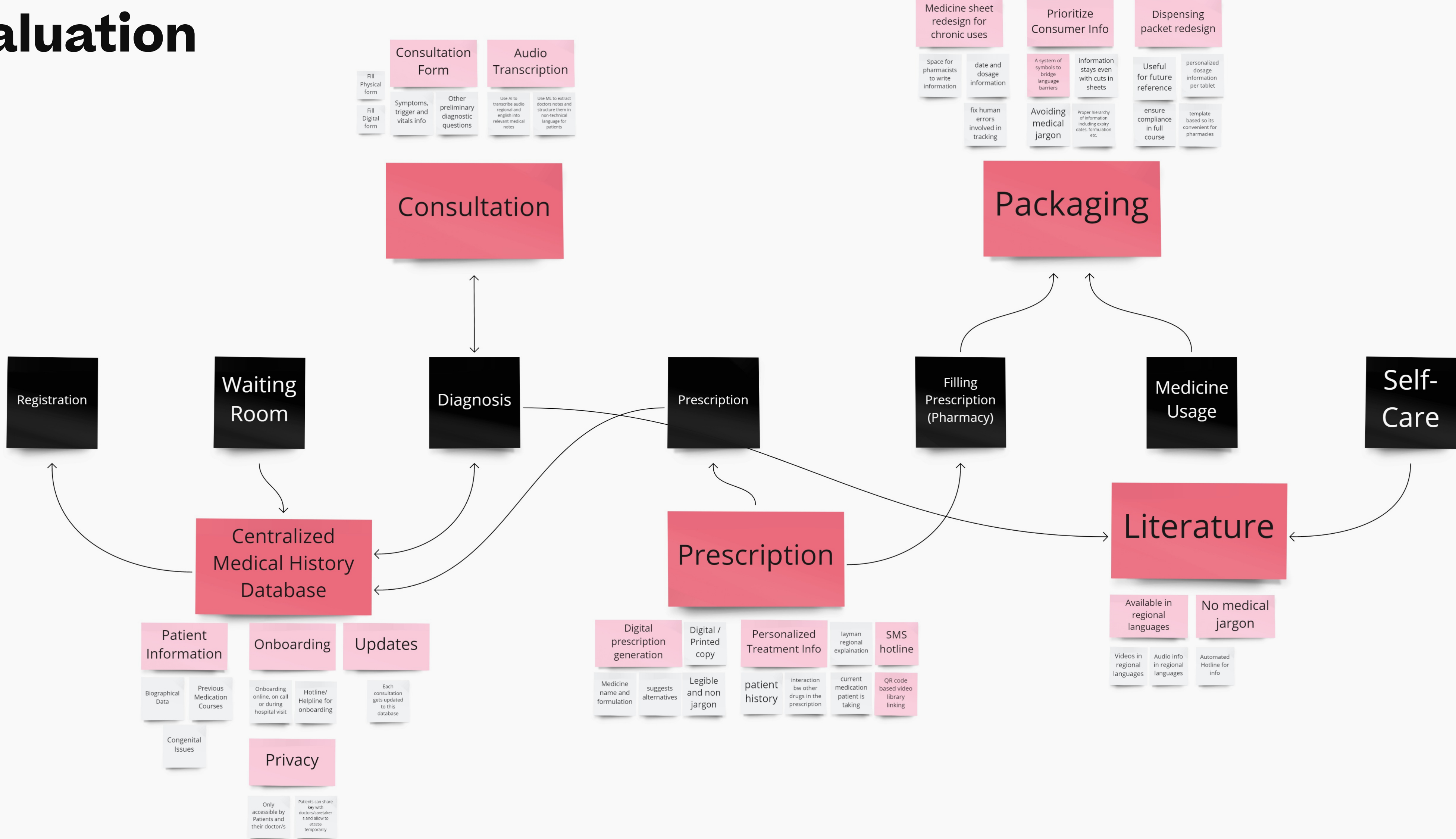
Available but Inaccessible

- + Relevent Medical Information on Usage, Side-effects and Contraindications.
- + Avoiding Medical Jargon
- + Available in Vernacular and Regional Language
- + Informational Videos and Audios
- + Accessible through SMS or Info Hotline Service



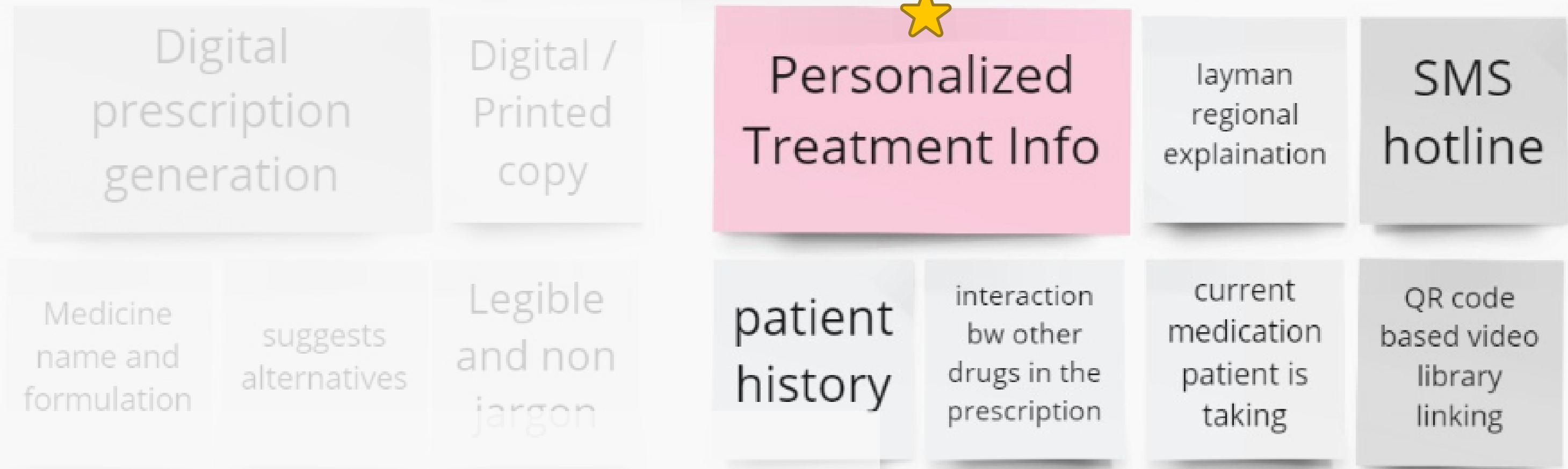
Preliminary  
**Evaluation**

# Evaluation

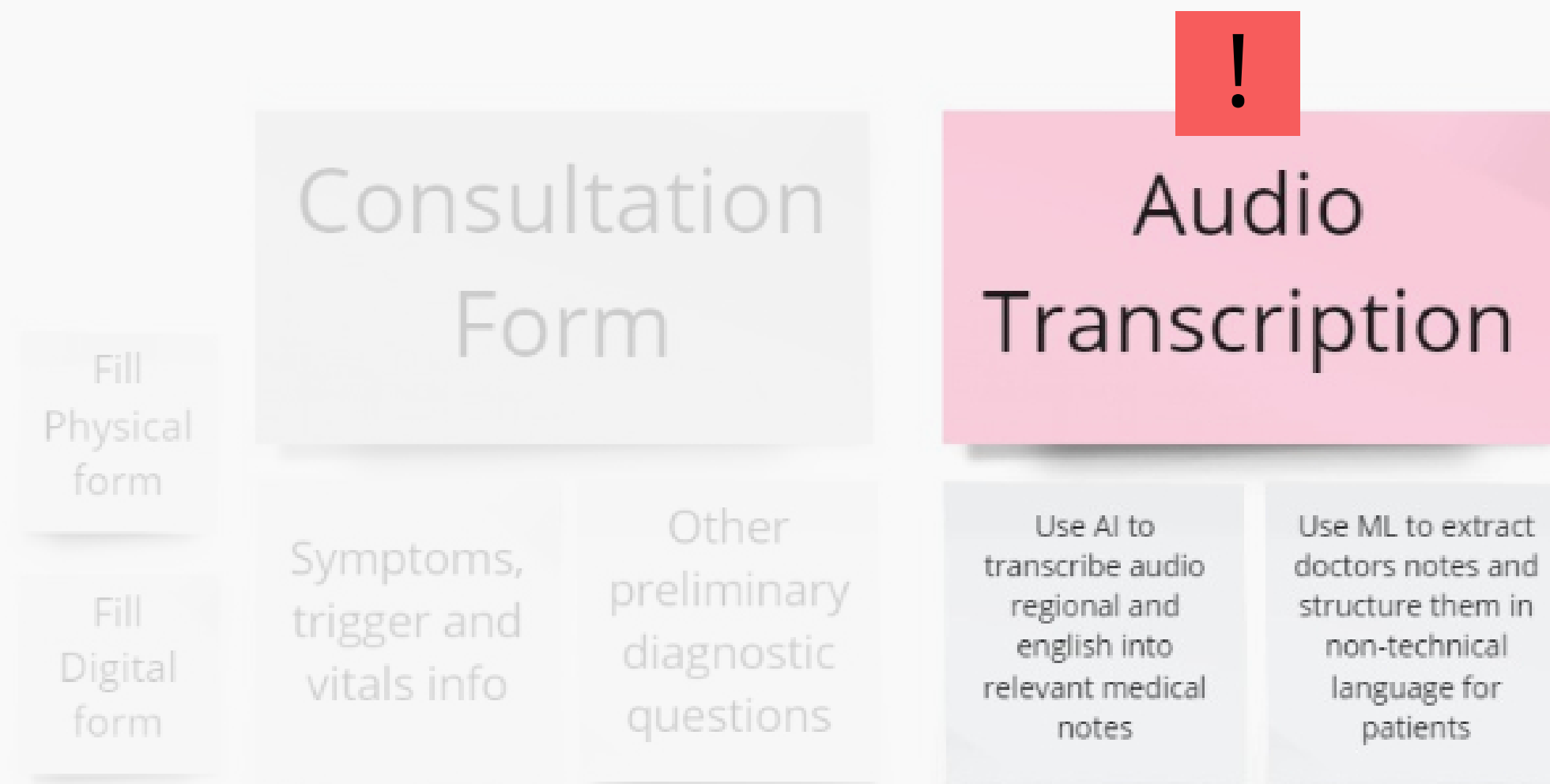


# Evaluation

Prescription



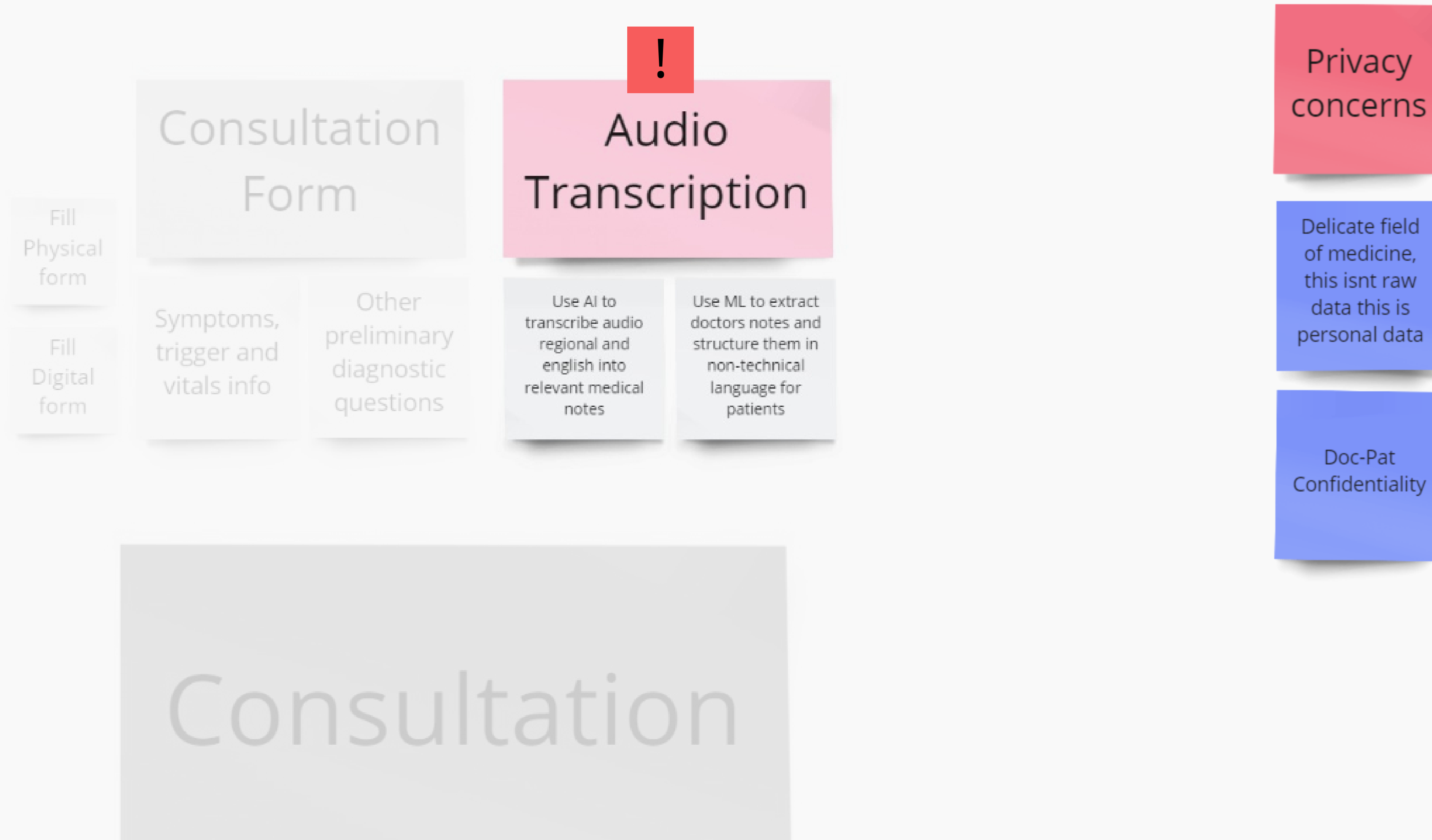
# Evaluation



Consultation



# Evaluation



# Concepts

Consultation  
Transcription



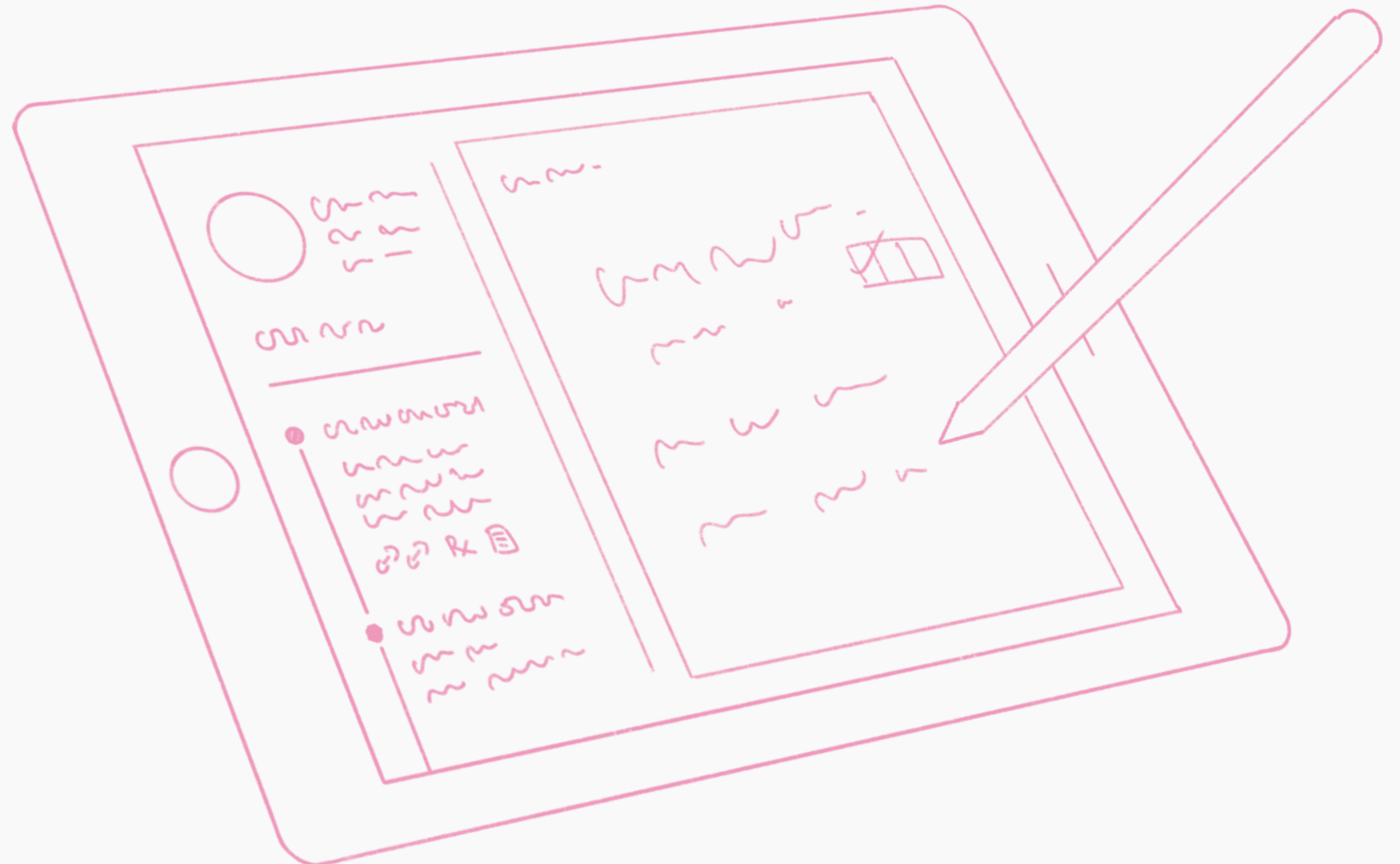
Digitizing Doctor's  
Consult Notes

+ Preserving Consultation  
Details

+ Valuable future  
reference for:

- Patients
- Doctors
- Caretakers

“Immense need for digital  
documentation of OPD notes”



# **Evaluation** Plan

# Evaluation Plan



**General  
Physician**

**Retail  
Pharmacist**

**Chronic  
Patient**

# അഭിപ്രായം

*abhiprāyam* *Comments and Feedback*

TEAM Malayaliano