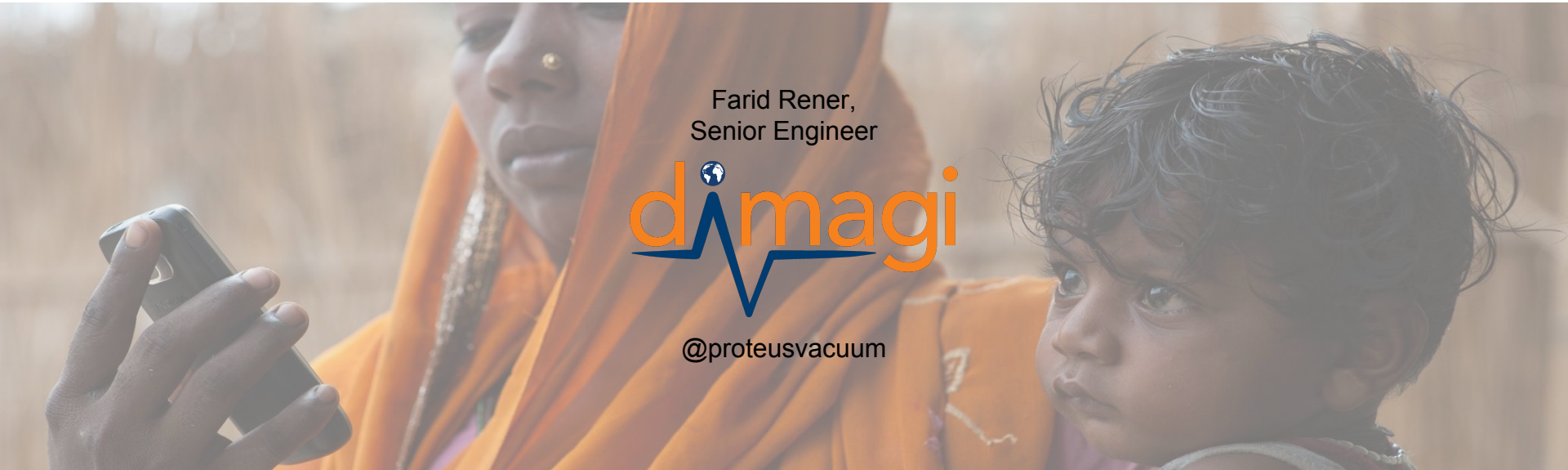
Searching the last mile

Using elasticsearch to augment healthcare projects in low-resource settings



Farid Rener,
Senior Engineer

dimagi

@proteusvacuum

2002

Founded out of
MIT and Harvard
Medical School

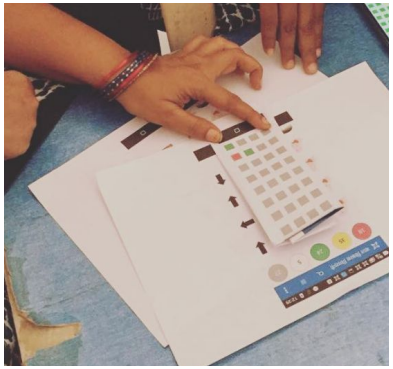
130+ Team Members

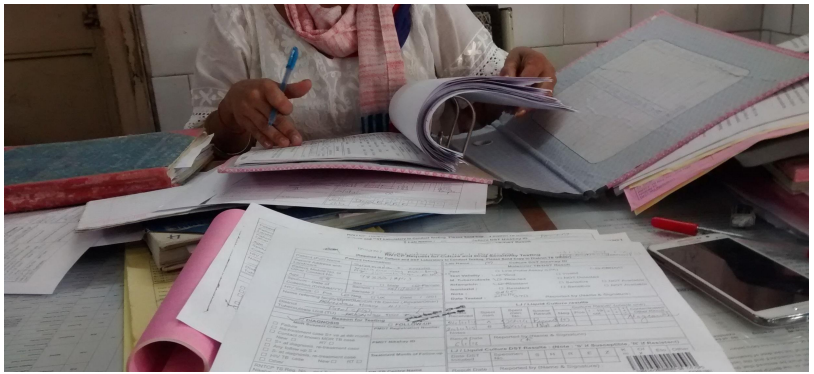
500+ Projects

60+
Countries

Create *sustainable impact* for underserved populations through technology solutions for frontline workforces.

मुंबई
आरोग्य अभियान
आपली मुंबई, निरोगी मुंबई
DOTS
Revised Guidelines for MDR
Suspect Criteria
Criteria A:
Criteria B:
Criteria C:





मुंबई
आरोग्य अभियान
आपली मुंबई, निरोगी मुंबई
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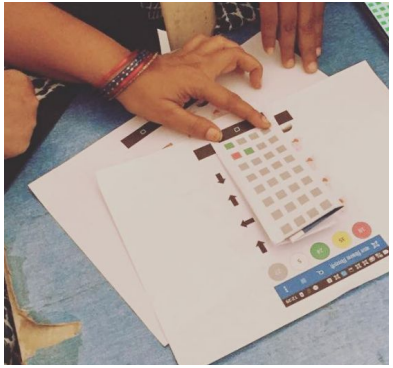
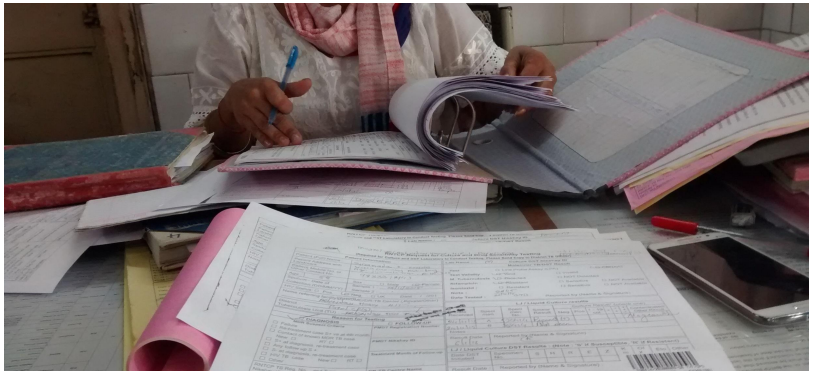
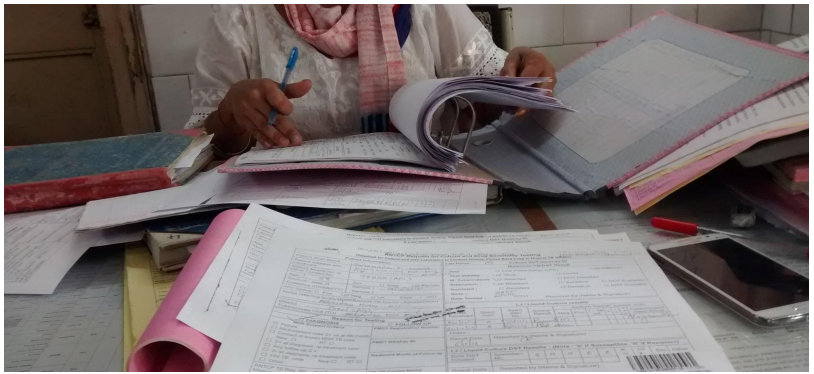




23% of Tuberculosis cases in the world



23% of Tuberculosis cases in the world

1.6 million people diagnosed per year

300,000 deaths per year

Tuberculosis in India

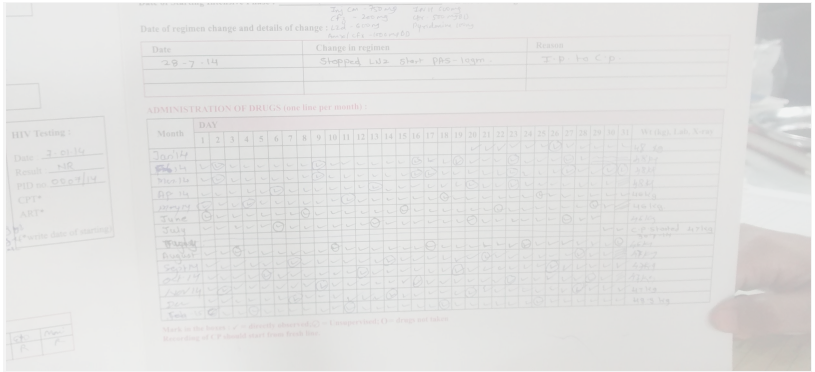
2 dead every 3 minutes

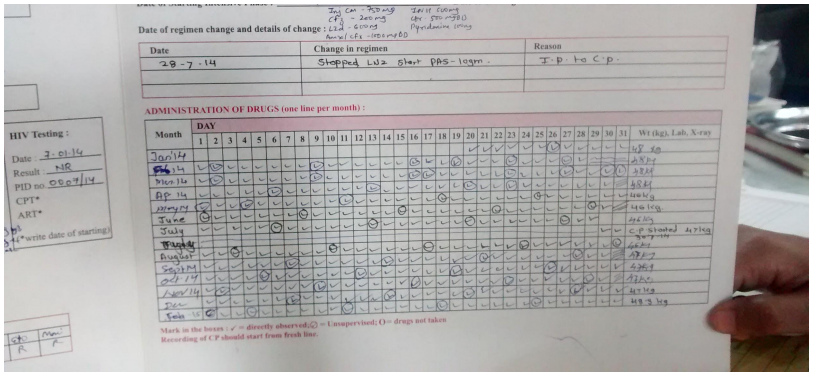
6 months antibiotics

Antibiotic Resistance: 2 years injectable

Directly Observed Treatment (DOTS)

Curing TB





Date of regimen change and details of change : LZd - 600mg

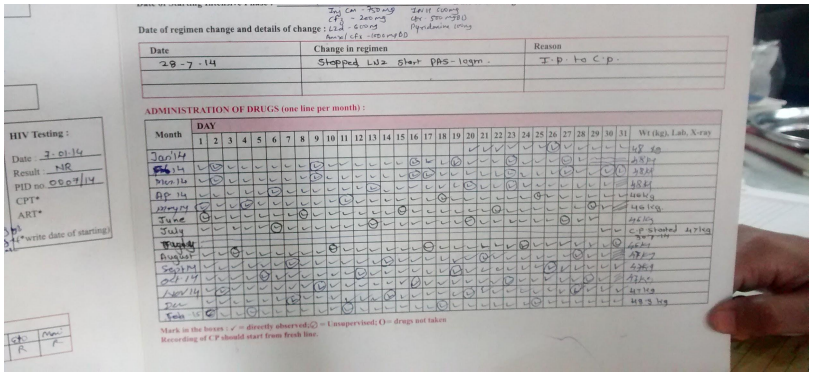
Date	Change in regimen	Reason
28-7-14	Stopped LNZ Start PAS-10gm.	I.P. to C.P.

ADMINISTRATION OF DRUGS (one line per month) :

Month	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Wt (kg), Lab, X-ray
Jan'14																																
Feb'14																																
March'14																																
April'14																																
May'14																																
June																																
July																																
August																																
Sept'14																																
Oct'14																																
Nov'14																																
Dec																																
Jan																																

Mark in the boxes : ✓ = directly observed; ◎ = Unsupervised; O = drugs not taken
Recording of CP should start from fresh line.

HIV Testing :
Date - 7-01-14
Result - NR
PID no 0507/14
CPT*
ART*
(*write date of starting)



Date of regimen change and details of change : LZd - 600mg

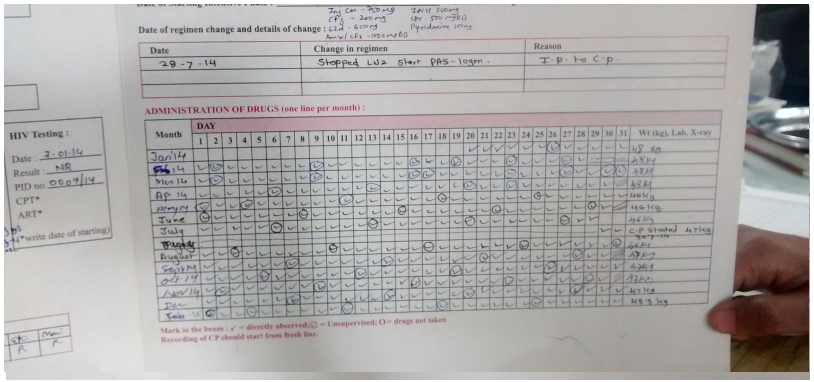
Date	Change in regimen	Reason
28-7-14	Stopped LNZ Start PAS-10gm.	I.P. to C.P.

ADMINISTRATION OF DRUGS (one line per month) :

Month	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Wt (kg), Lab, X-ray
Jan'14																																
Feb'14																																
March'14																																
April'14																																
May'14																																
June																																
July																																
August																																
Sept'14																																
Oct'14																																
Nov'14																																
Dec																																
Jan																																

Mark in the boxes : ✓ = directly observed; ○ = Unsupervised; O = drugs not taken
Recording of CP should start from fresh line.

HIV Testing :
Date - 7-01-14
Result - NR
PID no 0507/14
CPT*
ART*
(*write date of starting)



Date of regimen change and details of change : Inj Cm - 750mg CAP Rifamp
CFX - 200mg tab. Eto-750
Azm/Ofl -1000mg BD Pyridoxine 10mg

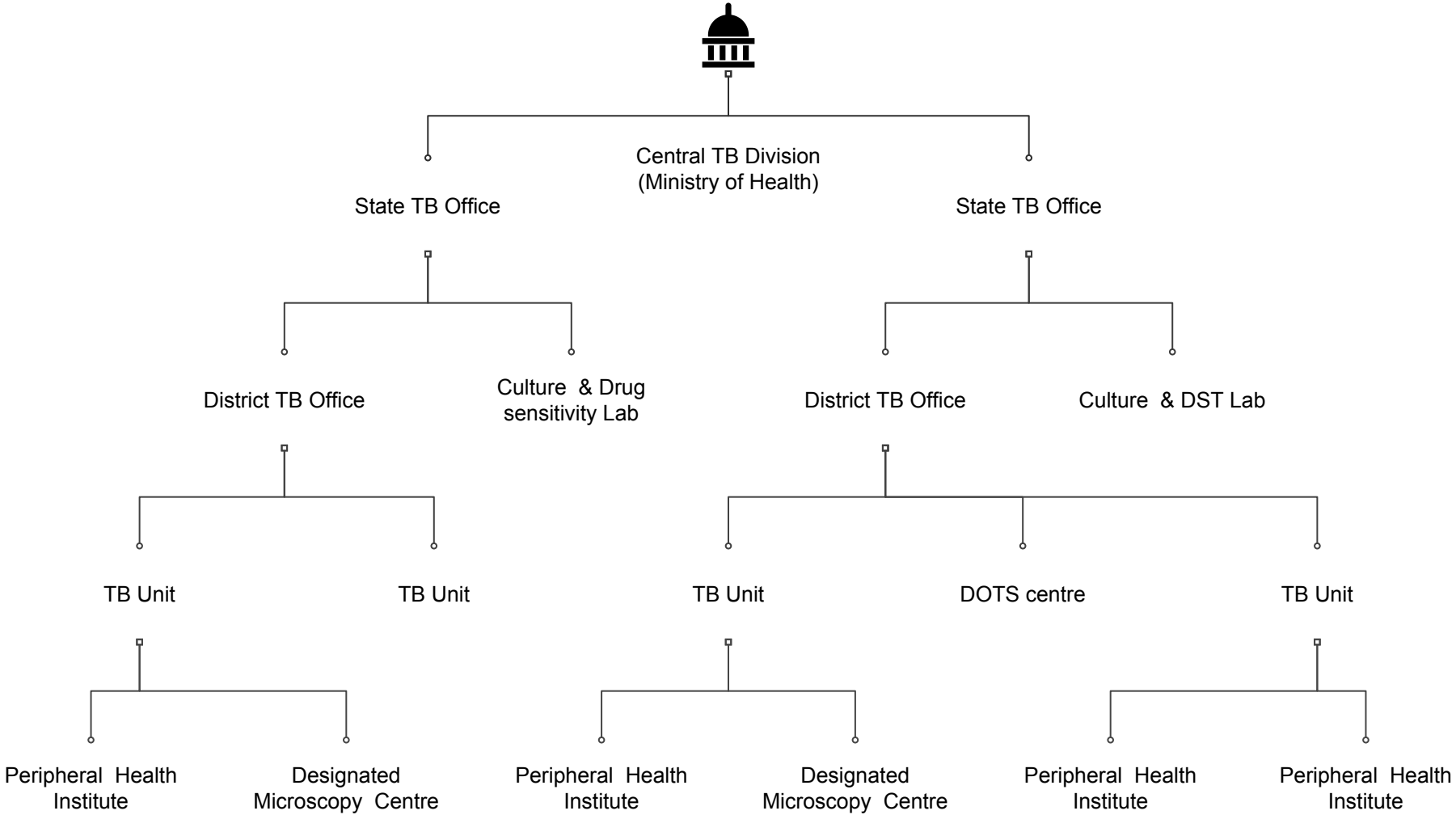
Date	Change in regimen	Reason
28-7-14	Stopped LVZ Start PAS-10gm.	I.P. to C.P.

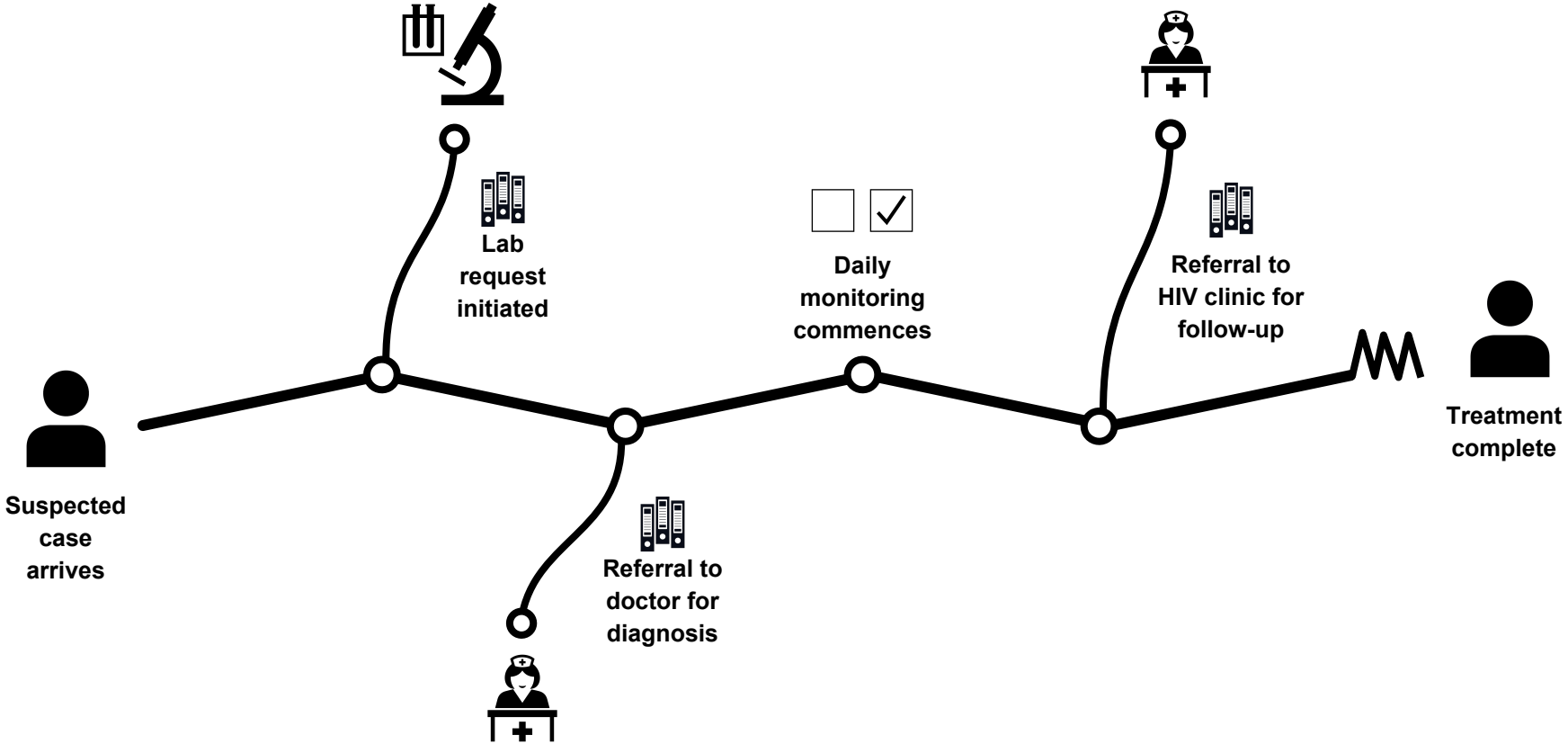
ADMINISTRATION OF DRUGS (one line per month) :

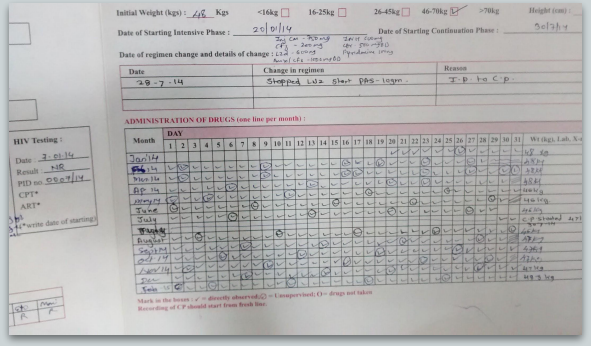
Month	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Wt (kg), Lab, X-ray
Jan'14																																48.8kg
Feb'14																																48kg
March'14																																48kg
April'14																																46kg
May'14																																46kg
June																																46kg
July																																CP started 47kg
August																																47kg
Sept'14																																47kg
Oct'14																																47kg
Nov'14																																47kg
Dec																																48.3kg
Jan																																

Mark in the boxes : ✓ = directly observed; ○ = Unsupervised; O = drugs not taken
Recording of CP should start from fresh line.

HIV Testing :
Date - 3-01-14
Result - NR
PID no 0007/14
CPT*
ART*
(*write date of starting)


Central TB Division
(Ministry of Health)
State TB Office
State TB Office
District TB Office
Culture & Drug sensitivity Lab
District TB Office
Culture & DST Lab
TB Unit
TB Unit
TB Unit
DOTS centre
TB Unit
Peripheral Health Institute
Designated Microscopy Centre
Peripheral Health Institute
Designated Microscopy Centre
Peripheral Health Institute
Peripheral Health Institute


Suspected case arrives
Lab request initiated
Referral to doctor for diagnosis
Daily monitoring commences
Referral to HIV clinic for follow-up
Treatment complete



Initial Weight (kgs) : 46 Kgs <16kg 16-25kg 26-45kg 46-70kg >70kg Height (cm) :

Date of Starting Intensive Phase : 20/01/14 Date of Starting Continuation Phase : 30/7/14

Date of regimen change and details of change : 2HRZE (75-50-275-150) 4RH (150-100) Amikacin injection

Date	Change in regimen	Reason
28-7-14	Stopped Lux Start PAS-Lopy.	I.P. to C.P.

ADMINISTRATION OF DRUGS (one line per month) :

HIV Testing : Date 7-01-14 Result NR PID no 05071/14 CPT* ART* *write date of starting

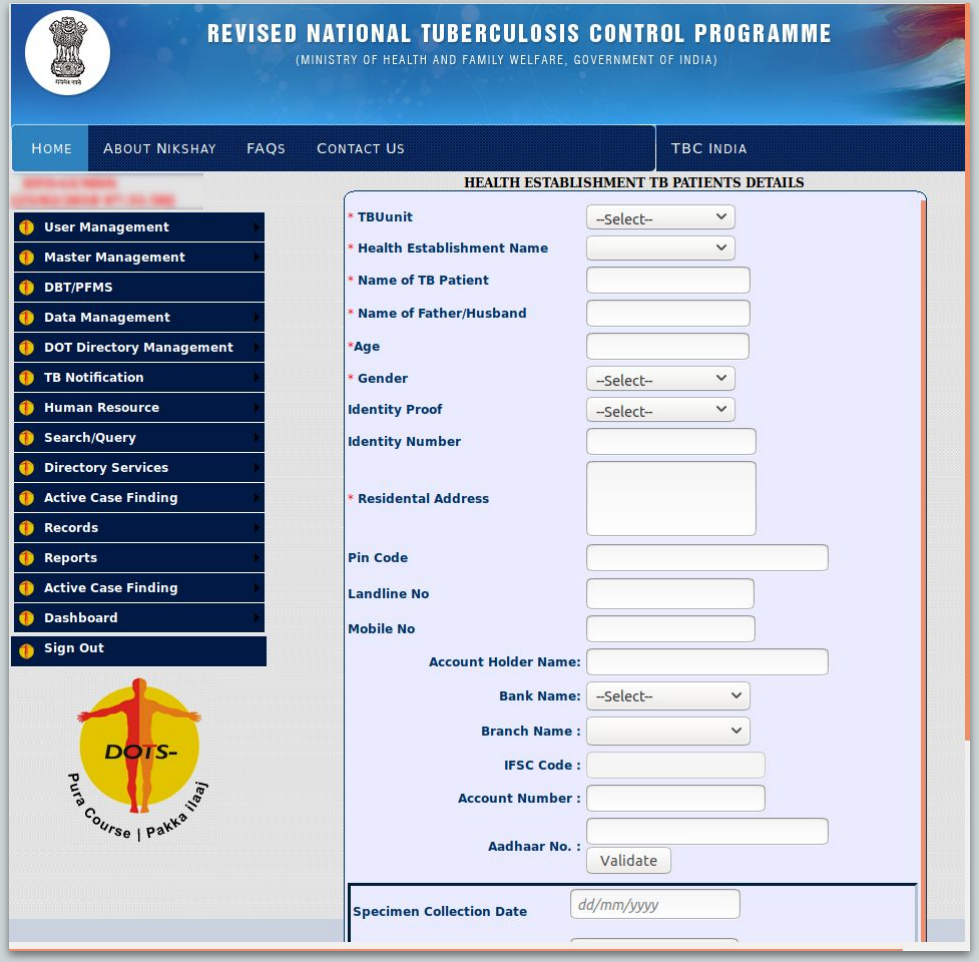
Month | DAY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 | Wt (kg), Lab. No.

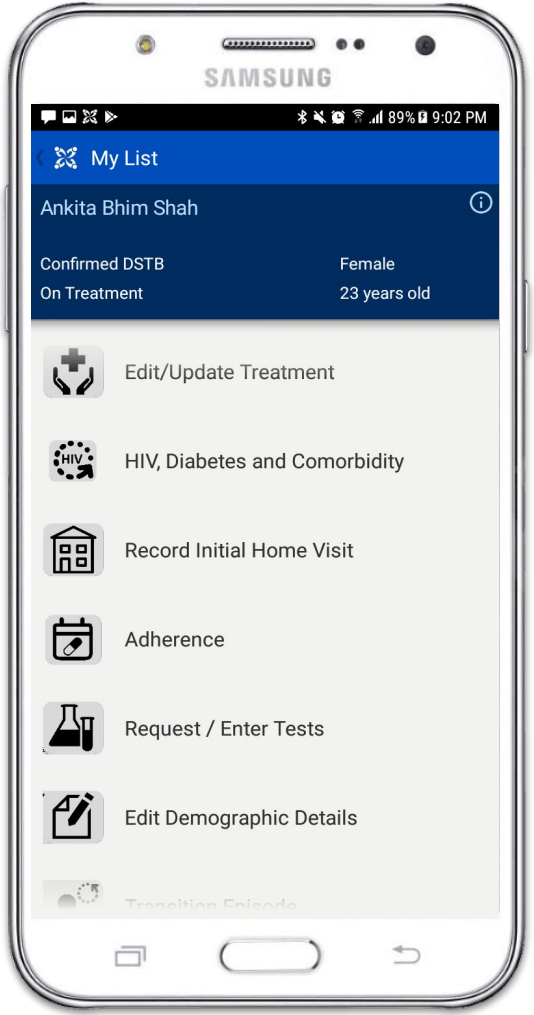
Jan'14 | Feb'14 | Mar'14 | Apr'14 | May'14 | June | July | Aug | Sept'14 | Oct'14 | Nov'14 | Dec'14 | Jan'15 | Feb'15 | Mar'15 | Apr'15 | May'15 | June'15

Mark in the boxes: ✓ = directly observed; ○ = Unsupervised; O = drugs not taken

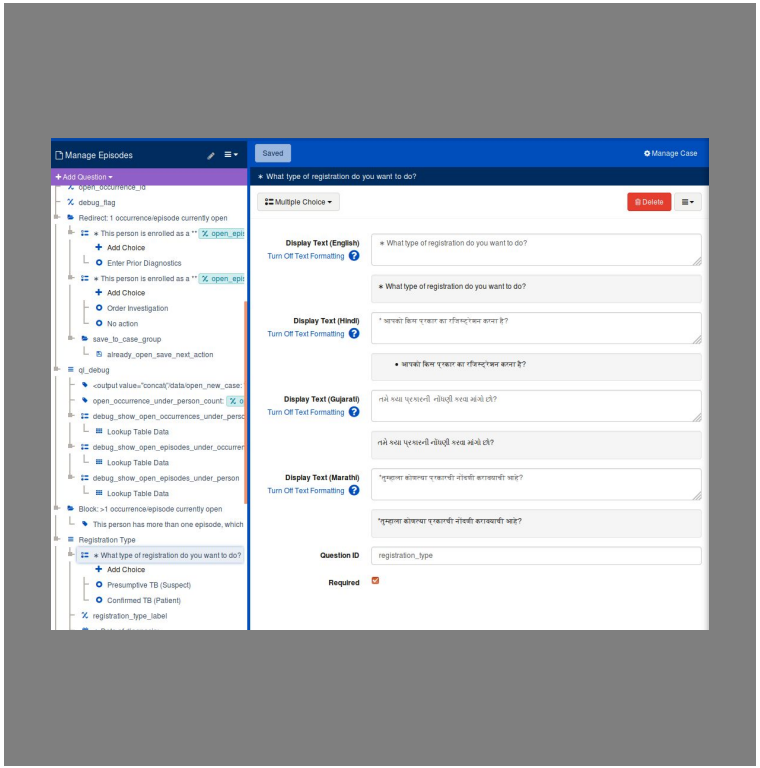
Recording of CP should start from fresh line.

→



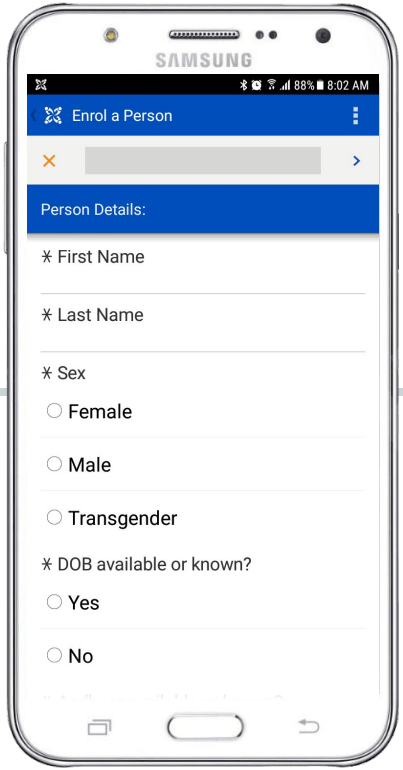

SAMSUNG
89% 9:02 PM
My List
Ankita Bhim Shah
Confirmed DSTB
On Treatment
Female
23 years old
Edit/Update Treatment
HIV, Diabetes and Comorbidity
Record Initial Home Visit
Adherence
Request / Enter Tests
Edit Demographic Details

dimagi
CommCare

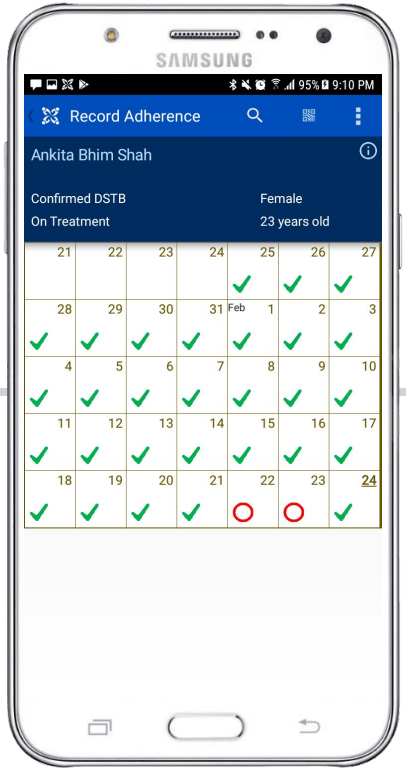

Manage Episodes
Saved
Manage Case
Add Question
What type of registration do you want to do?
Multiple Choice
Delete
Display Text (English)
Turn Off Text Formatting
What type of registration do you want to do?
Display Text (Hindi)
Turn Off Text Formatting
आपको किस प्रकार का रजिस्ट्रेशन करना है?
Display Text (Gujarati)
Turn Off Text Formatting
Display Text (Marathi)
Turn Off Text Formatting
Question ID
registration_type
Required
Add Choice
Enter Prior Diagnostics
Order Investigation
No action
save_to_case_group
already_open_save_next_action
Lookup Table Data
Block: >1 occurrence/episode currently open
This person has more than one episode, which
Registration Type
Presumptive TB (Suspect)
Confirmed TB (Patient)
registration_type_label

SAMSUNG
10:15 PM
eNikshay
Manage Enrolment
Start Treatment Card
Tests
Adherence
Edit/Update Treatment Details
Referrals
Edit Demographic Details
Record Initial Home Visit

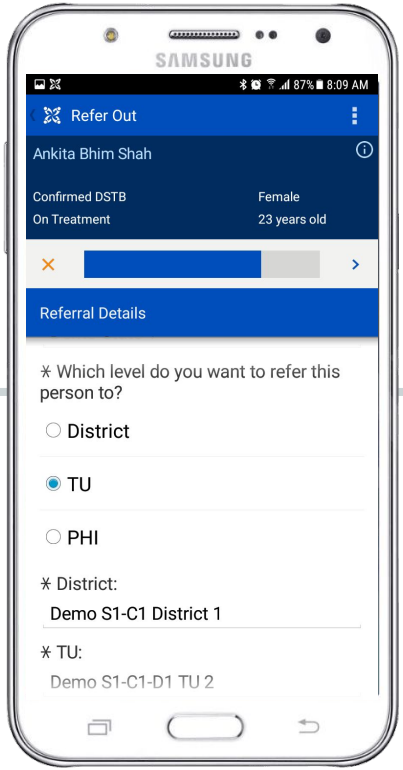
We bring **powerful products and services** to projects like these to **amplify the effectiveness** of the workforce on the ground



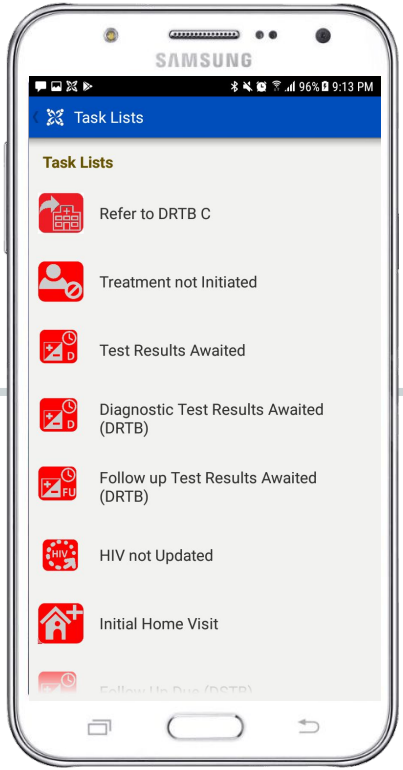
Registration



Adherence Monitoring



Referrals

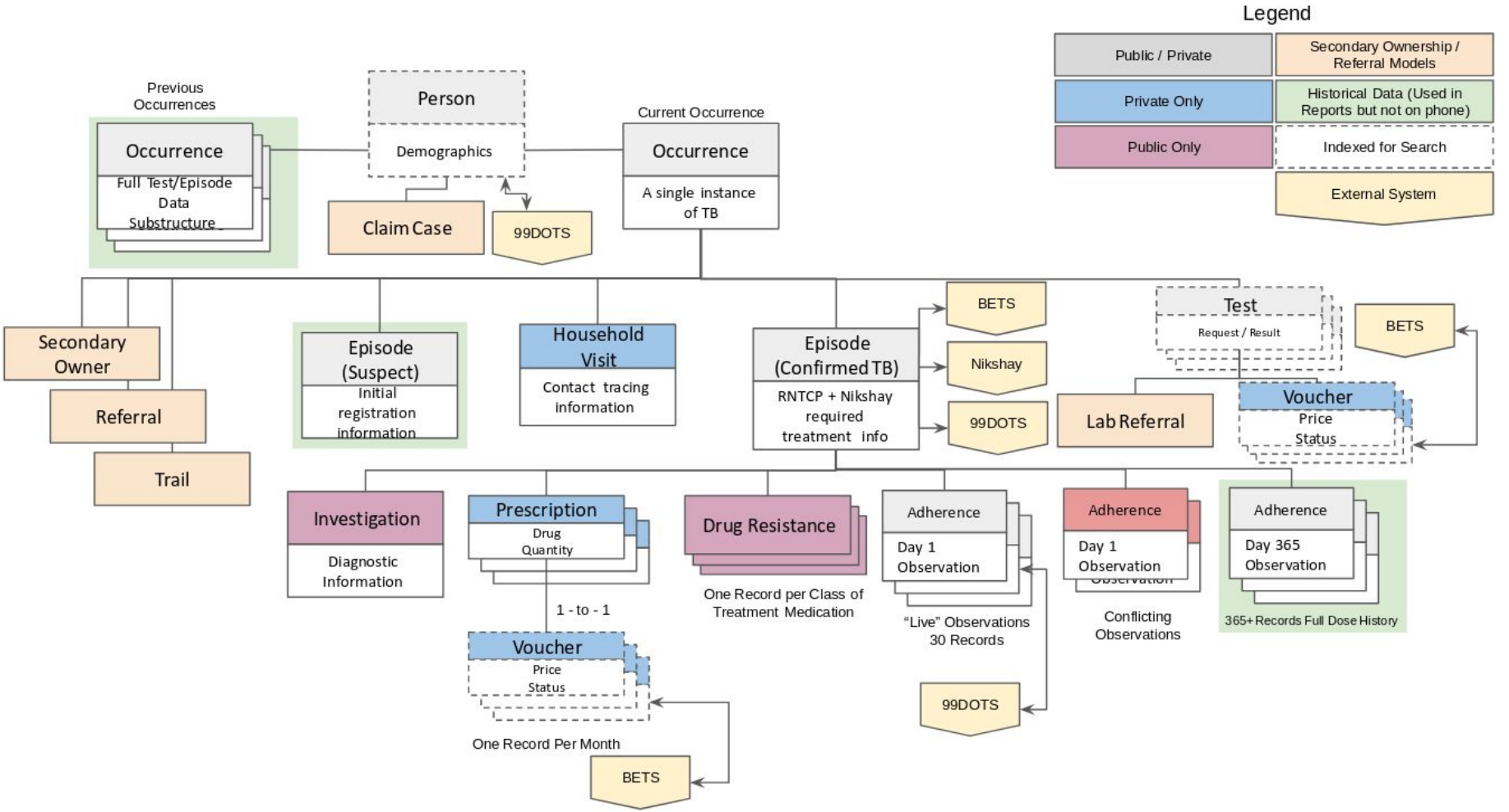


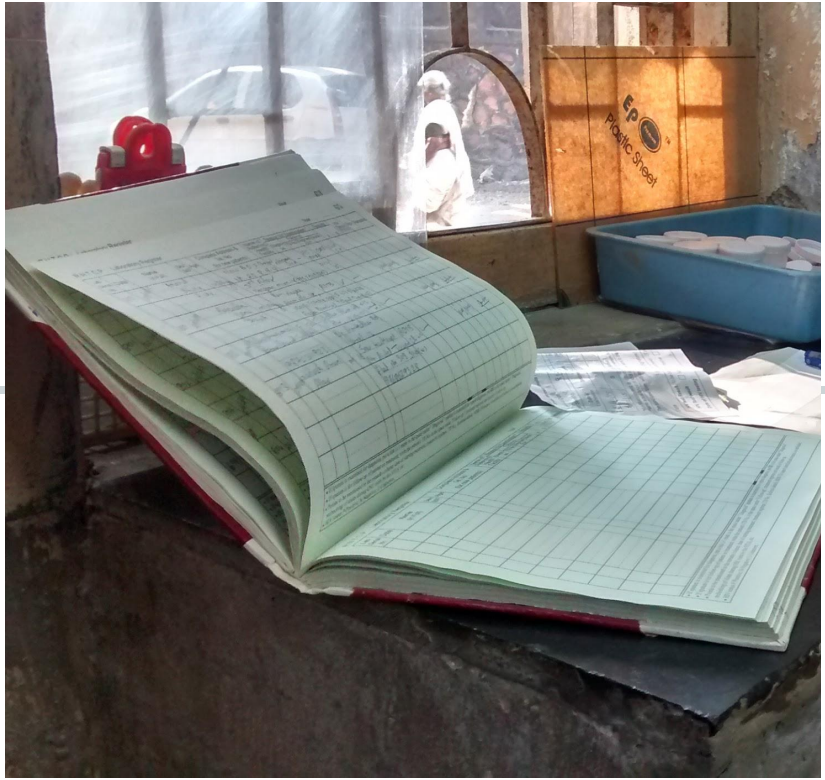
Task Lists

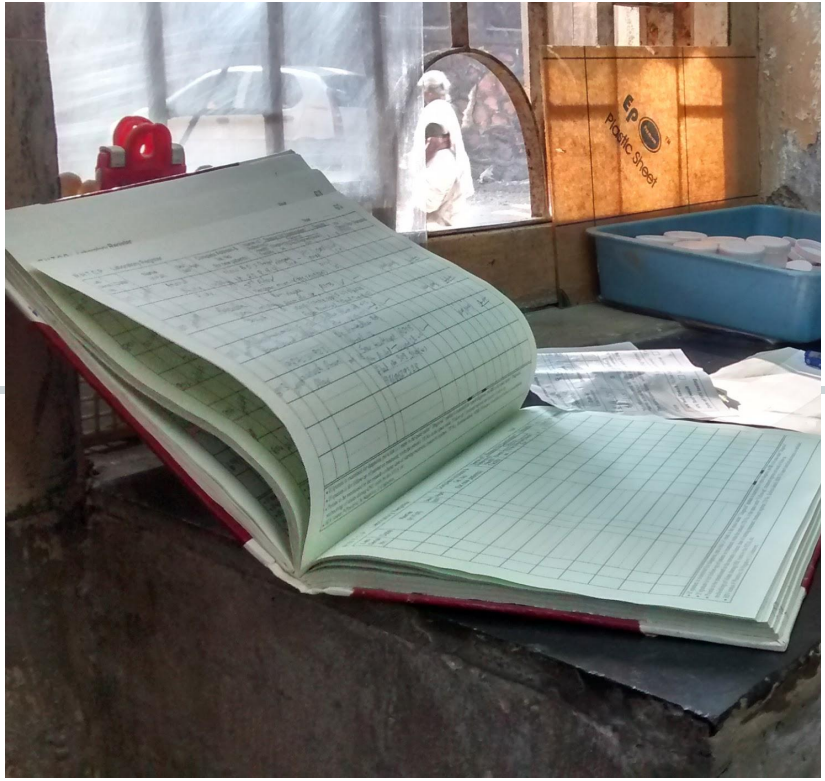
TB Notification Register Private (Patient Case List) (2B)

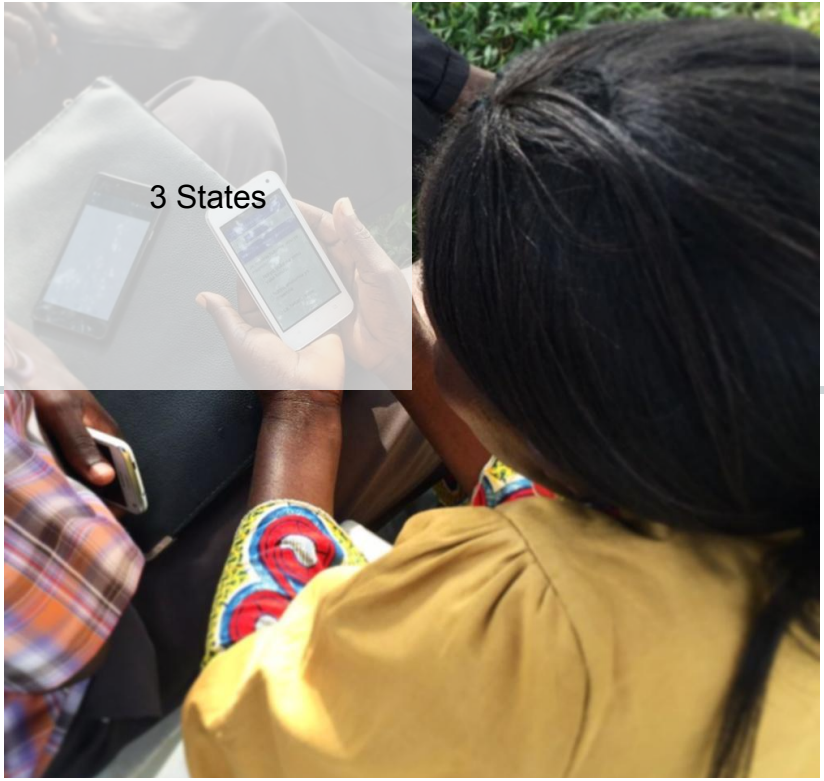
TB Notification number/ Nikshay ID	eNikshay ID	Name	Age	Sex	Complete Address	PIN Code	Aadhaar No.	Mobile/Landline number	Key Population	Episode Type	Type of Patient	Site	Date of Diagnosis	Diagnosing Facility	Treating PHI	Treating TU Name	Case Definition
0-00128	600-141-31	[redacted]	35	male	[redacted]	400086		919920996407		Confirmed DSTB (Patient)			2017-12-25	Tejal Shah - 103261	Tejal Shah - 103261		Microbiologically confirmed
0-00129	600-151-65	[redacted]	60	female	[redacted]	400075		919892270343		Confirmed DSTB (Patient)			2017-12-28	Tejal Shah - 103261	Tejal Shah - 103261		Clinically Diagnosed
0-00130	600-157-03	[redacted]	45	male	[redacted]	400075		919224193171		Confirmed DSTB (Patient)			2018-01-02	Tejal Shah - 103261	Tejal Shah - 103261		Clinically Diagnosed
0-00131	600-162-81	[redacted]	15	female	[redacted]	400077		918976542722		Confirmed DSTB (Patient)			2018-01-04	Tejal Shah - 103261	Tejal Shah - 103261		Microbiologically confirmed
0-00133	600-164-84	[redacted]	22	male	[redacted]	400063		918424443132		Confirmed DSTB (Patient)			2017-11-03	dr Vasant Nagvekar - 333761	dr Vasant Nagvekar - 333761		Microbiologically confirmed

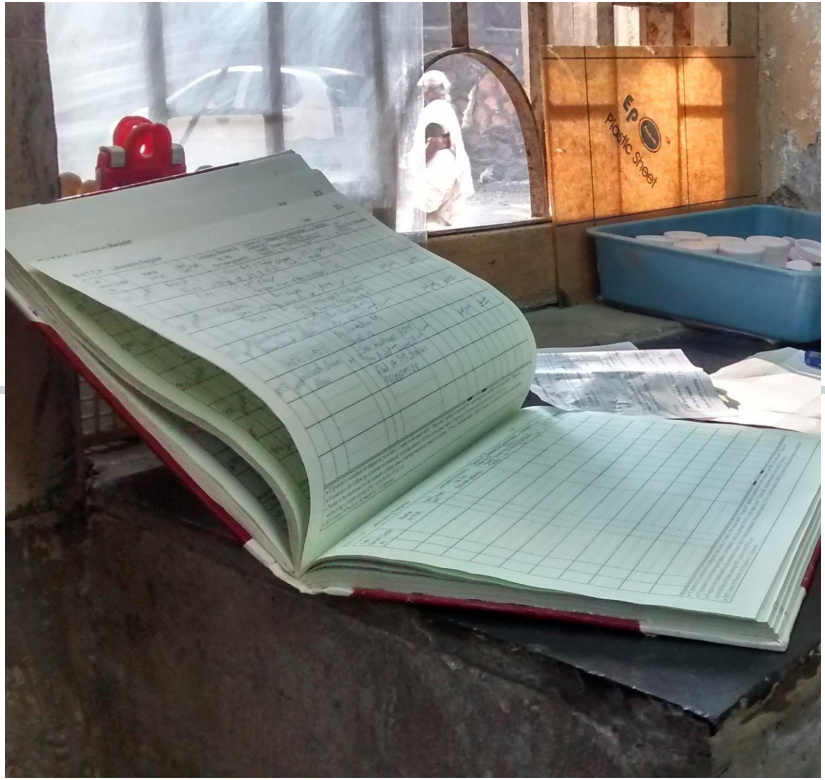
Aggregated data

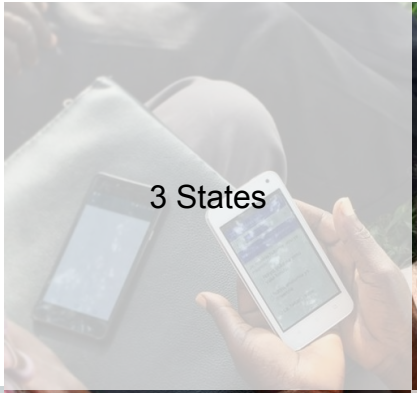

Legend
Public / Private
Secondary Ownership / Referral Models
Private Only
Historical Data (Used in Reports but not on phone)
Public Only
Indexed for Search
External System
Previous Occurrences
Occurrence
Full Test/Episode Data Substructure
Person
Demographics
Claim Case
99DOTS
Current Occurrence
Occurrence
A single instance of TB
Secondary Owner
Referral
Trail
Episode (Suspect)
Initial registration information
Household Visit
Contact tracing information
Episode (Confirmed TB)
RNTCP + Nikshay required treatment info
BETS
Nikshay
99DOTS
Test
Request / Result
BETS
Lab Referral
Voucher
Price
Status
Investigation
Diagnostic Information
Prescription
Drug
Quantity
1 - to - 1
Voucher
Price
Status
One Record Per Month
BETS
Drug Resistance
One Record per Class of Treatment Medication
Adherence
Day 1 Observation
"Live" Observations 30 Records
99DOTS
Adherence
Day 1 Observation
Conflicting Observations
Adherence
Day 365 Observation
365+ Records Full Dose History


Ep
Plastic Sheet


Plastic Sheet


3 States



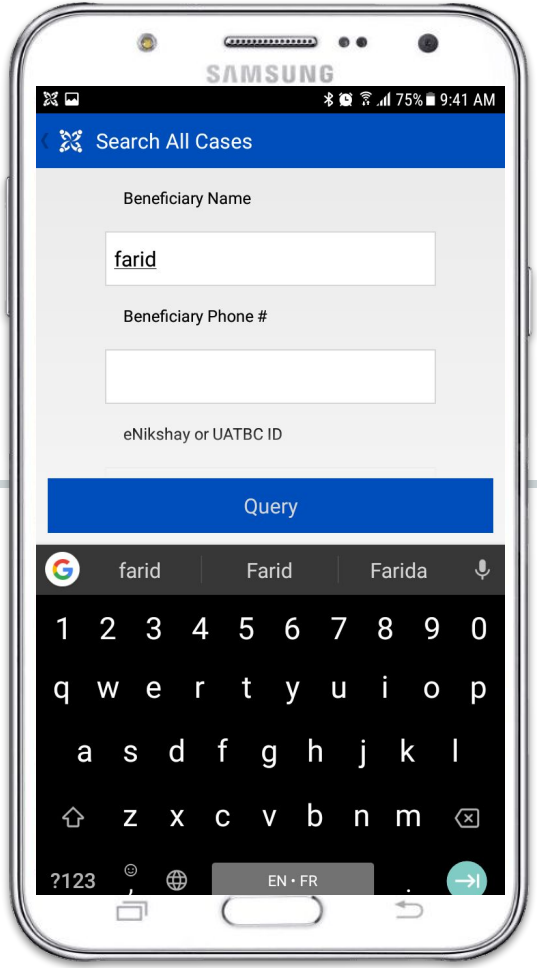


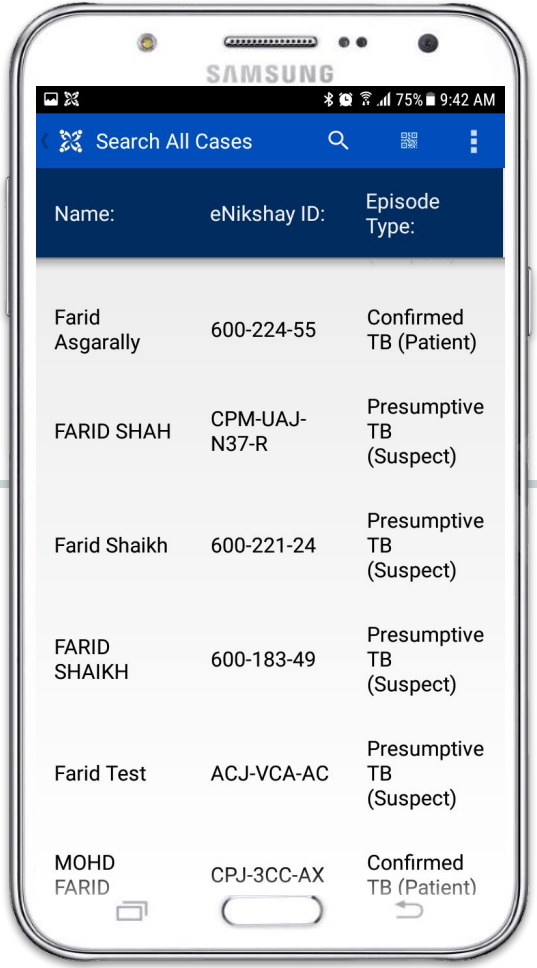
150,000 Patients &
Suspected Cases

CommCare

+

elastic


SAMSUNG
75% 9:41 AM
Search All Cases
Beneficiary Name
farid
Beneficiary Phone #
eNikshay or UATBC ID
Query
farid
Farid
Farida
1 2 3 4 5 6 7 8 9 0
q w e r t y u i o p
a s d f g h j k l
z x c v b n m
?123
EN • FR


SAMSUNG
75% 9:42 AM
Search All Cases
Name:
eNikshay ID:
Episode Type:
Farid Asgarally
600-224-55
Confirmed TB (Patient)
FARID SHAH
CPM-UAJ-N37-R
Presumptive TB (Suspect)
Farid Shaikh
600-221-24
Presumptive TB (Suspect)
FARID SHAIKH
600-183-49
Presumptive TB (Suspect)
Farid Test
ACJ-VCA-AC
Presumptive TB (Suspect)
MOHD FARID
CPJ-3CC-AX
Confirmed TB (Patient)

Case Search and Claim

Search Properties

Search against the following case properties.

Case Property	Display Text	
name	Beneficiary Name	✖
phone_number	Beneficiary Phone #	✖
commcare_custom_value__person_id	eNikshay or UATBC ID	✖
physical_beneficiary_id	Physical Beneficiary ID	✖

+ Add search property

Case Search and Claim

Search Properties

Search against the following case properties.

Case Property	Display Text	
name	Beneficiary Name	✖
phone_number	Beneficiary Phone #	✖
commcare_custom_value__person_id	eNikshay or UATBC ID	✖
physical_beneficiary_id	Physical Beneficiary ID	✖

+ Add search property

Default Search Properties

Filter based on a specific value of any case property. These are applied to every search and are hidden from the user.

Case Property	Value (XPath expression)	
enrolled_in_private	'true'	✖
commcare_custom_search_query	2	✖

+ Add default search property

Search and Claim Options

Display condition

If this XPath expression evaluates to false, the case search button will not be displayed. If no expression is given, the button will always be displayed.

Change case search query addition

Domain: enikshay

Name: Private Sector Beneficiary Ids

Query addition:

```
{
 "include_if":"__person_id",
 "bool":{
  "must":[
   {
    "bool":{
     "should":[
      {
       "nested":{
        "path":"case_properties",
        "query":{
         "filtered":{
          "filter":{
           "term":{
            "case_properties.key":"person_id_flat"
           }
          },
          "query":{
           "match":{
            "case_properties.value":{
             "query":"__person_id",
             "fuzziness":"0"
```

More information about how this field is used can be found here. This ES documentation may also be useful. This JSON will

DATA DICTIONARY

- commcare-user
- adherence
- auto_closing_stub
- case
- commcare-case-claim
- drtb-hiv-referral
- drug_resistance
- dummy
- episode
- household_visit
- investigation
- lab_referral
- occurrence
- person
- prescription
- referral
- secondary_owner
- test
- trail
- voucher

episode

Export to Excel | Import from Excel

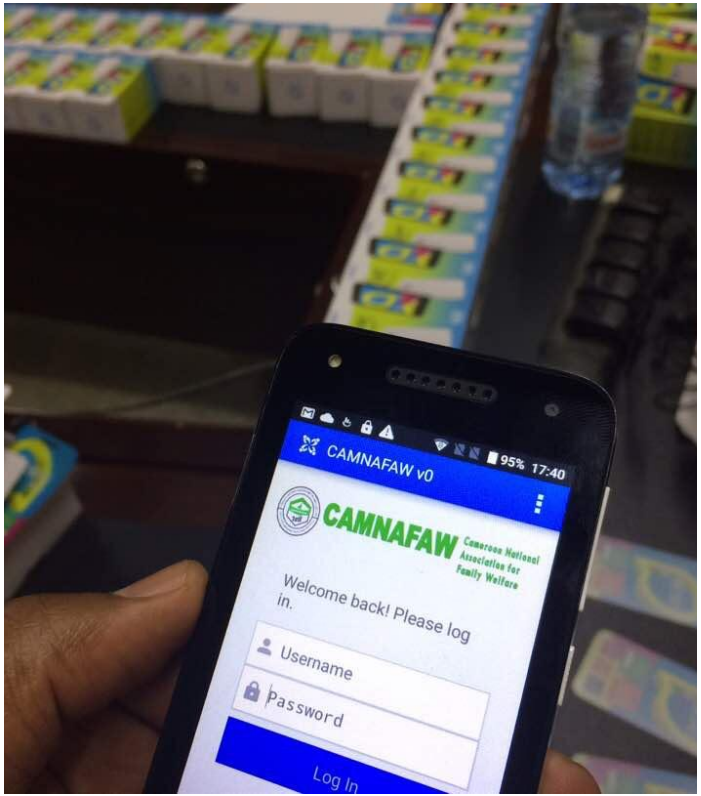
Case Property	Data Type
No Group	Case Property Group
adherence_cp_date_followup_test_expected	Date
adherence_cp_date_followup_threshold_crossed	Plain
adherence_cp_date_threshold_crossed	Plain
adherence_date_100_doses	Date
adherence_date_25_doses	Date
adherence_date_outcome_due	Date
adherence_ip_date_followup_test_expected	Date
adherence_ip_date_threshold_crossed	Date

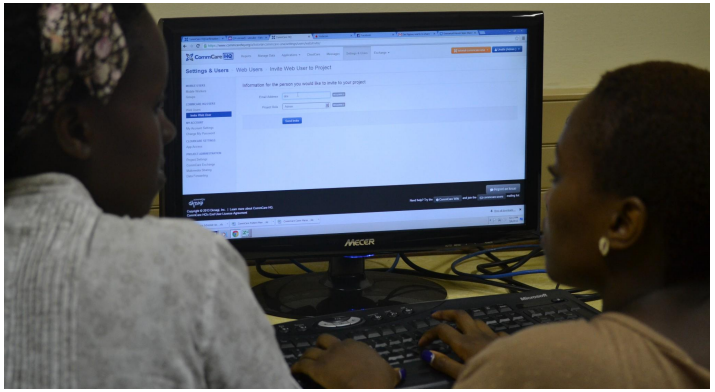
```
"properties": {
      ...
      "case_properties": {
            "type": "nested",
            "dynamic": false,
            "properties": {
                  "key": {"type": "string"},
                  "value": {"type": "string"}
            }
      }
      ...
}
```

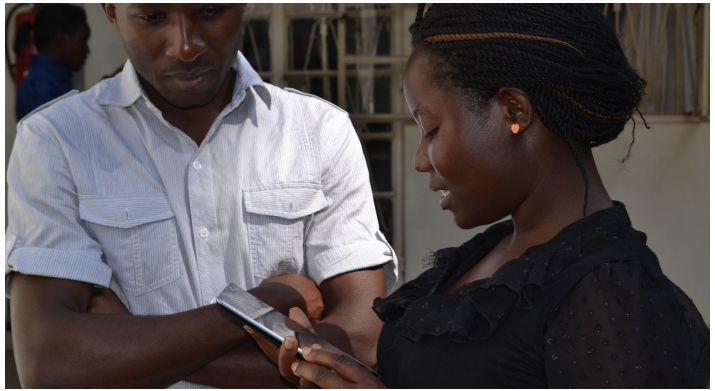
```
"properties": {
      ...
      "case_properties": {
            "type": "nested",
            "dynamic": false,
            "properties": {
                  "key": {"type": "string"},
                  "value": {"type": "string"}
            }
      }
      ...
}
```

```
key = 'beneficiary_id'
value = 'CEF-D3B-22B'
```

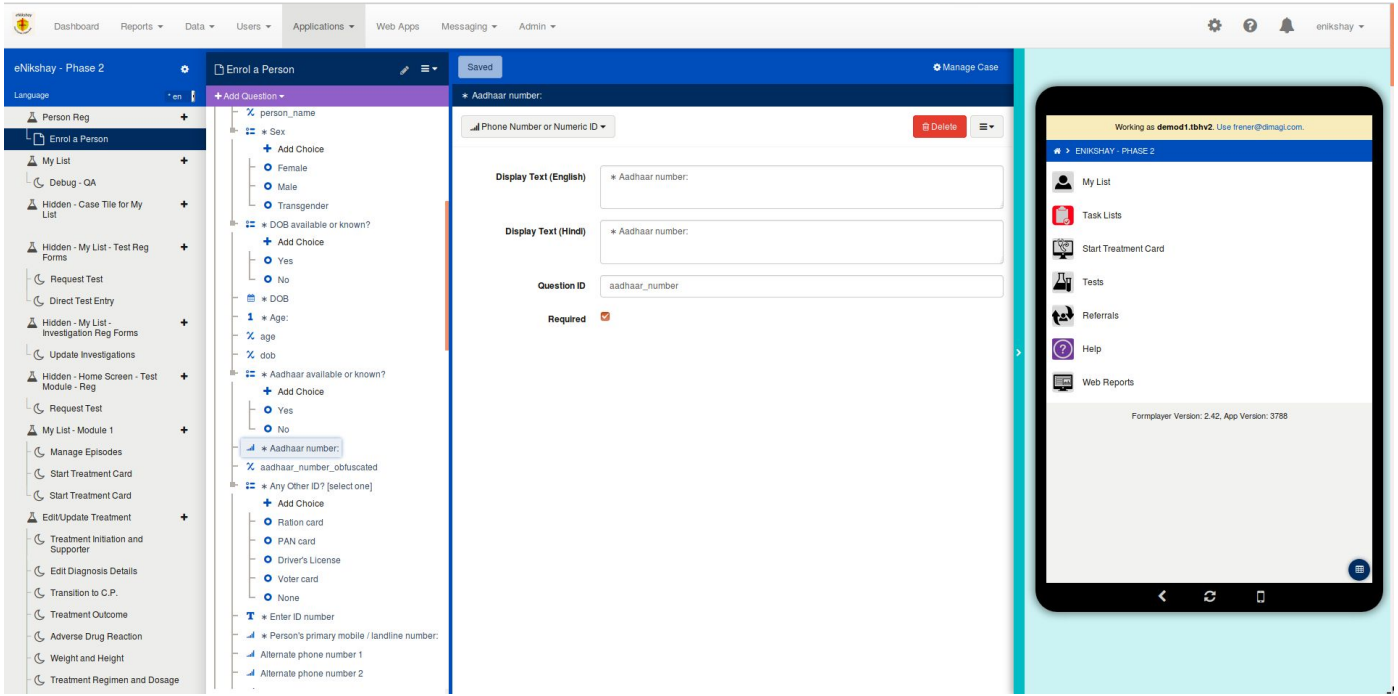
CommCare


CAMNAFAW v0
95% 17:40
CAMNAFAW
Cameroon National Association for Family Welfare
Welcome back! Please log in.
Username
Password
Log In


CommCare
Settings & Users
Web Users
Invite Web User to Project
MECER



CommCare



www.commcarehq.org

dimagi
Thank You!
frener@dimagi.com
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