



DASHTRICKS

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MOTIVATION

Millions die each year from preventable disease. Research shows that improvements in vaccine delivery have helped dramatically, but there are still large amounts of people that go unvaccinated despite available resources.

PROBLEM STATEMENT

Quality data is neither easily accessible nor properly utilized to assist District Immunization Managers in making proper management decisions.



CURRENT METHODS

- Paper based registry and ledgers
- In person checking of refrigerators
- Excel-based tools
 - District Vaccine Data Management Tool
 - Stock management tool

BARRIERS

Time constraints

“He does not have time to spend on the surveillance and monitoring and evaluation tasks that he knows are important.”

- Abdu from the PATH Personas document

BARRIERS

District Managers have limited resources for transportation. Worse, district managers find themselves bringing vaccine supplies to health facilities that don't need them.



EFFECTS

District managers feel like they are in a “silo” and have no systematic access to the health problems in their area. Thus a missed opportunity for motivation and evidence-based leadership

DESIGN CHALLENGE

Visualize data to help district manager realize problems and make decisions intuitively and correctly.

DESIGN SOLUTION

DashTricks is an Android tablet app for monitoring key Immunization indicators in health facilities in a particular district

DESIGN SOLUTION

Key Indicators

- Immunization Coverage
- Vaccine Stock Levels
- Cold Chain Performance

Target Audience

- District Immunization Managers

RELATED WORK

The Better Immunization through Data (BID) Initiative seeks to broadly address the issues that exist in data collection and usage for immunization through both technical and nontechnical solutions.

RESEARCH

Expert Interviews

Fahad – Graduate Student, UW

Brian – PATH

Henry – PATH

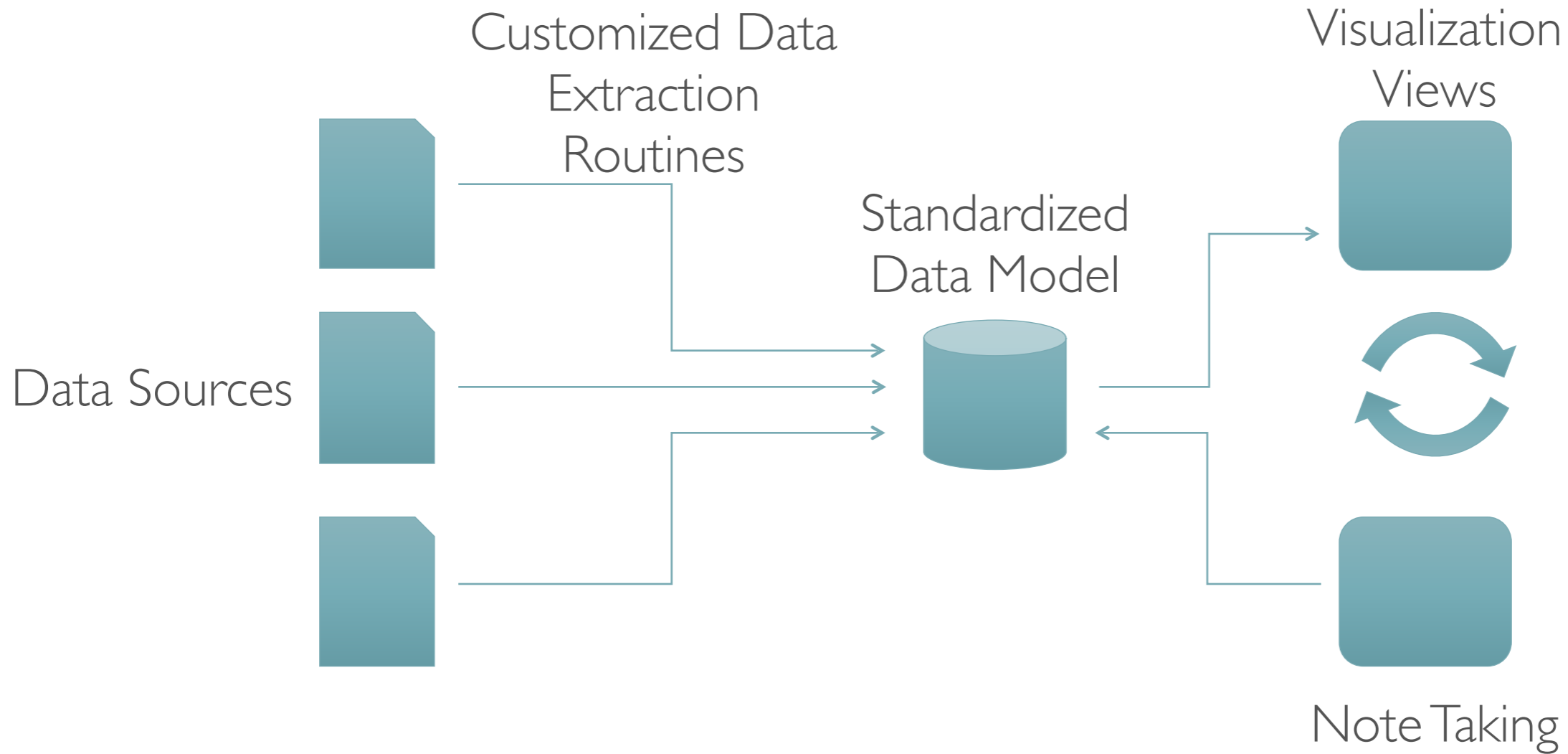
Analysis

BID Personas Document

Stock Management Tool

District Vaccine Data Management Tool

ARCHITECTURE



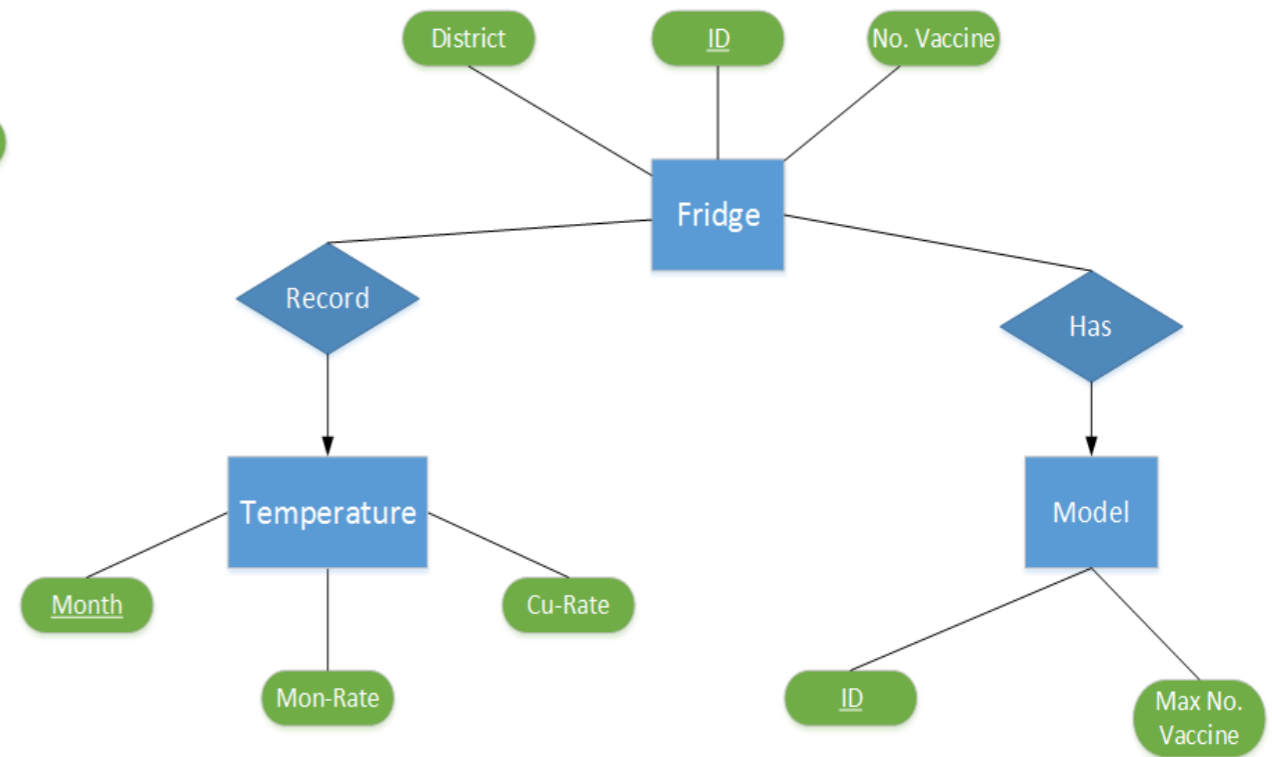
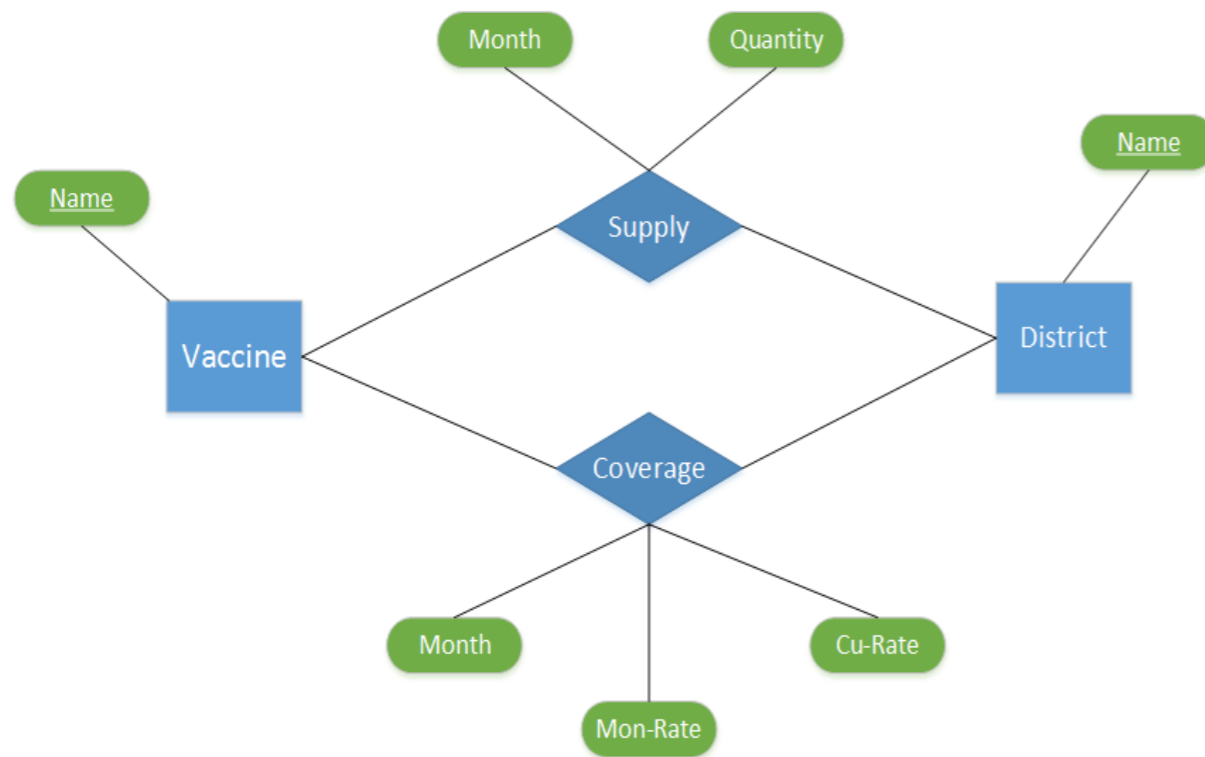
ARCHITECTURE

Visualization: D3.js in Android WebView

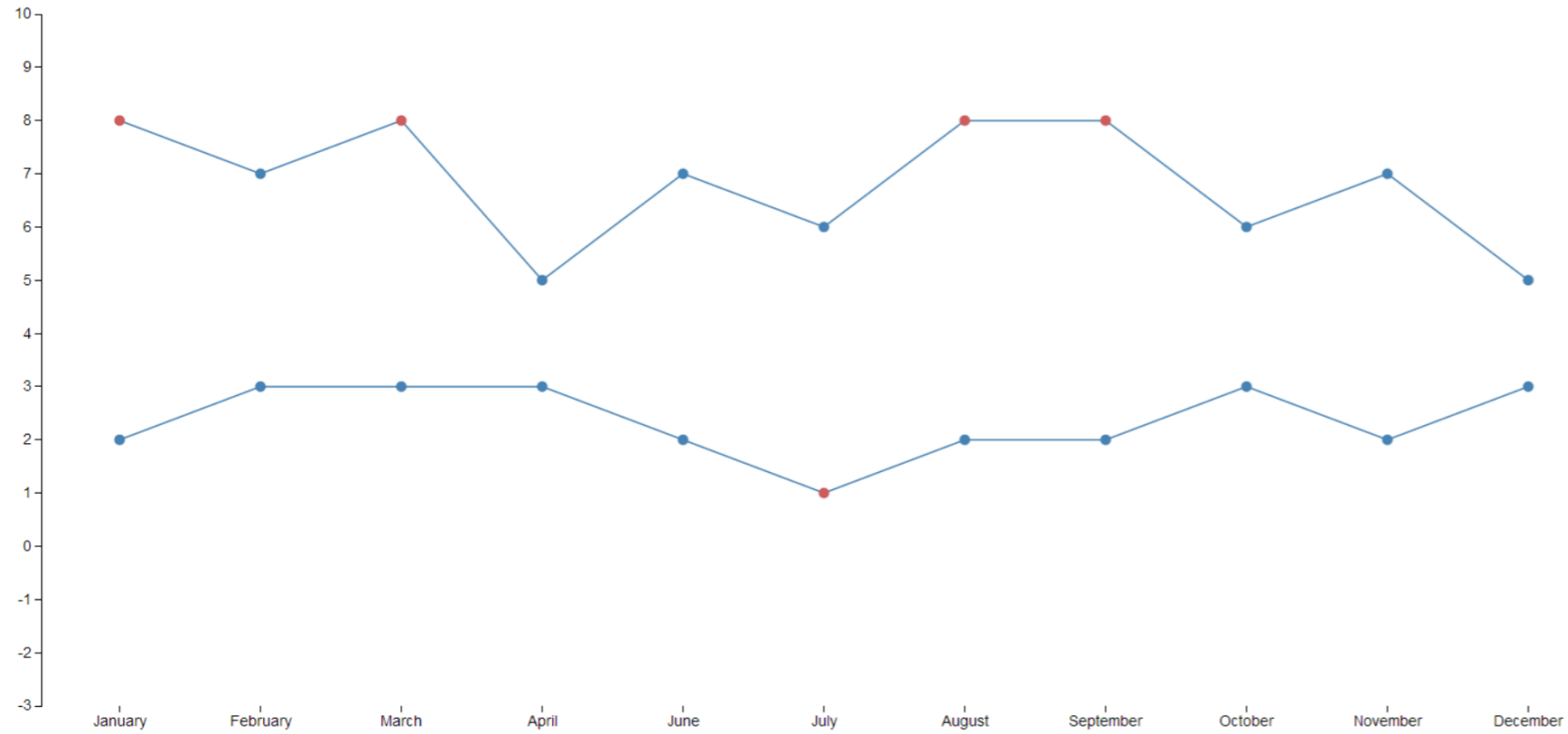
Data Model: Local SQLite3 database managed by Java Data Access Objects

Data Source: Parsing routines over DVDMT and SMT for Tanzania 2012 data, with goal to eventually incorporate DHIS-2

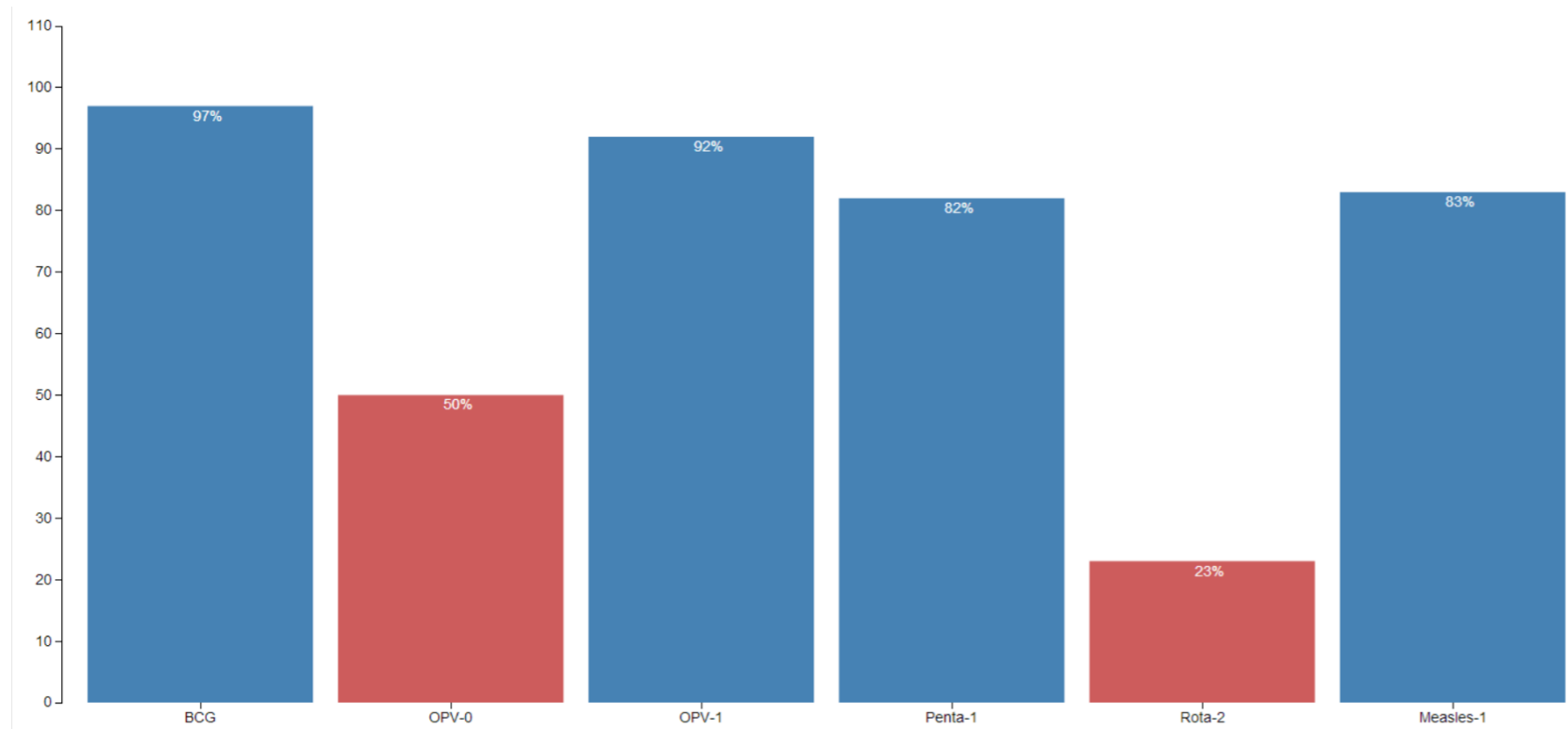
ARCHITECTURE



EXAMPLE D3 CHARTS



Min/Max
temperatures



Coverage Rate
Per Vaccine

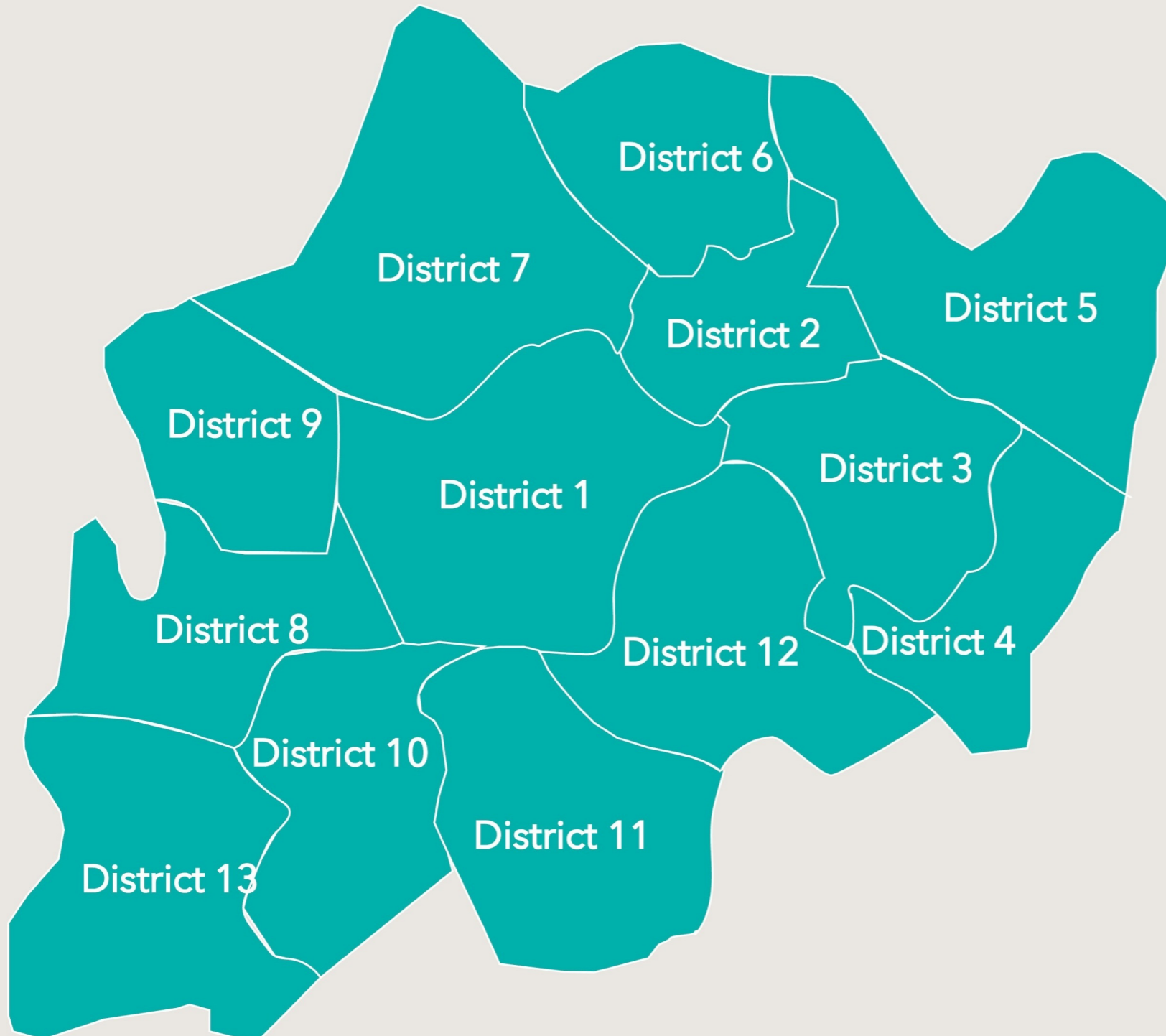
SAMPLE WORKFLOWS

1. Show the Vaccine Supply Usage trends for a particular facility.
2. Note that they are regularly over-supplied for the BCG tuberculosis vaccine.
3. Adjust plans accordingly.

1. Open the map of coverage rates for all facilities.
2. See an outlier data-point of 140%.
3. Flag this data-point for further review.

1. Review cold chain temperature data for district.
2. Use comparison between districts to discover consistently greater success in a nearby district in avoiding temp alarms.
3. Contact other district manager to determine their practices.
4. Learn and adjust plans/facilities as best as possible.

Region 1



Summary



Immunization Coverage

Vaccine Stock Level

Cold Chain

District 1



Summary



Facility 1

Immunization Coverage

Vaccine Stock Level

Cold Chain



Facility 1

Immunization Coverage

Monthly Data

Time Series

Flagged Data



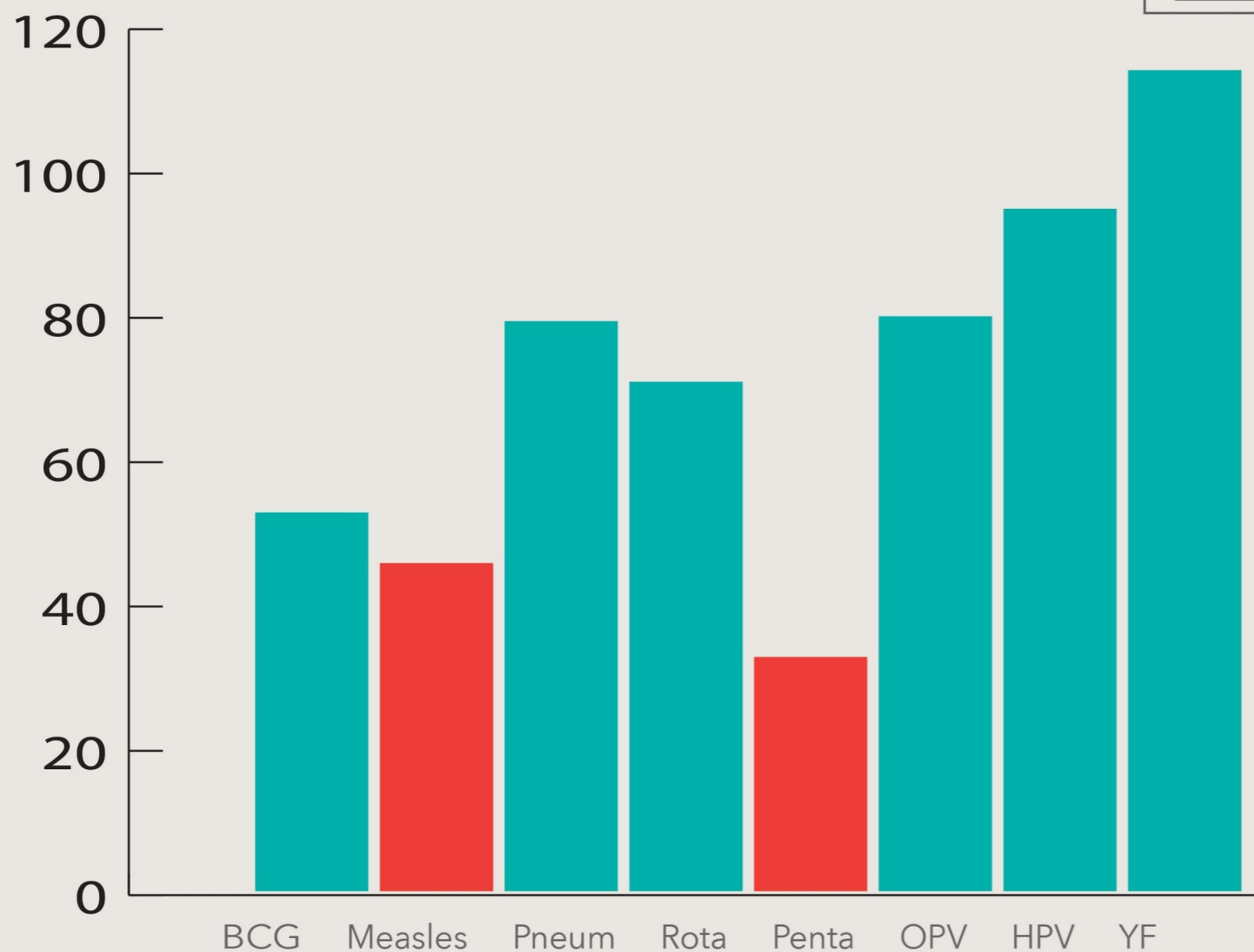
Immunization Coverage

Vaccine Stock Level

Cold Chain

Immunization Coverage

FEBRUARY 

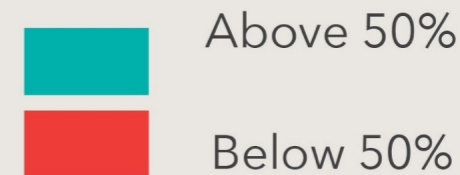


Facility 1

Surviving infants
0-11 months: **5204**

Total population of
pregnant women: **77906**

Total new born/month: **6492**





Immunization Coverage

Vaccine Stock Level

Cold Chain

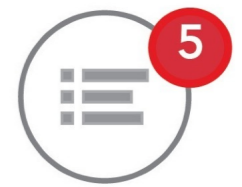
Immunization Coverage



Penta

Facility 1

Surviving infants 0-11 months:	5204
Total new born/month	6492
Vaccine administered:	1717
Drop out rate:	26%



Immunization Coverage

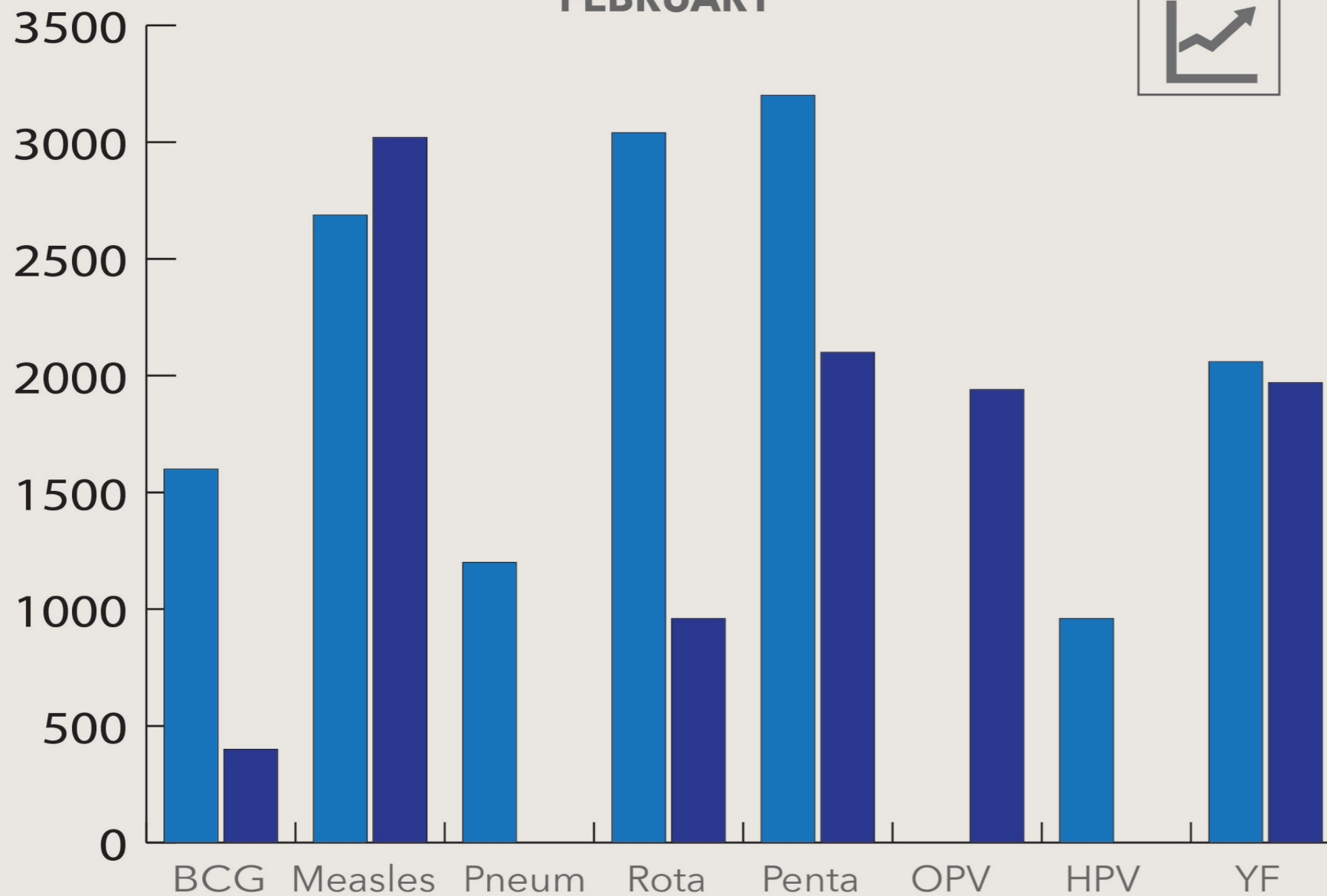
Vaccine Stock Level

Cold Chain

Vaccine Stock Level





FEBRUARY



Facility 1

STOCK OUTS

Pnuem
HPV

-  Recieved
-  Stock at the end

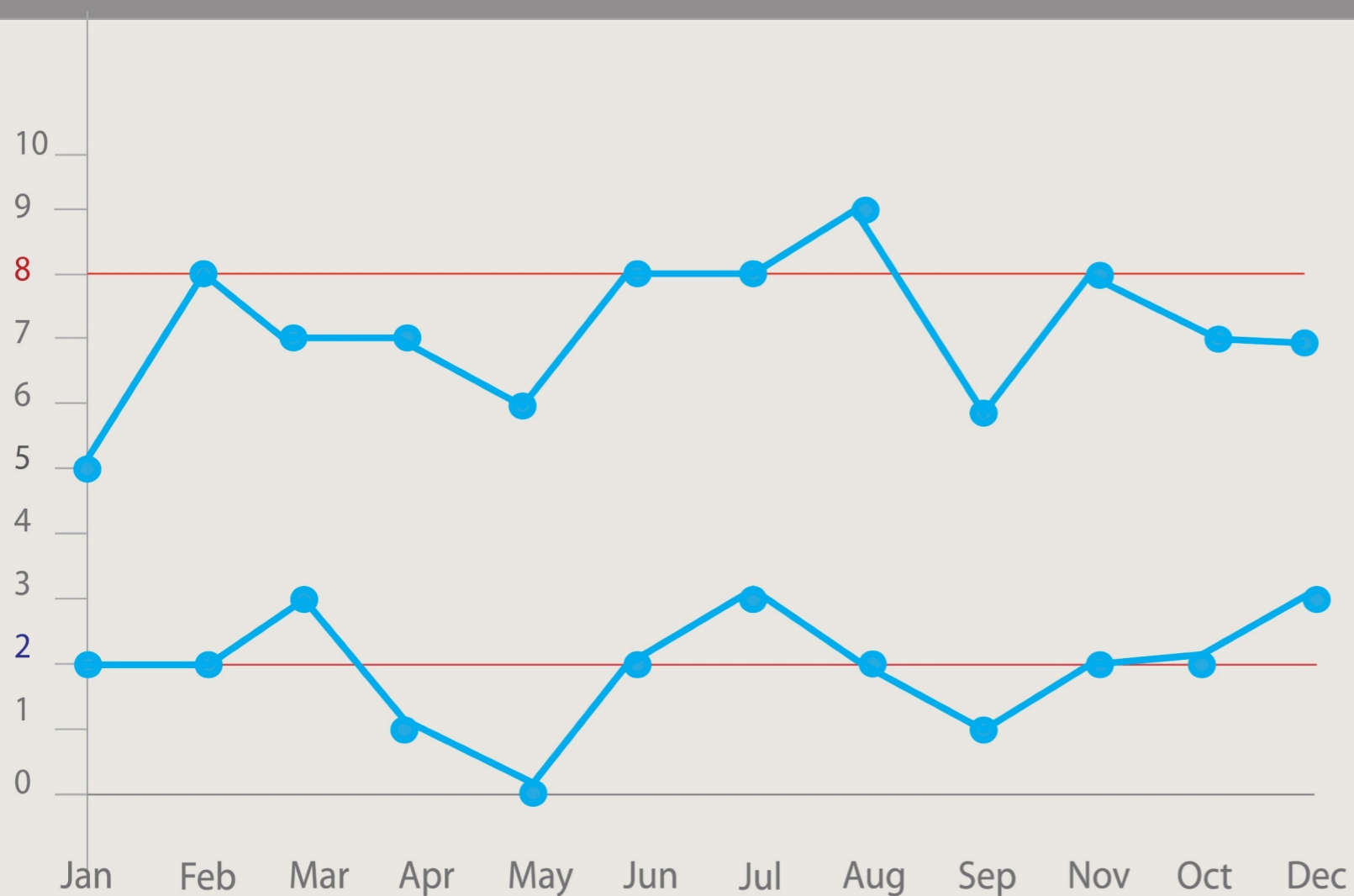


Immunization Coverage

Vaccine Stock Level

Cold Chain

Cold chain



Facility 1

Minimum temp recorded - 0

Maximum temp recorded - 9

EVALUATION

Conduct User Tests

Include backside tools to measure which screens are used the most

Feedback from Experts (you!)

TIMELINE

Week											
	0	1	2	3	4	5	6	7	8	9	10
Android	Hello, World'		Create base app layout, work on D3 charts		Inject D3 charts, data into layout	Develop notes feature, flagging feature, others as desired					
Model	Create simple DAO	Draft Database Design/ Standards			Adjust and finalize Database/DAO Design						
Design			Hi-Fi Prototype		Refinement	Add design elements to android			Poster Design		
Testing		Concept Testing			Local User Testing			Field Testing			
Deliverable					Specification			VI	V2	Final	Poster/Presentation