



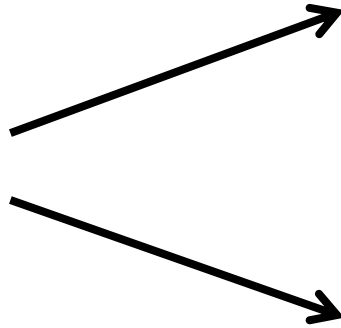
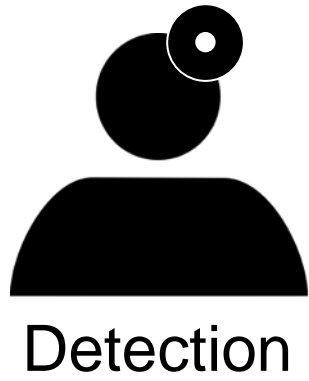
Non-Linear IMCI

Aligning diagnostics with clinical practice

Bryan Eastes – Bennett Ng – Adam Rule

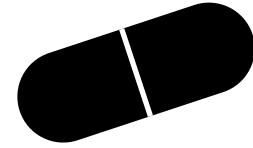
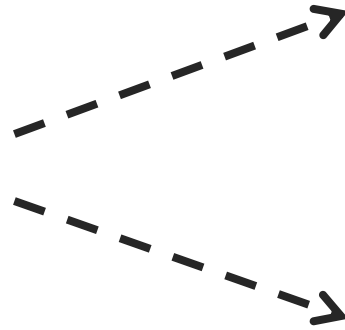
10 million children

1. Pneumonia
2. Diarrhea
3. Malaria





Detection



Treatment



Referral

INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS

CHILD AGED 2 MONTHS UP TO 5 YEARS

ASSESS AND CLASSIFY THE SICK CHILD

Assess, Classify and Identify Treatment

Check for General Danger Signs.....	2
Then Ask About Main Symptoms:	
Does the child have cough or difficult breathing?.....	2
Does the child have diarrhoea?.....	3
Does the child have fever?.....	4
Does the child have an ear problem?.....	5
Then Check for Malnutrition and Anaemia.....	6
Then Check the Child's Immunization Status.....	7
Assess Other Problems.....	7

TREAT THE CHILD

Teach the mother to give oral drugs at home:

Oral Antibiotic.....	8
Ciprofloxacin.....	8
Iron.....	9
Co-artemether.....	9
Bronchodilator.....	9

Teach the Mother to Treat Local Infections at Home

Clear the ear by dry wicking and give eardrops.....	10
Treat for mouth ulcers and thrush.....	10
Soothe throat, relieve cough with safe remedy.....	10
Treat eye infection.....	10

Give Preventive Treatments in Clinic

Vitamin A.....	11
Mebendazole.....	11

Give Emergency Treatment in Clinic only

Quinine for severe malaria.....	12
Intramuscular Antibiotic.....	12
Diazepam for convulsions.....	12
Treat low blood sugar.....	13

TREAT THE CHILD, continued

Give Extra Fluid for Diarrhoea and Continue Feeding

Plan A: Treat for Diarrhoea at Home.....	14
Plan B: Treat for Some Dehydration with ORS.....	14
Plan C: Treat for Severe Dehydration Quickly.....	15

Give Follow-up Care

Pneumonia.....	16
Dysentery.....	16
Persistent diarrhoea.....	16
Malaria.....	17
Fever- malaria unlikely.....	17
Measles with eye or mouth complications.....	17
Ear Infection.....	18
Feeding problem.....	18
Anaemia.....	18
Pallor.....	18
Very Low Weight.....	18
Severe uncomplicated malnutrition.....	18

COUNSEL THE MOTHER

Assess the feeding of sick infants.....	19
Feeding Recommendations.....	20
Counsel the mother about feeding Problems.....	21
Counsel the mother about her own health.....	22
Advise mother to increase fluids during illness.....	23
Advise mother when to return to health worker.....	23
Advise mother when to return immediately.....	23

SICK YOUNG INFANT AGED UP TO 2 MONTHS

ASSESS, CLASSIFY AND TREAT THE SICK YOUNG INFANT

Assess, Classify and Identify Treatment

Check for Severe Disease and Local Infection.....	24
Then check for Jaundice.....	25
Then ask: Does the young infant have diarrhoea?.....	26
Then check for Feeding Problem or Low Weight for Age.....	27
Then check the young infant's immunization status.....	28
Assess Other Problems.....	28

Treat the Young Infant and Counsel the Mother

Intramuscular antibiotics.....	29
Treat the young infant to prevent low blood sugar.....	29
Keep the young infant warm on the way to hospital.....	30
Oral antibiotic.....	30
Treat local infections at home.....	31
Correct positioning and attachment for breastfeeding.....	32
Teach mother how to express breast milk.....	32
Teach mother how to feed by cup.....	33
Teach the mother to keep the low weight infant warm at home.....	33
Advise mother to give home care to the young infant.....	34

Give Follow-up Care for the Sick Young Infant

Local Bacterial Infection.....	35
Jaundice.....	35
Diarrhoea.....	35
Feeding Problem.....	36
Low Weight for age.....	37
Thrush.....	37

Recording Forms: Sick Child.....	38
Sick young infant.....	39

Does the child have diarrhoea?

IF YES, ASK:

- For how long?
- Is there blood in the stool?

LOOK AND FEEL:

- Look at the child's general condition. Is the child:
 - Lethargic or unconscious?
 - Restless and irritable?
- Look for sunken eyes.
- Offer the child fluid. Is the child:
 - Not able to drink or drinking poorly?
 - Drinking eagerly, thirsty?
- Pinch the skin of the abdomen. Does it go back:
 - Very slowly (longer than 2 seconds)?
 - Slowly?

for
DEHYDRATION

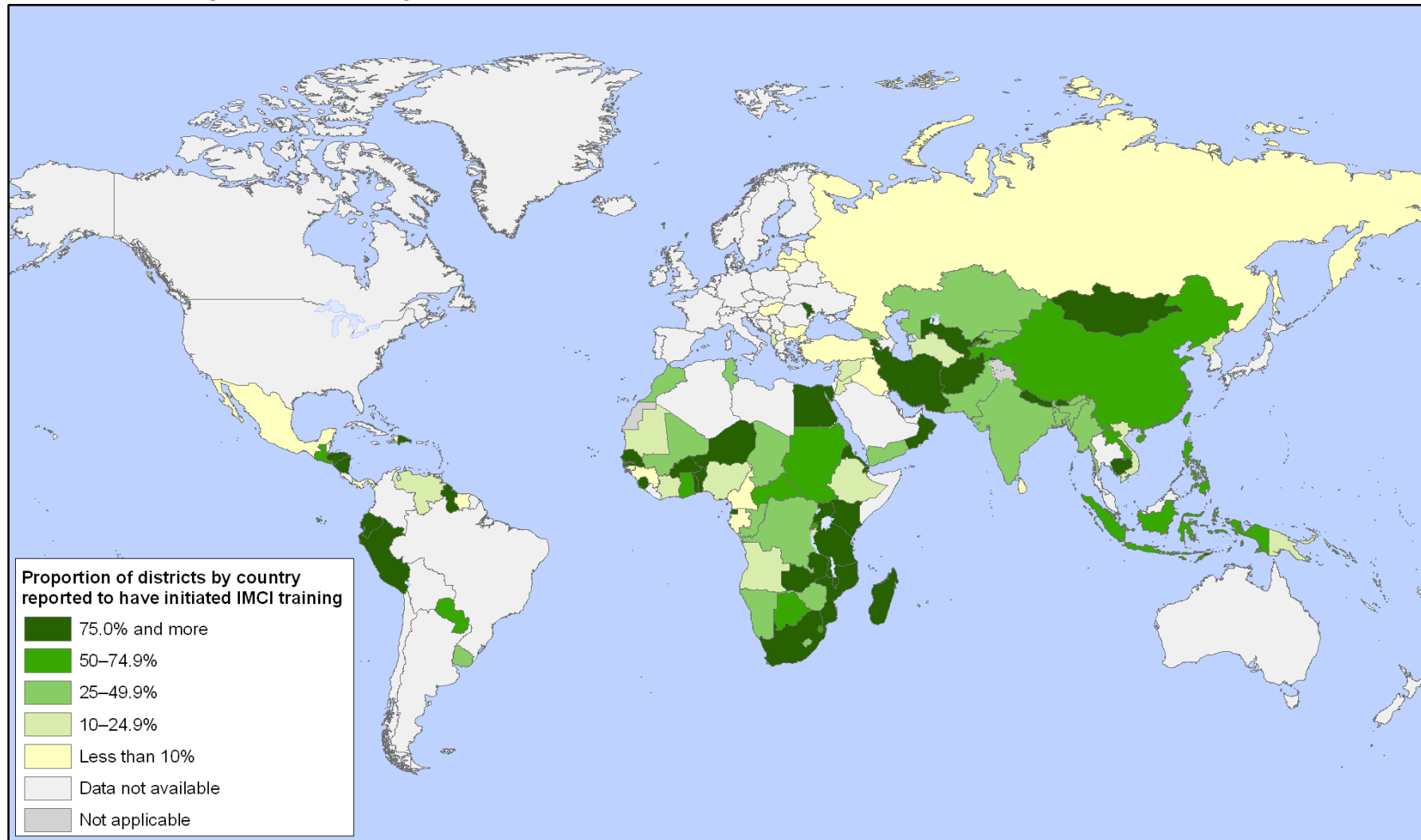
**Classify
DIARRHOEA**

and if diarrhoea for
14 days or more

and if blood
in stool

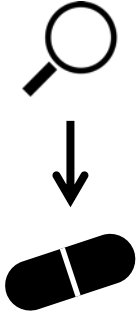
Two of the following signs: <ul style="list-style-type: none"> • Lethargic or unconscious • Sunken eyes • Not able to drink or drinking poorly • Skin pinch goes back very slowly. 	SEVERE DEHYDRATION	➤ If child has no other severe classification: <ul style="list-style-type: none"> - Give fluid for severe dehydration (Plan C) OR If child also has another severe classification: <ul style="list-style-type: none"> - Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way - Advise the mother to continue breastfeeding ➤ If child is 2 years or older and there is cholera in your area, give antibiotic for cholera
Two of the following signs: <ul style="list-style-type: none"> • Restless, irritable • Sunken eyes • Drinks eagerly, thirsty • Skin pinch goes back slowly 	SOME DEHYDRATION	➤ Give fluid, zinc supplements and food for some dehydration (Plan B) ➤ If child also has a severe classification: <ul style="list-style-type: none"> - Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way Advise the mother to continue breastfeeding ➤ Advise mother when to return immediately ➤ Follow-up in 5 days if not improving.
Not enough signs to classify as some or severe dehydration	NO DEHYDRATION	➤ Give fluid, zinc supplements and food to treat diarrhoea at home (Plan A) ➤ Advise mother when to return immediately ➤ Follow-up in 5 days if not improving.
• Dehydration present	SEVERE PERSISTENT DIARRHOEA	➤ Treat dehydration before referral unless the child has another severe classification ➤ Refer to hospital
• No dehydration	PERSISTENT DIARRHOEA	➤ Advise the mother on feeding a child who has PERSISTENT DIARRHOEA ➤ Give multivitamins and minerals (including zinc) for 14 days ➤ Follow up in 5 days
• Blood in the stool	DYSENTERY	➤ Give ciprofloxacin for 3 days ➤ Follow-up in 2 days

Estimated coverage of IMCI training, as of December 2009

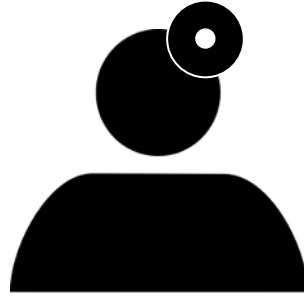




Issues with IMCI



Workflow



Expertise

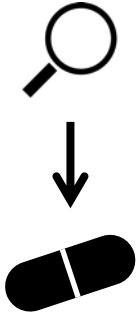


Localization

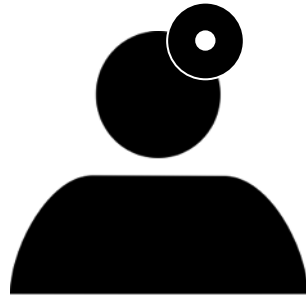


Training

Our Work



Workflow



Expertise



Localization



Training

Paper Workflow



Pneumonia Exam



Pneumonia Treatment



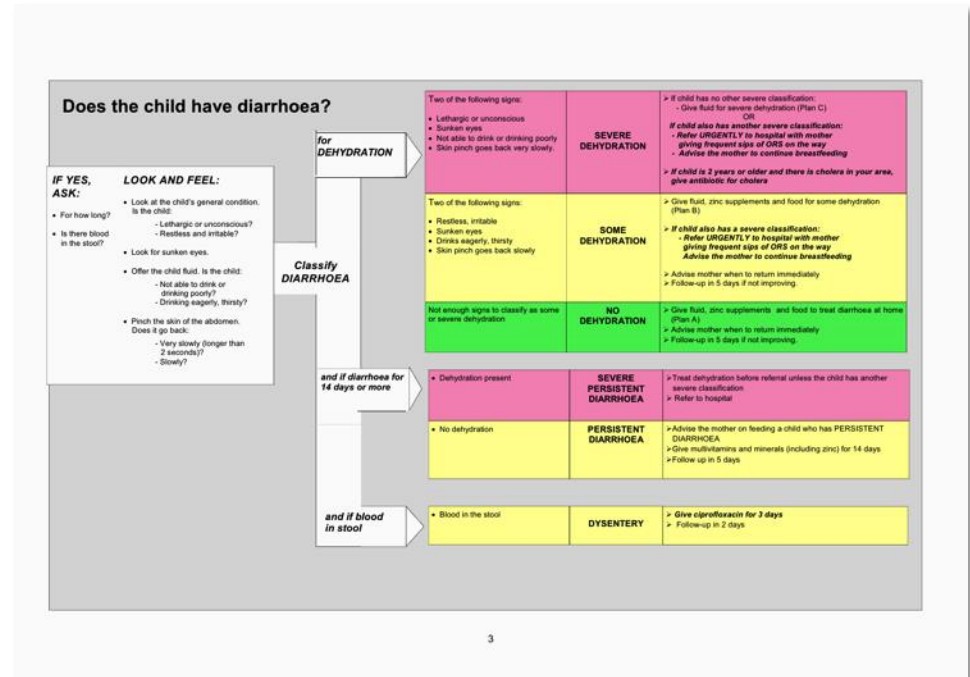
Dehydration Exam



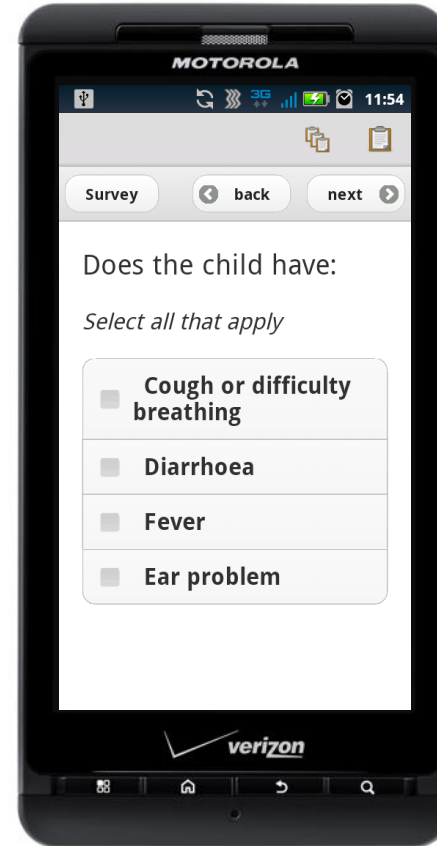
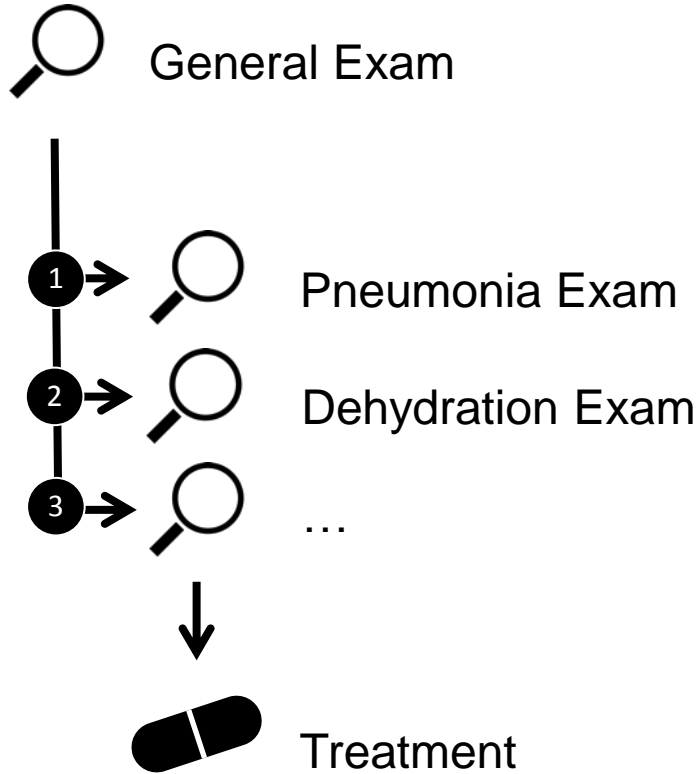
Dehydration Treatment



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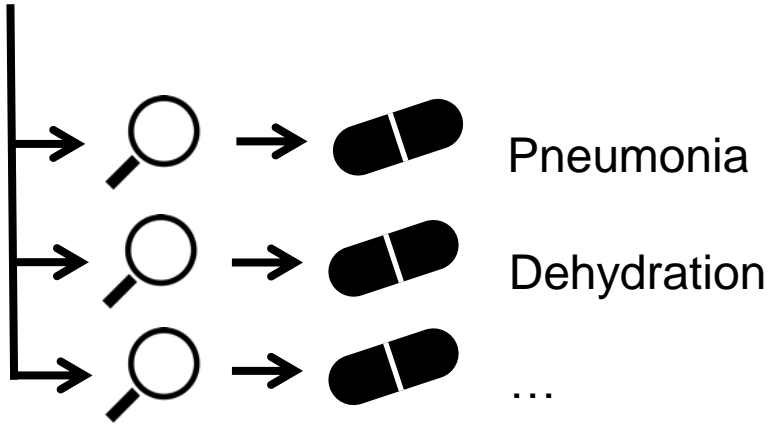
Current Digital Workflow



Future Workflow



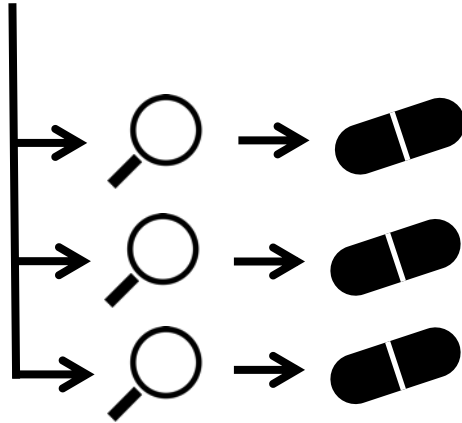
General Exam



Future Workflow



General Exam



Pneumonia

Dehydration

...

TurboTax Free Edition

TurboTax Help | Create User ID | Exit

Federal Refund \$0

Home Personal Info Federal Taxes State Taxes Wrap-Up Print & File Flags Tools

Wages & Income Deductions & Credits Other Tax Situations Federal Review Error Check

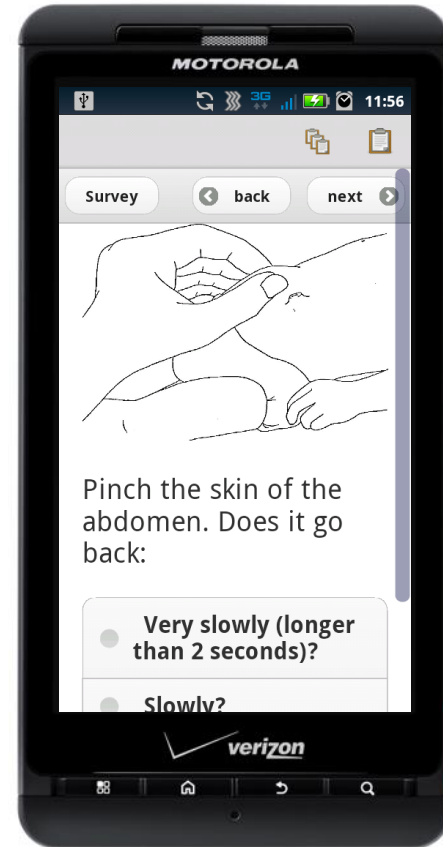
Your Income

Select **Start** next to the topic you want to visit. When you're finished entering all of your income, select **Done with Income**.

	2009 Amount	
W-2 Income		
Wages and Salaries Learn More		<input type="button" value="Update"/>
Interest and Dividends		
Interest on 1099-INT Learn More	(not visited)	<input type="button" value="Start"/>
Dividends on 1099-DIV Learn More		<input type="button" value="Update"/>
1099-OID, Foreign Accounts Learn More	(not visited)	<input type="button" value="Start"/>
Interest from Seller-Financed Loans Learn More	(not visited)	<input type="button" value="Start"/>
Tax-Exempt Dividends Learn More	(not visited)	<input type="button" value="Start"/>
Other Common Income		
State and Local Refunds on 1099-G Learn More	(not visited)	<input type="button" value="Start"/>
Unemployment, Other Income on 1099-G Learn More	(not visited)	<input type="button" value="Start"/>
Income from Form 1099-MISC Learn More	(not visited)	<input type="button" value="Start"/>
Sale of Home (gain or loss) Learn More	(not visited)	<input type="button" value="Start"/>

Job Aids

- Breath Counts
- Diagnostic Tests
- Medical Terminology



Related Work

E-IMCI

- DeRenzi, et al. (2008)
- Increased Adherence



IMNCI on ODK Survey

- Waylon Brunette



Contacts

Jim Black MD

- Experience as clinician in Mozambique
- Currently developing diagnostic peripherals for Series 40 Nokia phones

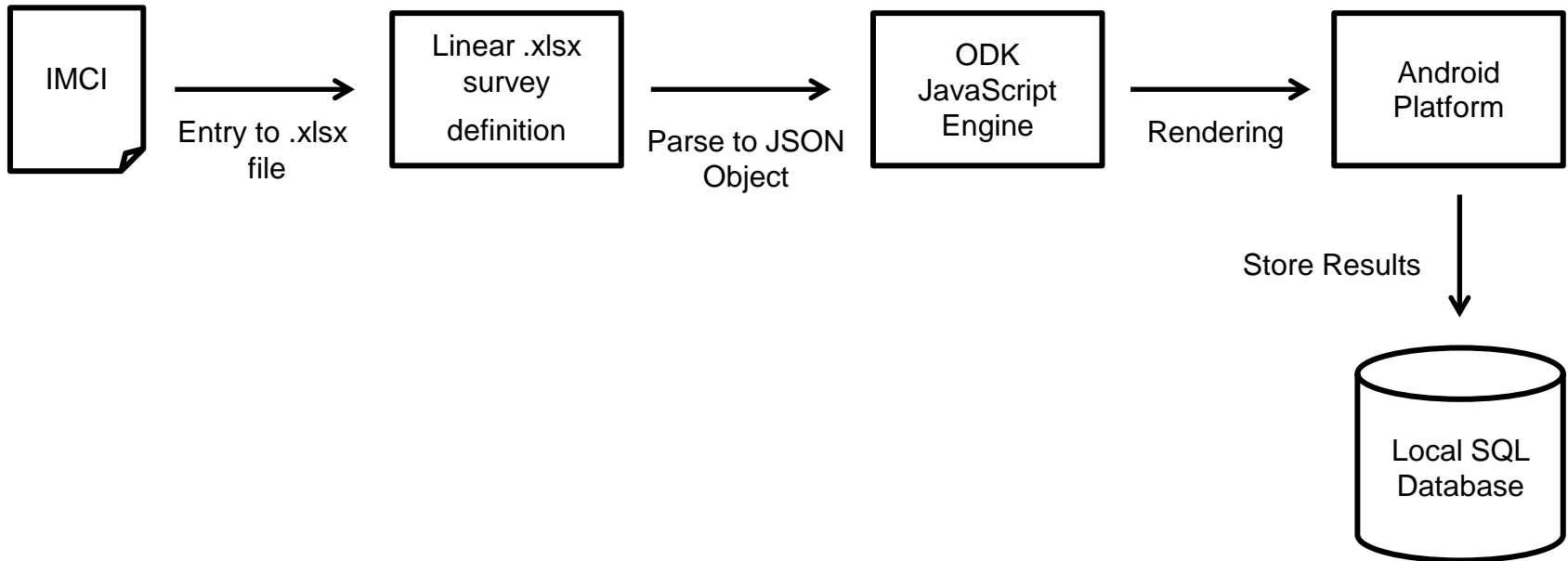


Amy Ginsburg MD

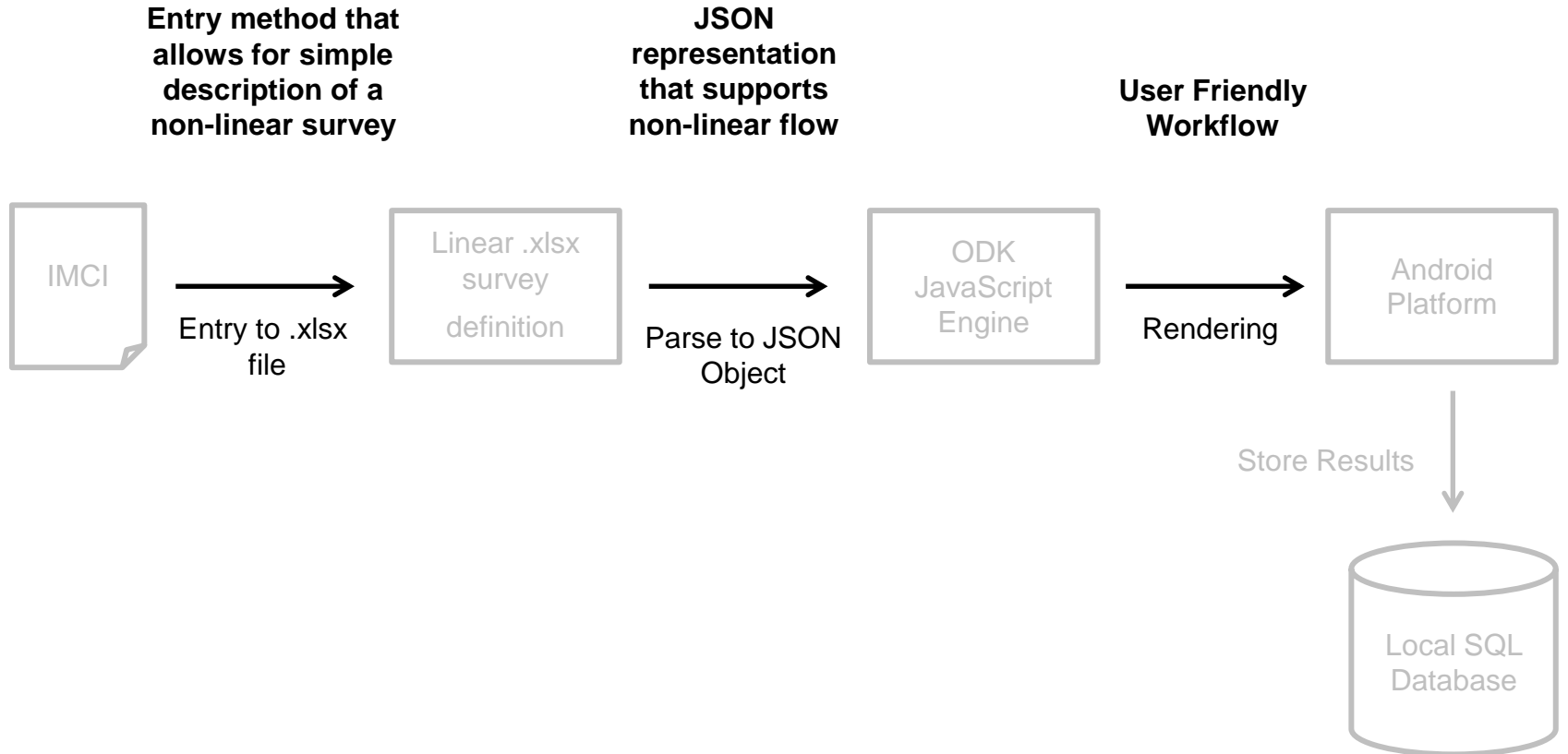
- Extensive experience with IMCI
- Has close contacts with health workers in India



ODK Architecture



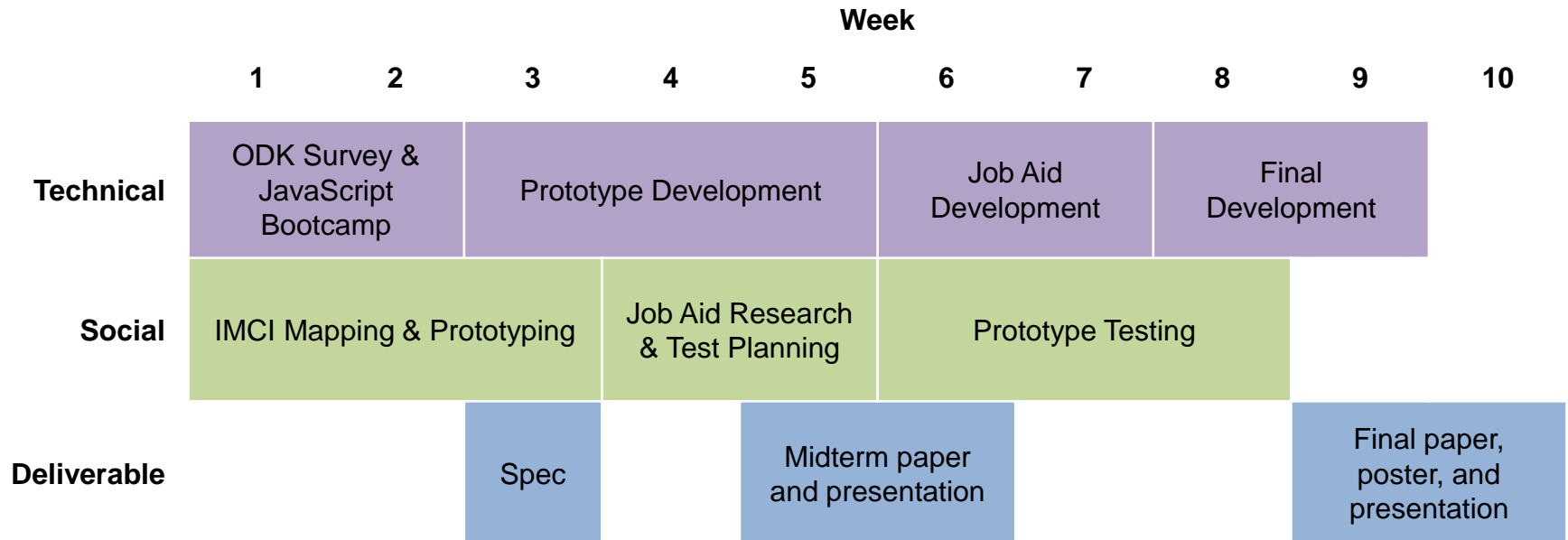
Our Work



Design and Evaluation

- Formative Usability Testing
 - Run through scenario cases using our tool
- Participants
 - MDs and nurses in town (PATH)
 - UW Students as a fallback

Plan for Next Quarter



Questions?