Non-linear IMCI
Realigning diagnostics with clinical practice
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Problem

Motivation: 10 million children die each year before their 5th birthday. Most in developing regions. Most from preventable and treatable diseases like pneumonia, diarrhea, and malaria.

Problem: There is a lack of trained medical personal in developing regions who can diagnose these childhood diseases so proper treatment or referral can be given.

IMCI

Integrated Management of Childhood Diseases (IMCI) is a paper form first developed in 1994 by UNESCO and WHO that guides the user through diagnosing childhood diseases.

IMCI is not used because it:
1. Requires answering a long, rigid, linear set of questions
2. Diagnoses using tests that can be hard to conduct
3. Is not adapted to local medication and referral policies
4. Requires 11 days of training

Focus: We want to focus on making the IMCI workflow more flexible.

Field Work

Contacts: We have made valuable contact with:

Jim Black M.D. (University of Melbourne)
- Experience as a clinician in Mozambique
- Currently developing diagnostic tools for feature phones

Amy Ginsburg M.D. (PATH)
- Extensive experience with IMCI and IMNCI in India
- Clinical experience

Solution

Flexible Workflow: We will take the linear disease-by-disease paper workflow of IMCI and make it more flexible with a digital version of IMCI on an Android phone that asks a few general questions and then lets the user diagnose potential diseases in a flexible order.

Paper Workflow
1. Detection
2. Pneumonia Exam
3. Pneumonia Treatment
4. Dehydration Exam
5. Dehydration Treatment
6. General Exam
7. Pneumonia Dehydration

Digital Workflow
1. General Exam
2. Pneumonia Exam
3. Pneumonia Treatment
4. Dehydration Exam
5. Dehydration Treatment
6. …

Architecture

ODK Survey is a survey creation tool that uses Excel files to generate interactive surveys for an Android phone. We will use IMCI as a proof-of-concept as we develop a generalizable solution for creating non-linear surveys ODK Survey.

Prototype & Testing

Prototype: We take inspiration from programs like TurboTax that have an overall linear structure, but allow non-linear navigation (e.g. information does not need to be filled out in order).

Testing: We hope to conduct formative usability tests of our prototype with doctors and nurses in Seattle, leveraging our contacts at PATH.

Timeline

Week 1
- Technical: ODK Survey & JavaScript Bootcamp
- Social: IMCI Mapping & Prototyping
- Deliverable: Spec

Week 2
- Technical: Prototype Development
- Social: Job Aid Research & Test Planning
- Deliverable: Midterm paper and presentation

Week 3
- Technical: Final Development
- Social: Prototype Testing
- Deliverable: Final paper, poster, and presentation

Week 4
- Technical: Final Development
- Social: Prototype Testing
- Deliverable: Final paper, poster, and presentation

Weeks 5-10
- Technical: Final Development
- Social: Prototype Testing
- Deliverable: Final paper, poster, and presentation

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