Assessing agility and terminology rigor of the development method used to create the Omaha System Guidelines COVID-19 response mobile application

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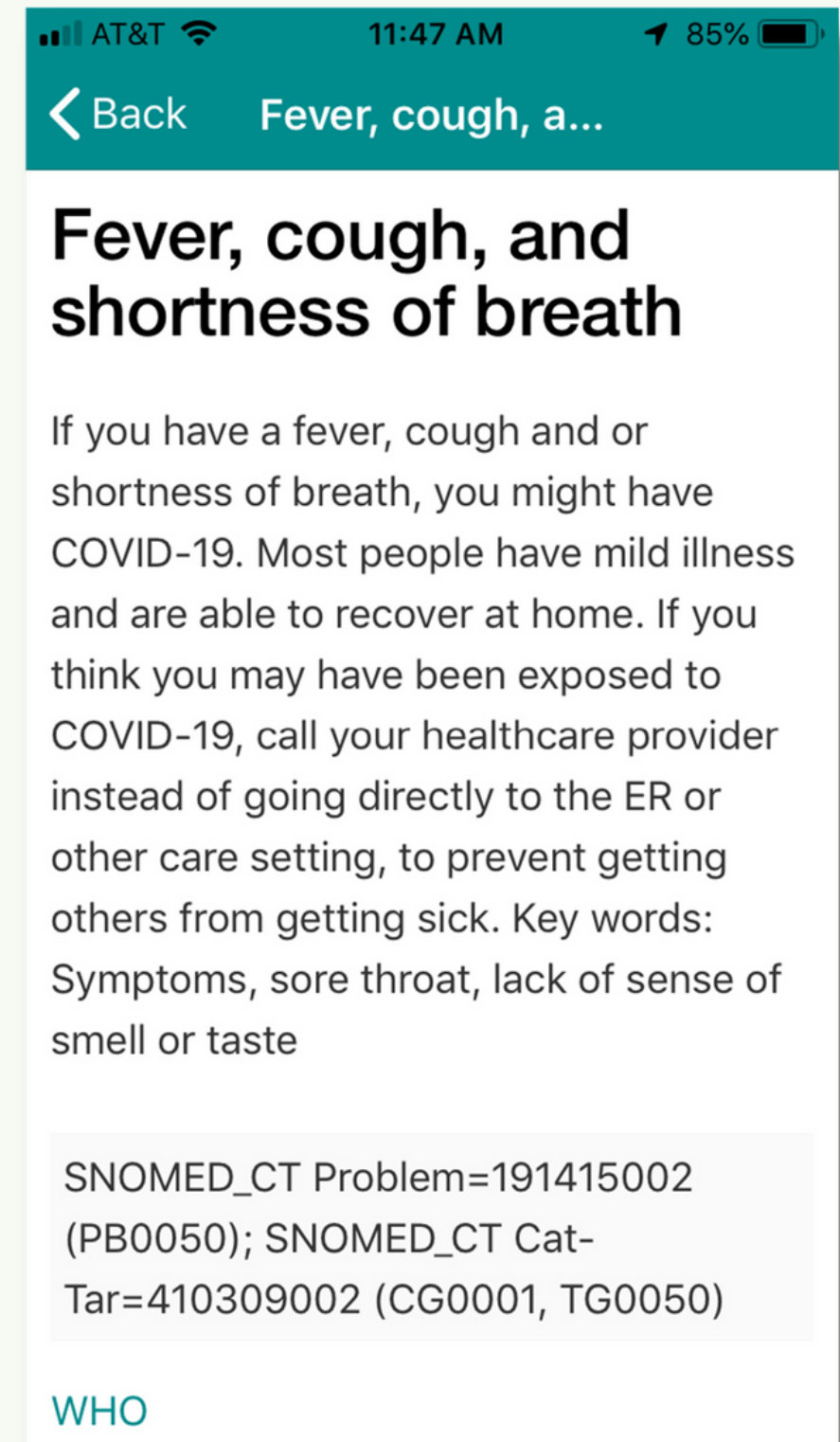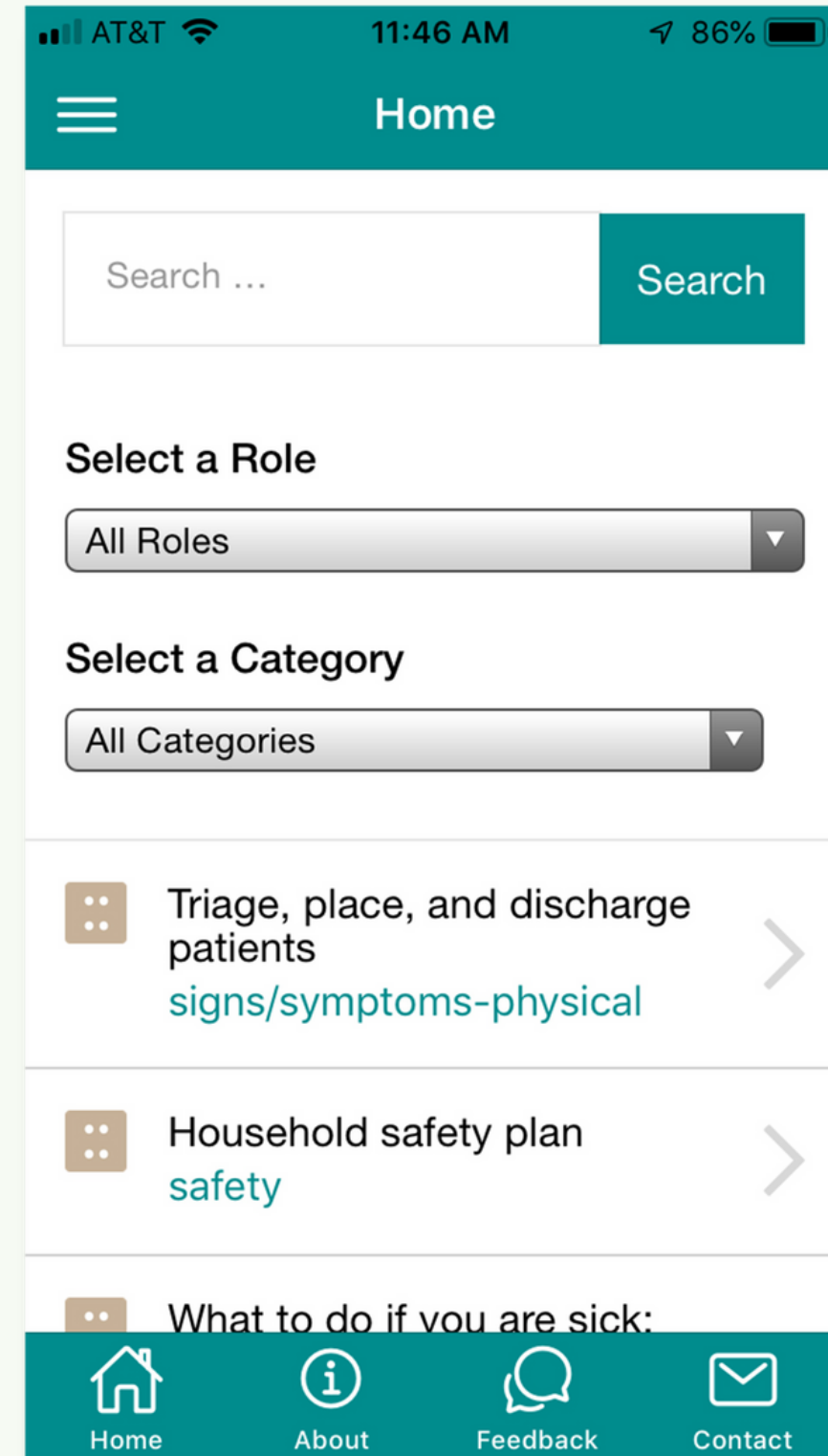Karen A. Monsen, PhD, University of Minnesota

Main Findings

The development used to create the app had sufficient levels of agility (80%)

Open source code utilization influenced method scope, Agile value characterization, and software process characterization

All principles for controlled terminology were met

Between April 9 to April 30, the team developed and launched an iOS and Android mobile application available in iTunes and Google Play
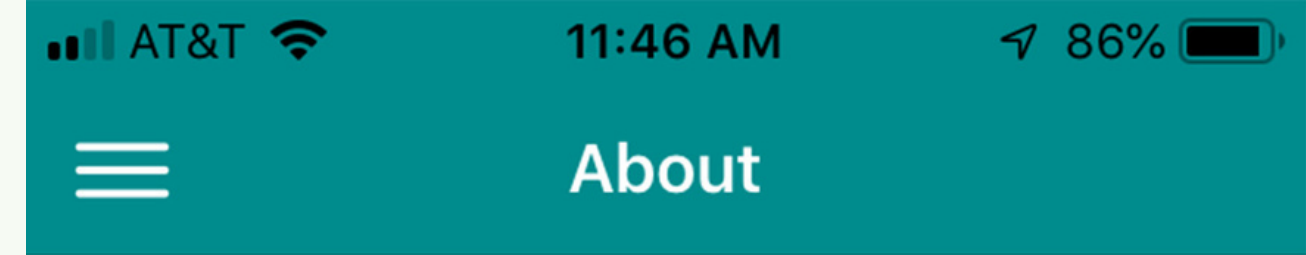
About the Omaha System

In early 2020, members of the APHA Health Informatics Information Technology leadership met to discuss the Omaha System COVID-19 Response Guidelines

The app was distributed through the Apple iTunes and Google Play stores for free and was downloaded in numerous countries

Methods & Results

1. This was a single case study design
2. 4-Dimensional Analytical Tool (4-DAT) used to assess agility level of development method
3. Cimino's principles for standardized terminology were used to assess the rigor of the Omaha System encoding

Dimension 1: Method Scope Results

Scope	Results
Project Size	Small
Team Size	<5
Development style	Iterative, rapid
Code style	Clean and simple; Open source
Technology environment	Quick feedback
Physical environment	Co-located teams and distributed teams
Business culture	Collaborative and cooperative
Abstraction mechanism	Object-oriented

Results

Dimension 2: Measure of Agility Results

	Agility Features					
	Flexibility	Speed	Leanness	Learning	Responsiveness	Total
Design	1	1	1	0	1	4
Development	1	1	1	0	1	4
Implementation	1	1	1	0	1	4
						.8

Note: Consideration for sufficient measured agility ≥ .5

Dimension 3: Agile Value Characterization

Agile Values	Results
Individuals and interactions over processes and tools	Collective ownership; Daily feedback; single developer
Working software over comprehensive documentation	Open source code; browser testing
Customer collaboration over contract negotiation	Collaboration and cooperation among stakeholders
Responding to change over following a plan	Simple design; customer reviews
Keeping the process agile	Monitoring progress; software inspection
Keeping the process cost effective	Monitoring progress

Dimension 4: Software Process Characterization

Process	Results
Development process	Installed open source code by feature
Project management process	Daily feedback
Software configuration control process/Support process	Not specified
Process management process	Not specified

Cimino's Desireable Properties

1. Domain completeness: the app had written descriptions of the interventions for each role
2. Unambiguity: The vocabulary terms were written with natural language
3. Multiple classifications: Flexible terminology was provided for concepts that overlapped

Thank you

- **Omaha System Community of Practice**
- **Dr. Diane Adams, Founder, APHA HIIT**
- **Partnering Organizations**

Free App Download: https://app.omahasystemguidelines.org Questions? Contact mattrod@umd.edu or mons0122@umn.edu

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