

<sup>†</sup>\*J. Ashe Allende, <sup>\*\*</sup>Lisa Hainstock, M.D., <sup>\*\*</sup>Ina Stephens, M.D., <sup>\*\*</sup>Cecelia C. Babbott, M.D., <sup>†</sup>\*David Cattell-Gordon, M. Div., MSW, CTC,  
<sup>†</sup>\*Hannah O'Donnell, MPH, CTC, <sup>†</sup>\*Thomas Corey, <sup>\*\*</sup>James Plews-Ogan, M.D.  
<sup>\*</sup> By Your Side Pediatrics <sup>†</sup> Karen S. Rheuban Center for Telehealth <sup>\*</sup> University of Virginia Health System, Charlottesville, VA, U.S.

## Statement of Need

Pediatric patients with complex diagnoses and treatment plans are at high risk for readmission to the hospital and need frequent follow up appointments for monitoring. The By Your Side Pediatrics (BYS) program at the University of Virginia Health System (UVAHS) regularly provides in-home pediatric primary care services to patients with complex medical needs in Central Virginia, but travel time limits the number of patient visits that providers can schedule. For many of these patients, the concern of infectious exposure places these patients at high risk for acute exacerbations with clinical or emergency room visits. Remote patient monitoring (RPM) with live visit and diagnostic capability was identified as the primary technological need to reduce patient exposure, patient travel burden, and physician travel burden.

## Implementation and Usage

**Device Used:** TytoPro devices with standard kit including stethoscope, otoscope, infrared thermometer, and built-in camera.

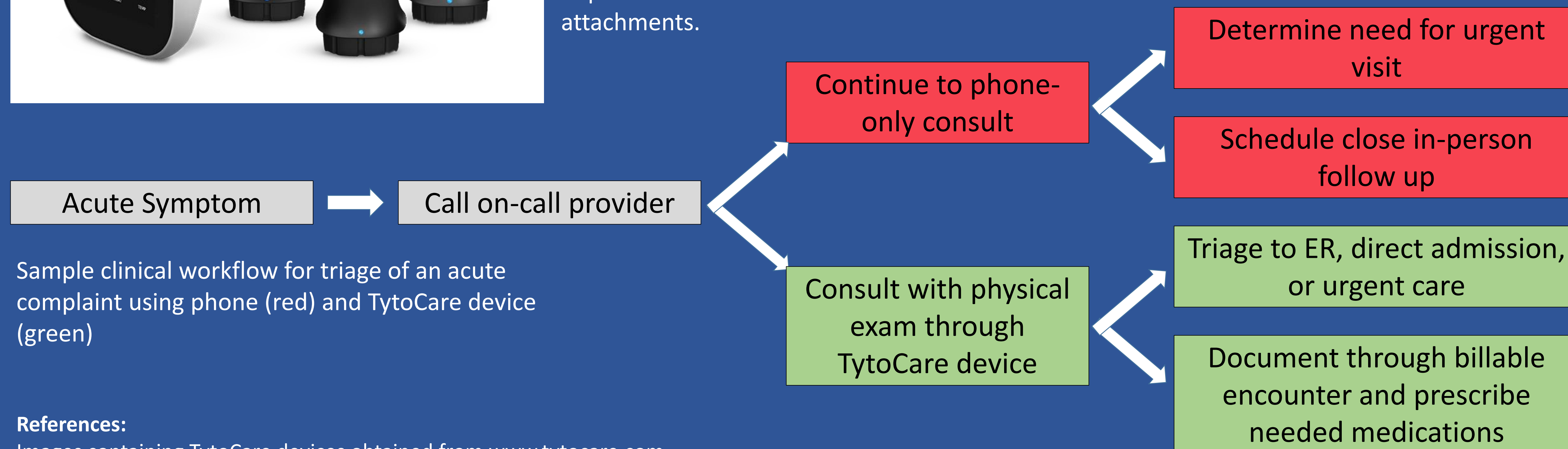
**Patient Selection:** Six patients were selected based on several factors including the severity of their disease and the perceived comfort of their parents with telemedicine.

**Deployment:** Each patient was taught how to use the device and conducted a brief practice exam or had a practice consult with their provider in the presence of a telemedicine representative.

**Usage:** Patients were encouraged to request a Tyto consult as opposed to a phone consultation for the triaging of acute complaints. Providers were encouraged to use the devices for triaging acute complaints and for coordination of care visits.



TytoHome Device with otoscope, stethoscope, and tongue depressor attachments.



Sample clinical workflow for triage of an acute complaint using phone (red) and TytoCare device (green)

**References:**  
 Images containing TytoCare devices obtained from [www.tytocare.com](http://www.tytocare.com)  
 Map obtained from Google Maps

## Results

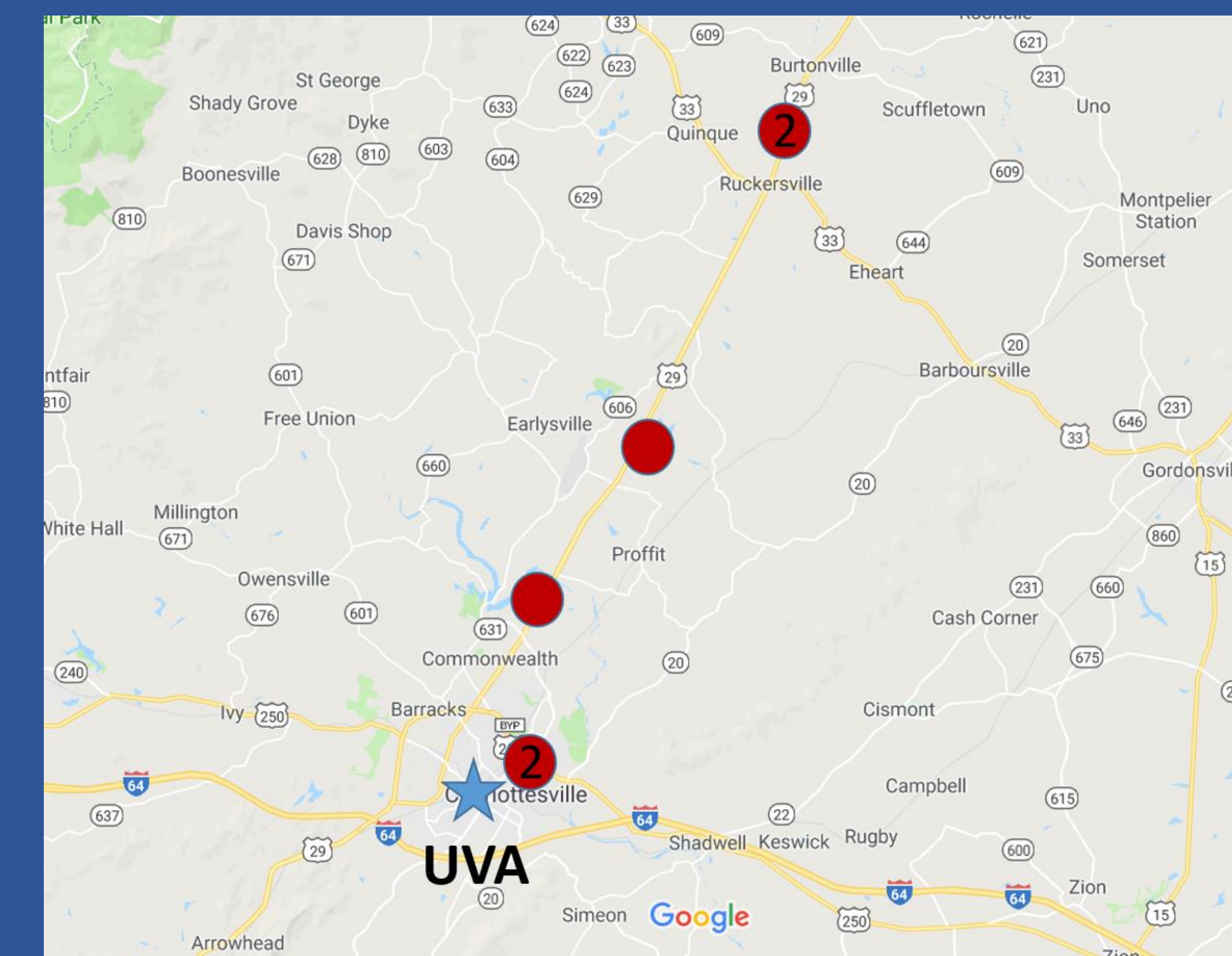
For usage statistics, please refer to the table below.

Preliminary feedback from providers suggests that telemedicine visits using TytoPro devices are:

- Capable of replacing house calls for coordination of care visits or appointments for checkups between regularly scheduled follow up appointments with specialists.
- Capable of diagnostic quality physical examinations for the triage of acute complaints.
- Providing a more personal and informative conversation than telephone only consults.

Preliminary feedback from patients suggests that:

- Most of the families are excited to use the TytoPro devices in place of telephone consults.
- Most of the families are excited to use the TytoPro devices for triage of acute complaints



Map outlining the current distribution of patients with TytoCare devices

Current summary of deployment statistics for the BYS/Tyto program

Patients and devices	
Devices deployed	6
Patients	6
Active patients (total)	6
Visit History	
Live visits	13
Miles saved (live)	221

## Future Directions

We intend to expand the pilot program within BYS Pediatrics to include a broader patient population, including those with slower internet connectivity and more limited experience with technology. We also intend to implement the technology for patients who live farther away from UVA to save time and money for triaging and coordination of care visits.

Outside of the BYS Pediatrics program, we intend to incorporate the use of TytoCare devices for remote patient monitoring (RPM) and remote diagnostics of other at risk patient populations at UVA.