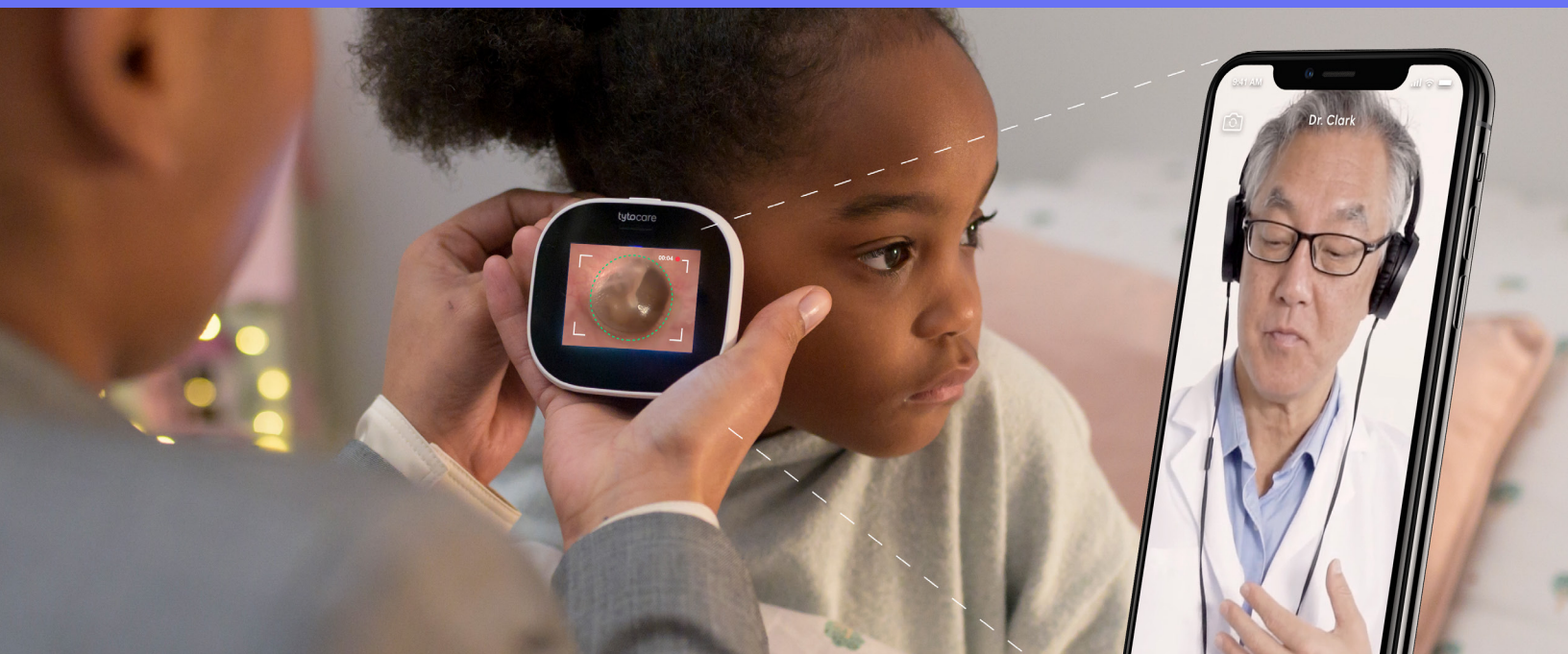




Case Study:

# University of Virginia Health System

Comparative Effectiveness of an Integrated, Multi-functional Telehealth Examination Device to Standard of Care Digital Devices in a Pediatric Setting



## Executive Summary

The University of Virginia initiated a study demonstrating the interest in providing healthcare visits for children remotely but providers needed a reliable source of data for the assessment of the child.

Currently, healthcare visits for children are typically done in an office or clinical setting and involve a physical exam checking vital signs, developmental assessment, anticipatory guidance and immunizations per a set schedule.

TytoCare enables health organizations to offer the integrated telehealth service to their care providers and patients for comprehensive telehealth visits and access to patient data. The TytoCare platform also allows for simple integration with Electronic Health Records (EHR) systems and other telehealth platforms. It is the healthcare industry's first all-in-one modular device and telehealth platform for on-demand, remote medical exams.

## Challenge

The primary goal was to demonstrate that TytoCare is equivalent to the standard of care digital devices. The secondary goal was to evaluate which device produced images or sound that were better able to provide diagnostic information to clinicians caring for children.

By implementing TytoCare's portable, reliable, and cost-effective remote examination platform, clinicians were able to demonstrate that the novel Tyto device was equivalent to the standard of care digital devices.

## Solution

The Tyto platform provided a solution for simple integration with Electronic Health Record systems and other telehealth platforms, and serves as a "next-generation" FDA-cleared, multi-function telehealth examination tool that includes an otoscope, stethoscope, camera, thermometer, and video-teleconferencing technologies as compared to heart and lung sounds and otoscopic images obtained from standard of care, FDA-cleared digital otoscope and stethoscope devices.



## Implementation

Otoscopic Images and heart and lung sounds from 50 pediatric patients ages 2-18 were acquired by a nurse in the outpatient cardiology clinic using TytoCare, and a standard of care digital otoscope and stethoscope. The clinic visit was routine and scheduled. In each examination the following information was recorded:



### Heart Sounds

4 heart sounds from TytoCare device and 4 heart sounds from standard of care stethoscope



### Lung Sounds

6 lung sounds from TytoCare device (front/back of body) and 6 lung sounds from standard of care stethoscope



### Ear Images

2 ear images from TytoCare device (left/right) and 2 ear images from standard of care otoscope

## Scoring

The data was loaded onto a secure server for review by **8 physicians** (2 cardiology fellows, 2 pulmonary faculty, 2 general pediatric faculty and 2 pediatric cardiology faculty).

All reviewers were blinded to where the data originated from and were exposed to it in a randomized manner. Images and heart sounds were scored on a scale of **1 (very good)** to **5 (very poor)** in terms of quality by the blinded reviewers using a Likert scale.



Cardiology



Pulmonary



General Pediatric



Pediatric Cardiology

## Results

Analysis of the data demonstrated that the images and sounds acquired through the use of the TytoCare device were of higher quality, sufficient for diagnosis, and superior to those acquired through the stand alone standard of care devices.

TytoCare was better able to provide usable data to support a diagnosis with basic training in the clinic setting. Clear instructions are built into the device, guiding the end-user through the examination process. This makes it easier for a parent, school or day care personnel to collect exam data to be reviewed by a clinician for accurate diagnosis remotely. Application and use of the Tyto Care device could allow children to be examined remotely and possibly reduce sick visits.

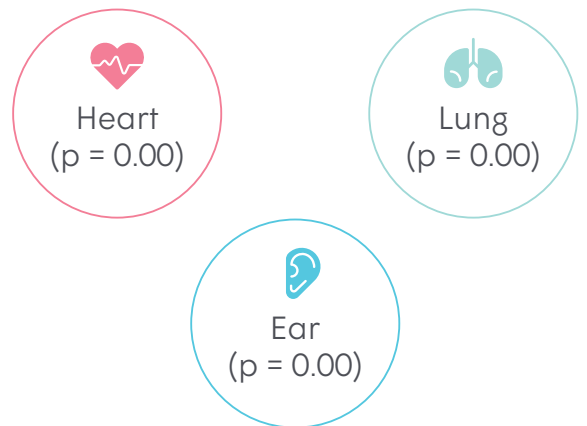
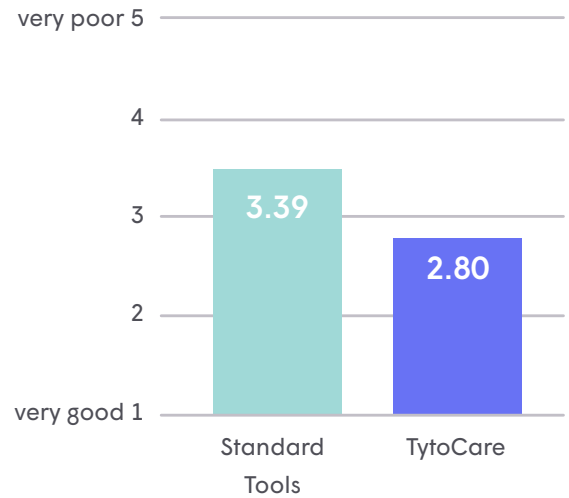
## Tyto vs Standard Tools

**Tyto has significantly better quality overall**

( $p = 0.000$ )

Results concluded that the Tyto Care multifunction peripheral examination tools provide images and data sufficient for diagnosis. The use of next-generation technologies in the home or clinic setting can provide high quality data to the remote examining practitioner that informs clinical decision making.

### Likert Scale



For more information about TytoCare Professional programs for Health Systems, please visit [tytocare.com](https://www.tytocare.com).

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