Overview

After the Mizzou Dermatology Image Database (MDID) was developed for dermatology in-person clinics, we studied the clinic workflow in order to develop a solution that would allow for teledermatology clinic image inclusion. Teledermatology clinics can only be successful if scheduling, billing, and patient workflow mimic in-person clinics.

Our objective was to develop a telehealth solution – TeleMDID - that allowed rural clinics to show and transfer teledermatology images to MDID. TeleMDID app was developed and downloaded on 10 mini iPads installed in rural clinics and 2 iPads installed in the MU dermatology clinic. This was a pilot project completed over the period of 3 months, during which we replaced digital derm cameras with iPads with TeleMDID app, and did a pre-survey of all teledermatology users and a series of 3 post surveys.

Methods

A – Patient photos taken prior to establishing teledermatology connection to save time during visit.
B – Provider must ask far site telehealth presenter to switch between inputs in order to show photos.
C – Images must be shown twice during the visit (for resident and dermatologist).
D – Far site presenters must delete photos after each visit.
E – Photos available for providers prior to establishing teledermatology connection.
F – Providers and patients can view photos at the same time during the session.
G – Mobility of the system allows residents to take iPad outside of the room and discuss the images with the dermatologist.

Pre-launch survey examined experiences with telehealth, mobile devices, and challenges.

Post-survey examined new workflow, satisfaction, ease of use of TeleMDID.

Results

Pre-launch survey results:
- 100% of providers and far site presenters who responded to survey were willing to use iPads in conjunction with main telehealth equipment.
- Mean for expertise with telehealth for all respondents was 53.56 (on scale 0 to 100).
- 77.8% of providers had problems establishing connection.
- 100% of providers had scheduling errors.
- Mean for having difficulties viewing still images was 55.33.
- Mean for receiving poor quality images was 55.89.
- 33% of far sites reported not deleting photos after telehealth sessions.

Post-launch survey results:
- 100% of providers preferred TeleMDID to digital derm camera.
- 75% of far site presenters preferred TeleMDID.
- TeleMDID mean of ease of use for providers was 74.25.
- TeleMDID mean of ease of use for far site presenters was 52.00.
- 33.3% of far site clinics reported having difficulties connecting (mainly due to sporadic wireless connection).

Conclusions

We have observed that appointments with teleMDID were more efficient. This resulted in shorter visit time, and allowed providers to spend more time on diagnoses without waiting for far sites to show photos. Providers were also able to spend time educating patients on their diagnoses by viewing the images at the same time and discussing the treatment options.

Our future work has both implementation and research goals. We will develop new functionalities for the mobile app and launch a full-scale deployment of TeleMDID to all 150 sites on Missouri Telehealth Network (MTN). We plan on including an interface for dermatologists to provide detailed meta-data about images and annotate regions of an image for the far site clinic device in-real-time. Improved training and technical support will also be developed in the future. Further research on cost savings for this solution is needed as well.

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