Practical Uses and Considerations for Smartphones in Home Health Care

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Background

- Smartphone technology use by healthcare professionals and patients is growing on a daily basis for personal and professional needs
  - In 2014 90% of US adults owned a cell phone and 58% owned a smart phone with older adults (65+) lagging behind at 77% and 18% respectively (Pew Research,2015)
  - Smartphone technology matches current desktop computing capabilities without the added cost and can be easily converted into a medical device
  - Home health nurses use smartphones for normal communications, navigation and as a decision support tool but due HIPAA and other barriers related to device use by older populations, the resource may be underutilized as a tool for improving workflow and patient outcomes

Purpose

- Review and summarize existing literature related to smart phone technology use in the home healthcare environment
- Describe ways home health nurses might increase productivity and/or patient outcomes in older adults using mobile technology

Rationale

- A re-conceptualization of healthcare for the future is required to keep up with quality standards, new models of care, increasing demand and decreasing reimbursement
- Smartphone technology provides opportunities to improve communication and access to care for the elderly homebound patient

Methods

- Literature Review from Google Scholar, Cumulative Index of Nursing and Allied Health Literature, Cochrane, PubMed and manual searches
- Exclusions
  - Articles related to nursing homes, hospitals, outpatient clinics
  - Attempted to limit articles to age 65+ years to keep focus on older adults
  - Articles older than the previous 5 years
  - Articles not in English
- Limitations of the literature search
  - Reliance on existing database search terms may have caused articles to be missed
  - Difficulty finding scholarly articles specific to home health environment
  - Searching revealed the interchangeable use of terms which did not equate to the goal search term

Monitoring of Chronic Diseases

- Tele monitoring of chronic diseases such as hypertension, congestive heart failure, diabetes, depression have shown positive patient outcomes in home health care with nurse management
- Studies indicate tele monitored congestive heart failure patients enrolled in a structured program have a better prognosis than those who follow the usual program and reduces the risk of all cause mortality and heart failure related re-hospitalizations.
- Physiological data collected from tele-monitored patients has value in determining decompensation early and therefore avoid re-hospitalization
- Use of tele monitoring decreased the number of in home nursing visits for patients with congestive heart failure and increased phone contact
- Studies show promise using sensor technology for monitoring patient activity at home
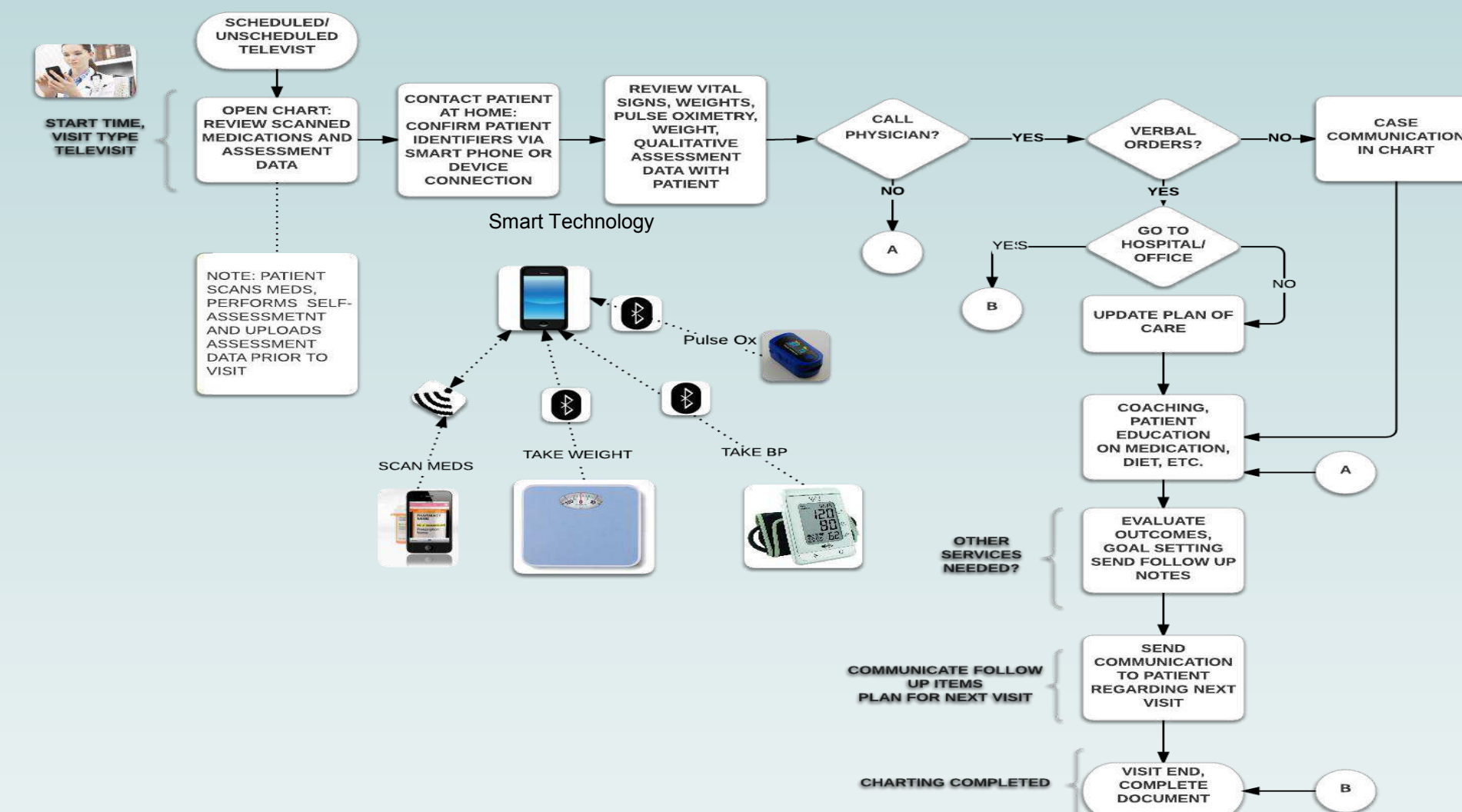
Wound Assessments

- Smart phones provide photographic documentation capability for homebound patients
  - Face to face teleconferencing or static images sent to a cloud server for review serve as a comparative benchmark or a clinical consult
  - Policies on how to manage handling and storage of data need to be identified

Medication Adherence and Reconciliation

- Use of behavioral interventional mobile technology models paired with registered nurse monitoring may serve as "just in time" reminders for medication adherence
- Consider barcode scanning in the patient home as well as inpatient settings
  - QR or barcode scanning apps can be used to obtain information about medications
  - Preliminary studies show barcode scanning as a useful tool for patient education in the home
  - Future interoperability could allow integration into the EHR so medications can be reconciled

Barriers to Smart Technology Use

- Provider attitudes and level of comfort with technology
  - Lack of familiarity with navigation, concerns about app handling of personal information and technology quality
  - Requires app vetting, knowledge of HIPAA handling and organizational oversight
- Barriers to technology use by older patients
  - Phones may be provided by the family member for emergencies but the patient doesn't remember how to use it. (usability for younger clients does not mean usability for older clients)
  - Too many buttons, screen Font size may be difficult to read, cognitive abilities may make device unusable
  - Lack of comfort and familiarity, Auditory considerations, Dexterity considerations
  - Loss of the device by theft or use of the device by another family member
- Cost of equipment, security concerns for lost equipment, leadership support

HIPAA Considerations

- Company devices, not personal devices
  - Devices need to be encrypted for additional data security
  - Require a different password for each sensitive app
  - Connect via secure web or VPN (Virtual Private Network)
  - Discard all stored health information (or don't store it on the phone in the first place) prior to reusing the device
  - Consider physical safeguards to protect the device
  - Staff require training on what can and cannot be transmitted on the smartphone
- Texting communications– Organizations need to refer to their app vetting policy for secure texting
- Social Media
  - Patients currently use for sharing disease information
  - Security risk area for health care providers

Summary

- Roadmaps are needed showing how mobile technology will be used in the home health environment - Nurses need to be trained in use of new technologies
- Opportunity exists for informatics nurses to help older patients navigate the future of healthcare

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