Improving Patient Outcomes by Using TeleID Consultation Services

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Improving Patient Outcomes by Using TeleID Consultation Services

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Background

The Lehigh Valley Health Network (LVHN) TeleID Consultative Program was initiated in February 2011 and since its initiation over 600 consultations have been completed. Prior to this, surrounding hospitals did not have Infectious Disease (ID) resources available on site and patients needing ID services had to be transferred to LVHN. The TeleID program utilizes live audio/videoconferencing technology to provide consultation to patients at remote facilities. An LVHN ID specialist is able to assess and diagnose patients with the assistance of a nurse at the bedside, operating equipment including an exam camera and electronic stethoscope. This enables the specialist to recommend treatment options, medications, and ancillary tests for the patient.

A literature review was carried out to examine the benefits of Teleconsultation for the care of patients with Infectious Disease diagnoses. There was a paucity of literature available to review in this evolving field. Out of 23 articles found, there is only one article noted looking at the use of Teleconsultation for specific infectious disease conditions seen by deployed physicians with the United States Army.

Objective

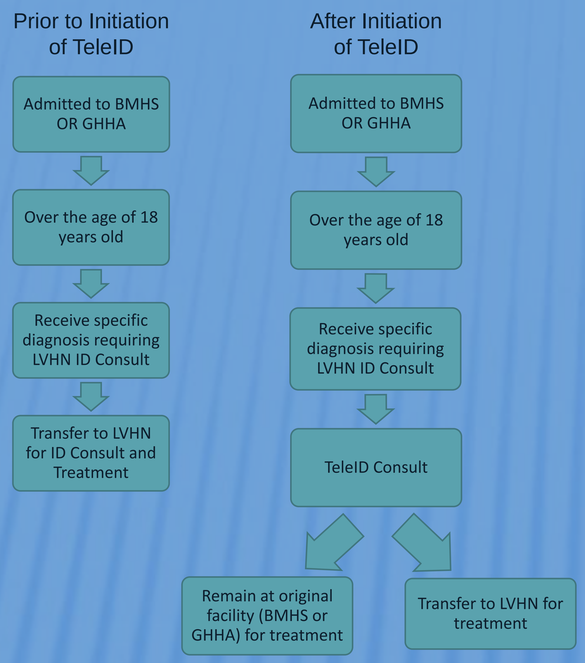
- Determine if increased communication and collaboration improves patient outcomes
- Hypothesis 1: There will be a difference in the length of stay, antibiotic usage, and relapse of infection between the patients who had a TeleID consult and those who were transferred prior to the availability of TeleID.
- Hypothesis 2: There will be a difference in LVHN hospital charges between patients transferred before the start of TeleID consultations as compared to those transferred after TeleID consultative services began.

Methodology

- Retrospective cohort study utilizing the electronic medical records of the Greater Hazleton Health Alliance, Blue Mountain Health Systems, and the Lehigh Valley Health Network
- 1200 patient charts, 600 exposed and 600 unexposed
  - Exposed: patients who had TeleID consults while at GHHA or BMHS between February 2011 and February 2014
  - Unexposed: patients who were transferred to LVHN from GHHA or BMHS for infectious disease care prior to the initiation of the TeleID program
- Only patients with specified diagnoses will be included to enable the unexposed group to act as a control group of patients who would have had a TeleID consult if the service had been available

Data Collection

Criteria For Study Population

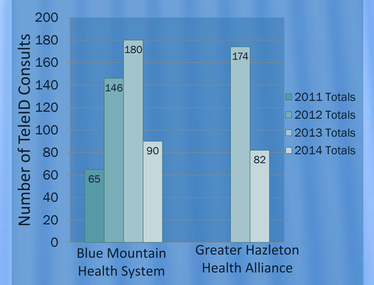


Variables

Patient Age and Gender	**Dates**: admission, request for consult, and completion of consult	**Number of days**: in hospital, in ICU, until ID consult completed, with fever, and until transfer (if applicable)
Antibiotics: administered pre consult, administered post consult, number of days of therapy, and days of changes during hospital stay	**Diagnoses**: reason for consult and diagnoses made by LVHN ID Specialist	**Treatment**: cultures, diagnostic tests, surgical procedures and were ID recommendations followed?
Prognosis: mortality, readmission, relapse, follow-up, and discharge disposition	**Comorbidities**: diabetes mellitus, chronic kidney disease, peripheral vascular disease, history of seizures and immunocompromised	**Cost**: charges from BMHS or GHHA, charges from LVHN, and total patient charges

Dr. Monkowski conducting a mock TeleID consult on Dr. Rhodes from the consultation room in the Infectious Disease office at the LVHN Cedar Crest Campus. The second computer monitor allows the ID specialists to access patient charts while remaining in the video conference, the headset allows them to listen to the electronic stethoscope, and the binders contain instructions and troubleshooting tips.

Consult Volume by Year



The George unit is brought to the bedside of the patient. It contains a monitor for viewing the doctor, an exam camera that enables close views of the patient, an ELMO document camera, and an electronic stethoscope for heart and lung sounds. The patient's nurse operates this equipment to assist the ID Specialist with the exam.

Obtaining Study Approval

- Step One, Departmental Scientific Review: Documents required for this step include the research proposal/protocol and data collection sheets. After the initial Department of Medicine meeting, our protocol was edited, approved, and we received the Scientific Review Attestation.
- Step Two, Network of Research Innovation (NORI) Feasibility: This step required a NORI checklist, conflict of interest disclosure forms (COI), the study protocol, the Scientific Review Attestation, and the Abbreviated Feasibility review form. The committee gives their suggestion as to whether the study is appropriate to carry out at LVHN and Senior Management makes the final decision.
- Step Three, IRB: The final step is to obtain IRB approval after completing an online application via the eIRB. We are currently awaiting IRB approval.
- During this process, a registered database was approved by the IRB in order for us to begin chart review and data collection before receiving final approval for the study.

Progress and Future

Data collection began with patients at GHHA who had a TeleID consult. To date, over 100 charts have been reviewed via Hazleton's EMR, about half of Hazleton's TeleID consults since the initiation of the program. As the project has not yet received IRB approval, there was no preliminary analysis of the data. In the upcoming months, data collection will continue to obtain data for all patients who have received a TeleID consult. Data will then be collected from an equivalent number of patients who were transferred to LVHN for ID before the initiation of the TeleID program. When all necessary data has been collected and IRB approval has been received, statistical analysis will be carried out to test the hypotheses and make conclusions about patient outcomes as a result of the TeleID program.

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Photos courtesy of Sharon Kromer

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