OHA Group Defines Metrics to Measure Telehealth Effectiveness

Through telehealth services, Ohio hospitals have increased access to care, lowered costs, improved patient satisfaction and, most importantly, improved clinical outcomes.

Hospitals use cutting-edge technology and interventions to serve patients inside and outside of their facility walls. Ohio hospitals have increased access to specialty services and allowed patients to heal in their homes using telehealth technology.

Patients in areas of the state with a shortage of child psychologists, for example, have had unprecedented access to these services.

Rural hospitals have been able to completely change the way they treat stroke patients—faster and better—through linking telestroke hub and spoke hospitals.

With the relentless opioid epidemic in the state, telehealth can be a crucial tool in reaching people with substance abuse disorders.

Yet, there are barriers to leveraging telehealth in Ohio.

The problem is not the willingness and innovation of health care providers, but rather it is a problem of providers getting adequately reimbursed to continue the services they provide to build on the radical successes of the technology.

There are legislative fix options. Reimbursement parity would require payers to reimburse the same amount for services regardless of how they are delivered.

Coverage parity would require payers to cover services regardless of delivery modality, not necessarily at the same reimbursement amount.

According to the American Telemedicine Association, 35 states currently have some level of parity legislation for private payers. Ohio is not one of those states.

On a smaller scale, there are Ohio Administrative Code fixes. Reopening the Medicaid telehealth reimbursement rule to include more providers, more distant and originating sites and requiring the Medicaid managed care plans to pay accordingly would go a long way to increasing the use and positive outcomes of telehealth services.

BACKGROUND

The OHA Telehealth Work Group was formed in 2011 to respond to proposed rules from the Ohio Department of Medicaid regarding reimbursement for telemedicine services. The group quickly learned policy makers were not convinced in the efficacy of telehealth or its cost saving merits.

The group also realized there was insufficient data to support telehealth. After some success in influencing the Medicaid reimbursement rule, the group shifted its focus to defining metrics for key areas of telehealth to have a concise data set for policy makers.

This paper is a summary of the metric identification effort along with the first pass at data collection.
Disparate Reimbursement Policies Complicate Deployment

The landscape for telehealth services reimbursement is complicated. Medicare and Medicaid have different rules for payment in addition to the myriad policies employed by commercial payers. In many cases, hospitals are unsure of what commercial payers will reimburse for telehealth services or if they will at all.

Anecdotally, we have heard that hospitals are not submitting claims for many of the telehealth services they are providing and, in effect, “eating the costs.”

There is a misperception that telehealth services are automatically less expensive than the same service delivered in person. This argument ignores significant upfront infrastructure costs to develop and make telehealth services available.

The cost of technology and related training needs to be considered to fully understand telehealth implementation costs.

<table>
<thead>
<tr>
<th>MEDICAID</th>
<th>MEDICARE</th>
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</table>
| **Originating sites; physical location of the patient** | • Primary care clinic  
• Outpatient hospital  
• Rural health clinic  
• FQHC  
• Physician/practitioner office  
• Professional medical group  
• Podiatrist  
• Optometrist  
Excluded sites include: inpatient hospital, skilled nursing facility, home | • A county outside a Metropolitan Statistical Area (MSA)  
• A Rural Health Professional Shortage Area (RHPSA)  
• Clinical settings |
| **Distant site providers: physical location of treating practitioner** | • Physician/practitioner office  
• Psychologist  
• FQHC | • Physician/practitioner office  
• Hospital  
• Rural health clinic  
• FQHC  
• Hospital-based renal dialysis center  
• Skilled nursing facility  
• Community mental health center |
| **Required minimum distance between sites** | Five miles | Patient must be in a county outside an MSA or in a RHPSA |
| **Approved providers at the distant site** | Physicians, clinical psychologists | Physicians, advanced practice nurses, physician assistants, clinical psychologists, clinical social workers, registered dietitians/nutrition professionals |
| **Eligible services** | Synchronous interactive audio and video telecommunications systems | Synchronous Interactive audio and video telecommunications systems |

**MEDICAID AND MEDICARE REIMBURSEMENT**

The Ohio Department of Medicaid adopted a telemedicine reimbursement rule in 2015 (Ohio Administrative Code Rule 5160-1-18). This rule defines telemedicine as the direct delivery of evaluation and management or psychiatric services to a patient via synchronous, interactive, real-time electronic communication with video and audio elements.

This service can be used for all individuals in the Medicaid program.

Medicaid requires that the originating site (where the patient is) and the distant site are both clinical settings. Eligible providers at the distant site include physician and physician extenders such as advanced practice nurses and physician assistants.

A severe limitation of this rule is that it requires the patient to be in a clinical setting. Access could be greatly increased, especially for telepsychology, if the patient could be at home or at school.

The situation for Medicare is similar but includes greater geographical restrictions. The patient is required to be in a county outside a Metropolitan Statistical Area or in a Rural Health Professional Shortage Area.

It is important to note Ohio Medicaid does reimburse community behavioral health centers (provider types 84 and 95) for telehealth services delivered to patients when the originating site is at home (Ohio Administrative Code Rule 5122-29-31).

Since this has been a successful policy for those provider types, we would like to see the same rule provision extended to other provider types.

**COMMERCIAL PAYERS**

The reimbursement requirements for commercial payers are a source of confusion and frustration for hospitals. Unlike most other states, there is no parity law in Ohio. Payers are not required to reimburse for services delivered through telemedicine. If they do reimburse, they are not required to pay the same amount that they would pay for traditional services.

Some payers do pay for telemedicine services in some cases, but the inconsistency among payers makes things very difficult for providers.

In most cases, hospitals are not asking for reimbursement and “eating” the costs of the telehealth services they invent and provide.
AREAS OF FOCUS

Work Group Defines Metrics to Evaluate 5 Telehealth Services

The programs hospitals have engaged in to date are ones that show clear patient outcomes, efficiency and benefit to patients. For many of these services, costs can be avoided or saved on the back end. But telehealth services often require infrastructure, so it is important to remember the complexities involved when we are talking about costs.

Hospitals have also focused on telehealth services for which reimbursement barriers can be mitigated or at least balanced. The areas of telehealth explored in this paper are:

- Telestroke
- Remote patient monitoring
- Urgent care
- Pediatrics
- Telepsychology

AREAS OF MEASUREMENT

For each service, the OHA Work Group examined measures in the following areas:

- ACCESS
  Improving patient access is a key advantage to using telehealth. Through telehealth we can reach patients in remote areas as well as patients in all areas lacking transportation. We can also bring expertise to areas that have shortages, such as child psychology and stroke experts. Measuring this access shows how many more people can be served and served by the highest levels of expertise.

- PATIENT OUTCOMES
  As in any aspect of medicine, we are always looking to improve patient outcomes. By bringing the highest levels of expertise to patients in underserved geographic areas in a timely manner, patient outcomes improve.

- PATIENT SATISFACTION
  Examining how patients feel about getting services virtually is vital to understanding the usefulness of telehealth and how best to apply it.

- COSTS (saved or avoided)
  Understanding the costs of providing services through telehealth is both misunderstood and crucial to advancing the use of telehealth.

The Work Group evaluated measures in each of the categories above to paint a clear picture of the telehealth services provided by hospitals.

Ideally a service will measure high in each category. When it doesn’t, the Work Group attempted to explain why.
Rapid Treatment Decreases Patients’ Disability from Stroke

Telestroke is the use of a computer system transmitting video and audio to allow a stroke neurologist to examine and treat patients at distant facilities without an on-site stroke neurologist. Since the outcome of stroke treatment is directly related to how rapidly it is provided, the ability to be virtually at a patient’s bedside within minutes enables a stroke neurologist to provide care in multiple hospitals regardless of location.

Telestroke is about access and decreasing stroke related disability. Rural areas of the state do not have the stroke experts and diagnostic equipment of the larger, urban medical centers. Where you live and suffer a stroke should not dictate if you receive treatment.

Rapid treatment decreases disability from stroke. Telestroke enables prompt evaluation and recommendations regarding intravenous tPA (clot busting medication) administration. Moreover, stroke neurologists can identify patients that may benefit from endovascular treatment to facilitate efficient transfer to a hospital that can provide this level of service.

It is also important to look at what would happen without a telestroke network and associated services. Stroke treatment is completely time dependent. Without instant access to a stroke neurologist, patients do not receive acute treatment. They lose out on the decrease in disability that stroke treatment provides. Stroke patients that do not receive treatment often need long term care and rehabilitation services.

In addition, not having access to telestroke services would result in more patients being transferred unnecessarily, increasing cost for transport including medical helicopter and mobile intensive care units.

Most rural facilities do not have access to the latest research, treatment options or education for staff as larger urban facilities. Patients at these facilities that meet criteria for stroke treatment would be missed.

**TELESTROKE METRICS**

The important metrics for telestroke are:

1. Number of patients seen by stroke expert via video
2. Percent of patients able to remain at the spoke (the original facility in which they were seen)

<table>
<thead>
<tr>
<th>Metric</th>
<th>Hospital A</th>
<th>Hospital B</th>
<th>Hospital C</th>
<th>Hospital D</th>
</tr>
</thead>
<tbody>
<tr>
<td># of patients seen by stroke expert</td>
<td>536</td>
<td>228</td>
<td>704</td>
<td>514</td>
</tr>
<tr>
<td>% of patients able to remain at the spoke</td>
<td>64%</td>
<td>80%</td>
<td>41%</td>
<td>84%</td>
</tr>
<tr>
<td>% of patients receiving tPA</td>
<td>121</td>
<td>59</td>
<td>221</td>
<td>136</td>
</tr>
<tr>
<td>Total mileage saved</td>
<td>5,082</td>
<td>3,477</td>
<td>33,952</td>
<td>Not available</td>
</tr>
</tbody>
</table>

The use of telemedicine is imperative because the success of acute ischemic stroke treatment is crucially dependent on time. Studies have shown that care provided through a virtual presence is comparable to care provided by in-person physicians. Telemedicine enables stroke neurologists to be at the patient’s bedside within minutes and to provide coverage to large geographical areas. This promotes the development of regionalized stroke centers, obviates the need for duplicating services within the region, and ensures the volume required for providers to maintain competency.”

— John B. Terry, MD, Co-Medical Director, Miami Valley Hospital Comprehensive Stroke Center. Neurointerventionalist and Medical Director, Miami Valley Vascular Critical Care Neurology group
Remote patient monitoring, or RPM, uses technology to enable patients to be monitored right in their homes. Incorporating RPM in chronic disease management can significantly reduce the chances of hospital readmissions, duration of hospital stays and post-acute care complications—all of which result in improved care and cost savings.

The use of RPM also allows patients to reduce their personal costs that often involve transportation and lodging, depending on where their providers are located. Home monitoring can offer patients a sense of comfort knowing they are being monitored more frequently than they would be with in-person provider visits.

The time saved as a result of RPM implementation increases efficiency, and allows healthcare providers to allocate more time to remotely educate and communicate with patients.

The important metrics for RPM are:
1. The number of patients using RPM
2. The number of 30-day readmissions for patients with RPM
3. 30-day readmission rate for patients with RPM
4. Overall health system 30-day readmission rate (baseline)

These metrics are important because they measure access, clinical outcomes and cost savings. The OHA Telehealth Work Group focused on one major health system using cutting-edge technologies to provide this services to its patients. The data clearly show a significant advantage to using RPM when looking at readmissions.

**HOSPITAL B—CHRONIC DISEASE MANAGEMENT PILOT**
- Program enrolled 30 chronic disease patients with hypertension (23 patients) or diabetes (7 patients) with A1C >9.
- Data transmitted electronically into the patient’s medical record for physician review for quicker intervention versus the standard-of-care blood pressure or blood sugar logs turned in at a 3-month follow-up appointments.
- 100% of patient were contacted during the pilot by the MD or the MD’s RN with messages that included positive feedback, questions about why vitals were out of range, stress management, tips on management while traveling and medication changes/adjustments.
- Messages were communicated on average 2-3 times per week with responses from the patients as well.
- Trends show a decrease in blood pressure for hypertension patients and blood sugar reading for diabetes patients. One diabetic patient decreased regular blood pressure readings in the 360s to the 120s which resulted in a lowered A1C from 14.1 to 11.2 in one month.

**HOSPITAL C—HIGH BLOOD PRESSURE PROGRAM**
- Program enrolled 80 patients.
- Interventions prompted by data received include multiple medication adjustments, virtual visits, in-office care, telephone triage, nurse visits to decrease patient concerns of monitor accuracy
- Program successes included increased patient engagement and accountability for self management of care
- Enhancements added during the program include a pharmacist to manage and adjust medication for uncontrolled patients
- Results: using median time of monitoring of 24 weeks as the maximum time point for the cohort. Over that time the cohort saw an estimated mean change of -7.4 points in SBP, and -3.1 points in DBP, while HR levels remained flat. The results are both statistically significant, as well as clinically significant reductions in BP.

Remote patient monitoring using telehealth after complex surgery like liver transplantation has the potential to greatly improve patient care, quality of life and reduce resource utilization on the hospital side. With innovative use of technology that already exists in health care, we can transform postop surgical care and improve our ability to predict problems and reduce readmissions and eventually reduce health care cost after complex surgery. Telehealth allows improved communication and closer observation of patient care within their home and community.”

— Shimal Shah, MD, MHCM, James and Catherine Orr Endowed Chair in Liver Transplantation; Professor of Surgery, Director, Division of Transplantation, UC Health
FOCUS AREA: PEDIATRICS

Access to Specialists Key for Pediatric Telehealth Patients

Pediatric telehealth is an important area to examine because it can break down traditional barriers to accessing health care. These can include distance and transportation, but in pediatrics also can include available expertise and many other socio-economic factors.

Telehealth allows providers to use tools to impact the transportation barrier and the availability of rare expertise by removing geographic restrictions.

Pediatrics is a broad category. The OHA Work Group defined measures and realized clinical outcomes would vary based on subspecialty (pediatric primary care vs. pediatric psychiatry vs. pediatric subspecialty care). But there were some consistent measures that spanned these very different programs occurring in different care settings.

For pediatrics, and across health care, there are multiple key stakeholders. The Work Group identified measures demonstrating value for patients, providers and payers. Selected measures include volume of inpatient, outpatient, emergency, and home encounters competed by telehealth. This was done to give a sense of the number of patients and families impacted.

The group also looked at transfers avoided as cost savings for the payer. By having expertise available to facilities via telehealth, transferring patients to larger facilities can be avoided. This likely includes a transfer cost (included in data collected) but may also include additional higher acuity care costs (not included).

These avoided transfers are from telehealth in both the emergency department and inpatient setting that resulted in patient remaining at that local facility. This study used an average cost of transport of $850 for pediatric transport and applied that to all avoided transports to get an estimate of cost savings.

The group recognized that providing telehealth for patients can lead to travel cost savings for patients and their families. Each organization in the study provided an estimate of mileage saved by patients who received telehealth encounters. For organizations, this only included patients outside of their primary service area who would have had to travel significant distances for care.

This value gives a sense of the cost of savings for not only the payer (like with the avoided transports) but also for the patient/family. Finally, the OHA Work Group looked at two measures of experience. This includes the provider experience with telehealth as well as patient experience as measured by two questions, would they recommend telehealth to family and friends, as well as rating on a scale of 0–10.

Data is available from limited pediatric organizations statewide because limited reimbursement prevents broad use of many telehealth programs. Data is for one full year, the most recent annual available for each of the three organizations reporting. The number of avoided encounters and miles methodology may differ by entity.

**PEDIATRIC TELEHEALTH METRICS**

The important metrics for pediatric telehealth are:

1. Volume of inpatient, outpatient, ED and home encounters
2. Number of transfers avoided for ED and IP
3. Outpatient travel costs avoided
4. Patient satisfaction

For these metrics, data was collected from three hospitals.

<table>
<thead>
<tr>
<th>Metric</th>
<th>HOSP. A</th>
<th>HOSP. B</th>
<th>HOSP. C</th>
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<tbody>
<tr>
<td>Volume of IP encounters</td>
<td>411</td>
<td>9</td>
<td>NA</td>
</tr>
<tr>
<td>Volume of OP encounters</td>
<td>423</td>
<td>707</td>
<td>348</td>
</tr>
<tr>
<td>Volume of ED encounters</td>
<td>29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume of home encounters</td>
<td>370</td>
<td></td>
<td></td>
</tr>
<tr>
<td># of transfers avoided for IP</td>
<td>83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outpatient travel costs avoided—encounters</td>
<td>235</td>
<td>121</td>
<td>348</td>
</tr>
<tr>
<td>Outpatient travel costs avoided—miles traveled</td>
<td>43,526</td>
<td>7,714</td>
<td>20,065</td>
</tr>
<tr>
<td>Outpatient travel costs avoided—cost avoidance (2016 IRS mileage = $0.54)</td>
<td>$23,286</td>
<td>$4,127</td>
<td>$10,835</td>
</tr>
<tr>
<td>% reporting that they would use telehealth again and recommend to family, friends</td>
<td>94%</td>
<td></td>
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</table>

“This telehealth visit was a life changer for our family! My 9-year-old son has been showing signs of anxiety with health-related appointments. This appointment would normally involve me taking off at least 2 hours of work to drive to school from work, pull him out of school, drive on to Children’s, wait, see the doc for a few minutes, and drive on home. For this appointment, I met my son at Cross Country practice, did the follow-up, and had him back on the field within 9 minutes tops. I didn’t have to take off work much at all, my son missed NO school, and we had an easy, rapport building call while taking care of the business we needed to. No waiting, no apprehension.”

— Parent, Cincinnati Children’s Hospital patient
FOCUS AREA: URGENT CARE

Largest Volume of Patients Seek Remote Connections for Common Acute Issues

Direct to patient, on-demand, urgent care telehealth services provide patients with access to a clinician for a range of common acute issues. The most common issues that a patient can seek care for in this venue are (not limited to) upper respiratory infections, seasonal allergies, conjunctivitis, flu, rashes, urinary tract infections and yeast infections.

Patients typically can access these types of visits via their own mobile device or desktop or laptop computers that can provide a live audio/visual connection with a provider within 10 minutes from the comfort of the patients’ own home or from work. A typical visit lasts about 15 minutes, and, if appropriate, can result in an electronic prescription and/or over-the-counter remedies, and information about what to expect and watch for.

This area of telehealth is important as it represents the largest volume of live audio/visual telehealth patient connections currently performed, and it is also an area of telehealth that where patients can seek telehealth care on their own initiative.

**UGRNT CARE METRICS**

The important metrics for urgent care are:

1. **Outcomes**—This is an important indication of patient perception, but also whether the telehealth visit is substituting for higher-cost-of-care visits (positive), or conversely if telehealth is resulting in duplication of service and added cost (negative).
   a. % patients responding that they considered their health care concern resolved during the telemedicine visit.

2. **Utilization**—This metric helps us quantify the potential health care savings in $, by understanding the number and percentage of patients that would have sought higher cost of care venues otherwise.
   a. % patients indicating that if they had not used a telemedicine visit, they otherwise would have opted to:
      • Use an ED
      • Use an urgent care facility
      • Use their PCP
      • Do nothing

3. **Satisfaction**—An important metric to understand patient experience with the new technologies
   a. Percent of patients responding “yes” to, “Overall, were you satisfied with your virtual visit”
   b. Percent of patients rating “Top Box scores” (“10”, “9”, or “8” on a scale of 1-10) to, “Would you recommend a virtual visit to your family and friends?”

4. **Access**—A metric to understand the adoption by patients of this new method of care, and the wait times they experience.
   a. Number of same day acute care virtual visits completed per month (most recent month)
   b. Average wait time for acute care visits

5. **Adoption**—A metric to understand the adoption by patients of this new method of care, and the wait times they experience.
   a. Number of patients enrolled for acute care virtual visits
   b. Number of unique patients completing an acute care virtual visit

The timeframes covered by the data are different by system reported, but generally cover from 6/2015 to 7/2017. For these measures, data was collected from three hospitals.

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**I was surprised at how well it went. Very fast and very easy, and I didn’t have to miss any work. Fast and efficient, the way I like it.”**

— Wally B., firefighter and Cleveland Clinic Express Care Online app user

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<table>
<thead>
<tr>
<th>HOSP. A</th>
<th>HOSP. B</th>
<th>HOSP. C</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of patients responding that they considered their health care concern resolved during the telemedicine visit</td>
<td>83%</td>
<td>NA</td>
</tr>
<tr>
<td>% of patients indicating that if they had not used a telemedicine visit, they otherwise would have opted to:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Use an ED</td>
<td>12%</td>
<td>5%</td>
</tr>
<tr>
<td>• Use an urgent care facility</td>
<td>73%</td>
<td>48%</td>
</tr>
<tr>
<td>• Use their PCP</td>
<td>4%</td>
<td>33%</td>
</tr>
<tr>
<td>• Do nothing</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>% of patients responding yes to “overall, were you satisfied with your virtual visit”</td>
<td>87%</td>
<td>83%</td>
</tr>
<tr>
<td>% of patients rating “top box” (10, 9, or 8) to “would you recommend a virtual visit to your family or friends?”</td>
<td>83%</td>
<td>81%</td>
</tr>
<tr>
<td># of same-day acute care virtual visits completed per month (most recent month)</td>
<td>759</td>
<td>774</td>
</tr>
<tr>
<td>Average wait time for acute care visits</td>
<td>4:50</td>
<td>9:46</td>
</tr>
<tr>
<td># of patients enrolled for acute care virtual visits</td>
<td>62,401</td>
<td>28,462</td>
</tr>
<tr>
<td># of unique patients completing an acute care virtual visit</td>
<td>12,148</td>
<td>8,240</td>
</tr>
</tbody>
</table>
Expanded Telehealth Shows Minimal Fiscal Impact on Medicaid

One concern about parity in telehealth reimbursement has been a fear of a significant shift in Medicaid enrollees excessively using the benefit, yet no evidence supports this claim. California, Colorado, Kentucky, Texas and Vermont have conducted fiscal analysis following telemedicine expansion legislation. The results showed minimal or no fiscal impact on the state or Medicaid programs. Maryland legislators in 2013 considered bills to expand the coverage of telemedicine-provided services under the state’s Medicaid program. Unlike the other five states noted, Maryland’s fiscal analysis included estimates by the Maryland Department of Health and Mental Hygiene that suggested telehealth coverage would cause an increase in use, but an overall cost savings. Continued Page 9 ➞
Expanded Telehealth Shows Minimal Fiscal Impact on Medicaid

The Maryland report estimated a 2 percent increase in the use of physician services and ultimately an increase in Medicaid expenditures of $6.3 million in fiscal year 2014 and an increase of $8.5 million increase in fiscal year 2015. The report, however, estimated a net savings of $.9 million in transportation costs avoided and $1.6 million in emergency department admissions avoided.

Maryland’s legislature in 2014 passed telehealth parity of all Medicaid beneficiaries.

**NEXT STEPS**

The OHA Telehealth Work Group identified four key steps for Ohio hospital outreach to improve patient outcomes using telehealth.

1. Work in partnership with the Ohio Department of Medicaid to revise the telehealth reimbursement rule (5160-1-18) to include home and school as originating sites, eliminate the five-mile radius mileage restriction and expand the list of approved providers
2. Continue to educate policy makers on the value of telehealth – improved access, cost savings, patient satisfaction and outcomes
3. Work in partnership with other provider groups and health plans to ensure state law and rules allow for the practice and reimbursement of telehealth services
4. Work toward the ultimate goal of telehealth coverage parity in state law

**REFERENCES**


**CONTACT**

Aly DeAngelo
Director, Health Economics & Policy
Aly.DeAngelo@ohiohospitals.org
614-221-7614

**CONTRIBUTORS**

Anya Sanchez, MD, MBA
UC Health
Lettie Benline
OhioHealth Riverside Methodist Hospital
Tia Buzzard
Akron Children's Hospital
Wayne Deschambeau
Wayne HealthCare
Andrew Hertz, MD
UH Rainbow Babies & Children’s Hospital
Karen S. Jackson, MS, RN
The Ohio State University Wexner Medical Center
Pamela Jensen
Promedica Memorial Hospital & Fostoria Community Hospital
Andrew Moleski
University Hospital Cleveland Medical Center
Michelle Post, MSN, RN, SCRN
Premier Health
Peter A. Rasmussen, MD
Cleveland Clinic
Gretchen Roberts
OhioHealth
Jennifer Ruschman, ScM, CGC
Cincinnati Children’s Hospital Medical Center
Janet Shaw
Ohio Psychiatric Physicians Association
Matt Stanton
Cleveland Clinic

**LITERATURE REVIEW**

The OHA Work Group assembled the following links for reference.

AHA. 2016 Telehealth: Helping Hospitals Deliver Cost-Effective Care
https://www.aha.org/system/files/content/16/16telehealthissuebrief.pdf


https://medinform.jmir.org/2018/1/e10/


Impact of Telemedicine on Mortality, Length of Stay, and Cost Among Patients in Progressive Care Units: Experience From a Large Healthcare System Donna Lee Armaignac, PhD, APRN CNS-BC, CCNS, CCRN; Anshul Saxena, PhD; Muni Rubens, PhD; Carlos A. Valle, MSIT; Lisa-Mae S. Williams, MSN; Emir Veledar, PhD; Louis T. Gidel MD, PhD. Critical Care Medicine (2018) [Epub ahead of print] Published online: Feb. 1. https://scholarlycommons.baptisthealth.net/ch/cm/content/16/16telehealthissuebrief.pdf