TELEMEDICINE in Hospital Medicine
Telemedicine Workgroup 2016-2017 Roster

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The charge of the Telemedicine Work Group of the Practice Management Committee is to develop resources focused on developing or improving telemedicine programs in HMGs.

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Introduction

According to a Cisco Customer Experience Report (2013), the number of telemedicine patients will increase from 350,000 in 2013 to 7 million in 2018. In the current climate of rapidly emerging risk- and value-based reimbursement, telemedicine has become a way in which providers can connect with patients in their time of need. Inpatient and hospitalist telemedicine can serve many purposes, such as primary encounter, follow-up, post-acute, home visit, consultation and emergent care. With physician burnout and patient experience being at the forefront of healthcare professionals’ minds, telemedicine is an area where hospitalists must take a lead role in shaping the future of how medicine is practiced.

This document has been created by the Society of Hospital Medicine's (SHM's) Telemedicine Workgroup of the Practice Management Committee to explain what we know so far about the basics of telemedicine within hospital medicine. The information in the following pages is based on real-time experience, research and interviews with telemedicine-hospital medicine experts. The document is intended to provide baseline knowledge of telemedicine. In the future, the workgroup plans to release more in-depth reports as it continues to observe the development of telemedicine in the space of hospital medicine.
Modalities

Healthcare providers have been offering care via telemedicine for many years, as basic telemedicine begins with the interactions between care team members that occur over the telephone. In today’s more modern environment, telemedicine can also be delivered via other modalities, such as video and sophisticated modern robots. The result is still high-quality care for the patient, but offering a more cost-effective solution for expensive provider interactions.

Telephone

Telephone interactions are still the most common and frequently utilized modality for telemedicine. This occurs when two or more members of the care team utilize the telephone to conference regarding a patient’s plan of care.

Video

The addition of video is now offered as a supplement to standard telephonic telemedicine. This modality can enhance the telemedicine experience as it allows the provider and patient the opportunity to visually interact. This allows a provider the benefit of the “eyeball test,” by assessing the patient to get an inherent judgement of his or her condition previously unavailable in a telephonic interaction. Video can be delivered via the use of a high-resolution camera, a monitor (screen) and a mobile cart. In many cases, the video cart package also includes tools, such as a stethoscope or other instruments, to allow the provider to offer a physical exam of the patient. Use of these tools will also require a clinician at the bedside to act as the provider’s hands. The technology on the high-resolution camera is sufficient to deliver a full history and physical of the patient, if the right tools are available.

Robot

In some instances, the use of a programmed mobile unit is available to enhance the delivery of telemedicine via video. As described above, if telemedicine is delivered with the use of a mobile video cart, another care provider — such as a nurse — is needed to deliver the care. Modern robots use the same video technology, but with a mobile unit that the provider can control remotely. This offers the provider more independence in the delivery of care. The decision to use these options is a question of cost and availability.
Offerings

With the use of the modalities described above, the offerings can vary. Some offerings currently used in hospital medicine are described below:

**Telephonic Consult**
In most cases, this technique will be used between a physician and nurse to discuss basic elements of a patient’s care plan. Usually it is a non-billable event. This modality is used in hospitals on a daily basis.

**Admissions**
As described above, with the use of a provider-controlled robot or a nurse with a mobile cart, a physician can provide a full history and physical of a patient at the bedside. The most common use of this modality occurs in small, rural hospitals to support overnight coverage. The cost of deploying a provider on site at a small hospital can be too great, given the limited number of patients the provider sees overnight. If the cost of a provider can be distributed via several hospitals through the use of video telemedicine, this is a more cost-effective way to deliver high-quality care.

**Daily Follow-up (Rounding)**
For daily follow-ups and rounding, the hospitalist role is quite essential; however, not all facilities may be able to fully staff their inpatient wards. In some locales short staffing is a perennial issue, whether at a hospital or a skilled nursing facility. A remote hospitalist using telemedicine (i.e., a telehospitalist) could round on these patients reliably on a daily basis. If a pool of telehospitalists is available, it will be much easier for remote rounding on patients. This will save commute time and resources, and will be of great value to the hospitals with a smaller or unpredictable census.

**Consultations**
The consultation services provided by a hospitalist have been increasingly more prevalent. Most specialties realize that preoperative assessment and risk stratification done by a hospitalist is not only convenient but also brings in much sought-after and impactful expert recommendations for perioperative management from a medical perspective. A hospitalist is well qualified to make remote recommendations for a wide variety of clinical interactions, such as acute kidney injury, unexplained leukocytosis, sepsis, choosing appropriate dosing/antibiotics, reconciling medications in the setting of new findings, preoperative risk stratification and many others.

A hospitalist may also benefit from engaging a specialist for consults via a telemedicine option. In some cases, it may not be economically feasible for a specialist to take the time to drive to a remote hospital, but he or she could provide a consult at multiple locations via video telemedicine. In most states, and for most insurance carriers, this is a billable encounter. Care using this modality could allow a patient who previously had to be transferred to another facility to receive this consultation, possibly stay closer to home and still receive high-quality care.
Offerings

Cross-coverage
It is common that healthcare systems include multiple hospitals, many of which do not have 24/7 coverage in house. It is also not feasible to staff every single location fully due to local physician shortages. The availability of Electronic Medical Records (EMRs) with remote access makes it feasible not only to assess patient records but also to initiate treatment remotely via a telehospitalist. This approach shows great promise to satisfy cross-coverage needs. In this role, the telehospitalist is available to provide cross-coverage at multiple locations remotely. This allows significant reassurance and comfort to the treating attending and primary care team and the ability to sign off on patients, ensuring patient safety while addressing staffing shortages.

Another potential role for the telehospitalist in the cross-coverage capacity is to be able to provide cross-coverage for various other services (e.g., bone marrow transplant service, orthopedic service, surgical service, liver service or other specialty services where it may not be feasible to fully staff the patients around the clock).

Postdischarge Follow-up
Patients who have been recently discharged often need to reach their primary care physicians in a timely manner, whether it be for a medication refill or follow-up care. Lee, et al. (2016) found that MI and/or ADHF patients with close follow-up had a 64% reduction in 30-day readmissions compared to those with delayed follow-up. Furuya, et al.’s systematic review (2013) showed a benefit to the use of telephone follow-up calls after myocardial revascularization. Having a remote postdischarge follow-up plan in place can remove healthcare delivery barriers for patients and logistical barriers for follow-up appointments.

Supervising Physician Support for Advanced Care Practitioners
Telemedicine can be used with physician extenders to allow an Advanced Care Practitioner to work at a remote location with the physician providing remote supervisory support from another location. This can truly extend the provider to expand coverage geographically, while still offering high-quality care.
Implementing a Telemedicine Program

As listed above, your driver for telemedicine services may be to serve a specific need of your practice. While there is ample evidence supporting the success of telemedicine in the hospital medicine space, this section will provide general guidance on the development of a program.

Project Time Frame

It is important to take into account the numerous moving parts that come with launching and maintaining a telemedicine program. When laying out your initial timeline, keep the following points in mind as they can wreak havoc on your launch date:

1. **Staffing Resource Availability**
   - Existing providers versus recruitment of new providers.
   - Lead time to recruit needed staff.

2. **Licensure**
   - Providers to be fully licensed and credentialed through the state in which the medical care is received.

3. **Medical Boards**
   - Medical Board position statements on telemedicine regarding prescribing regulations vary from state to state. Licensees intending to practice medicine via telemedicine technology to treat or diagnose patients should check the state’s licensing board where the patient is located at the time of the visit.

4. **Credentialing and Privileging**
   - Determine the most appropriate credentialing/privileging requirements of the organization and the entity where the patient is physically present.

Hardware

The first element to consider when planning telehealth visits with patients in acute-care settings is the telehealth cart system. The Information Technology (IT) department and the providers who will be using the system should collaborate on the selection of the particular cart system. While a particular cart design may have an interesting and novel feature intriguing to IT, overall usability needs to be considered from a provider’s perspective, and for nursing ease of use. An example of this is that some carts can be robotically controlled (admittedly this is an intriguing IT feature), however, finding a cart that simply rolls down the hall well and is easy for the nurse to get into the patient’s room is far less expensive and more useable.

The openness of the system is another consideration. Will the cart you purchase today work with new additions in the future? An open system design will allow flexibility as new hospitals are added or new products become available. Alternatively, some vendors only allow for the use of a proprietary system, limiting all equipment to that vendor. This may provide a more consistent look and feel for providers, but long-term costs could be higher.
Implementing a Telemedicine Program

The basic cart consists of a high-resolution camera, screen and mobility. The high-resolution camera should allow zooming in and out. The zoom-out feature is helpful to set a field of view that would allow the clinician to carry on an interview with the patient and a family member when present in the room. Zooming in allows for the physical exam and examination of surrounding objects, such as ventilators. The high-resolution screen is meant to give the patient and family the most in-person-like feeling during the telehealth visit. The high-resolution screen allows cart systems to be used not only in patient rooms but also for the clinician to interview and examine the patient if a fixed workstation is not available. Essentially, each cart can be used in the patient room and as a viewing station for the provider. A potential use for this is if the existing office-based workstation is in use, and another telehealth visit is required by a second provider, a cart can be used as a second workstation. Most carts are designed for ease of mobility, as opposed to being in a fixed location. For a hospitalist telehealth program, mobility would be considered a key to allow the cart to go to the patient. Highly specialized uses (e.g., tele-ophthalmology) may be better in a fixed location such as the emergency department.

In addition to the basic cart, there are common accessory devices that are needed to complete the exam. One example is a close-up camera designed for inspection of areas that are too small or not sufficiently illuminated for the general camera on the cart. This camera typically will have zoom features that allow for close to macro viewing. The camera commonly will have polarized illumination to decrease reflection from the skin surface. Uses would include examining wounds, skin lesions, the oral pharynx and conjunctivae. There can be attachments to the camera for specific functionality, such as the tongue blade attachment for oral examinations. The stethoscopes used function similarly to clinically used digital stethoscopes. The stethoscope typically will plug into the USB port or microphone input on the cart. The clinician can listen to heart tones, breath sounds and bowel sounds. Amplification of cardiac and breath sounds can require clinician learning, as amplified sounds can be much louder compared to a non-amplified stethoscope. An otoscope ophthalmoscope functions in the same fashion as traditional devices. These devices typically plug into the USB port on the cart. There are many other possible attachments that can be added for additional data such as EKG, spirometry and Doppler. Most of these devices for inpatients are for studies that have already been completed and are available in the EHR. As these are not commonly part of routine hospitalist evaluation, they are not further discussed.

Unlike a standard physical examination, the potential exists to capture findings during the physical examination via media capture. Limitations to the image or sound capture are more on the electronic medical record software platform than the telemedicine device. Importation into the medical record software may pose difficulty and may cause memory storage issues. However, if possible, this would be useful for skin lesions, especially wounds at the time of admission and during the stay.

For all carts a network-based decision will need to be made; namely, wired versus wireless. Use of wired technology poses less threat in the way of security risks. It does require the process of plugging the cart into an Ethernet port prior to initiation of a telemedicine visit. This may be an issue, depending on the hospital’s wired internet distribution. Essentially all patient rooms that would have telemedicine would need an open Ethernet port in which to plug the cart. In older facilities this could be a significant barrier. Alternatively, using wireless increases ease of operation as the cart simply needs to be rolled into the patient room and turned on. The wireless option does pose an increased security threat by allowing the signals to be more easily intercepted (see below for HIPAA considerations).
Implementing a Telemedicine Program

Staffing Resource
Provider selection will be key to the success of the program. It is important to consider a provider’s skill set when making the selection of the appropriate candidate to fill a telehospitalist role. Not only does the provider have to be a great clinician but he or she also needs to have an open mind, an innovative approach to medicine and outstanding customer service skills. The provider needs to have the ability to connect with the patient without being in the room with the patient, and experience tells us that not every person can do this. It is probably a good idea also to consider the provider’s “camera presence” as part of the interview process. Someone who meets all of the criteria can really make the delivery of care via telemedicine very effective.

Department
Where to deploy the telemedicine carts will be related to the volume of hospital utilization. Depending on the overall usage of telemedicine in the facility, the number and location of the devices could vary. For example, if used in a small critical access hospital, the device is housed in the emergency department. There it can be utilized for emergent cardiology consults and pediatric consultations. When there is a need for hospitalist admissions or coverage issues, a trained floor staff can retrieve the cart from the emergency department and provide the services for the telehealth hospitalist provider. At a larger and busier facility, the emergency department retains its own cart, and a second cart is kept on the medical floor due to higher patient volumes. Depending on usage and hospital size, there could be multiple carts shared by various medical units.

Location of providers would be reflective of the staffing model chosen. The clinical staff could be stationed at a facility doing other clinical activity in addition to the telehealth care, or be focused solely on telehealth. This model creates an opportunity for varied staffing choices in which licensed providers can be found in places that are several time zones from the care delivery site. This allows for time shifting of the night or evening coverage. Extreme examples are providers in Europe covering hospitals on the West Coast, or the Night Hawk model in radiology.

Wherever (and whenever) the clinicians are working, it is important to present a consistent product to the patient. Simply placing the physician workstation in a workroom where other providers come and go would be distracting during the patient visit. Ideally, the room should be a quiet office that is not used for other purposes. This would provide minimal distractions during the visit. The background environment that patients see also needs to be considered. Using a neutral or branded backdrop screen will give the patients a consistent visual interaction with the telehealth providers. Defining the specifics of clinician presentation to the patient displays a consistent brand image. This could include wearing a specifically branded white coat and making sure an identification badge is visible during the interactions. Scripting of the introduction and showing the provider’s badge at the start of the interaction provide the patient with the assurance that the provider is a part of the care team.

Having a dedicated telemedicine department within the hospital/healthcare system provides several advantages. It allows a structure for the addition of telehealth services in an organized fashion. A dedicated service will also set the groundwork to ensure the technical support is present as the telehealth program develops. Functions of the telemedicine department include the additions of telehealth consulting services, quality management, education, technical support and providing consistency throughout the various sites.
Implementing a Telemedicine Program

HIPAA
Patient confidentiality is an ever-present concern in healthcare today. Essentially, the Health Insurance Portability and Accountability Act (HIPAA) compliance issues are the same in both telehealth and in-person visits. For a patient in a semi-private room it would remain difficult for the roommate not to hear the conversation between the physician and the patient. With the telehealth cart there would be an option for headphones for the patient, which would provide some elements of privacy not available in face-to-face visits. If a wireless network system is used, a secure communication network needs to be in place prior to implementation of the telehealth program. This typically includes encryption of the transmission. The specifics of this system are highly technical and are not further covered here. The IT department will need to do a security review of equipment and interaction with existing network security. It will need to make sure the wireless system on the telemedicine cart meets security criteria for your organization. This may require extensive testing by the IT department, which can add many months to an implementation plan.

Quality
The quality of the telemedicine program will require monitoring in the same fashion as standard care. Physicians will be more likely to accept adoption of telehealth if quality measures are stable or improved. Key to the success of a telemedicine program would be maintaining or excelling at what has been established at a given hospital prior to going live with a telehealth program. Continuing to monitor standard measures of quality such as length of stay, case mix index, readmissions within 30 days and patient satisfaction are standard with or without a telehealth program. If there is a measurable change in these values after initiation of a telehealth program, further investigation would be warranted. Hospitals can add questions to the patient experience surveys sent out to more clearly answer questions about the patient’s impressions of the telehealth experience.

The use of surveys can help improve the program quality. Different surveys can be designed with various target goals in mind. Surveys to the providers delivering the care can be done in a comprehensive manner including topics about care delivery. Surveying of providers picking up patients after telehealth visits will also provide insight into the quality of the care given, e.g., were things missed or not done? An immediate after-visit questionnaire to the provider can help answer specific questions. Was transfer avoided? Were there technical issues with the equipment? Were there scheduling issues with staff at the hospital? The goal of these questions is to find issues that can be fixed rapidly, or to meet a system goal such as transfer avoidance.

Patient safety should remain key in all programs. Prior to initiation of the program, consideration of safety impacts should be evaluated. Post go-live, there should be ongoing monitoring of safety events for patients cared for via telehealth and evaluation of the events involving telemedicine. This includes both positive and negative impacts. Were patients seen in a timelier manner, preventing a potential safety event such as a rapid response? Or, was the person incorrectly treated due to a limitation of the technology?

There is no one-size-fits-all standard, since each service line has its own quality metrics and standards. Most of the service lines that have established telemedicine programs have been able to demonstrate value by using the standards applied to in-person healthcare. The American Telemedicine Association is a resource for outcomes research. This organization is industry driven, and subject to conflict of interests. The organization does have value for telehealth metrics. Demonstration of “non-inferiority” to in-person healthcare has been identified as a key standard.
Implementing a Telemedicine Program

Cultural Considerations

Telemedicine is a disruption in standard hospital culture. Moving to the use of telemedicine as a standard culture among providers is the key to success. Upon presentation of the concept of telemedicine, many clinicians have a negative response. Many of the concerns clinicians have are centered on the idea that patients will not feel that they are receiving the same care as they would during an in-person visit. Clinicians may not be aware of the technology on the carts, and what can be done with them. Demonstrations of the carts can greatly impact the understanding of the technology, and the ability to perform exams. Additionally, a review of case studies from other hospitals using telemedicine can be helpful to overcome the reluctance of providers. For example, clinicians could learn about one of the hospitals in the regional market that switched to telemedicine for night call and runs code blues remotely via a telehealth hospitalist. Most helpful is the ability to talk with providers who are doing telehealth visits and hear about their experience. Introduction of a telemedicine program gradually can give providers time to adjust to the concepts of the program and develop familiarity with the workflow.

As with all changes in healthcare, the introduction of a telemedicine program can dramatically change workflow. It can be perceived as a threat if major schedule or work disruptions occur. Many providers were never trained to work in a telehealth environment, and the paradigm shift represents an unwelcome change in their practice. The shift can also be seen as very helpful if it lends a sense of stability to a provider’s schedule. Night coverage can be especially difficult in smaller community hospitals. Using a centralized telemedicine coverage program would allow for the hiring of providers in a more desirable living location who are willing to work the night shift via telemedicine. By doing this, the staffing at the smaller hospitals could focus more on day coverage, which many would view as an advantage over a schedule with day- and night-shift rotations.

Providers who may never be in the hospital where they are caring for patients can present a significant culture change. With the transition to telemedicine, the provider giving the care does not need to be located within the walls of the hospital or even the same state. This can be a significant benefit, or satisfier for providers, allowing them to work from home (assuming HIPAA concerns are met). There may be a negative impact to team cohesiveness among clinicians if a provider never enters the hospital. What happens to the relationships with hospital staff who are not telemedicine based? Examples of relationship disruption include nursing/hospitalist, emergency department staff/hospitalist and consultant/hospitalist. Extra effort to foster a positive relationship while communicating by phone will be crucial to establish and maintain good relationships.

Patients may perceive the concept of telemedicine as very different from that to which they are accustomed. The task of introducing the process and the cart to the patient will fall on the nursing staff. Nurses must fully understand the process and reasons for using telemedicine, and be able to easily explain it to patients. Standard scripting for introduction of the telemedicine cart and the process should be written and practiced by the clinical staff prior to implementation.

The introduction of telemedicine will change the nursing workflow. Prior to go-live, identification of a standard nursing process needs to be defined with standard work written for the nursing staff. Will the nurse aide/tech provide cart assistance? Will the bedside nurse collaborate with the physician during the history and exam? Or, should the history and exam be done separately? A key consideration is that during busy physician admission times the nursing staff will also be very busy. This limits the staff available to assist with the telehealth process. This may prompt evaluation of staffing if telemedicine is essential to the function of the hospital unit. Comprehensive training of staff on the equipment (including specialized exam tools) and the process of the exam will be critical to ensuring the physician can complete a physical exam appropriately.
Implementing a Telemedicine Program

To ease the cognitive dissonance, here are a few statistics proving the worth of telemedicine on hospital culture:

Inpatient telemedicine has the potential to improve both patient and provider satisfaction. Polinski, et al. (2015) indicated,

“Patients reported high satisfaction with their telehealth experience. Convenience and perceived quality of care were important to patients, suggesting that telehealth may facilitate access to care.

Becevic, et al. (2015) found that 86% of physicians surveyed were satisfied with the care they provided through telemedicine.

Telehospitalist programs are an opportunity for hospitalists to learn career-enhancing skills, provide more opportunities for timelier care and allow for better coordination of the care team.
Implementing a Telemedicine Program

Credentialing

Licensing and credentialing are necessary precursors to running a telehealth service. However, they represent significant logistical challenges, especially for service lines that span not only multiple healthcare systems but also multiple states.

Service lines that span multiple states require licensing in those states. Twelve states have signed on to a common licensing standard. When a provider is licensed in one state, it is valid in all 12. This would be an ideal future state for all physician licensing that would facilitate the growth of telehealth. In the current workings, most programs will have to license one state at a time. Individual state regulation represents a completely separate, and extensive, challenge to telehealth evolution.

Similarly, telehealth services inherently span multiple facilities and often span multiple healthcare systems. In some healthcare systems, privileges at one facility mean that privileges are granted at all facilities. These types of privileging processes lend themselves to smoother, and more rapid, development of telehealth service lines. In the current state, however, it is much more common for the provider to have to obtain privileges one facility at a time. Obtaining and maintaining privileges at dozens of facilities represents a significant challenge not only for the individual provider but also, more importantly, for the entire service line. Once a service is contracted, all of the providers participating in the service must maintain privileges at all facilities, otherwise the service coverage cannot be maintained.

Reappointment is every two years so once the service starts, it requires on-going administrative oversight to maintain credentials and coverage. In California, for example, credentialing by proxy is accepted. This means that one facility accepts the credentialing process of another facility. This practice simplifies the process of obtaining credentials across multiple facilities; however, most California hospitals have not adopted the practice. Further, there is no standard procedure at the current time, and standards vary widely.

Variations in state regulations represent significant barriers and must be fully researched before beginning a new service line. For example, licensing in California for in-patient psychiatry requires previous practice in the hospital environment within the past two years, which narrows the pool of potential providers. Standardizing the practice in a service line is important to smooth operations, however variations in 5150 requirements make that impossible for practices that cross state lines. In California, 5150 can be removed by the provider; in Arizona it requires a court order.

The basic scenario is that the telehealth specialist has to apply for, and maintain, privileges at all of the facilities where he or she provides services. In addition, the specialist’s colleagues must maintain identical privileges, otherwise the scope of the service provided will be dependent on the provider on duty.
Implementing a Telemedicine Program

Volume
A critical mass is necessary for a successful service, not only for the provider but also for facilities receiving the service. Providers need to have sufficient volume to create a financially viable practice. Facilities that use the service need to have sufficient volume so that the service runs smoothly and effectively when activated. Once-daily activation, on average, is the minimum requirement. If the service is only activated a few times a week, the facility will have problems with proficiency utilizing the service line.

Projections can be made based on service lines. For example, general trends indicate that 1% of emergency department volume is stroke, and 2% is for psychiatric services. However, not all psychiatric patients in the emergency department activate a psychiatric consultation. Experience reveals that most of the patients presenting to the emergency department with psychiatric problems will not activate a psychiatric telehealth service.

Staffing Ratios
Staffing is integrally related to other variables, including volume and payment systems, so there is no one formula for staffing ratios. Backup is an important calculation in service line development, however. A front-line telehealth service provider must be able to focus on the telehealth service line to successfully develop the service; i.e., he or she should not have in-person service requirements at the same time. However, as a service line grows, and becomes successful, backup coverage becomes a factor. Although front-line telehealth providers should not have in-person patient care responsibilities, backup telehealth providers will often need to have in-person patient care responsibilities to support their practice.

Scheduling
Scheduling will vary, based on the offering and the staffing need. Listed below are a few examples of scheduling options:

- For nighttime admission coverage, a 7-on/7-off model can be deployed with two providers to offer coverage every night for admissions. A single provider should be able to handle seven to eight admissions at night plus six to eight calls per hour.
- For other admission coverage, a provider could match the schedule of other hospitalists on site to supplement his or her schedule. Note the benefit of telemedicine in this case is to supplement coverage at multiple sites.
- For specialty consults, in many cases scheduling is effective if done when the provider has sufficient downtime. This has been effectively done during a low-volume time in the ambulatory space and scheduled at specific times in the hospital. The provider would essentially have inpatient, telemedicine time included as part of his or her daily schedule. The hospital would also have access to this schedule and would need to coordinate with any other care providers involved with that patient.

Liability
Liability is dependent upon how the service agreement with the facility is written. Malpractice insurance coverage is necessary, but stipulates that a licensed practitioner needs to be at the bedside, implementing the telehealth treatment recommendations. This creates unique challenges, however. For example, many psychiatric services require patient confidentiality, and other providers cannot be in the room. Outpatient service lines are a challenge because unlicensed medical assistants are usually the on-site provider, and don’t meet the standards for coverage requirements. Consistent standards reduce liability risk. For example, day and night coverage should be consistent to reduce risk of liability when there is a bad outcome.
Implementing a Telemedicine Program

Integration into Health Records
Health record integration is different in that it is less dependent on state regulations, and more dependent on EHR vendor functionality. There are two key aspects of EHR integration: receiving data and sending opinions. A third important aspect of health record integration exists as well: data mining. In the single system, multi-site model, telehealth EHR integration is mostly seamless, and is the model for the ideal state of telehealth implementation. In this model of telehealth operation, the provider can log into a single EHR and access data on any patient at any facility in real time. The provider would also be able to enter orders on the patient. In order to limit liability on the telehealth provider, groups generally have the on-site, licensed clinician enter orders.

The multi-system telehealth provider network often runs into the problem that access to all health record systems for all providers is not practical, or not the standard practice.

Billing for Services
There are two main considerations under the topic of billing for services: professional fees and facility charges. Minnesota passed a parity law that requires any live video/audio provider evaluation to be reimbursed at the same rate as an in-person patient evaluation. In California, professional fees can be reimbursed, but the rates are low, so the hospitals have to finance the service. There is a model that employs a daily per-diem rate along with a per click rate. The federal government has not signed off on telehealth professional fees out of concern that telehealth would increase volumes of professional fees without improving quality. There remains significant concern that a telehealth system could be subject to fraud, and ensuring the integrity of professional charges will be a necessary assurance to make the evolution of telehealth financially viable. Documentation will have to support charges submitted to make billing for professional services effective.

Onboarding, and Recruiting for the Telehealth Services
Hospital medicine appears to be behind other specialties in adopting telehealth, and other, more evolved specialties serve as a better model for on boarding physicians. With some services, sufficient providers have been a barrier to moving forward; this is ironic, in that telehealth was, ostensibly, developed to meet the provider deficit. Mentoring of new providers by experienced providers is important to successfully adding providers to the service line. Identifying required skills, listing them and then documenting that the provider has demonstrated proficiency is a valuable means for onboarding new providers.

There are groups in the country that only provide telehealth coverage, which has some advantages but also many challenges. Specifically, when a service line grows and backup providers are required in groups that have both telehealth and in-person service lines, the backup provider can perform in-person services until the service is sufficiently busy to support a second provider. Telehealth-only groups do not have that option.

In groups that provide both in-person and telehealth services, there is value in keeping the number of telehealth providers limited in order to maintain proficiency with the service. Having a few providers perform the service frequently leads to higher quality than many providers performing the service infrequently.
Implementing a Telemedicine Program

Training for Staff
Facilities receiving the service need to be trained on how to utilize a telehealth system, as well as the providers who are on the telehealth system. Being organized, and systematic, was identified as very important. A checklist of tasks that must be accomplished should be created in advance of implementation at a new facility.

Identify key stakeholders on the medical staff and hospital staff well in advance of implementation so that they understand the vision for the service that will be provided. For physicians, in particular, telemedicine can represent a significant change in their practice, and some will view it as a threat to their practice. Identifying problems like these in advance is critical to successfully implementing a program.

Telehealth evaluations represent a significant change in workflow for nursing. For example, nurses normally do not participate in taking the history and performing the physical exam. It is important to empower nurses not only to support the process but also engage in it, and ask questions during the interview. The implementation needs to be tailored to the service line that is being provided. For example, integration with PACS is critical for stroke services, but not relevant to the implementation of a psychiatric service.

Creating a personal connection is valuable, and increases the chances of a successful and enduring implementation. Some groups have the telehealth providers also provide in-person services. This is not practical in all circumstances, but is valuable when feasible. Lunchtime meet-and-greet meetings are another option.

Hours of Operation
Though individual needs will determine specific hours of operation, it is important to establish the expectations up front. For example, you may serve a critical access hospital with 24-hour coverage from a remote site for certain specialty coverage, or provide cross-coverage for the night shift for defined hours of the night.
Implementing a Telemedicine Program

Program Maintenance

As a group identifies program needs, it is imperative to create an evaluation process to define program success as well as measure the impact of the program. Several approaches can be used to create evaluation tools, such as dashboards, evaluation templates and report cards. An operational maintenance checklist should also be created to focus on (at least) the following elements:

1. Technology
   - Hardware/software capabilities vs. the needs of the practice.
   - Ensure all relevant updates are in place.

2. Licensure/Credentialing
   - Upkeep with renewal and requirements maintenance for local hospital, state, federal, etc.

3. Staffing
   - Ensure your staffing model continues to meet the needs/capabilities of the defined scope of the telemedicine program.

4. Operational/Billing
   - As regulatory landscape changes and payer position on coverage for these services evolve, a formal process to review and stay current with the ongoing changes will be essential for compliance.
   - Address all potential revenue avenues for the purposes of program.
Workflows

Rural Coverage

Rural hospitals are a natural first stop for telemedicine. There is an opportunity to keep patients in their community while receiving the most qualified care and also keeping doctors in their communities while cutting out commute time.

Scenario

Two hospitals are 18 miles apart. One is a critical access hospital with fairly low average census (8–12 patients), the other a 200-bed academic hospital. Before a program was put in place, the academic group covered the critical access hospital during the day with an on-site physician. At night, coverage from the larger hospital consisted of the nighttime Advance Practice Providers (APPs) by phone call only. The emergency room would call the APP, the APP would enter orders in the computer system and the patients were actually not seen until the next day.

After the telemedicine program was put in place, the workflow proceeded as follows: emergency room talks with APP, orders written, the house supervising nurse calls the APP to set up a time that the telemedicine visit will occur. The APP has a specific office set up with a fixed workstation, and the visit is initiated during the night coverage.

Scenario

A 74-year-old female presented to a small rural hospital emergency department late in the evening with shortness of breath and was found to have congestive heart failure. Her symptoms were controlled and she was admitted to the hospital for treatment. The emergency staff contacts the on-call hospitalist via a smart phone app, discusses the case and both providers agree on the admission. The hospitalist enters basic orders initiating the admission process, and within an hour the patient is in an inpatient bed. A trained floor nurse wheels in a telehealth cart. The hospitalist working that night at the health system’s main campus (more than 100 miles away) completes the history and physical with the assistance of the bedside nurse. The hospitalist discusses the treatment plan with the patient and nurse. After completing the admission, the hospitalist moves on to an admission at a different rural hospital.
Workflows

Scenario

The hospitalist group has multiple practice locations with providers at all sites. Assuming that not all sites are busy at the same time, if one site is overwhelmed with admissions, the group can ask for help from other sites with admits or discharges.

An all-admitter message system should be used by a physician at the struggling site. Process guidance can be such that if the beginning of a surge is recognized, an initial message should be sent that the group may need help. This would let the other sites know that they need to speed up their patient care cadence.

Strict rules are required as to when you can or cannot ask for help. When the person asks for help, a defined communication process is to occur between nursing and the physician doing the exam to set up the remote visit time. The remote provider will enter orders on the patient, review the chart, etc. as you would typically do, then see the patient remotely.

Night Cross-coverage

While employment of nocturnists continues to grow an average of 10% per year (SOHM 2016), the reach of nocturnists has an opportunity to expand by utilizing telemedicine.

Scenario

A hospital medicine group provides hospitalist coverage across 13 sites, which includes dedicated night coverage providers across all sites. The group consolidated night cross-coverage phone calls to a centralized office staffed with physicians and APPs whereby only floor calls come to the centralized office. When the patient condition warrants the on-site provider to be engaged, the centralized provider group triggers the response.

A few hurdles the group had to overcome in executing this plan included:

- Implementing a common EMR across all sites
- Considerations of medical staff credentialing
- Technology capabilities (hardware and connectivity)
- Operational requirements (communication workflow/decision trees)
Workflows

Scenario

There are three small rural critical access hospitals located 50 to 100 miles from a large urban hospital system. These hospitals have a 7-on/7-off dayshift hospitalist coverage model. The community physicians have gradually turned over all hospital care to the hospitalists and have lost the desire to provide call coverage. Attempts to hire physician assistants to provide the night coverage were unsuccessful due to the remote area of the hospitals, and the need for nighttime-only staffing. The admission volume for the hospitals is low with an average of only one to two admissions per night, and a range of 0–4 admissions per night at each hospital. With the introduction of a telemedicine service, the system was able to hire a physician and APP team who can cover all three small critical access hospitals. Within the urban area there is a university medical school, with affiliated programs for nurse practitioners and physician’s assistants, increasing the staff availability. Staffing for a nights-only based physician and APP are more easily found and based in an offsite IT office suite. Coverage to all three hospitals is maintained without increased work for the hospitalist working at the critical access hospitals.
Case for the Telehospitalist

The Provider Shortage

According to a report released in 2016 by the Association of American Medical Colleges, “Physician demand continues to grow faster than supply leading to a projected total physician shortfall of between 61,700 and 94,700 physicians by 2025.” Nowhere is this more apparent than in rural settings and critical access hospitals. Hospitalists using telemedicine would allow healthcare entities in these areas to thrive by building networks and allowing for all providers to practice at the top of their license. This would help address economies of scale by breaking through geographic boundaries where, historically, expert input was lacking. Patients would be able to remain in their communities while receiving the highest quality care possible.

CHI Health started a telehospitalist program out of its Omaha, Nebraska location to support a critical access hospital in Plainview, Nebraska. There were no physicians in the community. Physician assistants had a collaborating physician who was located 30 miles away. The hospital had an average daily acute-care census of about one patient. A telehospitalist program was established to support acute care in Plainview. Within a few months, two other rural sites that needed similar support were added. It is projected that the telehospitalist model will expand and allow Plainview and the other sites to offer more services and allow patients to stay in their communities, while at the same time expanding the referral base of the hospital in Omaha providing the telehospitalist service.

Care Coordination

Telemedicine will allow hospitalists to more easily incorporate multidisciplinary rounds into their care. “Virtual rounds” could include family members, providers and support services regardless of their location. Virtual rounds could take place daily and at key transition points in the hospitalization such as admission, discharge or care planning and family meetings. By leading these rounds, telemedicine will help the hospitalist maintain leadership in the inpatient space and keep patient-centered care at the forefront of treatment.

As hospitalists take the lead in establishing telehospitalist processes/programs, specialists and hospital support services such as care management, social work, therapy and dieticians can be added to the care team virtually, thus establishing a virtual care team. As hospitalists lead these models of care, it will reinforce their role as leaders of the care team and drivers of care progression.

At Thomas Jefferson University a telehealth initiative has been constructed that encompasses these patient touch points. With dedicated outpatient, transition-of-care and inpatient core components, Jefferson is looking to coordinate patient care throughout the continuum of care.

Financial – At Risk and Value-based Reimbursement

Telemedicine has a financial benefit to hospitals. According to a case study the Veterans Health Administration conducted in 2014, “when analyzed across its entire population, and when taking into account the ‘frequent flyers’ (the 5% of patients that represent 30% of costs), the VHA finds that a $1,600 investment per annum for these patients decreases average costs by over $6,500 per year, producing an ROI of 4:1.” Some examples of low-hanging fruit to increase efficiency include night coverage consolidation in hospitals across a system, backup and cross-cover system consolidation/enhancement, and centralizing a “tele-hospitalist bunker.” There is also the potential to reduce readmissions, especially if telemedicine is deployed in conjunction with emergency medical services and in post-acute facilities.

As we all enter into a shared savings environment, the care coordination and post-acute monitoring potential of telehospitalists will continue to reduce the total cost of care. As rural networks are established, this can quickly become both a secure referral source for transfers and a mechanism to build relationships that will increase referrals to both the inpatient and outpatient departments of sponsoring hospitals.
Case for the Telehospitalist

Eventually, as risk environments dominate the healthcare landscape, telehospitalist programs will be an important strategy to shift care from the inpatient to home settings. Systems such as Johns Hopkins have already implemented “hospital at home” models that have demonstrated that for certain conditions typically cared for today in the hospital, care can be safely and cost effectively shifted to the home using a virtual “hospital at home” model.

It is essential that hospitalists lead these transitions. This will help the hospital medicine specialty and individual providers by incorporating new dimensions of roles as hospitalists. Telemedicine is shifting the career paradigm of hospitalists who manage acute serious illness, and serious exacerbations of chronic illness (the most patients who require the most healthcare resources) in all settings, not just the hospital.

Telehealth is less expensive than hiring physician services, however for hospitals that were never planning on providing a service in the first place, telehealth services can be an unwelcome expense. In these situations, demonstrating return on investment by keeping the patient at the home facility is critical to getting the service started.

Conclusion

Telemedicine shows great promise to increase consumer access to high-value care while remaining close to home. Healthcare companies have been charged with transforming to a value-based business model, and telemedicine tools will aid in that evolution. Hospital medicine plays a pivotal in the implementation of these tools given its unique perch within the health care continuum. SHM will continue to focus on providing its members with tools and best practices for adopting these technologies.