

Telemedicine Applications for Small & Rural Hospitals

This guide was developed by the ASHP Small and Rural Hospital Section Advisory Group to share ideas on ways telemedicine and telehealth have been used in other small and/or rural hospitals to serve the needs of patients and communities. It is intended to provide a basis for discussion regarding the needs at your facility and to prompt discussion on creative ways to address them.

Program	Description	Benefits	References and Resources
Pharmacy - Retail	<p>Provides remote pharmacist for verification of retail prescriptions for a technician in a remote pharmacy location.</p> <p>See attached Wisconsin statutes verbiage re: remote dispensing sites.</p>	<p>Improved utilization of pharmacist resources across broad geography that wouldn't support FTE per telepharmacy.</p> <p>RPH does not need to be on site; prescriptions can be dispensed remotely utilizing video technology.</p>	<p>https://webcache.googleusercontent.com/search?q=cache:fiThh1hEJc0J:https://www.ndsu.edu/fileadmin/telepharmacy/NDTP_PPt_Update.pdf+&cd=2&hl=en&ct=clnk&gl=us https://www.nodakpharmacy.com/pdfs/Lawbook41316.pdf See 61-02-08 telepharmacy</p> <p>http://www.ashp.org/menu/News/PharmacyNews/NewsArticle.aspx?id=2838</p> <p>http://dps.wi.gov/Documents/Credentialing%20Forms/Health%20Application%20Forms/fm2874.pdf</p>
Pharmacy - Hospital	<p>Provides remote pharmacist for review of medication orders, review of compounded sterile products, or patient, nurse, or provider consultation.</p>	<p>Opportunity for 24 hour coverage for facilities without local resources to meet regulatory requirements. Allows for redeployment of on-site pharmacists for patient-focused activities while orders are processed remotely.</p>	<p>http://www.smgebooks.com/telemedicine/chapters/TELMED-16-03.pdf</p> <p>https://www.healthcare-informatics.com/article/telemedicine/small-rural-hospitals-telepharmacy-technology-advancing-pharmacy-practice</p> <p>See ASHP Telepharmacy Statement AJHP May 1, 2017</p> <p>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3430987/</p> <p>http://www.hhnmag.com/articles/6566-telepharmacys-bright-future</p> <p>https://www.ndsu.edu/telepharmacy/for_hospitals/</p>
ICU	<p>Remote Intensivist and nursing services for ICU patients.</p>	<p>Allows CAH or smaller PPS hospitals to keep a higher complexity of patients. This keeps patients local and preserves viability of hospital for appropriately retained patients.</p>	<p>http://ajcc.aacnjournals.org/content/21/1/34.full</p> <p>https://www.ruralhealth.va.gov/docs/issue-briefs/Impact_of_Tele-ICU_on_Patient_Outcomes.pdf</p> <p>http://www.healthleadersmedia.com/technology/telemedicine-emerging-rural-icu-solution/</p> <p>http://www.medscape.com/viewarticle/820120</p>

<p>Emergency</p>	<p>Remote emergency medical and nursing services for emergency department patients.</p>	<p>Provides emergency medical services until local physician arrives in hospital. Provides collaborative care and nursing documentation support for codes, intubations, etc.</p> <p>Can avoid unnecessary transfers to metro hospitals.</p>	<p>http://www.fiercehealthit.com/story/study-hospitals-can-profit-use-tele-emergency-services/2015-12-03</p> <p>https://www.statnews.com/2016/05/12/telemedicine-emergency-care/</p>
<p>Stroke/ Neurology</p>	<p>Remote neurologists use digital video/ robotic equipment to interact with the patient, determine diagnosis and recommend treatment plan.</p>	<p>Code Stroke patients are more quickly diagnosed and assessed with faster decisions for disposition (transfer, treat with thrombolytics, plan rehabilitation care, rule out stroke). Several patient outcome metrics have improved including time to TPA administration and transfer.</p>	<p>http://www.ncbi.nlm.nih.gov/pubmed/10793970</p> <p>http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2664571/</p> <p>http://stroke.ahajournals.org/content/40/7/2635.full</p> <p>http://www.himss.org/ResourceLibrary/genResourceFAQReg.aspx?ItemNumber=34389</p>
<p>Burn</p>	<p>Specialist connectivity to accurately triage burn patients to appropriate care.</p>	<p>Rapid triage to appropriate level of burn care.</p>	<p>http://www.americantelemed.org/resources/telemedicine-practice-guidelines/guidelines-open-for-comment/practice-guidelines-for-tele-burn-care</p> <p>http://www.massgeneral.org/telehealth/teleburns.aspx</p> <p>http://uuhsc.utah.edu/burntelemed/Telemedicine%20Evaluation.pdf</p>
<p>Radiology</p>	<p>Remote radiologist reviews radiological exams to provide immediate interpretation.</p>	<p>Faster diagnostic and treatment plan development for use by the on-site hospitalist with more definitive answers from the radiologist expert.</p>	<p>http://evisit.com/what-is-teleradiology/</p> <p>https://radiology.med.uky.edu/news/telehealth-expands-patient-access-care</p> <p>https://www.avizia.com/teleradiology-as-a-hub-for-telemedicine/</p> <p>http://content.healthaffairs.org/content/25/5/1378.full</p> <p>http://med.dartmouth-hitchcock.org/telehealth/radiology.html</p>

<p>Urgent Care</p>	<p>Telemedicine provided for minor illnesses and injuries. This can be in a care system, direct to the public, or from a patient's home using a mobile device.</p>	<p>-appropriate use of urgent care reduces workload on emergency department at a lower cost of care</p>	<p>http://www.modernhealthcare.com/article/20150221/MAGAZINE/302219981</p> <p>http://www.americantelemed.org/docs/default-source/standards/primary-urgent-care-guidelines.pdf?sfvrsn=4</p>
<p>Workplace Health</p>	<p>Employee with acute illness able to connect with remote practitioner with use of variety of attachments (camera, otoscope, thermometer). Also monitoring of employees on the job with technology.</p>	<p>-employee misses less work because can do quickly at work site</p> <p>-employees can get immediate appointment in area with limited primary care providers</p> <p>-can use available employee health care providers when have break between patients from a wide variety of work sites</p>	<p>https://books.google.com/books?hl=en&lr=&id=iikxCgAAQBAJ&oi=fnd&pg=PA109&dq=telehealth+employee&ots=G514O6RbhC&sig=IEN35aN4-11Den5v7dRpW0EbGfY#v=onepage&q=telehealth%20employee&f=false</p> <p>http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=7038923&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxppls%2Fabs_all.jsp%3Farnumber%3D7038923</p> <p>http://www.healio.com/nursing/journals/jcen/2008-9-39-9/%7B6ac3d760-c7f8-4320-80b5-96baefccd830%7D/bridging-the-distance-educating-nurses-for-telehealth-practice</p>
<p>Long-Term Care</p>	<p>Routine and urgent care provided to LTC residents to reduce unnecessary patient transfers for emergency care and hospital admissions.</p>	<p>-patients able to receive treatment in their facility without transporting the patient</p> <p>-less costly</p> <p>-can reduce readmissions</p>	<p>http://www.ncbi.nlm.nih.gov/pubmed/24460845</p> <p>https://www.cadth.ca/emergency-telehealth-urgent-conditions-long-term-care-facilities-clinical-effectiveness-cost</p> <p>http://www.ltc100.com/files/2016/The-Role-of-Telehealth-in-Long-Term-Care.pdf</p>
<p>Correctional Health</p>	<p>Urgent care for inmate population to reduce unnecessary emergency care and hospital visits.</p>	<p>-patients able to receive treatment without costly transports</p> <p>-substantial savings potential for the state</p>	<p>http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3783076/</p> <p>https://www.ncjrs.gov/pdffiles1/175040.pdf</p> <p>http://healthaffairs.org/blog/2014/11/04/examining-state-prison-health-care-spending-cost-drivers-and-policy-approaches/</p> <p>http://www.pewtrusts.org/en/research-and-analysis/reports/2014/05/15/managing-prison-health-care-spending</p>

<p>Psychiatry/ Child Psych</p>	<p>Behavioral health assessments and follow up care performed with the help of telemedicine equipment.</p>	<ul style="list-style-type: none"> -current shortage of psychiatry services, especially in rural health limiting services to children -offers patients of all ages (if available) opportunity for mental health treatment especially those that have limited resources such as transportation -children able to receive follow up appointments at a closer proximately, potentially reducing school absences due to traveling to appointments -children able to follow up with MD and not have to travel and potentially obtain prescriptions (i.e. CII) provided to them at the telehealth appointment 	<ul style="list-style-type: none"> http://health.usnews.com/health-news/patient-advice/articles/2015/01/15/telepsychiatry-the-new-frontier-in-mental-health http://academicdepartments.musc.edu/pr/newscenter/2015/telehealth-psychiatry.html#.VzNkpGxOWig http://www.ortelehealth.org/content/bridging-gap-child-and-adolescent-psychiatry-telehealth https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4032077/ http://www.apa.org/monitor/2011/06/telehealth.aspx https://www.cloudvisittm.com/learn-about-telemedicine/telemedicine-software-provider/
<p>Behavioral Therapy</p>	<p>Remote psychiatrists provide scheduled routine verbal/visual sessions with mental health patients</p>	<ul style="list-style-type: none"> -specialty practitioner able to provide assessment to remote patients -prevents delays and transport of patient -psychiatrists can practice more efficiently -patients do not have to travel to receive routine care prevents lengthy travel and increased compliance 	<ul style="list-style-type: none"> http://www.apa.org/monitor/2011/06/telehealth.aspx http://www.hrsa.gov/publichealth/guidelines/behavioralhealth/behavioralhealthcareaccess.pdf http://www.integration.samhsa.gov/operations-administration/telebehavioral-health http://www.advanced-telehealth.com/monitoring-solutions/diseases/behavioral-health http://www.americantelemed.org/resources/telemedicine-practice-guidelines/telemedicine-practice-guidelines/practice-guidelines-for-video-based-online-mental-health-services#.VzNjeGxOWigalth/

<p>Internal Medicine/ Hospitalist</p>	<p>Computer on wheels with accompanying instruments including stethoscope, camera, otoscope. Technology provided on site practitioners the ability to perform and transmit assessments directly to off-site overseeing provider.</p> <p>An example of this program is using mid-level practitioners as hospitalists at a smaller facility within the health system. Oversight by MD is provided by a larger facility within the system through telehealth. Mid-levels assess patients daily, write necessary orders and provide coverage 7 days/week. A telehealth consult is done with an overseeing MD within 24 hours of admit and every 72 hours (or more often if requested by MD).</p>	<p>-CAH is able to utilize mid-level practitioners to run hospitalist program with oversight from remote MDs. Mid-levels have been easier to recruit based on area schooling/NP programs.</p>	<p>http://www.offsitecare.com/telemedicine-services/hospitalist-services</p> <p>http://www.aspr.org/?page=JASPR_Summer14_7</p> <p>http://medicaleconomics.modernmedicine.com/medical-economics/content/tags/american-telemedicine-association/integrating-telemedicine-your-pract?page=full</p> <p>http://annals.org/aim/article/2434625/policy-recommendations-guide-use-telemedicine-primary-care-settings-american-college</p>
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<p>Infectious Disease and Antimicrobial Stewardship</p>	<p>Referrals/consults made by primary care or hospitalist. ID specialist located at larger tertiary care facility.</p> <p>Inpatient: Consults requested to ID specialist and consult scheduled. On site provider able to provide visual capabilities to off-site ID specialist and discuss disease state with on-site provider and patient.</p> <p>Outpatient: Referrals are made via primary care providers. During appointment, the clinic RN utilizes telehealth technology for assessments of the patient MD feels necessary. Patient billed for visit with provider. The patient is billed a small telehealth “cart fee” that the telehealth facility receives</p>	<p>-Provides specialty services to patients that would otherwise have to travel long distances to obtain specialty services.</p> <p>-Service can be used inpatient and/or outpatient.</p> <p>-Infectious disease (ID) services provided remotely potentially preventing transfer of a patient to a larger facility and saving the patient cost of a transfer</p>	<p>http://cid.oxfordjournals.org/content/early/2015/01/06/cid.ciu1143.full</p> <p>http://www.idsociety.org/Telehealth/</p> <p>https://www.ucdmc.ucdavis.edu/welcome/features/20071121_annualrpt_telemed/</p> <p>http://www.idsociety.org/uploadedFiles/IDSA/Manage_Your_Practice/Health_Information_Technology/JUN2016%20IDSA_Telehealth_PositStmt_Final.pdf</p> <p>http://www.healio.com/infectious-disease/practice-management/news/print/infectious-disease-news/%7B990b690e-f468-45b5-bd5d-027112f608bf%7D/telemedicine-shows-significant-potential-in-id-other-specialty-care</p>
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Compounded Sterile Product Preparation	Remote pharmacist certification of compounded sterile products.	Remote verification of nurse medication preparation or remote supervision of pharmacy technician in the preparation of sterile products.	http://c.ymcdn.com/sites/www.ohioshp.org/resource/resmgr/annualmeetin%20g%20handouts/21 - (siegel) oshp telepharm.pdf
School Nurse	Remote nursing services in schools to provide timely and appropriate care to school children using a nurse in a central location.	Better balances the nurse resource among more schools without being limited by time scheduled on site.	http://medcitynews.com/2016/05/school-nurses-telemedicine/ http://mealthintelligence.com/news/telemedicine-offers-new-benefits-for-schools http://www.mobilehealthnews.com/news/taking-telemedicine-school
Home Health Care	Remote health services available in the home environment.	Provides a variety of health medical services in the home setting.	http://onlinelibrary.wiley.com/doi/10.1111/j.1463-1326.2009.01057.x/abstract;jsessionid=39E47455EC7919EC3B1139E2D4F63568.f01t04?systemMessage=Wiley+Online+Library+will+be+unavailable+on+Saturday+14th+May+11%3A00-14%3A00+BST+%2F+06%3A00-09%3A00+EDT+%2F+18%3A00-21%3A00+SGT+for+essential+maintenance.Apologies+for+the+inconvenience.&userIsAuthenticated=false&deniedAccessCustomisedMessage= https://www.theseniorlist.com/2015/11/how-telemedicine-is-affecting-home-health-care/
General Telemedicine Resources			http://www.telehealthresourcecenter.org/ https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/telehealthsvcsfctsh.pdf