Develop a Plan

- Telemedicine not just another “service”; it is a modality for many types of services (just place “tele” before a medical specialty)
- Important for different stakeholders to be “at the table” early in the process

Find a Partner/Providers

- Licensing
- Privileging and Credentialing
- Medical Staff Bylaws

Selection of Equipment

- HIPAA
- Free Equipment?
- Equipment for Providers, e.g. laptops (Stark Law)
How to Set Up a Telemedicine Network (cont’d)

Patient Care
- Consent
- Metrics
- Electronic Access to Medical Records

Payment/Reimbursement
- Paying Providers – Fair Market Value
- Grants
- Medicare/Medi-Cal
- Commercial Payors

Miscellaneous

Telemedicine is Expanding

- Different Names
  - Telemedicine
  - Telehealth
  - mHealth
  - Virtual Care
  - Social Media

- Different Modalities
  - e-Prescribing
  - Nurse Call Centers
  - eICU/TeleICU
  - PACS

- Different Settings
  - Hospitals
  - Health Care Clinics
  - Ambulatory Surgery Centers
  - Home Health
  - Global Health
Dignity Health Telemedicine Network Model

• The hospital where the patient is located, which is usually referred to as the “Originating Site” Hospital, is called the “Spoke Hospital” (i.e. the hospital receiving the telemedicine services).

• The hospital where the consulting telemedicine physician is located, which is usually referred to as the “Distant Site” Hospital, is called the “Hub Hospital”.

• The Dignity Health Telemedicine Network usually uses two hospitals as Hub Hospitals per specialty.

• The Spoke Hospitals can rely on the Hub Hospitals for credentialing purposes (discussed later).

• Professional services for most specialties are provided by Dignity Health Medical Foundation through Medical Clinic of Sacramento, Inc., its contracted provider.

• Professional services for telemental are provided by a contracted third party medical group.

California Law

• AB 415, the Telehealth Advancement Act of 2011, went into effect on January 1, 2012. This Act completely changed California Business & Professions Code 2290.5 (the statute governing telemedicine services) mostly for the better, and also amended certain other statutes.

• One of the primary purposes of the Act was to create a parity between telemedicine and other health care delivery modes.

• The Legislature also, through this Act, changed the term “telemedicine” to “telehealth,” and expanded its definition.

• At the last minute, through the help of the California Hospital Association, this Act incorporated the new privileging and credentialing “by proxy” (or “by contract”) regulations promulgated by CMS and Joint Commission (to be discussed later). This in effect overruled the California Department of Public Health prohibition set forth in All Facilities Letter (AFL) 11-33 (see AFL 12-05).
New Definitions and Interesting Deletions

- New definitions in California law:
  - Originating Site
  - Distant Site
  - Synchronous Interaction
  - Asynchronous Store and Forward

- The old statute included a carve-out that the statute did not apply to the situation “when the patient is not directly involved in the telemedicine interaction, for example when one health care practitioner consults with another health care practitioner.”

- This carve-out was deleted in the new statute, which has interesting ramifications (e.g. teleradiologists) regarding the need for consent.

Physicians: California Licensure Required

- California requires a practitioner providing telemedicine services in California (based on patient location) to have a full, unrestricted California medical license.

- There is a limited exception to this licensure requirement for out-of-state practitioners (Business & Professions Code 2060) if:
  - the practitioner is licensed in the State or country where the practitioner is located, and
  - is in actual consultation with a practitioner licensed in California.

- To qualify under this exception, the out-of-state practitioner may not:
  - open an office in California
  - appoint a place to meet patients,
  - receive calls from patients within California,
  - give orders, or
  - have ultimate authority over the care or primary diagnosis of a patient located in California.
**Privileging and Credentialing - General**

- Hospitals must have a privileging and credentialing process for ALL physicians and practitioners, including telemedicine practitioners.
- Usually Medical Staffs have a special category for telemedicine privileging.
- Historically, credentialing with original source verification has been performed by each Spoke Hospital – duplicative and burdensome process.
- The Joint Commission (TJC) and CMS now permit “credentialing by proxy”, also known as “credentialing by contract” – i.e. the Spoke Hospitals may now rely on the credentialing and privileging of telehealth practitioners by the Hub Hospital.
- Goal is to eliminate duplicative credentialing and promote patient access to health care.
- Credentialing by proxy is not mandatory; it is just a flexible alternative. It is anticipated many will take advantage of it.
- Officially adopted by California Legislature (as stated above).

**Credentialing by Proxy – Standards**

- TJC Standards are found in LD.04.03.09, MS.13.01.01 and MS.01.01.01.
- CMS standard is found in 42 CFR 482.12(a)(8) and 482.22 (see also 42 CFR 485.616 for credentialing for Critical Access Hospitals).
- The key for both the TJC and the CMS Standard is that certain language must be included in contracts between entities participating in a telemedicine network.
- In addition, language must be contained in the Medical Staff Bylaws to permit such credentialing.
Credentialing by Proxy – Written Agreement

• Required Language:
  – The Hub Hospital is a Medicare-participating hospital, and its governing body meets the existing Medicare Conditions of Participation (the "COPs").
  
  – Alternatively, if instead the Distant-Site telemedicine entity is not a Medicare-participating hospital, the telemedicine entity agrees that it is a contractor of services to the Spoke Hospital, and thus, in accordance with 42 CFR 482.12(e), agrees to furnish telemedicine services in a manner that permits the Spoke Hospital to comply with all applicable conditions of participation for the contracted services, including the COPs. The Distant-Site telemedicine entity also needs to agree that its medical staff credentialing and privileging process and standards meets the standards of the COPs and 482.22(a)(1) through (a)(2).
  
  – The Hub Hospital’s governing body has a process that is consistent with TJC credentialing and privileging requirements MS.06.01.01 through MS.06.01.13;

Credentialing by Proxy – Written Agreement

• Required language (continued):
  – The Hub Hospital telemedicine practitioner is privileged at the Hub Hospital, which provides a current list of the Hub Hospital practitioner’s privileges at the Hub Hospital.
  
  – The telemedicine practitioner holds a license issued or recognized by the State where the Spoke Hospital is located.
  
  – Once the telemedicine practitioner obtains privileges at the Spoke Hospital, the Spoke Hospital shall have evidence of an internal review of the Hub Hospital practitioner’s performance and shall send this information to the Hub Hospital. At a minimum, this information must include all adverse events that result from telemedicine services provided by the Hub Hospital practitioner to the Spoke Hospital’s patients and all complaints received by the Spoke Hospital about the telemedicine practitioner.
  
  – These three provisions above also apply to Distant-Site telemedicine entities that are not Medicare-participating hospitals.
Credentialing by Proxy - Medical Staff Bylaws

- Medical Staff Bylaws are required to include:
  - Criteria for determining privileges to be granted to individual practitioners
  - Procedure to apply the criteria to individuals requesting privileges
- Medical Staff Bylaws should also address:
  - Category for distant-site telemedicine practitioners
  - Level of involvement, if any, for telemedicine practitioners in medical staff committees
  - Procedural rights of telemedicine practitioners
- Hospitals should at the very least include provisions that mirror Joint Commission MS 13.01.01 to permit credentialing by proxy.

Credentialing by Proxy – Medical Staff Bylaws

Sample Language

Telehealth Privileges.
The Medical Staff shall make recommendations regarding the appointment of a Practitioner to the Telehealth Staff category and determinations regarding requests for Clinical Privileges submitted by a telehealth Practitioner through one of the following mechanisms, as approved by the Governing Body:

(a) Fully credentialing and privileging the telehealth Practitioner pursuant to the Medical Staff’s and Hospital’s credentialing and privileging standards and processes;

(b) Utilizing credentialing information provided by a Joint Commission-accredited organization at which the telehealth Practitioner is located to credential and privilege the Practitioner pursuant to the Medical Staff’s and Hospital’s credentialing and privileging standards and processes; or
Credentialing by Proxy – Medical Staff Bylaws
Sample Language (cont’d)

(c) Utilizing the credentialing and privileging decision reached by an organization at which the telehealth Practitioner is located to make a final determination regarding a request for Clinical Privileges assuming all the final requirements are met:

(1) The organization, at which the telehealth Practitioner is located, is a hospital or ambulatory care organization accredited by The Joint Commission;

(2) The Clinical Privileges requested by the telehealth Practitioner are currently granted to the practitioner by The Joint Commission-accredited organization at which the Practitioner is located;

(3) The Joint Commission-accredited organization at which the telehealth Practitioner is located provides the Medical Staff with a current list of the Clinical Privileges granted to the Practitioner; and

(4) The Medical Staff has evidence of an internal review of the Practitioner’s performance of the Clinical Privileges granted to the Practitioner and sends to The Joint Commission-accredited organization at which the telehealth Practitioner is located information that is useful to assess the Practitioner’s quality of care, treatment and services for use in privileging and performance improvement. At a minimum, this information must include all adverse outcomes related to sentinel events considered reviewable by The Joint Commission that result from the telehealth services provided and complaints regarding the Practitioner submitted by Hospital patients, other Practitioners or Staff.

Selection of Equipment

- Due Diligence – use different equipment depending on service (ED v clinic v home health)
- Broadband Internet Capability/3G or 4G Wireless
- HIPAA Compliant – Secure and Encrypted
- Warranty (e.g. FDA approved)
- Protect against liability because of equipment failure
- Test runs/Downtime/IT Support
- Inventory
- Cost
HIPAA: General

- Security (first and foremost)
  - CMS Standards
  - Like postcards in the mail
- Privacy Rule too
- Business Associates
- Breaches and Penalties
  - Global issues (Pakistani transcriptionist)
- Medical Records
  - Connectivity with EHR
  - Maintenance
  - Paramount to ensure the integrity, confidentiality and availability of the information

HIPAA: Security

- Protect against any reasonably anticipated threats or hazards to security or integrity of the information
- Protect against any unauthorized use or disclosure of the information (encryption/firewalls)
- Maintain reasonable and appropriate administrative, physical and technical safeguards
- Identify a Security Official (separate from a Privacy Official)
- Ensure compliance by and training of your workforce
- Establish formal policies and develop a Security Plan (use HIPAA Security Standards as a Table of Contents for the Plan)
- Conduct frequent risk assessments of potential vulnerabilities (NIST)
- Use a unified security approach with built-in redundancies
- Controls over access to electronic records (passwords, ex-employees)
Security – Additional Considerations

- Federal Trade Commission
- Specific State Laws
- Identity Theft: Red Flag Rules
- Private Cause of Action for Negligence
- Personal devices (e.g. iPhones)
- Passwords – strength and updates

HIPAA: Business Associates

- Business Associates can now be held directly liable
- Covered Entities can now also be held liable for Business Associates
  - Old exception (“not my brother’s keeper”) gone
  - Now responsibility per federal common law of agency
- Federal common law of agency
  - No bright line – facts & circumstances
  - Contract language important, but not controlling—totality of actual circumstances
  - Terms/labels used (independent contractor) not controlling
  - Per OCR, the essential factor is the right or authority to control the BA’s conduct in the course of performing BA services or functions
- OCR published “sample” business associate provisions
- Recommend that “no authority to bind CE” be added (to address agency issue)
- Also recommend keep BAA simple because of down-flow to subcontractors
Breach Notification

• Old rule – “risk of harm” assessment
• New rule – “risk of compromise” assessment
  • Breach is presumed and reporting required unless:
    • Assessment by covered entity of at least 4 elements shows a low probability that the PHI was compromised
      – Nature and extent of PHI involved
      – The unauthorized person who used the PHI or to whom the disclosure was made
      – Whether the PHI actually was acquired or viewed
      – The extent to which the risk to the PHI has been mitigated

Nature and extent of PHI involved
• More sensitive info?
  – Clinical (type of service, amount of detail)
  – Financial (credit card number, SSN)
• Amount of PHI involved
• Determine probability that recipient could use info in a way adverse to the patient

The unauthorized person who used the PHI or to whom the disclosure was made
• To person known to patient?
• To BA? CE?
• To someone able to re-identify?

Whether the PHI actually was acquired or viewed
• Forensic analysis may be needed
  – Opened mail means actual viewing

The extent to which the risk to the PHI has been mitigated
• Assurances received of destruction and/or no further use/disclosure?
  – Some Dignity Health facilities have attestation forms
• Are assurances sufficient?

Other factors may be considered
Breach Notification

Not much change in the process

- Similar elements and process
- Same timing and other requirements, but note that BA agents’ discovery time is attributed to the covered entity. Identification of agents is thus important.

Some change in the outcome

- Most likely more reporting to the Office for Civil Rights
- No effect on reporting obligations under California law

Summary under HIPAA:

Previous rule: Report the breach only if it posed a significant risk of financial, reputational, or other harm to the individual (harm standard)

New rule: Report unless you can demonstrate that there is a low probability that the PHI has been compromised

Penalties

New Penalty Structure Finalized

<table>
<thead>
<tr>
<th>Violation Category</th>
<th>Each Violation</th>
<th>Year Cap Same Violation</th>
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<td>(A) Did Not Know</td>
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<td>$1,500,000</td>
</tr>
<tr>
<td>(B) Reasonable Cause</td>
<td>$1,000 - $50,000</td>
<td>$1,500,000</td>
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<tr>
<td>(C) Willful Neglect-Corrected</td>
<td>$10,000 - $50,000</td>
<td>$1,500,000</td>
</tr>
<tr>
<td>(D) Willful Neglect-Not Corrected</td>
<td>$50,000</td>
<td>$1,500,000</td>
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</tbody>
</table>
Free Equipment - Early OIG Opinions

• OIG 99-14 involved a health system that was operating a telemedicine network pursuant to a federal grant. The system wanted to develop, operate, administer and fund the network after the grant had expired. The OIG determined that the arrangement would benefit physicians with subsidized line charges, free equipment and additional opportunities to earn fees, but that such remuneration was outweighed by the fact that the arrangement furthered congressional intent to promote telemedicine networks in rural communities (thus improved access and decreased costs).

• OIG 04-07 involved an arrangement where health system physicians would provide free telemedicine consultations at no charge for school-based clinics in low-income rural areas. OIG felt that the provision of non-reimbursable screening services that were not tied to reimbursable services would not violate the federal prohibition on inducements.

OIG Advisory Opinion 11-12

• OIG Advisory Opinion 11-12 (issued August 29, 2011) in which the OIG stated that it would not impose administrative sanctions where a Hub Hospital, at its own expense, provided the following to certain community hospitals in the Hub Hospital’s service area:
  – Neuro-emergency telemedicine technology
  – Neuro-emergency clinical consultations
  – Acceptance of neuro-emergency transfers
  – Neuro-emergency clinical protocols, tracking and medical education

• Stated purposes of the arrangement were to:
  – reduce mortality and morbidity rates of stroke in Hub Hospital’s metropolitan area, and
  – to lower costs associated with transfer of stroke cases that could be managed at local community hospitals
OIG Advisory Opinion 11-12 (cont’d)

• Agreement between the Hub Hospital and the community “Spoke Hospitals” stated that Hub Hospital would provide equipment and services, and in return Spoke Hospitals would agree not to participate in any other neuro-emergency telemedicine service without Hub Hospital’s prior approval.

• Neither the continued transfer of stroke patients to the Hub Hospital nor the value or volume of any other business generated between the parties would be a condition of participation in the arrangement.

• Neither the Hub Hospital nor the Spoke Hospital would bill any patient or third-party payor for the cost of the telemedicine technology.

• OIG stated that this arrangement implicated the Anti-Kickback Statute, and that the safe harbor for personal services and management contracts was not applicable because use of the telemedicine program would be on an as-needed basis. In order to have safe harbor protection, an agreement for services to be provided on a periodic or sporadic basis must specify the schedule of such intervals, their precise length and the exact charge for such intervals.

OIG Advisory Opinion 11-12 (cont’d)

• The OIG concluded it would not subject Hub Hospital to administrative sanctions based on the following:
  − Hub Hospital would be unlikely to generate appreciable referrals as there was no requirement or encouragement to refer patients to Hub Hospital.
  − Neither the volume or value of the Spoke Hospital’s previous or anticipated referrals, nor the volume or value of any other business generated between the parties would be a condition of participation in the arrangement.
  − Primary beneficiaries of the proposed arrangement would be the stroke patients treated at the Spoke Hospitals through telemedicine. Such treatment would be more timely and effective through telemedicine than transferring these patients to Hub Hospital.
  − Neither the Hub Hospital nor any of the Spoke Hospitals would be required to engage in any marketing activities, and each party would be responsible for the costs associated with its own marketing.
  − The telemedicine program was unlikely to result in increased costs to the federal healthcare programs because few, if any, of the consultations would be billable to Medicare. Also, the program was designed to reduce the volume of transfers of stroke patients to Hub Hospital, and thus reduce the costs associated with such transfers.
Providing Free Home Health Equipment

• OIG Advisory Opinion 03-04 concerned a home health agency that proposed to provide emergency alert pagers and monitors to patients served by the home health agency. The estimated value to the patients was $20-30 per month.

• OIG concluded that this was not an impermissible inducement. Provision of this service was reasonably related to the delivery of home health services and fostered efficiency and quality of care.

Equipment for Providers

• A hospital may provide laptops to physicians providing telemedicine services, even if the laptops have browser functionality, without charge.

• This is based, in part, on the “Community-wide Health Information Systems” Exception to Stark (42 CFR 411.357(u)) that permits an entity to provide IT items or services to a physician that allow access to and sharing of health information in order to enhance the community’s overall health.

• Also falls under the “Medical Staff Incidental Benefits” Exception to Stark (42 CFR 411.357(m)).

• Note: tax exempt issues.
Informed Consent in California

- AB 415 also amended Business & Professions Code 2290.5 to allow verbal informed consent rather than requiring written informed consent (see California Business & Professions Code 2290.5(b)).
- Now, in California, prior to the delivery of health care via telehealth, the health care provider at the Spoke Hospital shall verbally inform the patient that telehealth may be used and obtain verbal consent from the patient for this use. The verbal consent shall be documented in the patient’s medical record.
- This consent requirement is subject to the exceptions to informed consent in California law (e.g. emergency situation).
- The consent requirement can be met through language contained in the Conditions of Admission form.

Other Patient Care Issues

- Joint Commission focus on performance metrics in agreements
  - Standard of Care
  - Representations and warranties re quality of services
- Important to outline workflow/contact persons/response time
- Who is responsible for patient care? Include language when the telemedicine provider is responsible for patient care and handover back to Spoke Hospital
- Policies, clinical protocols and education
HIPAA: Electronic Access to Records

- HIPAA now grants patients the right to electronic access to electronic PHI in designated record sets (for self and third party)
- Right extends to all portions of designated record set
- Covered Entity may:
  - Require a written request
  - Produce the record in a format requested if “readily producible” or in agreed-upon format if not
  - Charge a cost-based fee, which includes cost of labor to copy the electronic record, supplies for format requested, and postage if mailing is requested

Payment to Physicians; Fair Market Value

- Stark Law requires that:
  - Arrangements with physicians must be in writing and specify the services to be provided
  - All arrangements between the physician and the entity be included (can be incorporated by reference)
  - Commercial reasonableness
  - The term of the arrangement is for at least one (1) year
  - Compensation is set in advance, does not exceed fair market value and is not based, take into account the volume or value of referrals
- Call coverage stipend – Fair Market Valuation
- NOTE: Grants may be available
Billing

- Medicare will only reimburse for telemedicine services for Medicare patients that present for treatment in a Spoke Hospital that is located in a Health Professional Shortage Area (HPSA) or in a county outside of a Metropolitan Statistical Area (MSA).
- Medicare, however, will not currently reimburse for telemedicine services delivered into the home, although Medicare does have CPT codes for remote monitoring.

Billing

- Medi-Cal has no geographic restrictions like Medicare.
- Medi-Cal also pays for home health telemedicine.
- California law states that in-person contact between the provider and the patient is not required under Medi-Cal when the service is appropriately provided by telehealth (see Welfare & Institutions Code 14132.72 and 14132.725). However, Medi-Cal Provider Manual (Oct 2008) states that there must be evidence of a barrier to receiving the services in-person (threshold for barrier is low).
- Under Medi-Cal, Hub Hospital bills the appropriate codes with modifier “GT” for live video services; Spoke Hospital only receives reimbursement if it is medically necessary for participation of provider at patient-site.
- Hub Hospital may also bill appropriate codes with “GQ” modifier for “Store and Forward” services (i.e. reviewed later in time) for teleophthalmology and teledermatology.
Billing

• Some commercial health plans pay for telemedicine services and some do not pay. Depends on contract. However, California law mandates that health plans cover services that can be adequately provided through telemedicine (Health & Safety Code 1374.13).

• Constant discussion regarding new telemedicine HCPCS codes in Medicare fee schedule.

Written Agreement – Other Provisions

• Additional language to consider:
  – Confidentiality and privacy elements in sharing data (protection of peer review information and other legal requirements)
  – Indemnification
  – Insurance
    • Professional Liability Insurance
    • Directors and Officers (D&O) coverage
    • Cyberinsurance
  – Governing Law
  – Who is responsible for equipment?
We are at a Cross Road – But the Future is Now
Crossing the Quality Chasm

"Quality problems occur typically not because of failure of goodwill, knowledge, effort or resources devoted to health care, but because of fundamental shortcomings in the ways care is organized."

The American health care delivery system is in need of fundamental change. The current care systems cannot do the job. Trying harder will not work. Changing systems of care will!
In 2008 Mercy Neurological Institute (now Dignity Health Neurological Institute of Northern California) proposed the formation of a Telehealth Program using $500,000 in Philanthropic Grant from Elliott Homes Foundation.

Mission was to provide access to Specialists & Services to Partner Hospitals.

Its goal:

Provide timely access to high quality specialized healthcare services that are not readily available.
Telehealth Benefits

- Access, Service, Quality = Value
- Recruiting, Retention
- Resource Allocation
- Sustainable Practice Model
- Population Management

Telehealth Benefits (cont’d)

- Cost avoidance
- Right Care, Right Time
- Integrated System of Care
- Interdependent relationships
- Smart Growth
- Patient/Family Satisfaction
- Provider Satisfaction

The return on Telehealth investment is increasingly more robust and less elusive than we ever could imagine.
Stroke

• 3rd to 4th leading cause of death in U.S.
• #1 cause of long term disability
• Every 45 seconds someone has a stroke.
• More 750,000 Americans stroke/year.
• Over 167,000 of them will die.
• Cost: > $62 billion per year.

In a Typical Acute Ischemic Stroke, Every Minute Until Reperfusion the Brain Loses:

• 1.9 million neurons
• 14 billion synapses
• 7.5 miles myelinated fibers
Telesstroke a Priority

- Disparity in stroke care
- 2-8% patients treated with IV tPA
- ~64% hospitals did not treat with IV tPA in over 2 years
- ~4 Neurologist per 100,000 persons in the US
- AIS may be misdiagnosed by PCP/ED Physicians in 7-30% of cases when compared to Stroke Team

"Telesstroke networks should be deployed wherever a lack of readily available stroke expertise prevents patients in a given community from accessing a primary stroke center (or center of equivalent capability) within a reasonable distance or travel time to permit eligibility for intravenous thrombolytic therapy." [11]

Economic Benefit of Increasing Utilization of Intravenous Tissue Plasminogen Activator for Acute Ischemic Stroke in the United States

### TABLE 1. Estimated American National and State Cost Savings in the First Year After Ischemic Stroke by Varying Proportions of Patients Receiving Intravenous tPA

<table>
<thead>
<tr>
<th></th>
<th>Annual No. of Ischemic Strokes</th>
<th>Proportion of Ischemic Stroke Patients That Receive tPA (%)</th>
<th>Cost Savings in First Year Post-Stroke (American $)</th>
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<tr>
<td></td>
<td></td>
<td>2% 4% 6% 8% 10% 15% 20%</td>
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<td>68 268</td>
<td>$8 189 $1 639 $2 458 $3 278 $4 098 $6 147 000 $8 196 000</td>
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</table>
The federal agency responsible for monitoring health care workforce adequacy has not issued any projections of supply and demand since 2008, leaving members of Congress without important and up-to-date information as they create budgets for training to ensure an adequate future health care workforce, reports the Government Accountability Office (GAO).

In 2008, using data more than a decade old, the Health Resources and Services Administration (HRSA)—the agency that monitors supply of and demand for health care professionals—projected a shortfall of 49,000 physicians by 2020. Further muddying the lawmakers’ budgetary waters, the Association of American Medical Colleges projected a gap of 124,000 physicians by 2025, whereas a report in Health Affairs suggested that increases in productivity, from greater use of technology and incorporation of non-physician health care workers into team-based care, could offset projected shortages of primary care physicians.
**Work – Life Balance & Compensation Trends**

![Graph showing mean self-reported hours worked per week and inflation-adjusted physician compensation]

**Telehealth – Reduces Cost of Care**

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<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
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<td>19,100</td>
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</tr>
</tbody>
</table>
47 y/o male with acute onset of dizziness, headache and left-sided weakness while moving packages for graduation party.
- Onset time 8:30 pm. Last known normal per wife 6:30 pm.

PMHX: Chronic Neck and Back pain
PSHX: Neck fusion
Meds: Tramadol, self medicating with Adderall
SocHX: Chews tobacco. No Alcohol.

Dignity Health Telemedicine
Mercy Telestroke Service activated and initial phone conversation with ER MD re: confusing exam, dizziness, headache
Exam described – right IV, right facial weakness, left arm sensory loss/heaviness, dysarthria – NIHSS 6 – 7
Using remote presence technology patient seen and examined
EXAM = partial INO, dysarthria – worsening, right facial weakness, left arm sensory change and mild drift
Vitals: BP - 175/90 RR – 17 Pulse – 95 – 100 (sinus) Oxygen 98%
NINDS/NIHSS

Modified National Institute of Health Stroke Scale

<table>
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<tr>
<th>Score</th>
<th>Description</th>
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<tbody>
<tr>
<td>0</td>
<td>No signs of stroke or no evidence of stroke on CT scan</td>
</tr>
<tr>
<td>1</td>
<td>Single sign of stroke or single sign of stroke on CT scan</td>
</tr>
<tr>
<td>2</td>
<td>Two signs of stroke or two signs of stroke on CT scan</td>
</tr>
<tr>
<td>3</td>
<td>Three signs of stroke or three signs of stroke on CT scan</td>
</tr>
<tr>
<td>4</td>
<td>Four or more signs of stroke or four or more signs of stroke on CT scan</td>
</tr>
</tbody>
</table>

Additional notes:

- CT scan June 9 22:43 VacaValley Hospital

Dignity Health.
Telemetry Network (TN7)

The digital images and associated data are provided for educational purposes only.

The content is not intended to replace the medical advice of a licensed healthcare professional.

The content is not intended for use in the diagnosis or treatment of a medical condition.

The content is not intended to be a substitute for professional medical advice, diagnosis, or treatment.

The content is not intended to be comprehensive or cover all possible medical conditions.

The content is not intended to be a comprehensive guide to medical diagnosis or treatment.

The content is not intended to be a substitute for professional medical advice, diagnosis, or treatment.
Stroke Therapy: Overview

- Acute stroke therapy
  - IV rTPA vs IaTPA
  - IV rTPA + Mechanical
  - Mechanical Therapy = Endovascular Reperfusion Therapy (ERT)

![Diagram of stroke therapy](image)

Angioplasty balloon

Post procedure
Basilar artery post reperfusion

Pre procedure  Post procedure

Posterior circulation
Posterior Circulation Strokes

- Basilar Artery Occlusion (BAO)
  - Mortality 85-90%
  - If BAO is secondary to atherosclerotic stenosis the recurrent stroke risk is 20%/yr
  - Treatment with anticoagulation, IV or IA tpa all have good outcome of about 22%*
  - Who should get intra-arterial intervention? NO GOOD DATA
  - Relatively sudden symptoms < 12 hours
  - Stuttering course progress to coma/locked-in consider 24-48 hrs (<40 yo)
  - Hopeless if coma > 3 hours, tetraplegia > 6 hours, absent brainstem reflexes > 1hr

Dignity Health Neurological Institute
Mercy Stroke Transfer Center

• Joint Commission certified Primary Stroke Centers
• Physician, Nursing and Administrative leaders
• 24-hr call/transfer center 1-888- MERCY41 (1-888-637-2941)
• Immediate access to on call Neurologist 24/7/365
• Neurologists/Neurosurgeons/Interventional Team 24/7/365
• TeleStroke Program – Remote Presence/Robotics Technology Real time audio/visual

Tele Stroke Timeline

<table>
<thead>
<tr>
<th>Target Times</th>
<th>Door to ED Physician</th>
<th>Door to Tele-Neurologist</th>
<th>Door to CT Initiation</th>
<th>Door to CT Interpretation</th>
<th>Door to tPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>NINDS</td>
<td>≤ 10 min</td>
<td>≤ 15 min</td>
<td>≤ 25 min</td>
<td>≤ 45 min</td>
<td>≤ 60 min</td>
</tr>
<tr>
<td>DHTN</td>
<td>≤ 5 min</td>
<td>≤ 10 min</td>
<td>≤ 10 min</td>
<td>≤ 30 min</td>
<td>≤ 45 min</td>
</tr>
</tbody>
</table>
Mercy Telestroke Program – Response Time

Average Time from when the Neurologist is Paged Until he/she “Beams” into the Partner Site

Minutes

FY 2012 (July - Dec) FY 2012 (Jan - Mar) FY 2012 (April - June) FY 2013 (August) FY 2013 (September)
38 18 7.5 6.00 5.00

Dignity Health

Stroke Timeline

Door to Treatment in <60 minutes

Goal Time: ____________
Actual Time: ____________
Comments: ____________
Transfer: ____________
Successful early carotid endarterectomy for critical carotid artery stenosis following thrombolysis in acute ischemic stroke: A case report

Michael Duane MD, Matt Stephens MD, Barkley Nemec MD, Russell Keys MD
Department of Medicine, Dignity Health Medical Center, Sacramento, California

ABSTRACT

The authors present a case of early carotid endarterectomy for critical carotid artery stenosis following thrombolysis in acute ischemic stroke. The patient underwent successful endarterectomy with no complications and was discharged within 72 hours. This case highlights the importance of prompt surgical intervention in managing such cases.

LEARNING OBJECTIVES

1. To understand the importance of early intervention in cases of critical carotid artery stenosis.
2. To discuss the role of thrombolysis in acute ischemic stroke and its potential benefits.
3. To review the surgical management of critical carotid artery stenosis.

CASE DESCRIPTION

The patient, a 75-year-old male with a history of hypertension and dyslipidemia, presented with acute onset of left-sided weakness and confusional state. Neuroimaging revealed a large occlusion of the left internal carotid artery. Following failed thrombolysis, he underwent successful carotid endarterectomy with no complications. The patient was discharged within 72 hours, and follow-up imaging showed resolution of the stenosis.

HOSPITAL COURSE

The patient underwent an uneventful surgical procedure. Postoperatively, he remained stable with no neurological deficits. He was discharged on postoperative day 2 with plans for outpatient rehabilitation.

REFERENCES


Dignity Health Telemedicine Network (DHTN)
Your direct connection to specialized care.
Stroke Quality Measures Now Reported to CMS

Stroke quality measures are now reported to the Centers for Medicare & Medicaid Services (CMS). Learn about the 8 stroke quality measures and learn how you can address the reporting requirements of the CMS Hospital Inpatient Quality Reporting (IQR) Program.

Quality Measures

<table>
<thead>
<tr>
<th>Stroke Quality Measures Included in IQR</th>
</tr>
</thead>
<tbody>
<tr>
<td>STK-1: Venous thromboembolism (VTE) prophylaxis for patients with ischemic or hemorrhagic stroke</td>
</tr>
<tr>
<td>STK-2: Ischemic stroke patients discharged on antithrombotic therapy</td>
</tr>
<tr>
<td>STK-3: Anticoagulation therapy for atrial fibrillation/flutter</td>
</tr>
<tr>
<td>STK-4: Thrombolytic therapy for acute ischemic stroke patients</td>
</tr>
<tr>
<td>STK-5: Antithrombotic therapy by the end of hospital day two</td>
</tr>
<tr>
<td>STK-6: Discharged on statin medication</td>
</tr>
<tr>
<td>STK-7: Stroke education</td>
</tr>
<tr>
<td>STK-10: Assessed for rehabilitation services</td>
</tr>
</tbody>
</table>

CMS Timeline

Timeline for initial reporting and payment determination

- Effective January 1, 2013, hospitals will be required to report stroke quality measures to CMS on a quarterly basis.

PAYMENTS
- Starting October 2014, Medicare payments will be tied to hospital reporting of quality measures.

TRANSAPRENCY
- Stroke quality measures reported under the IQR Program may later be adopted for use in the Hospital Value-Based Purchasing (VBP) Program.
- Stroke quality measures to be published on the Hospital Compare website: www.hospitalcompare.hhs.gov
Dignity Health Telemedicine Network (DHTN)

- Telestroke
- Teleneurology
- Tele EEG
- Tele ICU
- Tele Psychiatry
- Tele Endocrinology
- Tele Cardiology
- NewBorn
- Pediatric Critical Care
- e-Home Visits
- Transitional Care
- Disease Management

Mercy Telehealth Network - Neurological Consult Trend
16 Months July 2012 - October 2013

1,633 Cases (July 1, 2012 - October 13, 2013)
Average Response Time (Neurologist called back) = 2 minutes
Average Response Time (Neurologist on robot) = 6 minutes
Dignity Health Telemedicine Network

Dignity Health TeleMedicine Network - Neurological Consults by Day of Week

Dignity Health TeleMedicine Network - Neurological Consults by Time of Day

Dignity Health Telemedicine Network Performance Measures

- Increase appropriate use of Thrombolytic for Stroke
- Improve access to emergency neurology
- Reduce days of “No Neuro” or uncovered ED to Zero
- Reduce time taken to reach neurologist
- Avoid unnecessary transfers
- Expedite appropriate transfers
- Improve patient outcomes
- Advanced treatment options available at DHNI
“Every system is perfectly designed to get the results it gets”
Don Berwick, the founder of the Institute of Healthcare Improvement (IHI)
Adam Darkins, MD, chief consultant of care coordination services at the Department of Veterans Affairs

- “Telehealth is not about the Box or the Cloud”
- “It (telehealth) is about problem solving and service”
- “It is about creating large Networks – to enhance access, improve service, improve quality, and distribute knowledge”
- “Health care system values the intervention and not necessarily the right decision. There are people best suited to make the right decision, at the right time, every time”

Telehealth is part of our ICU team.

ICU Telehealth links our local patients to trained specialists in Sacramento.

Intensive Care Unit physicians at Mark Twain Medical Center in San Andreas can link to specialists in Sacramento at any hour to diagnose local patients and recommend the most up-to-date treatments. There is no additional cost for this innovative approach to enhance the diagnosis and treatment of our Intensive Care Unit patients.
Dignity Health Telemedicine Network

With a stroke, every minute counts.

Telehealth offers 24/7 stroke diagnosis and treatment for our patients.

“Using advanced technology, Dignity Health & St. Joseph Hospital patients can be treated on site for stroke and other critical health issues, saving lives without the need to transport patients to other facilities.”

Mark Twain
St. Joseph’s Hospital
Director, Health Informatics

ROBOT READY

On the Highway to Establishing a Stroke Program

Dignity Health Telemedicine Network (DHTN) - Your direct connection to specialized care.
CTN Mission Statement:
To promote advanced information technologies and services to improve access to high quality healthcare focusing on medically underserved and rural Californians.

Deployment Progress
• At the close of January CTN had direct connections to 271 healthcare sites with logical connections to 823 sites
• Largest FCC funded statewide network
• CTN has evolved into a “network of networks” including interconnections with:
  o CENIC which provides broadband access to all academic medical centers in California
  o California Rural Indian Health Board (CRIHB)
  o Indian Health Services broadband network
• Site categories:
  o Federally Qualified Health Centers
  o Rural and Urban Community Health Centers
  o Critical Access Hospitals
  o Public/County/Municipal Clinics and Hospitals
CTN Health Care Site Categories

Map of Active FCC Funded CTN Member Sites
CTN Usage and Applications

- Telemedicine consultations
- Secure transmission of patient images and information
- CME, training and distance education
- Internet access
- Virtual administrative meetings
- Web-based video conferencing (CTN Connect)
- Web-based patient referrals and scheduling
  - In Person Patient Visits
  - Telemedicine Consultations
- Home/wireless patient monitoring, transitions of care, care for the elderly and disabled

Healthcare Connect Fund

- Subsidizes 65% monthly broadband cost for eligible sites
- California Teleconnect Fund (CTF) pays half the 35% match
- Utilize to build to locations commercial providers decline to serve
- CTN staff handles all required paperwork, invoicing and vendor billing
- Eligible sites can use subsidized circuits for any normal health care business practices
- Site eligibility includes:
  - Rural Nonprofit Healthcare providers
  - Critical Access Hospitals
  - Public/County/Municipal Healthcare Facilities
  - FQHCs
  - Tribal Health Facilities
  - Data Centers Hosting Healthcare Applications and Services
California Telehealth Resource Center (CTRC)

- HRSA-funded regional telehealth resource center
- Programmatic and technical assistance
- Assistance with telehealth equipment selection and funding
- Telehealth implementation materials and videos
- Assistance identifying available telemedicine specialty care resources
- Services available at no cost to the healthcare provider
- Supplemental funding for training from:
  - UnitedHealthCare
  - Blue Shield of California Foundation
  - UC Davis/BTOP grant

CTRC Implementation Workshops

- Regional meetings of up to 20 to 30 participants
- Brings developing telehealth sites together to share best practices and address common barriers to adoption
- Conducting 4 to 6 workshops per year
- Monthly follow up meetings over 12 months to ensure continuity

www.caltrc.org
Specialty Care Providers

CTN Connect Powered by Vidyo

- Web-based video conferencing solution that provides HD quality video over any wired or wireless broadband connection
- Directory of CTN sites that can be accessed with one click
- HIPAA compliant
- Accessible from any web enabled device (iPad, tablet, smartphone)
- Each CTN site gets a complimentary license, additional licenses for $40/month
**Eceptionist**

- Web-based patient referral and appointment scheduling platform
- Ideal application to improve quality and efficiency of patient referral process from remote sites to specialist and medical centers
- Today, most CTN rural sites use fax and mail to send patient referral information to hospitals and specialists. Eceptionist automates this process and provides the presenting site with a record of patient specialty care outcome
- Currently implementing initial deployment at 10 sites around the State

---

**2014 Statewide Telehealth Summit**

- April 28-29, 2014
- Hyatt Regency, Newport Beach
- Featuring a special CTRC telehealth workshop, informative general sessions, seven breakout sessions and luncheon keynote by Herb Schultz, Director, U.S. Department of Health and Human Services
- Find out more: [www.caltelehealth.org/2014-telehealth-summit](http://www.caltelehealth.org/2014-telehealth-summit)

Join us in Newport Beach!
Thank You!
Eric Brown
President & CEO
California Telehealth Network
2001 P Street, Suite 100
Sacramento, CA  95811
(310) 365-1450
ebrown@caltelehealth.org

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