

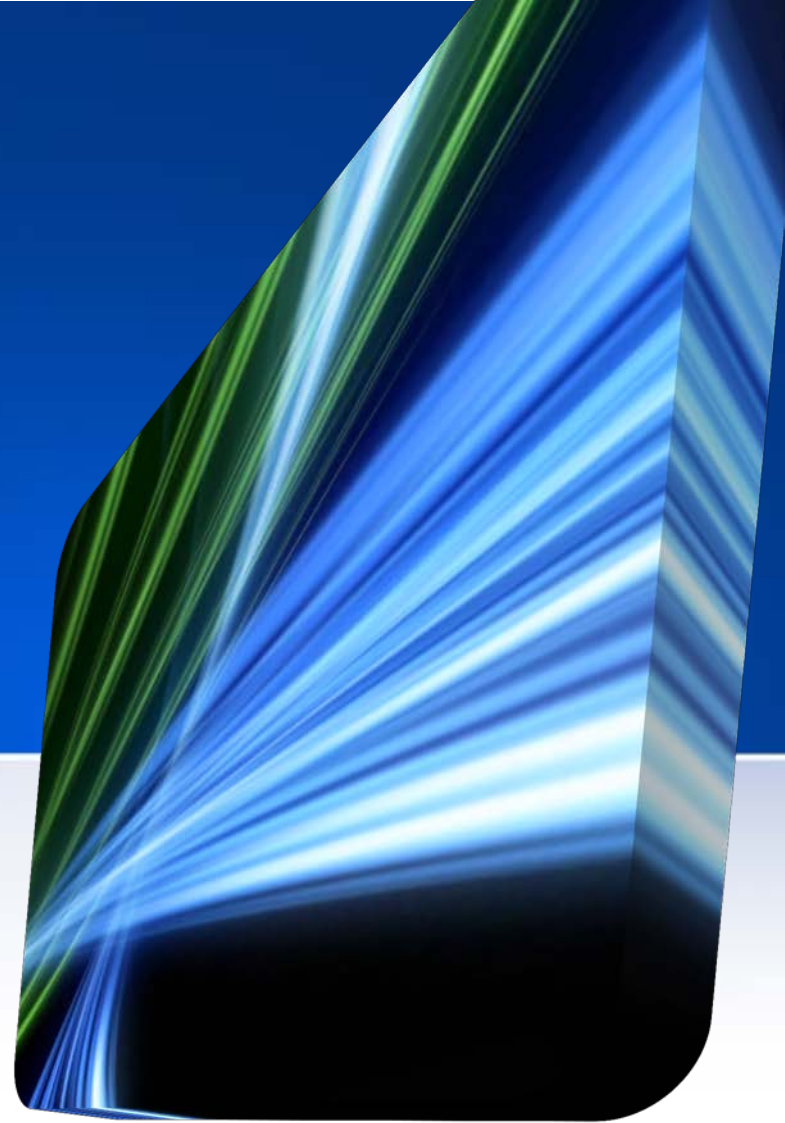
Telestroke Alaska Evidence Based Care Across the Great Frontier

Presented by

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Financial Disclosures



- I am a speaker for Genentech through the Activase[®] Speaker's Bureau.
- I am a faculty member at the University of Phoenix facilitating graduate and undergraduate coursework in the Healthcare Sciences Division.
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Learning Outcomes



- Define telemedicine as a technology used to deliver evidence-based care for patients with an acute focal neurologic deficit.
- Identify three outcomes associated with the use of telemedicine to deliver care in rural settings
- Identify three challenges faced when initiating a telemedicine program for both hub (central support) and spoke (recipient) of services

History of Technology.....



Years it took to reach a market audience of 50 million:

Radio – 38 years.....

Television – 13 years.....

Internet – 4 years.....

Ipod – 3 years

Facebook – 2 years.....

The Growth of Technology.....



The number of internet devices in 1984 was about 1,000.....

The number of internet devices in 1994 was about 1,000,000.....

The number of internet devices in 2008 was about 1,000,000,000.....

According to Forbes (2012) – 8.7 billion

The Future of Healthcare?



Nationally, the top ten “In-demand” jobs in 2010 did not exist in 2004.....

- We are currently preparing children for jobs that don’t yet exist
- Using technologies that have yet to be invented
- In order to solve problems that we don’t yet know about.....

Technology's Role.....



Technology continues to advance and facilitate improved quality in the delivery of healthcare in a dynamic and complex environment.

Telemedicine – defined....



The use of telecommunication and
information technology to medical
information and services

Store and forward

Remote monitoring

Real-time interactive (video/audio)

Clinical Transformation



- Mobile technologies
- Mature electronic health records [EHR]
- Clinical decision support systems
 - Continuous telemedicine / telehealth monitoring
- Shortages of medical specialists
- Increased complexity of care as population ages

Why Stroke? “Telestroke”



- 2005 – American Stroke Association developed Stroke Systems of Care emphasizing ‘linkages’ rather than ‘silos’
 - Coordinated approach
 - Improve access to highly skilled care & services
 - 30% incidence of mis-diagnosis?
 - Implement latest evidence-based guidelines
 - Early intervention

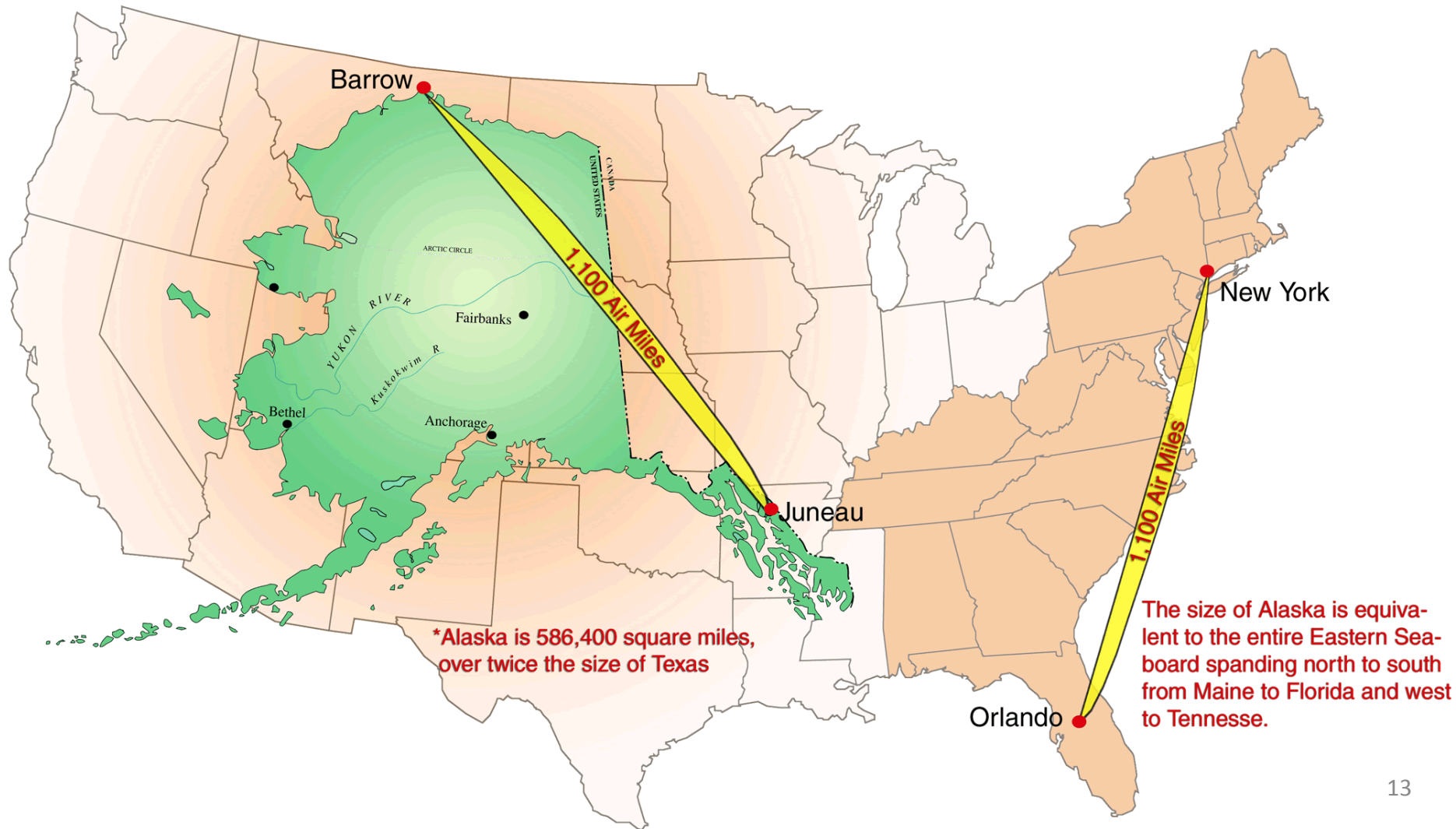
Why Alaska?



- 586,412 square miles – distance, cost of transport
- Geographic barriers, extreme weather, vast distances
- Population 722,718 (40% in Anchorage)
- 31 healthcare facilities [3 largest in Anchorage] ; 11 community hospitals; 13 critical access hospitals; 7 specialty or military hospitals
- 25% of Alaskans live in communities of < 1000 people
- 75% Alaskan communities not connected by roads to a hospital

Understanding Alaska....

SIZE AND DISTANCE COMPARISON



Geographic Penalties



- The quality of stroke care is dependent upon the hospital that you go to
- If you live in a rural area or 'underserved acute stroke care' area you will NEVER receive the only FDA approved pharmaceutical agent for treating stroke
- There is a GEOGRAPHIC penalty associated with stroke outcomes.....

Why Stroke in Alaska?



- Stroke death rate is 6% higher than national averages
- National death rate is decreasing yet the Alaska death rate stays the same
- Higher smoking population @ 22%
- Higher overweight / obesity rate @ 63%
- Higher rate of elevated cholesterol @ 31%

Barriers associated with Telemedicine?



- Defining the specialty
- Licensure and liability
- Developing policies recognizing privacy and security
- Simplifying the process (actual consult)
- Sustainability – financial models

Advantages



- Access to care
 - Decreased transportation costs
 - Improved care decisions
- Access to specialists
 - E-consultation / telestroke / teletrauma / telepsychiatry
- Improved quality – improved patient outcomes
 - Monitoring
 - E-consultation with recommendation
- Education and training
 - Access to conferences / expert consultation

Outcomes?



- End 2007 – over 12 telestroke programs in Europe – 18 Hub hospitals & 77 spoke hospitals
 - 20,000 patients evaluated
 - 2200 telestroke consults per year
 - 18% systemic thrombolysis
- 2006 – World Health Organization Helsingborg Declaration on European Stroke Strategies
 - Access to continuum of care
 - Acute stroke units
 - Rehabilitation
 - Secondary prevention

Disadvantages



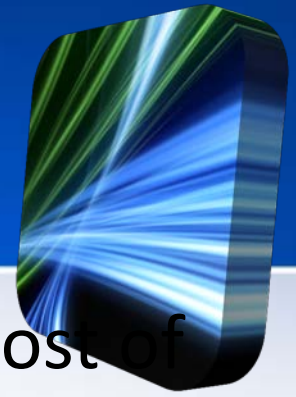
- Lack of resources
 - High infrastructure costs
 - Rapid evolution of technology
 - Licensure / credentialing
- Reliability
 - Changing infrastructure and technology
 - Rural communities
 - Available bandwidth
- Trust / distrust
- Perception of concept
 - Responsibility vs. accountability
 - Legal limitations

Project Framework:



1. What are the essential components of a state-wide Stroke Center of Excellence?
2. What are the essential components of a telemedicine stroke program?
3. Which hospitals in the State of Alaska have the capability to transmit and receive the internet signals necessary for remote telemedicine support?
4. What hardware and software requirements are necessary?
5. What financial support will be required?

What are the essential components of a state-wide Stroke Center of Excellence?



- Provision of full range of services for all or most of the population in a community
- Support for evidence-based care
- Clinical consultation for evaluation, triage and transfer
- Provision of required diagnostic tests and treatment
- Public education
 - Risk factors
 - Primary prevention

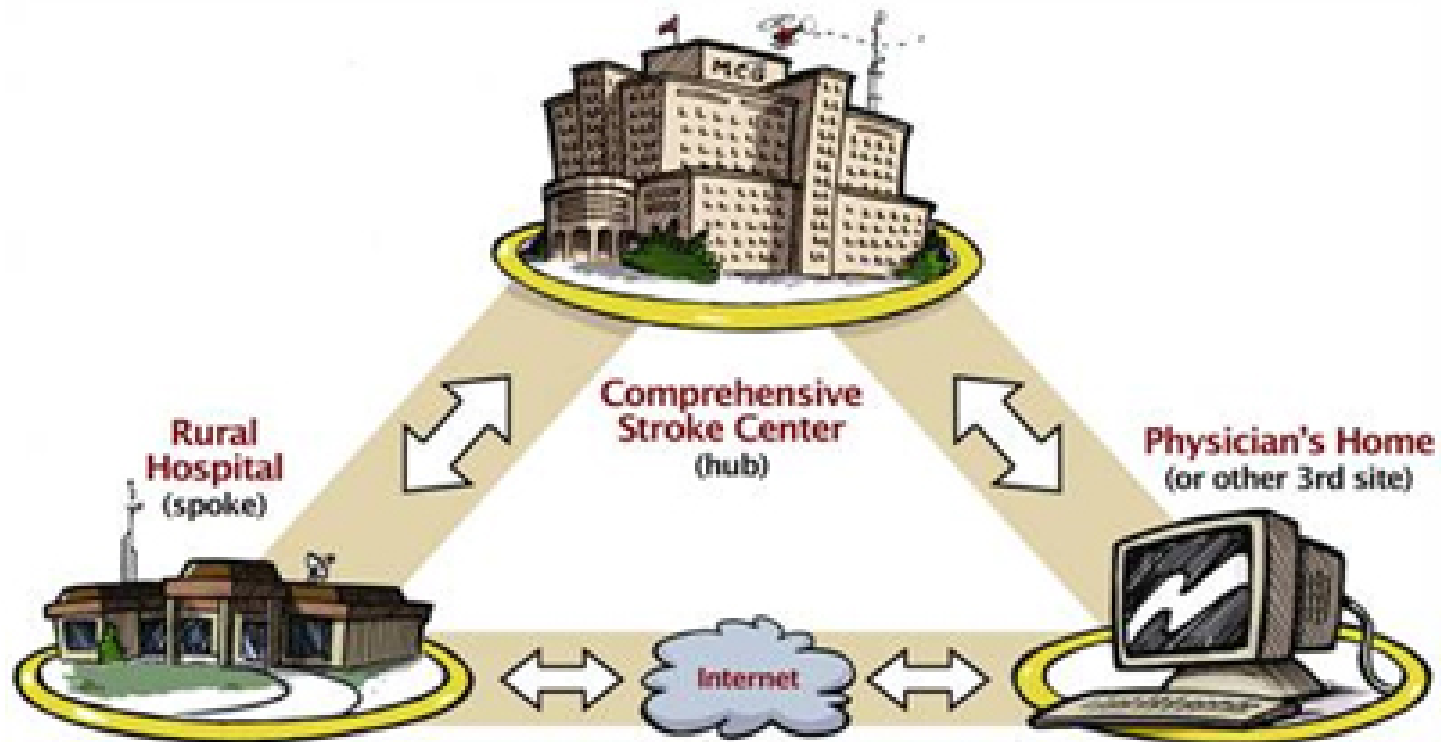
What are the essential components of a telemedicine stroke program?



- Resources to support infrastructure
- Two way audio-video with reliable connectivity
- 24 hour qualified physician (specialist) support at the Hub
- CT scan at spoke (based on hub / spoke model)
- Appropriate provider(s) / telepresenter at spoke

Current Applications

Hub and Spoke Model of Care.....



Which hospitals in the State of Alaska have the capability to transmit and receive the internet signals necessary for remote telemedicine support?



- Analysis of hospitals throughout the State of Alaska asking the following:
 - Location
 - Internet access / type
 - DICOM Compatible CT Scanner
 - Number of inpatient beds
 - Estimated emergency department visits per year
 - Approximate number of patients with stroke per year (based on national statistics)

Primary Spoke Hospitals



- Bartlett Regional Hospital – Juneau, AK [55 beds]
- Providence Kodiak Island Medical Center – Kodiak Island, AK [CAH - 22 beds]
- Providence Seward Medical and Care Center – Seward, AK [CAH - 12 beds]
- Central Peninsula General Hospital – Soldotna, AK [70 beds]
- Providence Valdez Medical Center – Valdez, AK
- Providence Alaska Medical Center – Anchorage, AK (Hub) [CAH – 4 beds]

ALASKA



What hardware and software requirements are necessary?



- Type of internet connection – wireless vs. wired?
- High definition camera with accessible software
- Laptop vs. mobile computer station
- Tech support
- Electronic records
- DICOM image sharing
 - Remote
 - PACS

Infrastructure?



- Fiber Optic Lines connecting some communities
- Wireless / web-based access in towns – often DSL or dial-up
- ? Bandwidth
- Portable vs. wired?
- Technical support?
- Travel and education?
- Receptiveness

Options



- eICU – in process – not available yet
- Wireless cart (REACH Health, Inc.)
- Robot (RP-7) – In Touch
- PolyCom / Global Med – hardware only
- Homegrown?

What financial support will be required?



- Cost of technology and connectivity
- Costs of education and training
- Costs associated with hardware maintenance and replacement
- Estimated cost for a three-year program launch in Alaska ~ \$995,000 not including physician fees, patient transport or direct medical costs.

Financial Planning



*“You may not get what you want.....
but often – you get what you measure!”*

- Revenue model
 - Show clear revenue management
- Cost saving model
 - Show the benchmark and a method to clearly measure the savings
- Strategic model
 - Show a way to measure strategic contribution

Current Technologies



Technology's Impact on the Healthcare System.....



- Clinical information systems [Electronic Medical Records]
- Computer-chip–based clinical monitoring devices
- Advanced applications with remote, wired and wireless communication devices [telemedicine; eICU]
- Clinical decision support software [ImPACT] [eICU]



Implications



- Impact on nursing / medical practice
 - Change in ‘how’ we deliver medical care
- Change in ‘what’ we expect from the healthcare system
- Changes in community perceptions
- Changes in provider / nurse / patient relationship

Developing a Program



- Establishing the vision and align with organization's vision and mission
- Assess the community(ies) [gather data]
- Define program objectives
 - Survey infrastructure
 - Identify needs (\$\$\$\$, technology, support)
- Develop success metrics
- Measure outcomes

Establishing a Vision



Critical Questions

- Where do you want to go?
- How will the ‘journey’ affect your objectives?
- How is your vision for the telemedicine program aligned with your organization’s overall vision?
- Is your program objective the same as the organization’s objective for the program?

Vision



Providence Health & Services, Alaska

As People of Providence we reveal God's love for all, especially the poor and vulnerable, through our compassionate service.

Neuroscience Service Line

Recognized as Alaska's premier Neuroscience Center of Excellence providing collaborative services designed to meet the needs of the state.

Telestroke Program

To provide collaborative evidence-based stroke care that meets the needs of Alaskans

Program Objectives



- Identify 7 potential ‘spoke’ sites in Alaska
- Build relationships with staff / leaders in those organizations
- Implement telemedicine (stroke) at 7 sites
- Maintain robust support
- Identify subsequent sites for implementation
- Reevaluate utilization and cost at 24 months
- Develop ongoing plan for additional telemedicine utilization / implementation

Assessing the Community



- What needs would the program meet in the community?
- What services would be provided?
- Who would use the service?
- What technology is available?
- What type of connectivity would be effective and reliable?

Impact on Providers and Nursing



Plan and Assure Effective Training

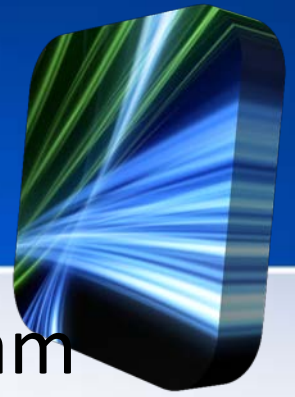
- Workflow
- Delivery of patient care
- Education
- Expectations
- Are you the champion?

Impact on Patient Outcomes



- Ask appropriate questions
 - What were the objectives of the program
 - Did the program develop the infrastructure necessary to achieve the goals
 - Was appropriate education provided
 - What outcomes are expected
 - How will you measure the outcomes

Steps to Success



- Clearly define the objectives of the program
- Align program objectives with organization's objectives
- Outline the results / outcomes that you hope to accomplish
 - Short and long term goals with metrics
- Maximize utilization
 - Frequent use = competency

Challenges?



HUB - Challenges



- Relationships?
- Infrastructure
 - IT resources
 - Biomed resources
 - Partnerships with telecommunications companies
- Education
- Alignment / support
- Troubleshooting

SPOKE - Challenges



- Trust - distrust
- Alignment / support
- Education
- Frequency of use
- Troubleshooting
- Infrastructure
 - IT Resources
 - Biomed resources

Outcomes?



- Successful implementation in 6 locations
- Continued increase in referrals from these sites
- Decreased unnecessary transportation
- Improved tPA treatment in State of Alaska to 4.7 percent (national average 2-3%)
- Improved identification of stroke at spoke hospitals
- Implemented eICU at 2 sites

Future strategies?



- Alaska Collaborative for Telehealth and Telemedicine (ACTT)
- Alaska region initiative related to telehealth / telemedicine
- Providence Health Services system wide initiative related to outreach with subdivision for telehealth / telemedicine
- Robust evaluation of systems, reimbursement, infrastructure, resources, community needs

Summary.....



Telemedicine will be a rapidly growing strategy for the delivery of healthcare throughout the United States and global communities. Through technology, access to specialized and acute care services will improve, the overall health of communities will improve and the way we deliver healthcare will change.

Questions?



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