



The National Telehealth Webinar Series

Presented by
The National Network of Telehealth
Resource Centers

Telehealth Resource Centers

<http://www.telehealthresourcecenters.org>

- California Telemedicine & eHealth Center (CTEC)
 - Great Plains Telehealth Resource & Assistance Center (GPTRAC)
 - Heartland Telehealth Resource Center (HTRC)
 - Mid Atlantic Telehealth Resource Center (MATRC)
 - Northeast Telehealth Resource Center (NETRC)
 - Northwest Regional Telehealth Resource Center (NRTRC)
 - Pacific Basin Telehealth Center (PBTRC)
 - South Central Telehealth Resource Center (SCTRC)
 - Southeastern Telehealth Resource Center (SETRC)
 - Southwest Telehealth Resource Center (SWTRC)
 - Upper Midwest Telehealth Resource Center (UMTRC)
- Telehealth Technology Assessment Center (TTAC)



TELEHEALTH IN BEACON COMMUNITIES

Produced by the
Great Plains Telehealth Resource & Assistance Center

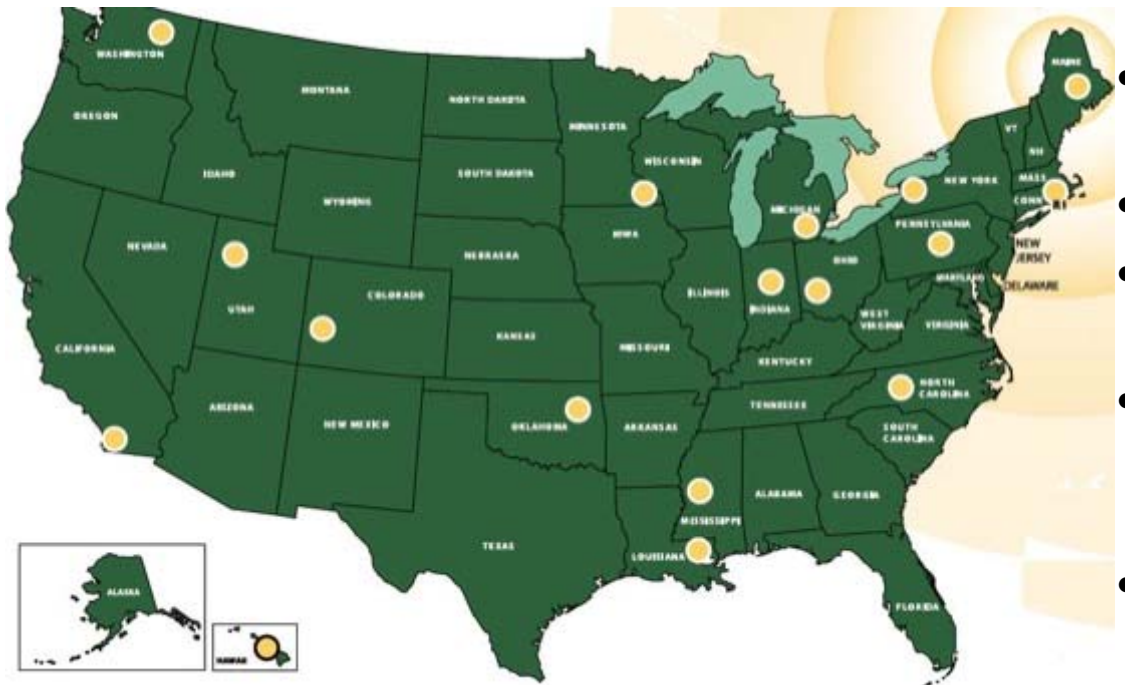
May 17, 2012
(9:00AM HST, 11:00AM PST, 12:00AM MST, 1:00PM CDT, 2:00PM EDT)



Southeast Minnesota Beacon Community

Harnessing Technology From a Community Perspective

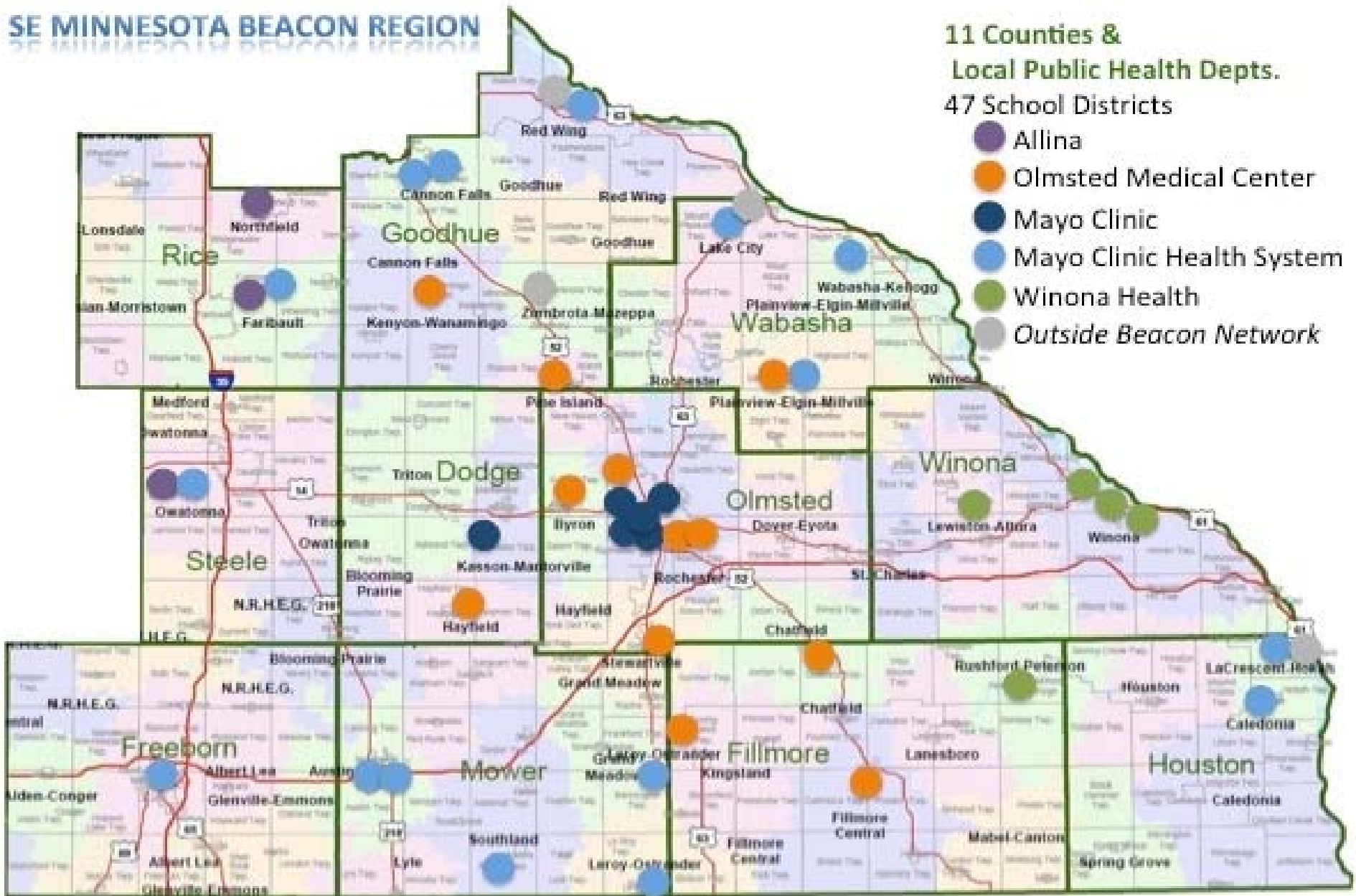
17 Beacon Communities



- Community Services Council of Tulsa, Tulsa, OK
- Delta Health Alliance, Inc., Stoneville, MS
- Eastern Maine Healthcare Systems, Brewer, ME
- Geisinger Clinic, Danville, PA
- HealthInsight, Salt Lake City, UT
- Indiana Health Information Exchange, INC., Indianapolis, IN
- Inland Northwest Health Services, Spokane, WA

- Louisiana Public Health Institute, New Orleans, LA
- Southeast Minnesota, MN
- Rhode Island Quality Institute, Providence, RI
- Rocky Mountain Health Maintenance Organization, Grand Junction, CO
- Southern Piedmont Community Care Plan, Inc., Concord, NC
- The Regents of the University of California at San Diego, San Diego, CA
- University of Hawaii at Hilo, Hilo, HI
- Western New York Clinical Information Exchange, Inc., Buffalo, NY

SE MINNESOTA BEACON REGION





Mayo Health System
Mayo Clinic
Olmsted Medical Center
Winona Health Services
Allina - Owatonna



Consists of Eleven
Counties in SE MN

*Dodge, Fillmore, Freeborn,
Goodhue, Houston, Mower,
Olmsted, Rice, Steele,
Wabasha, Winona*



Asthma

Consists of 47 school districts
in the eleven counties in SE
MN.

Diabetes

Consists of Home health
facilities and nursing homes
for example

Communities of Practice

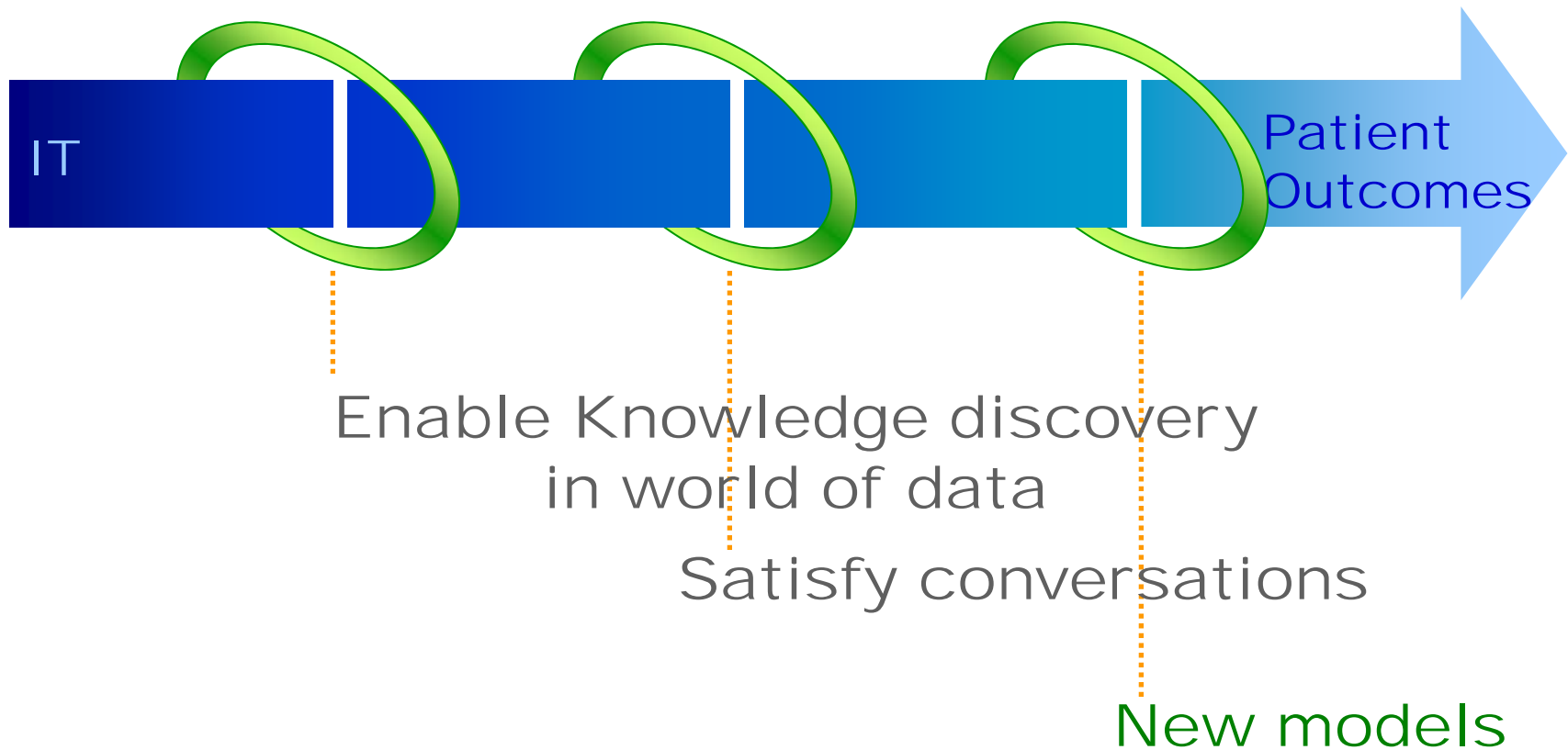
(Example from SE MN Beacon)

Guiding Values

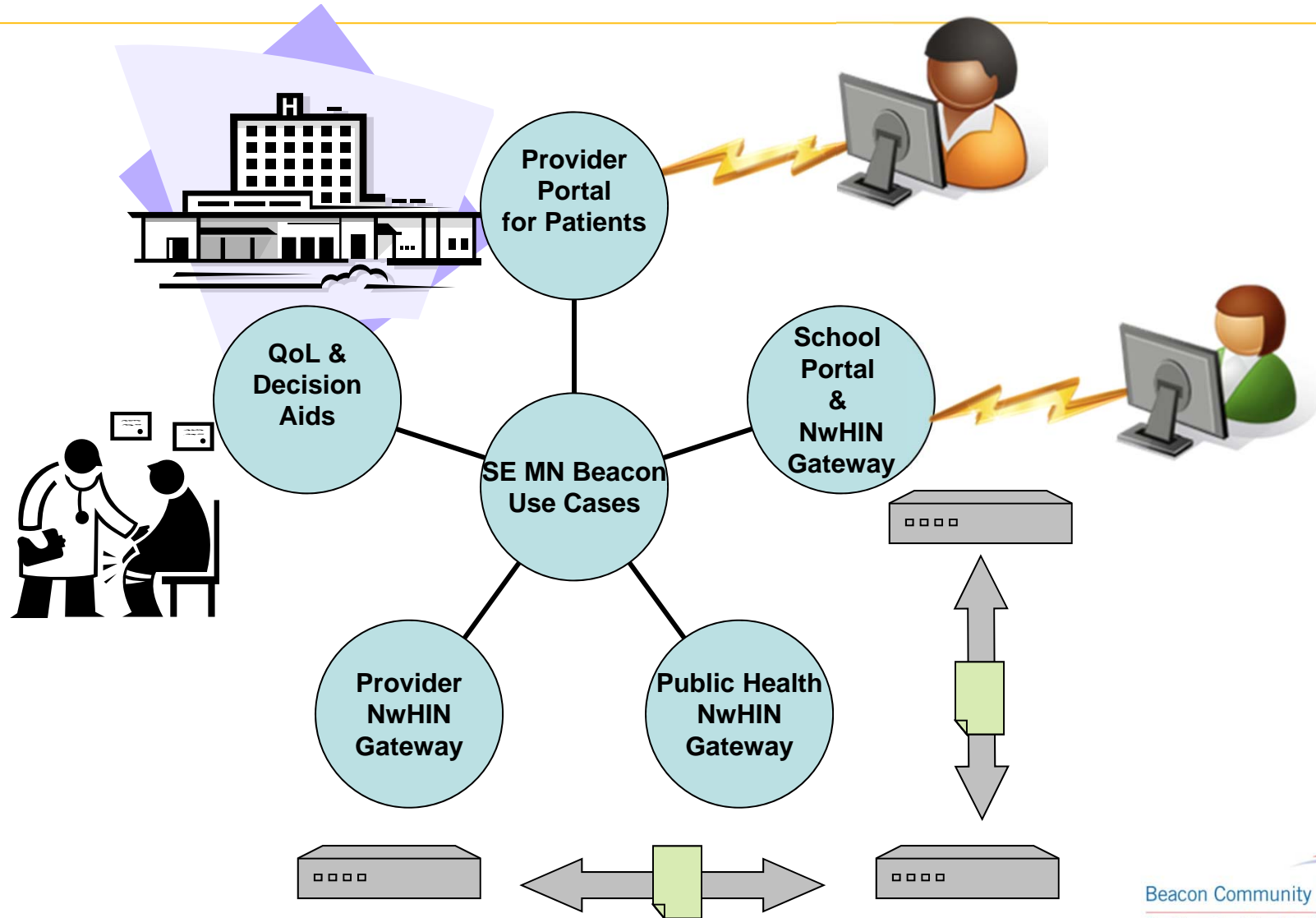
Ensuring the values and preferences of informed patients are brought into our program through meaningful conversation.



Healthcare Transformation



IT Enabled & Community based 'Transitions of Care'

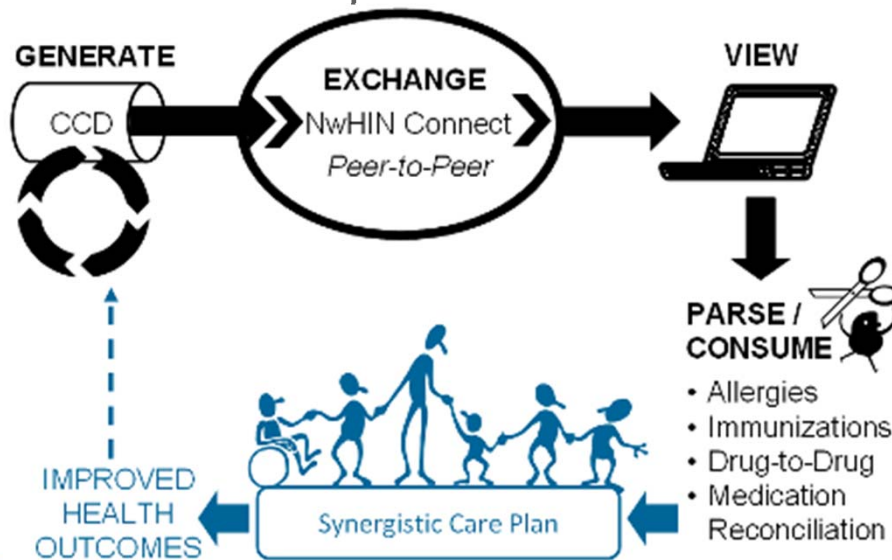
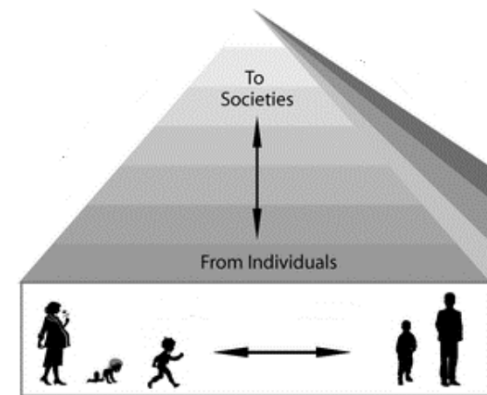


Peer-to-Peer HIE

Clinical Data Repository

- 100 % EHR Adoption Rate:
 - Six EMR systems used across SE MN Beacon including PH- Doc used by Public Health
- NwHIN Connectivity
- CCD's parsed into discrete data and persisted

- Hosted at Regenstrief Institute
- Site Clinical Repository
- Research Data Repository
- Population Management



- Quality Measures Reporting
- Research
- Population Management
- Error handling
- Point of Care (Future Use)

New Model: Asthma Care Coordination

Includes processes of care coordination with providers, public health and schools



Diabetes Medication Choice Web App

- Weight Change
- Daily Routine
- Low Blood Sugar
(Hypoglycemia)
- Cost
- Blood Sugar
(A1c Reduction)
- Daily Sugar Testing
(Monitoring)
- Side Effects

Metformin
In the first few weeks after starting Metformin, patients may have some **nausea, indigestion or diarrhea**.

Insulin
There are no other side effects associated with Insulin.

Glitazones
Over time, 10 in 100 people may have **fluid retention (edema)** while taking Glitazones. For some, it may be as little as ankle swelling. For others, fluid may build up in the lungs making it difficult to breathe. This may resolve after you stop taking the drug.

Exenatide
After starting Exenatide, some patients may have **nausea or diarrhea**. In some cases, the nausea may be severe enough that a patient has to stop taking the drug.

Sulfonylureas
Some patients get **nausea, rash** and/or **diarrhea** when they first start taking Sulfonylureas. This type of reaction may force them to stop taking the drug.

Gliptins
A few patients may get nose and sinus congestion and headaches.

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Weight Change



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Daily Routine



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http://webpages.charter.net/vmontori/Wiser_Chchoices_Program_Aids_Site/Diabetes_Choice_files/diabetes.html



Patient Reported Outcomes / Quality of Life Tool

please touch the picture that corresponds to your
single biggest concern
right now...

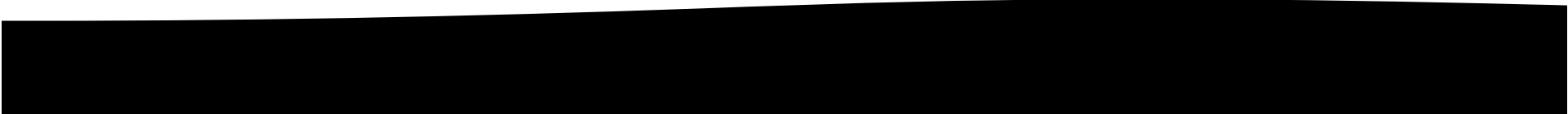
 <p>personal relationships</p> <ul style="list-style-type: none">• Family• Friends	 <p>monitoring health</p> <ul style="list-style-type: none">• Testing blood sugars• Checking feet	 <p>emotional health</p> <ul style="list-style-type: none">• Sad• Anxious• Other emotional concerns	 <p>money</p> <ul style="list-style-type: none">• Cost of medicine or supplies• Paying for care	 <p>health behaviors</p> <ul style="list-style-type: none">• Diet• Exercise• Sleep
 <p>medicine</p> <ul style="list-style-type: none">• Taking medication• Managing side effects	 <p>healthcare</p> <ul style="list-style-type: none">• Health insurance• Emergency/ Urgent care	 <p>work</p> <ul style="list-style-type: none">• Schedule• Environment• Managing your health condition at work	 <p>physical health</p> <ul style="list-style-type: none">• Pain• Fatigue• Physical difficulties	 <p>something else</p>

PROQOL Toolkit

- [PROQOL Video Presentation](#)
- [Provider Fact-Sheet](#)
- [Paper version of Tool](#)
- [PROQOL Clinical Pathways-Sample](#)
- [PROQOL Workflow-Sample](#)
- [PROQOL IRB Protocol Sample](#)



Mash-up Potential

- Take Beacon Telemed configurations overlaid with new healthcare delivery processes through applied Beacon apps offers the ability to provide community care in rural areas.
- 

Southeast Minnesota Beacon Program

Eleven Minnesota counties working to improve health care and health delivery systems.



- Home
- Community Engagement
- Schools
- Asthma
- Immunizations
- Diabetes
- Decision Aids
- Admit2Discharge
- Technology
- Telemedicine
- Community Connections
- Partners
- News
- Blog

Welcome to Beacon

Beacon is a community-based program to spotlight a variety of “best practice” approaches to improving health and health care delivery in the United States. Funded by the U.S. Department of Health and Human Services, through the [Office of the National Coordinator for Health Information Technology](#), the [Beacon Communities](#) [see the Beacon videos] are a series of medical practice and research coalitions focusing on specific health conditions in their areas and utilizing and developing efficient systems based on their foundational expertise.

Overall, each Beacon program seeks to:

- Improve quality, safety, efficiency, and reduce health disparities
- Engage patients and their families in their health care
- Improve health care coordination
- Improve public health and the health of the community’s population
- Ensure privacy and security protections for personal health information

Recent Posts

- [Beacon is beginning](#)

Archives

Categories

Project Team Wiki

- [Project Team Wiki](#)

Winona Health: Who We Are

- Integrated Community Health Provider
 - Non-Profit
 - Independent
 - Service Area = 50,000
 - Sole Community Provider, classified rural
 - Employed Medical Staff
 - Hospital, Physician Clinics, Retail Pharmacy, Home Health/Hospice, SNF, Assisted Living



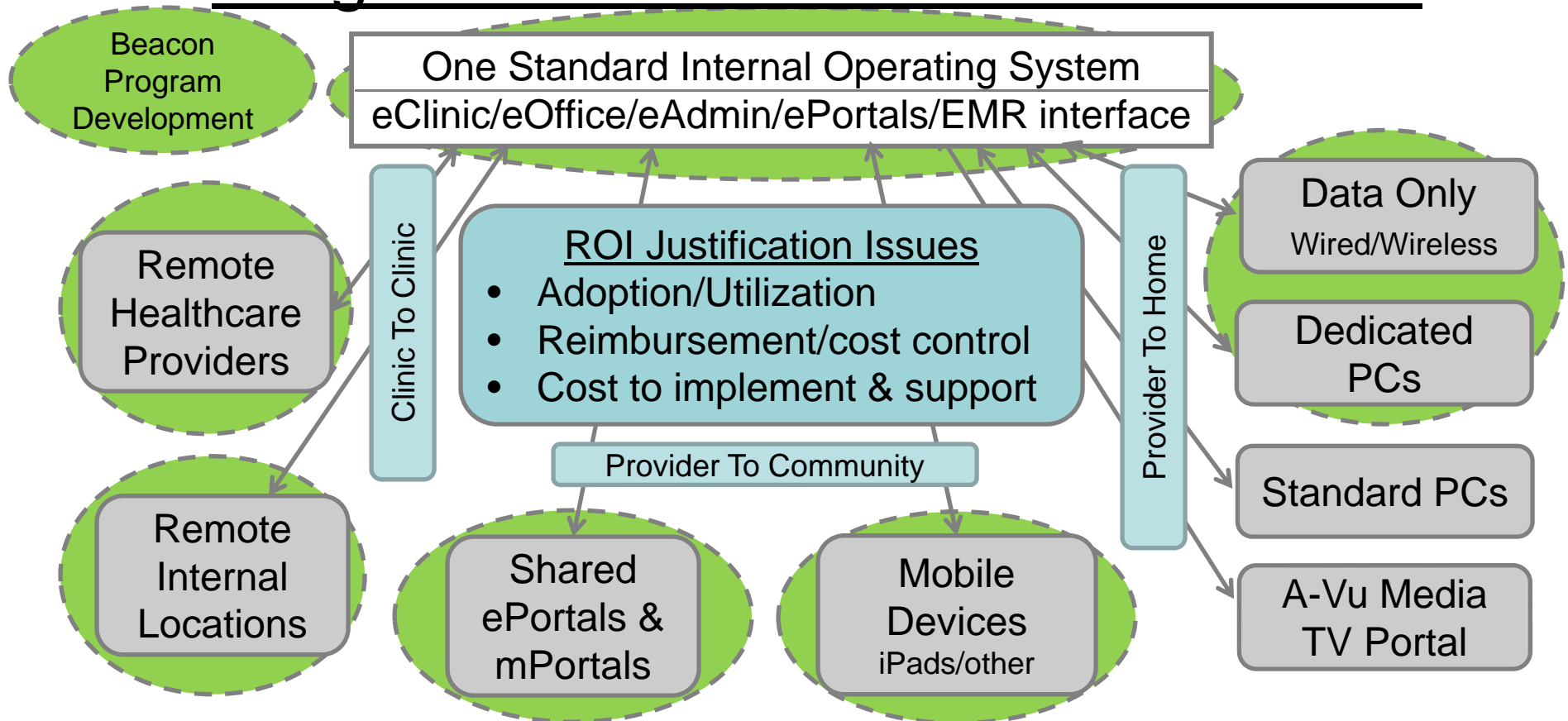
Winona Health: Digital Journey



- **Started in 2000** as a partnership with Cerner and HBC (local broadband) to develop Personal Health Records
- Led to nearly **a decade of implementation** and use of information technology
- **Meaningful Use**
 - Hospital currently meeting requirements
 - Eligible Provider in Q4 2011
- Current spend **3.5% of operating costs** – comparable to industry
- **“Most Wired”** hospital award winner 9 times

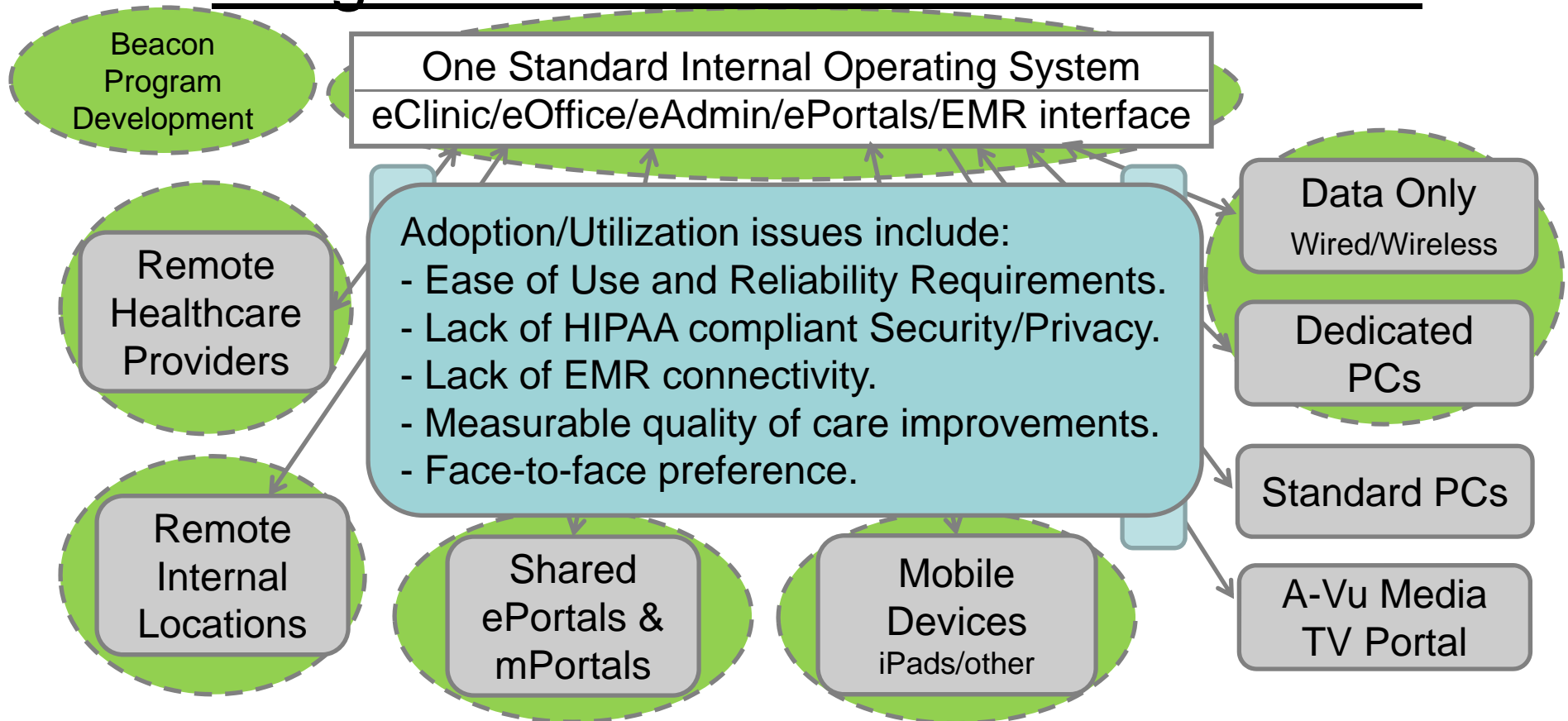
Beacon Alpha Summary

Integrated View of Healthcare Provider



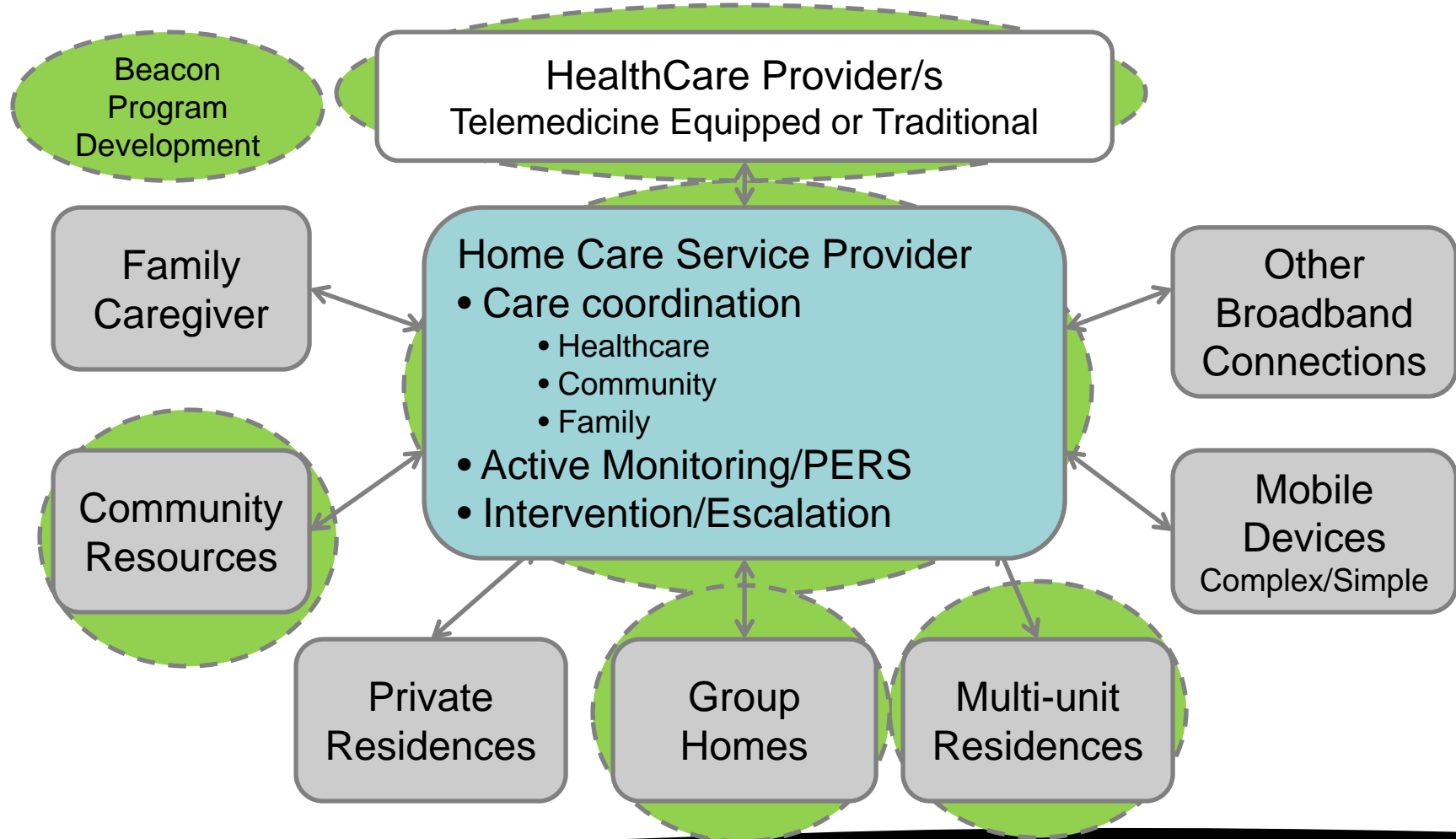
Beacon Alpha Summary

Integrated View of Healthcare Provider



Beacon Enabled HCO Service

Integrated View of Home Care Services





Home & Community Options

HCO remote monitoring built on four core components:

1. Web Based HIPAA compliant Client Centered Protocol Management and Alert Notification System.
2. Smart home technology and integrated web based alert and communication devices.
3. Remote Night Attendant Station that alerts the Remote Night Attendant (RNA) of an incident and allows the RNA to monitor and interact with the residents.
4. On-Call Staff: Ready to go to the resident if requested by a protocol or by the RNA. With a response time of less than 10 minutes.



Proposed Beacon Solutions

- Cost reduction by leveraging commercial and consumer technologies on Broadband Networks.
- A remotely managed system to significantly improve ease of use and simulate normal work flow.
- A custom user interface for easy access and operation.
- Expanded applications and locations via Broadband.
- Multipoint video conferencing with life size images.
- A multimode system for data only or live video.
- EMR connection expanded by Beacon HIE.
- One internal medical operating structure.

Shared ePortal (Patient)



\$14,000 per location plus install.

System Capabilities

- ▼ Primary Patient View with remote control of PTZ Camera.
- ▼ Second simultaneous selectable exam video image.
 - Examination Camera
 - Otoscope
- ▼ 37" TV screen for images.
- ▼ External phone only links.
- ▼ Supported medical devices.
 - Welsh Allen VSM
 - 3M Stethoscope
 - Other
- ▼ Beacon Custom UI

Shared mPortal (Patient)



- Fully Mobile
 - 1.5 Hour on UPS
- Wireless or wired
- Selectable single send Image
 - Patient
 - Exam
 - Other
- Self view image
- WCTN/Vidyo enabled
- Optional medical devices
 - Otoscope
 - Stethoscope
 - VSM
 - Other USB or Bluetooth
- Staged for Beacon Custom UI

\$8,000 per location plus install.

eOffice (Doctor/nurse/other)



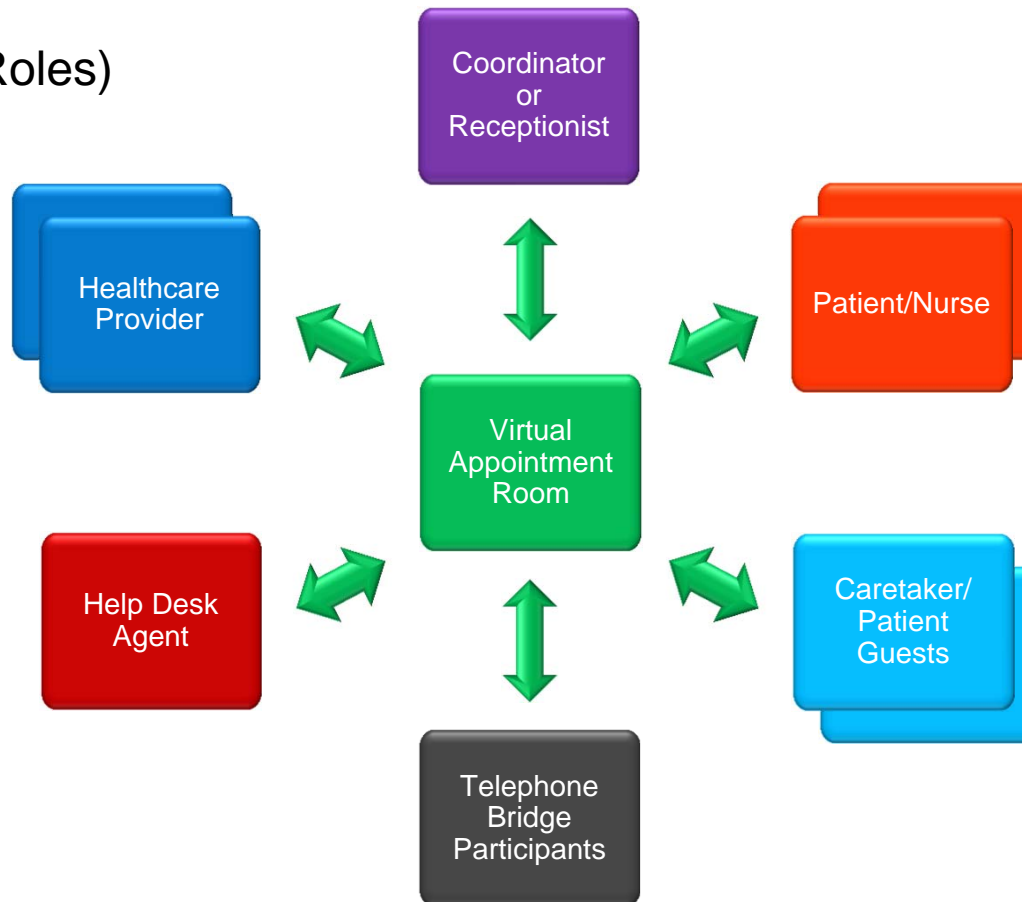
\$2- 4,000 per location plus installation.

System Capabilities

- Sends HD Doctor View.
- Remote control of Patient PTZ Camera.
- 37" TV screen for images.
- Supports all provisioned medical devices.
 - Stethoscope
 - Data display from remote medical devices.
- Integrated with standard practice PC that provides access to scheduling, EMR data, and other standard operating applications.
- Beacon Custom UI

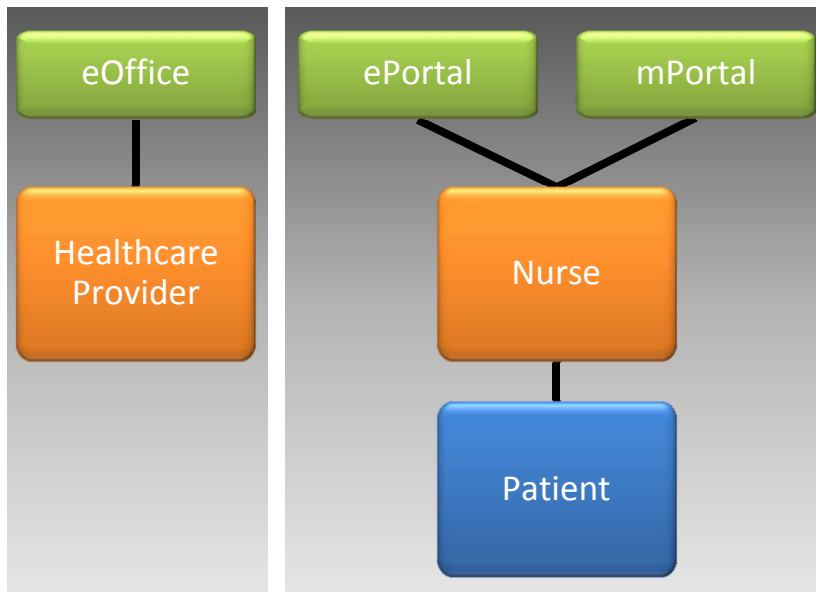
Beacon Custom UI

Beacon Entities (Roles)



Beacon Custom UI

BEACON PORTAL



System

Beacon Platforms

eOffice
ePortal
mPortal
All-in-one PC*

Hardware

1-2 Monitor
2 Monitors
1-2 Monitors
1 Monitor

Future Home Portal Platforms

Home PC
A-Vu Box*

1 Monitor
TV Screen

* No keyboard/mouse

Caretaker/
Patient
Guests

Telephone
Bridge
Participants

Coordinator
or
Receptionist

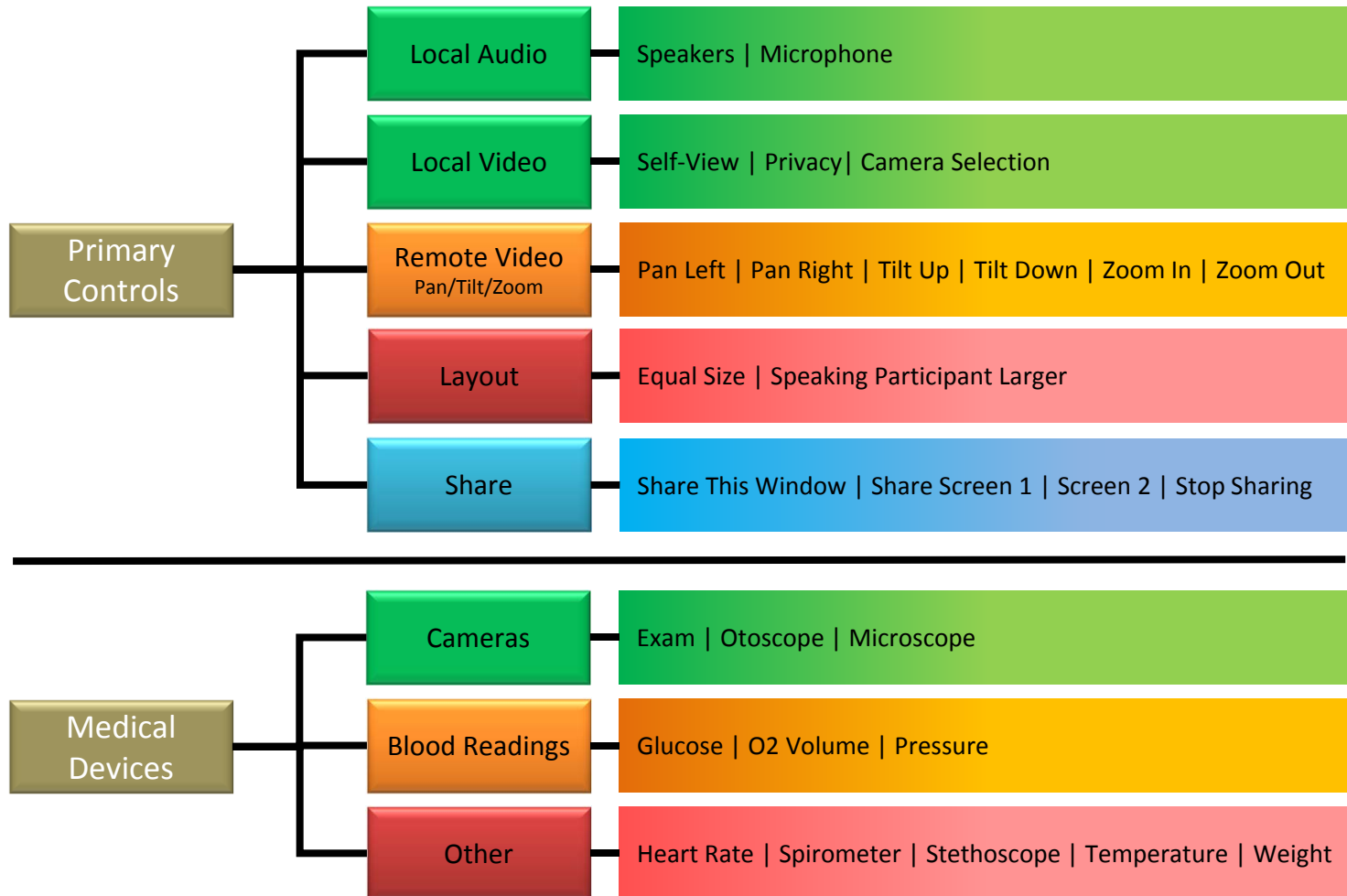
Help Desk
Agent

Admin and
Support

Later Phases

Beacon Custom UI

SYSTEM FUNCTIONS



ePortal ID:

Lewiston ePortal

Associated Room ID:

Lewiston Villa

LOGIN

SETUP

This system is configured as an ePortal.

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Developed by A-Vu Media Corp.
Video technology provided by Vidyo, Inc.

Nurse/Patient View

Login Screen

	TIME	PATIENT	GUEST
21	7:00	AC	NO
	7:30		
👤	8:00	BW	2
	8:30		
-	9:00	TL 📞	1
	9:30		
👤	10:00		
	10:30	MF	NO
-	11:00		
	11:30	GG	1
👤	12:00		
	12:30	HC	2
👤	1:00		
	1:30		
❤️	2:00	VK	1
	2:30		
	3:00	ES	NO

JOIN/LEAVE

Nurse/Patient View

Calendar



PARTICIPANT

21

John Goodman
Brad Zuehlke
Jenelle O'Donnell
Telephone

Patient Status: **In Room**

IN

READY

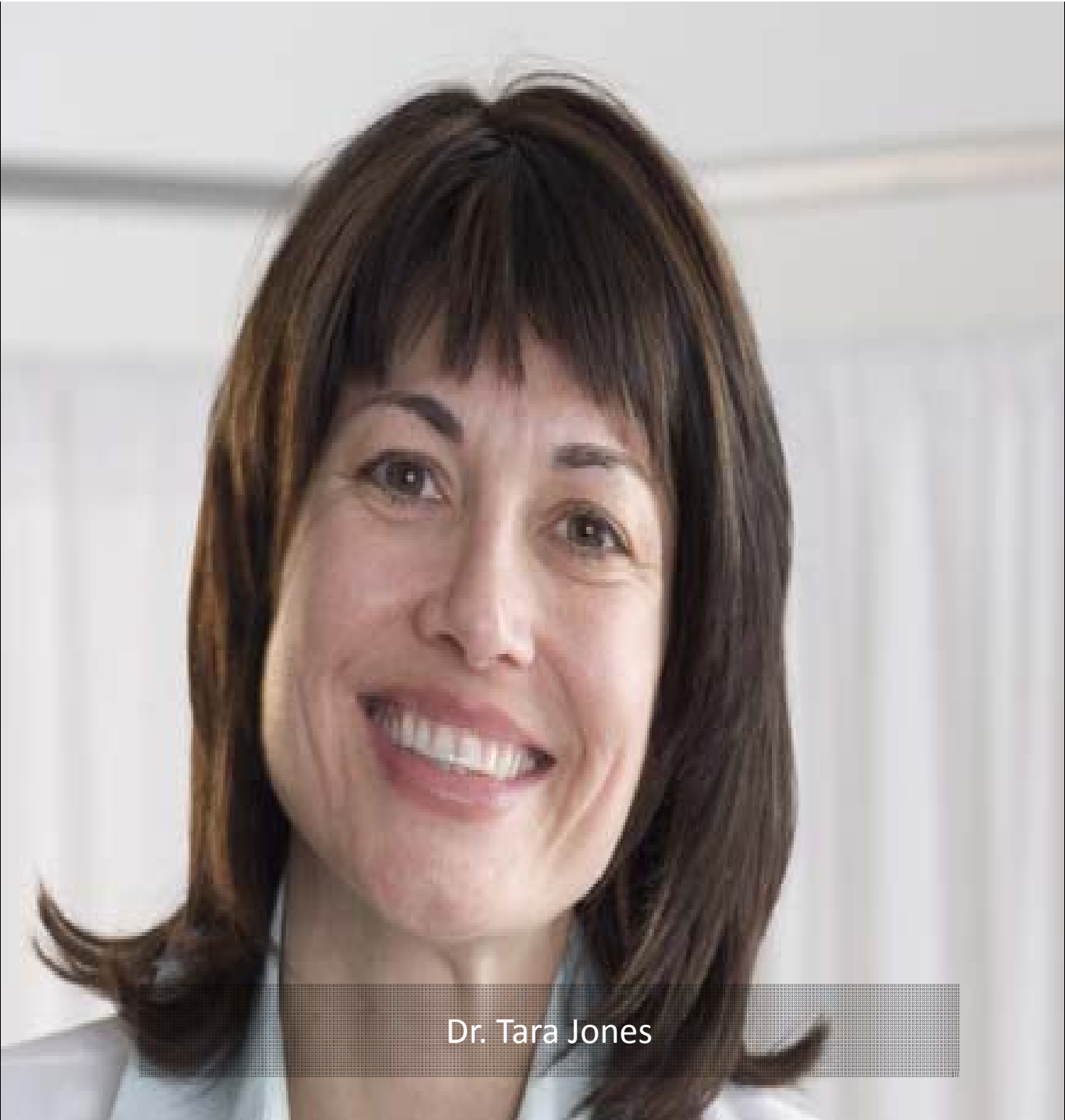
JOIN/LEAVE

CONFERENCE STATUS

Network: OK
Video: OK
Audio: OK
Room: **UNLOCKED**

DEVICE STATUS

Exam Camera: OK
Microscope Cam: OK
Otoscope: OK
Pulse Oximeter: OK
Stethoscope: **Off**



Dr. Tara Jones



21 Lewiston Villa
Room Status: Empty

- My Room
- Bluffview
- Family Medicine
- Family Practice
- Internal Medicine
- Lewiston Clinic
- Lewiston Villa
- Rushford
- Rushford Good Shepherd
- Sauer
- St. Anne
- Watkins
- Winona High School
- Winona Middle School

JOIN/LEAVE



Nurse/Patient View

Rooms

Brent Kendall

21

Member Status: Offline

- Alan Duvall
- Alice Wright
- Ann Lewandowski
- Arthur Scott
- Betty Turner
- Brent Kendall
- Candice Flores
- Cedric Gaynes
- Clarissa Crane
- Clark Griswald
- Craig Meyer
- Daniel Quigly
- Dana Busch
- Delphina Sway
- Dina Everett

CALL

JOIN/LEAVE

Nurse/Patient View

Members



PATIENT VITAL SIGNS

21

Height:

0

Ft.

0

In.

Weight:

0

Lbs.

99

Oz.

Heart Rate:

0

Beats/Min.

Blood Pressure:

0

Sys.

0

Dia.

Temperature:

0.0

Deg. F.

0

1

2

3

4

5

6

7

8

9

Nurse/Patient View

Vital Signs - Manual Entry



Enter eOffice ID:

Enter eOffice Password:

LOGIN

SETUP

This system is configured as an eOffice.

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Developed by A-Vu Media Corp.
Video technology provided by Vidyo, Inc.

Provider View

Login Screen

UserID: Dr. Tara Jones

21

TIME

7:00	
7:30	
8:00	Orange
8:30	Orange
9:00	
9:30	
10:00	Light Blue
10:30	Green
11:00	Green
11:30	
12:00	
12:30	Green
1:00	Green
	Green

Patient Name: Emily Sullivan
Location: Louiston Villa
Room: ePortal (213B)
Asthma

JOIN/LEAVE

Provider View

Calendar

Navigation icons: Up, Down, Left, Right, Plus, Minus, Search, Home, Pointer, Stethoscope, ECG

Room: Lewiston Villa

PARTICIPANT

21

John Goodman

X A V

Brad Zuehlke

X

Jenelle O'Donnell

X

Telephone

X

X

X

X

Patient Status: **In Room**

CONFERENCE STATUS

Network:

OK

Video:

OK

Audio:

OK

Room:

UNLOCKED

DEVICE STATUS

Exam Camera:

OK

Microscope Cam:

OK

Otoscope:

OK

Pulse Oximeter:

OK

Stethoscope:

Off



HEIGHT: 36 in.
WEIGHT: 40 lbs.
HEART RATE: 60 bpm
BLOOD PRESSURE: 120/80
TEMPERATURE: 98.6° F.
PULSE OXIMETRY: 96%

Emily Sullivan



Navigation controls including arrows, a plus sign, a minus sign, a magnifying glass, a microscope, a stethoscope, and a pulse oximeter icon.

Provider View

Consultation
Dual Screens



Provider Laptop

Room: Lewiston Villa

PARTICIPANT

21	John Goodman	X	A	V
	Brad Zuehlke	X		
	Jenelle O'Donnell	X		
	Telephone	X		

Patient Status: **In Room**

CONFERENCE STATUS

Network: OK
Video: OK
Audio: OK
Room: **UNLOCKED**

DEVICE STATUS

Exam Camera: OK
Microscope Cam: OK
Otoscope: OK
Pulse Oximeter: OK
Stethoscope: Off

HEIGHT: 36 in.
WEIGHT: 40 lbs.
HEART RATE: 60 bpm
BLOOD PRESSURE: 120/80
TEMPERATURE: 98.6° F.
OXYGEN SATURATION: 96%

COOLIDGE, BUTCH R. 38 years M DOB: 10/10/1970 MRN: 20378945 FIN: 050820934832 Admit: 9/24/2008 Unit LOS: 214 days Location: 75-701-8

Dose Weight: 75kg (165.0009 28.42 CST) Actual Weight: 76.2kg (167.8209 28.42 CST) Allergies: Codeine, Sulfas

Vitals, CV, Neuro, Infections (12 hr)

I/O (3 day)

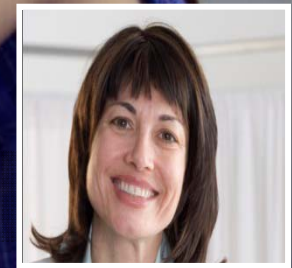
Respiratory Therapy (6 hr)

Labs

Lab	Unit	Result	Reference
Lab		1.52	1.54
CO2	21102009 07:50 CST	22.1	
Lactate	21102009 07:50 CST	148.1	
Na	21102009 07:50 CST	138	140-145
K	21102009 07:50 CST	5.5	3.5-5.0
Kaohle blood	21102009 07:50 CST	8.1	2.8-6.0
Cl	21102009 07:50 CST	101	98-107
CO2	21102009 07:50 CST	25	23-29

Respiratory Therapy (6 hr)

Parameter	Value
RR	12 bpm l
CO2 Delivery	Non-Rebreather
Mode	
CO2 %	40
NO Inhaled	20 ppm



Emily Sullivan

Flat Screen Television

UserID: Dr. Tara Jones

Lewiston Villa

21

Room Status: Empty

- My Room
- Bluffview
- Family Medicine
- Family Practice
- Internal Medicine
- Lewiston Clinic
- Lewiston Villa
- Rushford
- Rushford Good Shepherd
- Sauer
- St. Anne
- Watkins
- Winona High School
- Winona Middle School

JOIN/LEAVE

Provider View

Rooms



UserID: Dr. Tara Jones

Brent Kendall

21

Member Status: Offline

- Alan Duvall
- Alice Wright
- Ann Lewandowski
- Arthur Scott
- Betty Turner
- Brent Kendall
- Candice Flores
- Cedric Gaynes
- Clarissa Crane
- Clark Griswald
- Craig Meyer
- Daniel Quigly
- Dana Busch
- Delphina Sway

CALL










JOIN/LEAVE

Provider View

Members



UserID: Dr. Tara Jones

 <p>21</p>	 <p>Video Location: Screen 1</p>
 <p>Video Privacy: Off</p>	 <p>Self-View: Picture-in-Picture</p>
 <p>Audio Privacy: Off</p>	 <p>Speakers: 50%</p> 
 <p>Microphone: 50%</p> 	

Provider View

Audio/Video Controls

Administrator ID:

Administrator Password:

RETURN

SETUP

Configure as eOffice

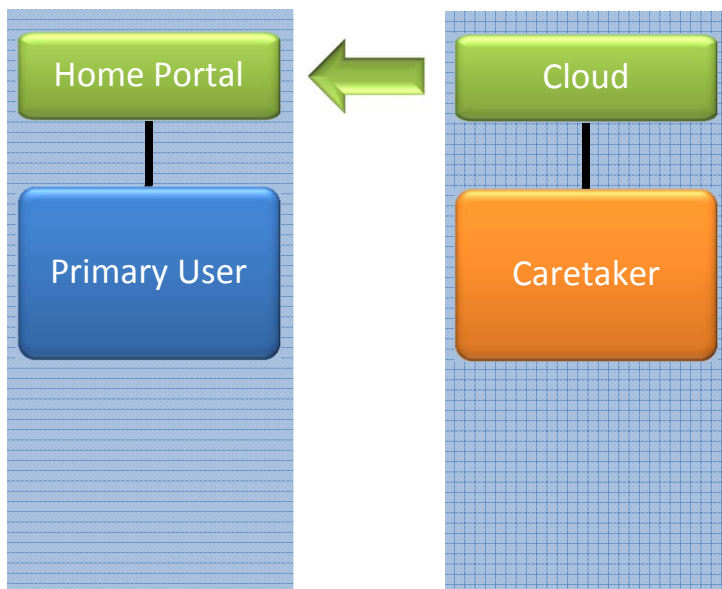
Configure as ePortal

All Views

Setup Screen

A-Vu Home Multimedia

MULTIMEDIA HOME ACCESS (A-Vu) PORTAL



System

Hardware

Beacon Platforms

eOffice	1-2 Monitor
ePortal	2 Monitors
mPortal	1-2 Monitors
All-in-one PC*	1 Monitor

Future Home Portal Platforms

Home PC	1 Monitor
A-Vu Box*	TV Screen

* No keyboard/mouse



Later Phases

A-Vu Home Multimedia

A-Vu Media, Inc.

The interface features a grid of blue buttons with various icons: a television (highlighted with a white border), musical notes, a corkboard with photos, a mailbox, a globe with 'www', a red rotary phone, a red plus sign, and a toolbox. Below the grid, there is a yellow 'HELP' button and a grey 'TV OFF' button. A remote control is positioned on the right side of the screen.

Television and Movies
Live and Recorded TV; Saved Movies and DVDs

Internet

Extras

HELP

TV OFF

TV INFO VID
MUSIC PIC PERSON
BACK OK
VOL +
CHANNEL

A-Vu Home Multimedia

A-Vu Media, Inc.

The interface features a grid of blue buttons with various icons: a television with 'I Love Lucy', musical notes, a corkboard with photos, a mailbox, a globe with 'www', a red rotary phone, and a toolbox. A large red cross icon is overlaid on the center. At the bottom, there are buttons for 'Medical Services', 'Personal Health Tools', 'HELP', and 'TV OFF'. A remote control is shown on the right side.

Medical Services
Personal Health Tools

Internet

Extras

HELP

TV OFF

TV INFO VID
MUSIC PIC PERSON
BACK OK
VOL +
CHANNEL

A-Vu Home Multimedia



Agnes Smith

Medical Services

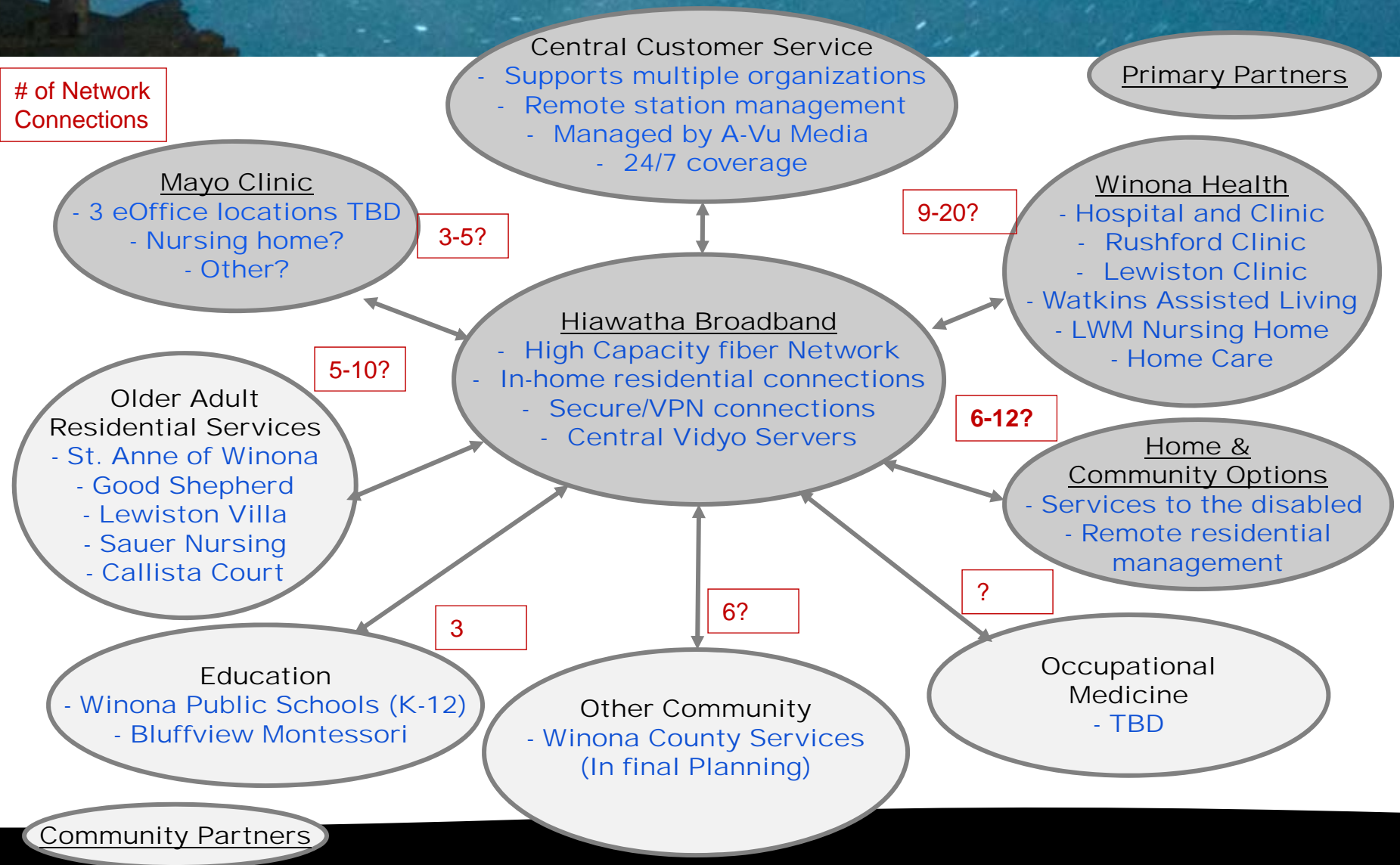


Provider Messages
Review Messages from My Healthcare Provider




WCTN Implementation

of Network Connections





Telemedicine Applications

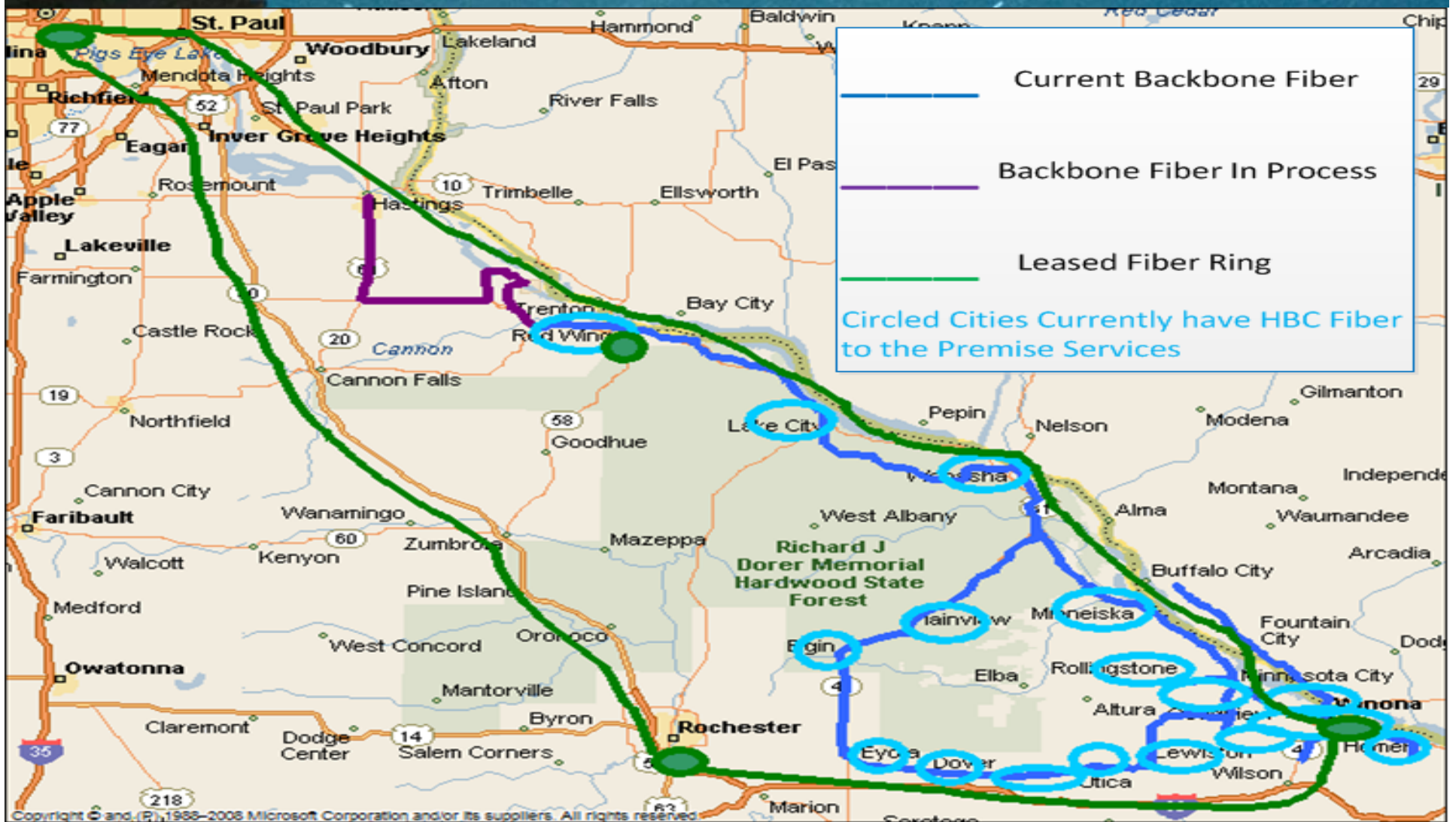
- Nursing Home Applications
 - Assisted Living Programs
 - Remote Clinic Primary Care
 - HCO Remote Psychiatric Counseling
 - HCO Resident in-Home Health Care
 - HCO Internal Residential Management
 - Winona Home Health Care
 - Winona County Home Health Care
 - Diabetes and Nutrition Education
 - Mayo Remote Cardiology Consults
 - Winona School Programs
- 



Hiawatha Broadband Roles and Contributions

- Provides network connections to all Beacon locations.
- Hosts WCTN central servers.
- Technical advisors for WCTN implementation.
- Bandwidth management.
- Installation and Level 2 technical support.
- Opportunity for telemedicine at remote offices.
- Support for WCTN expansion.
 - Additional sites in Winona
 - Additional SEMN communities
 - Prairie Island Indian Reservation

Hiawatha Broadband Expansion plans





Connected Data

- **Collect patient information in the community**
 - Vital signs using integrated Welch Allyn device
 - Future plans for Pulse Oximeter, Spirometers and Glucose meters
- **Connect to EMR:** Cerner's EMR architecture supports connectivity to over 300 medical devices
- **Connect to HIE and Beacon Repository:** EMR information will flow to the SE MN Beacon data repository and any HIE flow



Secure Data

- **Video traffic**
 - Viewed using a secure HTTPS connection
- **Data**
 - Integrated medical devices and data transfers are secured by VPN tunnel to Winona Health
- **Workstations**
 - locked down and managed centrally



Bandwidth Requirements

- **General considerations**
 - Need symmetrical service.
 - Higher Bandwidth produces higher quality.
- **Clinic to Clinic has highest requirements**
 - Minimum of 5 MB per endpoint, prefer 10+.
 - Other uses can increase required bandwidth
(Radiology, Ultrasound, other?)
- **Provider to Community**
 - Minimum of 5 MB per endpoint
- **Provider to Home**
 - Recommend 2+



SEMN Beacon

Questions





The National Telehealth Resource Center Webinar Series

3rd Thursday of every month

Next Webinar:

Telehealth Topic: *TELEHEALTH & HIT*

Presenter: Pacific Basin Telehealth Resource Center

Date: Thursday, June 21st, 2012

Times: 11:00 A.M. Pacific (1:00 P.M. Central, 2:00 P. M. Eastern)



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<http://www.surveymonkey.com/s/NationalTRCWebinarSeries>

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