

# MOBILE TELEMEDICINE APPLICATIONS

A Customer Case Study and Reimbursement Updates to Keep Patients from Falling Through the Cracks

# Our Speakers Today



**Lisa Gwynn D.O., M.B.A**  
Director, Pediatric Mobile Clinic,  
Assistant Professor of Clinical Pediatrics  
University of Miami Health System



**Barbara Sheehan PhD RN PNP**  
Senior Healthcare Researcher  
Intel Corporation



**Dan McCafferty**  
Vice President of Global Sales &  
Corporate Development  
AMD Global Telemedicine



# A New Business Opportunity?

Health personnel making regular visits and doctors available via video

- Senior Centers
- Assisted Living Center
- Nursing Home
- Over 55+ Community
- Large Employers
- Government Facilities
- Homes
- Schools



Integrate with 40+ Medical Devices to Gather Quality Clinical Data:



# AMD Global Telemedicine runs on Intel



In 2011 Intel® integrated video memory and processing (transcoding) onto the CPU.

- 4-5x improvement in performance
- 90% drop in power

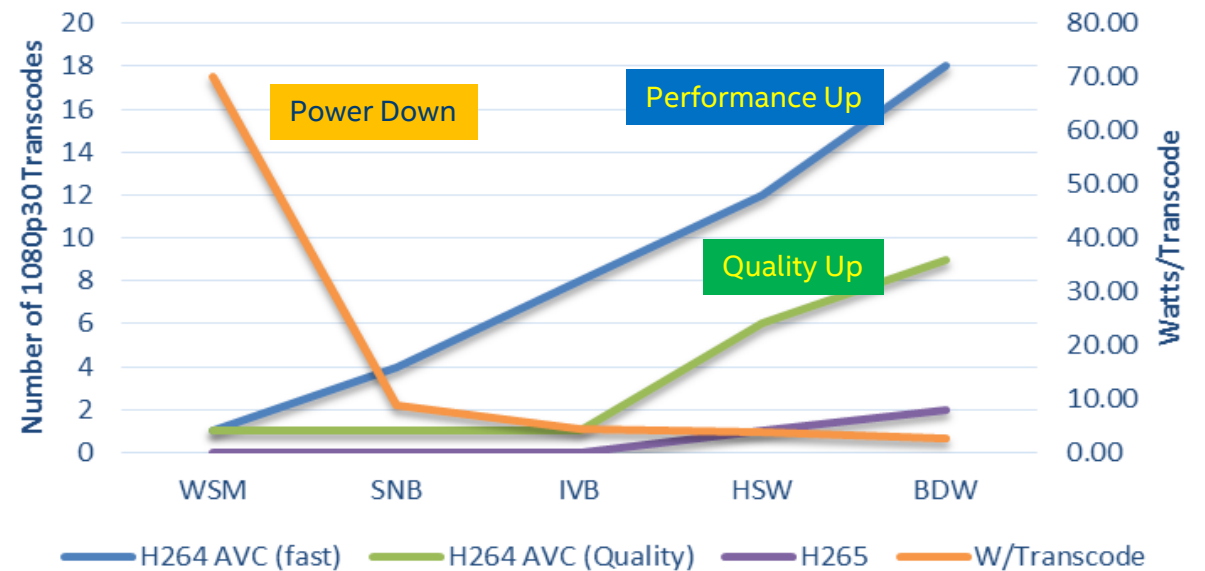


## AMD's AGNES Performs

- Supports point to point and multi-point conferencing
- Works on low bandwidth
- USB connectivity of over 40 medical devices

And we continue to improve...

### Transcoding Improvements with IA



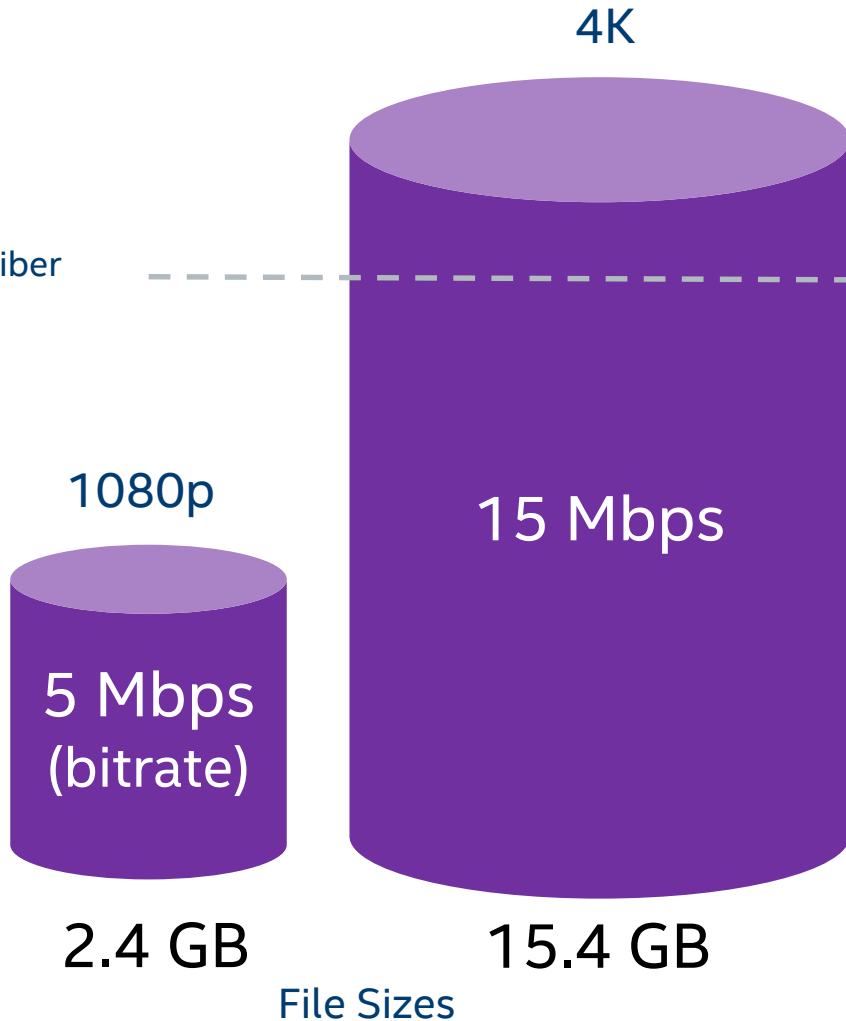
# High Resolution Evolution

## 1080p/4K with H.265

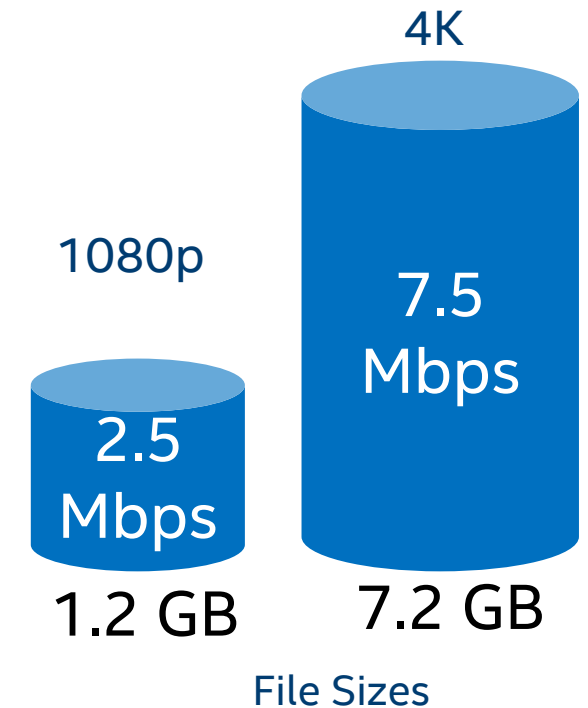
**AVC (H.264)**  
Advanced Video Codec

**HEVC (H.265)**  
High Efficiency Video Codec

Average US Subscriber  
BW (10 Mbps) \*



Intel performance  
enables smooth  
transition to HEVC



\* Akamai 2014

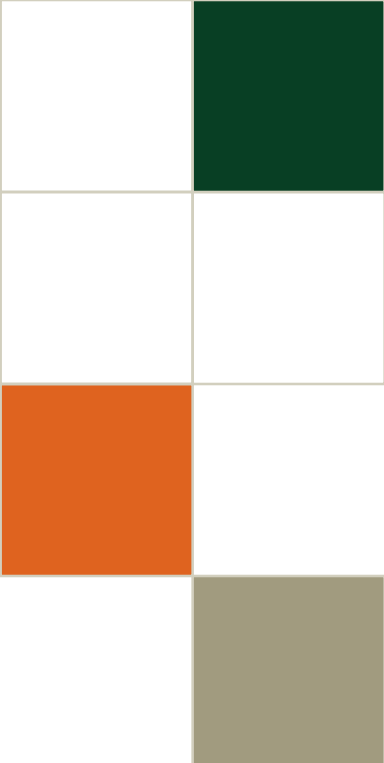
# TELEMEDICINE CASE STUDY



**Lisa Gwynn D.O., M.B.A**

Director, Pediatric Mobile Clinic, Assistant Professor of Clinical Pediatrics

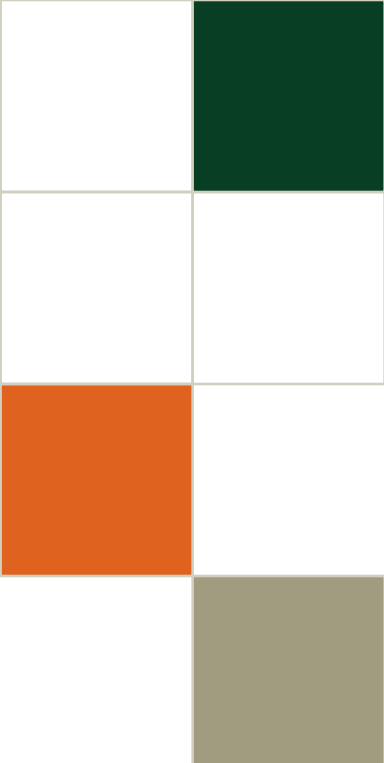
University of Miami Health System



# Establishing a Multi-Specialty Clinic via Telemedicine in a Mobile Clinic Setting

Lisa Gwynn, DO, MBA, FAAP, CPE  
Assistant Professor, Clinical Pediatrics  
Medical Director, Pediatric Mobile Clinic  
University of Miami Miller School of Medicine  
Director, Innovation and Community Engagement  
Mailman Center for Child Development





# University of Miami Pediatric Mobile Clinic

## Mission

To provide comprehensive primary health care services free-of-charge to children most in need, specifically those with no access or limited access to health care.





# Services

- Comprehensive primary care
- School Physicals (Medical/Sports)
- Immunizations
- Management of acute and chronic illnesses
- Laboratory testing
- Prescriptions
- Hearing and Vision screenings
- Mental Health Counseling
- Social work services
- Case management
- Psychology services
- Nutritional assessment
- Weight monitoring
- Referrals to subspecialty and dental care
- Referrals to legal services







- The unit is fully equipped to handle medical emergencies and has three complete exam rooms, a laboratory and a small waiting area for parents.



# Communities We Serve

- The UMPMC visits community centers, churches, and schools in the most impoverished areas of Miami-Dade County
- Areas include: Homestead, Florida City, Little Haiti, Sweetwater, Miami Beach, West Kendall, Little Havana
- In addition, the unit participates in community health fairs

# 2014 Statistics

- Over 2000 clinical encounters
- Nearly 200 mental health visits
- Over 3000 immunizations administered
- 68% Hispanic; 25% Haitian; 5% African American; 2% Other



# Assessing the Need...



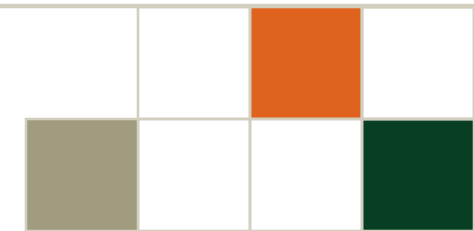
**CHF RMI Data Report**  
**January 1, 2013 - December 30, 2013**

**Project: University Of Miami- Pediatric Mobile Clinic**

		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total	
<b>Medical Sub-specialists Referrals (Section A)</b>															
<b>Medical Sub-specialists</b>	Adolescent Medicine	0	4	4	1	2	0	1	5	2	1	0	2	22	
	Allergy	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Apnea Clinic	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Audiology	0	1	0	0	0	0	0	2	0	1	0	0	4	
	Cardiology	0	6	0	0	4	3	1	4	2	3	2	0	25	
	Dermatology	1	1	1	3	0	1	5	0	4	5	1	0	22	
	Endocrinology	1	0	0	1	3	2	3	6	2	2	0	2	22	
	ENT	2	2	3	0	2	1	2	1	4	1	1	0	19	
	ER	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Genetics	0	0	0	0	0	0	0	0	0	0	0	0	0	
	GI	2	0	0	0	1	1	2	1	1	1	0	0	9	
	GU	0	1	2	0	0	0	1	1	1	1	0	0	7	
	Hematology	0	0	0	0	0	0	0	0	2	0	0	0	2	
	Immunology	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Infectious Disease	0	0	0	0	1	0	0	0	0	0	0	0	1	
	Nephrology	0	0	0	0	0	0	0	1	1	0	1	0	3	
	Neurology	3	4	2	4	1	2	3	2	1	4	1	2	29	
	Neurosurgery	0	0	0	0	0	0	0	0	0	0	0	0	0	
	OB-GYN	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Ophthalmology	0	0	1	0	1	1	1	2	1	1	0	0	8	
	Orthopedics	2	1	1	3	3	4	1	6	0	1	3	0	25	
	Podiatry	0	0	1	0	0	0	0	0	0	0	0	0	1	
	Pulmonary	2	0	0	0	0	1	0	0	1	0	0	0	4	
Physical Therapy	1	0	2	0	0	0	0	0	0	0	0	0	3		
Speech	0	0	0	0	0	0	0	0	0	0	0	0	0		
Surgery	0	0	0	0	0	1	0	5	0	4	0	0	10		
Urology	0	1	1	0	1	0	0	4	1	0	0	0	8		
Other: PCP	0	0	0	0	0	1	0	3	2	1	1	1			
<b>Total Sub-spe</b>	<b>Total</b>	<b>14</b>	<b>21</b>	<b>18</b>	<b>12</b>	<b>19</b>	<b>18</b>	<b>20</b>	<b>43</b>	<b>25</b>	<b>26</b>	<b>10</b>	<b>7</b>	<b>233</b>	

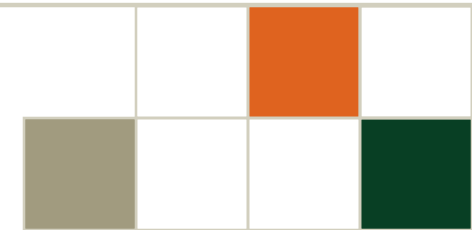


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**MILLER SCHOOL**  
of MEDICINE



# Compliance

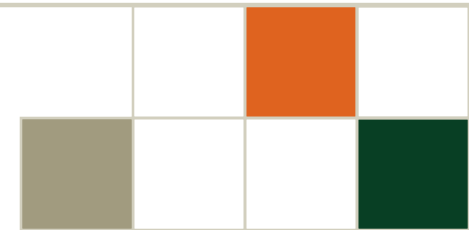
Adherence	# of sub-specialist referrals that result in at least one kept appointment	7	9	10	4	7	7	11	12	9	3	2	0	81
	# of sub-specialist referrals that have at least one appointment pending.	0	0	0	0	0	0	0	3	3	13	5	6	30
	# of subspecialty referrals that do not have any kept or pending appointments.	7	11	7	8	11	9	8	21	10	8	2	1	103
	# of subspecialty referrals for which the appointment or adherence status is unknown	0	1	1	0	1	2	1	7	3	2	1	0	19
	% of appointments kept(calculates automatically)	50%	43%	56%	33%	37%	39%	55%	28%	36%	12%	20%	0%	35%





## The Solution:

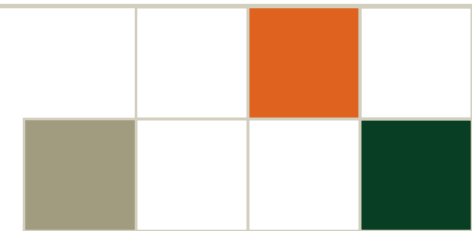
Bring specialty care to the patients through telemedicine technologies.





# What is Telemedicine?

- Formally defined, telemedicine is the use of medical information exchanged from one site to another via electronic communications to improve a patient's clinical health status.
- Telemedicine for the PMC includes a variety of applications and services using two-way video, smart phones, tablets, integrated medical devices and other forms of telecommunications technology.



# How do we get there?

- Needs assessment
- Equipment
- Connectivity
- Technical support
- Staffing/Workflow
- Clinical care coordination
- Participating Specialists
- Funding



# Equipment Options

Choose best option for services to be provided and setting in which the consultations will be taking place

- Depends on services offered
- Space restrictions
- Examples:
  - Stationary carts
  - Mobile carts - robots
  - Phones/Tablets w/ HIPPA Apps
  - Portable teleclinic
  - Laptop with webcam



# Equipment on Our Mobile Unit

Portable TeleClinic is a self-contained telemedicine system that has the combined functionality of a desktop telemedicine solution and a mobile cart, and is completely transportable. Packaged in an industrial case, this system includes an integrated tablet PC, CAT5 connection and industrial grade powered USB ports and can be customized with encounter management software and medical devices for a clinical exam.

This “pack-and-go” system is perfect for healthcare applications that require clinical telemedicine equipment that they can carry into medical situations and/or set up in mobile clinics with limited space



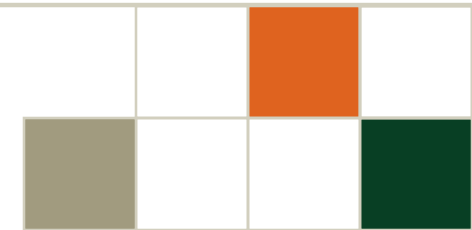
# Equipment Options

## Software

- “Agnes Interactive” - Once installed, the web-based software aggregates clinical device diagnostics, vital signs data, encounter documents and live video conferencing and then securely exchanges that information in real-time to the remote consulting physician.



- Videoconferencing services – Is Skype HIPAA compliant?  
FUZE



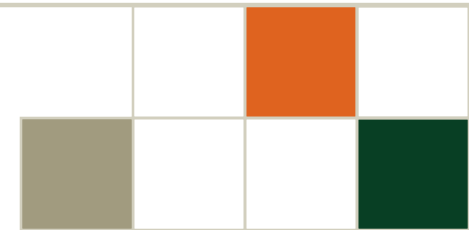
# Connectivity

- Wireless carrier – mapping of 4G reception areas
- 4G LTE
- Cradlepoint router
- Antenna on mobile unit
- Information transmitted wireless must be encrypted and HIPAA compliant (WPA2 Enterprise security)



# Technical Support

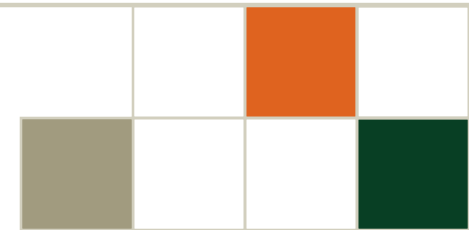
- The MOST challenging piece of the puzzle
- Recommend bringing on support from the beginning
- Equipment support, network support, EMR integration
- Challenges in an academic setting
- This CAN be done. If your support personnel claim that it can't, you have the wrong support team!!





# Staffing/Workflow

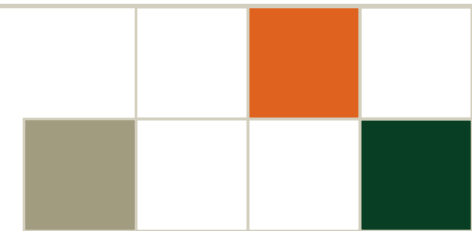
- Identify staffing needs – number of people; skill sets
- Frequency of telehealth clinics – daily; monthly; etc...
- Training – depends on type of services offered (operation of medical devices, video camera, etc...)
- Utilization of existing staff
- How to integrate into regular clinic operations
- Our model





# Our Telehealth Project

- 2013 - *Initially funded through grant support from CHF/Verizon Foundation*  
Objective: Develop a **system** to link uninsured children to specialists via telehealth
- 2014 – *Began Dermatology clinic*  
*Expanded to Cardiology, Endocrinology and Nutrition*  
*Introduced Store-and-Forward Dermatology Application*
- 2015 - *Established Hematology/Bleeding Disorders Clinic*  
*Began clinical intervention/research - Obesity*

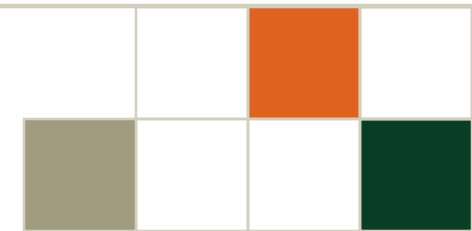




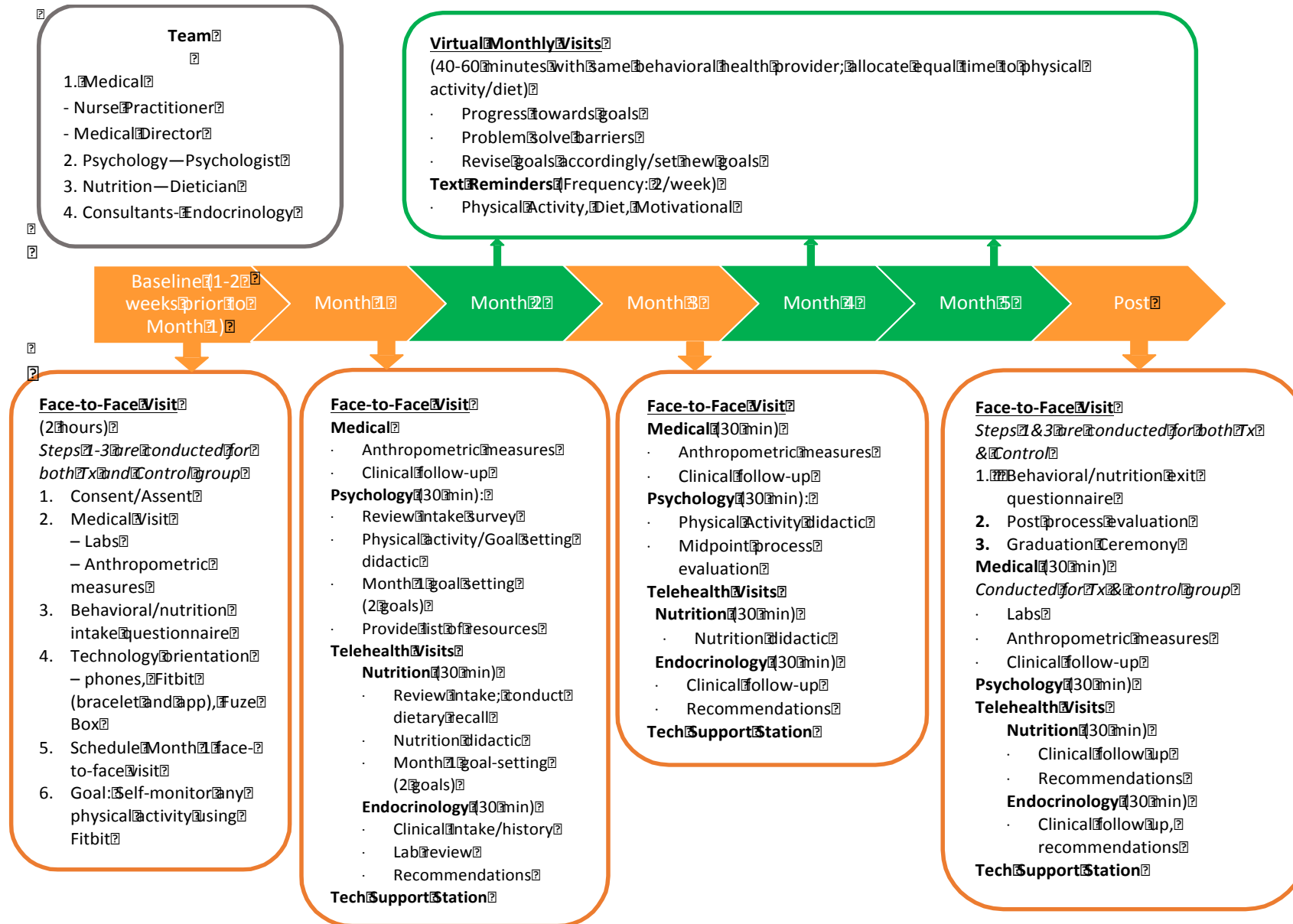
# Obesity Intervention Program

Our goal: to measure the ability of technology to create positive health impacts

- Will the intervention show the ability of technology to create positive health impacts on children and their families?
- Can technology better enable marginalized, low-income families to receive a group of coordinated, multidisciplinary services to which they would not otherwise have access?
- Can technology help children improve their understanding of the behaviors that most often help children maintain a healthy weight?
- Can a coordinated set of technology-enabled services lead to better biomarkers, a goal which has proven notoriously difficult to reach, particularly among low-income populations?

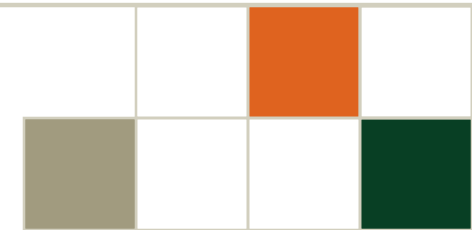


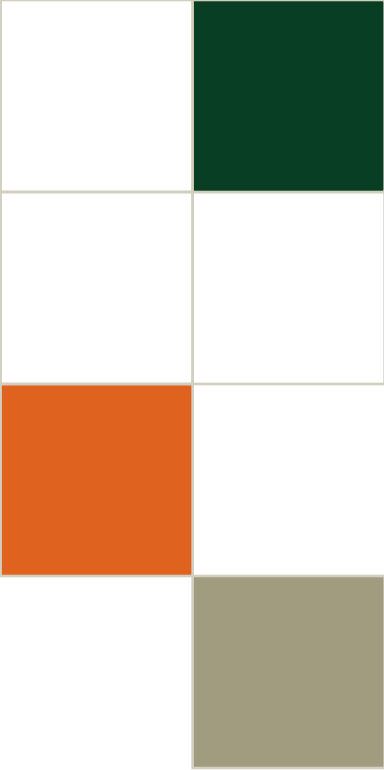
# Obesity Intervention Program



# The Future...

- Let's Talk Medical Translation Project with JMH Residents
- Developing a Telehealth Center at the Mailman Center for Child Development
- Expansion of specialty services such as Developmental Pediatrics, Speech Therapy





Thank you!



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# REIMBURSEMENT UPDATE



**Barbara Sheehan, PhD RN PNP**

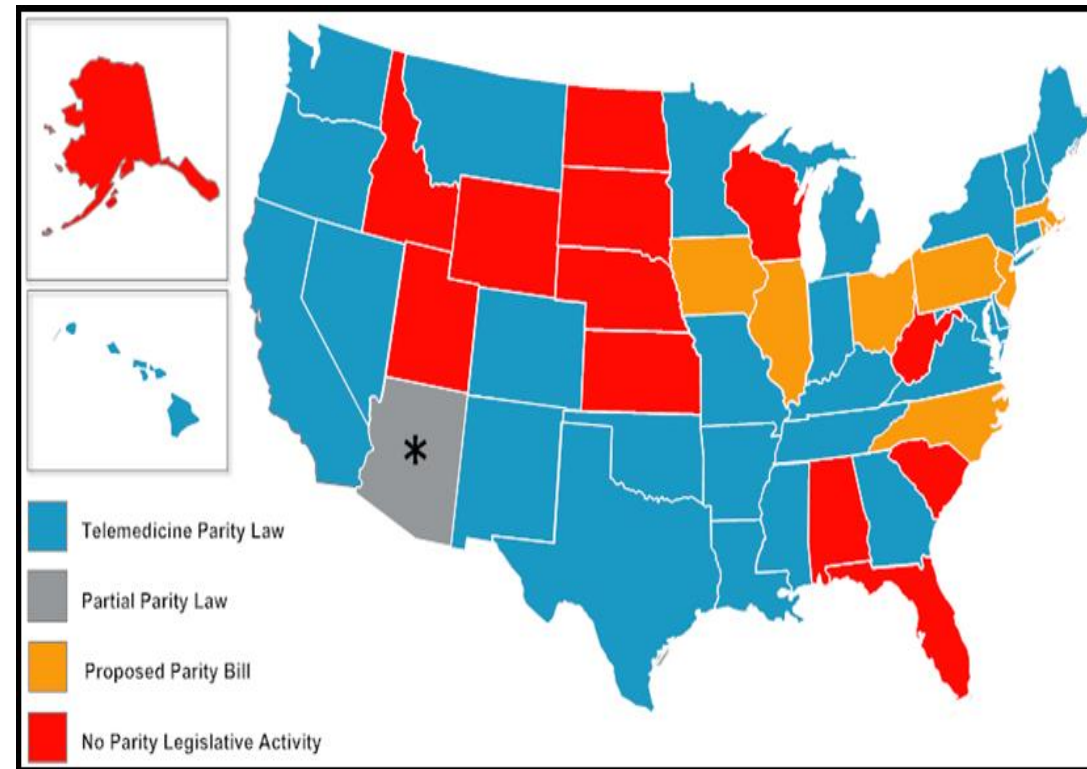
Senior Healthcare Researcher

Intel Healthcare & Life Sciences



# Reimbursement Landscape

- Currently controlled at the state level
- 27 states + DC have Parity laws
  - *“Classified as comparable coverage and reimbursement for telemedicine-provided services to that of in-person provided services”*
- *Variation by state includes*
  - *Insurance plans i.e, Medicaid, private insurers, state employee health plans, workmen's compensation*
  - *Eligible providers*
  - *Eligible patients*
  - *Patient location (originating location)*
  - *Eligible technologies*
  - *Geographical restrictions*

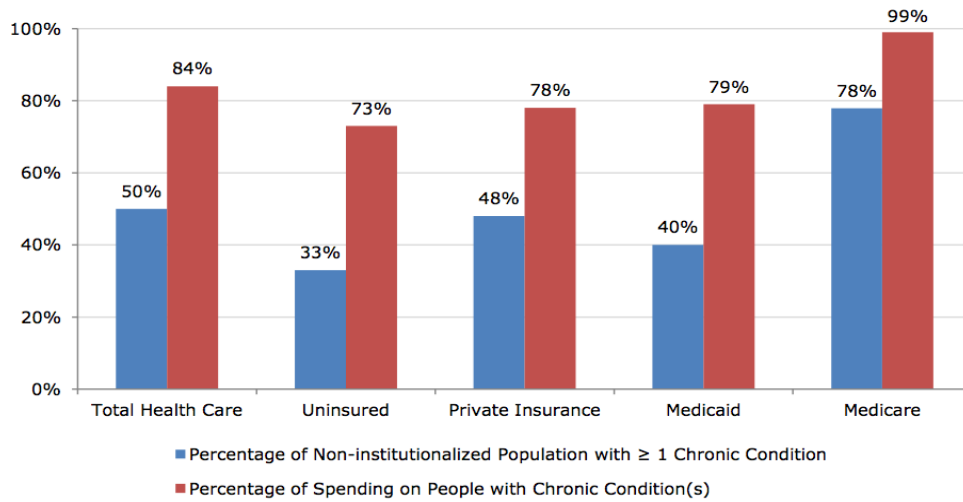


American Telemedicine Association  
<http://www.americantelemed.org/>

# Why Chronic Care Management Reimbursement?



**Figure 4: People with Chronic Conditions Account for 84% of National Health Care Dollars and 99% of Medicare Spending**



Sources: Medical Expenditure Panel Survey, 2006 and Robert Wood Johnson Foundation, Chronic Care: Making the Case for Ongoing Care, February 2010.

Supports primary care

- CCM is a component of primary care that supports better health for individuals and reduces costs

Coordinates with other primary care payment initiatives

- Accountable care organizations
- Primary care incentive payment program
- Patient-centered medical home
- Federally qualified health center

Appropriately values care management within Medicare's fee-for-service structure

# Medicare Chronic Care Management Reimbursement



99490

20 minutes of clinical staff time directed by a physician or other qualified health care professional, per calendar month

Two or more chronic conditions expected to last at least 12 months or until death. Conditions place pt. at risk of death, acute exacerbation/decompensation, or functional decline

Comprehensive care plan established, implemented, revised or monitored

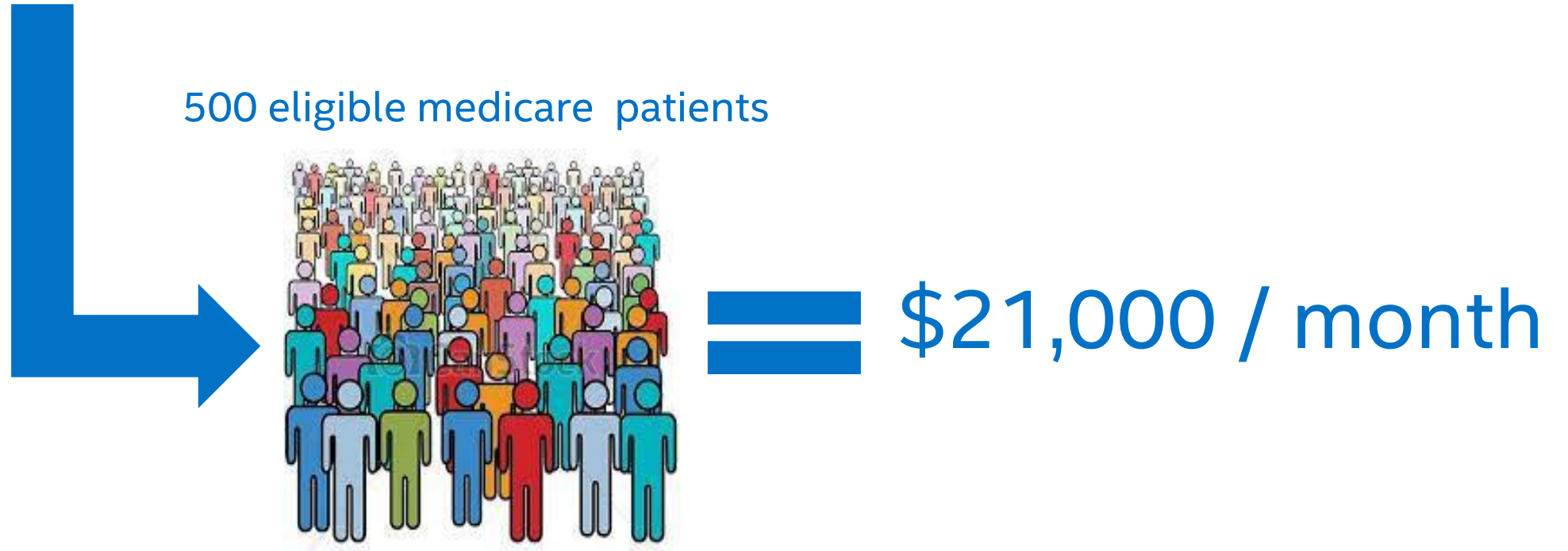
## Scope of Service

1. Access to care management services 24/7!
2. Continuity of care – Designated care provider!
3. Patient-centered plan of care documented in the EHR
4. Care coordination – electronic summary of care record
5. Consent for services

<https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/ChronicCareManagement.pdf>

# Reimbursement

- \$42.00/patient/month



# Value of Telemedicine for CCM

- Enables provision of non face-to-face care in the patients own environment
  - Encourages better patient engagement in encounters
  - Enables providers to utilize non-verbal cues
  - Enables environmental assessment
  - Enables better nutritional, fluid assessment
- Enables scaling CCM services to more patients in the places where these patients live
  - Over 55 communities
  - Assisted living facilities
  - Residential treatment centers
- Enables tracking and accounting of the 20-minute time requirement



Integrate with 40+ Medical Devices to Gather Quality Clinical Data:



Stearns, M. The value of telemedicine in the Medicare chronic care management program. July 2015, Chiron Health

# TECHNOLOGY UPDATE



**Dan McCafferty**

Vice President of Global Sales & Corporate Development

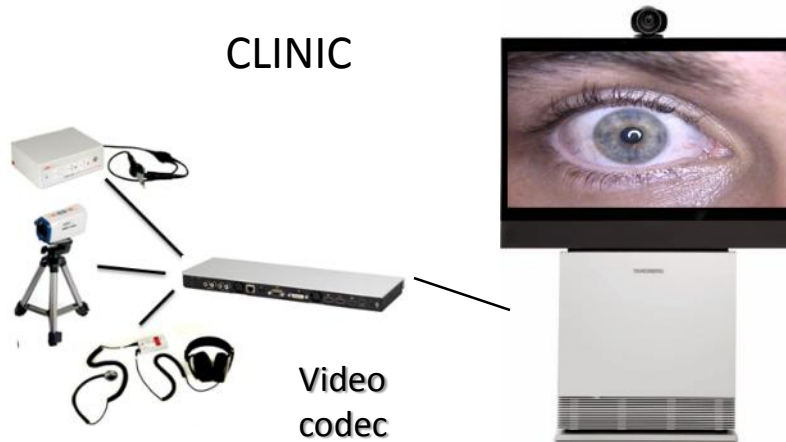
AMD Global Telemedicine

## Enablers for Dr. Gwynn's Program

- Technology
- Environmental/Financial
- Perspective/Foresight



# In-band Telemedicine



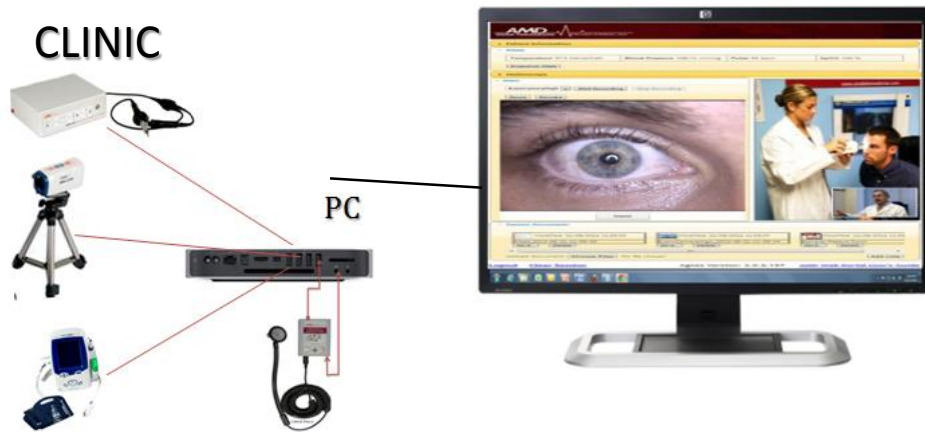
- ❖ All data goes away with call. No capability. capture
- ❖ Codecs required.
- ❖ No interoperability between codec brands for stethoscope.
- ❖ Stethoscope required at each consulting site. (\$1,500-\$5,000)
- ❖ No realistic mobility. Doc is tethered to specific location of their hospital video system.
- ❖ Cost associated with each consulting site.
- ❖ Delays associated with VTC installations (weeks to months)



**DATA CAPTURE: NOT AVAILABLE**  
**EMR INTEGRATION: NOT AVAILABLE**



# Browser-Based Telemedicine



## CONSULTANT

Doctor A



Doctor B



- ↳ Keep data after call ends. Capture the images you want.
- ↳ Codec optional- NOT required. HD Webcam/ SW VTC
- ↳ Codec independent.
- ↳ No stethoscope required at consulting site.
- ↳ Consult from anywhere with only a browser and headphones.
- ↳ Unlimited number of consulting physicians. No additional cost.
- ↳ Software/Medical devices installed in moments.

**DATA CAPTURE: STANDARD FEATURE**  
**EMR INTEGRATION: AVAILABLE**

# Browser-Based Technology

Web-Based Encounter Management Software  
that Allows You to:

- ❖ Communicate with patient using vtc
- ❖ See and hear what the medical devices reveal
- ❖ Exchange documents and images securely – real time
- ❖ Access other medical applications;
  - View and update patient record
  - Write a prescription
  - View a PACS study
- ❖ Real-Time Access to Exam Site, Medical Images and Video



**AGNES**  
Interactive™



## Advantages of Robust PCs/CPU's

- Applications deployable via browser
- Easier integration to other applications
  - ie. Workflow-EMR
- Dramatically lower cost
- Portability
  - More compact system
  - 4G technology
  - Mobile vehicles
  - Caring in the home



## Environmental/Financial

- National acceptance
- Financial benefits clear
  - Reimbursement aligning at all levels



# Making Telemedicine Ubiquitous



## Making Telemedicine Ubiquitous

- Open systems
- Interoperable
- Integration “products” not projects
- Open, unlimited, free access for consultants
  - Browser-based
  - No download, plug-ins, etc



# Q&A



# Come See Us!



**November 8-11, 2015 • Washington, DC**  
The Gaylord National Resort and Convention Center

Booth # 703

[Mathew.H.Taylor@intel.com](mailto:Mathew.H.Taylor@intel.com)



