

# **Getting Lost in Translation**

## **The Challenge of Actionable Evidence on Telemedicine Use in Primary Care**

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# Agenda

- Examine the capacity and limitations of different telemedicine models (different levels of connected care).
- Illustrate the use and impact of Information-Rich Connected Care for typical children and special needs children.
- Review the evidence supporting effectiveness and efficiency of this model of connected care.
- Identify facilitators and barriers to translating this evidence into community-wide, ready access through telemedicine-enabled care.

# Wisdom Withstanding the Test of Time

*First they ignore you, then they laugh at you,  
then they fight you, then you win.*

*The problem with common sense is that it is  
not common.*

*The secret to the care of the patient is caring  
for the patient.*

*At the end we shall be at the beginning, but we  
will know our place for the first time.*

# Healthcare IT News



is the first step in Connected Health.

Telehealth

May 11, 2016 | 11:37 AM

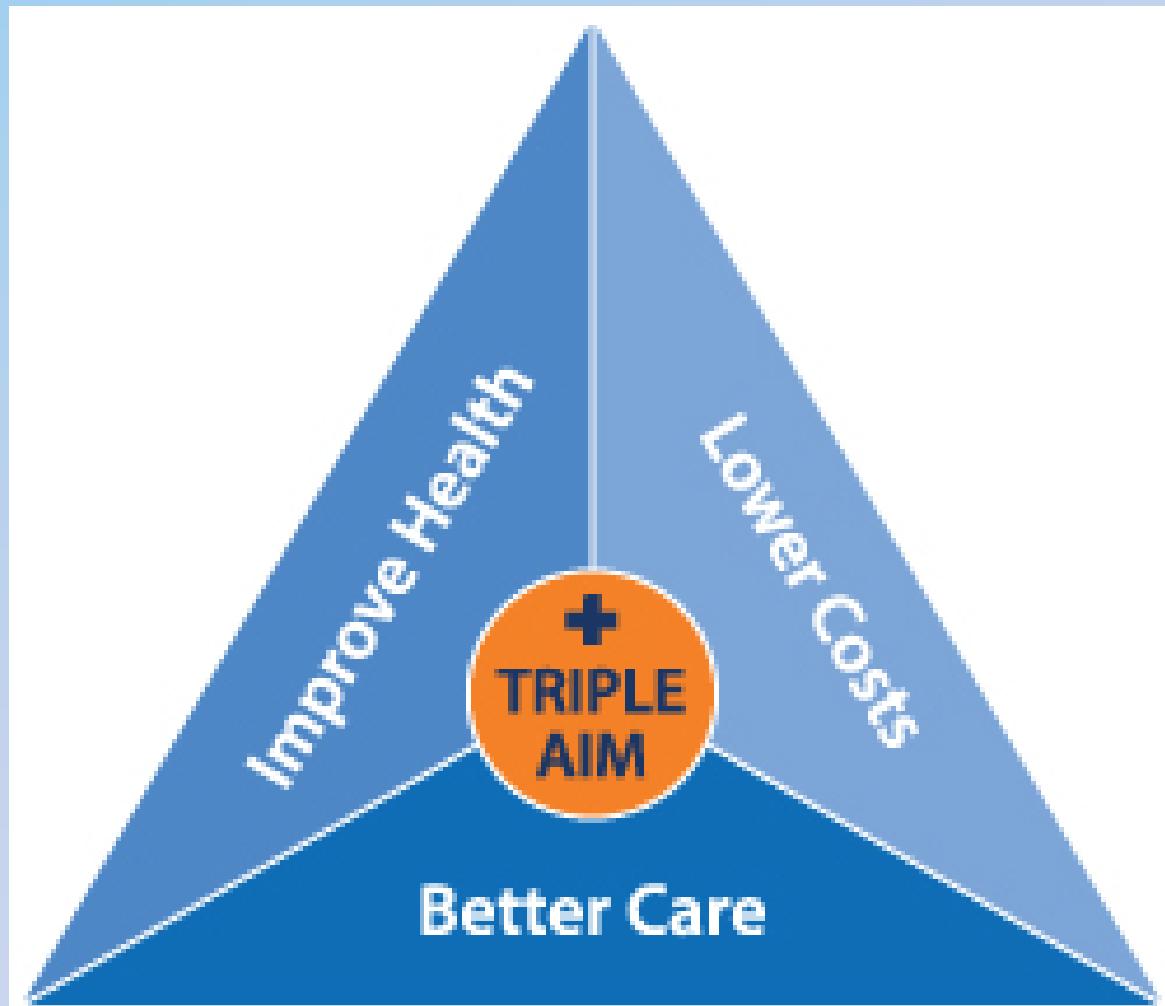
## Telemedicine – A Growing Enabler of the Triple Aim and Shift to Value-Based Care

Telemedicine, a key initiative to the Triple Aim and shift to value-based reimbursement models, is rightfully gaining traction in the market with key stakeholder, and has the power to transform the patient-provider paradigm.

**1. True or False?**

**2. What's value, quality?**

# *Triple Aim Perspective on Value*



## ***In-Person Equivalent Care***

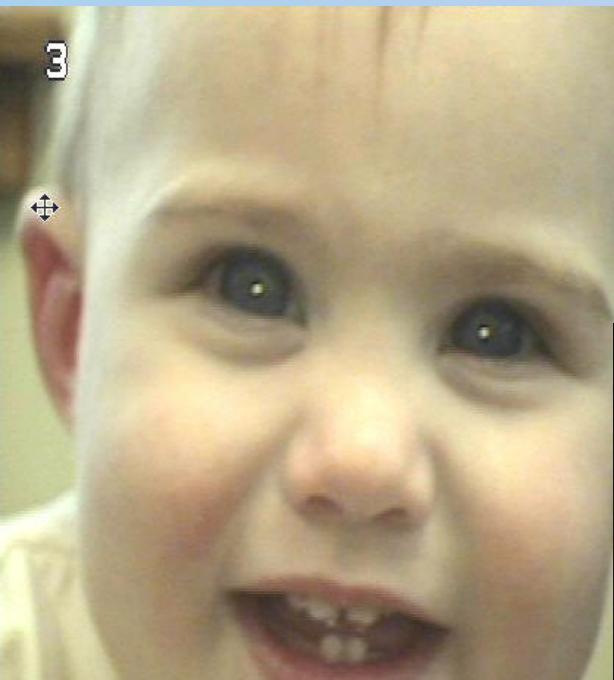
- Diagnose as accurately
- Manage as well

## **Better than In-Person**

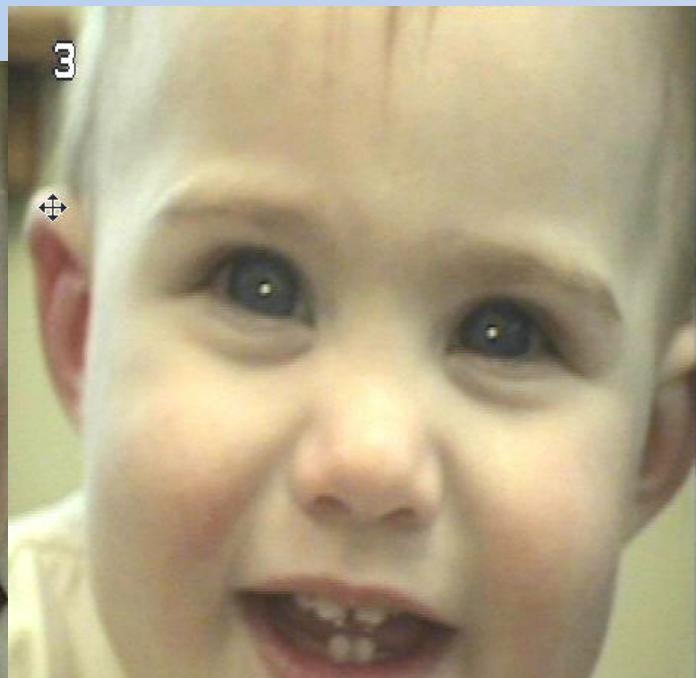
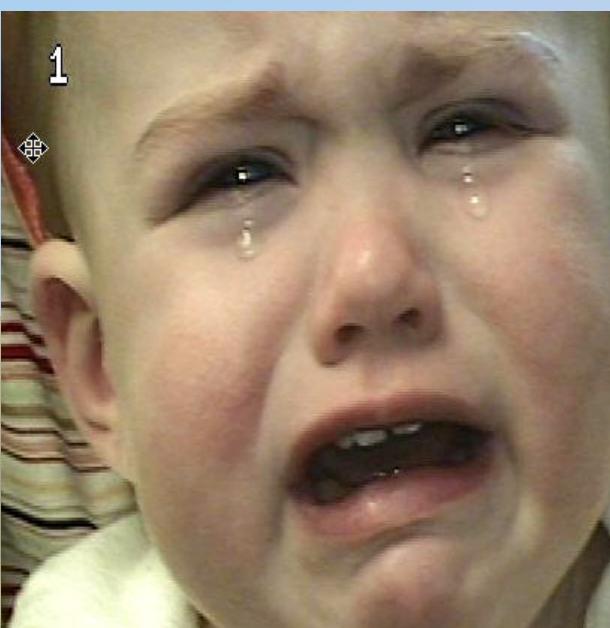
- In-person equivalent (or better) in diagnosis or management
- More convenient

# Health-e-Access Telemedicine Model

Age 10 mo., dropped off at childcare, 7:30 this morning.



Waking from nap, temp 104



Tomorrow



Diagnosis: acute otitis media

# Health-e-Access Telemedicine Model

Child site



secure web  
connection



Video conference window -  
view at clinician site



Video conference window -  
view at child site

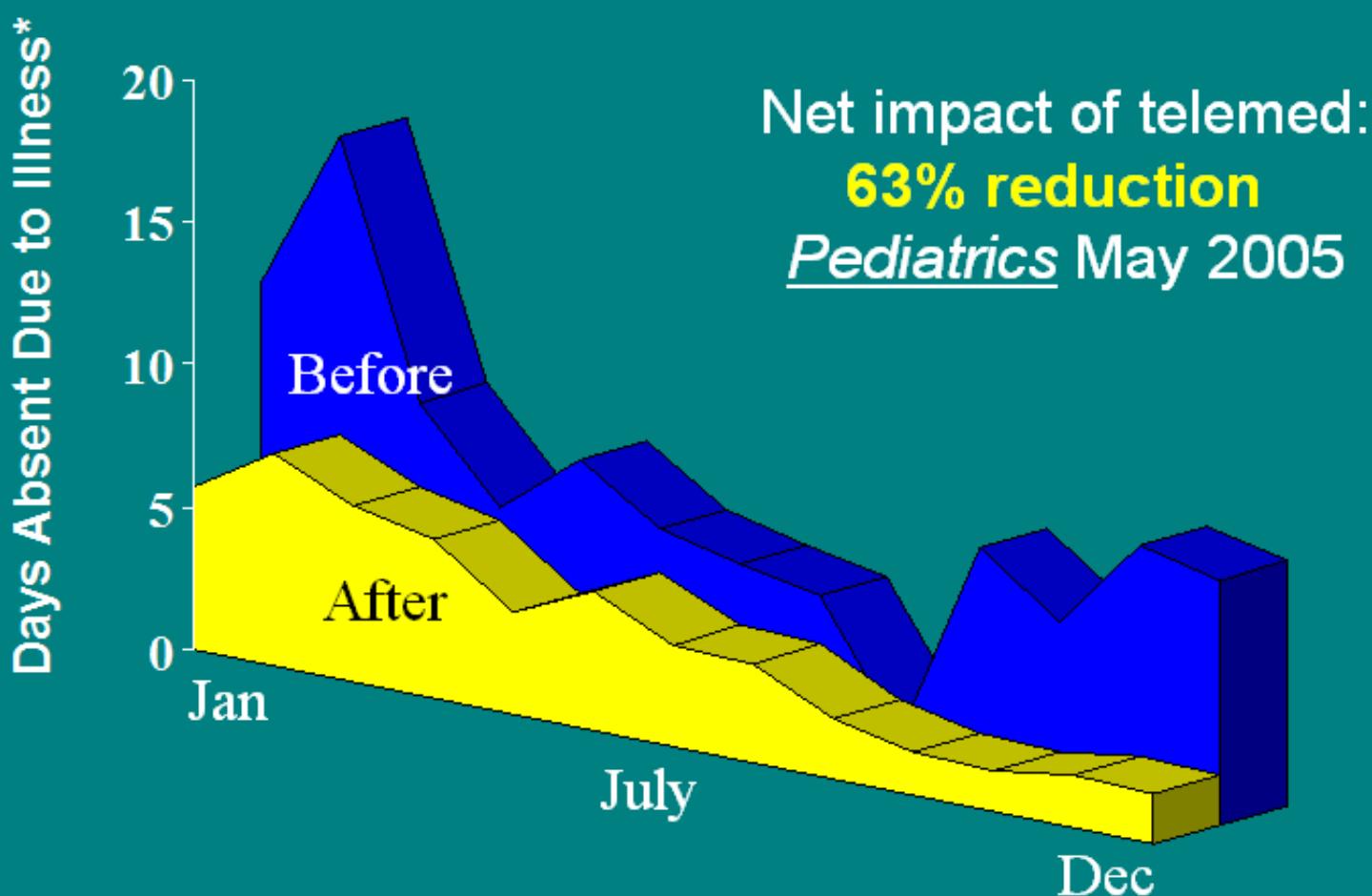


WAITING ROOM		
ID	Name	Orig Site
301	Imani	Carlson Metro YMCA
2719	Gerra	Lewis Street YMCA

I was unable to get real clear pictures of the ear because ...

I will be on a field trip be back at 2:00pm

# Effectiveness: Absence from Child Care Due to Illness



\* Absence due to illness in mean days per week per 100 registered child-days.

# Effectiveness and Efficiency: Summary

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- Visits completed > 14,000
- Reduction in absence from child care due to illness: 63%
- In child care, schools, center for special needs children, neighborhood/after-hours sites > 70 child sites
- Completion rate: 97% (3% referred to higher level of care)
- Would otherwise have gone to ED, Urgent Care or office: 94%
- Allowed parent to stay at work/school: 93% (estimated time saved = 4.5hr/visit)

# Effectiveness and Efficiency: Summary

- Continuity with Primary Care Medical Home: **83%**
- Provider participation:
  - providers > **70**
  - primary care practices = **10**
- Local payer reimbursement:
  - 90%** City children covered (Medicaid managed care, Commercial)
  - 6%** Not yet paying: FFS Medicaid
  - 4%** Uninsured
  - 100%**
- Observed reduction in ED visits:
  - Among children in regular city elementary schools and childcare **at least 22% fewer**
  - Among special needs children at a child development center **50% fewer**

# Potential

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- Pediatric primary care acute care office visits appropriate for telemedicine = **85%**
- Pediatric emergency department visits appropriate for telemedicine = **40%**

# Is it safe?

- **Acute Illness Observation Scale (AIOS)**  
quality of cry, reaction to parent stimulation, state variation, color, hydration, response to social overtures
- **Respiratory Observation Checklist**  
tachypnea, retractions, impression of respiratory distress
- **In-person vs. Video (independent evaluations)**
- **Excellent inter-observer agreement**

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Siew L, et al. Reliability of Telemedicine in the Assessment of Seriously Ill Children. Pediatrics 2016.

# Illness Utilization Without and With Telemedicine Access: Change in Observed Rates\* for Suburban, Rest-of-City and Inner-City Children\*\*

**Primary Comparisons:** Suburban vs. Inner City groups before and after telemedicine



The comparison of primary interest is between differences in overall use by the suburban group without telemedicine and the inner-city groups without and with telemedicine access.

\*Rates expressed as visits/100 child-years.

\*\* Child-months without telemedicine include concurrent and historical control child-months for suburban, rest-of-city and inner-city groups.

# Based on values used in worst-case analysis. Actual impact of telemedicine in reducing disparity in access is at least as great as that found in worst-case analysis.

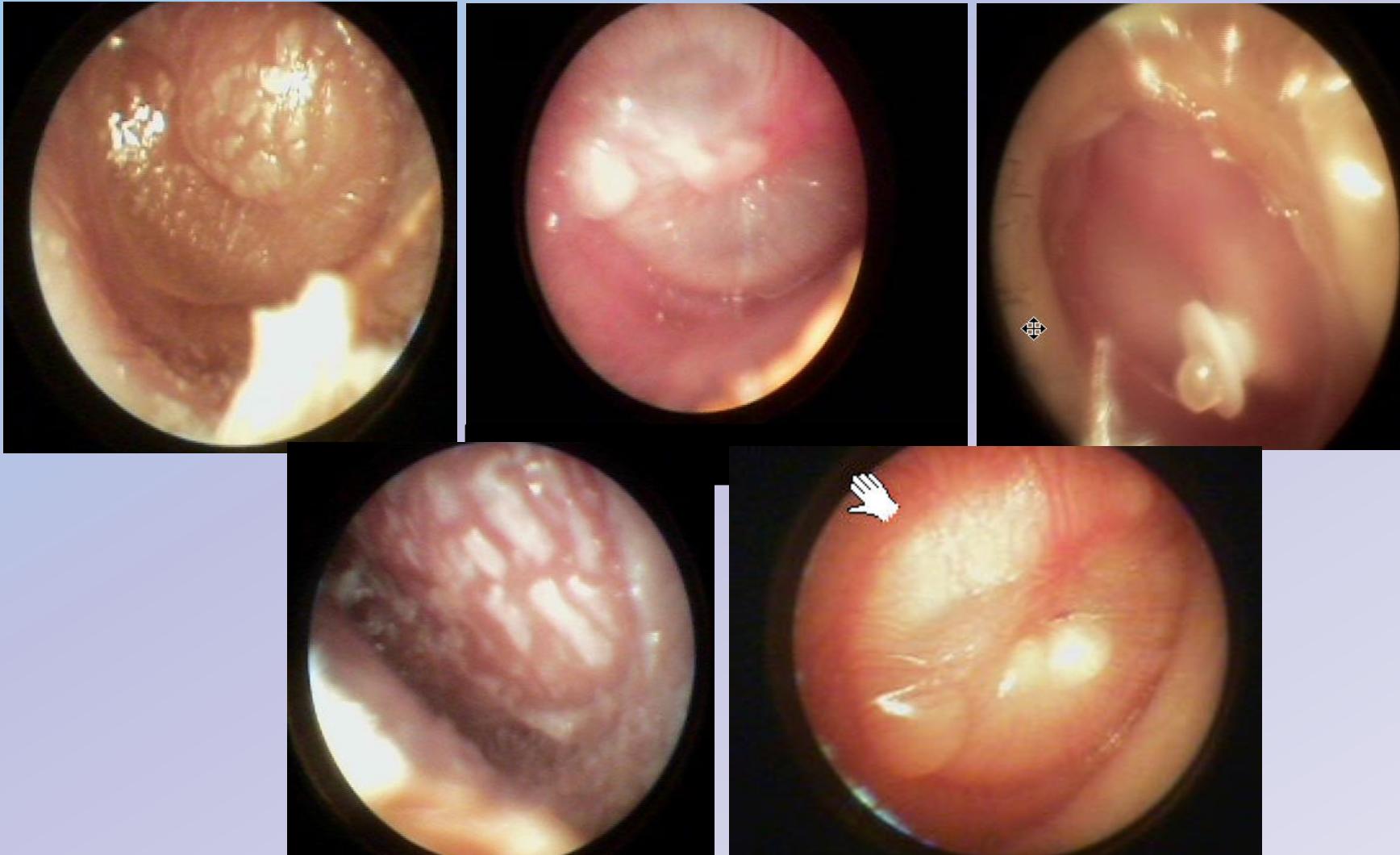
# Acute Otitis Media:

## *Like you've never seen it*

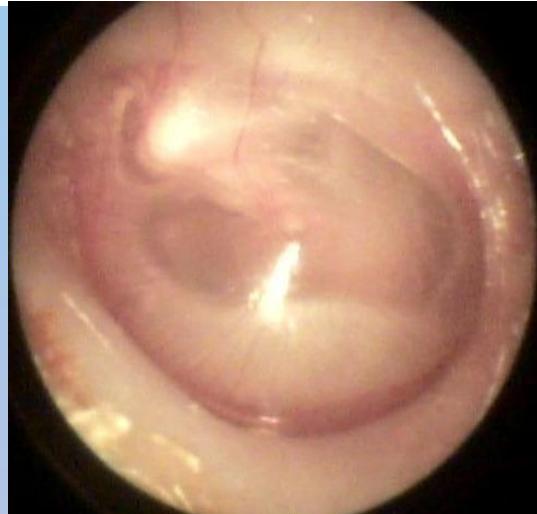


# Acute Otitis Media:

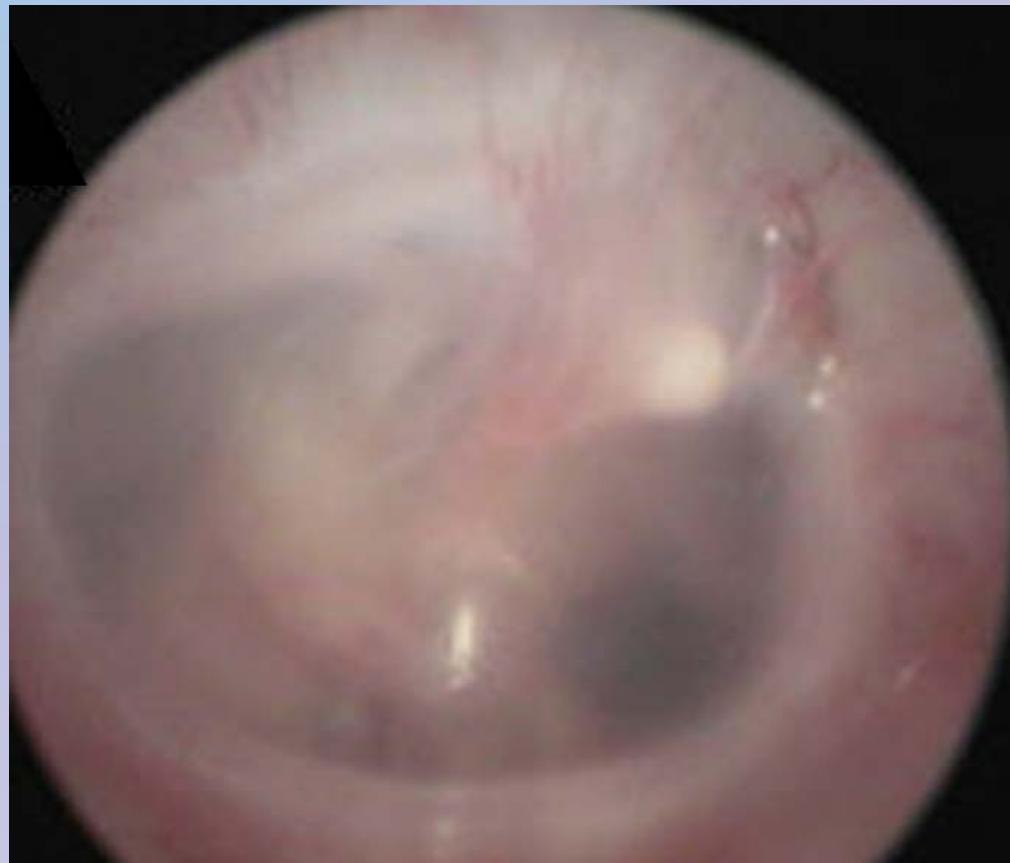
## *Like you've never seen it*



# Otitis Media with Effusion



# Normal Tympanic Membrane



# 13-Year Experience

Visits by Type of Access Site by Year: May 2001 thru June 2013

Sites:	City Child Care	Suburban Child Care	City Elementary <sup>A</sup>	Child Development Center	Suburban Elementary	Neighborhood After-Hours	City High and Junior High <sup>A</sup>	Row Total N	Column %
2001 <sup>B</sup> N	173							173	1.3
% <sup>C</sup>	100							100	
2002 N	445							445	3.3
%	100							100	
2003 N	575							575	4.2
%	100							100	
2004 N	981							981	7.2
%	100							100	
2005 N	1094	20	54					1168	8.6
%	93.7	1.7	4.6					100	
2006 N	1086	48	273	7	20			1434	10.6
%	75.7	3.3	19	0.5	1.4			100	
2007 N	739	43	382	105	53			1322	9.7
%	55.9	3.3	28.9	7.9	4			100	
2008 N	519	22	194	87	17			839	6.2
%	61.9	2.6	23.1	10.4	2			100	
2009 N	447	26	218	70	2	125		888	6.5
%	50.3	2.9	24.5	7.9	0.2	14.1		100	
2010 N	618	20	427	75	0	438	16	1594	11.8
%	38.8	1.3	26.8	4.7	0	27.5	1	100	
2011 N	597	6	766	76	0	421	60	1926	14.2
%	31	0.3	39.8	3.9	0	21.9	3.1	100	
2012 N	378	0	758	53	0	316	79	1584	11.7
%	23.9	0	47.9	3.3	0	19.9	5	100	
2013 <sup>D</sup> N	119	0	375	25	0	77	35	631	4.7
%	18.9	0	59.4	4	0	12.2	5.5	100	
Total N	7771	185	3447	498	92	1377	190	13560	100.0
%	57.3	1.4	25.4	3.7	0.7	10.2	1.4	100.0	

**Highlighted numbers (gray background)** indicate the year that service was initiated at a particular type of site.

<sup>A</sup> Included city school district, charter and parochial schools.    <sup>B</sup> Last 8 months of 2001 only.

<sup>C</sup> Row percents.    <sup>D</sup> First 6 months of 2013 only.

# 13-Year Experience

**Table 2. Distribution of Primary Diagnosis for 13,560 Completed Visits**

RANK	Top 20 Primary Diagnoses <sup>A</sup>	%
1	acute otitis media	19.5
2	upper respiratory tract infection	9.9
3	pharyngitis, not otherwise specified	7.8
4	conjunctivitis	6.0
5	Streptococcal pharyngitis	5.7
6	otitis media with effusion	4.4
7	viral illnessss, not otherwise specified	4.0
8	ear pain	3.8
9	conjunctivitis, unspecified	3.8
10	tinea corporis	2.8
11	atopic dermatitis	2.3
12	dermatitis, not otherwise specified	2.0
13	tinea capitis	1.9
14	diaper dermatitis	1.7
15	rash, etiology unknown	1.7
16	insect bite	1.4
17	impetigo	1.2
18	allergic rhinitis	1.2
19	cerumen impaction	1.1
20	cellulitis	0.9
	<i>all other</i>	16.9
		<hr/> <hr/> 100.0

<sup>A</sup> Includes all diagnoses comprising 0.9% of the total or greater.

# 13-Year Experience

**Table 3. Distribution of Telemedicine Visits by Key Resource Requirement**

Resource requirements	Total	Column %	Cumulative %
Ear exam <sup>A</sup>	4313	31.8	31.8
Other upper respiratory exam	4265	31.5	63.3
Skin, scalp exam	2775	20.5	83.7
Eye exam <sup>B</sup>	1560	11.5	95.2
Lower respiratory exam <sup>C</sup>	341	2.5	97.7
Hands-on exam <sup>D</sup>	218	1.6	99.4
Behavioral evaluation	68	0.5	99.9
Technology not in model	11	0.1	99.9
Subspecialist evaluation	7	0.1	100.0
Specialized history <sup>E</sup>	2	0.0	100.0
<b>Total</b>	<b>13560</b>	<b>100.0</b>	

*306 visits with primary diagnosis<sup>F</sup> classified as "beyond scope"*

<sup>A</sup> Often requiring cerumen removal.

<sup>B</sup> Excluding retinal exam.

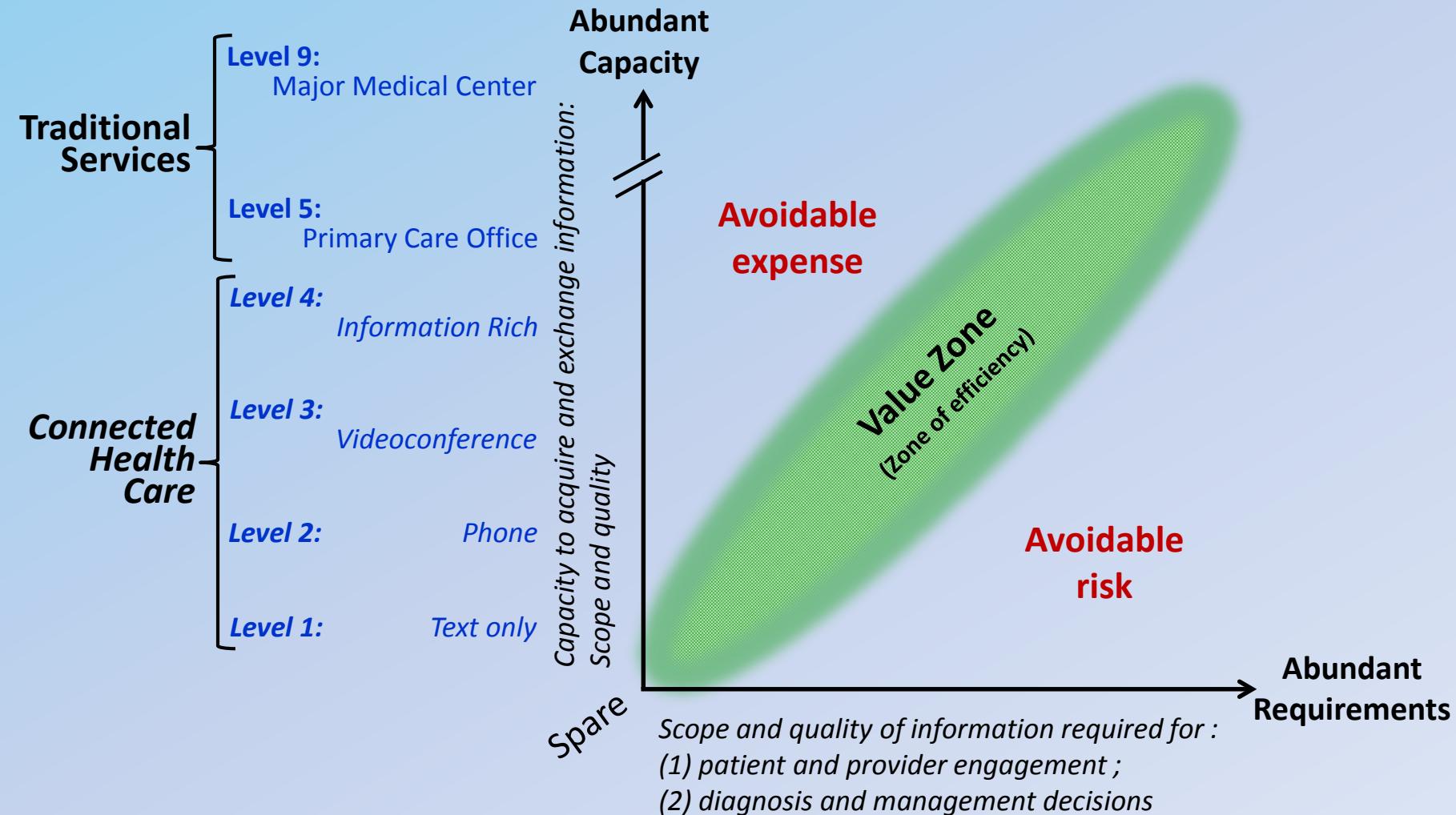
<sup>C</sup> Auscultation of lungs.

<sup>D</sup> May require clinician to palpate, manipulate, or perform neurologic exam.

<sup>E</sup> Such as evaluation for child abuse or neglect.

<sup>F</sup> Ten diagnoses accounted for 75.8% of these 306 (diarrhea/gastroenteritis, laceration, attention deficit disorder, adjustment reaction, headache, abdominal pain, medication reaction, fussy infant/toddler, sebaceous cyst, allergic reaction).

# Conceptual Model: Value and the Continuum of Information Requirements and Capacity



# Why is real-time video interaction important?

- Much of the time, the most valuable thing a clinician has to offer is reassurance.
- Capacity to reassure depends on trust.
- Trust in diagnostic decisions and treatment recommendations is strongly influenced by communication skills.
- Critical communication qualities include capacity to convey genuine concern and accurate empathy.

# Reading the Mind in the Eyes



Playful

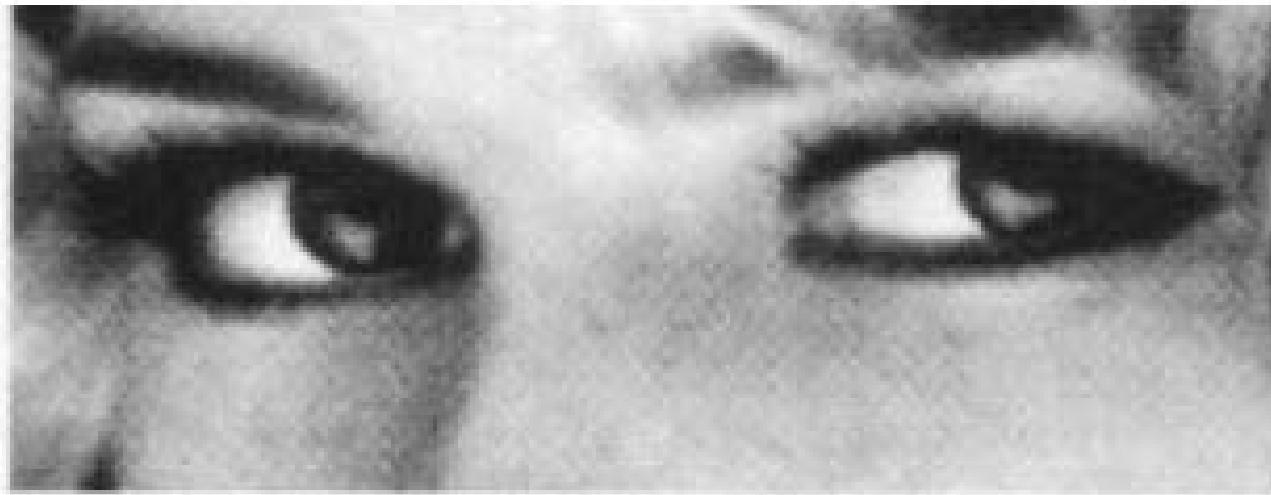
Comforting

**Playful**

Irritated

Bored

# Reading the Mind in the Eyes



Aghast

Baffled

**Distrustful**

Distrustful

Terrified

# Reading the Mind in the Eyes



Embarrassed

Guilty

Concerned

Fantasizing

Concerned

# Reading the Mind in the Eyes

The “Reading the Mind in the Eyes” Test Revised Version:  
A Study with Normal Adults, and Adults with Asperger Syndrome  
or High-functioning Autism

Simon Baron-Cohen, Sally Wheelwright, Jacqueline Hill, Yagini Raste, and Ian Plumb  
University of Cambridge, U.K.

Journal of Child Psychology and Psychiatry. (2001) 42;241-252.

# **Value of Care to the Community**

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## **Usual Care**

Child seen 4 hr later, at best  
First dose of medication 6 hr later



## **Health-e-Access (Information Rich) Telemedicine**

Child seen now  
First pain medication now  
First antibiotic 1-2 hr. later

# Cost to the Community

Usual Care



- Office , Urgent Care or ED exam room space
- Personnel costs: nurses and med-techs
- Parent misses  $\frac{1}{2}$  day of work
- Transportation costs, often ambulance
- Parking cost
- Payment for ED visit \$600
- Medication costs
- Provider cost

Information Rich  
Telemedicine

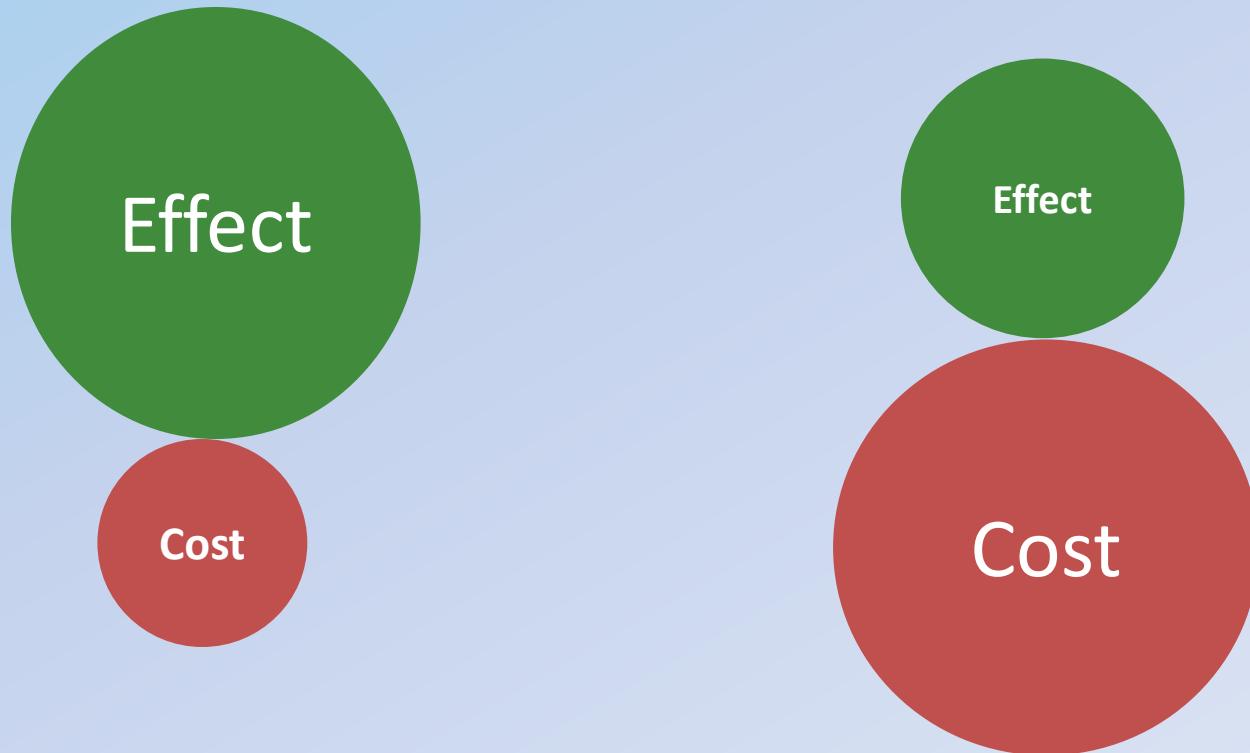


- Little or no cost for patient exam room space
- Patient-end equipment and connectivity
- No incremental cost for provider space and equipment
- Personnel costs: med-tech (telemed assistant) and scheduler
- No transportation or parking cost
- Parent misses no work
- Payment for telemed visit (\$90)
- Medication costs (equal)
- Provider cost (equal or less)

# **Value (Bang for Buck): *Societal Perspective***

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**Telemedicine >> Usual Care**



# Is this a patient-oriented care system of care?

- **Dominant Insurer** is working with **Video-Only Inc. #1** to achieve consistency among insurer affiliates nationwide.
- The goal is to reduce both the emergency department and urgent care visits.
- Insurer believes the prime sites for patients using the system will be home and work. Insurer is "agnostic" to site. Work site availability of telemedicine is very important to local employers.
- Consumer focus groups conducted by the insurer indicates that patients want their own doctors to be participating. Video-Only #1 will, however, have a backup virtual network that can be accessed by Insurer's patients if the patient's own physician does not sign up.

# A patient-oriented system? -- *continued*

- Video-Only #1 efforts are also targeted towards minor acute illness.
- Major Insurer believes that most local physicians will participate.
- Major Insurer stresses that in the Kaiser system there are more virtual than face-to-face visits (well, in dermatology anyway) .
- **Major supermarket chain** (whose pharmacy is a major profit center) has formed an alliance with **Video-Only Inc. #2**
- **Major medical center** (same community) has been approached by major supermarket chain

## To be determined ...

- Will technology components be “enriched” to meet information requirements beyond those of video interaction?
- Who staffs access sites, and what is the organizational architecture?
- Is service exclusive to patients of participating provider organizations?
- Is service exclusive for patients of Major Insurer?
- Can service be offered in sites other than Major Supermarket (schools, childcare, other pharmacies)?
- etc., etc., etc.



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## **Important Information for Our Health Care Provider Partners**

**TO: Physicians, Health Care Practitioners, Facilities and Hospitals**

**DATE: April 29, 2016**

**SUBJECT: Telemedicine Coverage Mandate and Use of Modifiers GT and GQ**

### **Modifiers:**

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- **GT** (via interactive audio and video telecommunications system); and
- **GQ** ("Store and Forward Technology," which is "Asynchronous" electronic transmission of a patient's health information in the form of patient-specific digital images and/or prerecorded videos from a provider at an originating site to a telemedicine provider at a distant site.)
- Effective August 1, 2016, covered services reported with modifiers "GT" or "GQ" **will be reimbursed at 50 percent of the rate payable when these services are performed on a face-to-face basis** for all programs, except Medicare Advantage.

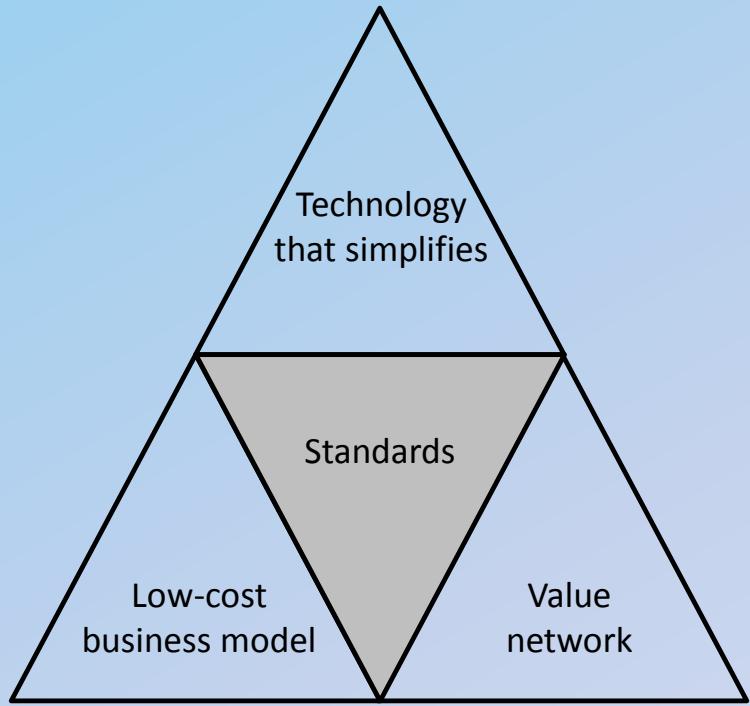
# This is actionable evidence. Why isn't everyone using it in primary care?

“... even though it *could* save money, that's not what's happening. It tends to be an addition. You do the telemedicine; it leads to more tests. It leads to more follow-up visits”

“... when you look at the data, it turns out that telemedicine overall is not necessarily a big cost saver.”

# Disruptive Innovations\* and Their Dissemination

## 4 Elements



- Technology that simplifies – IT
- Value network -  
All dominant stakeholders must have a piece of the action = "*economically coherent*". (When herding cats move their food.)
- Low-cost business model
- Standards
  - ✓ clinical guidelines
  - ✓ regulations

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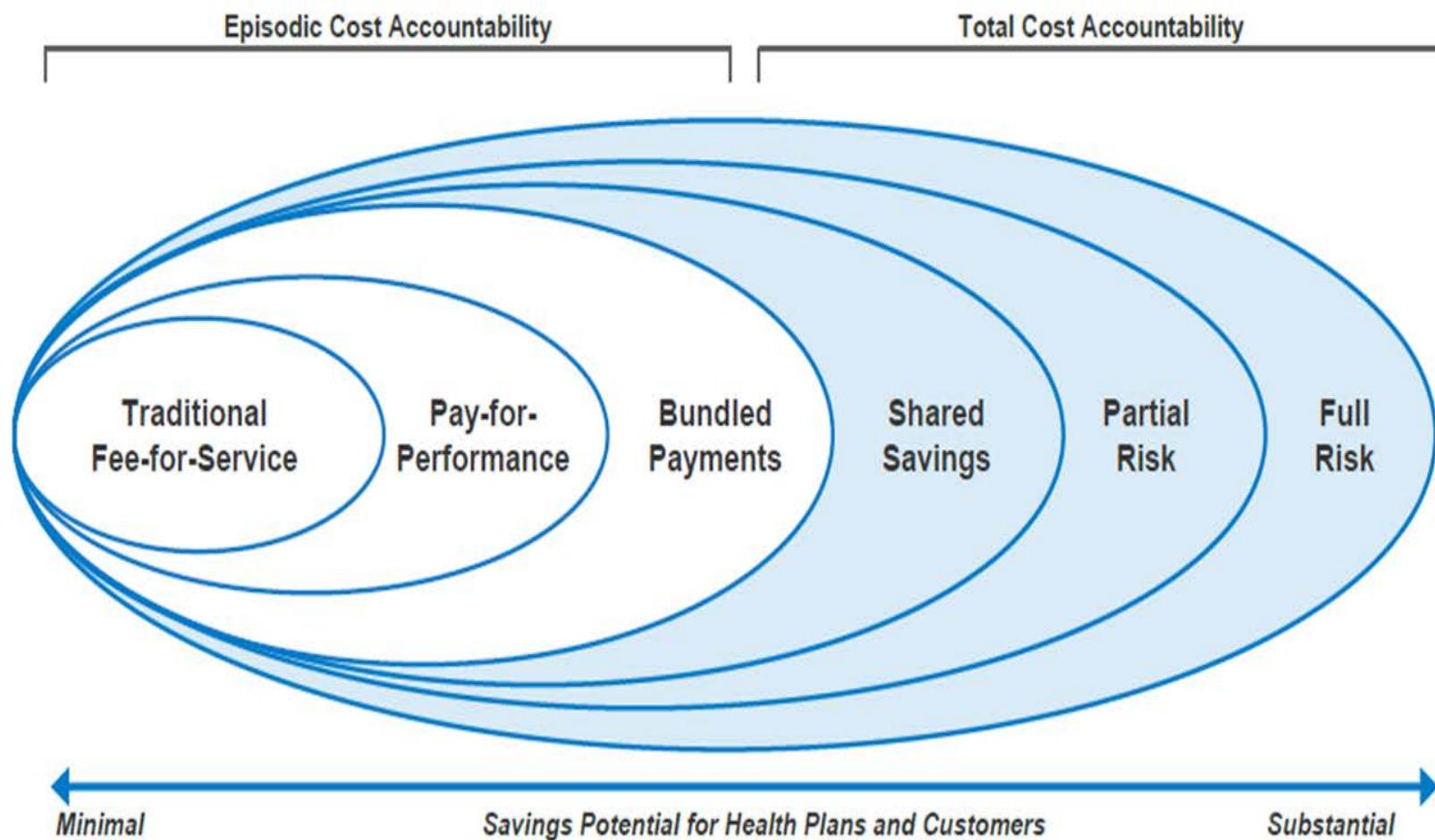
\* Joseph Schumpeter

Christensen C, Grossman J, Hwang J. The Innovator's Prescription: A Disruptive Solution for Health Care. 2009.

# **Implementation and Dissemination in Primary Care Practice –**

- Understand state-specific regulations
- Identify a HIPAA compliant technology platform
- Identify access sites – office hours, after hours
- Articulate phone triage guidelines – what parent concerns are appropriate?
- Establish appropriate financing
- Promote to patients - process, payment

## *Continuum of Payment Models*



Source: The Advisory Board Company: Accountable Care Forum-Briefing for Health Plan Executives

# Lessons Learned

*First they ignore you, then they laugh at you, then they fight you, then you win.* Mahatma Gandhi (1869-1948)

*The problem with common sense is that it is not common.* Voltaire (1694 – 1778)

*The secret to the care of the patient is caring for the patient.* Thomas Peabody (1927)

*At the end we shall be at the beginning, but we will know our place for the first time.* TS Elliot (1888-1965)

# Thanks!

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# See more with the Oto

A better way to manage ear infections

Oto is a smart tool that attaches to your iPhone and lets you take a video of the inside of your child's ear. Use with [the Seymour app](#) to share it with a doctor for an immediate answer. Available for just \$79.

\* Compatible with iPhone 5, 5s, 6, and 6s

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# The Australian startup bringing the doctor's office into American homes

Andrew Lin, 27, and Hon Weng Chong, 28, met as medical students at the University of Melbourne, Australia, in 2011. They created a consumer-friendly device that can monitor heart and lung function.



On Wednesday, CliniCloud announced a partnership with Doctor On Demand, a U.S. company that allows patients to pay for video visits with doctors over their smartphone or browser. The partnership will help users transmit their health data via CliniCloud to the physician online.