

Health Literacy Research: **Opportunities to Improve Population Health**

Panel for the 4th Annual
Health Literacy Research Conference

Conflict of Interest

- Dr. Sanders chairs a scientific board for Mercurian, Inc., which is developing patient portals for families of children with chronic conditions.
- The Panelists have no other conflicts of interest to disclose

Goals

1. Review the associations between HL and population health outcomes.
2. Explore policy-relevant strategies to address literacy-sensitive health inequities.
3. Discuss implications for health system reform.

Our Panel

- Lee M. Sanders, MD, MPH
 - Stanford University
- Diane Levin-Zamir, PhD, MPH
 - Clalit Health Services, Tel Aviv, Israel
- Jean Rafael, MD, MPH
 - Baylor College of Medicine
- Joseph Selby, MD, MPH
 - Patient Centered Research Institute

Questions

1. How can health literacy research best guide efforts to reduce health disparities?
2. How can health literacy research best guide efforts to improve the effectiveness and efficiency of health-care systems?

1. Review the associations between HL and population health outcomes.
2. Explore policy-relevant strategies to address literacy-sensitive health inequities.
3. Discuss implications for health system reform.

Aliyah

PMH: Down syndrome, prematurity (ex-26-week), chronic lung disease, GERD, gastrostomy tube

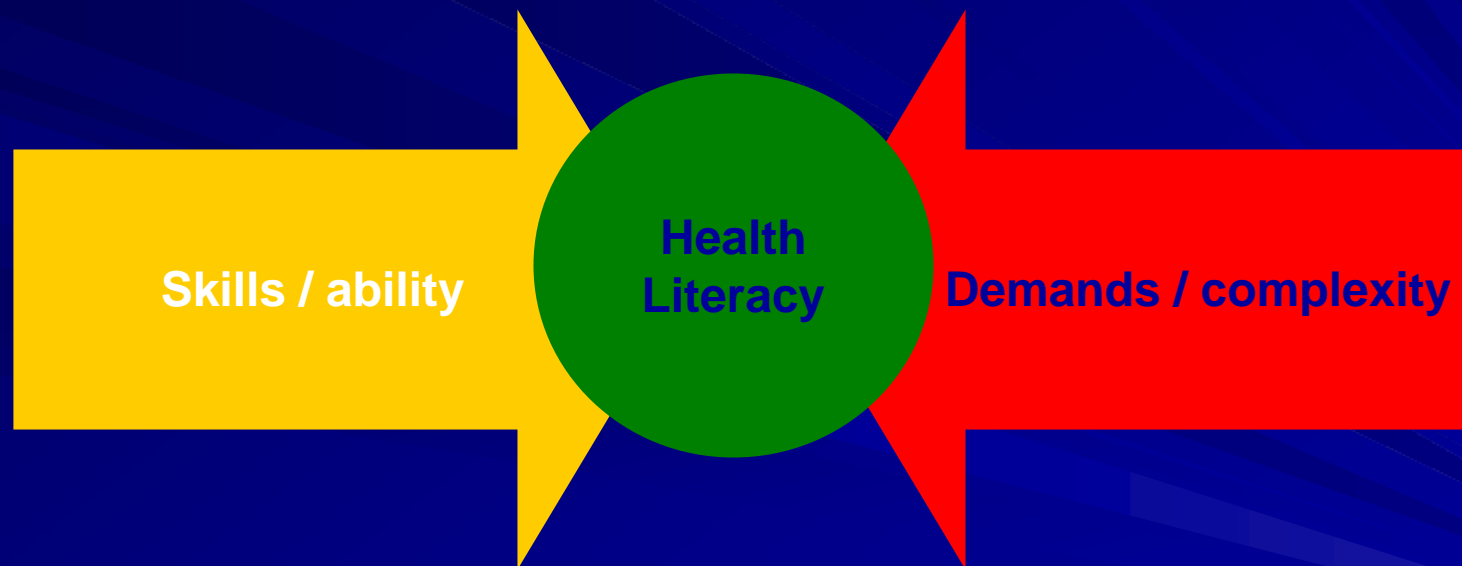
Social Hx: Unemployed mother with limited English proficiency; recently divorced; 2 other children; no preschool / child care.

Problem: Mother gets conflicting instructions from GI, pulmonary, cardiology, nutritionist, speech pathology, and school nurse.

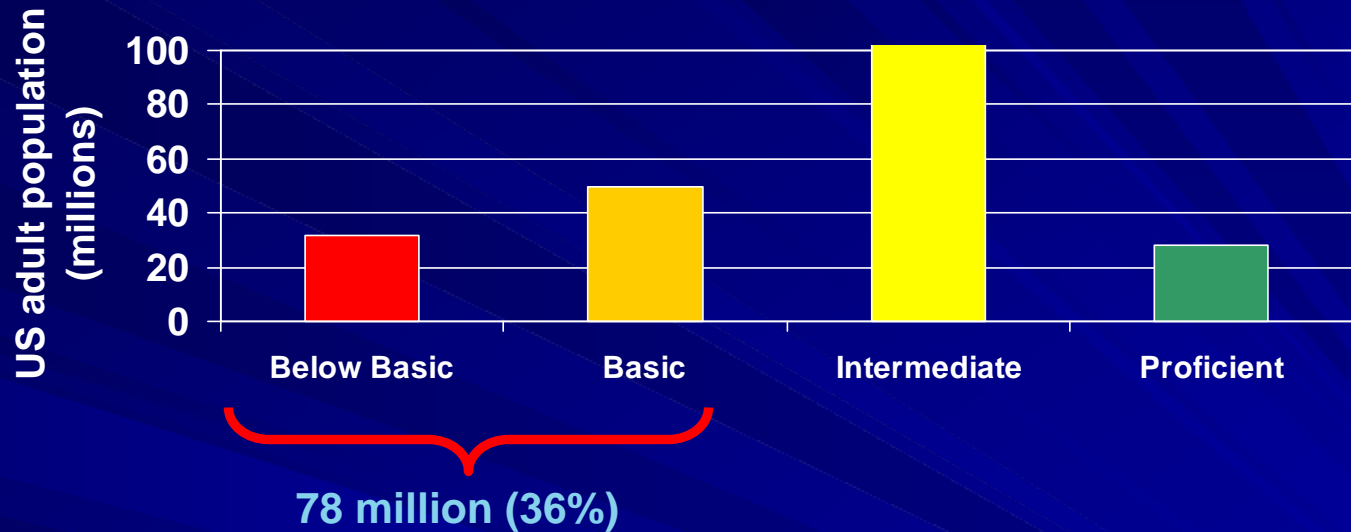
**How can HL research help
solve a problem like Aliyah's?**



Health Literacy Framework



Health Literacy Skills



“Below Basic” Skills

- Use the dosage chart on over-the-counter medicine.
- Understand an appointment slip.
- Enter names / DOB on health insurance form

“Basic” Skills

- Interpret a growth chart
- Follow a prescription to “take medicine on an empty stomach”
- Determine when a child’s next vaccine is due, using a CDC vaccine schedule

Health Information Complexity

Health Websites	10th-grade ⁱ
Insurance Enrollment	10 th grade (7 th – 12 th) ^v
Patient handouts	10 th -grade (6th - 16th) ^{ii,iii,iv,vi,vii}
Medication Labels	8 th -grade ^x
US Adult Reading Level	8 th -grade (median)
Vaccine information	7 th -grade (5 th - 10 th) ^{viii,ix}

[ii] D'Allesandro DM, et al 2001. [iii] Davis TC, et al. 2006. [iiii] Arnold CL, et al. 2001.[iv] Farrell M, et al. 2008. [v] Sanders L, et al 2007. [vi] Davis TC, et al. 1994. [vii] Davis TC, et al. 1990;31:533-538. [viii] <http://www.cdc.gov/nip/publications/vis/vis-IPV.txt>; [x] Lokker, et al 2008.



“Public Health Malpractice?” Roter D 2008

Poor Health Outcomes Associated with Low Adult Health Literacy

Health Outcomes/Health Services

- General health status
- Hospitalization
- Prostate cancer stage
- Depression
- Asthma
- Diabetes control
- HIV control
- Mammography
- Pap smear
- Pneumococcal immunization
- Influenza immunization
- STD screening
- Cost

Behaviors

- Substance abuse
- Violent behavior
- Breastfeeding
- Behavioral problems
- Adherence to medication
- Smoking

Knowledge

- Birth control knowledge
- Cervical cancer screening
- ED instructions
- Asthma knowledge
- Diabetes knowledge
- Hypertension knowledge

Poor Child Health Outcomes Associated with Low Parent Literacy

Child / Family Health Behaviors

- Tobacco use*
- Substance use
- Decreased breastfeeding*
- Poor nutritional choices**
- Adolescent STDs
- Violence / Injury

Maternal / Child Health Outcomes

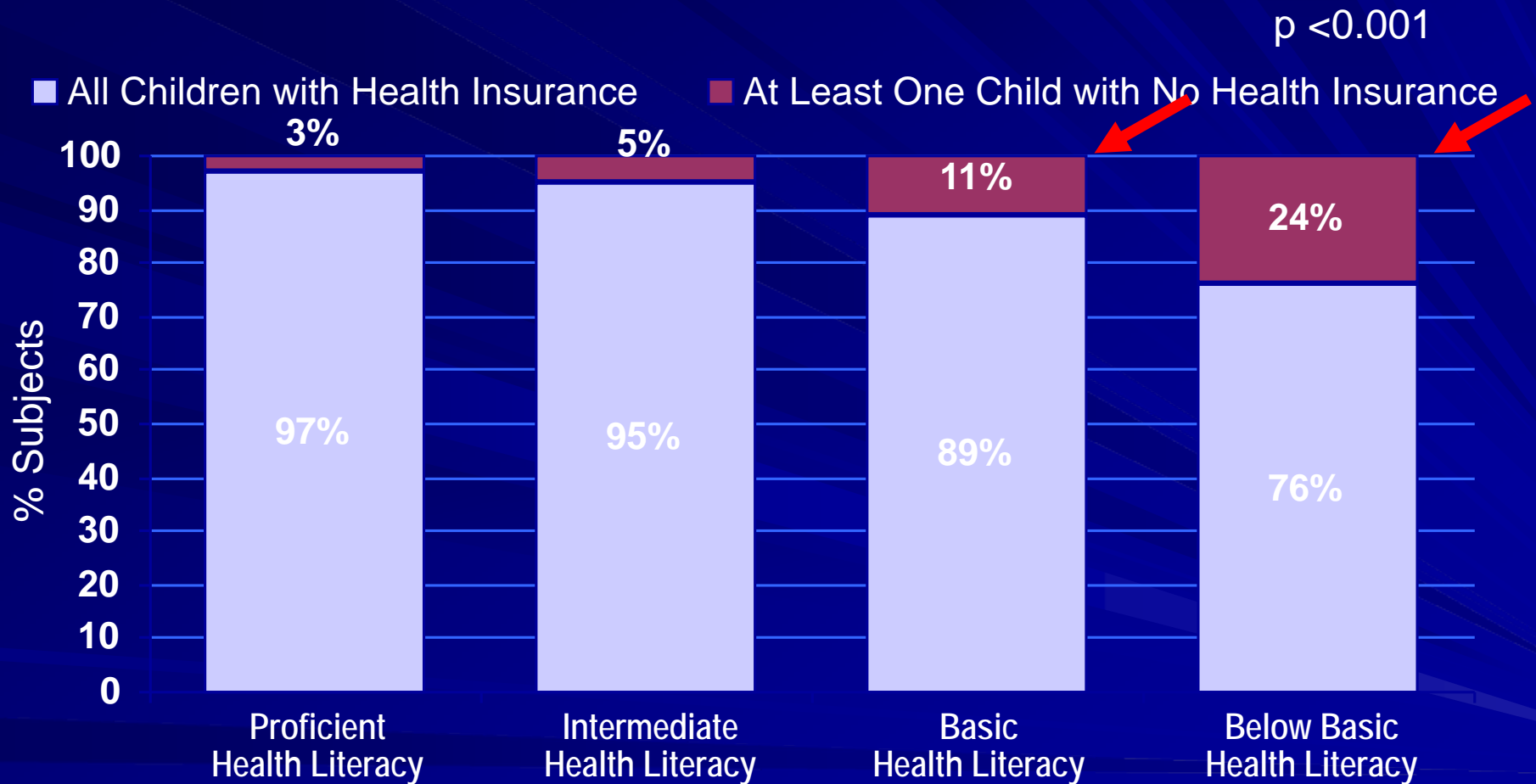
- Maternal depression**
- Injury-prone behaviors*
- Child developmental / behavioral problems*
- Worse control of child chronic illness*

Family-Centered Medical Home

- Uninsurance**
- Increased ED use*
- Decreased “usual source of care”**
- Decreased Access to WIC, TANF**
- Worse Care Coordination

*Adj. for SES; **Strong association

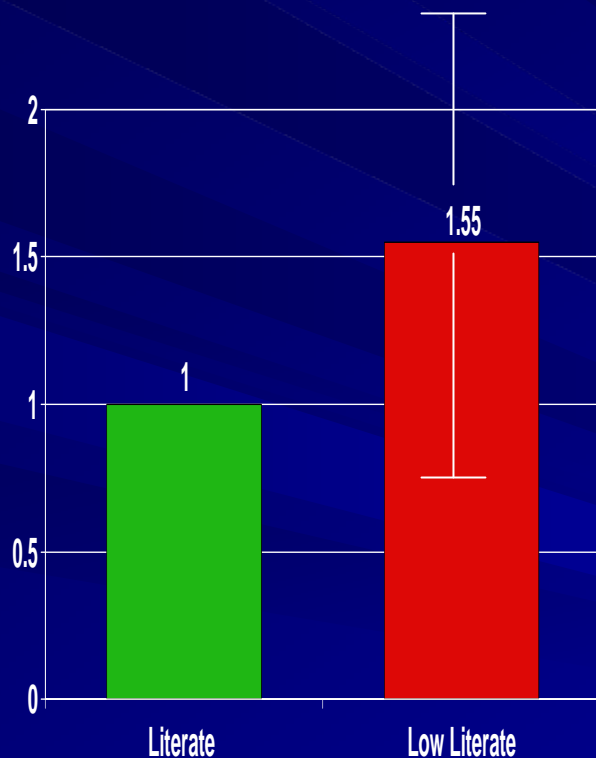
Child Health Insurance and Parent HL (2003 NAAL)



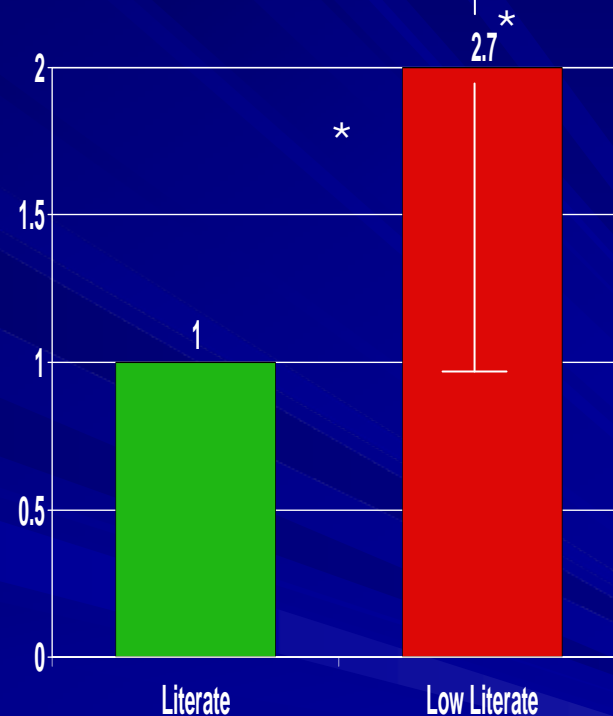
Yin HS, Johnson M, Mendelsohn AL, Abrams MA, Sanders L, Dreyer BP. The health literacy of parents in the US: A nationally representative study. *Pediatrics* 2009; 124: S289-298.

Literacy and Child Urgent Care Use

Relative Risk



All Children



Children < 5 years old

N = 276

* $p=.06$, adjusted for parent and child age, gender; parent educational status, and English-language proficiency

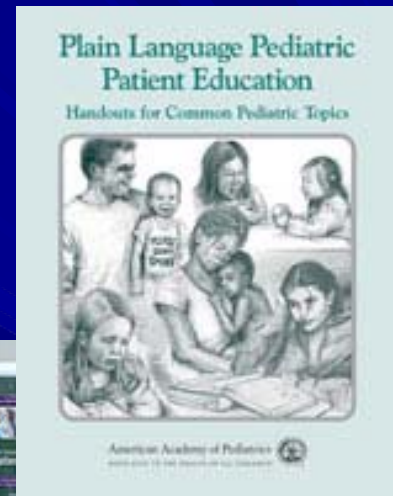
Sanders, et al. Pediatrics 2006

Cost of Health Literacy

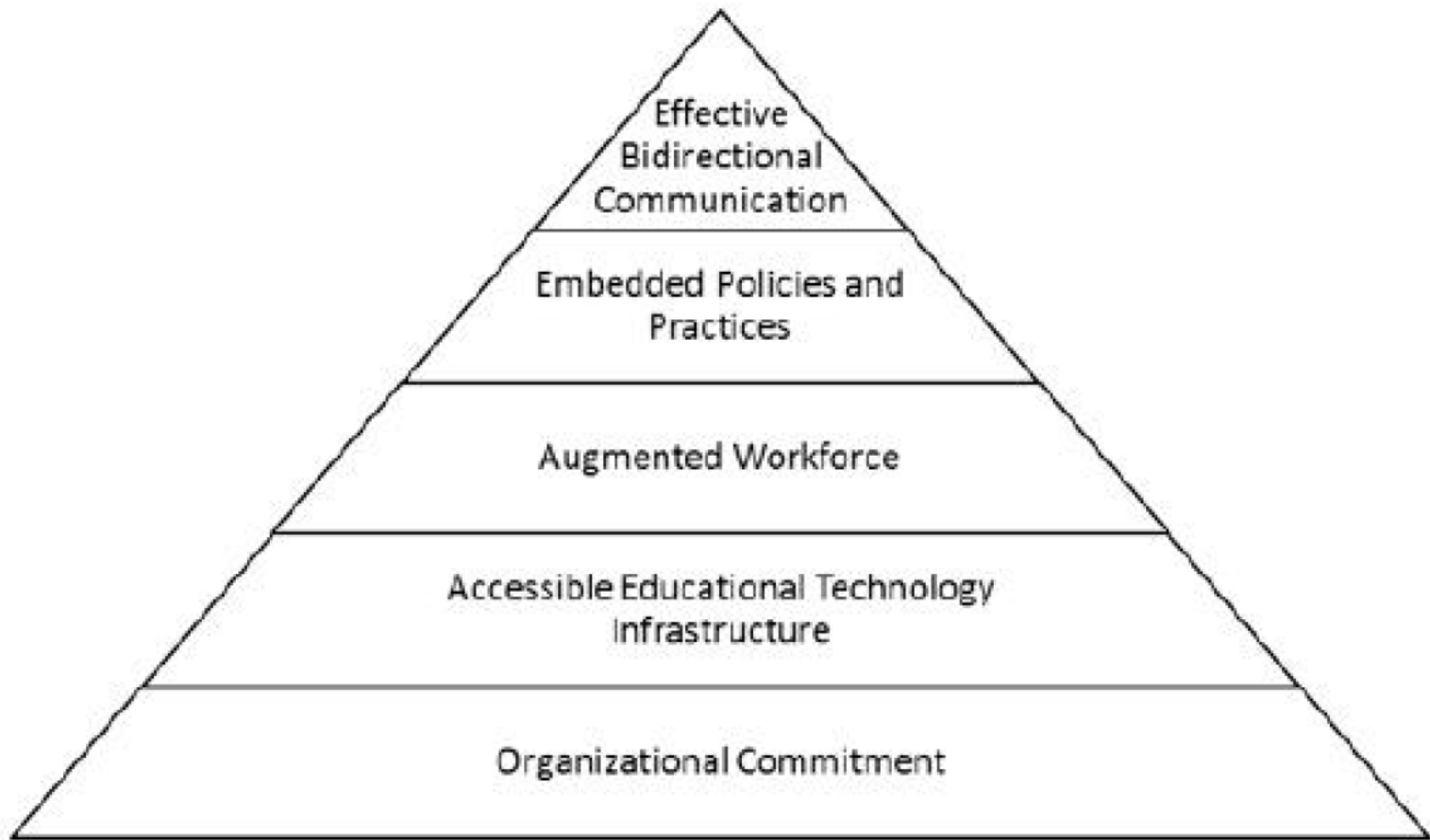
- Estimated \$106 – 236 billion in “preventable” costs per year associated with low literacy
 - \$10,000 per adult per year
 - 7 to 17% of all healthcare expenditures

Health Literacy: Health Policy Response

- Leading health agencies have identified Health Literacy as a priority issue for addressing quality of care and patient safety
 - IOM
 - AHRQ
 - *Healthy People 2020*
 - AMA
 - AAP
 - Joint Commission
 - CDC
 - FDA
 - NIH



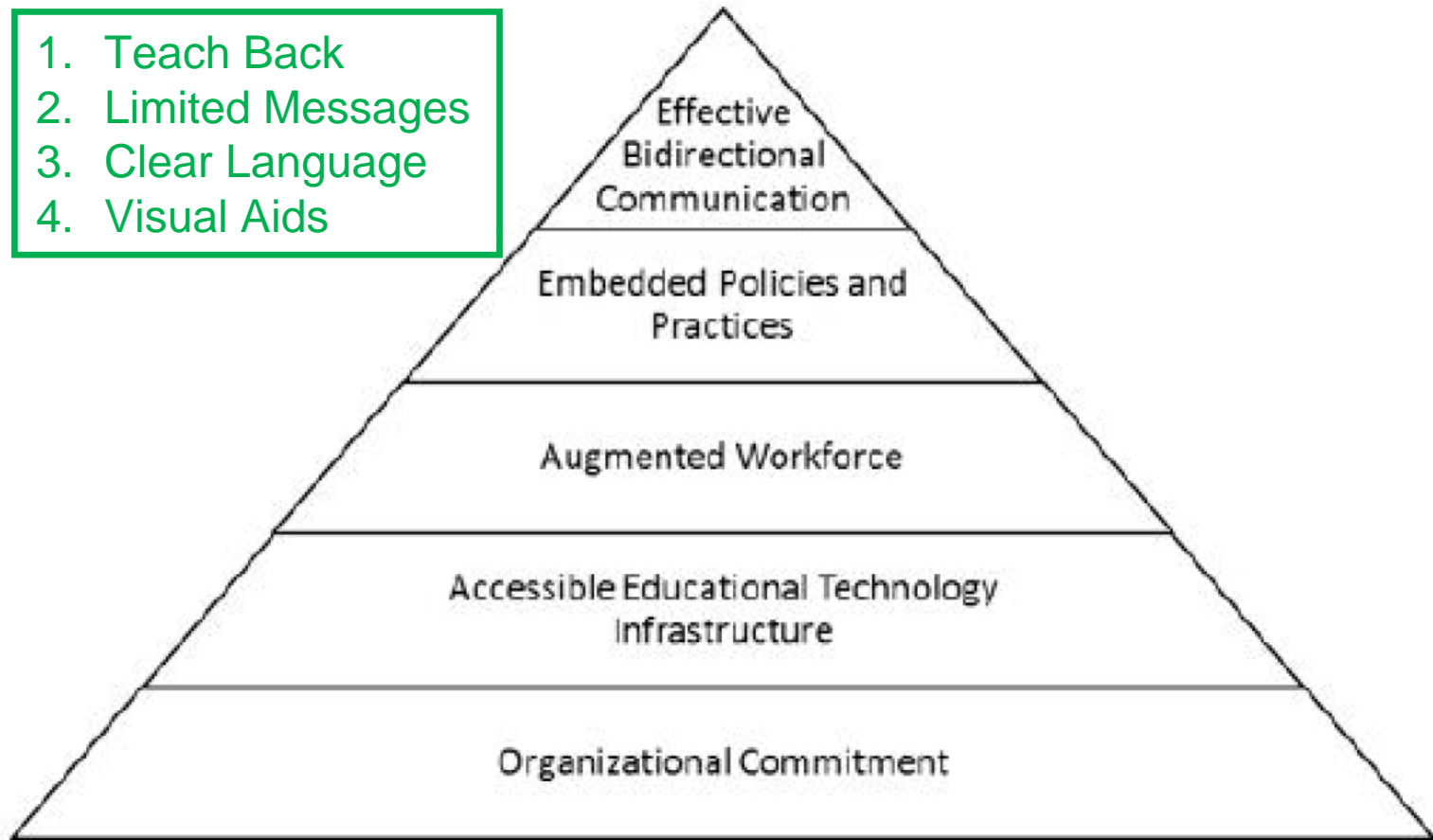
IOM Roundtable: Attributes of a Health-Literate System



Schillinger 2012

Communication Tools

1. Teach Back
2. Limited Messages
3. Clear Language
4. Visual Aids



Innovative Tools (example)

Keep Your Toddler Growing Healthy!



Milk or water is best.
Your toddler does not need juice or other sugary drinks.

pages 2-5

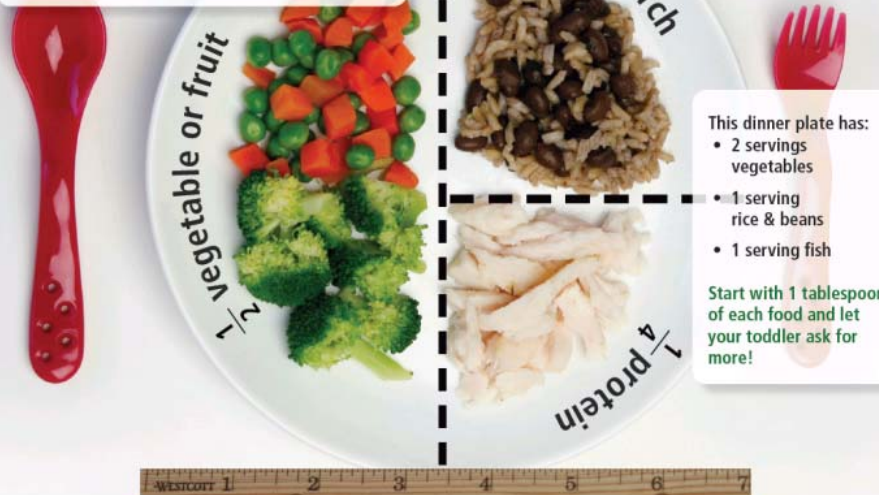
Be active with your toddler.

TV time is not active time

pages 14-15

Plan The Dinner Plate – for your 15-18 month old

It's easy to do – just split the plate into 3 parts, the largest part for vegetables.



8

¿Cuáles bebidas debo darle a su niño pequeño?

debe a su niño pequeño

No le dé a su niño pequeño



leche baja en grasa



jugo que no es 100% jugo de fruta



soda



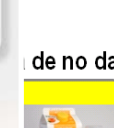
agua



té endulzado



bebidas deportivas



leche con sabor



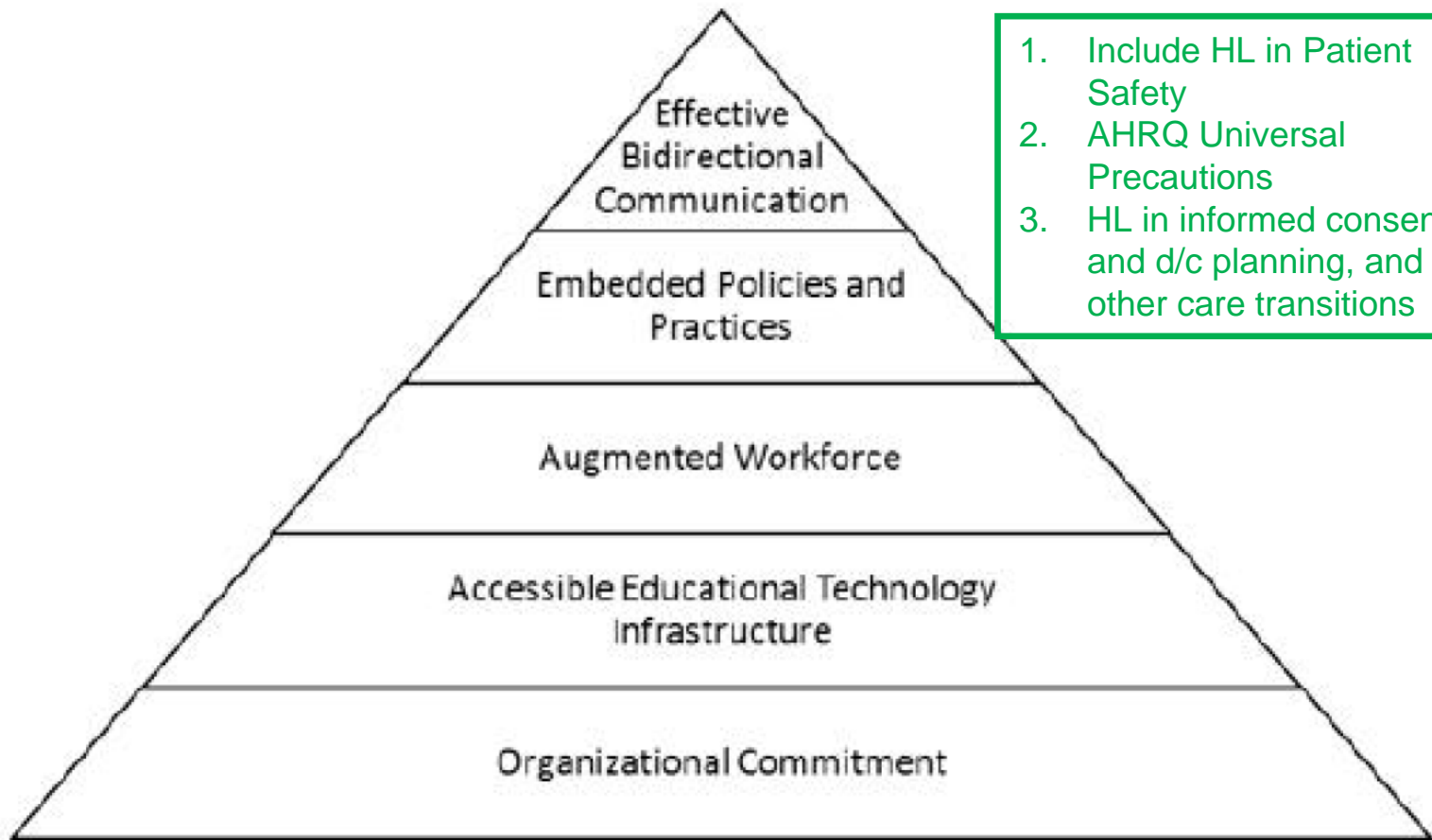
bebidas para energía

9

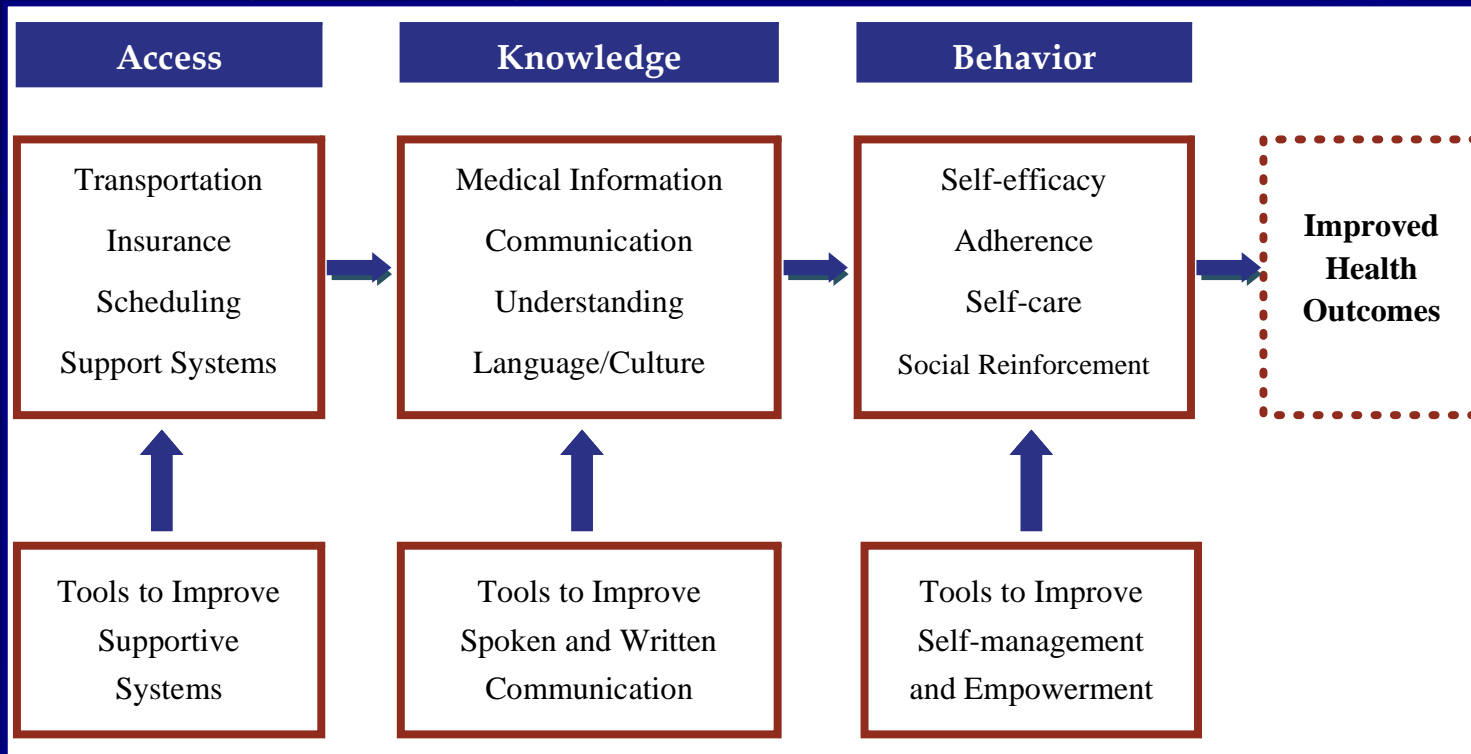
100% jugo de fruta

2

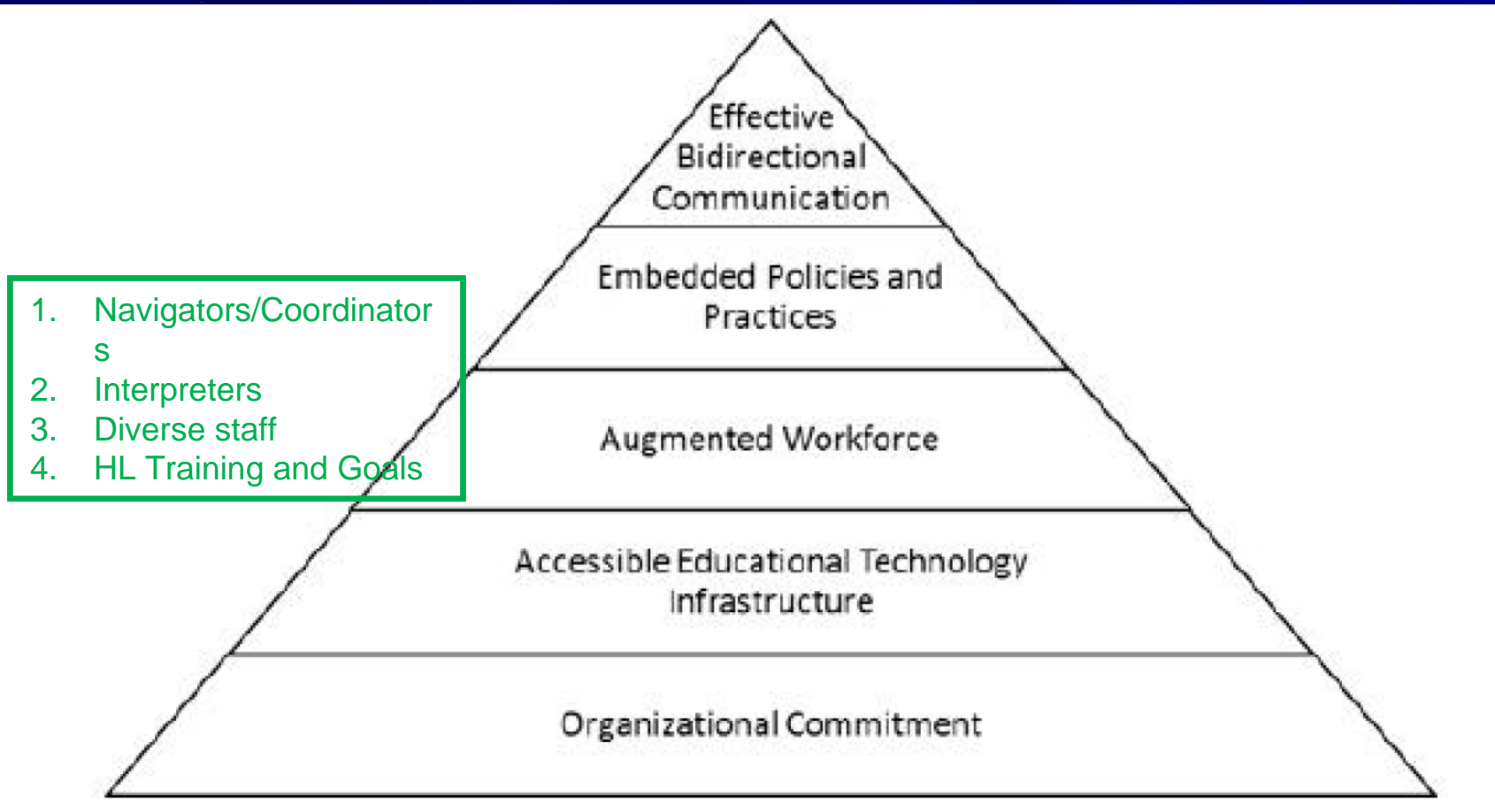
Hospital and Clinic Policies



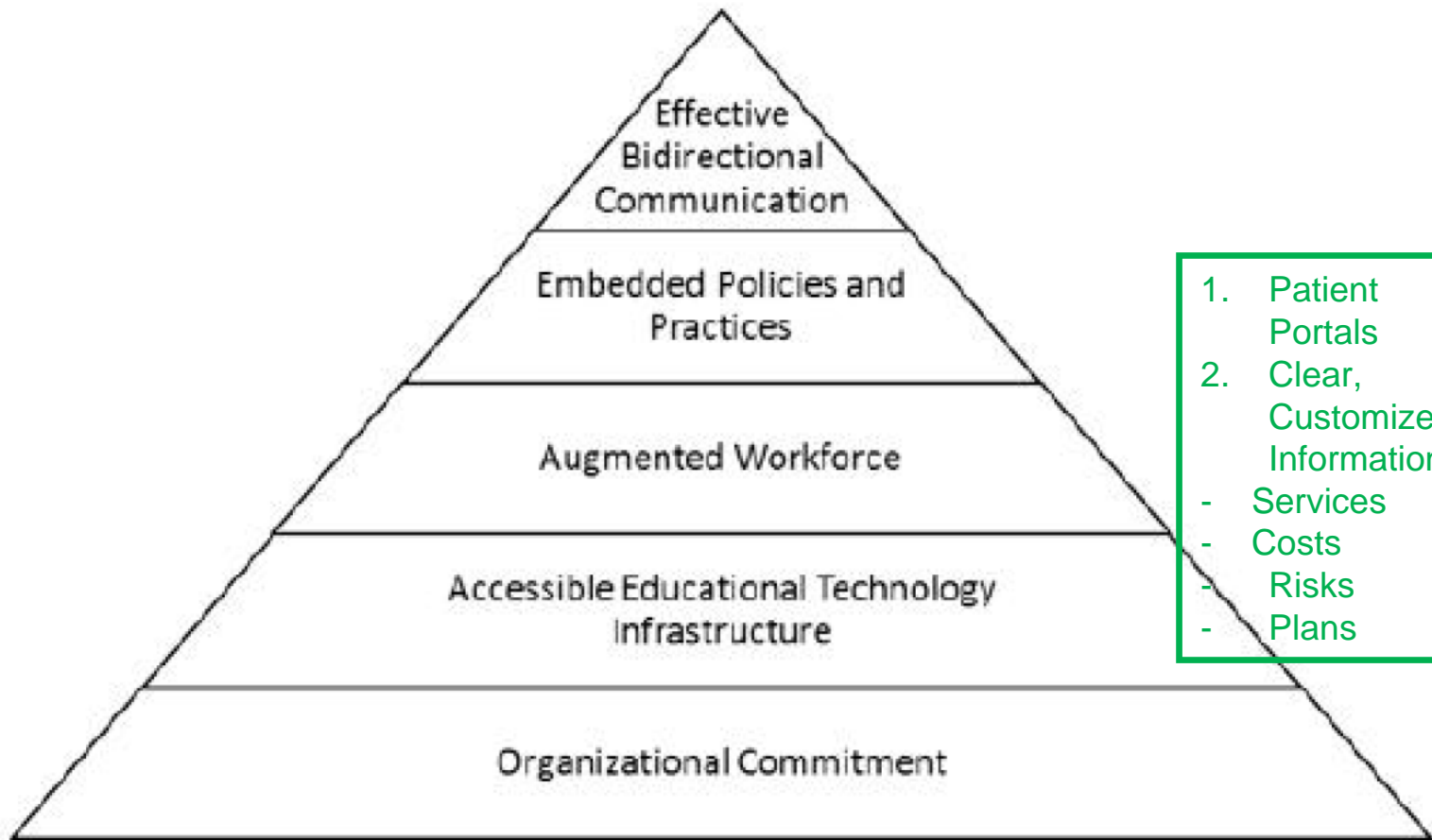
Universal Precautions Toolkit



Workforce Composition/Training



Information Technology



eHealth Literacy: Mobile Devices

The demographics of smartphone users who go online mostly using their cell phone (May 2011)

% of American adult smartphone owners age 18+ within each group who go online mostly using their cell phone, as of May 2011

	% who go online mostly using their cell phone
All smartphone owners (age 18+, n=688)	25%
Men (n=349)	24
Women (n=339)	26
Race/Ethnicity	
White, non-Hispanic (n=417)	17
Black/Hispanic (n=206)	38
Age	
18-29 (n=177)	42
30-49 (n=256)	21
50+ (n=240)	10
Household Income	
Less than \$30,000/yr (n=131)	40
\$30,000-\$49,999 (n=118)	29
\$50,000+ (n=334)	17
Education level	
High school grad (n=169)	33
Some college (n=171)	27
College+ (n=308)	13

Source: The Pew Research Center's Internet & American Life Project, April 26 – May 22, 2011 Spring Tracking Survey. n=2,277 adult internet users ages 18 and older, including 755 cell phone interviews. Interviews were conducted in English and Spanish.

Cell phone activities by race/ethnicity

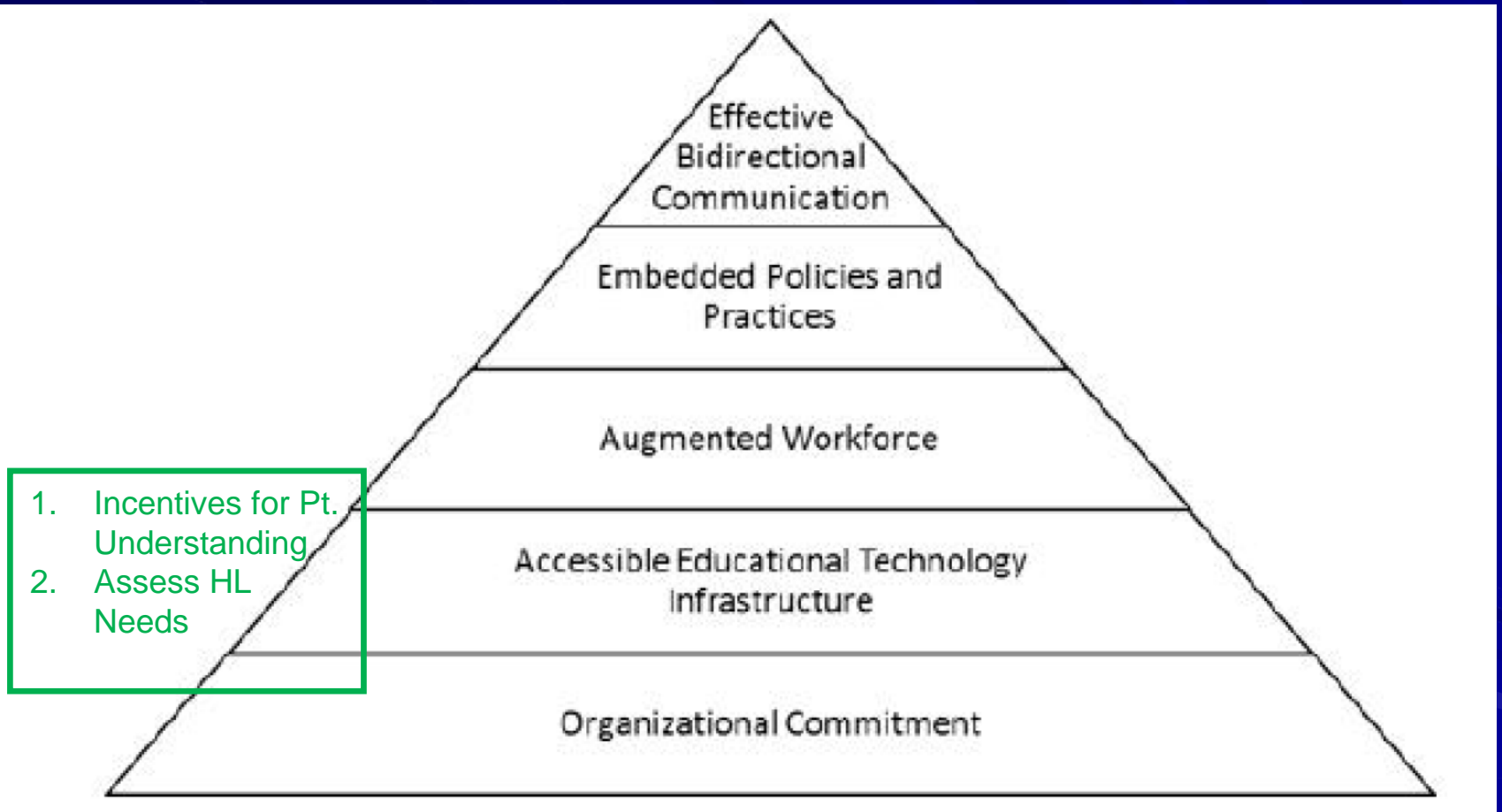
% of American adult cell phone owners age 18+ within each group who do the following activities with their cell phone, as of May 2011

	White, non-Hispanic (n=1343)	Black, non-Hispanic (n=232)	Hispanic (n=196)
Send or receive text messages	70	76	83*
Take a picture	71	70	79*
Access the internet	39	56*	51*
Send a photo or video to someone	52	58	61*
Send or receive email	34	46*	43*
Download an app	28	36*	36*
Play a game	31	43*	40*
Play music	27	45*	47*
Record a video	30	41*	42*
Access a social networking site	25	39*	35*
Watch a video	21	33*	39*
Post a photo or video online	18	30*	28*
Check bank balance or do online banking	15	27*	25*
Participate in a video call or video chat	4	10*	12*
Mean (out of 14)	4.7	6.1	6.2

*indicates statistically significant differences compared with whites.

Source: The Pew Research Center's Internet & American Life Project, April 26 – May 22, 2011 Spring Tracking Survey. n=2,277 adults ages 18 and older, including 755 cell phone interviews. Interviews were conducted in English and Spanish.

National Leadership



US DHHS National Action Plan

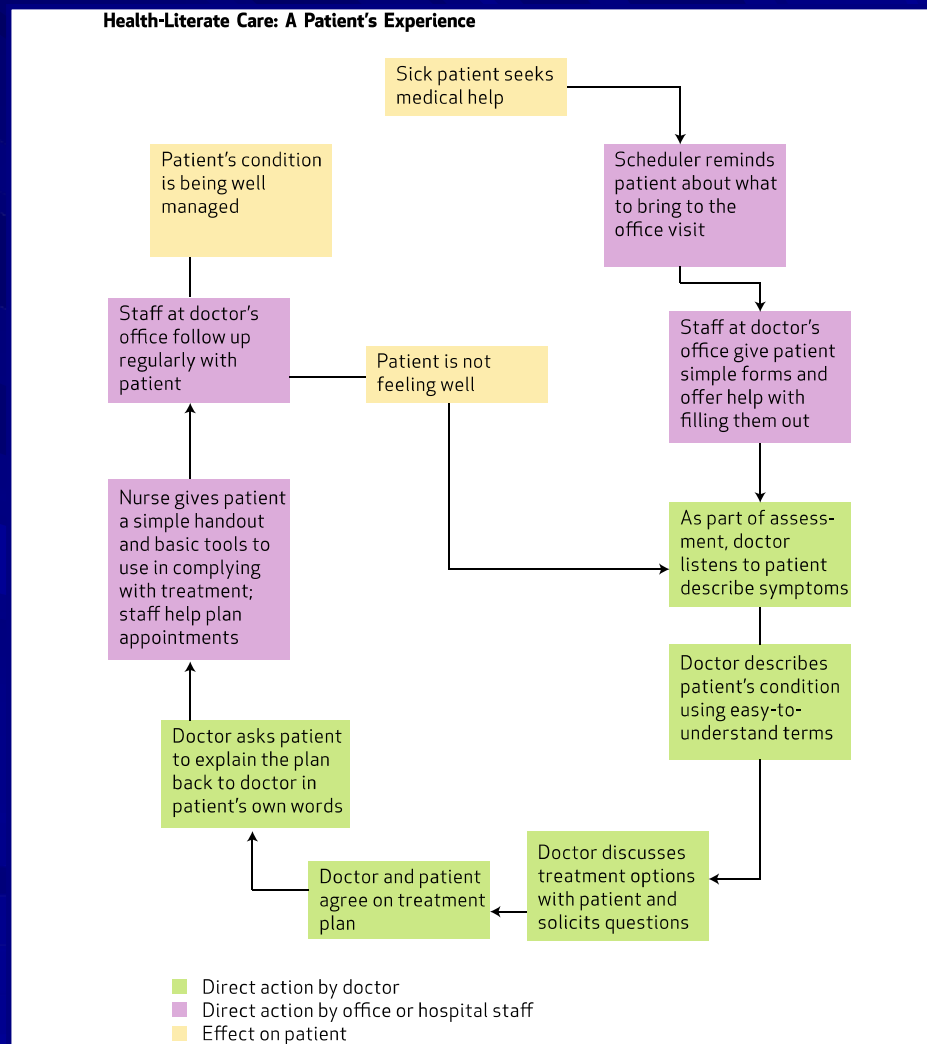
- | | |
|----|---|
| #1 | Accessible, actionable health information |
| #2 | Health care system change |
| #3 | Health and science curricula in child care and education |
| #4 | Adult education and culturally/linguistically appropriate services in the community |
| #5 | Partnerships, guidance, and policy change |
| #6 | Research on practices / interventions to improve health literacy |
| #7 | Disseminate evidence-based health literacy practices / interventions |

Policy-focused Goals

- | | |
|----|---|
| #1 | Accessible, actionable health information |
| #2 | Health care system change |
| #3 | Health and science curricula in child care and education |
| #4 | Adult education and culturally/linguistically appropriate services in the community |
| #5 | Partnerships, guidance, and policy change |
| #6 | Research on practices / interventions to improve health literacy |
| #7 | Disseminate evidence-based health literacy practices / interventions |

Health Literacy Research: Assessing the U.S. Health Policy Roadmap?

- Better Access
 - healthcare.gov
- Better Quality
 - AHRQ toolkit
- Lower Costs
 - CAHPS HL items
 - ↓ Rehospitalization



1. Review the associations between HL and population health outcomes.
2. Explore specific, policy-relevant strategies to address literacy-sensitive health inequities.
3. Discuss implications for health system reform.

“Guiding” Questions

1. How can health literacy research best guide efforts to improve population health by reducing health disparities?
2. How can health literacy research best guide efforts to improve patient care by improving the effectiveness and efficiency of health-care systems?

Our Panel

- Diane Levin-Zamir, MD
 - Health behavior research
- Jean Rafael, MD
 - Chronic illness research
- Joseph Selby, MD
 - Health services research

Policy Solutions: “Beyond Low-Literacy Handouts”

■ Regulation / Standardization

Medication dosing (Yin, Sanders 2010)

Insurance enrollment forms (Sanders 2007)

Informed Consent Documents (Paasche-Orlow 2003)

Advanced Directives (Sudore 2007)

■ Payment Reform

- Institutional incentives connected to the patient’s ability to understand.
- Fully informed choices in Health Insurance Exchanges

■ Innovation

- Health navigators: real and virtual (Murphy 1996; Lorig KR 2001; Flores 2005)
- Interactive patient portals (Meade 1994; Davis 1998; Wydra 2001)