Beyond the Knife

Updates on Health Literacy Research @ UAB

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Disclosures

• I do not have any relevant financial relationships with any commercial interest that pertains to the content of my presentation.

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ASCRS Medical Student Research Initiation Grant (2017)
1. **Intro – Current state** of health lit in surgery

2. **How** we got into health lit in surgery

3. **Findings** – What we’ve learned

4. **Future**
Patients must **obtain, process & understand** a lot of health info during the surgical journey → this requires “**health literacy**”
Current state of health literacy research in surgery

Health Literacy in Surgery

Michelle E. Chang, MD; Samantha J. Baker, MD; Isabel C. Dos Santos Marques, MD; Amandiy N. Liwo, MD, MSPH; Sebastian K. Chung, MD; Joshua S. Richman, MD, PhD; Sara J. Knight, PhD; Mona N. Fouad, MD, MPH; C. Ann Gakumo, PhD, RN; Terry C. Davis, PhD; and Daniel I. Chu, MD

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- ↑ health literacy research in surgery
- >30% of surgical pts have low health lit
- Most focused on identifying low health lit
- Applicable in all specialties

- Few studies focused on understanding it
- Few interventions to address it
Ten Attributes of Health Literate Health Care Organizations

Cindy Brach, Debra Keller, Lyla M. Hernandez, Cynthia Baur, Ruth Parker, Bernard Dreyer, Paul Schyve, Andrew J. Lemerise, and Dean Schillinger

June 2012
<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your organization communicate openly and comprehensibly to patients in advance about the costs which they themselves have to pay for treatment...</td>
<td>3</td>
</tr>
<tr>
<td>Is it ensured that the patients have truly understood everything, particularly in critical situations (e.g. medication, surgical consent), at your organization?</td>
<td>4</td>
</tr>
<tr>
<td>Is information made available to different patients via different media at your organization (e.g. three-dimensional models, DVD, picture stories)?</td>
<td>4</td>
</tr>
<tr>
<td>Are there communication standards at your organization which ensure that patients truly understand the necessary information (e.g. translators,…)</td>
<td>4</td>
</tr>
<tr>
<td>Is individualized health information used at your organization (e.g. different languages, print sizes, braille)?</td>
<td>4</td>
</tr>
<tr>
<td>Is health information at your organization developed by involving patients?</td>
<td>3</td>
</tr>
<tr>
<td>Are employees at your organization trained on the topic of health literacy?</td>
<td>3</td>
</tr>
<tr>
<td>Is the topic of health literacy considered in quality management measures at your organization?</td>
<td>4</td>
</tr>
<tr>
<td>Is the management at your organization explicitly dedicated to the subject of health literacy (e.g. mission statement, human resources planning)?</td>
<td>4</td>
</tr>
</tbody>
</table>
Health Literacy Levels

- Proficient
- Intermediate
- Basic
- Below Basic
**Highest ranked states**

#1 Vermont  
#2 Massachusetts  
#3 Hawaii  
#4 Connecticut  
#5 Utah

**Lowest ranked states**

#46 Oklahoma  
#47 Alabama  
#48 Arkansas  
#49 Louisiana  
#50 Mississippi
## Outcomes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Rank</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer Deaths (deaths per 100,000 population)</td>
<td>210.8</td>
<td>42</td>
</tr>
<tr>
<td>Cardiovascular Deaths (deaths per 100,000 population)</td>
<td>347.0</td>
<td>48</td>
</tr>
<tr>
<td>Diabetes (% of adults)</td>
<td>14.5</td>
<td>49</td>
</tr>
<tr>
<td>Disparity in Health Status (% difference by high school education)</td>
<td>28.0</td>
<td>33</td>
</tr>
<tr>
<td>Frequent Mental Distress (% of adults)</td>
<td>15.6</td>
<td>45</td>
</tr>
<tr>
<td>Frequent Physical Distress (% of adults)</td>
<td>15.1</td>
<td>44</td>
</tr>
<tr>
<td>Infant Mortality (deaths per 1,000 live births)</td>
<td>8.2</td>
<td>49</td>
</tr>
<tr>
<td>Premature Death (years lost before age 75 per 100,000 population)</td>
<td>10,435</td>
<td>48</td>
</tr>
<tr>
<td><strong>All Outcomes</strong></td>
<td>-0.383</td>
<td>50</td>
</tr>
</tbody>
</table>
What can we do about disparities in surgery?
Enhanced Recovery After Surgery (ERAS)

- Mid-thoracic epidural anesthesia/analgesia
- No nasogastric tubes
- Prevention of nausea and vomiting
- Avoidance of salt and water overload
- Early removal of catheter
- Early oral nutrition
- Non-opioid oral analgesia/NSAIDs
- Early mobilization
- Stimulation of gut motility
- Audit of compliance and outcomes

Preoperative
- Preadmission counseling
- Fluid and carbohydrate loading
- No prolonged fasting
- No/selective bowel preparation
- Antibiotic prophylaxis
- Thromboprophylaxis
- No premedication

Intraoperative
- Short-acting anesthetic agents
- Mid-thoracic epidural anesthesia/analgesia
- No drains
- Avoidance of salt and water overload
- Maintenance of normothermia (body warmer/warm intravenous fluids)
Guidelines for Perioperative Care in Elective Colorectal Surgery: Enhanced Recovery After Surgery (ERAS®) Society Recommendations: 2018

Pre-admission
1. INFORMATION
2. OPTIMISATION
3. PREHABILITATION
4. NUTRITION
5. ANAEMIA SCREENING

Pre-Operative
6. PREVENTION OF NAUSEA AND VOMITING
7. SELECTIVE PREMEDICATION
8. PROPHYLACTIC ANTIBIOTICS
9. NO BOWEL PREPARATION
10. MAINTAINING EUVOLEAEMIA
11. NO FASTING AND CARBOHYDRATE DRINK

Intra-Operative
12. STANDARD ANAESTHETIC PROTOCOL
13. FLUID NORMOVOLAEMIA
14. NORMOTHERMIA
15. MINIMAL INVASIVE SURGERY
16. NO DRAINAGE

Post-Operative
17. NO GASTRIC DRAINAGE
18. MULTIMODAL ANALGESIA
19. TROMBOPROPHYLAXIS
20. FLUID NORMOVOLAEMIA
21. URINARY CATH 1-3 D
22. PREVENT HYPERGLYCAEMIA
23. POSTOPERATIVE NUTRITION
24. EARLY MOBILISATION

LOW  MODERATE  HIGH
Guidelines for Perioperative Care in Elective Colorectal Surgery: Enhanced Recovery After Surgery (ERAS®) Society Recommendations: 2018

Pre-Operative

1. INFORMATION
2. OPTIMISATION
3. PREHABILITATION
4. NUTRITION
5. ANAEMIA SCREENING

Intra-Operative

12. STANDARD ANAESTHETIC PROTOCOL
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21. URINARY CATH 1-3 D
22. PREVENT HYPERGLYCAEMIA
23. POSTOPERATIVE NUTRITION
24. EARLY MOBILISATION
Enhanced Recovery After Surgery (ERAS) Eliminates Racial Disparities in Postoperative Length of Stay After Colorectal Surgery

* Tyler S. Wald, MD, MSPIH.* Lauren E. Gons, MSPIH.* Melanie S. Morrow, MD,* Allison A. Gallic.*
* Justin S. Raskin, MD, PhD.* Gregory D. Kennedy, MD, PhD.* Jamie A. Carver,* MD.*
* Selwyn M. Vickers, MD,* Sara J. Kriegl, PhD.* Jeffrey R. Sammons, MD,* and Daniel J. Cha, MD.*

![Graph showing comparison of Expected Length-of-Stay between Pre-ERAS and ERAS for Black and White patients.](image-url)
Enhanced Recovery After Surgery (ERAS) Eliminates Racial Disparities in Postoperative Length of Stay After Colorectal Surgery

Disparity +2.72 days*

REFERENCE
ACS Risk Calculator
Expected Length-of-Stay

Pre-ERAS

*p<0.05
Enhanced Recovery After Surgery (ERAS) Eliminates Racial Disparities in Postoperative Length of Stay After Colorectal Surgery

- **Observed-to-Expected Difference (OED)**
  - **Disparity**
    - +2.72 days*

- **Median LOS**
  - Black
  - White

**REFERENCE**
ACS Risk Calculator
Expected Length-of-Stay

**Disparity**
- **Black**
  - More Days in Hospital
- **White**
  - Less Days

**Pre-ERAS**
**ERAS**
*p<0.05
1. LOS disparities eliminated with ERAS
2. We weren’t doing something before...

What do ERAS patients experience?

Interview Guides

47 patients
6 focus groups

Analysis
Used Grounded Theory
Identify Themes
Achieve Thematic Saturation
Develop Better Understanding
Informed Next Steps

White
n=23

Black
n=24
Most Common Finding

#1. Patients desired and valued **information**

African-Americans described experiences of:

- Having **no expectations** about surgery
- Being provided **inconsistent** information
- Needing more info on **diet/exercise**
- Relying on **family** as info sources

Understanding the Surgical Experience for African-Americans and Caucasians With Enhanced Recovery

Isabel C. Dos Santos Marques, MD, Ivan I. Hervey, MD, Lauren M. Theiss, MD, Robert H. Hollis, MD, MSPH, Sara J. Knight, PhD, Terry C. Davis, PhD, Mona Fouad, MD, MPH, and Daniel I. Chu, MD

Analysis

- Used Grounded Theory
- Identify Themes
- Achieve Thematic Saturation
- Develop Better Understanding
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47 patients

6 focus groups

White
n=23

Black
n=24
African-Americans described experiences of:

- Having no expectations about surgery
- Being provided inconsistent information
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#1. Patients desired and valued information

Most Common Finding
Framing an approach to health literacy in surgery...

Identify

Demographics
- Race/Ethnicity
- Age
- Sex

Social Determinants of Health
- Education
- Occupation
- Employment
- Income
- Social Support
- Culture
- Language

Health Literacy

Modifying Factors
- Healthcare System
  - Health Education / Readability
  - Support Technologies
  - Mass Media

- Provider
  - Communication Skills
  - Teaching Ability
  - Time spent at each encounter

- Patient
  - Self-Efficacy and Motivation
  - Navigation Skills

Outcomes


K12 HS023009 AHRQ Mentored Career Development Award (2017-2019)
Identify | Understand | Intervene

NVS

- Limited: 20 (White), 55 (Black)
- Possible inadequate: 24 (White), 10 (Black), 55 (Black)
- Adequate: 35 (Black)

REALM

- 4-6th grade: 20 (White), 45 (Black), 85 (White)
- 7-8th grade: 15 (White), 35 (Black)
- >9th grade: 0 (White)
These data suggest:

1. **Low health literacy exists** in surgical patients
2. **More common** in African-Americans
3. **Older African-Americans** are at particularly high-risk for low health literacy
Associations of health lit with poor surgical outcomes

These data suggest:

1. Low health literacy exists in colorectal patients
2. Associated with more post-op complications (POCs)
Low health literacy associated w \( \uparrow \) readmissions

### Adjusted Model of Readmission

<table>
<thead>
<tr>
<th></th>
<th>Unadjusted OR</th>
<th>(95% CI)</th>
<th>p-value</th>
<th>Most Parsimonious* OR</th>
<th>(95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate</td>
<td>Ref.</td>
<td></td>
<td></td>
<td>Ref</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possibly Inadequate</td>
<td>1.83</td>
<td>(1.23-2.73)</td>
<td>0.003</td>
<td>1.53</td>
<td>(1.01-2.31)</td>
<td>0.04</td>
</tr>
</tbody>
</table>

* Adjusted for Charlson Comorbidity Index, Health Survey Physical Component Score and Mental Component Score at the time of discharge

Patients with possibly inadequate HL are at **53%** higher odds of being readmitted as compared to patients with adequate health literacy.
Identify | Understand | Intervene

Health Literacy

Demographics
- Race/Ethnicity
- Age
- Sex

Social Determinants of Health
- Education
- Occupation
- Income
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- Culture
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Outcomes


K12 HS023009 AHRQ Mentored Career Development Award (2017-2019)
System-Level: Readability of surgery education material

The graph shows the readability level of surgery education material across various specialties. The horizontal line at 6 represents the recommended readability level. The specialties are listed on the x-axis, and the readability scores are on the y-axis. The specialties include Plastic Surgery, Endocrine Surgery, Transplant Surgery, Cardiac Surgery, GI Surgery General, Bariatric Surgery, ENT, Surgical Oncology, Colorectal Surgery, Vascular Surgery, Pancreas Surgery, All UAB Surgery Packet, Thoracic Surgery, and Neurosurgery.
System-Level: Readability of surgery education material

Specialty

Percent at 6th Grade Level

- Bariatric Surgery
- Colorectal Surgery
- Pancreas Surgery
- All UAB Surgery Packet
- Neurosurgery
- Surgical Oncology
- Thoracic Surgery
- Cardiac Surgery
- Vascular Surgery
- Transplant Surgery
- Endocrine Surgery
- GI Surgery General
- ENT
- Plastic Surgery
The Patient Education Materials Assessment Tool (PEMAT) and User’s Guide

An Instrument To Assess the Understandability and Actionability of Print and Audiovisual Education Materials

System-Level: Readability of surgery education material

Understandability

Actionability
System-Level: Intervening on Health Ed/Readability

Using information design to improve written material
Using information design to improve written material
System-Level: Intervening on Health Ed/Readability

Using information design to improve written material

C A R P
System-Level: Intervening on Health Ed/Readability

Using **information design** to improve written material

- **C** ontrast
- **A** lignment
- **R** epetition
- **P** roximity
Using **information design** to improve written material

**System-Level:** Intervening on Health Ed/Readability

- **C** ontrast
- **A** lignment
- **R** epetition
- **P** roximity

**Bad**  
**Better**
Using **information design** to improve written material

- **Contrast**
- **Alignment**
- **Repetition**
- **Proximity**
Using information design to improve written material

- **C** ontrast
- **A** lignment
- **R** epetition
- **P** roximity
Using information design to improve written material

- **Contrast**
- **Alignment**
- **Proximity**

**System-Level: Intervening on Health Ed/Readability**

**Bad Example of Proximity**

**Better Example of Proximity**
I'm SO SO MAD

I'm mad at you.

I'm mad at you.

Say please. Don't just yell.

Nanica, B'kon.

Weirdo
Father
Takes
Away
All of
Child's
Rights
Father
Child
9,999 in 10,000 fathers are amazing. They love their children and care for their every need. They provide for them, and give them a head start in life. HOWEVER, 1 in 10,000 fathers are not-so-amazing. They eat all their children’s Halloween candy. When their children have a problem, they say “good luck!” Project Uncover is meant to uncover and expose these fathers to the public and to save their children.
“Dad” (Daniel Chu) insults innocent family members

Nausicaa Chu
PIA (Parental Investigating Agency)

Overview

The Christmas season is a time of love, joy, and happiness. It is a season to be kind and generous... right? Well, not for “Dad,” also known as Daniel Chu, head of the EIFS (Exceptionally Irritating Fathers Society). For “Dad,” Christmas is a season to insult family members. The following list of insults were recorded in the span of two days.

List of Insults

1. Let's sell the kids!
2. Nausicaa, you are a rodent.
3. The new baby is a rodent too!
4. You are a wimp.
5. I will show no emotion at your wedding.
6. You were emotionally labile when you were 6.
Enhanced Recovery After Surgery (ERAS)

Patient Education

Enhanced Recovery After Surgery (ERAS) is a program that helps you get better sooner after surgery. ERAS focuses on reducing stress on your body by:

- Exercising
- Stopping smoking
- Improving your diet

If you have not received your arrival time for the day of surgery, you will receive a call from the surgeon’s office. You can expect to be in the recovery room for several hours after your surgery. Loading with high-carbohydrate clear liquids is recommended to help your body respond better to the stress of surgery.
How do I prepare for my surgery?

My Surgery Journey

Enhanced Recovery After Surgery (ERAS)

One Day Before Surgery

- **Take Miralax**
- **Use Chlorhexidine**
- Do not eat solid foods past midnight the night before surgery.
  
  *This is because the solid foods can get into your lungs while you are under anesthesia.*
  
  *If you do not receive this call by 4 PM, please call the surgeon’s office.*

UAB Colorectal Surgery: 205-975-3000
UAB Pre-Testing: 205-801-8261

Your Emergency Contact: __________

“I think this new version is really going to help a lot of people.” – Patient with low HL
System-Level: Intervening on Health Ed/Readability

<table>
<thead>
<tr>
<th>Survey Responses</th>
<th>Adequate HL Patients</th>
<th>Low HL Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;I more easily understand the new version&quot;</td>
<td>89%</td>
<td>90%</td>
</tr>
<tr>
<td>&quot;I prefer using the new version&quot;</td>
<td>100%</td>
<td>90%</td>
</tr>
</tbody>
</table>

**New Surgical PEMs Avgs:**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captures my attention</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Helps me understand</td>
<td>Strongly Agree</td>
<td>Agree</td>
</tr>
<tr>
<td>Informs me</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Clear steps</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Avoids Confusion</td>
<td>Agree</td>
<td>Agree</td>
</tr>
</tbody>
</table>
Using **information design** to improve written material

**Version 1.0**

**Version 2.0**

**Version 4.0**

---

Stakeholder Engagement

---

**Flesch-Kincaid Grade Level Readability Test**

**Simple Measure of Gobbledygook (SMOG)**

---

**Lesson Learned**

You can make print material **more understandable**.

Identify | Understand | Intervene

Health Literacy

Demographics
- Race/Ethnicity
- Age
- Sex

Social Determinants of Health
- Education
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- Income
- Social Support
- Culture
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Modifying Factors

Healthcare System
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Provider
- Communication Skills
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Outcomes

K12 HS023009 AHRQ Mentored Career Development Award (2017-2019)
System-Level: Intervening with Support Technology

The Most Robust Platform For Value-Based Care

Leading health systems partner with SeamlessMD to deliver a number of solutions:

- Enhanced Recovery After Surgery
- Remote Patient Monitoring
- Patient Education
- Collect Patient Reported Outcomes
- CABG Bundled Payments
- CJR Bundled Payments
- Perioperative Surgical Home
- Prehabilitation & Preoperative Optimization

SEE ALL SOLUTIONS
**System-Level: Intervening with Support Technology**

- **Real-time**
- **Engaging**
- **Records PROs**

---

<table>
<thead>
<tr>
<th>ID</th>
<th>Last Name</th>
<th>First Name</th>
<th>Post-Op Day</th>
<th>Channels</th>
<th>Care Plan</th>
<th>Surgeon</th>
<th>Surgery Date</th>
<th>Last Activity</th>
<th>Last Status</th>
<th>Status</th>
<th>Actions</th>
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<tr>
<td>2272</td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td>Colorectal</td>
<td>Daniel Chu</td>
<td>January 23, 2018</td>
<td>about 17 hours</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2272</td>
<td></td>
<td></td>
<td>-16</td>
<td></td>
<td>Colorectal</td>
<td>Daniel Chu</td>
<td>February 9, 2018</td>
<td>2 days</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2272</td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td>Colorectal</td>
<td>Daniel Chu</td>
<td>January 23, 2018</td>
<td>about 8 hours</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2272</td>
<td></td>
<td></td>
<td>-14</td>
<td></td>
<td>Colorectal</td>
<td>Daniel Chu</td>
<td>February 9, 2018</td>
<td>about 1 hour</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2168</td>
<td></td>
<td></td>
<td>7</td>
<td></td>
<td>Colorectal</td>
<td>Daniel Chu</td>
<td>January 16, 2018</td>
<td>about 7 hours</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2167</td>
<td></td>
<td></td>
<td>7</td>
<td></td>
<td>Colorectal</td>
<td>Daniel Chu</td>
<td>January 16, 2018</td>
<td>about 2 hours</td>
<td>1 day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2165</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
<td>Colorectal</td>
<td>Daniel Chu</td>
<td>January 17, 2018</td>
<td>1 day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2161</td>
<td></td>
<td></td>
<td>-17</td>
<td></td>
<td>Colorectal</td>
<td>Daniel Chu</td>
<td>February 9, 2018</td>
<td>4 days</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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*Image of UI dashboard with data entries.*
System-Level: Intervening with Support Technology

Why do I need to empty my colon before surgery?
This is for your safety. Your waste (poo) carries germs. So, it is safer if your surgery area is not full of poo during surgery.

How do I drink Miralax®?

1. Pour the Gatorade® into a jug.
2. Pour the entire bottle of Miralax® into the jug.
3. Stir the Gatorade® and Miralax®.
4. Drink 1/4 of the mixture every 30 minutes.
5. Keep drinking until you have finished the whole jug. You will have diarrhea (watery poo) for a few hours after drinking this.

How to empty your pouch

When do I empty the pouch?
Empty your pouch when it is 1/3 to 1/2 full. A full pouch will pull less on your skin. This will help prevent your pouch from leaking.

How to empty your pouch:
The instructions below are for your 1-piece clip close pouch. If you use a different pouch, follow the directions that came with your pouch.

1. Raise the end of the pouch up.
2. Release the clip.
3. Unroll the end of the measuring cup.
4. Lower the end of the pouch over the measuring cup. Slide your hand down the bag to push the waste (poo) out. Record the volume of your output.
5. Empty your measuring cup over the toilet.
6. Use toilet paper to wipe the end of the pouch. Wipe inside and outside.
7. Fold the end of the pouch over the clip.
8. Close the clip over the end of the pouch.
**System-Level: Intervening with Support Technology**

**Response Rate, n (%)**

**Survey Completion by Race**

<table>
<thead>
<tr>
<th>Race</th>
<th>Survey Preparation</th>
<th>Pre-surgery Readiness</th>
<th>At Home Satisfaction</th>
<th>Healthcare Usage</th>
<th>Inpatient Health Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>40%</td>
<td>40%</td>
<td>30%</td>
<td>20%</td>
<td>*</td>
</tr>
<tr>
<td>Black</td>
<td>30%</td>
<td>30%</td>
<td>20%</td>
<td>10%</td>
<td>*</td>
</tr>
</tbody>
</table>

* p < 0.05
1. Patients with low health literacy use apps
2. But still differences in usage by race/ethnicity
3. Perhaps a role for patient activation?
4. Technologies are great, but not end-all-be-all
Identify | Understand / Addressing | Intervene

Demographics
- Race/Ethnicity
- Age
- Sex

Social Determinants of Health
- Education
- Occupation
- Employment
- Income
- Social Support
- Culture
- Language

Health Literacy

Healthcare System
- Health Education / Readability
- Support Technologies
- Mass Media

Provider
- Communication Skills
- Teaching Ability
- Time spent at each encounter

Patient
- Self-Efficacy and Motivation
- Navigation Skills

Outcomes


K12 HS023009 AHRQ Mentored Career Development Award (2017-2019)
“A doctor can make you or break you. They can make you feel like you’re an idiot, and talk above your head.”

“There should’ve been a little bit more education ... it’s really just thrown at you at once.”

This young doctor, he just broke it down so smooth. I can understand a lot of stuff, but he made it so simple.”

Providers are important barriers and facilitators to adequate understanding.
Not all surgeons talk the same! | Speech Rate

Average Surgeon Speech Rate

* p<0.05
Not all surgeons talk the same! | Understandability

**FKES**

- Surgeon 1: 70
- Surgeon 2: 74
- Surgeon 3: 72
- Surgeon 4: 78

* p<0.05

**SMOG**

- Surgeon 1: 4
- Surgeon 2: 4.5
- Surgeon 3: 5
- Surgeon 4: 5.5

* p<0.05

---

*Understandability*
Not all surgeons talk the same! | Fast ≠ Understanding

**FKES vs. Speech Rate**

- X-axis: Physician Speech Rate (words/min)
- Y-axis: Average FKES
- Graph shows a negative correlation between FKES and speech rate.
- Legend: Less Understandable

**SMOG vs. Speech Rate**

- X-axis: Physician Speech Rate (words/min)
- Y-axis: Average SMOG
- Graph shows a positive correlation between SMOG and speech rate.
- Legend: Less Understandable

* p<0.05
Not all surgeons talk the same! | Visit Time

Health Literacy vs Average Length of Visit

<table>
<thead>
<tr>
<th>Health Literacy Level</th>
<th>Average Length of Visit (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited</td>
<td>300</td>
</tr>
<tr>
<td>Marginal</td>
<td>600</td>
</tr>
<tr>
<td>Adequate</td>
<td>700</td>
</tr>
</tbody>
</table>

Health Literacy vs Patient Understanding

<table>
<thead>
<tr>
<th>Health Literacy Level</th>
<th>Average Patient Understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited</td>
<td>3</td>
</tr>
<tr>
<td>Marginal</td>
<td>4</td>
</tr>
<tr>
<td>Adequate</td>
<td>5</td>
</tr>
</tbody>
</table>
• **Teach-back or show-back**
  - Tell me your understanding
  - How will you describe this to your family?

• **Ask Me 3 ® (aim to answer these questions)**
  - What is my main problem? *[diagnosis]*
  - What do I need to do? *[treatment]*
  - Why is it important that I do this? *[benefits/context]*

• **Slow down**

• **Use plain language, pictures and teaching tools**

---

**Avoid asking**

Do you understand?
Do you have any questions?
Identify | Understand | Intervene

Health Literacy

Demographics
- Race/Ethnicity
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- Self-Efficacy and Motivation
- Navigation Skills

Outcomes


K23 MD013903 NIH Career Development Award (2019-2022)
Health literacy **matters** in surgery and opportunities exist to make surgical care **more health literate**.