Health care provider perceptions of parents' health literacy and effect on treatment recommendations for pediatric asthma patients

Kristen Haven, MA
Lynn B. Gerald, PhD, MSPH
Kathleen Harrington, PhD, MPH

Context: parents and providers

- Parents are key agents in pediatric asthma management
- Low parent health literacy associated with worse pediatric health outcomes and poor asthma home management
- Provider attitudes about patients can affect communication with the patient/parent, and these attitudes are a possible source of health disparity
Context: asthma management

• Involves a lot of technical information
• Example: interpreting peak flow readings
  • Uses ranges of percentages
  • Requires relatively high (proficient) comprehension and numeracy
• See sample Asthma Action Plan
  • Relatively simple language and color coding, but still includes many components to synthesize

Context: health literacy

• Helps to explain discrepancies not explained by access
• Definitions vary:
  • Subset of reading literacy
  • More expansive: finding, understanding, evaluating, communicating, and using information
• Example: understanding how/when to take a medication, purpose of the medication, reason for instructions, etc.
Context: health literacy

- ~25% of adults at basic or below basic HL
  - Lower HL for minorities, low education level, elderly
  - 88% of adults are below proficient
- Low parental HL associated with
  - More ED visits
  - School absences
  - Over- or mis-use of asthma medication

Current study

- How do providers of pediatric asthma care perceive the health literacy of their patients’ parents?
- How accurate are providers in assessing parent health literacy in comparison with parent scores on HL tools?
- How do provider perceptions affect treatment recommendations given and instructional strategies employed?
- What influences providers’ perceptions?
Methods

- 281 parents of 6-12 year old asthma patients recruited at clinic visits
  - All repeat patients
- 13 providers (NPs and MDs)
- Parents completed TOFHLA and demographic survey
- Providers were surveyed after the patient/parent visit
- 6 providers interviewed in depth

TOFHLA

- Test of Functional Health Literacy in Adults
- 50 questions testing reading comprehension
  - In context of common health and healthcare situations and language
- 17 questions testing numeracy
- Can take up to 22 minutes to administer
- Short versions and translated versions exist
Questions for providers

• What is the parent’s health literacy level? (inadequate, marginal, adequate)
• Did this perception cause you to change how you gave treatment instructions? (Y/N)
• Did this perception influence what treatment recommendations you made? (Y/N)
• What is the parent’s ability to carry out your treatment recommendations for the child’s asthma? (excellent, very good, good, fair, poor)

Analyses

• Kappa tested agreement
• Chi-square tested associations
• Logistic regression tested associations found significant in bivariate tests
• Interviews coded using qualitative methods
Results: demographics

- Complete data for 277 parent-child pairs
- 95% female
- 87% African-American
- 83% had at least a high school diploma or equivalent
- 50% had household income of <$20,000

Results: overview

- Most parents (90.6%) scored as having adequate health literacy on TOFHLA
- Providers rated 64.3% as adequate
  - Low concordance with TOFHLA
- Providers more likely to score parents adequate who were white
- Providers more likely to score accurately parents who were white, with higher education levels
Comparison of parent TOFHLA scores and provider ratings

<table>
<thead>
<tr>
<th>TOFHLA scores</th>
<th>Inadequate</th>
<th>Marginal</th>
<th>Adequate</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>6.9</td>
</tr>
<tr>
<td>Marginal</td>
<td>4</td>
<td>10</td>
<td>66</td>
<td>28.6</td>
</tr>
<tr>
<td>Adequate</td>
<td>1</td>
<td>7</td>
<td>170</td>
<td>64.3</td>
</tr>
<tr>
<td>%</td>
<td>1.8</td>
<td>7.6</td>
<td>90.6</td>
<td>100</td>
</tr>
</tbody>
</table>

Agreement = 1.8, Over = 7.6, Under = 90.6

Provider ratings of parent health literacy and influence on treatment recommendations and how they are given, and perception of parent ability to carry them out

<table>
<thead>
<tr>
<th>Parent health literacy rating by provider</th>
<th>Inadequate n=19</th>
<th>Marginal n=80</th>
<th>Adequate n=178</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changed recommendations</td>
<td>21.1%</td>
<td>48.8%</td>
<td>25.8%</td>
<td>0.001</td>
</tr>
<tr>
<td>Changed instruction method</td>
<td><strong>97.7%</strong></td>
<td>77.5%</td>
<td>61.2%</td>
<td><strong>0.001</strong></td>
</tr>
<tr>
<td>Ability to carry out treatment</td>
<td>Poor or Fair</td>
<td>84%</td>
<td>53%</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>16%</td>
<td>35%</td>
<td><strong>&lt;0.0001</strong></td>
</tr>
<tr>
<td></td>
<td>Very good or excellent</td>
<td>0%</td>
<td>13%</td>
<td>57%</td>
</tr>
</tbody>
</table>
Results: qualitative

- Factors influencing assessment of parent HL
  - Parent ability to verbally communicate
  - Previous knowledge of the parent
  - Contradictions during visit
- Strategies and adjustments
  - Simplify plan
  - Color images
  - Analogies
  - Reducing amount of information
  - Teach-back

Conclusions

- Pediatric provider perceptions of parent health literacy, based primarily on parents’ verbal exchange skills, have low agreement with a validated measure
- Perceptions were associated with recommended treatment, instructional strategies, and perceived parent ability to carry out the treatment plan
Recommendations

- Provider awareness of how biases may impact communication and recommendations
- Promotion of communication strategies and teaching tools
- Continued research and outreach/advocacy to improve health literacy

Discussion questions

- Other implications?
- Future research?
- Strengths, weaknesses?
- We asked “how accurate are providers in assessing parent health literacy in comparison with parent scores on validated HL tools?”
  - Conversely, how accurate are these tools?
  - In other words, who is right?
- What should or could health literacy interventions entail?
- Alternatives to health literacy measurement tools?