Ways to Reduce the Learning Demands that Magnify Health Disparities

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Cleveland Roundtable Community Council
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If: Learning problems

Then: Learning gaps

Health problems

Health disparities
Influences on Person’s Health

**External**  
“Exposure”  
- Resources  
  - Income  
  - Insurance  
  - High quality care  
- Risks  
  - Discrimination  
  - Unhealthy environs

**Internal**  
“Susceptibility”  
- Values  
- Motivation  
- Interests  
- Trust/fear  
- Knowledge  
- Abilities

“Will Do”  
“Can Do”

Equally good conditions?  
Equally effective use?
Why Look at Abilities?

• Mostly ignored in health literature
• But an important influence on health
• So a new window of opportunity
• Especially for narrowing health disparities
  And—
• The “intervention paradox” requires it
Paradoxical Effect of Equalizing Resources Across Groups

• Health disparities increase
  – When health care is made more widely available (Britain with national health care)
  – When health information is made more widely available (signs and symptoms of cancer, diabetes, etc.)

This happens with many sorts of social interventions—
Better learners are better able to exploit the same resources.
Which Abilities Matter Most?

If same pattern holds as in work and school, then:
- Mental (not physical or social)
- Most general

\[ g = \text{Skill at processing complex information} + \text{Any kind of content} \]
What Is The General Factor ($g$)?

*Measured well by:* IQ tests

*But aren’t they biased?* (more on that later)

Everyday meaning:

*Adept learning and reasoning*
Typical Learning Needs at Different IQs

- **Slow, simple, concrete, one-on-one instruction** (below 70 IQ)
- **Very explicit, structured, hands-on** (70-90 IQ)
- **Mastery learning, hands-on** (90-110 IQ)
- **Learns well in college format** (110-120 IQ)
- **Can gather, infer information on own** (120-130 IQ)
How Stable Is IQ/g?

1. Raw mental horsepower (ability to learn and reason) rises into early adulthood, then falls
How Stable Is IQ/g?

1. Raw mental horsepower (ability to learn and reason) rises into early adulthood, then falls.

2. But score *relative to age mates* ("IQ") is stable from adolescence on (it could not predict health otherwise).

3. There is no known way to change 1 or 2 above.
Does IQ Predict Health?

• Childhood IQ predicts adult mortality
• 8 big cohort studies

<table>
<thead>
<tr>
<th>(Whites)</th>
<th>Birth yr</th>
<th>IQ age</th>
<th>Followed to</th>
<th>(N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>1947-53</td>
<td>18</td>
<td>29-35</td>
<td>1786</td>
</tr>
<tr>
<td>Britain</td>
<td>1947</td>
<td>8</td>
<td>54</td>
<td>2057</td>
</tr>
<tr>
<td>Denmark</td>
<td>1953</td>
<td>12</td>
<td>48</td>
<td>7319</td>
</tr>
<tr>
<td>Scotland</td>
<td>1946-52</td>
<td>11</td>
<td>50-56</td>
<td>11,859</td>
</tr>
<tr>
<td>Scotland</td>
<td>1936</td>
<td>11</td>
<td>65</td>
<td>908</td>
</tr>
<tr>
<td>Scotland</td>
<td>1921</td>
<td>11</td>
<td>80</td>
<td>922</td>
</tr>
<tr>
<td>Scotland</td>
<td>1921</td>
<td>11</td>
<td>76</td>
<td>2217</td>
</tr>
<tr>
<td>Sweden</td>
<td>1936</td>
<td>10</td>
<td>43</td>
<td>831</td>
</tr>
</tbody>
</table>
How Well Does IQ Predict Mortality?

8 big studies

Death rate is twice at high below IQ 90 as above IQ 110

1 more IQ point = 1% lower death rate

IQ

70          80            90          100          110          120          130

Bottom ¼

2X

Top ¼

3X

X (death rate)

MR          IQ          MG
Example: Motor Vehicle Deaths

<table>
<thead>
<tr>
<th>Australian veterans followed to age 40</th>
<th>Death rate per 10,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>IQ: above 115</td>
<td>51.3</td>
</tr>
<tr>
<td>100-115</td>
<td>51.5</td>
</tr>
<tr>
<td>85-100</td>
<td>92.2</td>
</tr>
<tr>
<td>80-85</td>
<td>146.7</td>
</tr>
</tbody>
</table>

“People with lower IQ may have a poorer ability to assess risks and, consequently, may take more risks in their driving.”
**Is IQ Causal?**

IQ predicts better than socioeconomic status (SES)

- **Australia (IQ at Army induction)**
  - All-cause mortality (before age 40)
  - Motor vehicle deaths
  - Suicide

- **Scotland (IQ at age 11)**
  - Longevity (6 decades later)
  - Heart disease, lung cancer mortality
  - Smoking cessation

**If we take SES seriously, we have to take IQ seriously.**
One Causal Dynamic

Lower IQ

Learning & reasoning problems

Health-damaging behaviors

More health problems
Non-IQ Evidence for Impact of Learning-Reasoning Ability

• Functional literacy
• Health literacy
## Functional Literacy in Daily Life

(National Adult Literacy Survey, 1993)

<table>
<thead>
<tr>
<th>NALS Level</th>
<th>% pop (white)</th>
<th>Reading grade level</th>
<th>Simulated Everyday Tasks</th>
</tr>
</thead>
</table>
| 1          | 14%            | 2.5                 | ▪ Total bank deposit entry  
▪ Locate expiration date on driver’s license |
| 2          | 25%            | 7.2                 | ▪ Determine difference in price between 2 show tickets  
▪ Locate intersection on street map |
| 3          | 36%            | 12                  | ▪ Calculate miles per gallon from mileage record chart  
▪ Write brief letter explaining error on credit card bill |
| 4          | 21%            | 16                  | ▪ Use eligibility pamphlet to calculate SSI benefits  
▪ Explain difference between 2 types of employee benefits |
| 5          | 4%             | 16+                 | ▪ Use calculator to determine cost of carpet for a room  
▪ Use table of information to compare 2 credit cards |
# Functional Literacy in Daily Life

<table>
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<th>NALS Level</th>
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<tr>
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<td>36%</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>21%</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>4%</td>
<td>16+</td>
</tr>
</tbody>
</table>

**Just a sample of the many tasks adults expected to learn on own**

**NOT READING PER SE, BUT:**
- “complex information processing skills”
- “verbal comprehension & reasoning”
- “ability to understand, analyze, evaluate”

\( g \)

Predicts life outcomes in same pattern as does IQ
• “Problem-solving abilities”
• “Ability to acquire new information and complete complex cognitive tasks”

Health literacy (TOFHLA)

• More health knowledge
• Better health
• Less hospitalization
• Lower health costs/year
Example: Non-Adherence

- Patients examine the actual vials or documents

<table>
<thead>
<tr>
<th>% of urban hospital outpatients not knowing:</th>
<th>Health literacy level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V-low</td>
</tr>
<tr>
<td>How to take meds 4 times per day</td>
<td>24</td>
</tr>
<tr>
<td>When next appointment is scheduled</td>
<td>40</td>
</tr>
<tr>
<td>How many pills of a prescription to take</td>
<td>70</td>
</tr>
<tr>
<td>What an informed consent form is saying</td>
<td>95</td>
</tr>
</tbody>
</table>

Many professionals have no idea how difficult these “simple” things are for others.
Non-Adherence Is Huge Problem

Literacy researchers have concluded:

• It often results from patients failing to “learn, reason, & problem-solve” (not willful non-compliance)

• It can be a matter of life & death

“Ability to learn and correctly follow the treatment regimen for a heart attack will determine a trajectory toward recovery or a downward path to recurrent myocardial infarction, disability, and death.”
Chronic Illnesses Require Foresight & Prevention

- Keep informed
- Live healthy lifestyle
- Get preventive checkups
- Detect signs and symptoms
- Seek timely, appropriate medical attention

All require independent learning & reasoning
Chronic Illnesses Require Self-Regulation

• Follow treatment regimen
  – Use medications as prescribed
  – Diet, exercise, no smoking, etc.
  – Including for diseases without outward signs (e.g., hypertension)

• Monitor daily signs and symptoms
• Adjust medication and behavior in response to signs
• Have regular check-ups

All require independent learning & reasoning
Example: Self-Regulation to Limit Damage

<table>
<thead>
<tr>
<th>Urban hospital outpatients: % diabetics <strong>not</strong> knowing that:</th>
<th>Health literacy level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Signal:</strong> Thirsty/tired/weak usually means blood sugar too high</td>
<td>V-low: 40</td>
</tr>
<tr>
<td><strong>Action:</strong> Exercise lowers blood sugar</td>
<td>V-low: 60</td>
</tr>
<tr>
<td><strong>Signal:</strong> Suddenly sweaty/shaky/hungry usually means blood sugar too low</td>
<td>V-low: 50</td>
</tr>
<tr>
<td><strong>Action:</strong> Eat some form of sugar</td>
<td>V-low: 62</td>
</tr>
</tbody>
</table>
Recap: Individual Differences

- Individuals differ in learning ability
  - Differences span wide range
  - Resist change
  - Affect personal well-being
  - We must respect & accommodate adults as they are

High risk zone

“Inadequate learning syndrome” (ILS)
Intro: Group Differences

• IQ tests not biased (predict equally well for American whites, blacks, Hispanics)—if native speaker

• Score gaps represent real gaps in ability
  – Gaps are the rule, not the exception
  – Vary in size
  – Resist change
  – Have practical consequences
  – Sources still not clear

• Implication for providers: Respect and accommodate adults as they are
Intro: Group Differences

• IQ tests not biased (predict equally well for American white
  speaker)

• Score gaps represent real gaps in ability
  – Gaps are the rule, not the exception
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• Implication for providers: Respect and accommodate adults as they are

These conclusions are:
• Scientifically mainstream
• Often from researchers who intended to prove the opposite
• Distorted by the media
Gaps in Ability to Learn: Two Aspects

High risk zone

Gap in averages

General learning ability

Gap in proportions at risk ("disparate impact")
If:
Learning problems

Then:
Learning gaps

Health problems

Health disparities

We should assume that learning gaps help create health disparities
## Example 1: Gaps in Functional Literacy

| NALS Level | % pop (white) | % pop (black) | **Simulated Everyday Tasks**
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Adults aged 16+</td>
</tr>
<tr>
<td>1</td>
<td>14%</td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>25%</td>
<td>37%</td>
<td><strong>At high risk</strong> (National Goals Panel)</td>
</tr>
</tbody>
</table>
| 3           | 36%           | 21%           | • Calculate miles per gallon from mileage record chart
|             |               |               | • Write brief letter explaining error on credit card bill |
| 4           | 21%           | 4%            | • Use eligibility pamphlet to calculate SSI benefits
|             |               |               | • Explain difference between 2 types of employee benefits |
| 5           | 4%            | <1%           | • Use calculator to determine cost of carpet for a room
|             |               |               | • Use table of information to compare 2 credit cards |
## Example 2: Gaps in Functional Literacy

<table>
<thead>
<tr>
<th>NALS Level</th>
<th>% pop (white)</th>
<th>% pop (Hisp/Mex)</th>
<th>Simulated Everyday Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>14%</td>
<td>54%</td>
<td>Adults aged 16+</td>
</tr>
<tr>
<td>2</td>
<td>25%</td>
<td>25%</td>
<td></td>
</tr>
</tbody>
</table>
| 3          | 36%           | 16%              | - Calculate miles per gallon from mileage record chart  
- Write brief letter explaining error on credit card bill  
- Use eligibility pamphlet to calculate SSI benefits  
- Explain difference between 2 types of employee benefits |
| 4          | 21%           | 5%               | - Use calculator to determine cost of carpet for a room  
- Use table of information to compare 2 credit cards |
| 5          | 4%            | <1%              | - At high risk (National Goals Panel)  
- 48% foreign born |
Recap: Group Disparities

• Health disparities result partly from learning gaps

• There appears to be nothing inherently racial about gaps in learning ability
  – Basic learning and reasoning processes are the same
  – All groups span the full range of ability
  – Inadequate learning creates big problems, regardless of a person’s race
  – Groups differ only in their proportions of more and less effective learners
New Windows of Opportunity

Educational psychology

Career counseling psychology

Cognitive differences psychology

Employee selection psychology

"Applied" fields

g
Who Guards Your Health?

Consider chronic illnesses

- “Slow-acting, long-term killers that can be treated but not cured”
- **Self-care** is as important as medical care
  - Diet, exercise, no drug or alcohol abuse
  - Preventive checkups, adherence to treatment
  - Safety precautions (condoms)
- Require continued need “to learn,” “reason,” and “solve problems”

Mostly you!
Health Self-Care Is Like a Job

• Set of duties
  – Duties change with time & technology
  – Effects of bad performance add up

  Chronic illnesses, injuries

• Performance is affected by:
  – Access to the necessary resources
  – Abilities, motivation, knowledge
  – Keeping up-to-date
  – Access to extra help when needed

A life-long career with no vacations or retirement.
Jobs and $g$

• Major findings--on worker traits that best predict job performance

  – $g$ is useful in all jobs (so is conscientiousness)
  – $g$’s usefulness does not fade with experience
  – $g$ is the best single predictor of job performance (except in simple jobs)
  – $g$ is more useful in more complex jobs

All seem true of $g$ in health, too.
What Makes Jobs More Complex?

• Complexity of information processing required
  – Complexity rises when jobs involve more:
    • Reasoning, analysis, planning, advising
    • Self-direction, independent learning and decision making
    • Gathering information, spotting problems, setting priorities
    • Changing, ambiguous, or unpredictable situations

All are true of health self-care, too.
Complexity: The Active Ingredient in Functional Literacy Items, Too

<table>
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<tr>
<th>NALS Level</th>
<th>% pop (white)</th>
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<td>Total bank deposit entry</td>
<td>2</td>
<td>25%</td>
<td>7.2</td>
<td>Determine difference in price</td>
</tr>
<tr>
<td>2</td>
<td>25%</td>
<td></td>
<td>Locate expiration date on driver's license</td>
<td>4</td>
<td>21%</td>
<td>16</td>
<td>Use eligibility pamphlet to calculate SSI benefits</td>
</tr>
<tr>
<td>3</td>
<td>36%</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Explain difference between 2 types of employee benefits</td>
</tr>
<tr>
<td>4</td>
<td>21%</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Use calculator to determine cost of carpet for a room</td>
</tr>
<tr>
<td>5</td>
<td>4%</td>
<td>16+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Locate intersection on street map</td>
</tr>
</tbody>
</table>

*Item difficulty is from “process complexity”*

- Level of inference
- Abstractness of info
- Distracting info

Items just a sample of the many tasks that adults expected to learn on own

Health ed says use Grade 5

Items just a sample of the many tasks that adults expected to learn on own

NALS says use Grade 5
You are a marketing manager for a small manufacturing firm. This graph shows your company’s sales over the last three years. Given the seasonal pattern shown on the graph, predict the sales for Spring 1985 (in thousands) by putting an “x” on the graph.

Simple inference
Little distracting information
Example: NALS Level 4

On Saturday afternoon, if you miss the 2:35 bus leaving Hancock and Buena Ventura going to Flintridge and Academy, how long will you have to wait for the next bus?

More elements to match

More inferences

More distracting information
### Ability Demands of Complex Work

#### Complex jobs require you to:

*Applied to health*

<table>
<thead>
<tr>
<th>Task</th>
<th>Correlation with overall job complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learn and recall relevant information <em>(symptoms)</em></td>
<td>.75</td>
</tr>
<tr>
<td>Reason and make judgments <em>(timely preventive care)</em></td>
<td>.71</td>
</tr>
<tr>
<td>Deal with unexpected situations</td>
<td>.69</td>
</tr>
<tr>
<td>Identify problem situations quickly <em>(hazards)</em></td>
<td>.69</td>
</tr>
<tr>
<td>React swiftly when unexpected problems occur <em>(injuries, asthma attack)</em></td>
<td>.67</td>
</tr>
<tr>
<td>Apply common sense to solve problems</td>
<td>.66</td>
</tr>
<tr>
<td>Learn new procedures quickly <em>(treatment regimens)</em></td>
<td>.66</td>
</tr>
<tr>
<td>Be alert &amp; quick to understand things <em>(feverish child)</em></td>
<td>.55</td>
</tr>
</tbody>
</table>
The Complexity Dynamic

- Tasks that are more complex
  - put a bigger premium on learning-reasoning ability
  - lead to bigger differences in task performance
Complexity Dynamic: Example

Look! I just invented writing!

Thanks a lot!... You just made everybody else in the world illiterate!
Creates Accordion Effect

• Gaps small when learning demands are light

• Gaps large when learning demands are heavy

Common in schools and jobs
Rising Complexity: An Engine for Bigger Disparities

Treatment regimens becoming more complex

• Heart attacks
  – 1960’s—just “good luck”
  – Now often includes:
    • regimen of aspirin, β-blocker, angiotensin-converting enzyme inhibitor
    • low-salt and low-cholesterol diet
    • Medicine to control hypertension, diabetes, & hypercholesterolemia

Same learning gaps will pose a growing challenge
But Much Complexity is Unnecessary
Unnecessary Complexity!

Back of a box of cold medicine

INDICATIONS: These Maximum Strength Tablets contain four effective ingredients for the temporary relief of these major cold and flu symptoms: A Nasal Decongestant — to relieve stuffy nose and sinus congestion. An Antihistamine — to dry up runny nose and relieve sneezing. A Cough Suppressant — to quiet cough. A Non-Aspirin Analgesic — to relieve headache, fever, minor sore throat pain and body aches and pain.

DIRECTIONS: Adults: 2 tablets every 6 hours while symptoms persist, not to exceed 8 tablets in 24 hours, or as directed by a doctor. Children under 12: Consult a doctor.

WARNINGS: KEEP THIS AND ALL OTHER MEDICATIONS OUT OF THE REACH OF CHILDREN. IN CASE OF ACCIDENTAL OVERDOSE, SEEK PROFESSIONAL ASSISTANCE OR CONTACT A POISON CONTROL CENTER IMMEDIATELY. PROMPT MEDICAL ATTENTION IS CRITICAL FOR ADULTS AS WELL AS FOR CHILDREN. Ask your health professional before using this product. Do not give this product to children under 12 years of age.

Only 61% of adults

Cluttered
Poor chunking
Hard words
Key points buried
### Drug Facts

**Active ingredients (in each softgel)**
- Guaifenesin, USP 200 mg
- Pseudoephedrine HCl, USP 30 mg

**Purpose**
- Expectorant
- Nasal decongestant

**Uses**
- temporarily relieves nasal congestion associated with
  - the common cold
  - hay fever
  - upper respiratory allergies
  - sinusitis
- helps loosen phlegm (mucus) and thin bronchial secretions to make coughs more productive

**Warnings**
- Do not use if you are now taking a prescription monoamine oxidase inhibitor (MAOI) (certain drugs for depression, psychiatric, or emotional conditions, or Parkinson’s disease), or for 2 weeks after stopping the MAOI drug. If you do not know if your prescription drug contains an MAOI, ask a doctor or pharmacist before taking this product.
- Ask a doctor before use if you have
  - heart disease
  - high blood pressure
  - thyroid disease
  - diabetes
  - trouble urinating due to an enlarged prostate gland
- cough that occurs with too much phlegm (mucus)
- cough that lasts or is chronic such as occurs with smoking, asthma, chronic bronchitis, or emphysema

**When using this product do not use more than directed**

**Drug Facts (continued)**

- Stop use and ask a doctor if
  - you get nervous, dizzy, or sleepless
  - symptoms do not get better within 7 days or are accompanied by fever
- cough lasts more than 7 days, comes back, or is accompanied by fever, rash, or persistent headache. These could be signs of a serious condition.

**If pregnant or breast-feeding, ask a health professional before use**
**Keep out of reach of children.** In case of overdose, get medical help or contact a Poison Control Center right away.

#### Directions

- do not use more than 4 doses in any 24-hour period

<table>
<thead>
<tr>
<th>Age</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>adults and children 12 years and over</td>
<td>2 softgels every 4 hours</td>
</tr>
<tr>
<td>children 6 to under 12 years</td>
<td>1 softgel every 4 hours</td>
</tr>
<tr>
<td>children under 6 years</td>
<td>ask a doctor</td>
</tr>
</tbody>
</table>

**Store**
- at 20-25°C (68-77°F)

**Inactive ingredients**
- FD&C green no. 3, gelatin, glycerin, mannitol, pharmaceutical glaze, polyethylene glycol, povidone, propylene glycol, sorbitan, sorbitol, titanium dioxide, water
3 Points of Leverage

1. Mobilize person’s abilities
2. Provide cognitive assistance
3. Reduce task complexity
Cognitive Support

• Excellent material available
  – Multicultural school psychology (new handbook out soon)
  – Health education

• Audit available cognitive resources
  – Need level: Profile of patient population
  – External supports & information diffusers: Staff (times, locales, cost), media, community leaders

• Best practices that adapt good instructional strategies to health
• Guides for creating more readable materials

Pick one thing to audit
Mobilize Potential

• Helpful discipline—career counseling

• Goals
  – Concept of life career
  – Serve individuals, not groups
  – Finding beneficial person-environment “fit”
  – Mobilize potential to develop skills

• Means
  – Assess personal strengths, weaknesses, values, constraints
  – Identify & reduce barriers
  – Promote habit of self-agency in matters they can control

• Common ethical concern
  – How to accommodate ability differences without labeling or restricting opportunity

• Counseling’s experience can help clarify goals

• Find short learning-reasoning test

Lever 1
Learning-Reasoning Test

• Helpful discipline—Ability testing

• What content?
  – Any kind of cognitively demanding material will work, if carefully chosen
    • Caution: May understate client learning & reasoning ability if speaks different language or recent immigrant
  – Better to have “face validity” (not look like IQ test)
    • “Literacy,” “background knowledge,” “skills,” “information needs”
  – Seem (and be) a tool for better knowing, serving, & showing interest in clients as individuals
    • Not something where they fear “looking stupid.”

• Best practices in ability testing
Learning-Reasoning Test

• How long a test?
  – Only broad distinctions required: 3-5 levels
    • TOFHLA has 3 (very-low, low, adequate)
    • REALM has 4 reading levels (Grade 3 or lower, 4-6, 7-8, 9-12)
  – Short is best (10 minutes or less)
    • TOFHLA, short version takes 10
    • REALM takes 2-3
    • Many IQ tests have short versions (use for special purposes only)

TOFHLA = Test of Functional Health Literacy of Adults
REALM = Rapid Estimate of Adult Literacy in Medicine
Complexity Audit

• Helpful disciplines—job analysis, accident analysis

• Priorities for audit
  – Outline of the “forest:” health self-care as life career
  – One or two “trees:” diabetes, hypertension?

• Develop a complexity rating procedure
  – Complexity of individual tasks
  – Complexity of task configuration & sequencing
• Identify points of vulnerability/overload
• Identify complexity that is inherent vs. unnecessary

New

• Best practices in job analysis
• Best practices in human error probability analysis
Building Blocks of Complexity: Examples

• Individual tasks
  – Abstract, unseen processes, cause-effect
  – Degree of inference, amount of information to integrate
  – Ambiguous, if-then requirements
  – Distracting information or events

• Task constellation
  – Multi-tasking, prioritizing
  – Sequencing, timing, coordinating
  – Unpredictable, changing conditions
  – Changing mix of tasks
  – Degree of supervision, need for independent judgment

• All these are cognitive hurdles for patients

Diabetes
• Multiple & interacting factors to control (food, exercise)
• No recipe to follow—circumstances vary & bodies differ
• Must monitor self constantly to avoid problems
• High sugar has no obvious bad effects when it occurs, so must conceptualize internal compounding damage
• Helps to understand abstract category of “carbohydrate” (not just refined sugar)
More Examples of Cognitive Hurdles

• Hypertension
  – No outward symptoms
  – Requires change in life style
  – So nuisance is obvious but benefit is not

• Asthma
  – Symptoms are obvious, but benefits of the superior drug are not
  – Brochodilators give immediate but temporary relief
  – Inhaled steroids don’t give fast relief but provide better long-term control
  – Some providers in low-education neighborhoods less often prescribe the more effective medication, perhaps because many patients don’t adhere to treatments with no obvious benefits
Bottom Line

- Material barriers are important, but so too are mental ones.
- We can:
  - **Know** patients’ mental resources
  - **Assist** by providing cognitive support
  - **Reduce** cognitive barriers where possible
  - **Expect** to make a difference
- Impact:
  - Help those who need it most
  - Narrow disparities
Bibliography

Brief overviews of major research findings on general intelligence for the general reader

IQ, Functional Literacy, and Everyday Life

IQ, Health, and Health Knowledge

Health literacy and patient outcomes
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