American Nursing Informatics Association

The purpose is to advance the field of nursing informatics through communication, education, research and professional activities.
American Nursing Informatics Association

- History
  - CARING - 1982
  - ANIA - 1992
  - Merge of ANIA and CARING 2010
- Three Regions
  - West
  - Central
  - East
- 13 National Chapters
- Nursing Informatics Today – Quarterly Publication
- 11 Member Board
  - Meets Quarterly
ANIA 2016

• April 21 – 23
• Certification Review Course
• Member $500 by 3/17
• Hyatt Regency Embarcadero
  • Room Rate $219
Conflict of Interest Statement

Charles Boicey is the Chief Innovation Officer for Clearsense
Objectives

- The participant will be able to state the differences between Public Health and Population Health.
- The participant will list the data sources required to adequately assess a population.
- The participant will describe the key components of a “Community Needs Assessment.”
“The doctor of the future will give no medicine, but instead will interest his patients in the care of human frame, in diet, and in the cause and prevention of disease”.

Thomas Edison (1847 – 1931)
Be Original Already

- Keep an open mind
- Don’t work alone
- Ask lots of questions
- Explore
- Learn then rebel

https://youtu.be/Uq-FOOQ1TpE
Thinking Differently

“Look for patterns and ask why those patterns exist.”

“Embrace curiosity, be open, playful, and persistent.”

Debra Kaye
“Design is the action of bringing something new and desired into existence—a proactive stance that resolves or dissolves problematic situations by design. It is a compound of routine, adaptive and design expertise brought to bear on complex dynamic situations.”

Harold Nelson
We are all DESIGNERS!

**Empathize**
Learn about the audience for whom you are designing, by observation and interview. *Who is my user? What matters to this person?*

**Define**
Create a point of view that is based on user needs and insights. *What are their needs?*

**Ideate**
Brainstorm and come up with as many creative solutions as possible. *Wild ideas encouraged!*

**Prototype**
Build a representation of one or more of your ideas to show to others. *How can I show my idea? Remember: A prototype is just a rough draft!*

**Test**
Share your prototyped idea with your original user for feedback. *What worked? What didn’t?*
Public Health

The broader current definition of the public health system offered by the Institute of Medicine reaches beyond this narrow governmental view. Its report, The Future of the Public’s Health in the 21st Century, calls for significant movement in “building a new generation of intersectoral partnerships that draw on the perspectives and resources of diverse communities and actively engage them in health action.”

Population Health

Health Outcomes

- Length of Life (50%)
- Quality of Life (50%)

Health Factors

- Health Behaviors (30%)
- Clinical Care (20%)
- Social & Economic Factors (40%)
- Physical Environment (10%)

Policies & Programs

- Tobacco Use
- Diet & Exercise
- Alcohol & Drug Use
- Sexual Activity
- Access to Care
- Quality of Care
- Education
- Employment
- Income
- Family & Social Support
- Community Safety
- Air & Water Quality
- Housing & Transit

County Health Rankings model © 2014 UWPHI

Robert Woods Johnson Foundation 2014
Moving Beyond Clinical & Billing Data

- Health Issues: Conditions, Services, Beliefs
- Lifestyle and Behaviors: Demographics, Activities, Beliefs and Opinions
- Engagement: Use of Technology, Communications, Engagement
- Clinical & Billing
Taking the Lead from Retail
Health Issues
Chronic Diseases
Cancer
Conditions Have
Conditions Treated
Conditions Not Treated
Mental Health

Care Access and Utilization
Care Utilization
Medications
Health Insurance
Insurance Purchasing
Discussed with Provider

Demographics
Gender, Age, Education
Household Composition
Life Changes and Housing
Language and Ethnicity
Employment
Income and Assets
Financial
Transportation

Communications
Social Isolation
Patient Education
Digital Engagement
Health Marketing
Activities and Destinations

Health Activities and Beliefs
Smoking
Alcohol
Diet and Weight Loss
Exercise
Health Attitudes
Perception of Wellness
What are the Health Disparities of the Medicaid/Uninsured Population?

<table>
<thead>
<tr>
<th>Audience</th>
<th>% Population</th>
<th>Suffolk County, NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis</td>
<td>8.2%</td>
<td>23,164</td>
</tr>
<tr>
<td>Arthritis (RA/Rheumatoid Arthritis)</td>
<td>1.1%</td>
<td>2,537</td>
</tr>
<tr>
<td>COPD</td>
<td>2.0%</td>
<td>4,420</td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asthma</td>
<td>11.5%</td>
<td>41,734</td>
</tr>
<tr>
<td>Back Pain</td>
<td>19.1%</td>
<td>41,734</td>
</tr>
<tr>
<td>Cancer</td>
<td>6.2%</td>
<td>12,469</td>
</tr>
<tr>
<td>CHF</td>
<td>2.0%</td>
<td>4,258</td>
</tr>
<tr>
<td>Heart Attack/Stroke</td>
<td>1.4%</td>
<td>2,968</td>
</tr>
<tr>
<td>Hypertension</td>
<td>13.7%</td>
<td>29,027</td>
</tr>
<tr>
<td>Depression</td>
<td>7.3%</td>
<td>7,927</td>
</tr>
<tr>
<td>Mental Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obesiy</td>
<td>1 (Underweight = &lt;18.5)</td>
<td>0.6%</td>
</tr>
<tr>
<td></td>
<td>2 (Normal = 18.5-24.9)</td>
<td>37.4%</td>
</tr>
<tr>
<td></td>
<td>3 (Overweight = 25-29.9)</td>
<td>24.5%</td>
</tr>
<tr>
<td></td>
<td>4 (Obesity = 30 or greater)</td>
<td>33.4%</td>
</tr>
</tbody>
</table>
What is the Care Utilization of the Medicaid/Uninsured Population?

### Health Needs: Care Utilization

<table>
<thead>
<tr>
<th>Audience</th>
<th>% Population</th>
<th>Suffolk County, NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicaid/Uninsured</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Practitioners Seen

<table>
<thead>
<tr>
<th>Specialty</th>
<th>% Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>General/Family Practitioner</td>
<td>33.5%</td>
</tr>
<tr>
<td>Dentist</td>
<td>18.8%</td>
</tr>
<tr>
<td>Podiatrist</td>
<td>6.4%</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>8.1%</td>
</tr>
<tr>
<td>Dermatologist</td>
<td>9.9%</td>
</tr>
<tr>
<td>Gastroenterologist</td>
<td>7.4%</td>
</tr>
<tr>
<td>Nurse Practitioner</td>
<td>7.8%</td>
</tr>
<tr>
<td>Physical Therapist</td>
<td>6.6%</td>
</tr>
<tr>
<td>Gastroenterologist</td>
<td>7.4%</td>
</tr>
<tr>
<td>Ear, Nose &amp; Throat</td>
<td>8.8%</td>
</tr>
<tr>
<td>Chiropractor</td>
<td>6.7%</td>
</tr>
<tr>
<td>Pediatrician</td>
<td>6.0%</td>
</tr>
<tr>
<td>Internist</td>
<td>4.7%</td>
</tr>
<tr>
<td>Cardiologist</td>
<td>4.1%</td>
</tr>
<tr>
<td>Allergist</td>
<td>1.6%</td>
</tr>
<tr>
<td>Alternative Health Practitioner</td>
<td>1.5%</td>
</tr>
<tr>
<td>Acupuncturist</td>
<td>0.8%</td>
</tr>
<tr>
<td>Osteopath</td>
<td>0.2%</td>
</tr>
<tr>
<td>Endocrinologist</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

#### Hospitals Used Past 3 Years (Household)

- North Shore University Hospital: 7.3%
- Robert Wood Johnson University Hospital: 6.1%
- Long Island Jewish Medical Center: 6.3%
- Bridgeport Hospital: 6.2%
- Staten Island University Hospital: 3.8%
- Winthrop University Hospital: 3.7%
- Mount Sinai Medical Center: 2.7%
- Hackensack University Medical Center: 2.6%
- Valley Hospital: 2.4%
- St. Joseph’s Hospital: 2.0%
- Saint Barnabas Medical Center: 2.2%
- Rambam Medical Center: 2.1%
- Columbia University Medical Center: 2.1%
- Good Samaritan Hospital Medical Center: 2.1%
- JFK Medical Center: 2.0%
- St. Peter’s University Hospital: 2.0%
- Holy Name Medical Center: 2.0%
- Beth Israel Medical Center (New York): 2.0%
- Monmouth Medical Center: 1.9%
- Overlook Hospital: 1.7%
- Montefiore Medical Center: 1.6%
- Yale/New Haven Hospital: 1.6%
- New York Hospital Queens: 1.5%
- Englewood Hospital: 1.3%
- UMDNJ: 1.2%
- Jersey Shore University Medical Center: 1.2%
- Greenwich Hospital: 1.1%
- Stamford Hospital: 1.1%
- Ocean Medical Center: 0.9%
- New York Presbyterian Hospital: 0.9%
- New York University Langone Medical: 0.9%
- Lenox Hill Hospital: 0.9%
- St. Barnabas Hospital: 0.8%
- Beth Israel Medical Center (Newark): 0.7%
- Riverview Medical Center: 0.7%
- Memorial Sloan-Kettering Cancer Center: 0.7%
- Westchester Medical Center: 0.7%
- Norwalk Hospital: 0.4%
- White Plains Hospital Center: 0.4%
- Griffin Hospital: 0.3%
- Community Medical Center: 0.3%
What is the medication utilization of the Medicaid/Uninsured Population?

Patient Profiler
Health Needs: Medications

<table>
<thead>
<tr>
<th>Audience</th>
<th>% Population</th>
<th>Suffolk County, NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicaid/Uninsured</td>
<td>22.5%</td>
<td>38.5%</td>
</tr>
</tbody>
</table>

Prescriptions
Stories bought past 30 days

<table>
<thead>
<tr>
<th>Any drug store</th>
<th>CVS</th>
<th>Did not buy</th>
<th>Walgreens</th>
<th>By mail order</th>
<th>Walmart</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>72.5%</td>
<td>34.3%</td>
<td>20.5%</td>
<td>18.7%</td>
<td>8.4%</td>
<td>5.2%</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

Prescriptions
Amount Spent Past 3 Months

<table>
<thead>
<tr>
<th>Less Than $50</th>
<th>$50 - $99</th>
<th>$100 - $249</th>
<th>$250 - $499</th>
<th>$500 - $749</th>
<th>$1000 Or More</th>
<th>$750 - $999</th>
<th>$250 - $500</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2%</td>
<td>6.5%</td>
<td>4.6%</td>
<td>2.0%</td>
<td>1.1%</td>
<td>0.6%</td>
<td>0.0%</td>
<td>4.6%</td>
</tr>
</tbody>
</table>

OTC
Amount Spent Past 3 Months

<table>
<thead>
<tr>
<th>Less Than $50</th>
<th>$50 - $99</th>
<th>$100 - $249</th>
<th>$250 - $499</th>
<th>$500 - $749</th>
<th>$1000 Or More</th>
<th>$750 - $999</th>
<th>$250 - $500</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.6%</td>
<td>12.7%</td>
<td>4.2%</td>
<td>0.6%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

RX Brands
Last 12 Months

<table>
<thead>
<tr>
<th>Lipitor</th>
<th>Synthroid</th>
<th>Neurontin</th>
<th>Advair</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.7%</td>
<td>3.9%</td>
<td>1.9%</td>
<td>1.9%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zolof</th>
<th>Singulair</th>
<th>Nasonex</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6%</td>
<td>1.6%</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

OTC Brands
Last 12 Months

<table>
<thead>
<tr>
<th>Advil</th>
<th>Tylenol</th>
<th>Bend Aid</th>
<th>Neosporin</th>
</tr>
</thead>
<tbody>
<tr>
<td>43.7%</td>
<td>42.2%</td>
<td>36.7%</td>
<td>34.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vicks</th>
<th>Tums</th>
<th>Benadryl</th>
<th>Mucinex</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.4%</td>
<td>25.1%</td>
<td>23.2%</td>
<td>22.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aleve</th>
<th>One-A-Day</th>
<th>Robitussin</th>
<th>Bayer</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.5%</td>
<td>17.7%</td>
<td>17.5%</td>
<td>16.6%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aika-Seltzer</th>
<th>Sudafed</th>
<th>Motrin</th>
<th>Claritin</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.9%</td>
<td>14.0%</td>
<td>13.4%</td>
<td>13.0%</td>
</tr>
</tbody>
</table>

| Joy Hot | |
|---------| |
What is the medication utilization of the Medicaid/Uninsured Population?
What does this population believe about their health and use of health care resources?

**Optimization: Health Beliefs**

<table>
<thead>
<tr>
<th>Health Beliefs</th>
<th>% Population</th>
<th>Suffolk County, NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I am sick, I still drag myself to work</td>
<td>63.3% (138,273)</td>
<td>60.8%</td>
</tr>
<tr>
<td>I do everything I can to promote and maintain my personal health and wellness</td>
<td>57.0% (124,553)</td>
<td>63.5%</td>
</tr>
<tr>
<td>I participate in preventative healthcare</td>
<td>46.6% (101,741)</td>
<td>53.7%</td>
</tr>
<tr>
<td>I am concerned that my unhealthy habits will soon catch up with me</td>
<td>34.8% (79,393)</td>
<td>34.4%</td>
</tr>
<tr>
<td>My condition makes it difficult to do complete day-to-day tasks</td>
<td>6.6% (14,432)</td>
<td>9.3%</td>
</tr>
</tbody>
</table>

**Exercise & Diet**

<table>
<thead>
<tr>
<th>Belief</th>
<th>% Population</th>
<th>Suffolk County, NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Consider My Diet To Be Very Healthy</td>
<td>16.7% (36,387)</td>
<td>13.6%</td>
</tr>
<tr>
<td>I Make Sure I Exercise Regularly</td>
<td>17.2% (37,502)</td>
<td>18.6%</td>
</tr>
</tbody>
</table>

**Health & Medicine Beliefs**

<table>
<thead>
<tr>
<th>Belief</th>
<th>% Population</th>
<th>Suffolk County, NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Do Not Seek Help From Doctors Or Nurses Unless I Am Very Sick Or Injured</td>
<td>32.9% (71,904)</td>
<td>26.8%</td>
</tr>
<tr>
<td>I Rarely Get Sick</td>
<td>30.9% (67,397)</td>
<td>32.8%</td>
</tr>
<tr>
<td>I Always Try To Eat Healthy Foods And Maintain A Balanced Diet</td>
<td>24.9% (54,279)</td>
<td>25.4%</td>
</tr>
<tr>
<td>I Believe That The Benefits Of A Preventative Vaccine Outweigh The Risks</td>
<td>23.3% (50,893)</td>
<td>27.5%</td>
</tr>
<tr>
<td>I Take Counsel On Health Issues From My Friends</td>
<td>7.3% (16,041)</td>
<td>3.3%</td>
</tr>
</tbody>
</table>
How Does the Medicaid/Uninsured Population Prefer to Communicate?

### Engagement: Communication

#### Population
- Medicaid/Uninsured

#### Social Media Frequency
- 1 to 2 Times A Day: 11.5% (29,225)
- 4 - 6 Times A Week: 4.6% (10,075)
- Less Than Once A Week: 4.2% (9,216)
- 1 - 3 Times A Week: 2.6% (5,717)

#### Communication Methods
- 

#### Hours Spent per Week
- 30 Minutes To Under 1 Hour
  - Email: 18.2%
  - Taking on Cell/Smartphone: 13.2%
  - Talking on Landline: 7.2%
  - Texting/MM Messaging: 9.5%
- 1 Hour To Under 2 Hours
  - Email: 13.4%
  - Taking on Cell/Smartphone: 10.9%
  - Talking on Landline: 3.6%
  - Texting/MM Messaging: 5.8%
- 2 Hours To Under 5 Hours
  - Email: 6.0%
  - Taking on Cell/Smartphone: 11.5%
  - Talking on Landline: 2.0%
  - Texting/MM Messaging: 9.8%
- 5 Hours To Under 8 Hours
  - Email: 3.4%
  - Taking on Cell/Smartphone: 4.1%
  - Talking on Landline: 2.0%
  - Texting/MM Messaging: 2.0%
- 8 Hours or More
  - Email: 1.3%
  - Taking on Cell/Smartphone: 6.0%
  - Talking on Landline: 0.8%
  - Texting/MM Messaging: 9.0%
How Does this Population Take Control of Their Own Health Education?

Engagement: Health Education

<table>
<thead>
<tr>
<th>Information - First Place Look</th>
<th>Information - Other Place Look</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Population / Suffolk County, NY</td>
<td>% Population / Suffolk County, NY</td>
</tr>
<tr>
<td>Internet</td>
<td>55.3%</td>
</tr>
<tr>
<td>TV</td>
<td>12.6%</td>
</tr>
<tr>
<td>Friends</td>
<td>7.3%</td>
</tr>
<tr>
<td>Family</td>
<td>7.5%</td>
</tr>
<tr>
<td>Magazines</td>
<td>2.1%</td>
</tr>
<tr>
<td>Newspapers</td>
<td>4.5%</td>
</tr>
<tr>
<td>Blogs</td>
<td>2.0%</td>
</tr>
<tr>
<td>Radio</td>
<td>3.6%</td>
</tr>
<tr>
<td>Social Network Sites</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

Healthcare Information

- The pharmaceutical healthcare information at my pharmacy is credible and useful
- Finding information on health and treatments on the Internet is very helpful to me
- I research healthcare information so that I am better informed about different healthcare treatment options
- I trust the opinions of my family and friends about healthcare-related issues
- and then ask my doctor about them
- Friends come to me for advice about healthcare and medications
- I am comfortable registering on a website which consistently offers useful information about my particular health condition
- Healthcare advertising on the Internet is credible
Are Healthcare Ads a Motivator for this Population?
How does this population use digital devices?

### Engagement: Digital Engagement

<table>
<thead>
<tr>
<th>Digital Connections</th>
<th>% Population</th>
<th>Suffolk County, NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own A Cell Phone/Smartphone</td>
<td>92.9%</td>
<td>96.7%</td>
</tr>
<tr>
<td>Android</td>
<td>25.7%</td>
<td>23.8%</td>
</tr>
<tr>
<td>IOS (phone)</td>
<td>13.8%</td>
<td>24.9%</td>
</tr>
<tr>
<td>Blackberry Os</td>
<td>0.9%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Windows Phone</td>
<td>0.9%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Downloaded Apps On Cell/Smartphone Device</td>
<td>38.9%</td>
<td>35.0%</td>
</tr>
<tr>
<td>Smartphone (iPhone, Galaxy, etc.)</td>
<td>74.8%</td>
<td>70.0%</td>
</tr>
<tr>
<td>Tablet (iPad, Galaxy Tab, Kindle Fire, etc.)</td>
<td>69.8%</td>
<td>61.7%</td>
</tr>
</tbody>
</table>

### App Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>% Population</th>
<th>Suffolk County, NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taken Photos</td>
<td>26.7%</td>
<td>24.4%</td>
</tr>
<tr>
<td>Accessed The Internet</td>
<td>24.4%</td>
<td>22.9%</td>
</tr>
<tr>
<td>Sent Or Received Personal E-mail</td>
<td>21.9%</td>
<td>22.3%</td>
</tr>
<tr>
<td>Accessed Your Social Networking Account</td>
<td>19.6%</td>
<td>18.1%</td>
</tr>
<tr>
<td>Listened To Music Or Other Audio</td>
<td>18.4%</td>
<td>16.2%</td>
</tr>
<tr>
<td>Played Games</td>
<td>18.0%</td>
<td>17.0%</td>
</tr>
<tr>
<td>Upload Pics/Vid Social Net/Photo Share Site</td>
<td>16.1%</td>
<td>14.7%</td>
</tr>
<tr>
<td>Accessed GPS</td>
<td>15.9%</td>
<td>18.1%</td>
</tr>
<tr>
<td>Listened To Music Streamed To Your Cell/Smartphone</td>
<td>16.3%</td>
<td>12.6%</td>
</tr>
</tbody>
</table>
DSRIP

- 8 billion dollar grant (Medicaid waiver) from CMS to NY State
  - 25% reduction over five years in avoidable hospitalizations and ER visits in the Medicaid and uninsured population
  - Collaborative effort to implement innovative projects focused on
    - System transformation
    - Clinical improvement
    - Population health improvement
5 Year Goals

• Create integrated Suffolk County care delivery system for 387K lives anchored by safety net providers
• Engage partners across the care delivery spectrum to create a countywide network of care
• After five years, transition this network to an ACO which will contract with insurance providers on an at risk basis
Community Needs Assessment

- Description of Health Care Resources and Community Resources
- Description of the Community Served
  - Demographics of the Population
    - Population Size, Age, Sex and Race/Ethnicity
    - Income, Education and Employment
  - Health Status
    - Leading Cause of Death
    - ER Utilization
    - Mental Health
    - Tobacco Use
    - Cancer
- Service Challenges
- Assets & Resources
- Suffolk County, NY
  - http://tinyurl.com/pdtf564
Pain Points in Population Health

- Registries
  - Definition
  - Data Elements

- Attribution
  Who is in charge?

- Numerators
“The best we can do is a compromise: learn to recognize situations in which mistakes are likely and try harder to avoid significant mistakes when the stakes are high.”
Daniel Kahneman
Vision Coupled with Thought

System 1 represents the automatic and intuitive thinking process.

System 2 represents the thinking process that requires effort and attention.

Source: Kahneman, Thinking Fast and Slow, 2011
Data Visualization and Human Perception

Surgical Cases January, 2012
n = 1,378

Ortho 200
CT Surg 38
Neuro 200
Vascular 123
Trauma 40
Peds 78
Urology 289
Oncology 50
Ophthalmology 34
Otalaryngology 75

Out Of Balance

Intuition

Thinking

Confusion
Data Visualization and Human Perception

Patient Cycle Time

Average Minutes at Each Step:

- Wait at check-in
- Wait in waiting room
- Complete check-in
- Move to exam room
- Wait for physician
- Interact with physician
- Move to checkout
- Wall at checkout
- Check out

Difference in average time at this step:

-3.792 minutes

Process Improvement

- Before
- After

Data tracks 834 patients in a multi-doctor office from January to early March of 2011. The practice implemented process improvements at week 6 targeted at reducing wait time in waiting room and exam room.

Select Step:

- Wait at check-in
- Complete check-in
- Wait in waiting room
- Move to exam room
- Wait for physician
- Interact with physician
- Wait at checkout
- Move to checkout
- Check out

Balanced

Intuition

Thinking

Understanding
Longitudinal View for Care Coordination
- 4 months of good guts
  - after antibiotics for spider bite
  - was also drinking lots of kombucha

- Antibiotics
- Antibiotics
- Antibiotics
- Antibiotics
- Antibiotics
- Antibiotics - Rifaximin

- Nov 16: New Diet
  - Strong probiotics

- Guts feeling better:
  - strong probiotics seem to help
  - can now tolerate carbs w/out bloating
  - gained weight & muscle back
  - still some urgency
  - swollen joints in the morning

- Antibiotics
- Antibiotics

- Stomach went bad
  - morning issues, fine rest of day
  - worse when eat carbs

- Voice weakness
- Voice weakness
- Voice weakness
- Voice weakness

- Weakness is problematic:
  - Wild inexplicable fluctuation, even throughout one day
  - Voice weakness
  - No smile/weak facial muscles
  - Difficulty chewing
  - General fatigue
  - Double vision mostly better though
INTERNET OF THINGS
Situation Awareness (SA) is the perception of environmental elements with respect to time or space, the comprehension of their meaning, and the projection of their status after some variable has changed, such as time, or some other variable, such as a predetermined event. It is also a field of study concerned with understanding of the environment critical to decision-makers in complex, dynamic areas from aviation, air traffic control, navigation, military operations, healthcare to more ordinary but nevertheless complex tasks such as driving an automobile or riding a bicycle.
Situational Awareness Defined (cont.)

**Situation awareness** involves being aware of what is happening in the vicinity, in order to understand how information, events, and one's own actions will impact goals and objectives, both immediately and in the near future. One with an adept sense of situation awareness generally has a high degree of knowledge with respect to inputs and outputs of a system, i.e. an innate "feel" for situations, people, and events that play out due to variables the subject can control. Lacking or inadequate situation awareness has been identified as one of the primary factors in accidents attributed to human error. Thus, situation awareness is especially important in work domains where the information flow can be quite high and poor decisions may lead to serious consequences.
Endsley's model of SA. This is a synthesis of versions she has given in several sources, notably Endsley (1995a) and Endsley et al (2000). Drawn by Dr. Peter Lankton, May 2007.
Environments by Level of Care

- Monitored Inpatient Environments
  - ER
  - OR
  - ICU
  - Step Down

- Inpatient Environments
  - Med/Surg
  - OB
  - Oncology

- Outpatient Environments
  - Clinic
  - Urgent Care
  - Home
Paradox of Population Health

- Understanding the Patient as a Person
  - Social Determinates
  - Demographic Issues

- A Person’s Personal “Big Data”
  - Medical IoT
  - Omics

- High Quality and Value Care at the Personal Level
  - Quality Measures for the Masses

- Making it Personal
  - Access to and Understanding the Longitudinal Record

“Life moves pretty fast. If you don't stop and look around once in a while, you could miss it.”
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