#### Allina Health 👬

PENNY GEORGE INSTITUTE FOR HEALTH AND HEALING

### A Success Story: Incorporating Integrative Medicine into the Hospital and Outpatient Care

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# The Penny George Institute History

- Founded in 2003 through philanthropic donations to promote Health and Wellness and act as a "living lab" for healthcare transformation
- Largest Integrative Health program in the country that is integrated within a health system
- March of 2012, designated an Allina Health Clinical Service Line
  - Prevention and Wellness Service Line

#### Penny George Institute for Health & Healing Impetus for Change

- A minimum of 40% of all deaths in US attributed to four behaviors:
  - Poor nutrition
  - Inadequate levels of physical activity
  - Smoking and exposure to tobacco
  - Hazardous drinking
- Only about 5% of the US population lives without an identifiable risk factor
- For the first time ever, children in the US are expected to live shorter lives than their parents

#### Here are ways in which some key body systems react.

#### NERVOUS SYSTEM

When stressed — physically or psychologically — the body suddenly shifts its energy resources to fighting off the perceived threat. In what is known as the "fight or flight" response, the sympathetic nervous system signals the adrenal glands to release adrenaline and cortisol. These hormones make the heart beat faster, raise blood pressure, change the digestive process and boost glucose levels in the bloodstream. Once the crisis passes, body systems usually return to normal.

#### 2 MUSCULOSKELETAL SYSTEM

Under stress, muscles tense up. The contraction of muscles for extended periods can trigger tension headaches, migraines and various musculoskeletal conditions.

#### **3** RESPIRATORY SYSTEM

Stress can make you breathe harder and cause rapid breathing — or hyperventilation — which can bring on panic attacks in some people.

#### 4 CARDIOVASCULAR SYSTEM

Acute stress — stress that is momentary, such as being stuck in traffic — causes an increase in heart rate and stronger contractions of the heart muscle. Blood vessels that direct blood to the large muscles and to the heart dilate, increasing the amount of blood pumped to these parts of the body. Repeated episodes of acute stress can cause inflammation in the coronary arteries, thought to lead to heart attack.

#### 5 ENDOCRINE SYSTEM

Adrenal glands

When the body is stressed, the brain sends signals from the hypothalamus, causing the adrenal cortex to produce cortisol and the adrenal medulla to produce epinephrine — sometimes called the "stress hormones."

#### Liver

When cortisol and epinephrine are released, the liver produces more glucose, a blood sugar that would give you the energy for "fight or flight" in an emergency.

#### 6 GASTROINTESTINAL SYSTEM

Esophagus

Stress may prompt you to eat much more or much less than you usually do. If you eat more or different foods or increase your use of tobacco or alcohol, you may experience heartburn, or acid reflux.

#### Stomach

Your stomach can react with "butterflies" or even nausea or pain. You may vomit if the stress is severe enough.

#### Bowels

Stress can affect digestion and which nutrients your intestines absorb. It can also affect how quickly food moves through your body. You may find that you have either diarrhea or constipation.



#### **7** REPRODUCTIVE SYSTEM

In men, excess amounts of cortisol, produced under stress, can affect the normal functioning of the reproductive system. Chronic stress can impair testosterone and sperm production and cause impotence.

In women stress can cause absent or irregular menstrual cycles or more-painful periods. It can also reduce sexual desire.

#### 70-90% of all visits to health care are related to stress disorders

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#### DATA WATCH

#### North America Makes Up Almost Half of All Global Pharmaceutical Sales

Latin America

4.5%

Asia, Africa, and Australia

8.6%

Europe

29.9%

Japan 9.3%

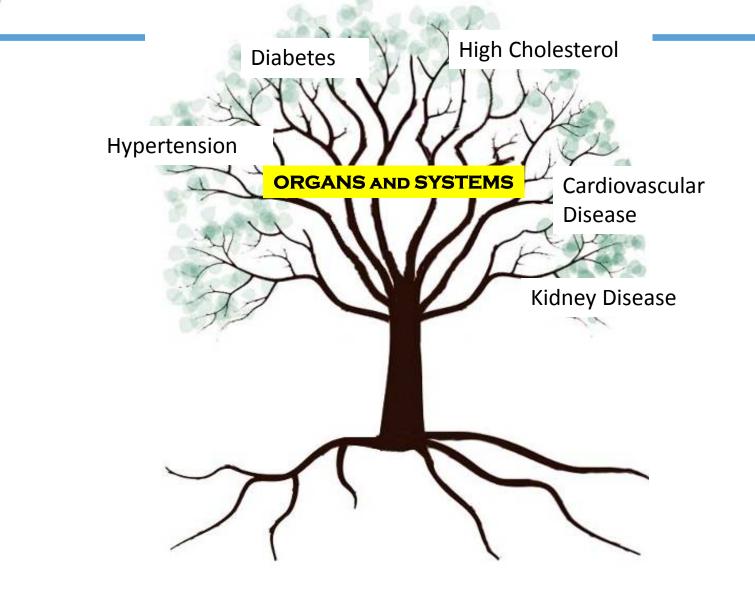
North America 47.7%

Source: 2006 data, IMS Health Inc.

# nsustainable Costs Inacceptable Outcomes

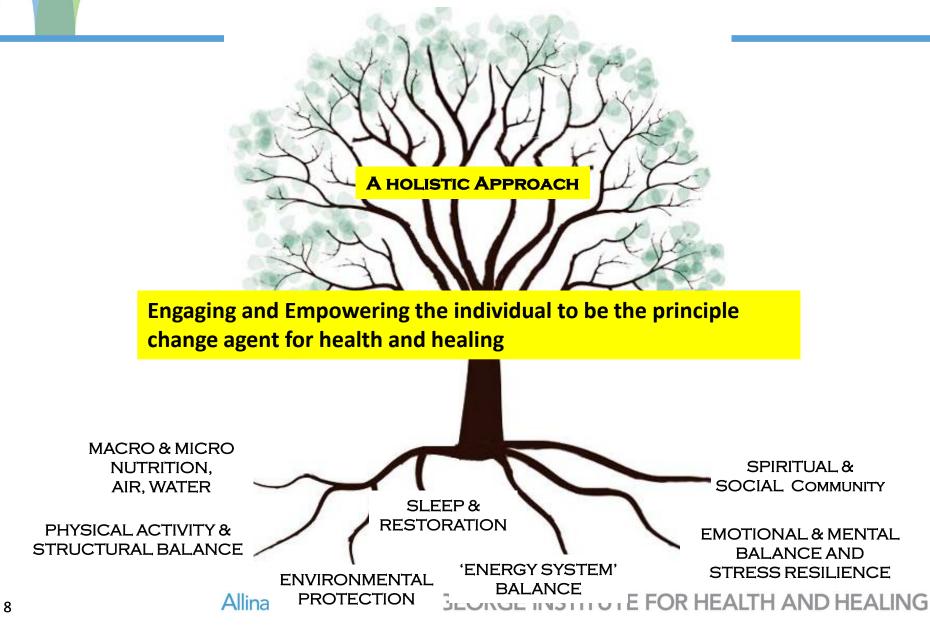
- 2.5 trillion spent in the current healthcare system (70% Of spending) on lifestyle related diseases
- 4.3 trillion by 2023
- 16% of nation's GDP
- Double the amount of other developed nations
- US ranked 37<sup>th</sup> in the world in health outcomes

#### **The Current Healthcare Model**



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#### **The Penny George Institute Vision**





- Empowering patients
- Utilizing the mind-body-spirit approach
- Patient centered care
- A philosophy of wellness at any stage of care
- A vehicle for health care transformation—triple aim

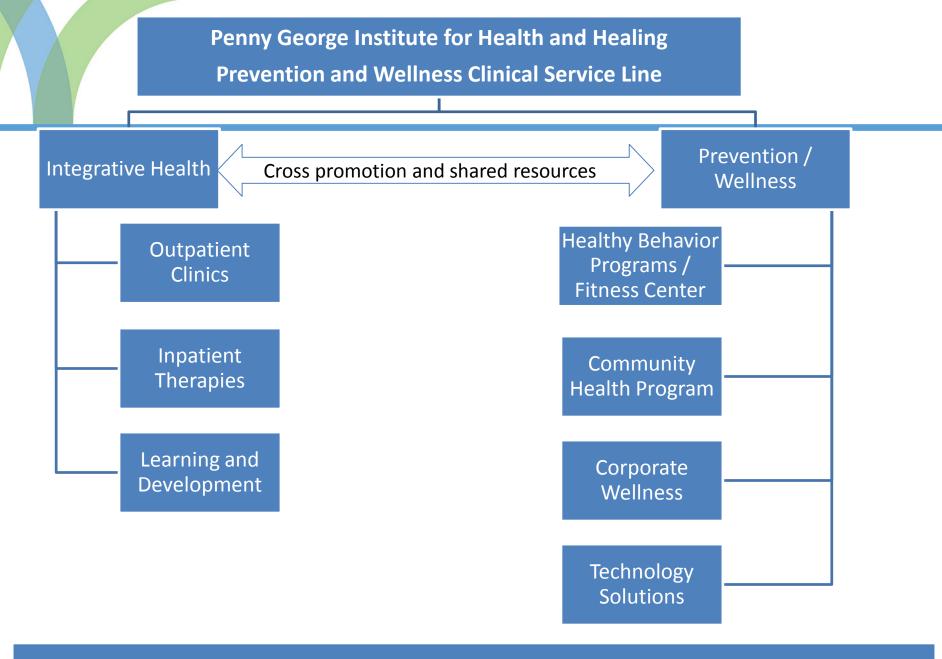
We combine leading medical practice with ancient healing wisdom, to optimize health and wellness in the whole person – body, mind and spirit.

## Allina Health

- Serves MN and Western WI
- 13 hospitals
- 56 clinics
- Abbott Northwestern Hospital (ANW) is a 629 bed tertiary care hospital

### Penny George<sup>™</sup> Institute for Health and Healing

- Inpatient (services began 2003)
- Outpatient Clinic (2004)
- LiveWell Fitness Center (2006)
- Integrative Health Research Center (2007)
- Cancer Center Unity Hospital (Oct 2010)
- Healthy Communities Partnership(2012)
- Learning and Development (2013)
- St Francis Hospital (2013)
- New Ulm Hospital (2013)
- WestHealth Clinic (2014)



#### Research

# **Model of Care**

- Consultative-based
- Out-patient clinic is insurance-based
- Average of 80% insurance coverage
- In-patient is covered by philanthropy or hospital system

# **Our Team—Outpatient Clinic**

- 2 Integrative medicine physicians, 1 integrative cardiologist, 1 integrative medicine nurse specialist
- 2 Functional nutritionists
- 6 Traditional Chinese Medicine Experts, practicing acupuncture
- 1 health psychologist, specializing in biofeedback
- Health coaching, weight management
- 1 massage therapist
- 1 spiritual director

# **Our Team—Continued**

- Unity Outpatient clinic—exercise physiologist, nutritionist, nurse specialist, chinese medicine (cancer hub)
- Inpatient services at ANH include: (11 FTE's) acupuncture, Reiki, nurse visits, healing massage, guided imagery, stress management, music and art therapy (all free to all patients)
- St. Francis has an inpatient team with massage, nursing, and acupuncture
- New Ulm Medical Center with outpatient/inpatient acupuncture and massage, wellness programs
- West Health—0.5 integrative medicine physician, 1.0 acupuncture/psychologist/EMDR, 2.0 acupuncture, 0.5 nutrition/health coach, 0.2 smoking cessation

### Research

- 8 FTE, 2 PhD's
- \$2.4 million RO1 NCCAM and additional military support
- 7 presentations at IRCIMH 2014
- 7 manuscripts to be submitted in 2014
- 5-7 active research activities, with goals towards clinical relevance in triple aim metrics

# **Integration of Practice**

- Weekly meeting with outpatient practitioners
- Weekly meeting of inpatient team
- Monthly all-staff meeting between various sites
- Inpatient team meets every morning to discuss patients

## Database 7/1/09 to 12/31/12

- Overall database includes 12,899 hospital admissions where pre-IM intervention pain>0 and both pre- and post-intervention pain scores (0-10 verbal scale) were available.
- CMS major diagnostic categories (MDCs) were calculated by dividing ICD-9CM principal diagnoses into several clinical populations.
  - Cardiovascular, Joint Replacement, Oncology.

### **Results: Cardiovascular**

Pre- to post-IM therapy percent decrease in pain and anxiety scores

		Any Cardiovascular
		Disease
Any Treatment	No. Pain Obs	5,981
	% Decrease in Pain	46.5
	95% CI	(45.5 - 47.4)
	p-value	< 0.001
	No. Anxiety Obs	3,109
	% Decrease in Anxiety	54.8
	95% CI	(53.7 - 55.9)
	p-value	< 0.001

### **Results: Joint Replacement**

Length of hospital stay by IM therapy status (n=3,834)

	No IM Therapy	IM Therapy	n voluo
	(n=1,696)	(n=2,138)	p-value
Length of Stay (standard deviation)	3.5 (2.0)	3.3(2.2)	0.004

## **Results: Joint Replacement**

Pre- to post-IM therapy percent decrease in pain scores		
	Any Joint Replacement	
Any Treatment No. Pain Obs	2,176	
% Decrease in Pain	49.9	
95% CI	(47.9 - 51.8)	
p-value	< 0.001	

### **Results: Oncology**

Pre- to post-IM therapy percent decrease in pain and anxiety scores

		Any Cancer Site
Any Treatment	No. Pain Obs	1,514
	% Decrease in Pain	46.9
	95% CI	(45.1 - 48.6)
	p-value	< 0.001
	No. Anxiety Obs	1,074
	% Decrease in Anxiety	56.1
	95% CI	(54.3 - 58.0)
	p-value	< 0.001

### **Benefits of IM**

_		2013 Avg. score reduction
➡	Pain	-40.5%
╇	Anxiety	-51.5%
╇	Nausea	-53.0%
╇	Stress	
	Well-being	2013 approx 10,600 visits
	Relaxation	2014 approx 12,700 (YTD)
	Sleep	

# **Cost Analysis: Inpatient IM**

#### GOAL:

- To examine whether the effect of pain reduction following an IM session would impact the total cost of the patient's hospitalization.
- We used a statistical technique (multiple regression) to estimate the relationship between a patient's reduction in pain and their total hospital cost.
- We compared this to the patient's cost without accounting for their reduction in pain.
- The result was an average savings of \$160 (per hospitalization) for all patients who received an IM session for relief of pain.

# **Resilience Training**

- The Resilience Training (RT) program is an 8week long group-based skills building program for persons with chronic depression conducted at the George Institute Outpatient Clinic.
- Key elements of the program include 1:1 assessments from psychiatrist, nutritionist and exercise physiologist.

# **Resilience Training: Research Results**

- 63-70% reduction in depression
- 48% reduction in stress
- 23% reduction in anxiety
- Numerous improvements in quality of life, including a 52% reduction in lost productivity.
  - Cost analysis showed reduction of ~\$1,800 in lost time at work (presenteeism).
- Most psychological improvements persisted up to 12 months after completion of the Resilience Training program.

## **Resilience Training: Results**

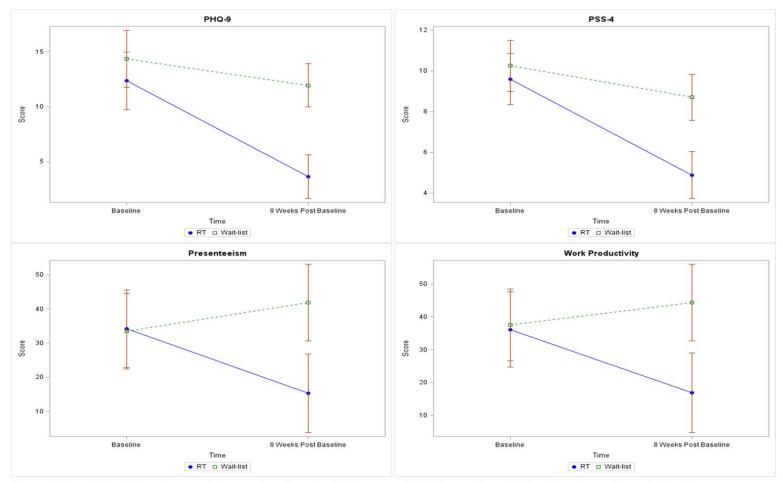


Figure 1: Mean PHQ-9, PSS-4, presenteeism, and work productivity scores with 95% confidence limits at Baseline and 8 weeks Post-Baseline

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## **Resilience Training: Results**

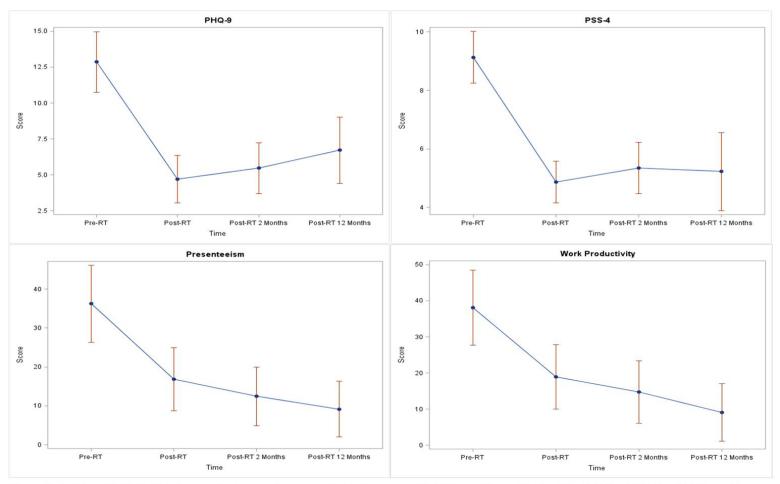


Figure 2: LSMean PHQ-9, PSS-4, presenteeism, and work productivity scores with 95% confidence limits at Pre-RT, Post-RT 2 months, and Post-RT 12 months

## Pilot Study of Acupuncture in the Emergency Dept

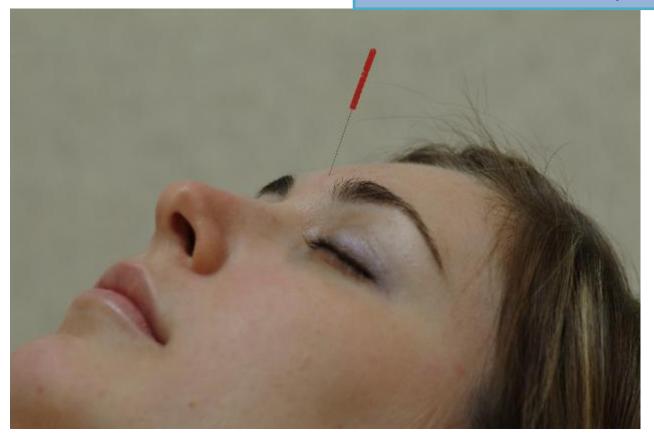
- 131 treatments given / 146 pts approached (90% acceptance rate)
- 67% Female, 33% Male
- Average age of patient 51, youngest 19, oldest 91
- Average length of treatment 23 minutes
- Pain is the primary reason for referral 74% of the time, anxiety 11%
- Improved patient outcomes
  - 34% decrease in pain
  - 48% decrease in anxiety
  - 64% decrease in nausea
  - 14% increase in coping
- Hundreds of acupressure & acupuncture treatments given to staff members to address pain, stress, anxiety and nausea

# **Emergency Dept: Staff Feedback**

#### **Extracts from Doctor and Nurse notes in EHR**

- "Patient's wife also stated that this is the first time she saw her husband normal again."
- "Pt receiving acupuncture at this time, pt declining tramadol at this time, states headache is improving with acupuncture."
- "Acupuncturist has converted the patient from Atrial fibrillation to NSR." (normal sinus rhythm)
- "The acupuncture improved her nausea and the Toradol helped with her pain. Plans for discharge discussed."
- "Patient's pain improved from a 10/10 to 5/10 following the acupuncture."
- "Headache resolved after acupuncture."
- "After patient received acupuncture, pt reports she is feeling more relaxed and her pain was down to a 2."

Therapies such as acupuncture and medical massage reduced self-reported pain levels by 47 percent and cut anxiety levels by 56 percent for cancer patients at Abbott Northwestern Hospital.



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#### Effects of Integrative Medicine on Pain and Anxiety Among Oncology Inpatients

#### Results

- 10948 hospital admissions
- 1833 (17%) included IM therapy
- Older patients had reduced odds of receiving any IM therapy
- females had 63% higher odds of receiving any IM therapy
- Moderate, major and extreme illness severity were significantly associated with higher odds
- After receiving IM therapy, patients averaged a 46.9% reduction in pain and a 56.1% reduction in anxiety. Bodywork and traditional Chinese Medicine therapies were most effective for reducing pain, while no significant differences among therapies for reducing anxiety were observed.
- Conclusions IM services to oncology inpatients resulted in substantial decreases in pain and anxiety. Observational studies using electronic medical records provide unique information about real-world utilization of IM

Journal of the National Cancer Institute (JNCI)

# Health Exchange in MN

- Blue Print
- Partnered with Blue Cross Blue Shield MN
- Proactively reaches out to those with a BMI>25 or active smokers, engage with a health coach
- Integrative medicine services covered
- Resiliency Training covered
- Cost is most competitive in US
- 10% off all integrative therapies (without associated diagnosis)

#### Alignment with Allina Health 2016 Strategic Outcomes

Better Carol Experience for the for individuals 3. Reduce per capita costs of care for populations

1. 2.

Strategic Outcomes	Strategic Priorities, 2014 – 2016	
Patient Care	Continue to improve lifestyle management across the following areas:	
	HEALTHY WEIGHT HEALTHY	
	<ul> <li>Lead efforts to measure patient self-reported outcomes, including Health-related Quality of Life (PROMIS-10)</li> </ul>	
Patient Experience	Achieve and maintain 90 <sup>th</sup> percentile patient experience	
	Improve patient access for programs and services	
Population Health	Measurably improve population health	
	<ul> <li>Engage patients and pre-patients outside traditional healthcare setting through technology</li> </ul>	
Affordability	Lead payment reform initiatives, rewarding value over volume	
	Reduce total cost of care through lifestyle management programs	
Organizational Vitality	• Expand integrative health and wellness offerings within and outside the traditional	
	care system	
	Pursue external partnerships	
	Improve employee engagement	

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# **Redefining the Health Care Workforce**

- Leverage the term "provider" rather than physician
- Cross Disciplinary approach
- Transformative Nurse Training Program
- Fellowship with Northwestern School of Acupuncture
- Aromatherapy mandatory training
- Physician CME in integrative health
- Ongoing education WITHIN other efforts\*\*

## **True Integration**

- July 1<sup>st</sup>, merged with primary care
- Move upstream
- Plan to develop 4 "holistic family health" clinics with primary care and integrative health in the next 2 years
- Each clinic has core programs, providers, health coach as navigator
- Wellness vendor moving forward as an health plan

### Allina Health Population Health Strategy

#### Goal:

 Improve the health of patients, employees, and communities served by Allina Health.

#### • 2014-2016 Key Areas of Focus:

- Healthy Weight
- Tobacco Use
- Well-being
- Health Equity

#### • Measures of Success (Community Health Index) to Include:

- Lifestyle indicators
- Clinical markers
- Preventive care use
- Social support
- Quality of Life
- Disease burden and early mortality
- Overall health

### Social Ecological Framework: Allina's Role in Reducing Tobacco Use

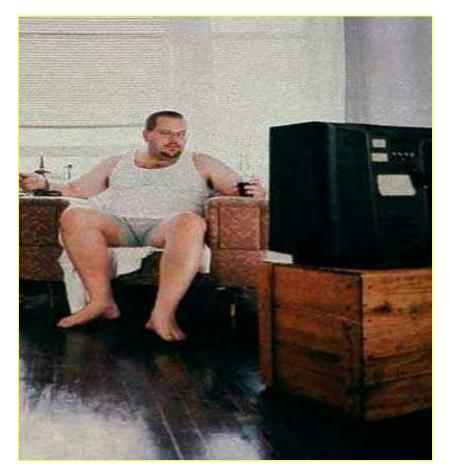


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## **Lessons Learned...Things to Consider**

- How Silo'd do you want to be?
- What does success look like for you?
- Do you want to serve a certain population?
- Common metrics, common language
- Using multiple angles to make this work
- Being strategic with philathropy

### Sit around, wait for it to happen . . .



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