

# **Beyond Flexner and Beyond: The Role of Medical Schools in Improving the Health of All**

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*President*

*University of Oklahoma, Tulsa*

# Today's Presentation:

## **Part I – A Global View and Our Shared Issues:**

- Across the World, More Alike Than Different → Problem Solve Together

## **Part II – How Medical Schools Got to Be the Way They Are:**

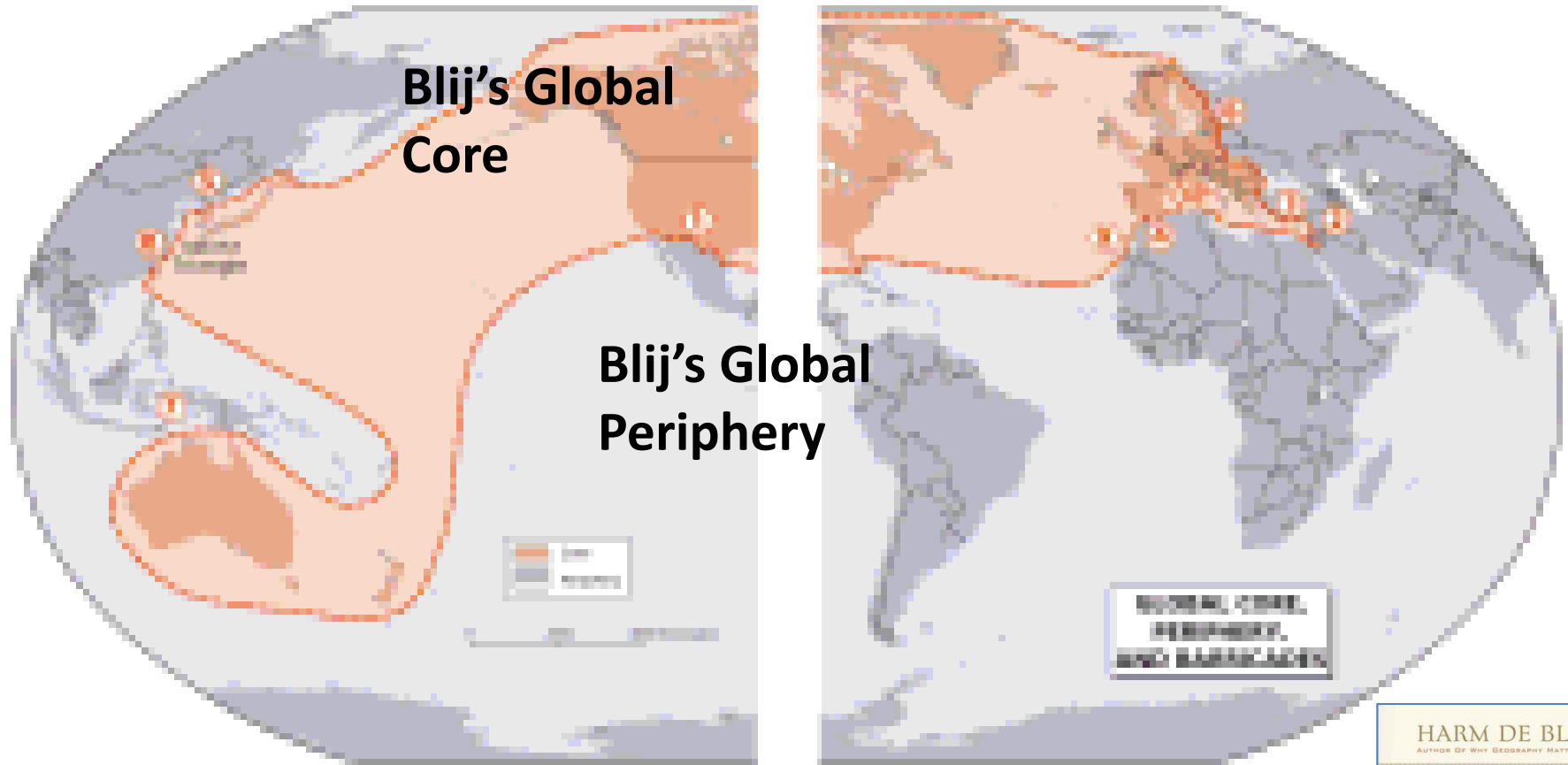
- 1900s – Flexner's Tour of the USA and Canada
- 1910 – The Flexner Report – *Medical Education in the United States and Canada*
- 1910 – 2010 – The Rise of the Academic Health Center
- 2014 – What Gets Ranked and What Gets Honored

## **Part III – Where Are We Failing:**

- Health Disparities as the Greatest Reflection of Our Failures

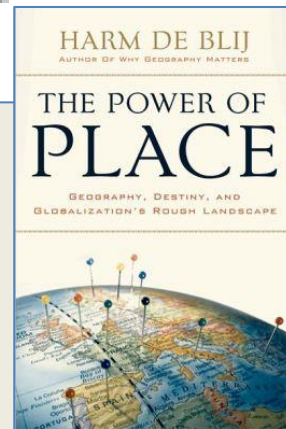
## **Part IV – Modifying Medical School Tradition to Meet the Needs of Society**

- 15 Strategies
- Beyond Flexner
- Beyond Beyond Flexner



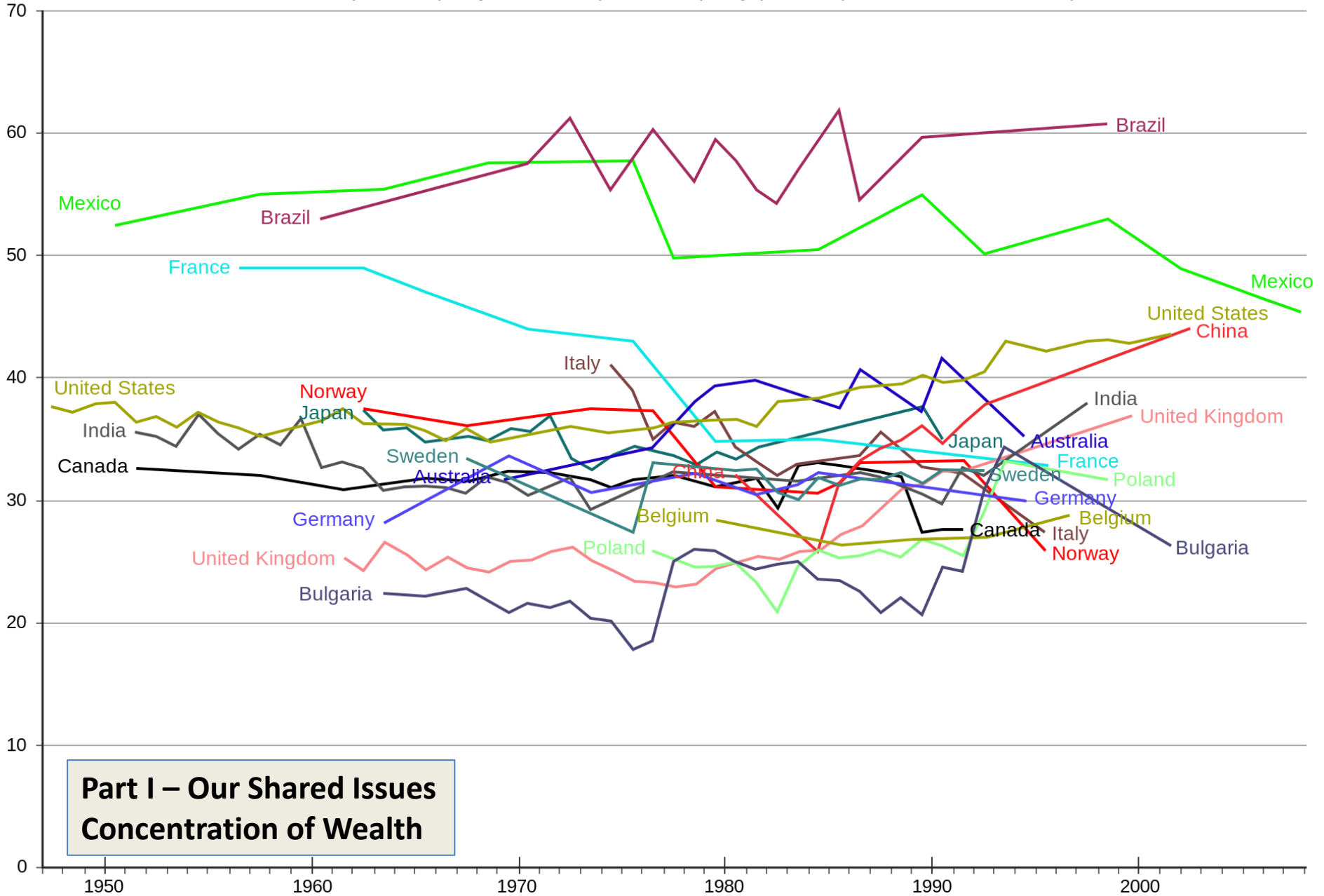
**Common Global Core and Global Periphery Issues:**

- Topography, Climate, Infectious Disease, Religion, Politics, Language, Literacy, Corruption, Urbanization, Rural Flight  
→ *Staggering Health Disparities*



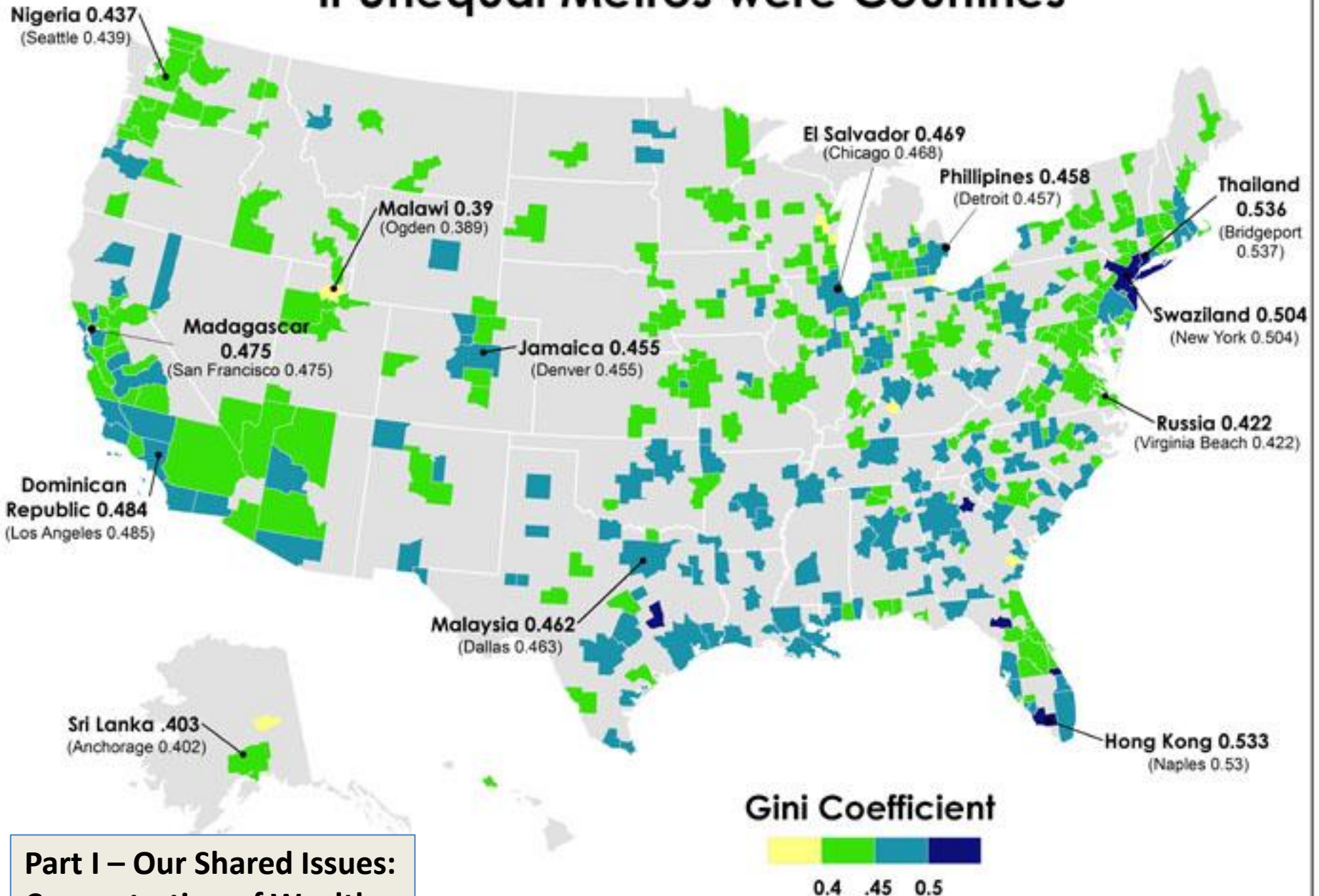
# Gini Index - Income Disparity since World War II

where 0 is perfect equality, and 100 is perfect inequality (i.e., one person has all the income)



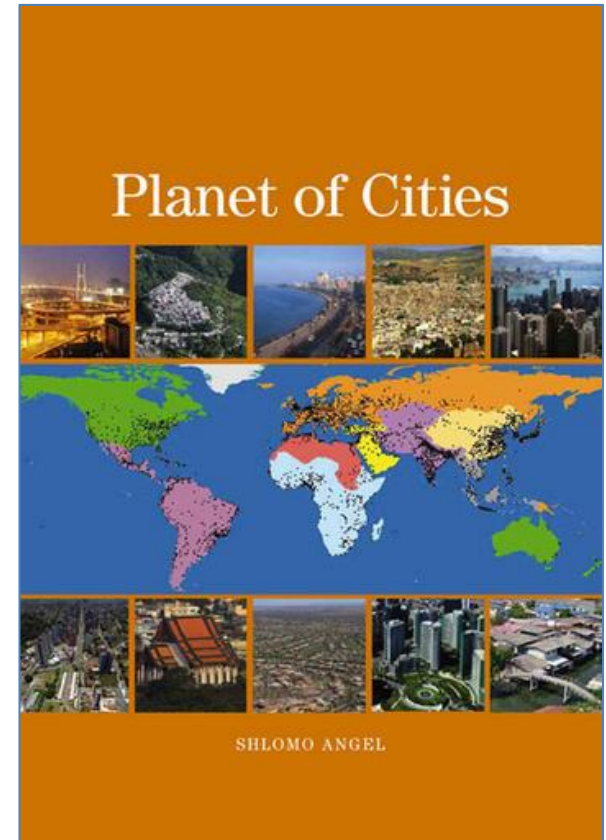
**Part I – Our Shared Issues**  
**Concentration of Wealth**

# If Unequal Metros were Countries



Part I – Our Shared Issues:  
Concentration of Wealth

- **Common Trends**
  - **Enduring Cities**
  - **Urbanization → Megacity**
  - **City to City Economic Partnerships**
  - **Further Stress on Rural Areas**



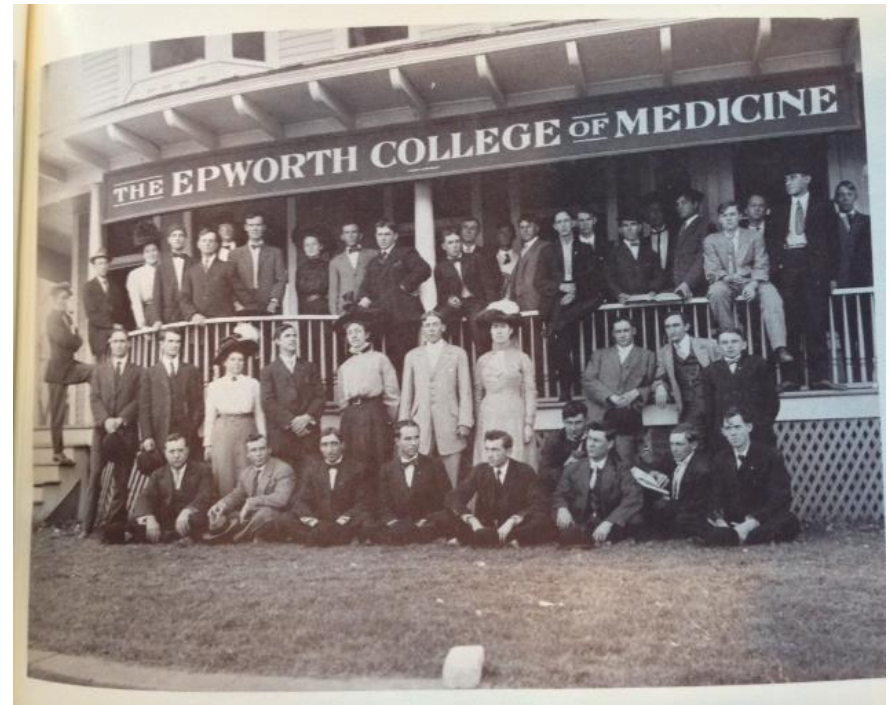
# **1910: US and Canadian Medicine According to Abraham Flexner**

**Part II – How did we get here.....**



# 1900s – US and Canadian Medical Schools

- Flexner toured US and Canada.
- 1910 Report: Many medical schools were of low quality, over producing physicians using a commercial model, not rooted in science.
- Recommended:
  - Closure of 1/2 of schools and decrease graduates by 1/3.
  - Align medical schools with research activities, major universities and with major medical centers



*“The new commonwealth of Oklahoma has easily three times as many physicians as it needs.”*

*“The state must suppress commercial schools - as for example that nominally belonging to Epworth University.”*



# 1910 – 2014

- Many US medical schools did close.
- Aligned medical schools with universities, large research programs, large teaching hospitals.
- Medicare and Medicaid funded medical education at these academic health centers.
- \$15,000,000,000 now flows through US hospitals for medical education.
- For many, became the world's model to follow.
- Great advances in education, research and services.

# 1960s - 2014

1. Payments increased substantially for specialty care but not for primary care.
2. Tremendous growth in National Institutes for Health funding → Dramatic increase in research enterprise at academic health centers.
3. Less growth in Medical Education funding.
4. Rise of rankings of medical schools and hospitals with weighting towards research, specialty care, reputation, patient satisfaction.
5. Less attention to medical education.
6. Little flexibility in medical education accreditation standards.
7. No attention to health of underserved populations.
8. Admissions to medical school – over emphasized MCATs.



## **RANKINGS DROP DOWN MENU:**

- Median MCAT Score
- Median Undergraduate GPA
- Acceptance Rate
- Full-time faculty to student ratio
- NIH grants to school
- NIH grants per faculty member
- Peer assessment score
- Residency director assessment score

# **Where Are We Failing.....?**

## **Part III**

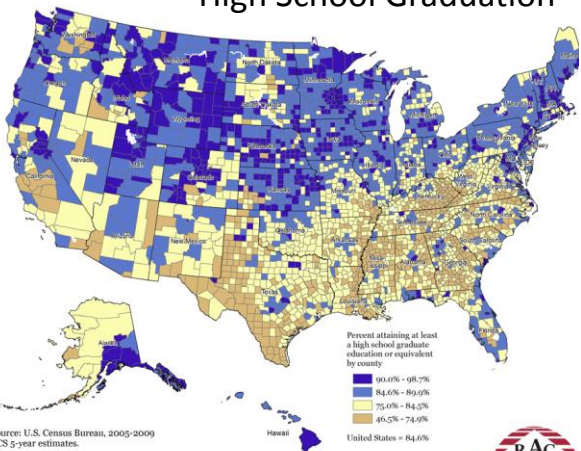
# Side Effects of Current US Medical Education System

1. 85% of medical students come from top 10<sup>th</sup> percentile of family income. Less affluent students struggle with MCAT Preparation and Student Loan Debt.
2. High student debt plus high incomes for specialists discourages choosing primary care, psychiatry as a specialties.
3. Many medical schools aspire to rank higher on US News and World Report Rankings, NIH funding ranking and highest MCATs possible for entering medical students.

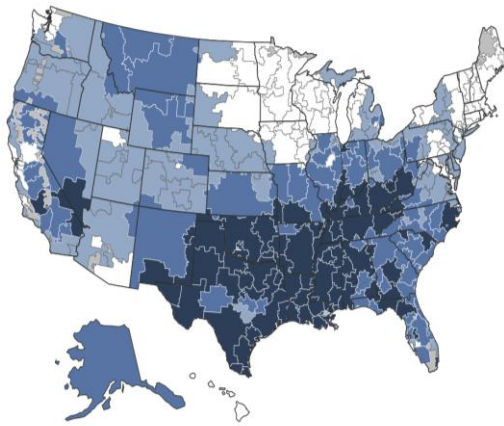
# Side Effects of Current US Medical Education System

4. Education mission dwarfed by research and clinical care enterprise.
5. Dramatic health disparities in both US rural and urban settings.

## High School Graduation



## Health System Performance



# The US Health Continental Divide

CDC, Commonwealth Fund, Robert Wood Johnson Fdn, Rural Health Center

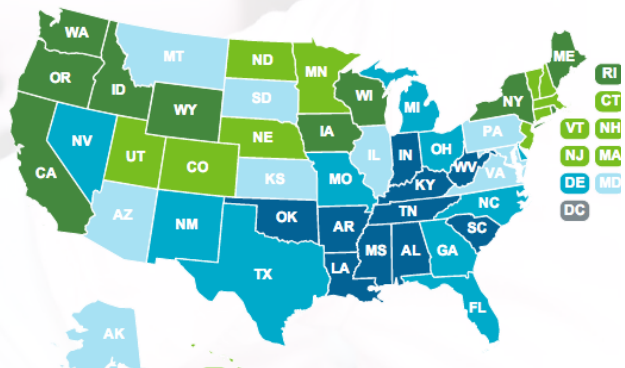
Source: U.S. Census Bureau, 2005-2009 ACS 5-year estimates.  
Note: Alaska and Hawaii not shown to scale.



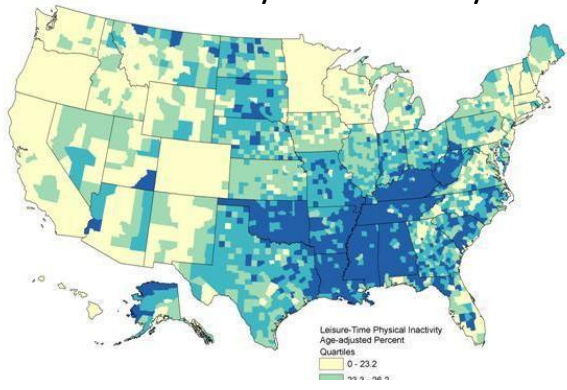
Overall: Weighted sum of the number of standard deviations each core measure is from the national average.



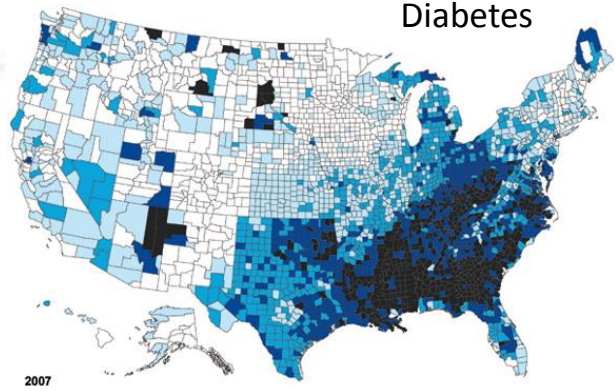
## Overall Health



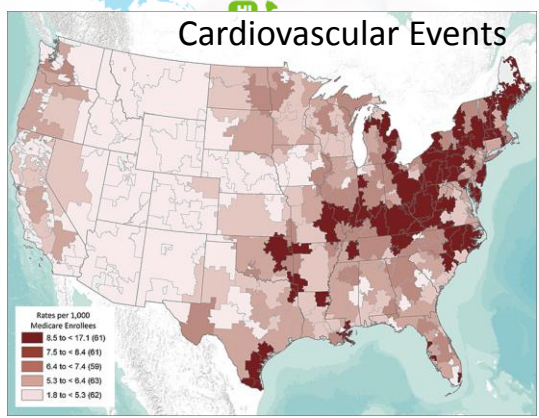
## Physical Inactivity



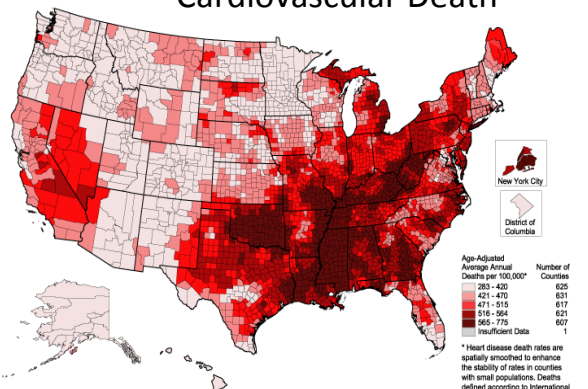
## Diabetes



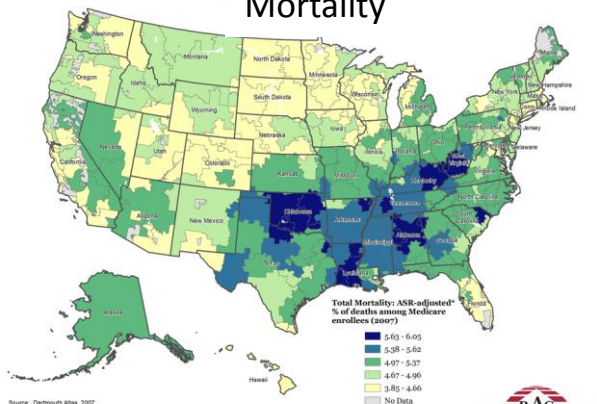
## Cardiovascular Events



## Cardiovascular Death



## Mortality



**New Orleans,  
Louisiana  
= 25 Years,  
2 miles**

## Health Disparities as Demonstrated By Differences in Life Expectancy

RWJF Commission  
to Build a Healthier America

Robert Wood Johnson Foundation





# **The Breakaway Medical Schools that Defy Tradition**

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**Part IV – Improving the Health of the  
Community in Which They Reside**

# **Association of American Medical Colleges Survey of 5,000 US Citizens**

**1999 – Deloitte and Touche**

## **What Should a Medical School Do?**

1. Educate the next generation of physicians.
2. Advance knowledge through research
3. Care for the complex patient
4. Care for the poor.
5. Solve the most pressing, complex health problems.

Table 1. Medical School Rankings Based on Social Mission Score\*

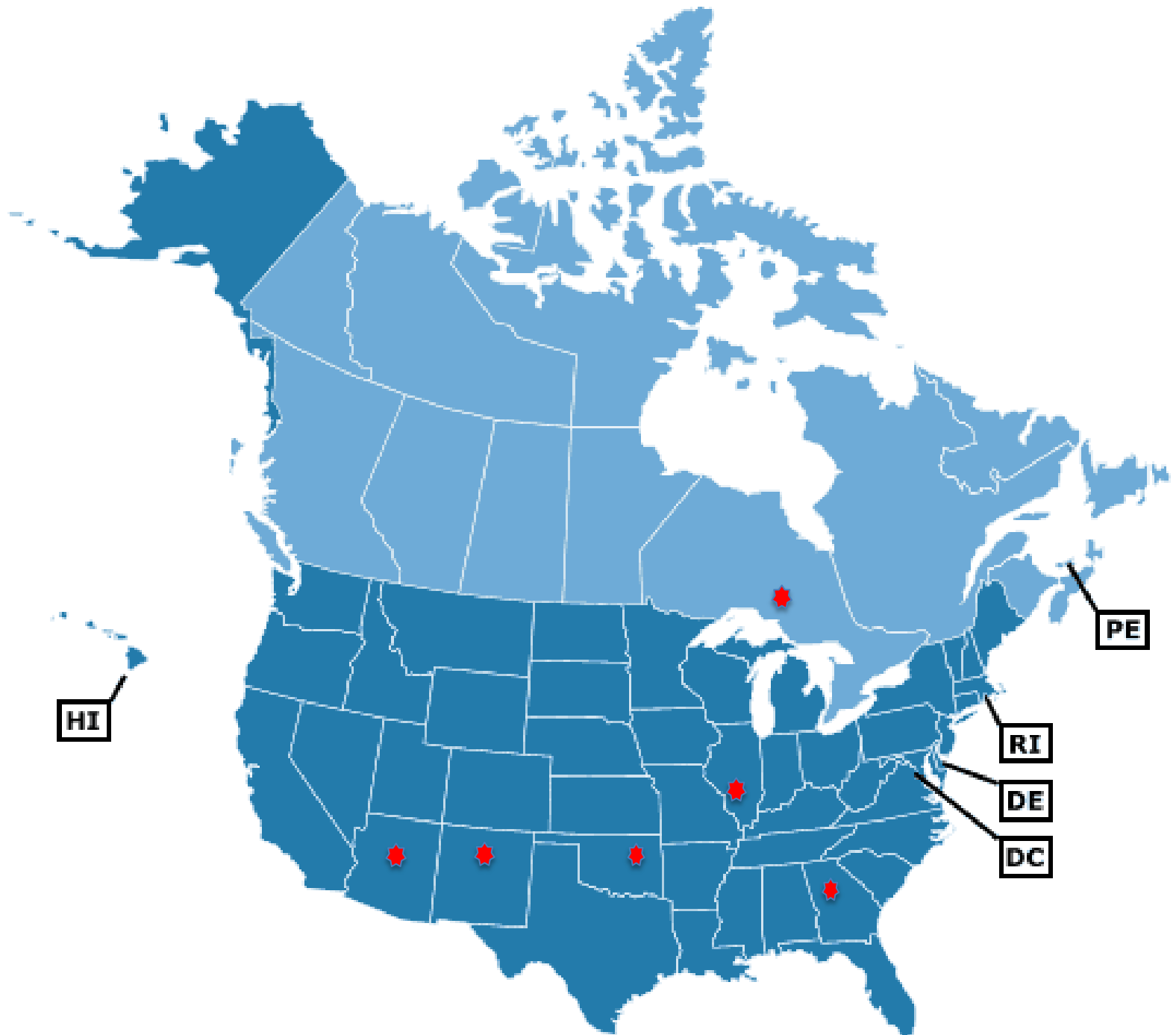
Rank	School	State	Social Mission Score†	Primary Care Physicians		Physicians Practicing in HPSAs		School-State (Nation) Ratio of Underrepresented Minorities		Underrepresented Minorities in the School, %	Underrepresented Minorities in the State (Nation), %
				Total, %	Standardized Score‡	Total, %	Standardized Score‡	Ratio	Standardized Score‡		
<b>Highest 20</b>											
1	Morehouse School of Medicine	GA	13.98	43.7	1.20	39.1	1.40	3.15	11.38	83.3	26.5
2	Meharry Medical College	TN	12.92	49.3	2.00	28.1	0.14	2.99	10.78	79.3	26.5
3	Howard University	DC	10.66	36.5	0.19	33.7	0.78	2.71	9.68	71.9	26.5
4	Wright State University Boonshoft School of Medicine	OH	5.34	49.2	1.98	28	0.12	1.31	3.23	19.0	14.5
5	University of Kansas	KS	4.49	45.2	1.42	43.9	1.96	0.77	1.12	11.6	15.1
6	Michigan State University College of Human Medicine	MI	4.13	43.6	1.20	26.5	-0.05	1.24	2.99	23.7	19.1
7	East Carolina University Brody School of Medicine	NC	3.72	51.9	2.36	34.2	0.84	0.62	0.52	17.3	28.1
8	University of South Alabama	AL	3.15	42	0.97	52.7	2.97	0.29	-0.78	8.2	28.7
9	Ponce School of Medicine	PR	3.02	33	-0.31	43.8	1.94	0.84	1.38	82.5	98.8
10	University of Iowa Carver College of Medicine	IA	2.97	37.1	0.28	21	-0.69	1.35	3.38	8.1	6.0
11	Oregon Health & Science University	OR	2.93	43.8	1.22	43.8	1.94	0.43	-0.23	5.5	13.0
12	East Tennessee State University Quillen College of Medicine	TN	2.88	53.5	2.58	32.7	0.67	0.39	-0.37	7.6	19.5
13	University of Mississippi	MS	2.86	33.5	-0.24	62.5	4.11	0.23	-1.01	8.8	38.3
14	University of Kentucky	KY	2.61	39.8	0.65	32.5	0.64	0.82	1.32	8.0	9.8
15	Southern Illinois University	IL	2.59	45	1.39	46.5	2.26	0.22	-1.06	6.1	28.3
16	Marshall University Joan C. Edwards University	WV	2.51	46.8	1.64	20.9	-0.70	0.89	1.58	4.2	4.7
17	University of Massachusetts Medical School	MA	2.48	45.9	1.52	36.7	1.12	0.44	-0.16	5.9	13.3
18	University of Illinois	IL	2.27	36.7	0.21	35.7	1.01	0.75	1.05	21.2	28.3
19	University of New Mexico	NM	2.25	46.7	1.63	30.7	0.43	0.53	0.19	28.8	53.9
20	University of Wisconsin	WI	2.24	35.7	0.07	19.3	-0.87	1.26	3.03	13.8	11.0
<b>Lowest 20§</b>											
1	Vanderbilt University	TN	-3.95	21.9	-1.86	20.8	-0.70	0.13	-1.38	3.6	26.5
2	University of Texas Southwestern Medical Center	TX	-3.64	26.8	-1.18	15.1	-1.36	0.21	-1.09	9.3	44.7
3	Northwestern University Feinberg School of Medicine	IL	-3.11	24.4	1.51	19.5	-0.86	0.30	-0.74	7.9	26.5
4	University of California, Irvine	CA	-3.02	32.9	-0.32	14.2	-1.47	0.17	-1.24	7.0	41.2
5	New York University	NY	-2.65	24.3	-1.53	22.1	-0.55	0.34	-0.57	9.0	26.5
6	University of Medicine and Dentistry of New Jersey—NJ	NJ	-2.46	23.7	-1.61	17.8	-1.05	0.54	0.20	14.8	27.7
7	Uniformed Services University of the Health Sciences	MD	-2.36	29.6	-0.78	21.4	-0.64	0.24	-0.95	6.5	26.5
8	Thomas Jefferson University	PA	-2.34	32.1	-0.42	20.6	-0.72	0.18	-1.19	4.8	26.5
9	Stony Brook University	NY	-2.21	29.1	-0.85	20.4	-0.76	0.33	-0.60	10.5	31.7
10	Albert Einstein College of Medicine of Yeshiva University	NY	-2.13	26.1	-1.28	24.8	-0.25	0.33	-0.60	8.8	26.5
11	Boston University	MA	-2.12	26.7	-1.19	23.3	-0.42	0.35	-0.52	9.4	26.5
12	Loyola University Chicago Stritch School of Medicine	IL	-2.06	33.7	-0.20	20.7	-0.72	0.20	-1.14	5.2	26.5
13	University of Pennsylvania	PA	-2.03	19.1	-2.27	20.4	-0.76	0.74	0.99	19.5	26.5
14	Medical College of Wisconsin	WI	-2.02	33.5	-0.23	15.9	-1.28	0.36	-0.51	9.4	26.5
15	Albany Medical College	NY	-2.00	30.7	-0.63	24.2	-0.32	0.22	-1.06	5.7	26.5
16	Columbia University	NY	-1.98	20.3	-2.10	31.8	0.57	0.37	-0.45	9.8	26.5
17	Texas A&M University	TX	-1.95	37	0.26	16.2	-1.24	0.24	-0.97	10.6	44.7
18	Duke University	NC	-1.91	22.3	-1.82	23.9	-0.34	0.55	0.24	14.5	26.5
19	Stanford University	CA	-1.90	27.4	-1.10	16.2	-1.23	0.59	0.43	15.7	26.5
20	Johns Hopkins University	MD	-1.90	24.3	-1.53	26.7	-0.02	0.40	-0.35	10.5	26.5

Mullan, Chen, et al. 2010 - The Social Mission of Medical Schools – Ranked By: Primary Care, Minorities, Practice in Underserved Areas

# 2010 - Beyond Flexner Study

## Revisiting the Social Mission of Medical Schools

- Social Mission Defined – A medical school’s mission, programs and performance of graduates in addressing the unmet health problems of society of which it resides.
- Survey of 6 Non-traditional Medical Schools Striving to Fulfill Social Mission:
  1. University of Oklahoma School of Community Medicine (Tulsa).
  2. Morehouse School of Medicine (Atlanta)
  3. Southern Illinois School of Medicine
  4. University of New Mexico
  5. AT Still College of Osteopathic Medicine (Arizona)
  6. Northern Ontario School of Medicine



HI

PE

RI

DE

DC

# 13 Strategies to Fulfill Social Mission of Medical Schools

## 1. Mission is Explicit:

- Underserved urban and rural, minority physicians, health of entire community, health of entire State.
- Specific groups – African American, Francophone, Aboriginal

## 2. Pipeline Programs to Medical School:

- Medical school class diversity as a goal, representative of the community
- Middle School , High School
- Bachelors → Medical School
- Post Bachelors Degree Preparation Program

# 13 Strategies to Fulfill Social Mission of Medical Schools

## 3. Admissions:

- Rural, less educated background
- Remote areas
- Community service hours (500 hours average)
- Lower MCAT → focused help with Board Tests

## 4. Curriculum –

- Summer Institute – learn the anatomy of community before anatomy of body
- Public health certificates and degrees
- Primary Care exposure
- Social Determinants of Health
- Pragmatic Care of the Poor
- Community Needs Assessments → Student Projects



# 13 Strategies to Fulfill Social Mission of Medical Schools

## 5. Teaching Locations

- Local Community Coordinators
- Focus on rural, urban, aboriginal, Francophone, and migrant sites
- Team care

## 6. Mentors and Role Models:

- Longitudinal Clinic for the Poor – same poor patients, same team and same faculty for 2 years.

## 7. Preparation for Residency:

- Pragmatic Care – Treatment plan that patient can afford.

# 13 Strategies to Fulfill Social Mission of Medical Schools

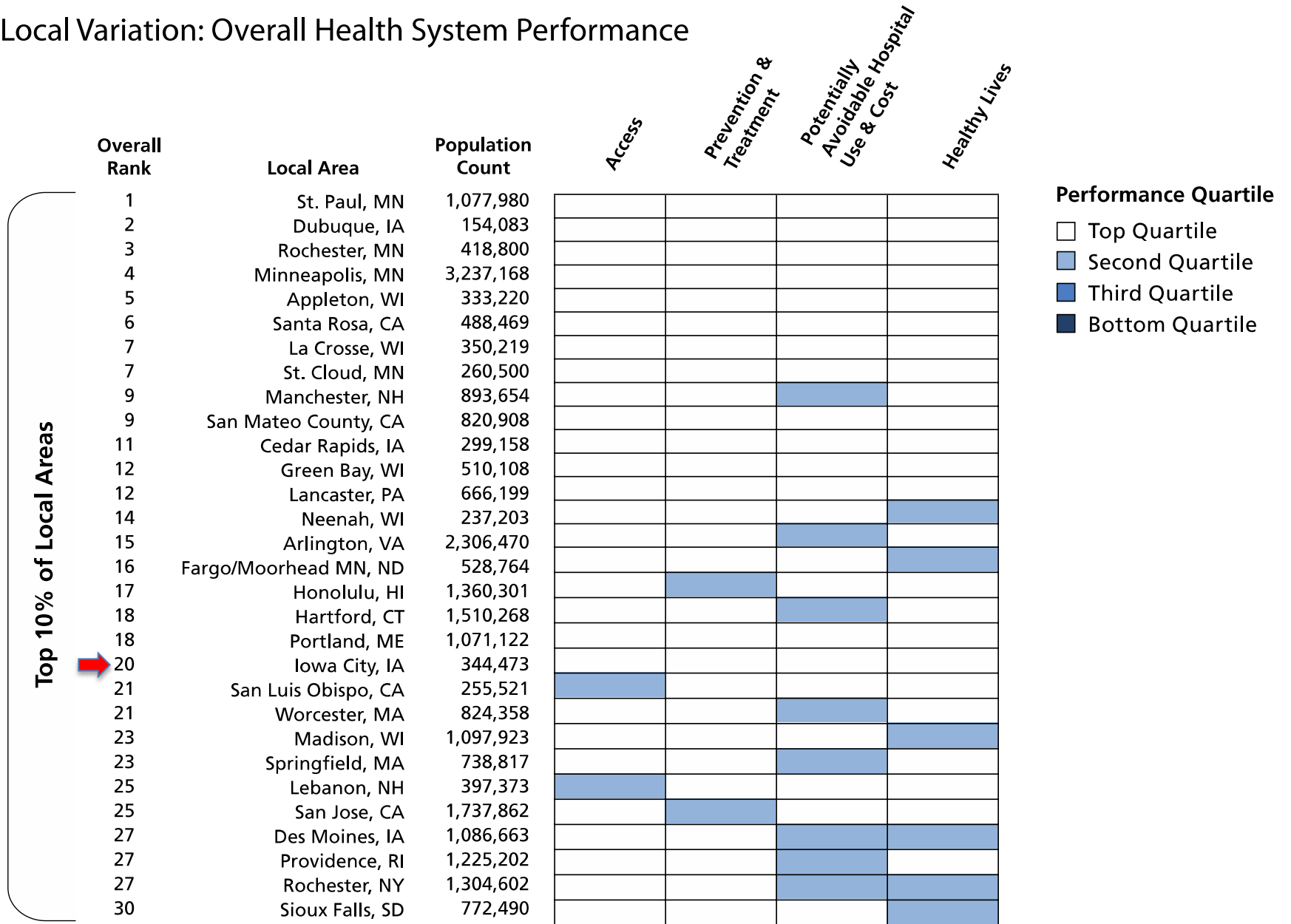
## 8. Geographic Commitment:

- Oklahoma School of Community Medicine – North Tulsa
- University of New Mexico – entire State of New Mexico
- Northern Ontario – Aboriginal and Francophone

## 9. New Rankings

- Annals of Internal Medicine – primary care, minorities and underserved practice locations
- Propose – Commonwealth Fund Region's Health

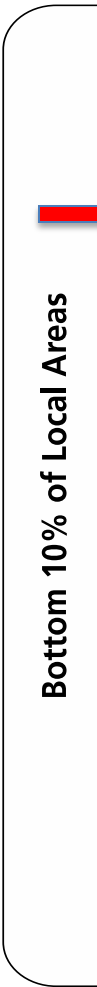
# Local Variation: Overall Health System Performance



# Local Variation: Overall Health System Performance

Overall Rank	Local Area	Population Count	Access	Prevention & Treatment	Potentially Avoidable Hospital Use & Cost	Healthy Lives
276	Metairie, LA	469,603				
276	New Orleans, LA	639,673				
278	Paducah, KY	371,499				
279	Lake Charles, LA	271,045				
279	Tyler, TX	572,677				
281	Memphis, TN	1,814,827				
281	Tulsa, OK	1,373,182				
283	Gulfport, MS	196,812				
283	Houston, TX	6,369,027				
283	Jonesboro, AR	234,106				
286	Houma, LA	279,132				
286	Lawton, OK	205,383				
288	Charleston, WV	833,536				
288	Lubbock, TX	705,146				
290	Jackson, TN	335,391				
291	Huntington, WV	361,141				
291	Wichita Falls, TX	205,297				
293	Abilene, TX	294,137				
294	Lexington, KY	1,518,597				
295	Florence, SC	359,716				
295	Tupelo, MS	394,380				
297	Meridian, MS	201,585				
298	Oklahoma City, OK	1,879,596				
298	Shreveport, LA	700,013				
300	Jackson, MS	1,070,263				
301	Alexandria, LA	292,937				
301	Texarkana, AR	261,650				
303	Beaumont, TX	464,624				
304	Hattiesburg, MS	316,829				
304	Oxford, MS	152,428				
306	Monroe, LA	270,188				

Bottom 10% of Local Areas



# Outcomes

- University of New Mexico – 95<sup>th</sup> percentile in diversity of medical school class.
- Northern Ontario – 65% of graduates retained in Northern Ontario, 63% in rural medicine.
- Morehouse – Excellent board exam scores despite starting with lower admissions scores.
- Southern Illinois – 83% of graduates practice in underserved areas.
- University of Oklahoma Bedlam Clinics;
  - Students #1 ranked learning experience
  - Annual National Survey of Graduating Medical Students – “Do you plan to care for the underserved in your practice?”  
National Avg.= 31%, OU School of Comm. Medicine = 65%

# **Beyond Beyond Flexner**

Part V – New Territory for Medical Schools in  
Fulfilling the Social Mission - The Science of Cities

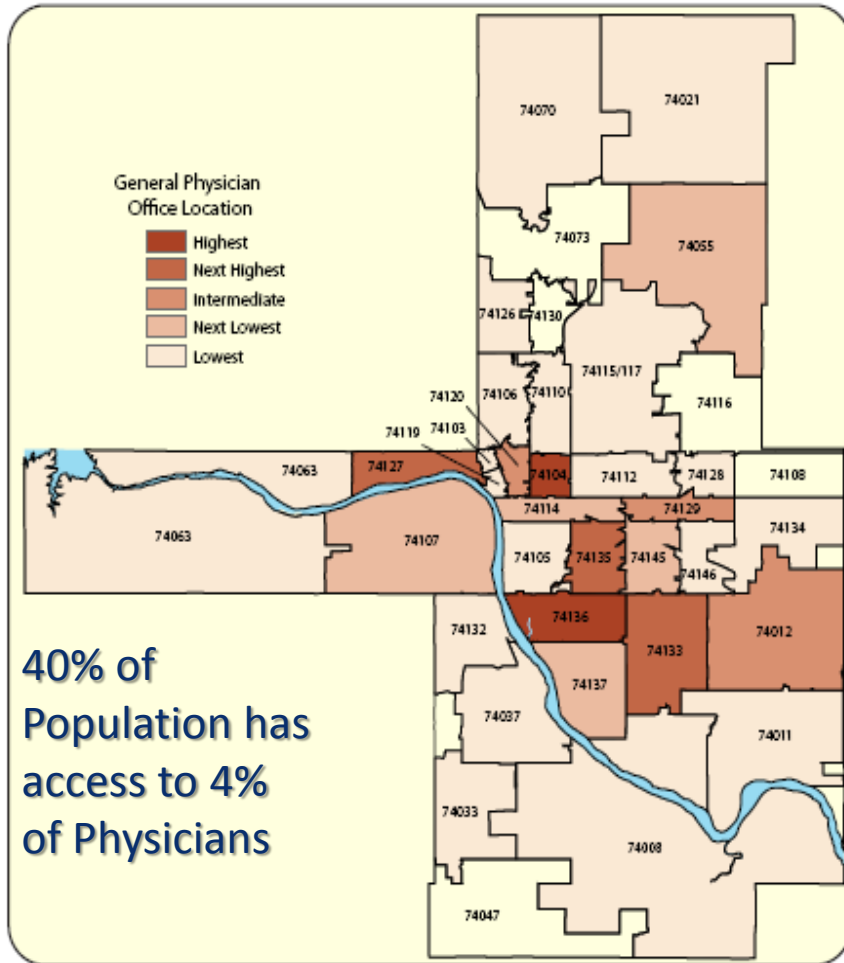
# 13 Strategies to Fulfill Social Mission of Medical Schools – The Science of Cities

## **10. Hot Spotting – Community Needs Studies:**

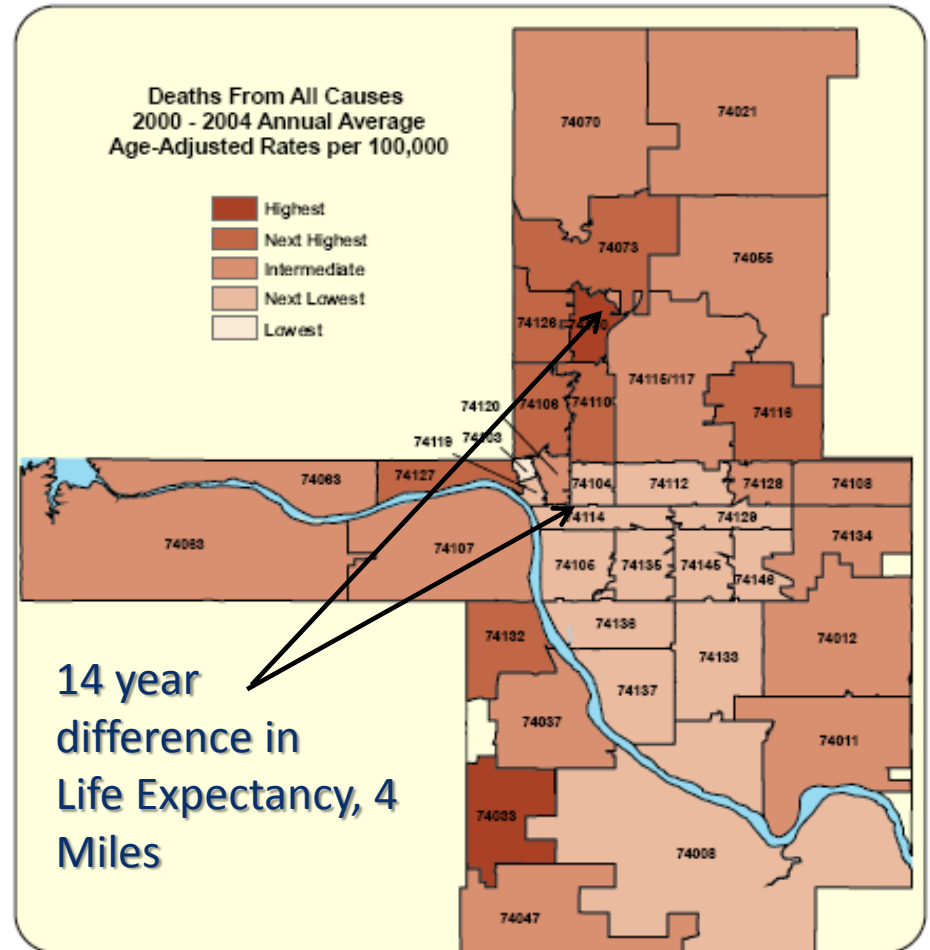
- Florida International University – Miami, Florida
- Cooper Rowan University – Camden New Jersey
- Oklahoma School of Community Medicine – Tulsa, Oklahoma



## Clinical Services Distribution



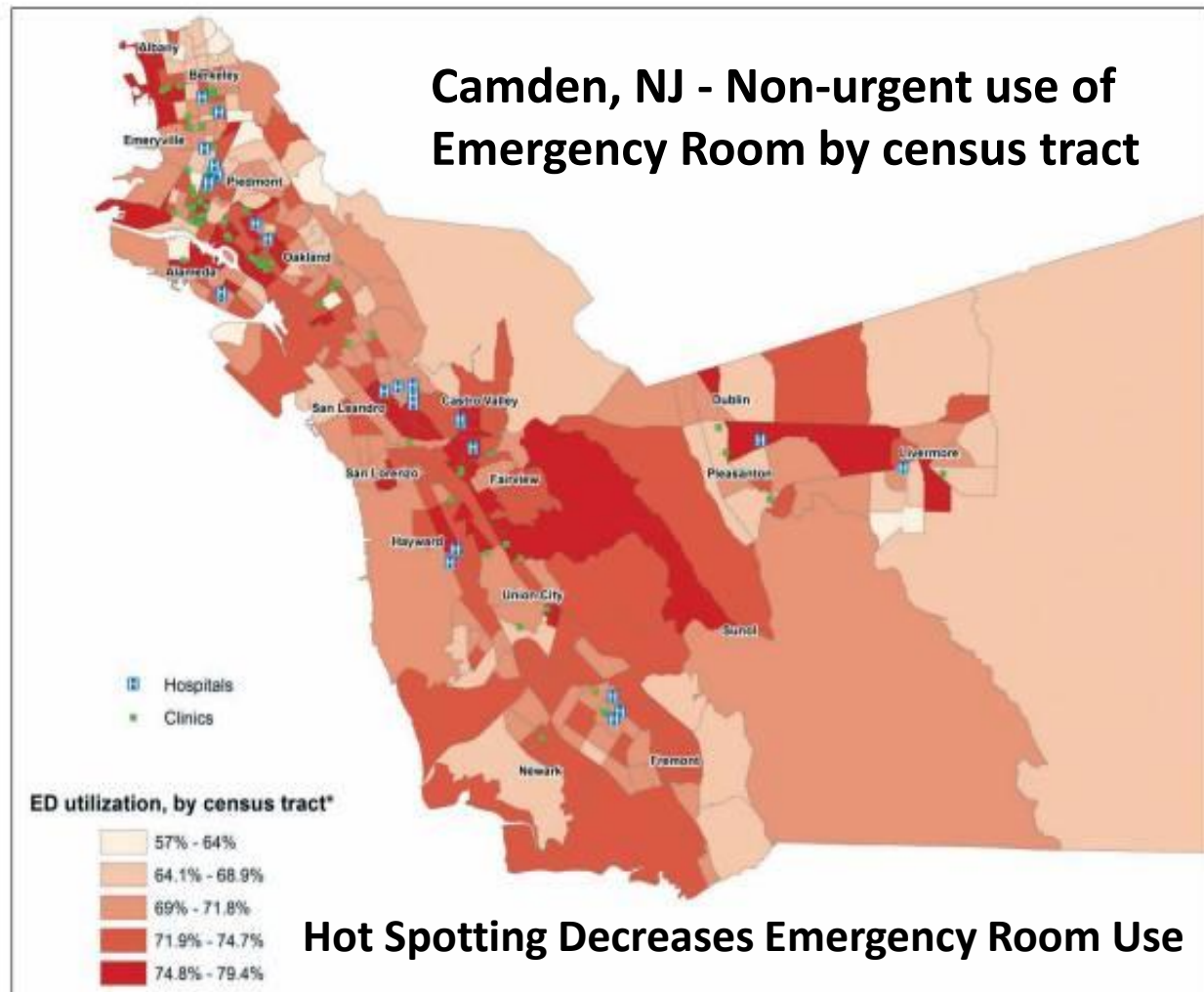
## Age-Adjusted Death Rate in Tulsa



# 10. Hot Spotting Your City

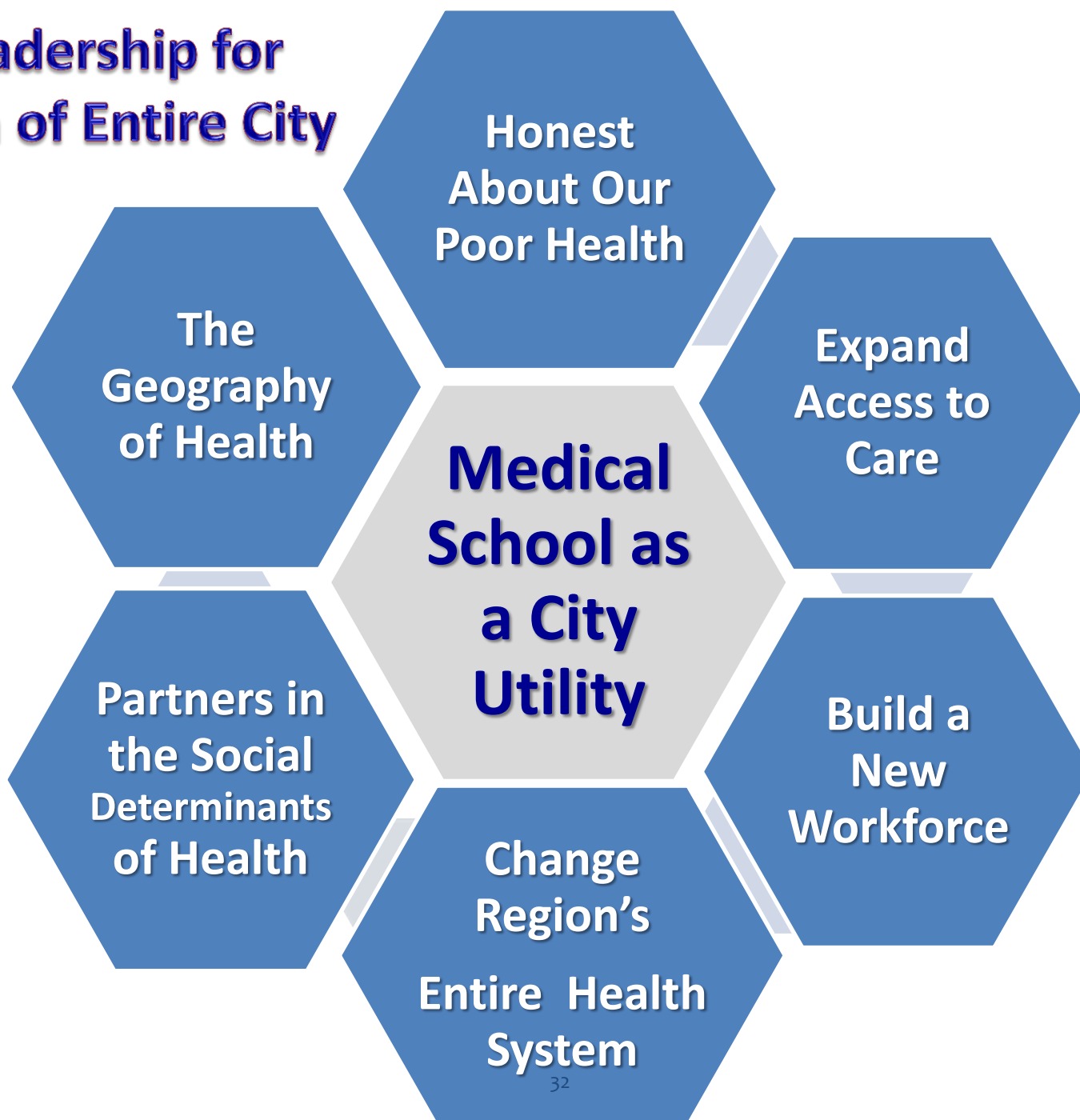
Figure 5.2

Percentage of Non-emergent or Primary-Care-Treatable ED Visits, by Census Tract in Alameda County, 2005-2007



\*Non-emergent or primary care treatable ED visits as a percentage of all ED visits.

# 11. Leadership for Health of Entire City



# **11. Better Primary Care for City: Patient Centered Medical Homes**

- Linked with our **new OU Medical Legal Partnership**
  - Legal clinic in our main OU clinic (600 families currently)
- Linked with our **new OU Health Literacy Clinic – Library**
  - e-prescriptions sent from primary care physician to health librarian with library in our clinic (50 librarian visits per day)
- 1 of 7 National **Comprehensive Primary Care Initiatives – Payment for Primary Care Teams**
  - Blue Cross, Medicaid, Medicare and Community Care.
  - 265 physicians and 68 clinics across region.
  - Tulsa roll-out among the best in the nation

# 11. High Risk Care Teams for City

- Examples, Micro-Health Systems:
  - OU Fostering Hope Clinic for foster children, OU Type I Diabetes Team (132 hospital diversions), OU Addiction Medicine Program (Opioid abusers - 72% are drug free after 5 years)
- Oklahoma Programs of Assertive Community Treatment (PACT Programs):
  - 12 teams serving 17 counties
  - Daily outreach care of patients with most severe forms of mental illness
  - Dramatic:
    - Clinical improvements, stability living in community, decreases in hospital days (64%) and days in jail (72%)

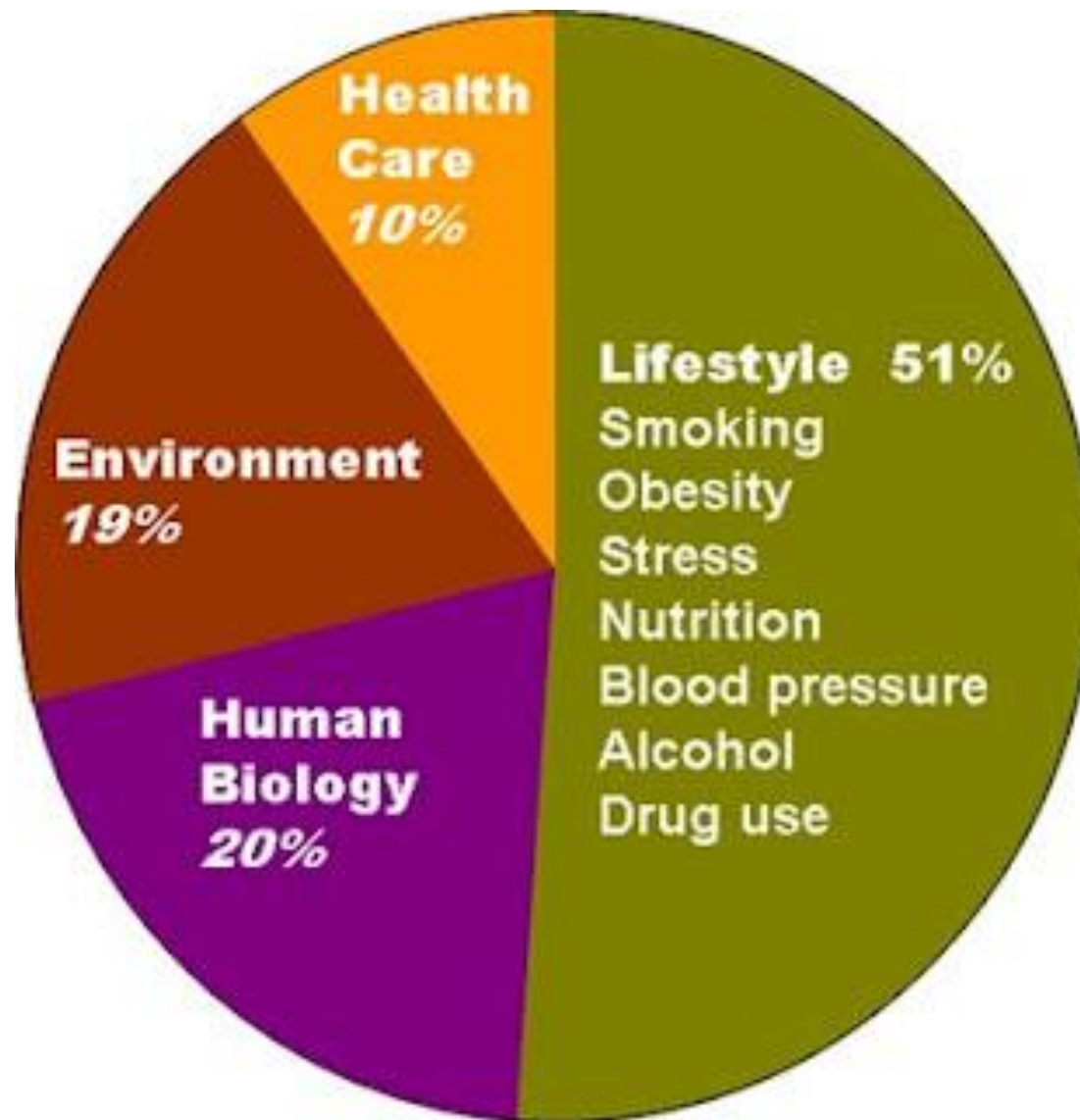
# **11. Care Coordination across Region**

- Sooner Health Access Network
  - 96,658 Medicaid members
  - Focused attention on high risk obstetrics, breast cancer, cervical cancer, high ER utilizers, hemophilia, asthma and mental health.

# **11. Health Information Exchange, E-based Referral and Consultation Management**

- 1 of 12 national demos
- 200 healthcare entities
- 2,000,000 patients
- 146,000 e-based referrals / consultations
- E-consultations between primary care physician and specialist physician
  - 30% reduction in face to face visits needed.
  - 66% improvement in wait times for face to face specialist visit.

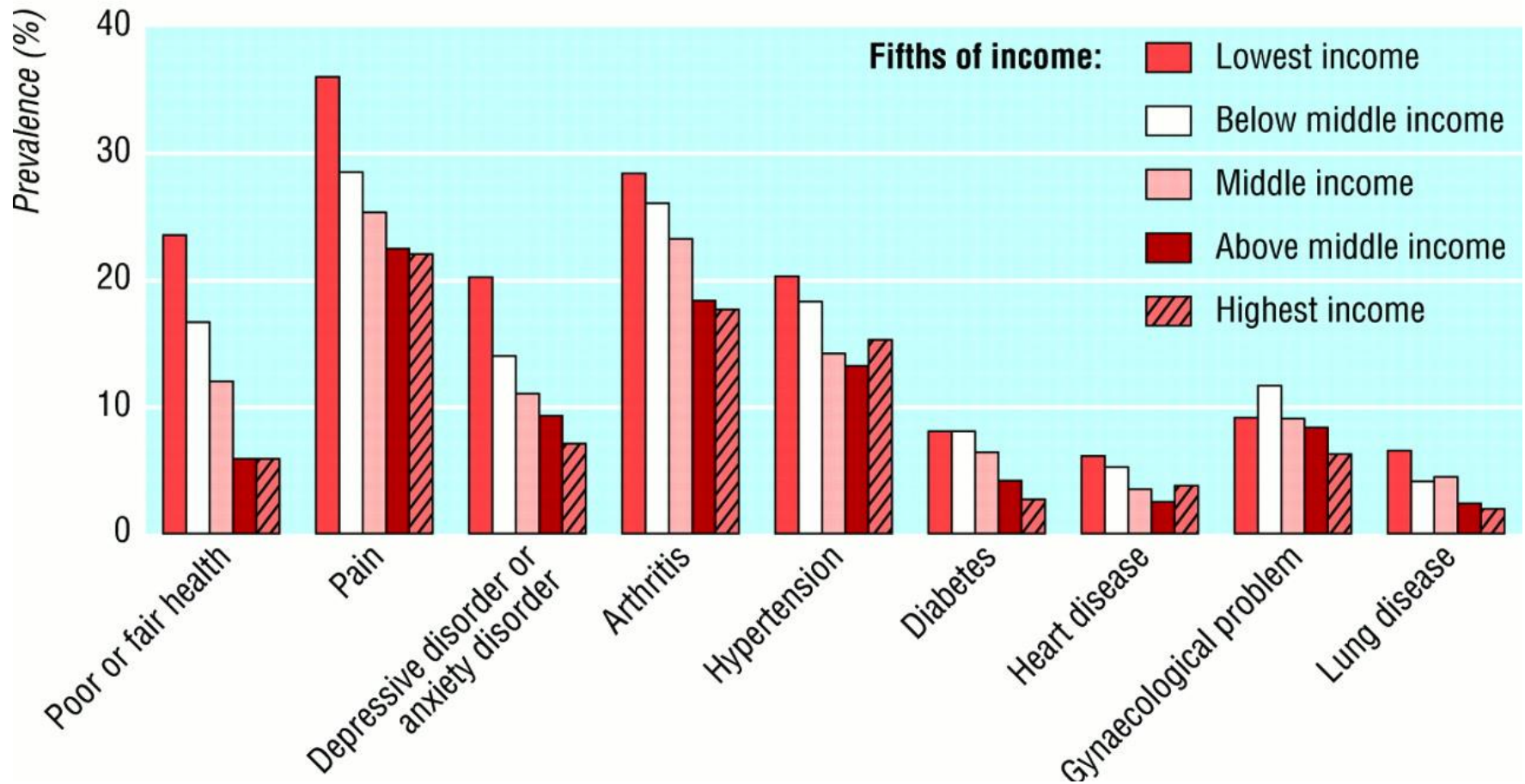
## 12. Addressing the Social Determinants of Health



*McGinnis – Institute of Medicine, Schroeder – New England Journal of Medicine, Robert Wood Johnson Foundation and most recently.....*

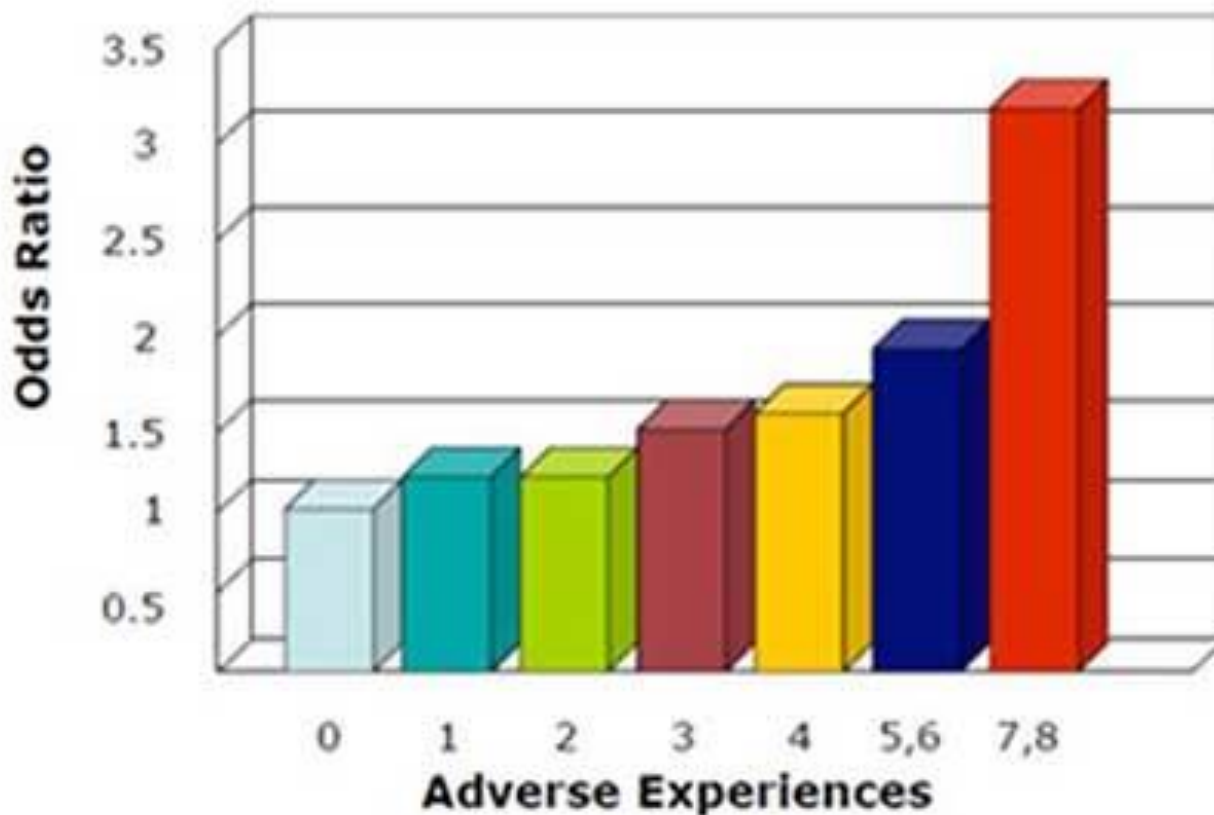


# 12. Health and Income

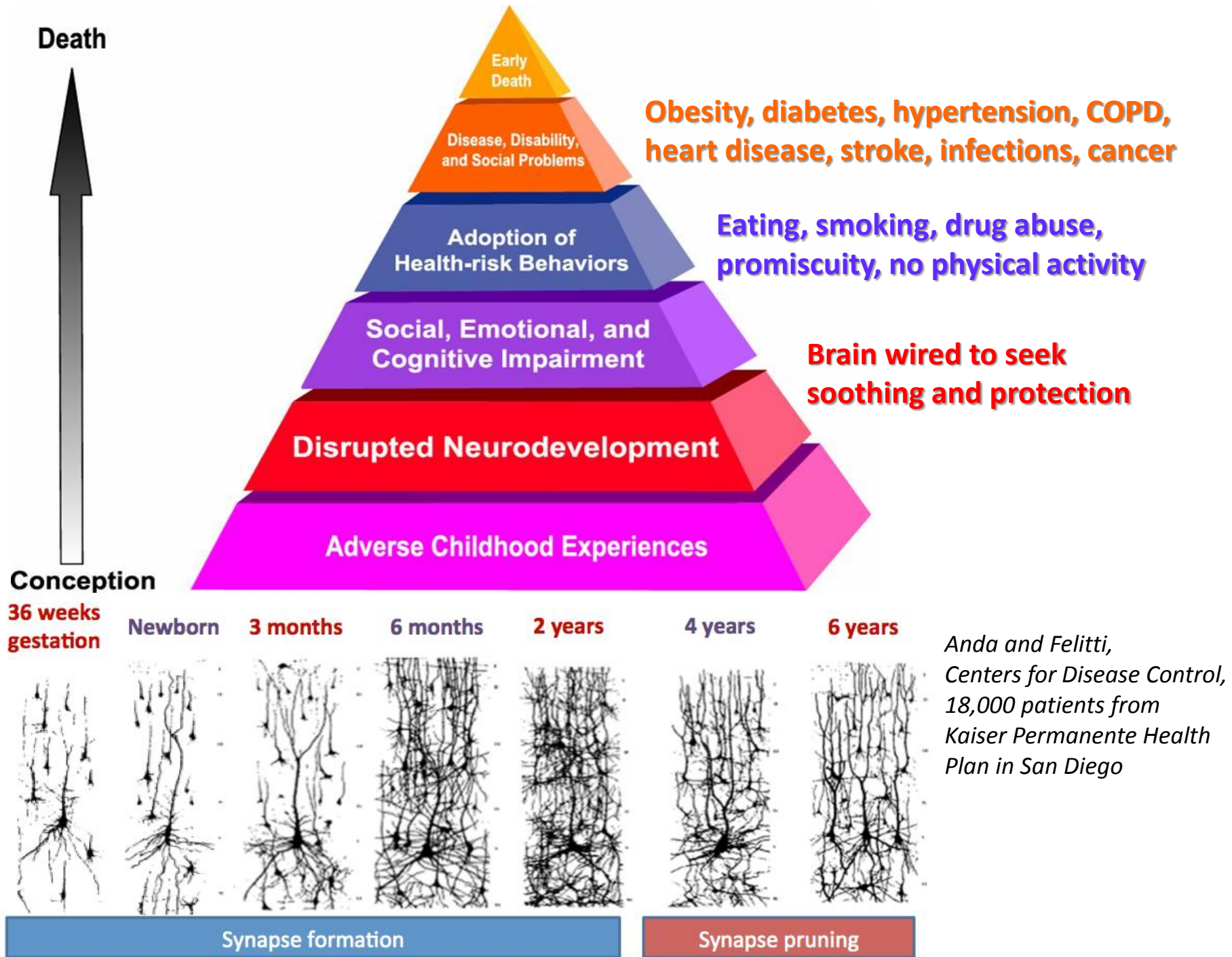


# 12. Addressing Adverse Childhood Experiences

Risk of Adult Heart Disease Increases with more Adverse Childhood Experiences



Source: Dong et al., 2004



Death



Early Death

Disease, Disability, and Social Problems

Obesity, diabetes, hypertension, COPD, heart disease, stroke, infections, cancer

Adoption of Health-risk Behaviors

Eating, smoking, drug abuse, promiscuity, no physical activity

Social, Emotional, and Cognitive Impairment

Brain wired to seek soothing and protection

Disrupted Neurodevelopment

Adverse Childhood Experiences

Conception

36 weeks gestation

Newborn

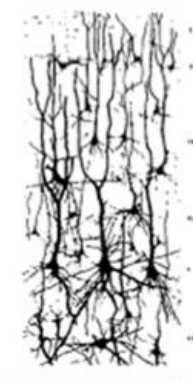
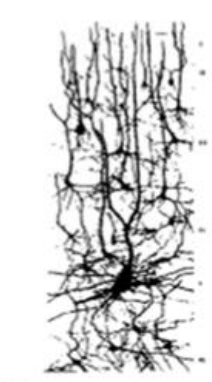
3 months

6 months

2 years

4 years

6 years



Synapse formation

Synapse pruning

*Anda and Felitti, Centers for Disease Control, 18,000 patients from Kaiser Permanente Health Plan in San Diego*



## 12. New Partners in Health Improvement: United Way International:

- City by City – funds non-governmental organizations (NGOs)
- Health, Mental Health, Education, Shelter, Clothing, Food, Financial Security
- 1800 United Way Agencies Internationally
- Medical School partner on Social Determinants of Health – 24 partnerships in Tulsa, Current Chairman of the Board.

# **13. For High Gini Co-efficient Areas, Engage the Assistance of the Wealthy**

- **Data on Health Disparities**
  - Oklahoma's health had improved the least of any state over the past 25 years
  - 14 year difference in life expectancy
- **Moral Obligation**
- **Economic Vitality of Our City**
- **Raised \$300,000,000 to help with health disparities and new medical education program.**