Global Health Education:
Healing an Ailing Planet with Better Ideas

Lord Cohen Lecture, ASME, July 11, 2018 Newcastle, UK

David Sklar, MD
Professor, School for the Science of Health Care Delivery ASU
Professor, Emeritus UNM HSC
Editor in Chief, Academic Medicine
Disclosure

- Editor in Chief Academic Medicine
Goals

- History
- Identify current challenges in global health
- Identify challenges in health professions education
- Consider a common purpose for health, health care and education
- Provide examples of joint solutions using education to improve health
- Create a new metaphor – Healing the planet through education
My History - Volunteer teacher in the Philippines 1970

- Taught History, English, Psychology, Agriculture to high school and college students in Mindanao. Cyclone hit the island. No health care. Students injured.
1972  Returned to College - premed. Prior to starting medical school teaching village workers and caring for indigent farmers in mountains of Mexico
My History

La Clínica
A Doctor’s Journey Across Borders

David P. Sklar
La Clinica," by David P. Sklar. This book surprised me, because I wasn't expecting to like it as much as I did. Sklar's multilevel book is his look back at time spent volunteering at a Mexican free clinic run by a man with several secrets. The back-and-forth between then and now moves this true story along and reading it is like exploring a cave: there's something unexpected and wonderful in every little cranny.
My History

- Guatemala Earthquake relief 1976 - I began my residency 2 months later.
Emergency Medicine and the Developing World DAVID P. SKLAR, MD The developing countries of the world represent a new environment in which to apply the unique expertise and knowledge of emergency medicine. With an understanding of the cultural, political and economic forces that affect health care in developing countries, American emergency physicians should consider collaboration with their counterparts in developing countries in such areas as prehospital care systems, trauma care, disaster management, poison information and management systems, and education related to clinical services, administration, and research methods in emergency medicine. Such collaboration can broaden the field of emergency medicine and fulfill individual humanitarian goals. (Am J Emerg Med 1988;6:390-393. © 1988 by W.B. Saunders Company.)
Venezuela Flood landslide 1999 relief. Drowning, toxic spills, Cyanide.
My History

- Medical Education Partnership Initiative 2014 Maputo, Mozambique.
- Academic Medicine supplement published
- I have been driven to find ways to share health education advances around the world.
What has happened since I began working in Global Health?

- The Mexican village has electricity and clean water, roads and cars
- The government supplies a doctor
- Vaccinations, medications available for all
- La Clinica closed - Government took over
- Political and social upheaval - drugs and violence in the rural villages
- Guatemala - recovered from earthquake.
- Venezuela in political crisis.
- Much has improved. New problems have appeared.
What Has Improved?

- Life expectancy in high, middle and low income countries increasing
- Childhood death rate has been reduced
- Non-communicable diseases replacing communicable diseases
- Health professions expansions - nurse practitioners, physician assistants, paramedics, community health workers, recognition of social determinants of health.
Life Expectancy Improving
Increasing Life Span Due to Reductions in Infant Mortality and Early Mortality

The death spike is getting sharper

Deaths of US women by age

Year 1933:
50% of all deaths occurred within a span of **26.3 years** around the average age of death.

Year 2014:
50% of all deaths occurred within a span of **16.3 years** around the average age of death.

© 2016 Max Planck Institute for Demographic Research I www.demogr.mpg.de
Causes of Death High Income Countries

The top 10 causes of death in high-income economies 2015

- Ischaemic heart disease
- Stroke
- Alzheimer's disease
- Trachea, bronchus, and lung
- Chronic obstructive pulmonary disease
- Lower respiratory disease
- Colon and rectum
- Diabetes mellitus
- Kidney disease
- Breast cancer
Causes of Death: Low Income Countries

The top 10 causes of death in low-income economies 2015

- Lower respiratory infections
- Diarrhoeal diseases
- Stroke
- Ischaemic heart disease
- HIV/AIDS
- Tuberculosis
- Malaria
- Preterm birth and complications
- Birth asphyxia
- Road injury
Global Burden of Disease: Takeaways

- More than half (52%) of all deaths in low-income countries in 2015 were caused by so-called “Group I” conditions, including communicable diseases, maternal causes, conditions arising during pregnancy and childbirth, and nutritional deficiencies.
  - Less than 7% of deaths in high-income countries were due to such causes.

- Non-communicable diseases (NCDs) caused 70% of deaths globally, ranging from 37% in low-income countries to 88% in high-income countries.

- In terms of absolute number of deaths, 78% of global NCD deaths occurred in low- and middle-income countries.
Global Health Improvements

- Globally, the number of deaths of children under 5 years of age fell from 12.7 million in 1990 to 6.3 million in 2013.

- In developing countries, the percentage of underweight children under 5 years old dropped from 28% in 1990 to 17% in 2013.

- Globally, new HIV infections declined by 38% between 2001 and 2013.

- Existing cases of tuberculosis are declining, along with deaths among HIV-negative tuberculosis cases.

- In 2010, the world met the United Nations Millennium Development Goals target on access to safe drinking-water.

Transition from Communicable to Non-Communicable
Current Challenges in Global Health

- Increasing costs - aging population - chronic diseases
- Health inequities
- Global warming - environmental threats
- Geopolitical conflict
- Metaphors - wall vs unity

Health care spending per capita

Health Care Spending Per Capita ($US PPP)

OECD Average in 2011 = $3,302

Source: OECD Health Data 2013.
Data note: PPP = purchasing power parity.
Produced by Veronique de Rugy, Mercatus Center at George Mason University.
Demographics

EXHIBIT 1
Relative Per Capita Health Spending, By Age Cohort (Age 35–44 Equals 1), 1999

<table>
<thead>
<tr>
<th>Relative spending</th>
<th>0–5</th>
<th>6–14</th>
<th>15–24</th>
<th>25–34</th>
<th>35–44</th>
<th>45–54</th>
<th>55–64</th>
<th>65–74</th>
<th>75+</th>
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Health Inequities

- Health outcomes differ related to income, race, ethnicity, social class and living conditions.

Where you live shouldn’t determine how long you live, but it does.

1 MILE 15 YEARS OF LIFE

Determinants of Health:
- Social & Economic Factors: 40%
- Health Behaviors: 30%
- Clinical Care: 10%
- Physical Environment: 10%
- Genes & Biology: 10%
Global Health Inequities. Life Expectancy and Income
Global Warming - Climate Change

- Environmental threats
- Food, water, housing, disasters
Geopolitical Conflict

- War, refugees, immigration, displacement, expenditures on weapons, injuries, mental health, weapons of mass destruction.

Current Challenges: US Metaphor for International Relations

- THE WALL - Isolation, Protection, the “other”.

Current Challenges - False Dichotomies -
Frenk J Lancet 2017

- Prevention vs treatment
- Vertical (dis spec) vs Horizontal (system)
- Primary Care vs Specialized Care
- Infectious vs Non-Communicable
- Knowledge (rich) vs Action (poor countries)
- Social Determinants or Health Care
- Impoverishment from illness treatment
What about Global Health Education? Could it solve some of the challenges?

- Frenk et al. Health professions for a new century: transforming education to strengthen health systems in an interdependent world. Lancet. 2010

- Three Generations of education reform
  - Science based - early 20th century
  - Problem based - mid 20th century
  - Competency based - end of 20th century

- Vision: Education to train competency based teams of health professionals to provide equitable patient and population based care for all.

- Outcomes for trainees and population
Health Professionals For A New Century

1900: Science Based
    - Instructional
      - Institutional

Problem Based
    - Scientific curriculum
      - University based
    - Problem-based learning
      - Academic centrés

Systems Based
    - Competency driven: local-global
      - Health-education systems

2000+:
Medical Education - What are the challenges?

- Competencies: What? How much?
- Novice to Expert: Simulation, practice, feedback for expert performance
- Professional identity development
- Assessment: Knowledge, skills, feedback, workplace, classroom
- Evidence based education and practice
- Teams: Inter-professional education and practice - power, money
- Wellness: Burnout, work hours, family
- Faculty development: More than CME - individualized plans, CPD
- Alignment of education and health care, costs of care
- Accreditation, Certification, Maintenance of Certification
What is the purpose of health professions education?

- Historically purpose was to prepare the student for the practice of medicine by filling him/her with scientific and practical knowledge, apprenticeship to acquire skills and professional attitudes.

- This model lacked any recognition of public need or responsibility for location or type of practice, or population served.

- What if the purpose of health professions education was the Triple Aim of Better Health, Better Healthcare and Lower Cost?

- How would that change curriculum, selection, assessment and attitudes?
U.S. medical schools have a great deal to gain in embracing this global educational mission. Our students and trainees are clamoring for us to do so, and we would be wise to harness that passion.

Educational innovation in U.S. medical schools is slow and takes place over long cycles of curriculum reform.

Once we as a global educational community learn the best ways to teach and develop the most effective curriculum tools, these can be shared broadly as global public goods.

Should not all people, no matter where they happen to live, have access to someone well trained in our profession?

The U.S. academic medical community can make this aspiration a reality by embracing global medical education as a core principle of its mission.
Common Education and Health Care Delivery Goal

- Improve Value in Health Care
  - Better Health
  - Better Health Care
  - Lower Cost

Triple Aim (Berwick et al)
Four Education Areas That Could Increase Value in Health

- Workforce: Provide the health care workforce with the right number and mix of graduates with the right skills.

- Create a curriculum that will prepare the workforce for a population based care delivery system. Share curricular resources electronically.

- Encourage innovation in health care delivery, find global partners and rapidly diffuse it.

- Promote a global physician identity to include competence, health equity, provider wellness and continuing professional development.
**Workforce Model**

- **Medical Students**
- **IMGs**
- **Residents and Fellows**
- **NPs and PAs**

**Total Workforce Production**

- **Supply of Providers**
- **Efficiency factors**
- **Population Demand**

**Attrition**

- Part-time
- Retirement
- Disability and Death

-- School for the Science of Health Care Delivery

-- Arizona State University
Workforce projections

Supply =

(Current + New - Exits) × Efficiency

- Physician hours
- GME Enrollment
- Age
- Economy
- Teams
- Structure
- Tools

Demand =

Population × Health × Utilization

- Size
- Demographics
- Prevalence
- Incidence
- Access
- Structure
- Supply
Team Based Care

- Interprofessional Education and Practice - Learning from each other, break down hierarchies, understand and address the social determinants, move to outcomes based payments
Workforce

- We must have accurate annual estimates of health care workforce needs based upon changes in population needs, changes in care delivery, financial resources, and provider efficiency and longevity.

- Health care workforce estimates should include all members of the care delivery team, including advance practice nurses and physician assistants.

- Diversity of health care workforce should be a priority in the selection process.

- Workforce is no longer local. It is global and bi-directional.
New Curriculum

- A curriculum based upon health, health care quality, and cost.
- A curriculum that integrates social, and ecological influences.
Cost of Care is Not Equally Distributed Among Beneficiaries
New Curriculum

- A curriculum based upon health, health care quality, and cost. The science of health care delivery.
# Education Based Upon Quality

<table>
<thead>
<tr>
<th>SAFE</th>
<th>TIMELY</th>
<th>EFFECTIVE</th>
<th>EFFICIENT</th>
<th>EQUITABLE</th>
<th>PATIENT-CENTERED</th>
</tr>
</thead>
</table>
| ● Procedural competence  
● Experience  
● Team work  
● Health systems services  
● Medical knowledge  
● Literature review  
● Evidence-based medicine  
● Anatomy, physiology, pathology, etc...  
● Decision analysis  
● Psychology – human factors | ● Acute care  
● Emergency care  
● Information systems  
● Process mapping  
● Team function  
● Simulation practice  
● Quality improvement  
● Lean management | ● Basic science vocabulary  
● Key concepts integrated around biologic homeostasis, pathologic disruptions, resilience factors  
● Physical diagnosis  
● Procedural competence  
● Emergency care  
● Chronic care  
● Prevention | ● Sociology  
● Political science  
● Ethics  
● Economics  
● Philosophy  
● Statistics  
● Epidemiology  
● Preventative medicine  
● Decision trees  
● Cost benefit analysis | ● Economics  
● Business  
● Public Health  
● Statistics  
● Philosophy  
● History  
● Ethics | ● Anthropology  
● Psychology  
● Sociology  
● Ethics  
● Philosophy  
● Humanities  
● Spanish language skills  
● Communications  
● Religion |

**Attributes**  
Quality Medical Care

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[ASU School for the Science of Health Care Delivery](https://www.asu.edu)
Innovation and its diffusion

- Democratization of knowledge
- Diffusion through contact
The mission of Project ECHO is to develop the capacity to safely and effectively treat chronic, common and complex diseases in rural and underserved areas and to monitor outcomes.

Supported by Agency for Health Research and Quality grant 1 UC1 HS015135-21
De-monopolize Knowledge through Education

- Project Echo uses telemedicine to connect specialists to primary care providers
- Community of practice - education, collaboration, co-management, CME
Transformation of anesthesia for ambulatory orthopedic surgery: A mixed-methods study of a diffusion of innovation in healthcare

Kyle T. Leggott, Matthew Martin, David Sklar, Deborah Helitzer, Randy Rosett, Cameron Crandall, Firoz Vagh, Deana Mercer

* School of Medicine, University of New Mexico, MSC09 5040, 1 University of New Mexico, Albuquerque, NM 87131, USA
b Hand & Plastic Surgery Centre, Grand Rapids, MI, USA
c Department of Emergency Medicine, School of Medicine, University of New Mexico, Albuquerque, NM, USA
d Department of Family and Community Medicine, School of Medicine, University of New Mexico, Albuquerque, NM, USA
e Department of Anesthesia & Critical Care Medicine, School of Medicine, University of New Mexico, Albuquerque, NM, USA
f Department of Orthopaedics & Rehabilitation, School of Medicine, University of New Mexico, Albuquerque, NM, USA

Peripheral Nerve Blocks in Surgery – Adoption Time Frame

Percentage of outpatient orthopedic procedures in which a peripheral nerve block (PNB) only was used for anesthesia at the University of New Mexico (UNM) ordering to year. The error bars represent 95% CIs.
What Happens to High-Cost Patients?

Source: Population Health Management, Volume 20, 2017
Education of Teams - Chronic Care Model

- Education can result in reduced spending by training teams to identify and treat patients with chronic illness to avoid hospitalization

Bodenheimer, T. Wagner, EH, GrumbachK. Improving Primary Care for Patients With Chronic Illness JAMA. 2002;288(14):1775-1779
Social Determinants of Health
A Global Perspective
Professional identity formation

- The impact of experience on learning.
- What about international volunteer experience?
Experience, Social Context and Learning

- Experience stimulates learning
- Social context makes learning relevant
- Kirkpatrick learning outcomes include patient care (results).
- Action, reflection, analysis, experience common to both.
Medical Volunteerism

- Popularity of health missions and programs for students, residents and fellows.

- Number of graduating U.S. medical students who participated in a global health experience has increased **fivefold** in the last 30 years.

- Patient differences in cultural beliefs, expectations and legal/ethical norms.

- Limited resources in personnel, supplies, technology and supplies.
Medical Volunteerism

- Limited time to develop relationships and continuity of care.

- Motivates students to understand and engage in disparities, understand the connections between environment and health.

- Can be transformative if well designed, collaborative and bi-directional.
Physician Identity

- Creation of a strong, principled, resilient professional identity requires commitment to competence, physician wellness, health equity, and continued learning and development.

- Medical education should develop structures such as learning communities, longitudinal clerkships and involvement with diverse vulnerable populations that nurture identity development.
Our medical education strategies need to embrace global health as part of a philosophy of population needs, human rights, equity, and justice.

A new common set of professional values around global social accountability is necessary. Education borders must be broken down at three levels—societal-institutional, interpersonal, and individual.
Aligning education and care

- Must demonstrate to policy makers that health education can solve their problems of cost, quality and access.
- Alignment of incentives for improvements in care and reduction in cost with education.
- Alignment of identity and values
## Merging Education and Care Delivery

- **Education + Process Change + Data** = Learning & Better Care

### Chart 1

**Examples of How Care Delivery and Payment Priorities Can Be Aligned With Educational Approaches**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Care delivery priority</th>
<th>Payment priority</th>
<th>Educational approach</th>
<th>Examples</th>
<th>Main findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central line infections, mortality, morbidity costs</td>
<td>Quality improvement</td>
<td>Payment penalties for hospital-acquired conditions</td>
<td>Central line insertions and management education</td>
<td>Mastery learning(^ {38,39}), Education and quality improvement(^ {37})</td>
<td>Standardization of processes and training reduced infection rates(^ {37}) as well as morbidity and mortality.(^ {38,39})</td>
</tr>
<tr>
<td>Reduction of costs for orthopedics procedures</td>
<td>Diffusion of innovation</td>
<td>Bundled payment</td>
<td>Adoption of peripheral nerve blocks to replace general anesthesia to reduce hospitalization time</td>
<td>Ambulatory orthopedic surgery(^ {44})</td>
<td>Education led to the introduction of a different anesthetic approach that diffused throughout the system.</td>
</tr>
<tr>
<td>High costs for patients with complex chronic disease</td>
<td>Population management</td>
<td>Capitated payment, bundled payment</td>
<td>Education of primary care providers for complex care management</td>
<td>Telemedicine (Project ECHO(^ {45}))</td>
<td>Expertise to manage complex care can be shared.(^ {46})</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
<td>Chronic care fee for service payment</td>
<td>Team training and case management</td>
<td>Chronic care model(^ {47})</td>
<td>Teams can learn to identify and manage chronically ill patients and avoid hospitalization.(^ {47})</td>
</tr>
</tbody>
</table>

\(^ {a}\)The chart demonstrates that there are current payment incentives that could provide the financial support to integrate education and health care delivery.
Medical Education and Health Care Delivery

Source: Academic Medicine, Sklar, Hemmer, Durning, 2018
Metaphors

- Help us understand a complex topic in a way that makes sense

- Global health education metaphor: Ecological model-Planet as a living being. Healing the planet through education. Creation of identity through work.
Summary

- People are living longer: But we are now facing new challenges of aging and increasing populations, fear of “the other”, isolation, environmental stress increased costs of health care.

- Global health education can break down walls between cultures, share knowledge and increase commitment to health equity.

- Alignment of education and care delivery with shared goals can occur through quality improvement, innovation, sharing of information, and identity formation.

- Global Health education will need a new metaphor: Not a wall, perhaps an ecological metaphor- earth as a community garden. Healing=planting and nurturing. Education=shared knowledge and purpose. The harvest= celebration of life.
Questions