Past, Present, and Future Perspectives on REVES, and “My Brilliant Career”

Dr. Sandy Reynolds
George Myers Memorial Lecture,
REVES 28
Vienna, Austria
Agenda

1. The Past
   *REVES and My Career – vaguely, 1990 through 2015*

2. The Present
   *The State of Health in the World (largely according to OECD and WHO)*

3. The Future
   *Future Health Concerns*
Who Ruled the World? 1990

Margaret Thatcher

Francois Mitterand

Li Peng

Toshiki Kaifu

Mikhail Gorbachev

George H.W. Bush

Helmut Kohl
Who Rules The World: Now

- David Cameron
- Francois Hollande
- Vladimir Putin
- Le Keqiang
- Shinzo Abe
- Barack Obama
- Angela Merkel
Well, some things never change

1990

NOW
And In the Future?
In the Beginning: 1989-1990

- **REVES**
  - 1990 Geneva
  - 1990 Durham

- **MOI!**
  - Still in Banking in New England
Then 1991-1993

- REVES
  - 1991 Leiden
  - 1992 Ottawa
  - 1993?

- MOI
  - Fall, 1991 – USC!
Then 1994-5!

- **REVES**
  - 1994 Canberra
  - 1995 Chicago

- **MOI**
  - started working with Eileen! 1994
  - 1995 – PhD
1996

- **REVES**
  - 1996 – Rome!

- **MOI**
  - Graduation and
  - USF!!
1997-2000

- **REVES**
  - 1997 *Tokyo*
  - 1999 *London*
  - 2000 *Los Angeles*

- **MOI**
  - *Publish, Publish, Publish*
    - My own Guardianship Research
    - With Eileen and Saito
2001 - 2003

- **REVES**
  - 2001 Vancouver
  - 2002 Hammamet
  - 2003 Guadalajara

- **MOI**
  - Publish, Publish, Publish
  - My own Guardianship Research
  - With Eileen and Saito
  - 2002 – *TENURE!!!*
  - *And my first REVES in 2003!*

![Pie chart with categories and percentages](chart.png)
2004 - 2006

- **REVES**
  - 2004 Bruges
  - 2005 Beijing
  - 2006 Amsterdam

- **MOI**
  - Sabbatical with Eileen
  - Publish, Publish, Publish
    - Obesity and Active Life Expectancy
    - With Eileen and Saito
  - And Spin-offs
  - Treasurer of GSA!!
2007 – REVES and I COINCIDE: St. Petersburg Beach, Florida
2007 – REVES and I COINCIDE

Bernard
2008 - 2011

- **REVES**
  - 2008 Manila
  - 2009 Copenhagen
  - 2010 Havana!
  - 2011 Paris!!!!!

- **MOI**
  - Publish, Publish
  - Administrative Work
  - Finished up as GSA Treasurer – 2010
  - Master Chorale of Tampa Bay
2012 - 2014

- **REVES**
  - 2012 Taipei
  - 2013 Austin
  - 2014 Edinburgh

- **MOI**
  - Publish, Publish
  - Administrative Work
  - Master Chorale of Tampa Bay
2015-2016

- REVES -
  - 2015 Singapore
  - 2016 Vienna

ME - RETIREMENT!!!
REVES Agendas, 1990 - 2014

Total Number of Presentations

And My Career
Meanwhile, what’s been going on in the World?
The Regions

Life Expectancy at Birth - MALES

- Africa
- Asia
- Europe
- LAC
- N America
- Oceania

WHO Global Database: Indicators
Life Expectancy at Birth: Global, High and Low Income Countries, Men and Women

Source: WHO, Global Health Observatory Data Repository, Life Expectancy, 2016
Specific Countries: LE at Birth, 1970 and 2011

Death Rates– All Causes (rates per 100,000 pop.)

Source: European Health for All Database
Death Rates – Circulatory Diseases

Source: European Health for All Database
Death Rates – Cancer

Source: European Health for All Database
Death Rates– Respiratory System

Source: European Health for All Database
Death Rates – Diabetes

Source: European Health for All Database
Death Rates – External Causes

Source: European Health for All Database
Death Rates from Suicide, Selected Countries, 2011

Trends in Suicide, Selected Countries, 1990-2011
% Change per Capita in Adult Alcohol Consumption, Selected Countries, 1990-2011

% Change in Smoking Rates, Selected Countries, 2000-2011

Prevalence of Obesity Among Adults in Selected Countries, 2011

Future Health Issues

- Air Pollution
- Global Warming
- Increasing Population Diversity and Refugees!
Air Pollution

- Particulate Matter$_{2.5}$ and Ozone Production

Source: OECD Environmental Outlook to 2050: The Consequences of Inaction, http://dx.doi.org/10.1787/9789264122246-en
“Worst” areas for Ozone (% days 8-hr max > 100 μg/m³) and PM$_{2.5}$ (Annual mean)

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<th>PM$_{2.5}$</th>
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Pascal, Corso, Chanel et al., 2013
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Pascal, Corso, Chanel et al., 2013
So you think there’s little we can do about Air Pollution?
Climate Change – Global Warming

- Greenhouse Gases
  - $O_3$
  - $CO_2$
  - Methane
  - CFCs (less so, these days)

- Several threats to Public Health
  - Natural Disasters – Floods, Wildfires, Extreme Storms
  - Heat Waves and Sea-level Rise
Natural Disasters

- Storms, floods, cyclones, landslides, wildfires, droughts
  - 1970 to 2012 8,335 disasters
    - 1.94 million deaths
    - $2.4US Trillion in economic losses
  - Consequences
    - Large-scale dislocation of populations
    - Often to places ill-prepared to cope
    - Displaced pops often subject to:
      - Undernutrition, violence, sexual abuse, mental illness including PTSD
      - Crude mortality rate as much as 30x base rate, often highest in children <5 years

Patz, Grabow, & Limaye, 2014; Haines et al., 2006
Heat Waves

- Mortality relationship is J-shaped with high mortality at highest temperatures
- European 2003 heat wave
  - *Killed 40,000 in 2 weeks*

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<td>975</td>
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*Patz, Grabow, & Limaye, 2014; Ballester, Robine, Herrmann, & Rodo, 2011; Haines et al., 2006*
Heat Waves

- Clearly a Public Health Issue
  - *How prepared are we?*
  - *Death toll in 2003 implies not too well!*
    - Need emphasis on public education
    - Subsidies for elderly re: HVAC systems?
    - “Safe” zones in cities – Urban Heat Islands!
Sea-level rise

- 14 of the world’s 19 Mega-cities are situated at sea-level

Patz, Grabow, & Limaye, 2014
Sea-level rise

- Global sea levels rose 17 cm during 20th Century (>1/2 foot)
- Pace of rise will accelerate during 21st Century
  - Midrange estimates – 26- to 98-cm rise by 2080 (> 3 feet)
  - Loss of up to 22% of world’s coastal wetlands
  - 200 million people at risk for:
    - Displacement
    - Salt water intrusion into freshwater aquifers
    - Disruption of storm water drainage and sewage disposal systems, YET
By now you may have heard that Florida Gov. Rick Scott is a flat-out global warming denier, even though his state is arguably the most vulnerable to sea level rise and other problems that are surely to come if we do nothing.

• But even doing nothing is too much for Scott. Four former officials at Florida’s Department of Environmental Protection have claimed that Scott put out an unwritten rule ordering that no one at the DEP even use the phrases global warming or climate change in any of their communications.
“King Tide” in Miami, Florida
Climate Change – Indirect Consequences to Human Health

- Floods – rapid rise floods – mostly drowning plus:
- Infectious Diseases
  - Water- and Food-borne
  - Vector-borne
  - Mosquito-borne
  - Tick-borne
- Diarrheal diseases –
  - Coastal flooding in low lying areas
  - Inland flooding in “former socialist economies” (Haines et al., 2006)
- Already causing 150,000 death/year
Issues of Diversity

■ REVES
  - *Most presentations on diversity have been in 3 areas:*
    ■ SES differences – largely education and occupation
    ■ Regional differences – largely UK and US
    ■ Ethnic differences – largely from the US

■ BUT
  - *There is increasing diversity within the EU*
  - *Implications for Differential Health Status and Social Cohesion*
Foreign-born as % of Total Population, 2000 and 2013

Note: Data refer to 2000 or to the closest year with available data and to 2013 or most recent available year.
Source: OECD International Migration Database.
Trends in Migration

Refugee crisis in Europe
Number of new asylum seekers since 1980 in the OECD, the EU and Germany

Source: UNHCR
Asylum Seekers,
Average Annual % Change, 2010 - 2014

Source: UNHCR and OECD International Migration Database
And what about their health?

- EU countries have universal health coverage
- Does not mean health care is accessed equally
- Migrants, in particular
  - Coming from places where ‘authorities’ represent threat
  - Language, cultural barriers
  - Underlying health – probably not as good – particularly maternal and neonatal
And Social Cohesion?

- Threat Hypothesis
  - More diverse societies often lead to lower generalized trust and loss of sense of community
    - Not just among ethnic minorities
    - Also among the dominant groups

- Diversity causes feelings of threat
  - And increased negative “out-group” orientations

- US and Canadian studies
  - Racially diverse cities, communities, neighborhoods
  - Generalized trust tends to be lower for ‘visible’ minorities and white majorities

- Evidence in US???
  - Mysterious success of Donald Trump
  - Amplified by level of economic inequality

Source: Hooghe, Reeskens, Stolle, & Trappers, 2006; Strauss, Connerley, & Ammermann, 2003
Impact of Migration on This!

- Why do we pay attention to Donald Trump talking about patrolling Muslim areas in the US
  1. He’s an idiot
  2. He’s playing on fear – A Republican hallmark in trade (GWB in 2004)

- Are citizens of Belgium and France immune to this?

- If Threat Hypothesis is correct, rapid rises of migrants – particularly ‘visible’ minorities – further erode social cohesion
Future Directions for REVES

■ Air Pollution & Global Warming (Climate Change)
  - Probably not specifically on our agenda –
  - Sure hope it is in APHA, PAA

■ More collaboration across countries –
  - Increasing research being done within EU –
  - The more the better

■ More emphasis on Issues of Health in Subpopulations –
  - Definitions?
  - Adequate attention paid in large scale surveys?
  - Statistical power – problematic with iMaCh, other programs
Thank you and Enjoy the Rest of REVES!!
Per Capita Health Expenditures, as % of GDP

Source: European Health for All Database
Selected Other Countries:

2014

India: 4.7
Singapore: 4.9
China: 5.5
Tanzania: 5.6
Egypt, Arab Rep.: 5.6
Poland: 6.4
Zimbabwe: 6.4
Ukraine: 7.1
Colombia: 7.2
Czech Republic: 7.4
South Africa: 8.8
Japan: 10.2
Switzerland: 11.7

“Recent” GDP Growth – High Income and Developing Countries

2001 to 2014, 2015-2018 Projected

-6.0 -4.0 -2.0 0.0 2.0 4.0 6.0 8.0 10.0


High Income Countries
Developing Countries
Mid-2000’s Gini Coefficients

Figure 2.1: International comparison of Gini coefficients in the mid-2000s

Source: Gini coefficients of income inequality in OECD countries, mid-2000s (Figure 1.2) in Growing Unequal? Income Distribution and Poverty in OECD Countries (OECD (2008)).
\( \text{CO}_2 \) Emissions attributable to population size and age structure: Germany, 1950 to 2100

Source: Kluge, Zagheni, Loichinger, & Vogt, 2014
Trends in REVES Topics -

Definitional Issues – NOT including Harmonization
Methods
Healthy Life Expectancy – Single and Multiple Country
Trends in Health/Disability and Mortality
SES/Diversity Issues – US and Elsewhere

![Graph showing trends in SES/Diversity Issues for US and Other regions from 1990 to 2014. The graph includes lines for US, Other, Linear (US), and Linear (Other).]
Death Rates from Transport Accidents, Selected Countries, 2011

Death Rates – Alcohol-Related

Source: European Health for All Database
Death Rates – Smoking-Related

Source: European Health for All Database
Global Premature Deaths (in Millions of People) from Selected Environmental Risks, 2010-2050

Source: OECD Environmental Outlook to 2050: The Consequences of Inaction, http://dx.doi.org/10.1787/9789264122246-en
Using Beijing @ Case Study

- High population growth, traffic density and levels of particulate matter
- Biggest culprits:
  - Residential wood burning
  - Coal burning
  - “Mineral aerosols from resuspended road dust”
  - Solid waste management
- Result –
  - Impact on Mort/Morb –
    - Varies by season
    - PM$_{2.5}$ and Potassium had highest impact on non-accidental mortality
  - Similar to results found in the Netherlands, Phoenix, Santa Clara County

Li, Xin, Wang et al., 2015
European Studies

- Long term exposure to PM$_{2.5}$ linked to natural cause mortality (Beelen et al., 2014)
  - Little difference between 22 cohorts examined
  - Mortality from Lung Cancer and Stroke, not IHD or Respiratory Diseases
  - Association between LT Exp to PM$_{2.5}$ and Mortality found even in areas already below EU standards for PM
Excess Mortality during 2003 European Heat Wave

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_Haines et al., 2006_
Big question -

- How well will humans adapt to increasingly hot environment?
  - Public health education
  - Health warning systems
  - Emergency preparedness
  - Add Boil water notices
  - Risk assessment for extreme rainfall events
  - Risk assessment for health effect of algal blooms
  - ZIKA!!!
  - High Pollution day warnings
  - Food hygiene measures and enforcement
Percent Change in Foreign-Born Residents: 2002-2013 (2012 – France)

Source: UNHCR and OECD International Migration Database