SMDM:
Globalizing Better Health through Better Decisions

Dana L. Alden, PhD
Shidler College of Business, University of Hawaii
HTA International Symposium
University of Tokyo
November 2, 2015
Proposes standards for ideal decision making.

Seeks to explain how physicians and patients routinely make decisions while identifying barriers to and facilitators of effective decision making.

Seeks to develop tools that can guide physicians, their patients, and health care policymakers to make good decisions in practice.
Inspired by Medical Decision Science and founded in 1979, SMDM ...

is ...

International & multi-disciplinary uses ..

Rigorous & transparent methods cares deeply about ...

Patient values works tirelessly to ...

Improve healthcare
SMDM’s Mission

Advance ... proactive & systematic approaches to clinical decision making and policy-formation in health care.

Through ... a scholarly forum that connects and educates researchers, providers, policy-makers, and the public.

In order to ... improve healthcare quality around the world.
1. Systematic, proactive approaches should be used for decision making in healthcare.

2. These approaches are more likely when perspectives and expertise from multiple disciplines are involved and promoted.

3. Involving multiple disciplines optimizes communication among healthcare decision makers, increasing informed and shared decision-making by policymakers, physicians, patients, and the public.
SMDM advances science in the field by ...

Increasing synergies between multiple areas relevant to medical decision making.

In order to generate innovative and useful knowledge

For example … developing and evaluating tools for shared decision-making between patients and their healthcare providers.

From: Dana Farber Community Cancer Care
SMDM advances science in the field by …

Holding highly stimulating and scholarly meetings.

Offering rigorous courses taught by expert faculty.

Publishing a highly ranked, peer reviewed journal.

Providing cutting-edge information through an interactive and innovative website.

Developing careers through active mentoring.

Increasing international exchange and research projects between scholars around the world.
The Society's diverse membership includes trainees to senior researchers as well as educators, clinicians, managers, and policy makers.

Members come from a variety of backgrounds and academic disciplines including:

- Decision Science
- Psychology
- Health Economics
- Operations Research
- Biostatistics
- Clinical Epidemiology
- Informatics
- Evidence-Based Medicine

Members work in hospitals, universities, corporations, foundations, and government agencies across the globe.
SMDM Meetings: North America, Europe and Asia

Annual
October

Bi-Annual
January

Bi-Annual
June
Web of Science:

* 1 year Impact Factor: 3.24
* 5 year Impact Factor: 3.18
* Ranking:
  Medical Informatics - 4 out of 24
  Health Care Sciences & Services – 14 out of 89
“Statistical Modeling of Disease Progression for Chronic Obstructive Pulmonary Disease Using Data from the ECLIPSE Study”

“Shared Medical Decision Making in Lung Cancer Screening: Experienced versus Descriptive Risk Formats”

“Some Health States Are Better Than Others: Using Health State Rank Order to Improve Probabilistic Analyses”
SMDM Editorial Board:
Sample Universities Represented

- University of Michigan
- Stanford University
- University of California at Los Angeles
- New York University
- University of Queensland
- Leiden University
- University of Toronto
New SMDM Journal …

Medical Decision Making Policy & Practice

https://mc.manuscriptcentral.com/mdm-pp
In sum, SMDM provides a highly supportive professional home where members …

*gather* the latest scientific insight on medical decision making,

*gain* inspiration from peer interaction, and

and, *grow* their ability to make significant differences in the lives of patients and populations around the world.
BUT ... THE WORLD IS CHANGING
Population in 2014
Projected Population in 2050

- Estimated that the earth’s population will be ~ 9 billion
- 62% of the people will live in Africa, Southern Asia and Eastern Asia

Exhibit 3

By far the most rapid shift in the world’s economic center of gravity happened in 2000–10, reversing previous decades of development

Evolution of the earth’s economic center of gravity

AD 1 to 2025

1 Economic center of gravity is calculated by weighting locations by GDP in three dimensions and projected to the nearest point on the earth’s surface. The surface projection of the center of gravity shifts north over the course of the century, reflecting the fact that in three-dimensional space America and Asia are not only “next” to each other, but also “across” from each other.

SOURCE: McKinsey Global Institute analysis using data from Angus Maddison; University of Groningen
• Nigeria could be the fastest growing country due to its youthful and growing working population
• Vietnam is also a potential fast growing economy, although it needs a stronger macroeconomic policy framework to sustain rapid growth in the longer term
• India, Indonesia and Malaysia also have strong growth potential in the Asian region, both due to their own momentum and the pull from the large Chinese economy
<table>
<thead>
<tr>
<th>Rank</th>
<th>Score</th>
<th>University Name</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100.0</td>
<td>Massachusetts Institute of Technology (MIT)</td>
<td>US</td>
</tr>
<tr>
<td>2</td>
<td>99.4</td>
<td>University of Cambridge</td>
<td>UK</td>
</tr>
<tr>
<td>2</td>
<td>99.4</td>
<td>Imperial College London</td>
<td>UK</td>
</tr>
<tr>
<td>4</td>
<td>99.3</td>
<td>Harvard University</td>
<td>US</td>
</tr>
<tr>
<td>5</td>
<td>99.2</td>
<td>University of Oxford</td>
<td>UK</td>
</tr>
<tr>
<td>5</td>
<td>99.2</td>
<td>UCL (University College London)</td>
<td>UK</td>
</tr>
<tr>
<td>7</td>
<td>98.3</td>
<td>Stanford University</td>
<td>US</td>
</tr>
<tr>
<td>8</td>
<td>97.1</td>
<td>California Institute of Technology (Caltech)</td>
<td>US</td>
</tr>
<tr>
<td>9</td>
<td>96.6</td>
<td>Princeton University</td>
<td>US</td>
</tr>
<tr>
<td>10</td>
<td>96.5</td>
<td>Yale University</td>
<td>US</td>
</tr>
</tbody>
</table>
Asian universities in top 200 World University Rankings

<table>
<thead>
<tr>
<th>Country</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>5</td>
</tr>
<tr>
<td>Turkey</td>
<td>4</td>
</tr>
<tr>
<td>Korea</td>
<td>4</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>4</td>
</tr>
<tr>
<td>China</td>
<td>3</td>
</tr>
<tr>
<td>Singapore</td>
<td>2</td>
</tr>
<tr>
<td>Thailand</td>
<td>1</td>
</tr>
<tr>
<td>Taiwan</td>
<td>1</td>
</tr>
</tbody>
</table>

- World university rankings show 'power shift' from US and UK towards Far East
- 12% (n=24) of the world’s top 200 universities are Asian; 10% last year
- At the current pace, 1/4 of the world’s best universities could be Asian by 2040
- India is now following the same growth pattern as China did 13 years ago
24. The Number of Researchers per Million Inhabitants Around the World
e.g. search Web of Science (MEDLINE Database only): (TS=(Decision Trees OR Decision Support Techniques OR Decision Support Systems, Clinical OR Decision Making, Organizational OR Decision Making, Computer-Assisted OR Decision Making OR Decision Theory OR Comparative Effectiveness Research OR Policy Making) OR MH=(costs and cost analysis)) AND AD=(Canada OR United States OR USA)
<table>
<thead>
<tr>
<th>Disease or injury</th>
<th>2004 As % of total DALYs</th>
<th>Rank</th>
<th>2003 Rank</th>
<th>2030 Disease or injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower respiratory infections</td>
<td>6.2</td>
<td>1</td>
<td>1</td>
<td>Unipolar depressive disorders</td>
</tr>
<tr>
<td>Diarrhoeal diseases</td>
<td>4.8</td>
<td>2</td>
<td>2</td>
<td>Ischaemic heart disease</td>
</tr>
<tr>
<td>Unipolar depressive disorders</td>
<td>4.3</td>
<td>3</td>
<td>3</td>
<td>Road traffic accidents</td>
</tr>
<tr>
<td>Ischaemic heart disease</td>
<td>4.1</td>
<td>4</td>
<td>4</td>
<td>Cerebrovascular disease</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>3.8</td>
<td>5</td>
<td>5</td>
<td>COPD</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>3.1</td>
<td>6</td>
<td>6</td>
<td>Lower respiratory infections</td>
</tr>
<tr>
<td>Prematurity and low birth weight</td>
<td>2.9</td>
<td>7</td>
<td>7</td>
<td>Hearing loss, adult onset</td>
</tr>
<tr>
<td>Birth asphyxia and birth trauma</td>
<td>2.7</td>
<td>8</td>
<td>8</td>
<td>Refractive errors</td>
</tr>
<tr>
<td>Road traffic accidents</td>
<td>2.7</td>
<td>9</td>
<td>9</td>
<td>HIV/AIDS</td>
</tr>
<tr>
<td>Neonatal infections and other *</td>
<td>2.7</td>
<td>10</td>
<td>10</td>
<td>Diabetes mellitus</td>
</tr>
<tr>
<td>COPD</td>
<td>2.0</td>
<td>13</td>
<td></td>
<td>Neonatal infections and other *</td>
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<tr>
<td>Refractive errors</td>
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<td></td>
<td>Prematurity and low birth weight</td>
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<tr>
<td>Hearing loss, adult onset</td>
<td>1.8</td>
<td>15</td>
<td></td>
<td>Birth asphyxia and birth trauma</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>1.3</td>
<td>19</td>
<td></td>
<td>Diarrhoeal diseases</td>
</tr>
</tbody>
</table>

* Estimates are not available for diseases and injuries ranked 11 to 20.
The future of SMDM

How SMDM is becoming more global
SMDM starts in the US in 1979
AND ... EXPANDS GLOBALLY OVER THE NEXT SEVERAL DECADES
Now …

Members in 51 Countries Outside the United States
SMDM Membership

Year | US/Canada (%) | Rest of the world (%)  
-----|--------------|-----------------------
2009 | 83%          | 17%                   
2010 | 79%          | 21%                   
2011 | 77%          | 23%                   
2012 | 75%          | 25%                   
2013 | 75%          | 25%                   
2014 | 73%          | 27%
International Trustees
First ever European SMDM meeting …

Leiden, The Netherlands, 1986
15th Biennial European SMDM
Antwerp 2014
16 Biennial European Meeting
London, United Kingdom

Special Focus on
Improving Diagnostic Decision Making
2nd Biennial Asia-Pacific SMDM Conference – Hong Kong

Making Difficult Clinical and Policy Decisions: The Example of Ageing and End of Life Care in Asia-Pacific

The Chinese University of Hong Kong, Shatin, New Territories, Hong Kong

SAVE THE DATE

Making Difficult Clinical and Policy Decisions: The Example of Ageing and End of Life Care in Asia-Pacific

January 8-10, 2016
The Chinese University of Hong Kong

Watch the website www.smdm.org for up-to-date information, program registration and more. Send inquiries to info@smdm.org
• Medicine emphasizes treating illness and delaying death. Less emphasis on patients’ death and dying.

• Many ‘end of life’ decisions result in aggressive therapies that shorten patients’ lives instead of improving them.

• Patient-oriented decision making can enhance end of life quality.

• AP SMDM 2016 addresses theme through symposiums and research presentations in public health and medical contexts.

• Audience: clinicians, health professionals, government policymakers, regulators, funders, researchers and consumers.
Asia-Pacific SMDM 2016
Short Course Topics

Introduction to Health Technology Assessment

Introduction to System Dynamics for Health Care Services

Microsimulation as a Tool to Model Health Care Decisions

Utilities, Preference Measures, and QALYs

Introduction to Medical Decision Analysis

Introduction to Shared Decision Making
Physician, London, UK 1975-2010

Past President, UK Royal College of General Practitioners


Author, Matters of Life and Death, published in 2007
AP-SMDM 2016 Symposium

Focuses on individual-level aging and end-of-life decision making.

Highlights decision making barriers to effective patient-physician-family interaction in Asia-Pacific context.

What can be done to overcome these barriers?

What has worked in health systems in the region and globally?

Symposium Chair:
Professor Jean Woo
Department of Medicine and Therapeutics
The Chinese University of Hong Kong
AP-SMDM Conference Sponsors

Organizers

SMDM
Society for Medical Decision Making
Better Health through Better Decisions.

Public Health
School of Public Health and Primary Care

Funders

Gold Sponsor
Croucher Foundation

Bronze Sponsor
S.H. Ho College

Bronze Sponsor
EBSCO

Supporting Organizations

[Logos of various organizations]
Regional Communities

Regional Communities are formed by Members of the Society who wish to network with medical decision researchers within a certain geographic region, where region may be defined by city, state, country or other geographic boundaries. Groups schedule in-person meetings during SMDM meetings, during meetings of other societies, and/or at other locations chosen by the leaders. Communities also use SMDM Connect for online discussions, information sharing, and networking throughout the year. Each group chooses a Leader or co-Leaders who organize activities for the group.

Active Regional Communities:

Asia-Pacific Regional Community

How to join a Regional Community

SMDM Members- Communities can be found in SMDM Connect under "Groups." Click "join" or the green plus button to be added to the group

Non-Members- Communities are open to non-members of SMDM. To be added to a regional community, please email the following information to info@smdm.org

Become a Member

SMDM members contribute critically to health policy research in the areas of evidence-based medicine, cost
EXAMPLES OF SMDM MEMBERS’ UNIVERSITIES: ASIA PACIFIC REGION

Kyoto University, Japan

Hyogo College of Medicine, Japan

Yamaguchi University, Japan

University of Malaya, Malaysia

University of Sydney, Australia

University of New South Wales, Australia

China Medical University, Taiwan
Identifying Cultural Influences on Patients’ Desired Levels of Participation in Medical Decision Making: A Multicultural Investigation

Asia Pacific Shared Decision Making Collaboration

BACKGROUND

- Shared decision making (SDM) is a key component of patient-centered care (Dancy & Edgman-Levitan, 2012) and evidence-based medicine (Hoffmann et al., 2014).

- Prior research (Franjul & McGraw, 2007; Jost et al., 2008) shows that patient participation in medical decision making can improve:
  - Patient knowledge
  - Satisfaction with the medical consultation
  - Adherence with treatment
  - Risk perception accuracy
  - Patient-physician communication
  - Decision confidence
  - Health outcomes

- As a result, numerous studies have begun to investigate the factors associated with different levels of patient desire for participation in medical decision making (Alden et al., 2014; Chewing et al., 2012; Smith et al., 2015; Stiggelbout et al., 2012).

- However, cross-cultural understandings of these factors remain limited, especially studies addressing patient participation preference outside the West.

- Acknowledging the need to assess value influences on SDM processes within and across cultures (Alden et al., 2014; Hope, 2014), this study analyzes the effects of cultural antecedents on desired levels of patient and family involvement across different medical conditions in India, Malaysia, and the United States.

- This study presents results from a collaborative investigation involving researchers from five countries in the Asia Pacific region.

METHODS

- The multicultural team identified four culturally and age-relevant medical conditions that varied in severity (see Figure 1).

- Panel samples of approximately 300 middle class urban respondents from India, Malaysia, and United States completed a 20 minute online survey (see Tables 1-3).

- Multi-group structural equation model (SEM) analyses compared the effects of cultural antecedents (self-independence, group-interdependence, and respect for hierarchy) on a mediator (desire for MDM information) and two outcomes (desired level of self and family participation in MDM).

- To determine construct validity and reliability of results, convergent and discriminant validity, common method bias and measurement invariance were tested.

RESULTS

- SEM analyses of 3 out of 7 national samples (India, Malaysia, U.S.) are complete.

- Fit measures for the structural model were within acceptable ranges (Hu & Bentler, 1999. See Table 4).

PATH ANALYSES

- For all three samples, higher value placed on self-independence predicted higher desire for MDM information.

- Higher value placed on self-independence also predicted lower desire for family participation in the U.S. and Malaysia, but higher desire for self-participation in the U.S.

- Higher value placed on group-interdependence positively predicted desire for family participation in Malaysia, but was marginal in the U.S. and insignificant in India.

- Lower value placed on respect for hierarchy positively predicted desire for MDM information in the U.S. and Malaysia.

- Surprisingly, higher desire for self-participation led to higher desire for family-participation in all countries.

CONCLUSIONS

- These findings highlight the need for additional cross-cultural study of patient participation preference in MDM.

- Family involvement was an important part of SDM for patients across diverse cultures (India, Malaysia, and the U.S.) and in each culture, desire for self-involvement strongly predicted desire for family involvement.

- Self-independence emerges as the most important predictor of desire for MDM information and a negative indicator of desired family involvement.

- Group-interdependence appears relatively less important, primarily impacting desired family-participation in Malaysia.

- Patients in Malaysia and the U.S. who value hierarchy less also desire higher levels of MDM information.

- Analysis of these relationships in the four remaining national samples (e.g., Australia, China, South Korea, and Thailand) will give us a better understanding of how to improve medical decision making processes and outcomes across different cultures.

BIBLIOGRAPHY


SMDM Emphasizes Career Development Panels at Meetings

- SMDM members share insights and experience
- Developing careers in global health
- Achieving international mobility
- Identifying promising projects
- Collaborating positively
- Navigating among multiple, diverse stakeholders
Senior SMDM members serve as Mentor

Connected with junior SMDM members with similar interests

Meet and develop professional Mentor-Mentee relationship

Maintain connections and assistance through time

Informal advice, professional position reference, project evaluation, manuscript ‘friendly review,” etc.

Often collaborate on projects
Overview of SMDM Joint Fellowship Program with leading HTA Organizations in Canada and Europe.

SMDM partners with leading HTA organizations in the U.S., Canada and Europe to provide educational and leadership opportunities in for early career researchers in field related to medical decision making.
SMDM’s Five Year Strategic Plan: 2015-2019

- Support increased international growth and influence
- Increase engagement with both clinical and health decision making organizations and stakeholders
- Develop and promote expertise in patient and public engagement in medical decision making
For more information about SMDM and to receive emails about upcoming meetings, please visit:
www.smdm.org
Thank you for your time and attention.