A Science of Connectedness

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Case Western Reserve University
A Talk from Two Places

- The day-to-day
- A step back
Cycles of renewal & adaption
The problem of fragmentation
The paradox of primary care
A generalist approach
A science of connectedness
Ways of knowing and inquiry
[Regaining our moral authority]
Adaptive Renewal Cycles
Adaptive Cycles
Resilience
Panarchical Connections
Adaptive Cycles
Implied Strategies

• Consider where we are in our cycle

• Work to survive in the last stage of the conservation phase while planting seeds for the release/reorganization phase (Set up success in the exploitation phase)

• Consider multiple fast & slow cycles
  – System change
  – Practice transformation
  – Research environment
  – Information age
  – Demographic and political shifts
  – Economies: local, country, world
Problem of Fragmentation
US Health Care

• “Fundamentally flawed” *
• Most expensive in the world**
• 37th in the health of our people**
• More integrated systems provide greater value***


Fragmentation

• Focusing on the parts without appreciating their relation to the whole

• Limited understanding of how the components of health and disease processes and health care work together

• Leads to
  – Uncontextualized investigation
  – Fragmentation of care
  – Devaluing of health care’s higher order functions and possibilities.

Robert May, President of the Royal Society

“Application of the physical and biological sciences has made today arguably the best of times… But the unintended consequences of these well-intentioned actions…could well make tomorrow the worst of times.

The significant breakthrough we really need is better understanding of human institutions, particularly of the impediments to collective, cooperative activity in which all individuals pay small costs to reap large group benefits. Darwin recognised the evolution of cooperative behaviour as one of the most important unsolved problems of his day. We have made relatively little progress since then. Perhaps the social scientists of 2056 will have succeeded in combining the rigour of the "hard" (that is, easy) sciences with the thoughtful introspection of the humanities to solve this problem. I certainly hope so.”

18 November 2006, NewScientist.com news service.
Consequences of Fragmented Approach to Healthcare

- Inefficiency & ineffectiveness
- Inequality
- Commoditization
- Commercialization
- Deprofessionalization
- Depersonalization
- Despair & discord

The Paradox of Primary Care

Primary Care

Problem?
Solution?
Studies Comparing Specialist & Generalist Care for Diabetes

Primary care is a problem

• Disease-by-disease

• Poor quality of care
Specialty vs Primary Care

- Specialists more knowledgeable about conditions in their specialty.
- Specialists more likely to use medications associated with improved survival and to comply with screening guidelines.
- Specialists use more tests, procedures and hospital time.

Measures of process of care tend to favor specialists for:

- Myocardial infarction
- Other cardiovascular diseases
- Acute non-hemorrhagic stroke
- Asthma
- Arthritis
- Psychiatric diseases
- Skin diseases
- Preventive care

Study Methods

• Specialty care advantage reduced in studies that control for confounders
  – Patient mix/selection
  – Physician volume or experience
  – IT support
  – Care management / healthcare system programs


‘Expert Generalists’ vs. Specialists

• Similar proportion of HIV+ patient on HAART

• Non-expert generalists
  – Low volume of HIV+ patients
  – Much less likely to use recommended HIV Rx

Shared Care

In observational studies, more guideline-concordant care if shared between:

• Primary care physician AND endocrinologist (diabetes and general preventive care)

• Primary care physician an AND cardiologist (acute M.I.; CHF [also lower 30-day readmission])


Shared Care

In RCT of depressed patients:

• Primary care physician AND psychiatrist

• Greater adherence, recovery, satisfaction

Current Efforts to Improve Quality of Care

- Increase access to specialty care
- Carve outs
- Disease management programs
- Disease-specific pay-for-performance


Primary care is a solution

• Whole-person functional health
• Cost
• Population health
Medical Outcomes Study

• Patients with hypertension and diabetes
• 3 follow-up points over 7 years
• Compared primary vs. specialty care
• Outcomes (controlling for patient mix)
  – Physical & emotional (functional) health
  – Mortality
  – Disease-specific physiologic markers


Medical Outcomes Study

• Similar outcomes for primary & specialty care
  – Physical & emotional (functional) health
  – Mortality
  – Disease-specific physiologic markers

• Lower resource use & cost for primary care
  – Tests, procedures
  – Drugs
  – Office visits, hospitalizations


International Comparisons

• Primary care orientation
  – Health care system characteristics
  – Practice characteristics

• Health status and cost
  – Rank on a composite of 14 health indicators
  – Rank on per capita health care spending

Primary Care and Health Outcomes

Figure 1.3. Relationship between strength of primary care and combined outcomes

Primary Care and Health Care Expenditures

Figure 1.4. Relationship between strength of primary care and total health care expenditures.

US Primary Care Physician Supply

• Review of 10 studies of primary care & health
• Improved all-cause, cancer, heart disease, stroke & infant mortality; low birth weight; life expectancy; and self-rated health
• All-cause mortality
  – ↑ of 1 primary care physician /10,000 population
  – → 5.3% or 49 per 100,000 / yr ↓ mortality

Inter-State Comparisons

• Adjusted Medicare spending
  – State-specific cost of living adjustment
  – Age, sex, race of Medicare population

• Quality measures
  – 24 Medicare Quality Improvement Organization measures
  – 6 common medical conditions
    • MI
    • Breast Cancer
    • Diabetes
    • Heart Failure
    • Pneumonia
    • Stroke

Starfield’s Summary

• Countries with strong primary care
  – Have lower overall costs
  – Generally have healthier populations

• Within countries
  – Areas with higher primary care physician availability (but not specialist availability) have healthier populations
  – Greater primary care physician availability reduces the adverse effects of social inequality

Paradox of Primary Care

• Poor quality of care by evidence-based disease-specific process of care measures in clinical studies

• Better quality at population level

• Similar whole-person functional health

• Better population health

• Lower resource use and cost
A Continuum of Generalism: the Foundation of a Philosophy of Practice

A Conceptual Model of the Essential Dimensions of Generalism

<table>
<thead>
<tr>
<th>Dimensions of Generalism</th>
<th>Explanations: the key features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ways of Being</strong> (Ontological Frame)</td>
<td></td>
</tr>
<tr>
<td>Virtuous character: holds ethical character traits of compassion, tolerance, trust, empathy and respect.</td>
<td></td>
</tr>
<tr>
<td>Reflexive: interdependent, reflects on judgments and biases, lifelong learner.</td>
<td></td>
</tr>
<tr>
<td>Interpretive: processes of interpretation are used to understand patient with an emphasis on the contextual factors, use of multiple health systems languages, active listener, autonomous decision-maker, good communication skills.</td>
<td></td>
</tr>
<tr>
<td><strong>Ways of Knowing</strong> (Epistemological Frame)</td>
<td></td>
</tr>
<tr>
<td>Biotechnical: uses scientific and rational evidence, high index of suspicion, bio-medically driven, technically focussed, uses advanced information systems.</td>
<td></td>
</tr>
<tr>
<td>Biographical: concentrates on lived-experience and life-story, family, carers, community and social knowledge all provide evidence.</td>
<td></td>
</tr>
<tr>
<td><strong>Ways of Doing</strong> (Practical Frame)</td>
<td></td>
</tr>
<tr>
<td>Access: accessible, first-contact point, gatekeeper, provides referral.</td>
<td></td>
</tr>
<tr>
<td>Approach: balances individual versus population needs, consultation-based, holistic, comprehensive, flexible, adaptable, acts across clinical boundaries, provides early diagnosis, interdisciplinary team approach, negotiates &amp; coordinates services, integrates knowledge, promotes health through education, prevents disease, is culturally sensitive, provides patient-centred care, minimises service inequities, reduces service fragmentation.</td>
<td></td>
</tr>
<tr>
<td>Time: provides continuity of care over whole of life cycle (longitudinal).</td>
<td></td>
</tr>
<tr>
<td>Context: community-based, uncertain, complex, deals with undifferentiated multiple problems of patients, acute and chronic care.</td>
<td></td>
</tr>
</tbody>
</table>

Generalism Model of Health Care

Ways of being:
- Reflexivity
- Interpretive processes
- Virtuous character

Ways of Doing: Access, Time, Context, Approach

Biotechnical way of knowing

Biographical way of knowing
Generalism Model of Health Care

Ways of being:
- Reflexivity
- Interpretive processes
- Virtuous character

Ways of Doing:
- Access
- Time
- Context
- Approach

Biotechnical way of knowing

Biographical way of knowing
The Generalist Approach

The Generalist Approach

• Recognizing systems connectedness
  (belonging & participation in community & Kosmos)

• Specific and related ways of
  – Being
  – Knowing
  – Perceiving
  – Thinking / Doing
Ways of being
Readiness for the generalist way

• Open stance (receptive to diverse perspectives and co-created knowledge)

• Humility

• Connection via key relationships
Ways of knowing
Training for the generalist way

• Broad knowledge
  (of self, others, systems, the natural world and their interconnectedness)

• Grounding
  (in specific knowledge and experience)
Ways of perceiving
Seeing in ways that foster integration

• Scanning & prioritizing, then focusing on the highest priority

• Focusing on the particulars while keeping the whole in view
Ways of thinking and doing
Prioritized, joined-up action

• Engaging with the most important parts in context

• Doing multiple low-level tasks to enable higher-level integrative action over time
  – Connecting
  – Integrating
  – Iterating (between breadth/depth, subjective/objective, parts/whole, action/reflection)
  – Loving (putting others & a larger good before self)
The Generalist Approach

• Being - open, humble, connected

• Knowing – iterates between whole & particulars

• Perceiving – scanning & prioritizing

• Thinking/doing – most important parts in context, lower level tasks enable higher

A Science of Connectedness

Holons & Holarchies

• Holons: Whole / parts

• Holarchies:
  – Nested holons
  – Higher development transcends and includes lower

Alpbach Symposium

• Challenged “the insufficient emancipation of the life sciences from the mechanistic concepts of nineteenth-century physics and the resulting crudely reductionist philosophy.”

Holarchy of Healthcare

Higher levels of development transcend & include the lower

• Fundamental care
• Integrative care
• Prioritized care
• Healing & transcendence
Holarchy of Healthcare

Fundamental care

- Management of patient concerns
- Care of acute illness
- Proactive management of chronic illnesses and preventive service delivery
- Psychosocial care
Holarchy of Healthcare

Integrative care

- Management of multi-morbidity
- Integration of care across acute and chronic illness, prevention and mental health
Holarchy of Healthcare

Prioritized care

• Integrating biotechnical and biographical care based on deep knowledge of both and connections to others

• Balancing individual, family, community and system needs and opportunities
Holarchy of Healthcare

Healing & Transcendence

• Fostering healing as going beyond suffering

• Abiding even when healing cannot be fostered
Holarchy of Health Care

Healing and Transcendence
- Abiding even when healing cannot be fostered
- Fostering healing
- Integrating biotechnical & biographical care based on deep knowledge of both & connections to others
- Balancing individual, family, community & system needs & opportunities
- Integrating care across acute & chronic illness, prevention & mental health
- Management of multimorbidity
- Psychosocial care
- Proactive management of prevention & chronic illness
- Care of acute illness
- Management of patient concerns

Relationship-centered Care

Goal-oriented Care

Prioritized Care

Integrated Care

Patient-centered Care

Physician-centered Care

Fundamental Healthcare

Patient-centered Care

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Implications

• Fundamental care is all we now
  – Measure
  – Incentivize
  – Support

• Integrated & prioritized care
  – Could be supported by (IT) systems
  – Primary care functions

• Higher levels of care unintentionally devalued
  – Relationships
  – Continuity and care across place and life cycle
Problems

• It’s not that simple

• Higher levels helped by, but not always dependent on lower levels

• Multiple holarchies interacting

• To understand, depict & act on this complexity
Ways of knowing & inquiry
### 4 Ways of Knowing

<table>
<thead>
<tr>
<th>Inner Reality</th>
<th>Outer Reality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>“I”</td>
</tr>
<tr>
<td>Collective</td>
<td>“We”</td>
</tr>
<tr>
<td></td>
<td>“It”</td>
</tr>
<tr>
<td></td>
<td>“Its”</td>
</tr>
</tbody>
</table>

Adapted from:
# 4 Ways of Knowing About Health & Health Care

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinician, Patient, Worker, Policymaker</td>
<td>Family, Practice, Team, Community</td>
<td>Systems, Organization</td>
<td>Disease, Treatment</td>
</tr>
</tbody>
</table>

Adapted from:
Ways of Knowing

Interior-Individual | Exterior-Individual

I | It

We | Its

Interior COLLECTIVE | Exterior COLLECTIVE
Ways of Knowing/Developing
Implications

• Even if focusing on a single way of knowing, keep the others in mind
• Work to foster development in all domains
• Allow for productive activity at all levels
• Diversity and collaboration are strengths
• Networks can foster development, research & the integration of different ways of knowing
Lessons

• Consider our current place in related cycles of renewal & adaptation

• Recognize parts/wholes

• Consider scale & potential for unintended consequences

• Value the generalist function (Be, know, perceive, think/act as a generalist)

• Value care integration, prioritization, healing & transcendence as well as fundamental care

• Foster integrated development in different ways of knowing

• Sacrifice to promote health & healing
• The problem of fragmentation  Mar 2009, v7i2
• A generalist approach      May 2009, v7i3
• The paradox of primary care Jul 2009, v7i4
• A science of connectedness  Sept 2009, v7i5
• Cycles of renewal & adaption Nov 2009, v7i6
• Ways of knowing and inquiry Jan 2010, v8i1
• Regaining our moral authority Mar 2010, v8i2
Regaining our moral authority
<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Interior-Individual</td>
<td>Exterior-Individual</td>
</tr>
<tr>
<td>Charismatic power</td>
<td>Aesculapian power</td>
</tr>
<tr>
<td>(Owned)</td>
<td>(Aimed)</td>
</tr>
<tr>
<td>Health (foundation for achievement)</td>
<td>Healing (transcendence of suffering)</td>
</tr>
<tr>
<td>Social / cultural power</td>
<td>Healing systems power</td>
</tr>
<tr>
<td>(Shared)</td>
<td>(Aimed)</td>
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<td>Interior-Collective</td>
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</table>
Regaining Moral Authority

Owned Power
Charismatic Power
- Sacrifice
- Compassion
- Truthfulness
- Self-awareness & reflection

Socio-cultural Power
- Interpersonal awareness & reflection
- Truthfulness
- Shared goals
- Sacrifice

Aimed Power
Aesculapian Power
- Healing & health
- Prioritized care
- Integrated care
- Technical care

Systems Power
- Specific technical systems
- Integrative systems
- Prioritizing systems
- Healing environments

Shared Power
We
- Technical care
- Integrated care
- Self-awareness & reflection
- Truthfulness

Aimed Power
Its
- Systems Power
- Socio-cultural Power
- Charismatic Power
Holarchy of Healthcare (Revisited)

I

Health care worker

Healer
Leader
Professional
Technician

Multidisciplinary team
Interdisciplinary team
Transdisciplinary team
Community

We

Personal

Biomedicine

Healing
Prioritized care
Integrated care
Technical care

Healthcare systems

Disease-specific systems
Integrative systems
Prioritizing systems
Healing environments

Group

Healthcare systems

Its

Health care team

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Contextualizing Research Reporting

• “If we want more evidence-based practice, we need more practice-based evidence.”
• Consider & report factors affecting external validity in funding and publishing


Holarchy of Health Care

Healing and Transcendence

- Abiding even when healing cannot be fostered
- Fostering healing

Prioritized Care

- Integrating biotechnical & biographical care based on deep knowledge of both & connections to others
- Balancing individual, family, community & system needs & opportunities

Integrated Care

- Integrating care across acute & chronic illness, prevention & mental health
  - Management of multimorbidity

Fundamental Healthcare

- Psychosocial care
  - Proactive management of chronic illness
  - Care of acute illness
  - Management of patient concerns
A Silver Triangle

• Moral authority (as sacrifice)
• Power (Howard Brody)
• Righteous cause
  – Improving health (WHO & Seedhouse)
  – Healing (Egnew & Scott)
A Silver Triangle

Moral Authority
• Sacrifice
• Integrity
• Compassion

Power
• Owned
• Aimed
• Shared

Righteous Cause
• Helping others toward:
  – Health (as the foundation for achievement.)
    Seedhouse D. Health, the foundations for achievement. Tiptree, Essex: John Wiley and Sons Ltd; 1989.
  – Healing (as the transcendence of suffering.)
General Practice: An Integrated, Iterative Approach

Ways of being:
- Reflexivity
- Interpretive processes
- Virtuous character

Ways of Doing:
- Access, Time, Context, Approach

Biotechnical way of knowing

Biographical way of knowing

Palmer V, Gunn J, Stange, KC. Pursuing Balance and the Wicked Problem of Health Care. 2008; (in preparation.)
Observational Studies

**DOPC**
Direct Observation of Primary Care (NCI, RWJF: 1994-97)

**P&CD**
Prevention & Competing Demands in Primary Care (AHRQ: 1996-99)

**IMPACT**
Insights from Multimethod Practice Assessment of Change over Time (NCI: 2001-2004)

**TM**
Teachable Moments for Health Behavior Change (NCI: 2004-2009)

Intervention Studies

**STEP-UP**
Study To Enhance Prevention by Understanding Practice (NCI: 1997-2000)

**ULTRA**
Using Learning Teams for Reflective Adaptation (NHLBI: 2002-07)

**EPOCHS**
Enhancing Practice Outcomes through Community and Healthcare Systems (NCI: 2004-09)

**SCOPE**
Supporting Colorectal Cancer Outcomes through Participatory Enhancements (NCI: 2005-2010)
Visits to Family Physicians

- Variety of patients, problems and complexity
- 10 minute average duration
- Reason for visit
  - 58% acute illness
  - 24% chronic illness
  - 12% well care
- Average patient paid 4.3 visits in the past year

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Competing Demands Theory

• Many worthwhile services compete with each other for time on the agenda of primary care patient visits.

Theory of Competing Opportunities

• Integrated, prioritized care within an ongoing personal relationship
  • **Breadth** of care
  • **Depth** of knowledge of the patient, family and community over time
  • **Bridging** of the boundaries between health and illness
  • **Guiding** access to more narrowly focused care

Primary Care Practices are Complex Adaptive Systems

- Complex behavior emerges from relationships among agents
- Simple rules
- Recurrent patterns
- Co-evolution
- Dependence on initial conditions
- Non-linearity
- Strategies for intervention
  - Joining
  - Transforming
  - Learning


Using Complexity Science to Inform a Reflective Practice Improvement Process

• Understanding practices’ vision and mission is useful in guiding change

• Creating tie and space for learning & reflection helps organizations to adapt & plan change

• Tension & discomfort are essential & normal during change

• Diverse perspectives foster adaptability & new insights for positive change

• Sustainable change requires supportive leadership

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Motivational reciprocity

External influences on change

Option landscape

Motivation, Innovation & Independence

Developing change trajectories

Evaluating & exercising choices for change

External contingencies & capacity to change

Co-evolution & response to interventions

Baseline

Motivation of key stakeholders

Resources for change

Baseline

Motivational reciprocity

External influences on change

Option landscape

Co-evolution & response to interventions

Baseline

Motivators

Choices for change

Baseline

Outside

Motivators

Baseline

Follow-up
EPOCHS Research Team
## Global Typology of Primary Care Organisational Developments

<table>
<thead>
<tr>
<th>Organisational Type</th>
<th>Structure and Process</th>
<th>Value Base</th>
<th>Service Focus</th>
<th>Location (examples)</th>
<th>Endpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extended general practice</td>
<td>Simple partnership</td>
<td>Normative</td>
<td>Registered patient list</td>
<td>Health centre</td>
<td>Patient</td>
</tr>
<tr>
<td>Managed care enterprise</td>
<td>Complex, stakeholder</td>
<td>Calculative</td>
<td>Target groups</td>
<td>Physicians group</td>
<td>User</td>
</tr>
<tr>
<td>Reformed polyclinic</td>
<td>Coalition, divisional</td>
<td>Commercial</td>
<td>Medical conditions</td>
<td>Multi-specialist clinic</td>
<td>Client</td>
</tr>
<tr>
<td>District health system</td>
<td>Hierarchic, administrative</td>
<td>Executive</td>
<td>Public health improvement</td>
<td>General hospital</td>
<td>Populations</td>
</tr>
<tr>
<td>Community development agency</td>
<td>Association, network</td>
<td>Affiliative</td>
<td>Local populations</td>
<td>Health stations</td>
<td>Citizen</td>
</tr>
<tr>
<td>Franchised outreach</td>
<td>Quasi-institutional, virtual</td>
<td>Remunerative</td>
<td>Payers</td>
<td>Private, hospital premises</td>
<td>Customer</td>
</tr>
</tbody>
</table>

Percentage of Young Children Who Received Recommended Selected Immunizations, International Comparison, 2004*

<table>
<thead>
<tr>
<th>Key: higher rates are better (gold = best and red = worst country performance)</th>
<th>AUS</th>
<th>CAN</th>
<th>GER</th>
<th>NZ</th>
<th>UK</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diptheria, Tetanus, Pertussis (DTP) vaccine (3 doses)</strong></td>
<td>92</td>
<td>91</td>
<td>97</td>
<td>90</td>
<td>90</td>
<td>96</td>
</tr>
<tr>
<td><strong>Haemophilus influenzae type b (Hib) vaccine (3 doses)</strong></td>
<td>95</td>
<td>83</td>
<td>90</td>
<td>90</td>
<td>91</td>
<td>94</td>
</tr>
<tr>
<td><strong>Hepatitis B vaccine (3 doses)</strong></td>
<td>95</td>
<td>NA</td>
<td>81</td>
<td>90</td>
<td>NA</td>
<td>92</td>
</tr>
<tr>
<td><em>Recommended only for high-risk groups in the UK and some provinces of Canada</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Measles-containing vaccine (1 dose)</strong></td>
<td>93</td>
<td>95</td>
<td>93</td>
<td>85</td>
<td>81</td>
<td>93</td>
</tr>
<tr>
<td><strong>Poliovirus vaccine (3 doses)</strong></td>
<td>92</td>
<td>88</td>
<td>94</td>
<td>82</td>
<td>91</td>
<td>92</td>
</tr>
</tbody>
</table>

Source: WHO Vaccine-Preventable Diseases Monitoring System (World Health Organization 2005). *Data are for 2004 except as noted: AUS = Australia; CAN = Canada (2003); GER = Germany; NZ = New Zealand (2001); UK = United Kingdom; US = United States. The recommended vaccination schedule differs among countries.
### Percentage of Adults Who Received Recommended Preventive Care or Reminders, International Comparison, 2004

**Key:** higher rates are better (gold = best and red = worst country performance)

<table>
<thead>
<tr>
<th>Health Measure</th>
<th>country</th>
<th>AUS</th>
<th>CAN</th>
<th>NZ</th>
<th>UK</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breast cancer screening: mammogram in past 2 years</strong> (women ages 50–64*)</td>
<td>71</td>
<td>71</td>
<td>77</td>
<td>63</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td><strong>Cervical cancer screening: Pap or cervical smear in past 3 years</strong> (women ages 25–64*)</td>
<td>78</td>
<td>77</td>
<td>81</td>
<td>77</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td><strong>Adult immunization: flu shot in past year</strong> (elderly adults ages 65 and older)</td>
<td>77</td>
<td>66</td>
<td>67</td>
<td>74</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td><strong>Heart disease prevention: blood pressure check in past year</strong> (adults ages 18 and older)</td>
<td>78</td>
<td>80</td>
<td>72</td>
<td>68</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td><strong>Reminders to make appointment for preventive care</strong> (adults ages 18 and older)</td>
<td>37</td>
<td>38</td>
<td>44</td>
<td>49</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

Source: 2004 Commonwealth Fund International Health Policy Survey (Schoen, C. et al. 2004). AUS = Australia; CAN = Canada; NZ = New Zealand; UK = United Kingdom; US = United States. *Recommended screening intervals differ among countries; the US intervals are shown. Age ranges reflect overlap of country recommendations.
### Percentage of Sicker Adults With Diabetes Who Received Recommended Chronic Care, International Comparison, 2005

<table>
<thead>
<tr>
<th>Key: higher rates are better (gold = best and red = worst country performance)</th>
<th>AUS</th>
<th>CAN</th>
<th>GER</th>
<th>NZ</th>
<th>UK</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin A1c test in past 6 months (to monitor blood sugar control)</td>
<td>86</td>
<td>90</td>
<td>91</td>
<td>79</td>
<td>85</td>
<td>90</td>
</tr>
<tr>
<td>Foot examination in past year</td>
<td>57</td>
<td>52</td>
<td>65</td>
<td>66</td>
<td>75</td>
<td>70</td>
</tr>
<tr>
<td>Eye examination in past year</td>
<td>73</td>
<td>73</td>
<td>85</td>
<td>66</td>
<td>83</td>
<td>69</td>
</tr>
<tr>
<td>Cholesterol check in past year</td>
<td>93</td>
<td>91</td>
<td>95</td>
<td>87</td>
<td>92</td>
<td>92</td>
</tr>
<tr>
<td>All four recommended services</td>
<td>41</td>
<td>38</td>
<td>55</td>
<td>40</td>
<td>58</td>
<td>56</td>
</tr>
</tbody>
</table>

Source: 2005 Commonwealth Fund International Health Policy Survey (Schoen, C. et al. 2006). AUS = Australia; CAN = Canada; GER = Germany; NZ = New Zealand; UK = United Kingdom; US = United States.
### Outcomes: Cancer and Transplant Five-Year Survival Rates

(Percentage Alive Five Years After Diagnosis or Transplant)  
International Comparison, Various Years 1992 to 2001

<table>
<thead>
<tr>
<th>Key: higher rates are better (gold = best and red = worst country performance)</th>
<th>AUS</th>
<th>CAN</th>
<th>NZ</th>
<th>ENG</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast cancer*</td>
<td>80</td>
<td>78</td>
<td>79</td>
<td>75</td>
<td>86</td>
</tr>
<tr>
<td>Cervical cancer*</td>
<td>78</td>
<td>74</td>
<td>73</td>
<td>70</td>
<td>75</td>
</tr>
<tr>
<td>Colorectal cancer*</td>
<td>62</td>
<td>60</td>
<td>66</td>
<td>52</td>
<td>58</td>
</tr>
<tr>
<td>Childhood leukemia*</td>
<td>69</td>
<td>81</td>
<td>70</td>
<td>NA</td>
<td>76</td>
</tr>
<tr>
<td>Non-Hodgkin's Lymphoma*</td>
<td>67</td>
<td>62</td>
<td>67</td>
<td>59</td>
<td>63</td>
</tr>
<tr>
<td>Kidney transplant</td>
<td>88</td>
<td>94</td>
<td>86</td>
<td>86</td>
<td>83</td>
</tr>
<tr>
<td>Liver transplant (combined rate for AUS/NZ)</td>
<td>78</td>
<td>87</td>
<td>78</td>
<td>71</td>
<td>73</td>
</tr>
</tbody>
</table>

AUS = Australia; CAN = Canada; NZ = New Zealand; ENG = England; US = United States. *Relative survival rates, adjusted to account for expected deaths from other causes; rates were age-adjusted to an OECD standard 1980 population.
Outcomes: Rates of Selected Avoidable Events
International Comparison, Various Years 1998 to 2001*

<table>
<thead>
<tr>
<th>Key: lower rates are better (gold = best and red = worst country performance)</th>
<th>AUS</th>
<th>CAN</th>
<th>NZ</th>
<th>ENG</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asthma mortality</strong> (1990–1999) (rate per 100,000 people ages 5–39)</td>
<td>0.4</td>
<td>NA</td>
<td>0.7</td>
<td>0.6</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Suicide</strong> (rate per 100,000 people)</td>
<td>11.6</td>
<td>11.4</td>
<td>13.2</td>
<td>6.0</td>
<td>10.6</td>
</tr>
<tr>
<td><strong>Incidence of pertussis</strong> (rate per 100,000 people)</td>
<td>31.0</td>
<td>20.0</td>
<td>NA</td>
<td>1.3</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Incidence of measles</strong> (rate per 100,000 people)</td>
<td>0.6</td>
<td>0.1</td>
<td>1.8</td>
<td>4.5</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Incidence of Hepatitis B</strong> (rate per 100,000 people)</td>
<td>2.1</td>
<td>4.2</td>
<td>2.1</td>
<td>2.0</td>
<td>6.3</td>
</tr>
<tr>
<td><strong>Adult smoking rate</strong> (percentage of adults ages 18 and older)</td>
<td>24</td>
<td>23</td>
<td>25</td>
<td>27</td>
<td>23</td>
</tr>
</tbody>
</table>

AUS = Australia; CAN = Canada; NZ = New Zealand; ENG = England; US = United States. *Annual rates (except for asthma) for various years between 1998 and 2001 depending on country and measure. Asthma mortality rates were age-standardized.
### Percentage of Sicker Adults Who Had Continuity of Care or Reported Access Problems, International Comparison, 2005

<table>
<thead>
<tr>
<th>Key: gold = best country performance and red = worst country performance</th>
<th>AUS</th>
<th>CAN</th>
<th>GER</th>
<th>NZ</th>
<th>UK</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONTINUITY OF CARE (higher rates are better)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have regular doctor</td>
<td>92</td>
<td>92</td>
<td>97</td>
<td>94</td>
<td>96</td>
<td>84</td>
</tr>
<tr>
<td>With same doctor 5 years or more (among those with a regular doctor)</td>
<td>61</td>
<td>65</td>
<td>78</td>
<td>61</td>
<td>69</td>
<td>50</td>
</tr>
<tr>
<td><strong>ACCESS PROBLEMS (lower rates are better)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unmet need due to cost in past 2 years (prescription, doctor visit when sick, or test or follow-up recommended by a doctor)</td>
<td>34</td>
<td>26</td>
<td>28</td>
<td>38</td>
<td>13</td>
<td>51</td>
</tr>
<tr>
<td>Very difficult to get care on nights, weekends, holidays without going to the ER (among those who sought care)</td>
<td>36</td>
<td>29</td>
<td>11</td>
<td>13</td>
<td>22</td>
<td>39</td>
</tr>
</tbody>
</table>

### Percentage of Sicker Adults Who Reported Long Waiting Times for Care, International Comparison, 2005

<table>
<thead>
<tr>
<th>Waiting Time Description</th>
<th>Key: Lower rates are better (gold = best and red = worst country performance)</th>
<th>AUS</th>
<th>CAN</th>
<th>GER</th>
<th>NZ</th>
<th>UK</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waited 6 days or longer for a doctor appointment (last time sick or needed medical attention)</td>
<td>10 36 13 3 15 23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waited 4 hours or longer to be seen in the emergency room (among those who visited an ER in the past 2 years)</td>
<td>17 24 4 12 14 12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waited 4 weeks or longer to see a specialist (among those who needed to see a specialist in the past 2 years)</td>
<td>46 57 22 40 60 23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waited 4 months or longer for elective surgery (among those who needed elective surgery in the past 2 years)</td>
<td>19 33 6 20 41 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Waiting Times for a Doctor's Appointment When Sick or Needed Medical Attention: Percentage of Sicker Adults, International Comparison, 2005

Data: 2005 Commonwealth Fund International Health Policy Survey (The Commonwealth Fund 2005). Sicker adults have a high incidence of chronic disease and recent intensive use of health care. Percentages do not add to 100 because some respondents did not answer or were not sure.