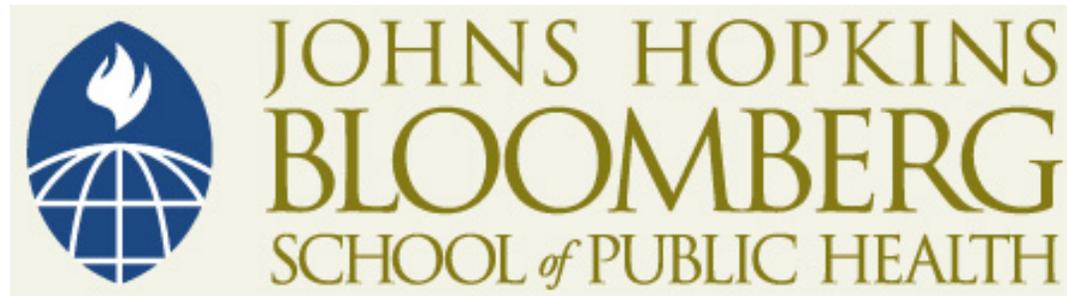


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Quality of Care: Principles Applicable to Primary Care

Barbara Starfield, MD, MPH

Primary Care Course
(Based on Cape Town, South Africa, 2007;
and Barcelona, Spain, 2009)

This presentation discusses the various aspects of “quality” within a health systems framework and shows how quality assessments should focus more broadly than on specific diseases or types of diseases.

Conventional Approaches to Quality

Resources: Are there enough of ...

Health services structures: e.g.,
medical records, hours of availability

Technical quality: disease-oriented
processes of care

Outcomes: biological, functional

Challenges to Quality Assessment

- Increasing likelihood of survival
- More comorbidity
- “New” causes of illness: genetic predispositions, social determinants
- Effects of medical care interventions
- A focus on outcomes of care
- Need for a population orientation
- Growing inequities in health

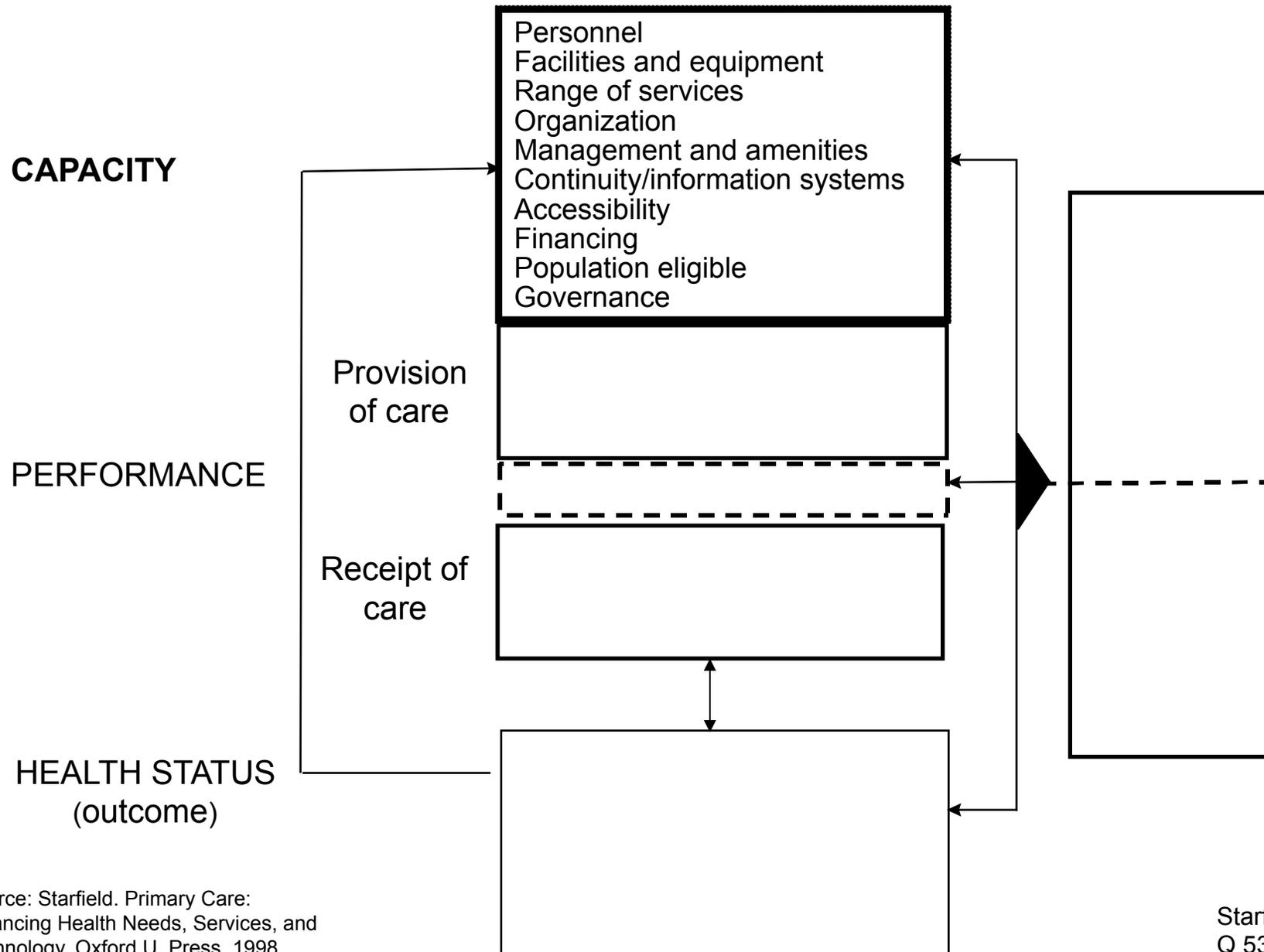
Imperatives for Quality Assessment

1. The importance of person-focused assessments rather than disease-focused assessments
2. The increasing dangers of medical interventions
3. The recognized effect of the mode of delivery of health services on health
4. The explosion of interest in equity as an important outcome
5. Knowledge generation for population-based evidence

Examples of New Imperatives in Quality

- Many causes, not single causes
- Comorbidity
- Dangers of new technologies and medications
- Effects of health system organization and delivery characteristics
- Equity in health care

Quality of Care: Capacity of System/Facility/Plan



Source: Starfield. Primary Care: Balancing Health Needs, Services, and Technology. Oxford U. Press, 1998.

Starfield 1999
Q 5373 n

Generic Approaches to Capacity in Primary Care

System Features

Personnel – training and distribution

Facilities and equipment – number and type

Range of services – What can be covered given resources and priority of needs?

Organization – standards of adequacy

Management – training for

Continuity/information systems – not necessarily electronic!

Accessibility – minimum requirements depending on population needs

Financing – especially equity (low/no copay) and government auspices or regulation_

Population eligible – How are populations and subpopulations identified and included?

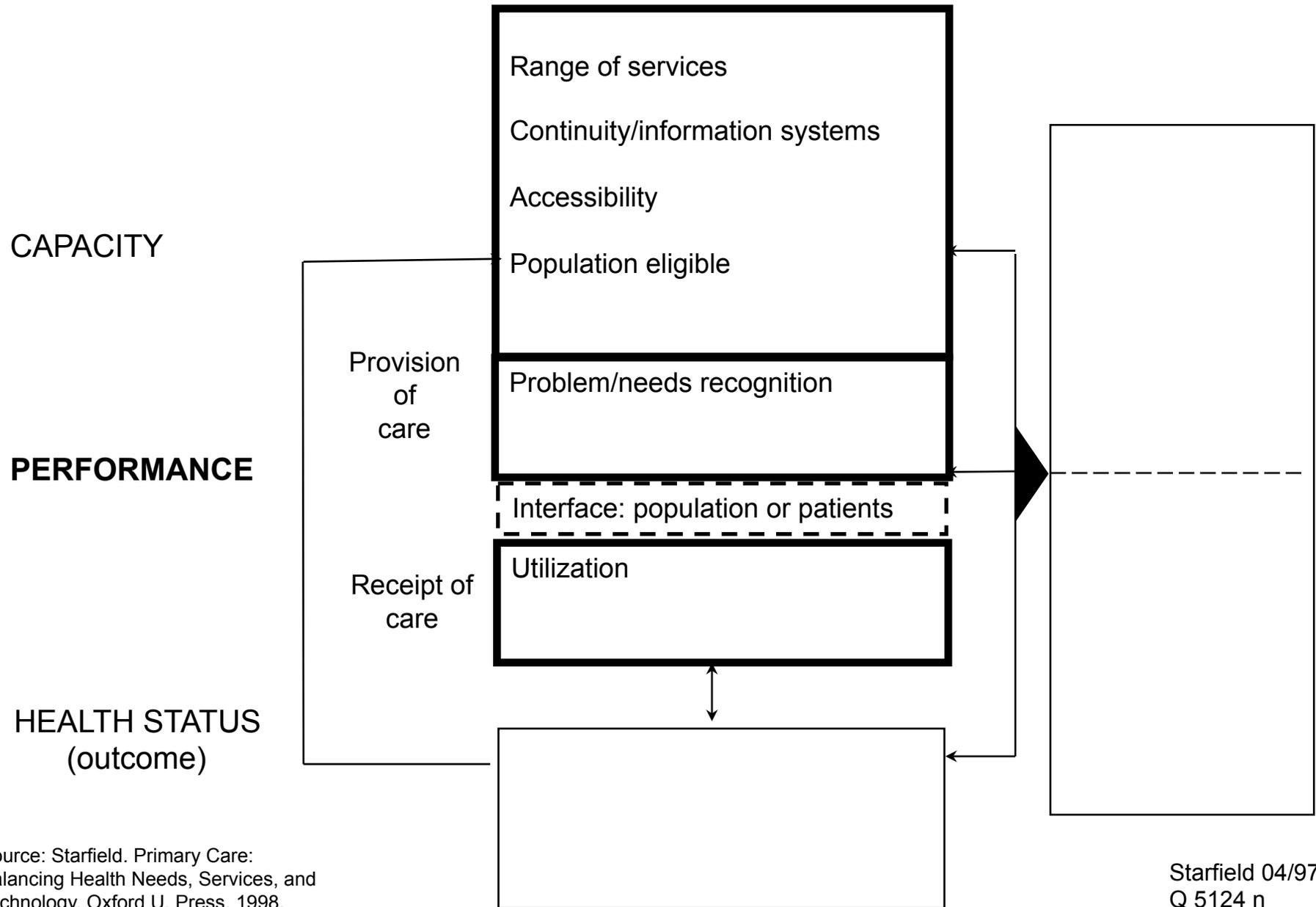
Governance – not only professionals and “experts”

Relationship between Practice Characteristics and Clinical Quality, 60 GPs in England

Significant relationships

- with longer appointment intervals: diabetes, angina, asthma
- with larger practice size: diabetes
- with non-deprived areas: cervical cancer screening, better interpersonal care
- with smaller practice size: accessibility, treatment by receptionist
- with team climate: continuity of care, overall satisfaction, diabetes care
- with treatment by receptionist/non-deprived area: treatment by receptionist

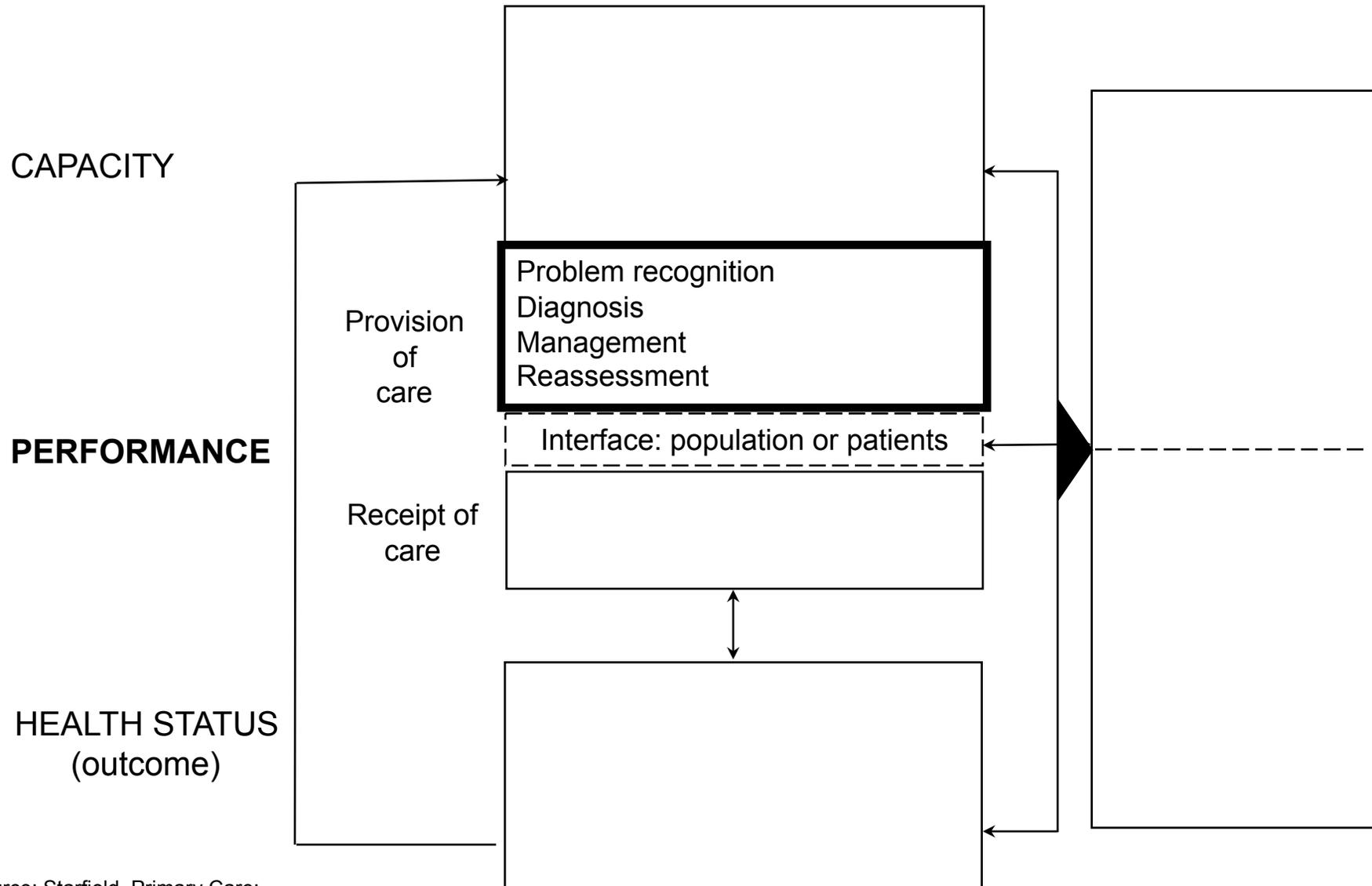
Quality of Primary Care: Services Delivery Assessment



Source: Starfield. Primary Care: Balancing Health Needs, Services, and Technology. Oxford U. Press, 1998.

Starfield 04/97
Q 5124 n

Quality of Care: Clinical Performance Assessment



Source: Starfield. Primary Care: Balancing Health Needs, Services, and Technology. Oxford U. Press, 1998.

Starfield 04/97
Q 5125 n

Generic Approaches to Clinical Quality Assessment - Performance

Clinical care

- Documentation in medical records
 - history
 - allergies
 - monitoring of morbidity burden
- Adequacy of recognition of patient's problems, including psychosocial
- Provision of information to patients
- Avoidable or unnecessary hospitalizations

Generic Approaches to Clinical Quality Assessment

Safe and effective care

- Adverse events
- Performance of unnecessary tests and procedures
- Unnecessary or contraindicated medications
- Indicated immunizations
- Generic drugs (proportion of available)
- Periodic review of number and type of medications

Because the contributions of primary care (person-focused) and specialty care (disease-focused) are different, evaluation of quality of care in primary care has to be different from that in specialty care. Current approaches to quality of care are more appropriate to specialty care than to primary care, although they are generally applied to primary care only.

Although current knowledge permits development of some disease-oriented quality standards, there are NO standards for adequacy of person-focused care, appropriateness of referrals, or adequacy of specialty care.

Characteristics of Current Quality Assessments

- Most are based on evidence not tested in primary care settings.
- Most are not relevant in the presence of comorbidity.
- The bases for recommendations have not been made on representative populations.
- If they are to be used, they should be subjected to verifiability (data should be collected on their effectiveness in achieving better health).

Examples of Warranted Process Indicators in Primary Care

- Infant and child immunizations
- Well established diagnostic and therapies for particular conditions (e.g., iron for iron deficiency anemia; oral rehydration for diarrhea; insulin for type 1 diabetes)
- **MESSAGE: BEWARE OF INDICATORS FOR SCREENING OF PARTICULAR CONDITIONS.** Most have not been well validated in most populations and settings.

Measurement of individual processes of care for specific diseases is NOT sufficient as a measure of the quality of care. Even if these “processes” are evidence-based, the evidence on which they are based is often faulty as a result of poor generalizability of clinical trial results and non-applicability of the findings to patients with certain sociodemographic or clinical characteristics (such as comorbidity, or misinterpretation of study findings).

Morbidity-mix can help clinical managers to assess the relevance of clinical guidelines and the appropriateness of payment-for-performance incentives.

To what extent are disease-oriented clinical guidelines pursuant to achievement of the functions of primary care?

Might they be incompatible with the underlying rationale of primary care?

Countries and areas with health systems that are primary care oriented have better health overall, at lower costs, and with greater equity.

A review of existing evidence on quality of care provides no support for the claim that quality of care in the US is superior to that in other countries. The US tends to do well on quality of care based on specific disease indicators (especially for cancer) but much less well on outcomes that cross diseases, e.g., life expectancy, especially below age 65.

Disease-oriented Guidelines: Conceptual Concerns

- They do not address critical aspects of patient care: responsiveness to patients' needs, adequacy of range of services provided.
- They are based on evidence from analyses that are often rife with conflict of interest and, thus, have a high likelihood of being unethical as well as ineffective and inefficient.
- They are not prioritized according to the degree to which they improve health.

A new guideline calls for physicians who screen asymptomatic men for prostate cancer to advise them about a multiyear regimen that may reduce their risk of developing the disease. The guideline also states that current evidence suggests that the medication offers no benefit in reducing prostate cancer or overall mortality.

The Associate Director for Disease Prevention at NIH said that this is a “milestone in medicine” because “the diagnosis of cancer is in and of itself so life-changing” that “intervention that reduces treatment related morbidity is a successful strategy”.

(Note: 70 men would have to be treated for 7 years at a cost of half a million dollars to prevent one case of prostate cancer.)

(Note that prevention of treatment-related morbidity has never been a focus of evaluation of interventions.)

Disease-oriented Guidelines: Validity Concerns

- They cannot guarantee good outcome or avoidance of harm.
- There is no effort to verify the validity of the evidence on which they are based.
- They are implemented on the basis of evidence based on relative risk and without consideration of population attributable risk.
- They are likely to lead to greater inequity across population subgroups if there are differences in effectiveness and safety across population subgroups or if health problems other than those covered by guidelines are more pressing.

Guidelines for managing sore throats are conflicting.

- In North America, France, and Finland, diagnostic tests are recommended.
- In England, Scotland, Netherlands, and Belgium, they are not.
- In Australia, recommendations differ for different populations (because of differences in prevalence of rheumatic fever).

Disease-oriented Guidelines: Applicability

- Evidence base is not generalizable to populations to which they are applied.
- They assume no variability in disease manifestations or responsiveness to intervention.
- They are based on imperfect knowledge of the natural history of disease.
- They assume that diseases exist in isolation from other diseases and illnesses and take no account of comorbidity.
- They are mainly developed to apply to particular diseases and hence most suitable for subspecialty practice, but are used in primary care rather than in subspecialist care.

In a primary care study using videotaped simulated patients with diabetes, 17 of 20 guidelines were less well met in the care of low SES patients.

Reported physician adherence to guidelines was associated with increased actual adherence to 19 of 20 guidelines but no change in SES disparities for 14, increased disparities for 3, and decreased disparities for 3 (two of which involved referrals to subspecialists).

The proliferation of guidelines may increase costs without reducing disparities in clinical care.

Primary care performance measurement using disease-oriented guidelines will

- create inappropriate incentives in caring for people with multiple conditions
- create incentives based on flawed evidence (inadequate outcomes; unrepresentative populations)
- create perverse incentives based on easily measured rather than important characteristics
- create incentives for avoiding the care of disadvantaged populations

Improving the utility and appropriateness of clinical guidelines could be achieved by

- including a wider range of TYPES of health problems in guidelines
- incorporating recognition of patients' problems
- making allowance for comorbidity in assessing adherence to guidelines
- modifying guidelines on the basis of continuous re-assessment of the extent to which they contribute to good outcomes/avoid adverse events in patients and populations

Areas Needing Development of Measures

Patient-centeredness (or patient-orientation) is an essential hallmark of primary care.

Along with comprehensiveness and coordination of care, it distinguishes primary care from all other types of care delivered in health systems.

There is no formal quality assessment approach that includes the critical feature of problem-recognition, despite the evidence that patients are more likely to improve when they and their practitioner agree on what their problem is.

If primary care is patient oriented and clinical guidelines are disease oriented, then focus on disease-oriented guidelines is not consistent with the focus of primary care on achieving better health of people and populations.

To what extent are disease-oriented clinical guidelines pursuant to achievement of the functions of primary care?

Might they be incompatible with the underlying rationale of primary care?

Although specialists usually do better at adhering to disease-oriented guidelines, generic outcomes of care (especially but not only patient-reported outcomes) are no better and are often worse than when care is provided by primary care physicians.

Studies finding specialist care to be superior are more likely to be methodologically unsound, particularly regarding failure to adjust for case mix.

Sources: Hartz & James, J Am Board Fam Med 2006; 19:291-302. Chin et al, Med Care 2000; 38:131-40. Donohoe, Arch Intern Med 1998; 158:1596-1608. Bertakis et al, Med Care 1998; 36:879-91. Harrold et al, J Gen Intern Med 1999; 14:499-511. Smetana et al, Arch Intern Med 2007; 167:10-20. Other studies reported in: Starfield et al, Milbank Q 2005; 83:457-502.

Starfield 04/07
SP 6764

Monitoring Does Not Require Patient Visits in Well-organized Health Systems

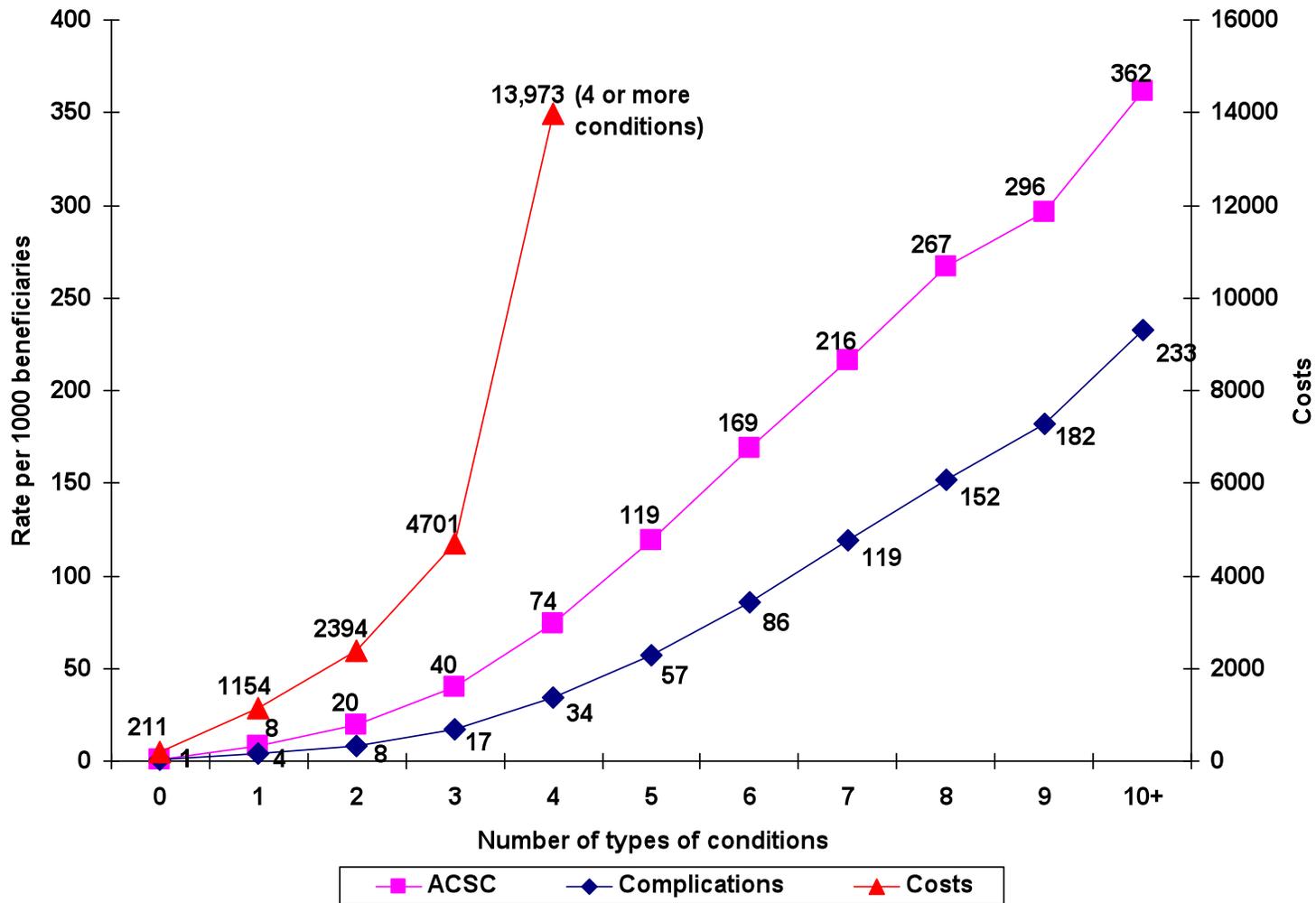
For example, the US Veterans Health Administration achieved a 60% reduction in hospital admissions and a 66% reduction in ED visits among 281 Remote Patient Management (RPM) monitored veterans with congestive heart failure, in comparison with 1120 veterans not using the technology.

THE CHALLENGE IS TO ASSURE THAT WHOLE-PATIENT CARE IS ENHANCED, NOT COMPROMISED, BY THIS INNOVATIVE TECHNOLOGY.

Increase in Treated Prevalence: Selected Conditions, US, People with Private Insurance, 1987-2002

	<u>Treated Prevalence Percentage Change, 1987-2002</u>
Hyperlipidemia	437
(Heart disease	9)
Bone disorders	227
Upper GI problems	169
Cerebrovascular disease	161
Mental problems	136
Diabetes	64
Endocrine disorders	24
Hypertension	17
Bronchitis	13

Comorbidity, Inpatient Hospitalization, Avoidable Events, and Costs*



Source: Wolff et al, Arch Intern Med 2002; 162:2269-76.

*ages 65+, chronic conditions only

Starfield 11/06
CM 5686 n

Management focused primarily on diseases does not make sense for primary care.

The benefits of primary care (person-focused, comprehensive, and coordinated) are greatest for people with high morbidity burdens.

This is at least part of the reason why disease management has not proven useful in improving health. Even the chronic care model will not be useful unless it is carried out in the context of good primary care.

Components of the Chronic Care Model

Component	Catalonia	England	Finland	Germany	Netherlands	Wales
Community resources and policies	(X)	X	–	–	X	X
Healthcare organization	X	X	X	(X)	X	X
Self-management support	X	X	X	X	(X)	X
Delivery system design	X	X	X	–	X	X
Clinical information systems	(X)	X	X	X	(X)	X
Decision support	X	X	X	–	(X)	X

X = fully implemented; (X) = partially implemented; – = not implemented

Austria and Belgium have no systematic implementation of the elements.

Large medical groups that score higher in **PRIMARY CARE ATTRIBUTES** are more likely to score high on **CHRONIC CARE MODEL** elements. The primary care characteristics that are most related to the CCM score are

- **COMPREHENSIVENESS** of services (especially treatment of severe chronic illness and accepting financial risk for hospitalization)
- **COORDINATION** (problem list present in an electronic health record)

Effectiveness of CCM Interventions: COGNITIVE DISSONANCE?

“Variations in nomenclature used by authors and imprecise descriptions of interventions made it difficult to meaningfully identify CCM-based interventions.”

Of 944 papers, only 82 were in primary care and included at least 4 of the CCM components.

Most were from the US and all were disease-oriented

“Accumulated evidence *appears to support* (italics added) CCM as an integrated framework to guide practice redesign.”

Accompanying editorial: “The shows that the CCM extends quality-adjusted life years at a cost-effective price”.

The Alternative Chronic Care Model (A-CCM): a Six-step Innovation

- Early intervention – to detect deterioration
- Integration of care – exchange of data and communication across multiple comorbidities, multiple providers, and complex disease states
- Coaching – to encourage patient input and participation
- Connectedness – patients and providers
- Workforce changes – to lower-cost and more plentiful health care workers
- Increased productivity – decreased travel time and automated transfer of information and documentation

Needed Research on Quality of Care Measures

- Current efforts to reward physicians for “performance” in primary care are misguided because they focus on disease management and not on patient’s health problems.
- Research to develop measures of quality based on practitioners’ recognition of patients problems, responsiveness to them, and their improvement over time is a high priority for primary care clinical research.
- Research to develop measures of the quality of care for multimorbidity

ALL MEASUREMENTS OF THE QUALITY OF CARE MUST BE ACCOMPANIED BY MEASURES OF PATIENT OR POPULATION IMPROVEMENT IN HEALTH, NOT DISEASE IMPROVEMENT. Many such measures are available at both the patient and population level.

All measurement of quality in primary care should be time-based, not visit or episode-based. (In contrast, quality assessment in specialty care should be visit or episode-based.)

There is no formal quality assessment approach that includes range of services, despite evidence that a broader range of services provided in primary care is characteristic of stronger primary health services systems.

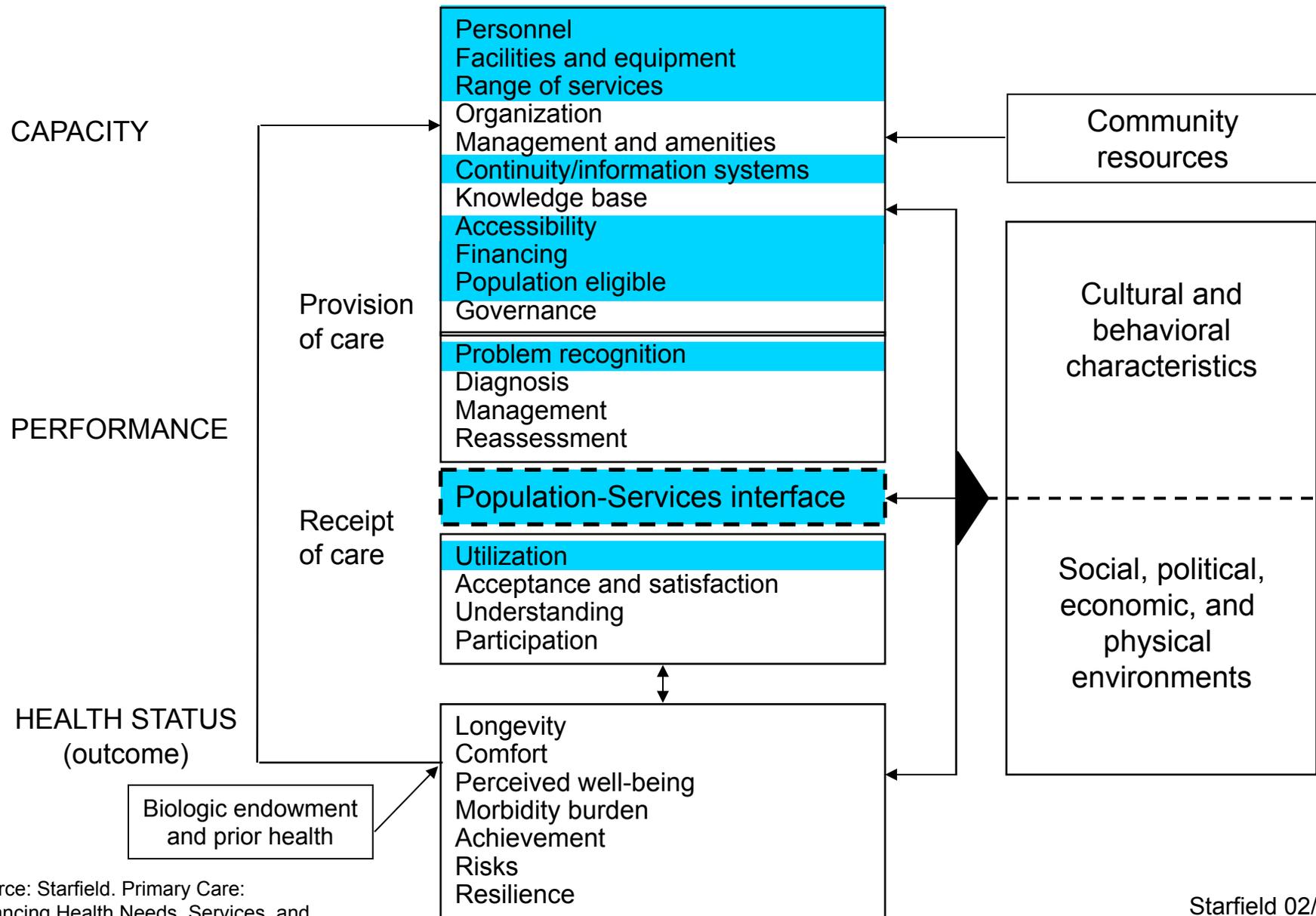
Quality of primary care evaluations should

- address achievement of primary care features
- not be limited to diagnosis and management of specific diseases
- focus on patient's problems (recognition and resolution)
- take into account overall morbidity burden (case-mix)
- include measures of inequity
- include adverse effects

Any evaluation of enhancements to clinical primary care must consider the extent to which they better achieve the evidence-based primary care functions:

- First contact for new needs/problems
- Person (*not* disease) focused care (enhanced recognition of people's health problems)
- Breadth of services
- Coordination (enhanced problems/needs recognition over time)

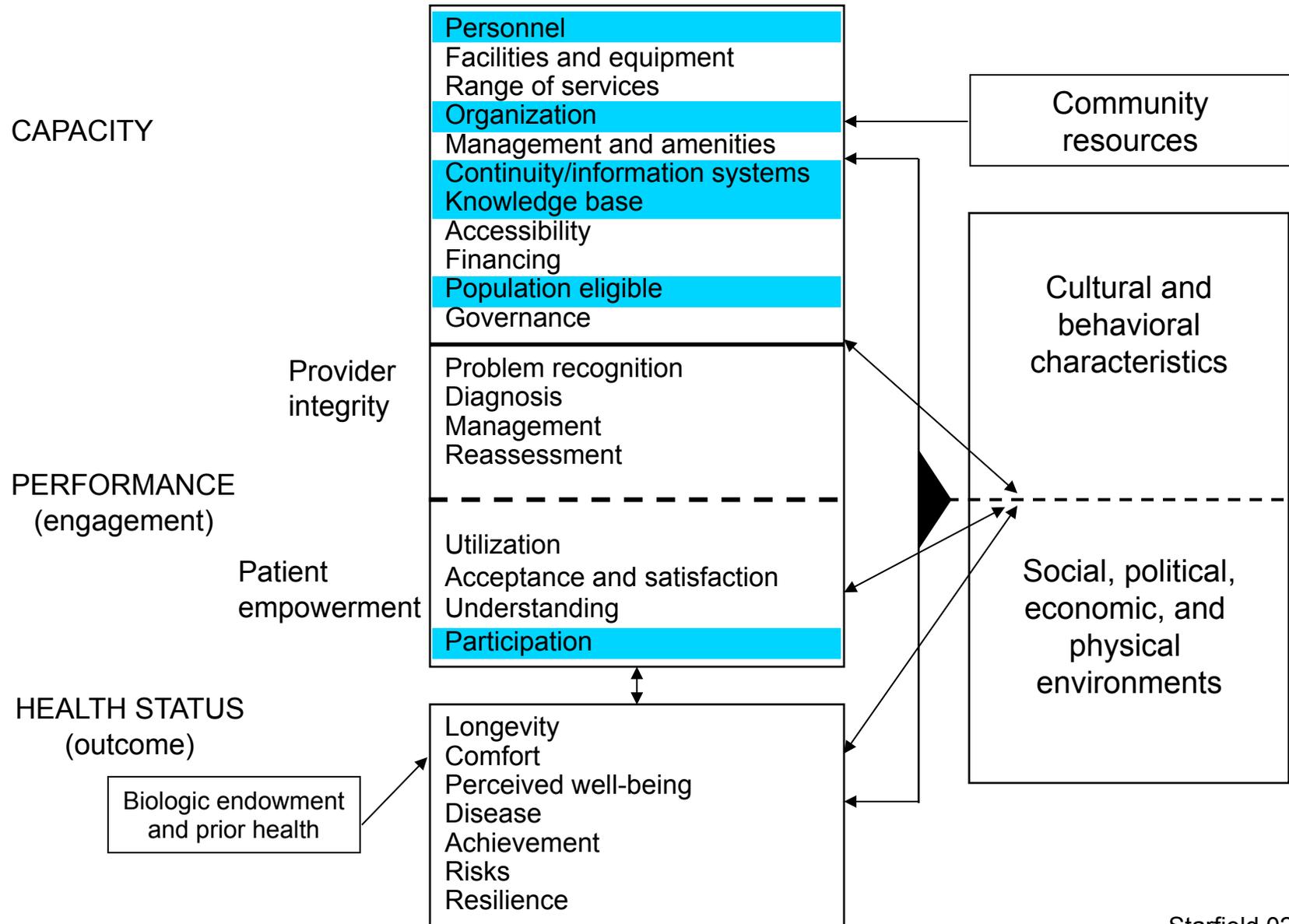
Primary Health Care Oriented Health Services Systems



Source: Starfield. Primary Care: Balancing Health Needs, Services, and Technology. Oxford U. Press, 1998.

Starfield 02/09
HS 6848 n

The Health Services System: Chronic Care Model



The apparent absence of a relationship between achievement of guideline-based disease-oriented processes of care and achievement of “intermediate outcomes,” i.e., targets for laboratory values, suggests that evidence of benefit from randomized controlled clinical trials (RCCTs) may not translate into better health outcomes.*

This would not be surprising, given what we know about the lack of generalizability of the results of RCCTs.

* Crosson JC, Ohman-Strickland PA, Campbell S, et al. A comparison of chronic illness care quality in US and UK family medicine practices prior to pay-for-performance initiatives. *Fam Pract* 2009; epub 09-11-09.

Improving patient focus in primary care would be enhanced by attention to:

- Use of a coding system (e.g., ICPC) for patients' problems
- Clinical guidelines that include responsiveness to patients' problems
- Understanding the relationship between achievement of disease-oriented guidelines and improvement in patients' health, using generic measures
- Complement process-oriented clinical guidelines with degree of overall improvement in patients' symptoms
- Use of multimorbidity measures in records and data systems

Generic Indicators of Technical Quality of Care

- Percentage of new prescriptions promptly filled/not filled
- Percentage of physicians who promptly review notes of consulting specialists
- Documentation of reasons for disregarding clinical guidelines (“exception reporting”)
- Rates of prescription of new drugs (should be low in primary care)
- Prescription of drugs (DDD/1000 people) within range of community prevalence

Quasi-generic* Indicators of Quality of Care

- Percentage of Type 2 diabetics receiving periodic eye care
- Percentage of patients with congestive heart failure (CHF) with daily weight monitoring
- Percentage of patients with CHF promptly acted upon by responsible physician

*ALL concern responsiveness to patients' problems.

Generic Measures of Specialist Responsiveness to Primary Care Concerns

- Unnecessary repeating of laboratory tests by specialists
- Documented responsiveness by specialist to concerns in referral note

Generic Approaches to Quality of Primary Care Functions*: Outcomes and Costs

- avoidable hospitalizations and emergency department visits
- unnecessary tests and procedures
- unnecessary/contraindicated medications
- rates of use of generic medications
- adverse events rates
- smoking rates

*most obtainable from medical records or claims forms

Generic Indicators of Quality of Primary Care - Catalonia

Attention to users' needs

Resolution of users' problems

Respect accorded to users' privacy

Time dedicated to the user

Number of patients assigned

High proportion of drugs with high efficacy and safety;
limited use of new drugs with no added therapeutic value;
reduced prescription of overused drug classes; rates of
use of indicated drugs for specific diseases

Indicators of Quality Are Not the Same as Health Status/Outcome Indicators

Useful health indicators for populations/subgroups

- Life expectancy: ages 1, 15, 45, 64, 75
- Years of potential life lost to ages 60, 65, 70, 75
- Age-adjusted/standardized death rates
- Death rates: neonatal, postneonatal, 1-5, 6-17, 18-44, 45-64, 65-74, 75-84

ALL BY MALE, FEMALE, TOTAL

Indicators of Quality Are Not the Same as Health Status/Outcome Indicators

Useful health indicators at the individual/
practice level

- Age-adjusted or standardized disability rates
- Smoking rates
- Rates of symptoms, e.g., pain
- Self-reported health

ALL ADJUSTED FOR MORBIDITY BURDEN

Indicators for Evaluating Primary Care by Type of Indicator

Resource Use

- Reduced use of unnecessary resources, including
 - Laboratory tests and procedures
 - Unjustified medications (such as antibiotics for influenza, growth hormone treatment for short children)
 - Of proprietary medications when generic ones would suffice
 - Non-indicated use of antidepressants
 - Low prescribing of combination medications of limited therapeutic value
- Reduced hospitalizations for ambulatory care sensitive conditions

Indicators for Evaluating Appropriate Utilization: Population

- Low rates of:
 - use of emergency rooms and
 - hospitalization and/or severity of illness from conditions sensitive to early intervention by primary care (asthma, diabetic ketoacidosis, hypertension, myocardial infarct, pneumonia)
 - surgery for preventable eye problems
 - non-indicated referrals

Indicators for Evaluating Outcomes of Primary Care: Population

- Satisfaction with health
- Limitations of activity
- Percentage of working-age individuals with sick benefits (should not be very low)
- Low rates of:
 - Adverse effects of medications
 - Attempted suicide
 - Failure-to-thrive in infants and the elderly
 - Years of Potential Life Lost
 - Life expectancy
 - Higher Quality-Adjusted Life Years (QALYS)

Primary Prevention Indicators

- Accomplishments in prevention not related to specific diseases: immunization status; personal health behaviors (breast feeding, not smoking, use of seat belts, use of smoke detectors, physical activity, good diet)
- Unwanted pregnancies
- Low incidence of vaccine-preventable diseases

Secondary Prevention Indicators

- Early detection of risk for child abuse
- Reduced frequency of conditions related to prevention: stroke, amputations resulting from diabetes complications, surgery for preventable eye conditions, incidence of sexually transmitted diseases and AIDS

Morbidity Indicators – Primary Care

- Low incidence of
 - attempted suicide
 - accidental poisoning
 - diabetic amputations
 - pregnancy-related complications
 - perinatal complications
 - pelvic inflammatory disease/surgery for infertility
- Improved quality of life, including decreased disability from:
 - asthma
 - osteoarthritis
 - post myocardial infarct
- Shortened duration of symptoms associated with peptic ulcers

Mortality Indicators*

- Low postneonatal mortality rates, under-5 mortality rates
- Improved quality of dying/terminal care
- Neonatal deaths from tetanus
- Case fatality rates, all diagnosable diseases
- Age-specific deaths associated with breast and cervical cancer

* Postneonatal mortality is a good primary care indicator. The rest involve both primary care specialist care.

Equity Indicators

- For all health indicators
 - Reduction in disparities across social groups

Perinatal Indicators

- Low rates of:
 - undesired pregnancies
 - perinatal complications
 - pregnancy-related complications
 - postneonatal mortality
 - neonatal death from tetanus
 - maternal mortality

Infancy Indicators

- Low birth weight (specialty care)
- Postneonatal mortality (primary care)
- Breastfeeding*
- Tetanus toxoid*
- HIV/AIDS

*especially developing countries

Source: Jones et al, Lancet 2003; 362:65-71.

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EQ 5645

Childhood Indicators

- Immunizations (primary care)
 - Child survival to age 5
 - From external causes (public health)
 - From “medical” causes (primary and specialty care)
 - Malaria protection and treatment*
 - Management of gastroenteritis*
 - HIV/AIDS*
 - Treatment of respiratory infection*
- all primary care**

*especially developing countries

Source: Jones et al, Lancet 2003; 362:65-71.

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EQ 5646

Teenage Period Indicators (all primary care)

- Preventive and health-promoting behaviors, especially those not related to specific diseases
- Adverse effects of medications
- Rates of attempted suicide
- Emergency visits for asthma
- Hospitalizations for ambulatory care sensitive conditions

Early and Middle Adulthood Indicators (all primary care)

- Low birth weight of offspring
- Breastfeeding, seat belts, physical activity
- Low smoking rates
- Asthma death rates
- Hypertension and cerebrovascular disease: premature mortality and age-adjusted death rates
- Hospitalizations for ambulatory care sensitive conditions
- Suicide rates
- Symptoms of peptic ulcers
- Adverse effects of medications

Later Adulthood Indicators (all primary care)

- Asthma death rates
- Deaths from cerebrovascular disease
- Suicide rates
- Adverse effects of medications (post-marketing surveillance)
- Hospitalization for ambulatory care sensitive conditions
- Symptoms of peptic ulcer
- Heart mortality; cancer mortality

Suggested Indicators for Evaluating Outcomes of Primary Care

PROBLEM-SPECIFIC INDICATORS (3^o and 4^o prevention)

- Low incidence of:
 - stroke
 - amputations associated with diabetes
 - myocardial infarct
 - renal diseases associated with diabetes
 - hemoptysis from tuberculosis
 - pelvic inflammatory disease or surgery for infertility
 - age-specific deaths rates from breast cancer and cervical cancer