



Vital Signs:

Core Metrics for Health and Health Care Progress

An IOM Consensus Study



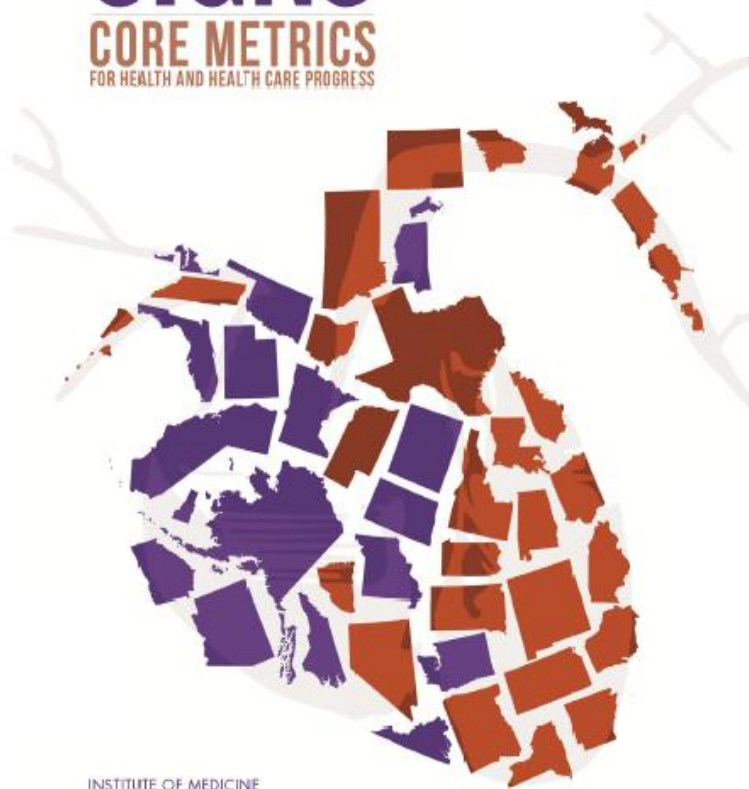
INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

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VITAL SIGNS



CORE METRICS
FOR HEALTH AND HEALTH CARE PROGRESS



INSTITUTE OF MEDICINE
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Topics

- Committee
- Study motivations
- Committee charge
- Core metrics benefits
- Core metrics characteristics
- Challenges
- 15 recommended core measures
- Stakeholder roles



Committee on Core Metrics for Better Health at Lower Cost

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JULIE BYNUM, The Dartmouth Institute
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DIANA DOOLEY, California Health and Human Services
TIMOTHY FERRIS, Partners HealthCare
SHERRY GLIED, New York University
LARRY GREEN, University of Colorado at Denver
GEORGE ISHAM, HealthPartners
CRAIG JONES, Vermont Blueprint for Health
ROBERT KOCHER, Venrock
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ELIZABETH MITCHELL, Network for Regional Health Improvement
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LYN PAGET, Health Policy Partners
KYU RHEE, IBM Corporation
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Study motivations

- Measure proliferation is independent of priority
- Requirements are often inconsistent
- Measures themselves are often inconsistent
- Data collected inconsistently have limited usefulness
- Clinician burden (time/\$) is growing rapidly
- Process focus tends to fragment actions
- Fragmented measures obscure system performance

Committee Charge

An ad hoc committee will conduct a study and prepare a report directed at exploring measurement of individual and population health outcomes and costs, identifying fragilities and gaps in available systems, and considering approaches and priorities for developing the measures necessary for a continuously learning and improving health system. The Committee will:

- consider candidate measures suggested as reliable and representative reflections of health status, care quality, people's engagement and experience, and care costs for individuals and populations;
- identify current reporting requirements related to progress in health status, health care access and quality, people's engagement and experience, costs of health care, and public health;
- identify data systems currently used to monitor progress on these parameters at national, state, local, organizational, and individual levels;
- establish criteria to guide the development and selection of the measures most important to guide current and future-oriented action;
- propose a basic, minimum slate of core metrics for use as sentinel indices of performance at various levels with respect to the key elements of health and health care progress: people's engagement and experience, quality, cost, and health;
- indicate how these core indices should relate to, inform, and enhance the development, use, and reporting on more detailed measures tailored to various specific conditions and circumstances;
- identify needs, opportunities, and priorities for developing and maintaining the measurement capacity necessary for optimal use of the proposed core metrics; and

recommend an approach and governance options for continuously refining and improving the relevance and utility of the metrics over time and at all levels.



MEASURE CATEGORIES

(hundreds)

QUALITY OF CARE

CVD: aspirin
 CVD: Beta blocker
 CVD: heart failure composite
 CVD: blood pressure
 Can: cytogenetic testing/leukemia
 Can: stage-specific therapy ER/PR+ breast cancer
 Resp: asthma management composite
 Resp: COPD evaluation protocol
 DM: HbA1c
 DM: LDL
 DM: diabetes composite
 MH: depression identification
 MH: antipsychotic meds
 MH: care plan at discharge
 ID: Hepatitis C genotype testing
 ID: HIV viral load suppression
 ID: antibiotic overuse
 Surg: volume (by procedure)
 Surg: antibiotic prophylaxis
 Surg: checklist use
 Surg: post-op complication rates
 OGQ: EHR functionality
 OGQ: ED throughput time
 OGQ: advance care planning
 OGQ: pain management protocol
 MCH: prenatal care
 MCH: Cesarean sections
 MCH: post-partum care
 Prev: USPSTF recommended services
 Prev: physical activity/fitness coaching
 Prev: tobacco cessation
 Pexp: clinician communication
 Pexp: patient rating of doctor
 Pexp: collaborative decision-making
 Safe: wrong site surgery
 Safe: hospital-acquired conditions/injuries
 Safe: central line-associated blood stream infections
 Safe: hand hygiene
 Safe: MRSA bacteremia
 Safe: pressure ulcers
 Safe: medication reconciliation
 Safe: adverse event reporting

... others ...

COST

PC: insurance coverage
 PC: out of pocket med payments
 RR: Total cost of care index
 RR: prescription of generic drugs
 UN: condition-specific imaging use

... others ...

ENGAGEMENT

Ind: health literacy
 Ind: children reading at grade level
 Ind: collaborative decision-making
 Ind: patient activation
 Com: community-wide benefit strategy

... others ...

POPULATION HEALTH

HS: life expectancy
 HS: perceived health
 HS: days with physical or mental illness
 Beh: fruit/vegetable consumption
 Beh: activity levels
 Soc: income/child poverty
 Soc: neighborhood crime
 Env: air particulate matter

... others ...

PROPONENT GROUPS

- Standards organizations
- Professional societies
- Payers and employers
- Care institutions
- Federal, state, and local government

MEASURES IN USE

(thousands)

... others ...

... others ...

... others ...

... others ...

... others ...

SAFETY MEASURES CURRENTLY IN USE

- Perioperative care: discontinuation of prophylactic parenteral antibiotics (non-cardiac procedures)
 - Perioperative care: venous thromboembolism prophylaxis (when indicated in ALL patients)
 - Discontinuation of prophylactic parenteral antibiotics (cardiac procedures)
 - Medication reconciliation
 - Prevention of catheter-related bloodstream infections: central venous catheter insertion protocol
 - Documentation of current medications in the medical record
 - Radiology: exposure time reported for procedures using fluoroscopy
 - Falls risk assessment
 - Oncology radiation dose limits to normal tissues
 - Thoracic surgery: recording of clinical stage prior to lung cancer or esophageal cancer resection
 - Cataracts: complications within 30 days following cataract surgery requiring additional surgical procedures
 - Perioperative temperature management
 - Thoracic surgery: pulmonary function test before major anatomic lung resection
 - Use of high risk medications in the elderly
 - Image confirmation of successful excision of image-localized breast lesion
 - Falls: screening for future fall risk
 - Atrial fibrillation and atrial flutter: chronic anticoagulation therapy
 - Maternity care: elective delivery or early induction without medical indication at greater than or equal to 37 weeks and less than 39 weeks
- And many more...

Core metrics benefits

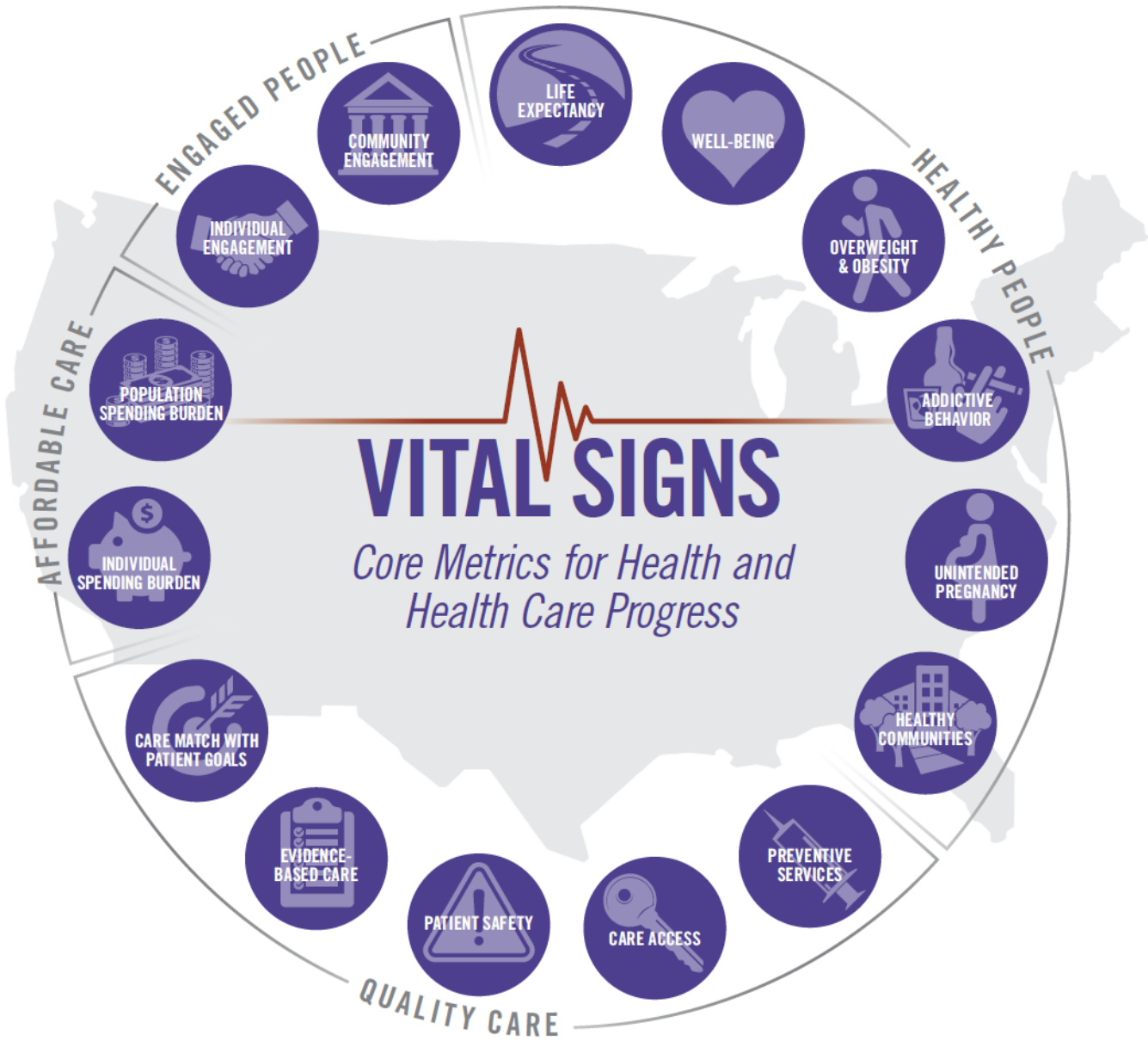
- Sharpen focus on the actionable issues most broadly important to improving people's health
- Counter the natural tendency to focus on separate pieces at the expense of system performance
- Drive relationships and integration across levels and activities
- Provide key standardized reference points for tailored measurement activities of specialized interest
















Core metrics characteristics

- Reliably reflect health, care quality, and cost
- Parsimonious
- Standardized—simplify and facilitate comparison
- Multi-level: national, state, local, institutional
- Multi-stakeholder: shared accountability for health
- Publicly led
- Cooperatively stewarded

Challenges

- Finding the most important measures
- Relating core performance to the rest
- Buffering special interests, tendency to expand
- Reflecting the whole, in a way that captures the parts
- Agreement on standardization
- Stakeholder uptake and use
- Leadership and stewardship that is sustained



Domain	Key Element	Core Measure Focus	Best Current Measure
Healthy people	Length of life	 Life expectancy	Life expectancy at birth
	Quality of life	 Wellbeing	Self-reported health
	Healthy behaviors	 Overweight and obesity	Body mass index
		 Addictive behavior	Addiction death rate
		 Unintended pregnancy	Teen pregnancy rate
	Healthy social circumstances	 Healthy communities	High school graduation rate
Care quality	Prevention	 Preventive services	Childhood immunization rate
	Access to care	 Care access	Unmet care need
	Safe care	 Patient safety	Hospital acquired infection rate
	Appropriate treatment	 Evidence-based care	Preventable hospitalization rate
	Person-centered care	 Care match with patient goals	Patient-clinician communication satisfaction
Care cost	Affordability	 Personal spending burden	High spending relative to income
	Sustainability	 Population spending burden	Per capita expenditures on health care
Engaged people	Individual engagement	 Individual engagement	Health literacy rate
	Community engagement	 Community engagement	Social support

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IMPACT ASSESSMENT

- Quality-sensitive outcomes
- System-impact protocols

STANDARDIZED MEASURES (dozens—examples)

Life expectancy at birth
 Infant mortality
 Maternal mortality
 Violence and injury mortality
 Co-occurring chronic conditions
 Self-reported health
 Health-adjusted life expectancy
 Body mass index
 Activity levels
 Healthy eating patterns
 Tobacco use
 Drug dependence/illicit use
 Alcohol dependence/misuse
 Addiction deaths
 Adolescent pregnancy
 Contraceptive use
 Unmet need or delayed care
 Patient experience
 Patient-clinician communication
 High blood pressure therapy protocol
 Acute heart attack therapy protocol
 Stroke therapy protocol
 Diabetes therapy protocol
 Breast cancer therapy protocol
 Pain management protocol
 Asthma management protocol
 Childhood immunization
 Influenza immunization
 USPSTF recommended services
 Depression screening and treatment
 Colorectal cancer screening
 Breast cancer screening
 Advanced care planning
 Wrong site surgery
 Hospital acquired infection
 Pressure ulcers
 Medication reconciliation
 Preventable hospitalizations
 Spending relative to income
 Per capita health care spending
 Spending growth categories
 Childhood poverty
 Health literacy
 Use of personal health tools
 High school graduation
 Air quality index
 Drinking water quality index
 Social support availability
 Availability of healthy food
 Community walkability
 Community health benefit agenda

CORE MEASURES (fifteen)

- Life expectancy
- Wellbeing
- Overweight and obesity
- Addictive behavior
- Unintended pregnancy
- Healthy communities
- Preventive services
- Care access
- Patient safety
- Evidence-based care
- Care match with patient goals
- Personal spending burden
- Population spending burden
- Individual engagement
- Community engagement

Stakeholder roles

- **Clinicians:** reduced burden through streamlined and standardized measures that register results and performance that matter most.
- **Payers and employers:** ability to anchor reporting requirements on results most important to the health of a covered population, and compare provider performance in a standardized, meaningful way.
- **Communities:** raise awareness of priorities and develop collaborative multisectoral strategies for tracking and improving health.
- **Public health:** forge population health partnerships with health care organizations and shared accountability for outcomes.
- **Voluntaries:** pilot the use of core metrics by integrating measurement activities and developing performance dashboards.
- **Measure developers:** produce and pilot composite measures through multistakeholder collaboration, and work with HHS on implementation.

HHS Leadership

