

CAPTURING SOCIAL & BEHAVIORAL DOMAINS & MEASURES IN **ELECTRONIC HEALTH RECORDS**

Patricia Flatley Brennan & William Stead

Committee on Recommended Social & Behavioral
Domains & Measures for Electronic Health Records (EHRs)

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INSTITUTE OF MEDICINE

OF THE NATIONAL ACADEMIES

COMMITTEE CHARGE

THE COMMITTEE WAS ASKED TO:

- Identify domains for consideration by ONC for Stage 3 meaningful use;
- Determine criteria for selection;
- Identify domains and measures for inclusion in all EHRs;
- Consider implications of incorporating recommended measures into all EHRs; and
- Identify Issues in linking other data systems.

Conceptual Frameworks

- Selected 3 frameworks, Ansari et al., Kaplan et al., and MacArthur Research Network on SES Health Model
 - Frameworks looked at downstream and upstream determinants of health
- Models distinguish between characteristics that influence health that reside at 5 levels:
 - Socio-demographic
 - Psychological
 - Behavioral
 - Social relationships and living conditions
 - Physical and social environment

Multilevel Model by Kaplan, et al. (2000)

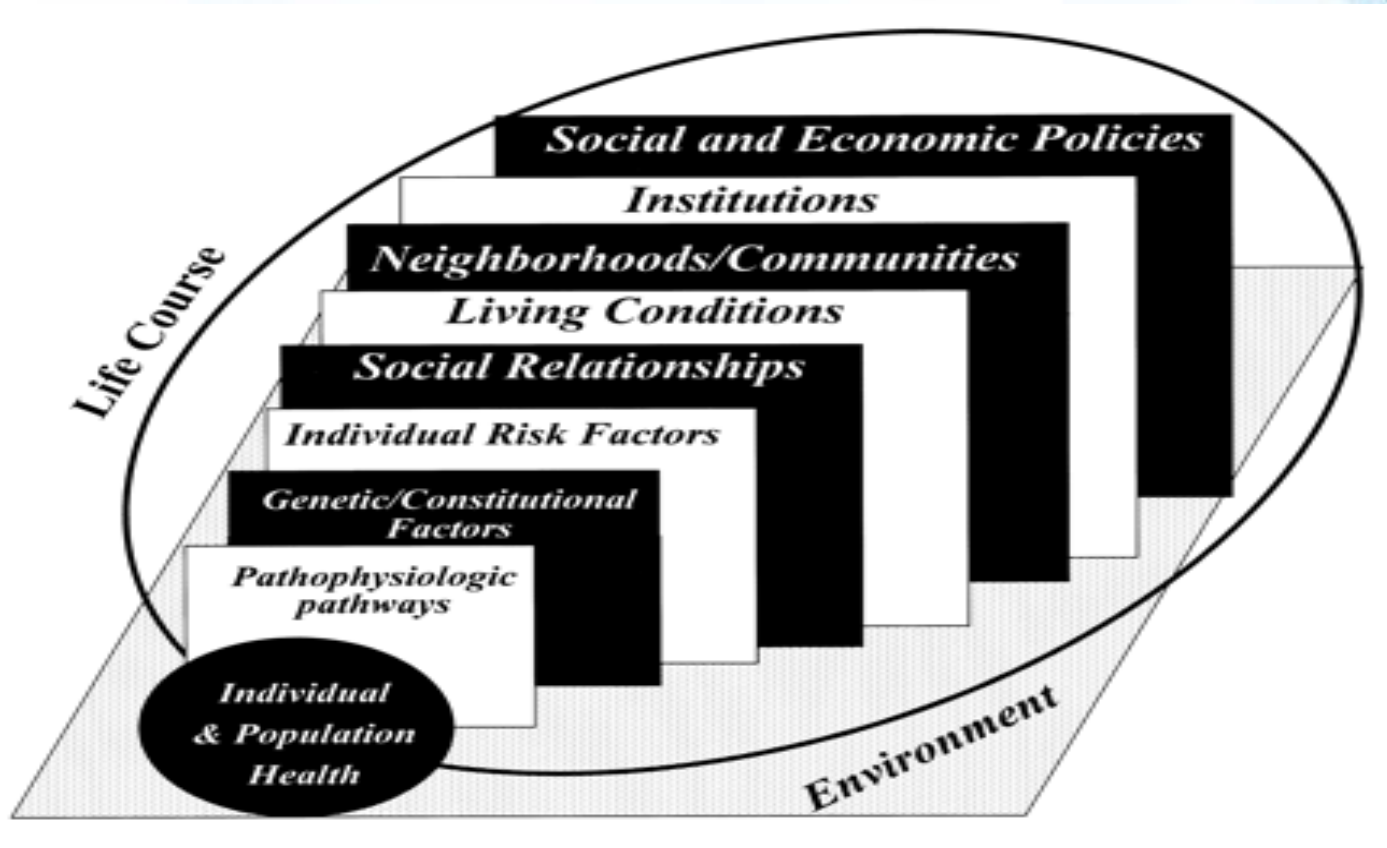


FIGURE 2-1 Multilevel approach to epidemiology, 2000. The approach of Kaplan et al. (2000) attempts to bridge various levels of explanation and intervention, bringing together theory and empirical work that link observations of causal influence and mechanism at multiple levels.

SOURCE: IOM (2000a).

CANDIDATE DOMAINS

■ SOCIODEMOGRAPHIC DOMAINS

- Sexual orientation
- Race/ethnicity
- Country of origin/U.S. born or non-U.S. born
- Education
- Employment
- Financial resource strain
(Food and housing insecurity)

■ PSYCHOLOGICAL DOMAINS

- Health literacy
- Stress
- Negative mood and affect
(Depression, anxiety)
- Psychological assets
(Conscientiousness, patient engagement/
activation, optimism, self-efficacy)

■ BEHAVIORAL DOMAINS

- Dietary patterns
- Physical activity
- Tobacco use and exposure
- Alcohol use

■ INDIVIDUAL-LEVEL SOCIAL RELATIONSHIPS & LIVING CONDITIONS

- Social connections and social isolation
- Exposure to violence

■ NEIGHBORHOODS & COMMUNITIES

- Compositional characteristics

MEASUREMENT TERMS

- Concept – domains/constructs
- Operational definition – subdomain/variable
- Observational tool – instrument/question(s)
- Data structure/scale - metric

CONVERTING MEASURE TO METRIC

Example: Physical activity

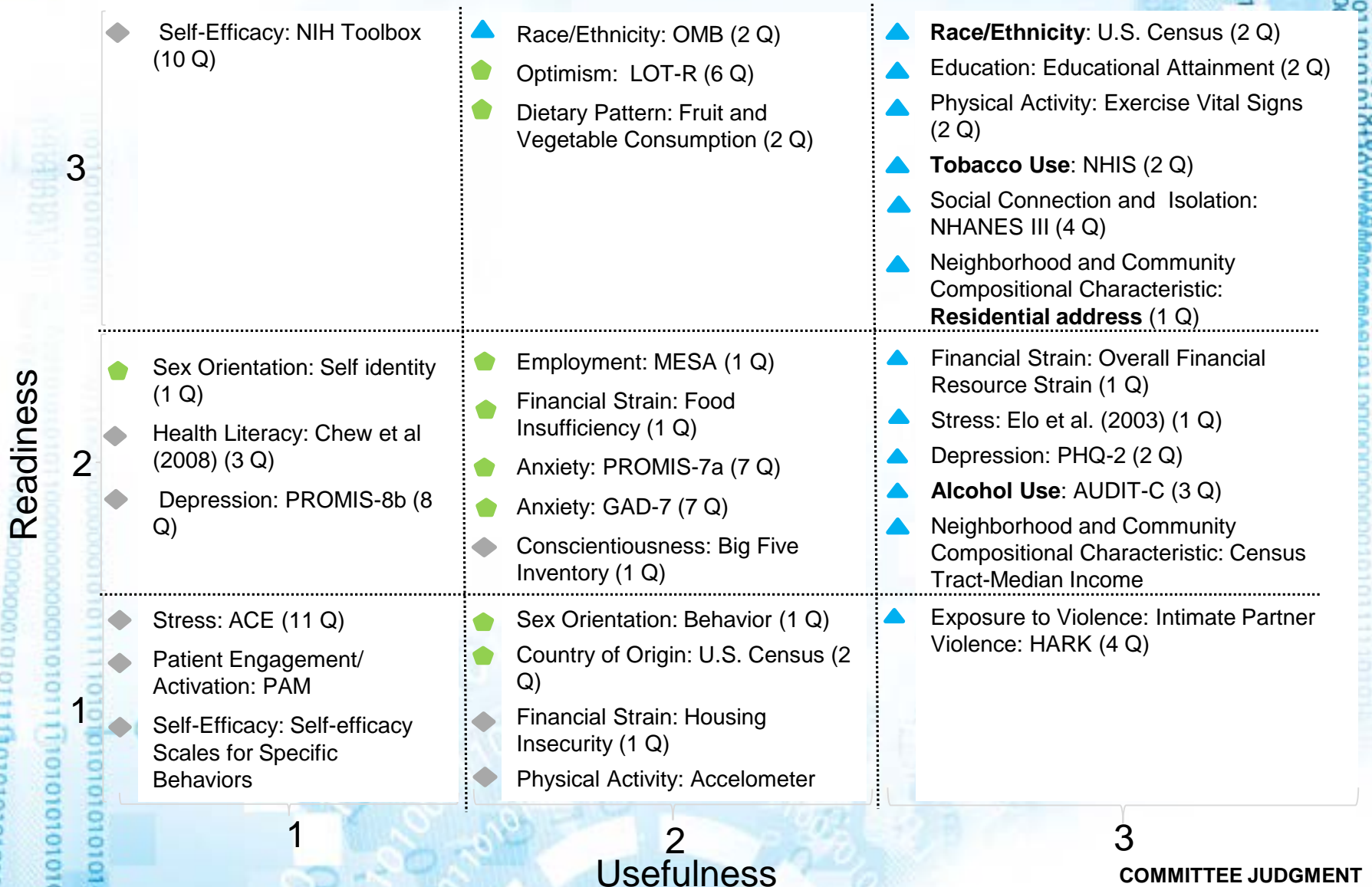
MEASURE	METRIC
Exercise Vital Sign	Metabolic equivalent task minutes (METs)
<ol style="list-style-type: none">1. On average, how many days per week do you engage in moderate to strenuous exercise? (0-7)1. On average, how many minutes do you engage in exercise at this level (blocks of 10 min)	<ul style="list-style-type: none">• Light intensity 1.1-2.9• Moderate intensity 3.0-5.9• Vigorous intensity ≥ 6

CONVERTING STANDARD MEASURE TO CODE SET

Example: Tobacco Use

STANDARD MEASURE	STAGE 2 CODE SET
NHIS Questions	SNOMED Codes
1. Have you smoked at least 100 cigarettes in your entire life? (Y/N/refused/do not know)	<ul style="list-style-type: none">•Current every day smoker•Current some day smoker•Former smoker•Never smoker•Smoker, current status unknown
2. Do you NOW smoke cigarettes every day, some days or not at all?	<ul style="list-style-type: none">•Unknown if ever smoked•Heavy tobacco smoker•Light tobacco smoker

STANDARD DOMAIN MEASURES



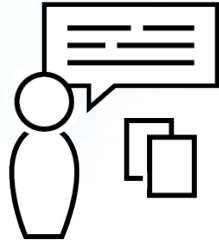
NOTE: Bolded items are domains that are already frequently collected.

COMMITTEE JUDGMENT

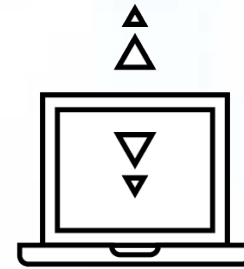
1 = 2 = 3 =

Domain	Measure*	Frequency
Race or ethnic group†	1. What is your race? 2. Are you of Hispanic, Latino, or Spanish origin?	At entry
Education	1. What is the highest level of school you have completed? 2. What is the highest degree you earned?	At entry
Financial-resource strain	How hard is it for you to pay for the very basics like food, housing, medical care, and heat?	Screen and follow up
Stress	Stress means a situation in which a person feels tense, restless, nervous, or anxious, or is unable to sleep at night because his or her mind is troubled all the time. Do you feel this kind of stress these days?	Screen and follow up
Depression	Over the past 2 weeks, how often have you been bothered by 1. Little interest or pleasure in doing things? 2. Feeling down, depressed, or hopeless?	Screen and follow up
Physical activity	1. On average, how many days per week do you engage in moderate to strenuous exercise (like walking fast, running, jogging, dancing, swimming, biking, or other activities that cause a light or heavy sweat)? 2. On average, how many minutes do you engage in exercise at this level?	Screen and follow up
Tobacco use†	1. Have you smoked at least 100 cigarettes in your entire life? If yes: 2. Do you now smoke cigarettes every day, some days, or not at all?	Screen and follow up
Alcohol use†	1. How often do you have a drink containing alcohol? 2. How many standard drinks containing alcohol do you have on a typical day? 3. How often do you have six or more drinks on one occasion?	Screen and follow up
Social connection or isolation	1. In a typical week, how many times do you talk on the telephone with family, friends, or neighbors? 2. How often do you get together with friends or relatives? 3. How often do you attend church or religious services? 4. How often do you attend meetings of the clubs or organizations you belong to?	Screen and follow up
Intimate-partner violence	1. Within the last year, have you been humiliated or emotionally abused in other ways by your partner or ex-partner? 2. Within the last year, have you been afraid of your partner or ex-partner? 3. Within the last year, have you been raped or forced to have any kind of sexual activity by your partner or ex-partner? 4. Within the last year, have you been kicked, hit, slapped, or otherwise physically hurt by your partner or ex-partner?	Screen and follow up
Residential address†	What is your current address?	Verify at every visit
Census-tract median income	Geocoded	Update on address change

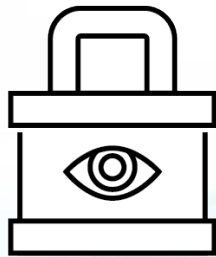
IMPLEMENTATION ISSUES



**SELF-REPORTED
DATA**



**LINKING
DATA**



**PRIVACY
PROTECTION**



**RESOURCE
CONSIDERATIONS**

Informatics Challenges

- Standardization/Innovation

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- Acquiring SBDH data in an efficient & privacy-preserving manner

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- Data storage that facilitates clinical care, research and patient self care
- Interpretation and accelerating knowledge building for the future

CMS: MU Stage 3 *MU for everyone by 2018*

ONC: ...determinants of health status are social

“qualified EHR” as defined in section 3000(13) of the Public Health Service Act as an electronic record of health-related information on an individual that includes patient demographic and clinical health information, such as medical history and problem lists;

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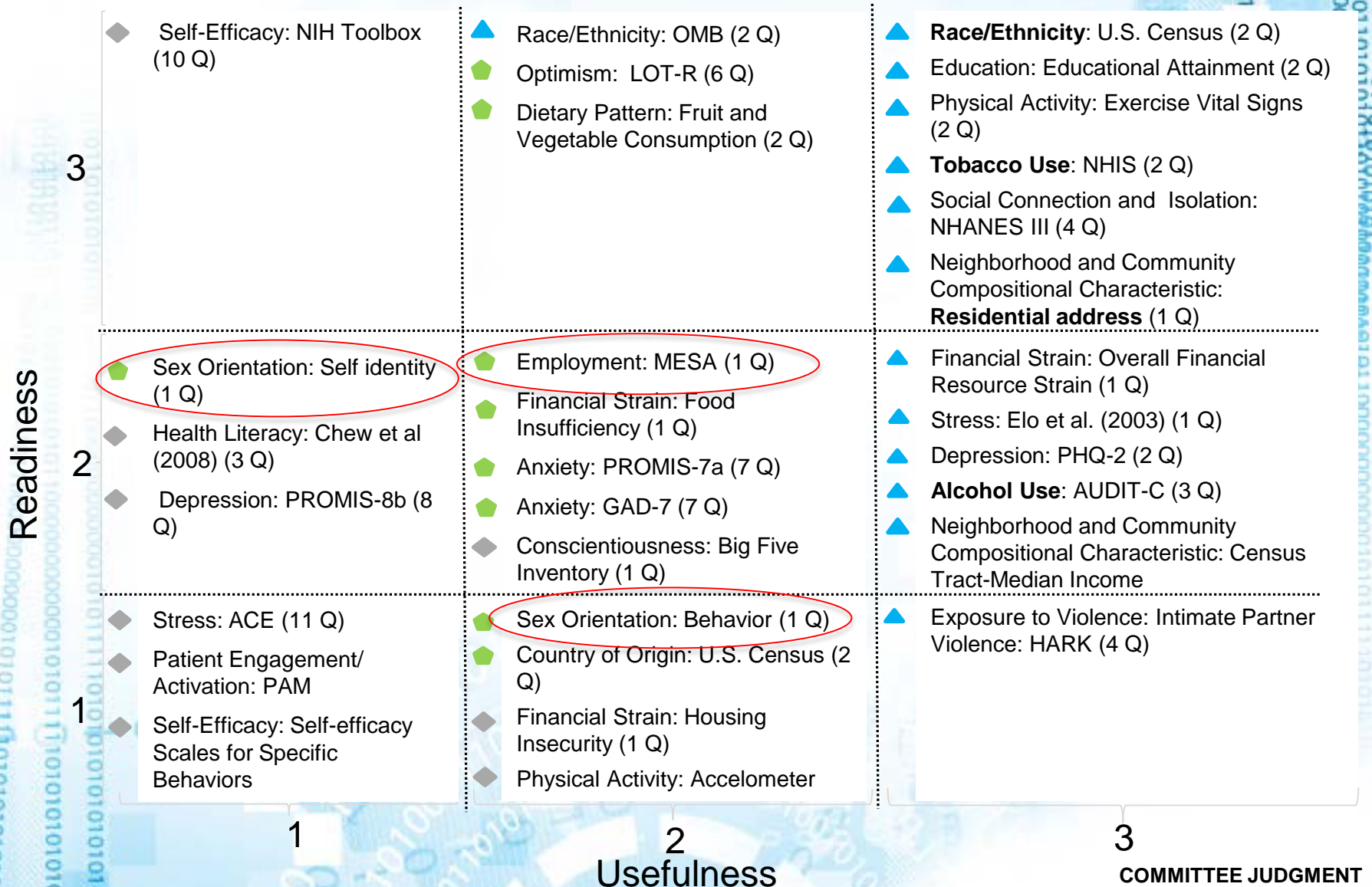
Key elements of MU 3

Protection
e-Prescribing
CDSS
CPOE
Patient access
Care Coordination
HIE
Public health

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STANDARD DOMAIN MEASURES



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COMMITTEE JUDGMENT

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**QUESTIONS AND
COMMENTS WELCOME!**