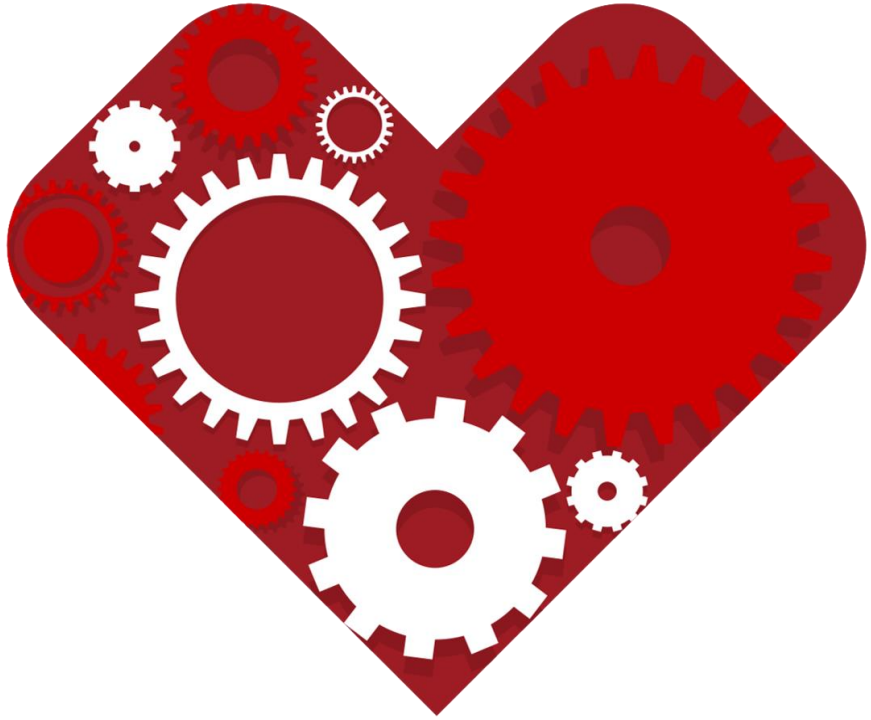
Can Information Technologies Enhance Access to Health Information for Vulnerable Communities



Garth Graham, MD, MPH, FACP, FACC

Where health happens

6,000 hours
awake each year

2-3 hours
in a doctor's office

Sources: Gallup, In U.S., 40% Get Less Than Recommended Amount of Sleep, December 2013, https://news.gallup.com/poll/166553/less-recommended-amount-sleep.aspx.
Peterson-Kaiser Health System Tracker, The U.S. has fewer physician consultations per capita than most comparable countries, April 2017, https://www.healthsystemtracker.org/chart/u-s-fewer-physician-consultations-per-capita-comparable-countries-hosh_vid/#item-start.Irving G, Neves AL, Dambha-Miller H, Oishi A, Tagashira H, Verho A, Holden J, International variations in primary care physician consultation time: a systematic review of 67 countries, BMJ Journal Open, November 2017.

Neighborhoods Matter for Health

- Health outcomes—including life expectancy—vary sharply by neighborhood.
- Between 2003 and 2007, life expectancy varied by as much as 33 years between census tracts in Boston.
- The census tract with the lowest life expectancy (in Roxbury, 58.9 years) is shorter than the life expectancy of many third world countries

Source: Center on Human Needs, Virginia Commonwealth University, September 2012

Census tracts with the longest and shortes life expectancies are in Back Bay and Roxbury respectively.

JAMA Network | Open

Original Investigation | Health Policy

Racial Disparities in Patient Characteristics and Survival After Acute Myocardial Infarction

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Abstract

IMPORTANCE Black patients experience worse outcomes than white patients following acute myocardial infarction (AMI).

OBJECTIVE To examine the degree to which nonrace characteristics explain observed survival differences between white patients and black patients following AMI.

DESIGN, SETTING, AND PARTICIPANTS This cohort study used the extensive socioeconomic and clinical characteristics from patients recovering from an AMI that were prospectively collected at 31 hospitals across the contiguous United States between 2003 and 2008 for the Prospective Registry Evaluating Myocardial Infarction: Events and Recovery registry and the Translational Research Investigating Underlying Disparities in Acute Myocardial Infarction Patients' Health Status registry. Survival was assessed using data from the National Death Index. Data were analyzed from December 2016 to July 2018.

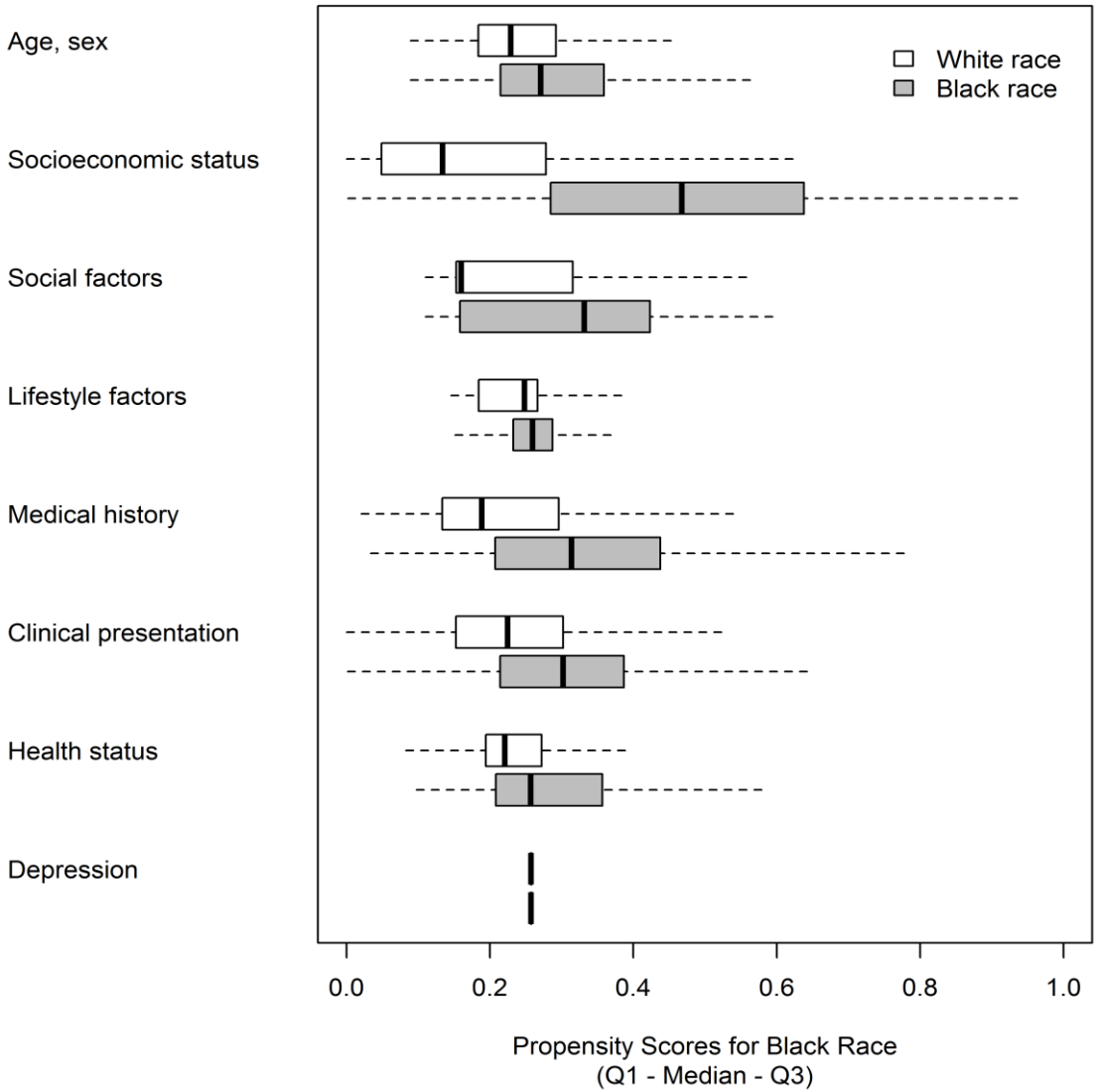
MAIN OUTCOMES AND MEASURES Patient characteristics were categorized into 8 domains, and the degree to which each domain discriminated self-identified black patients from white patients was

Key Points

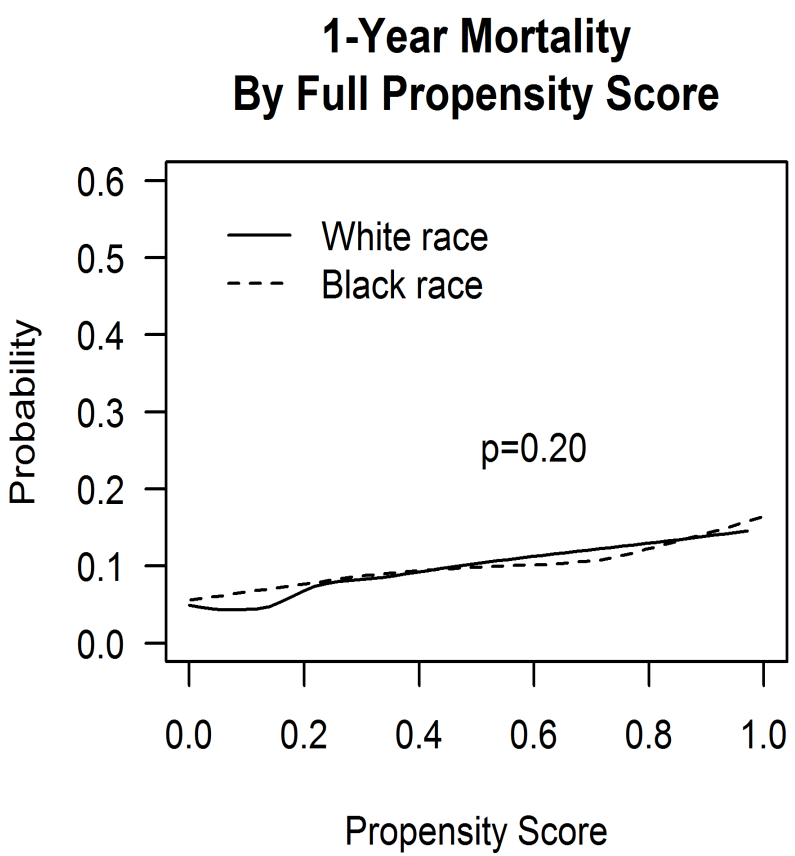
Question Does race serve as a surrogate for socioeconomic and clinical factors, and, after adjusting for those factors, do long-term mortality rates differ between black patients and white patients following acute myocardial infarction?

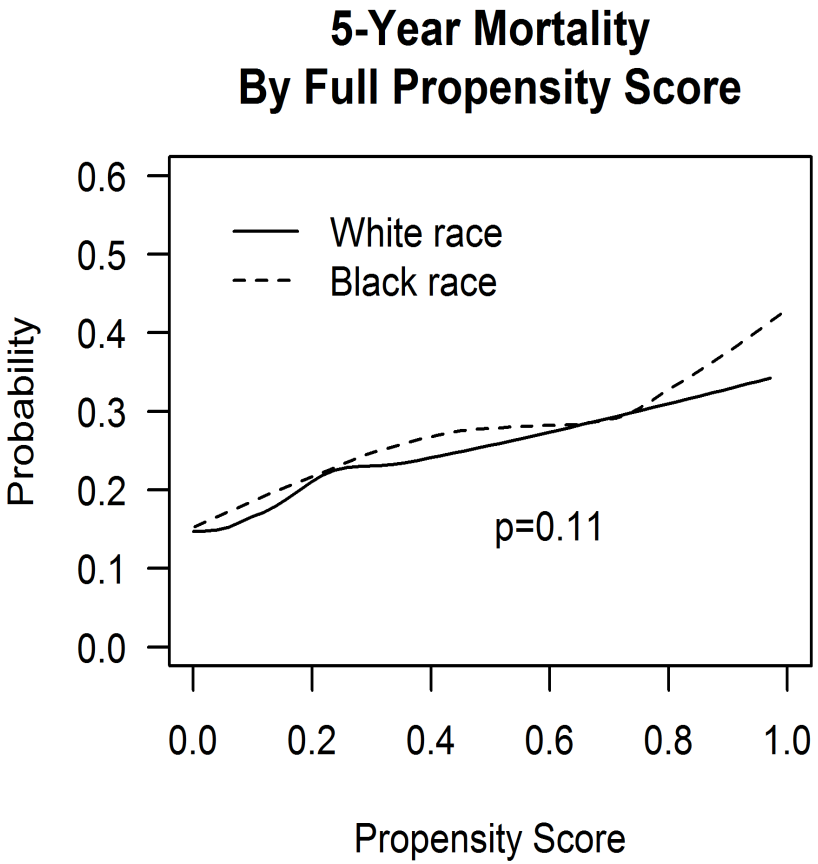
Findings In this cohort study of 6402 patients from 2 acute myocardial infarction registries, self-identified black patients and white patients differed in several clinical and socioeconomic characteristics. The higher the prevalence of characteristics associated with being a black patient, the higher the 5-year mortality rate, but no

Propensity Scores for Black Race (Unadjusted Probability)

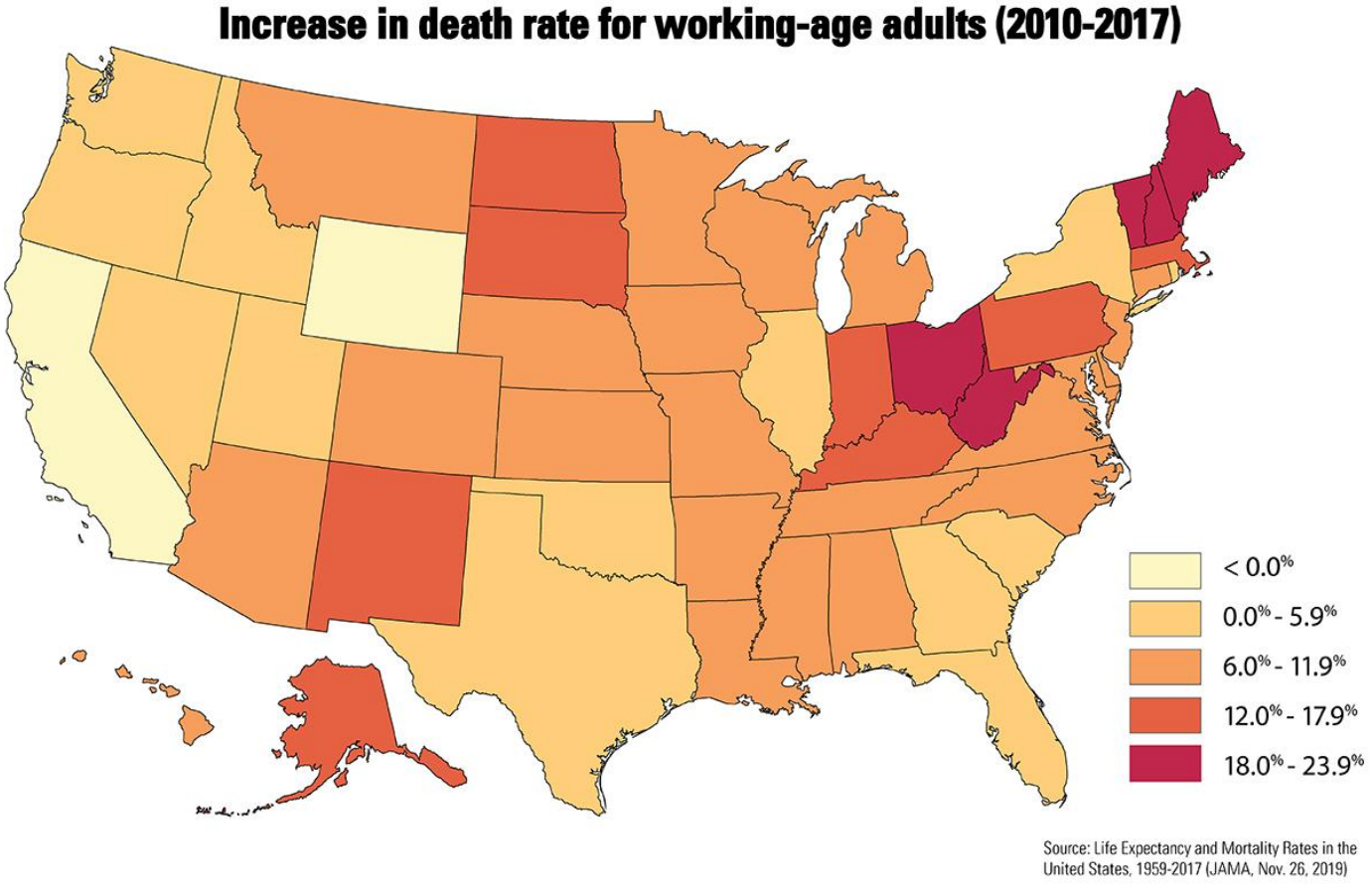


Association between the Propensity to be Black with 1- and 5-year Mortality





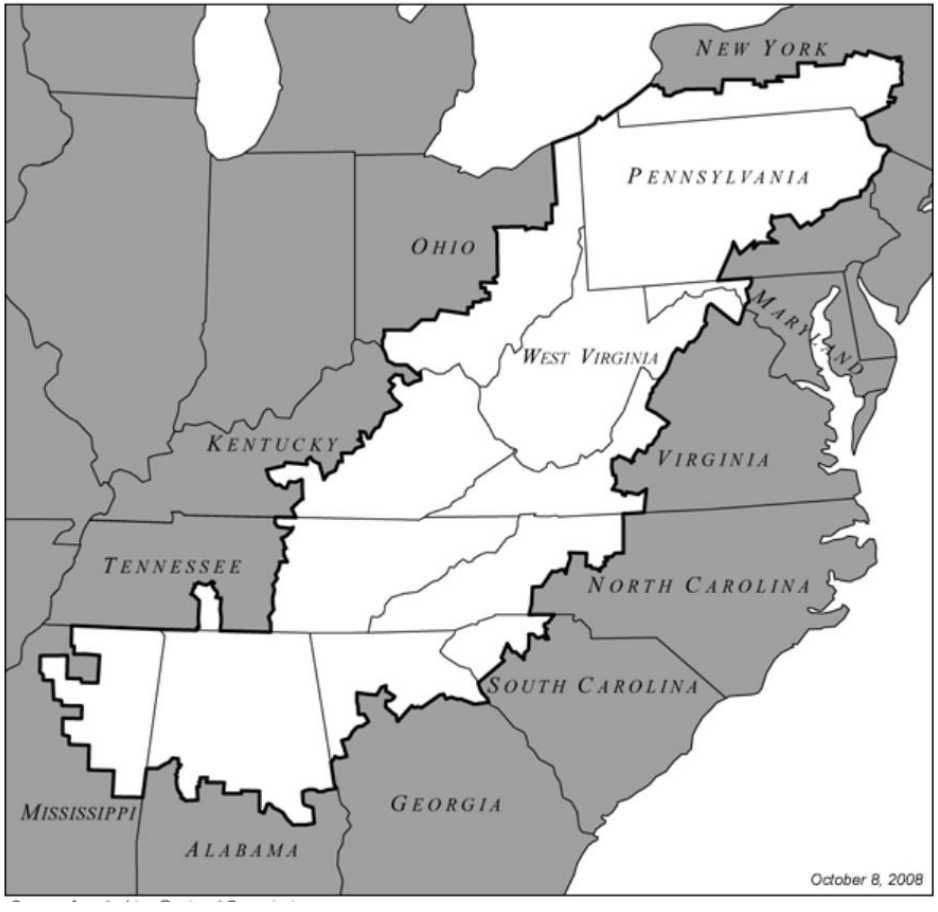
Relative increase in midlife mortality



Source: Woolf et al. *JAMA*. 2019;322(20):1996-2016.

Appalachian states

States (N=13)	Excess midlife deaths (2010-2017)
Ohio	4,730
Pennsylvania	3,179
Kentucky	1,524
North Carolina	1,330
Tennessee	1,257
Maryland	1,123
West Virginia	1,023
Virginia	890
Alabama	729
Mississippi	482
South Carolina	453
Georgia	298
New York	38
Subtotal	17,056 (49.6%)
UNITED STATES	33,307



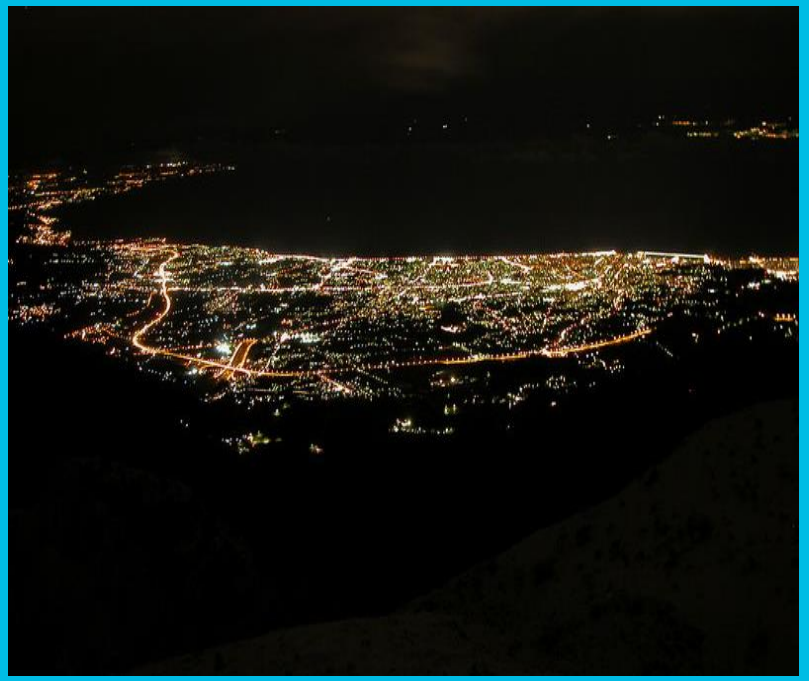
Source: Woolf et al. *JAMA*. 2019;322(20):1996-2016.

“Why do we keep treating people for illnesses only to send them back to the conditions that created illness in the first place?”

Sir Michael Marmot, WHO Commission on the Social Determinants of Health, 2006, www.who.int

Potential to Bridge the Gap

- **Expand health** into the real world.
- Generate **user-friendly tools**.
- **Ask new questions**.
- **Scale** to entire populations
- Facilitate **more efficient and representative research**.



What are the barriers we face to really having technology improve lives in communities

Focusing on three priorities

1) Access to adequate internet coverage
2) Embedding of bias into various algorithms
3) Purposeful distribution of technology

S

CVSHealth

Multi-faceted challenges to broad band access

79% of white Americans report having access to home broadband compared to 66 percent of Black and 61 percent of Hispanic Americans.

64 percent of households with incomes of $25,000 or lower report having broadband internet access

More than 30 percent of Hispanic or black children do not have a computer at home, as compared to 14 percent of white children

Owning a desktop or laptop computer, which 82 percent of white people do, followed by 58 percent of Black people and 57 percent of Hispanic people

Bias is baked into many health tech tools and datasets

HEALTH

Fitbits and other wearables may not accurately track heart rates in people of color

By RUTH HAILU / JULY 24, 2019 Reprints

ALEX HOGAN/STAT

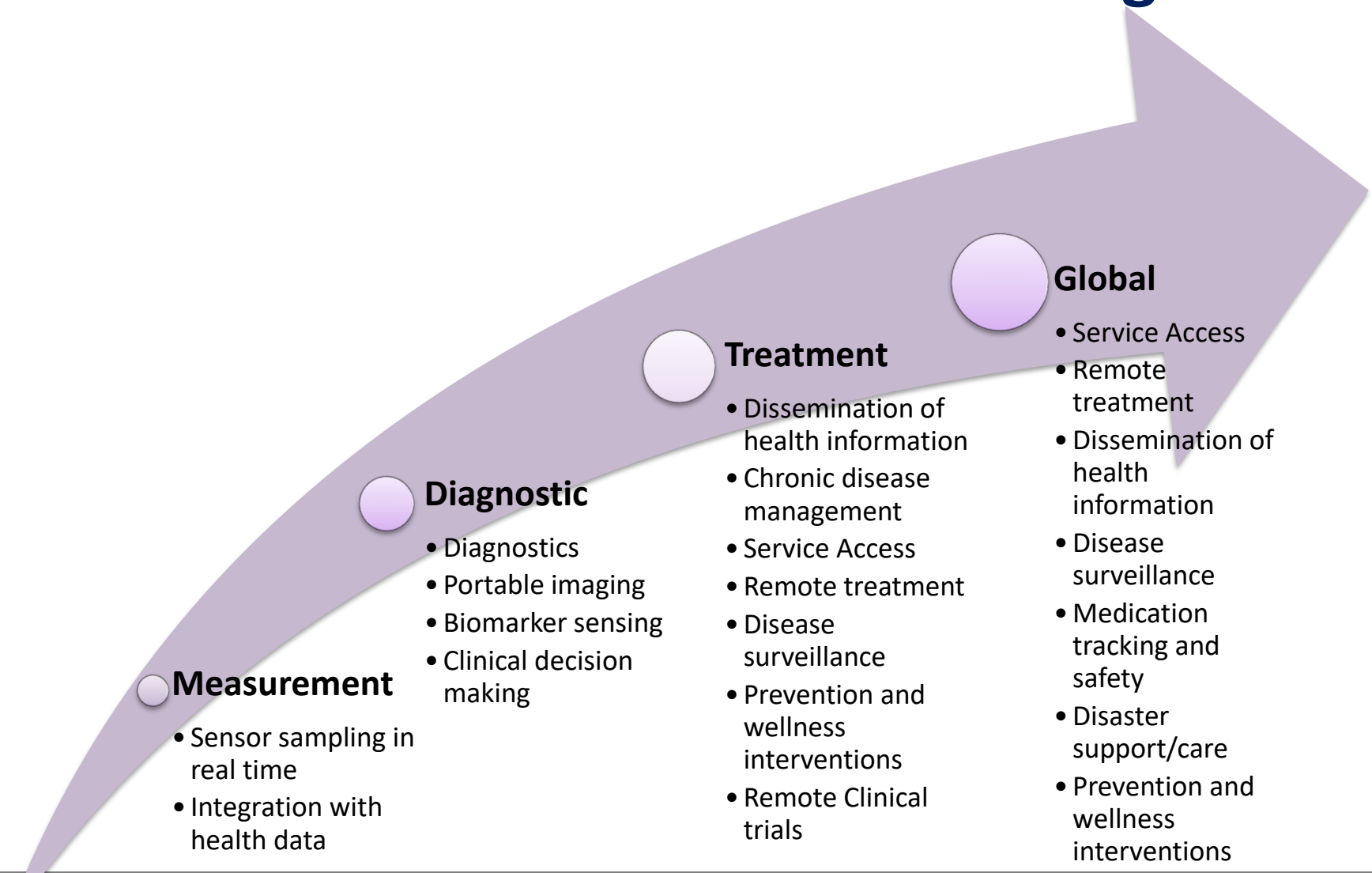
HEALTH

Widely used algorithm for follow-up care in hospitals is racially biased, study finds

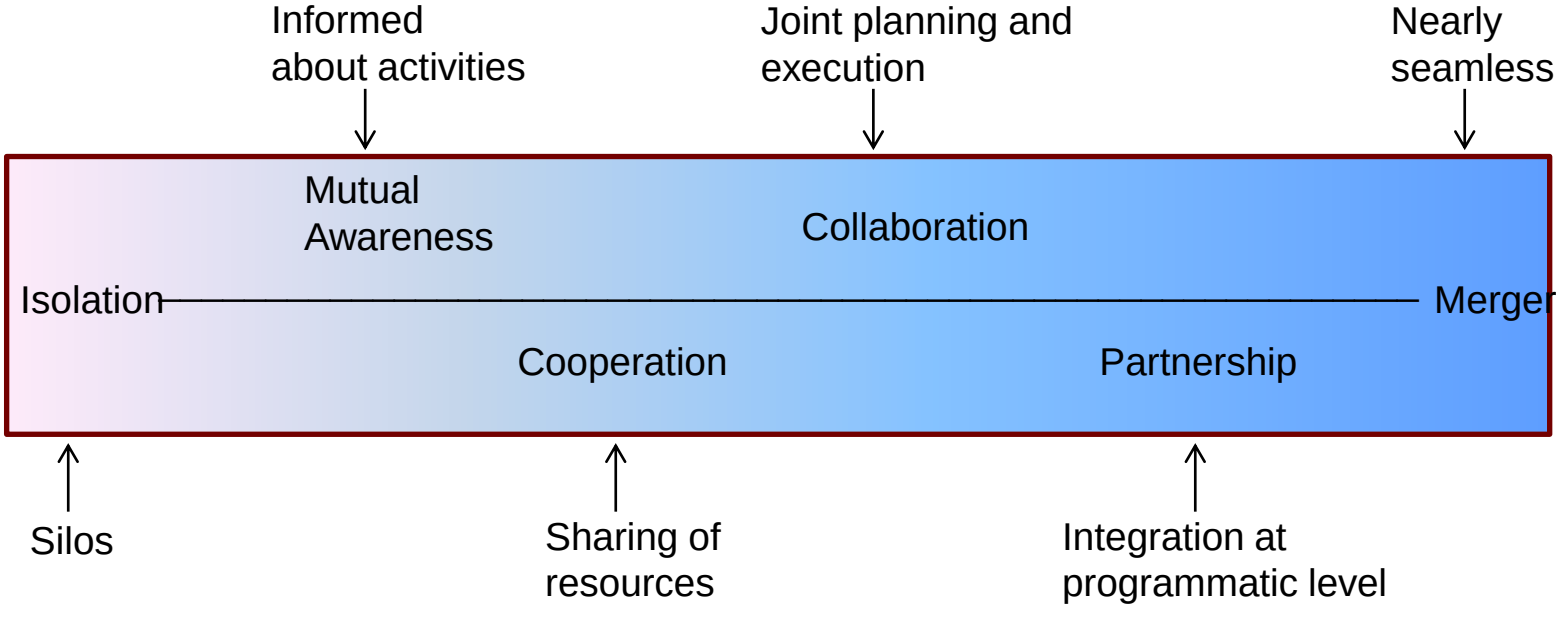
By SHRADDHA CHAKRADHAR @scchak / OCTOBER 24, 2019 Reprints

Source: statnews

Continuum of Information Technologies



Community Engagement and Partnerships



Primary Care and Public Health: Exploring Integration to Improve Public Health; National Academies of Sciences, Institutes of Medicine, March 2012