



Adoption and Use of Social-Behavioral Determinants of Health

October 18, 2017
2 pm – 3 pm ET

Agenda

- Welcome and Introductions
 - Claudia Ellison, Director of Programs, eHealth Initiative
- Discussion & Comments
 - Ruth Wetta, RN, PhD, MPH, MSN
 - Lead Clinical Researcher, DataInsights, Cerner Corporation
 - Adjunct Associate Professor, University of Kansas School of Nursing
 - Marina Daldaldian, MPH
 - Senior Clinical Researcher, Cerner Corporation
 - Sue Gullickson, MPA, NHA
 - Project Manager, Performance Excellence, Agnesian HealthCare
- Questions & Answers

Housekeeping Issues

- All participants are muted
 - To ask a question or make a comment, please submit via the Q&A feature and we will address as many as possible after the presentations.
- Technical difficulties:
 - Use the chat box and we will respond as soon as possible
- Today's slides will be available for download on eHI's Resource page
www.ehidc.org/resources

Our Mission

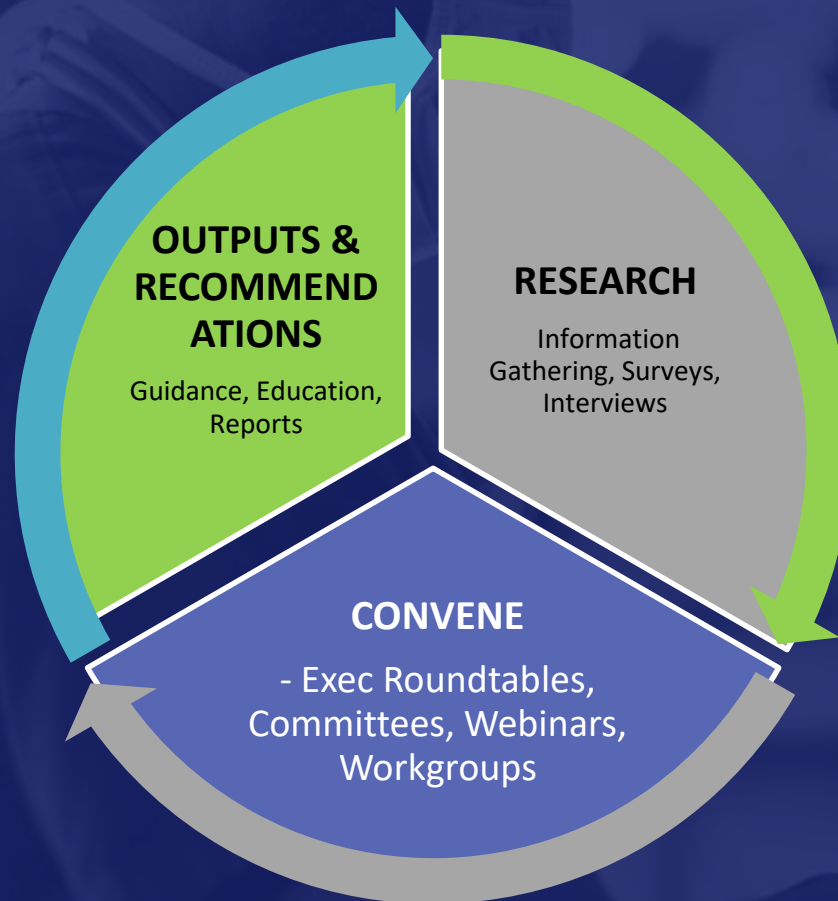
eHealth Initiative's mission is to serve as the industry leader convening executives from multi-stakeholder groups to identify best practices to transform healthcare through use of technology and innovation. eHI conducts, research, education and advocacy activities to support the transformation of healthcare.



Multi-stakeholder Leaders in Every Sector of Healthcare



Roadmap to Transforming Care



Convening
Executives
To Research
& Identify
Best
Practices

Best Practice
Committees
Identify &
Disseminate
Success Stories



INTEROPERABILITY



DATA ACCESS & PRIVACY



**PATIENT & PROVIDER
TECHNOLOGY ADOPTION**



DATA ANALYTICS

eHealth Resource Center Available With Best Practices & Findings

Best Practice Committees contribute to the eHealth Resource Center www.ehidc.org/resources which provides assistance, education and information to organizations transforming healthcare through the use of information, technology and innovation. The Resource Center is a compilation of reports, presentations, survey results, best practices and case studies from the last 16 years.



Electronic Medication Adherence Collaborative (eMAC)

- Foundation for eHealth Initiative launched a multi-stakeholder Electronic Medication Adherence Collaborative (eMAC).
- Share best practice examples from different analytical and behavioral approaches, educate stakeholders on the insights available. Share information on the effectiveness of programs.
- **IN PERSON MEETING ON DECEMBER 12 IN DC.**

INTERESTED? TELL CLAUDIA.ELLISON@EHIDC.ORG



Save the Date: February 7 – 8, 2018
Top of the Hill, Washington, DC

eHealth Initiative Executive Summit: 2020 Roadmap Refresh



*Attendance is limited to eHealth Initiative members and
invited C-Level Executives*

This webinar was made possible through the generosity and support of Cerner!



Adoption and use of social-behavioral determinants of health



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Lead Clinical Researcher, DataInsights, Cerner Corporation
Adjunct Associate Professor, University of Kansas School of Nursing



Marina Daldaldian, MPH

Senior Clinical Researcher, Cerner Corporation



Sue Gullickson, MPA, NHA

Project Manager, Performance Excellence, Agnesian
HealthCare

Webinar objectives



- Guidelines for the prioritization, selection, implementation and application of social-behavioral determinants of health
- A standardized evidence-based approach to normalize the collection of social-behavioral determinants of health across settings
- Practical tips and advice to leverage social-behavioral determinants of health to maximize health care outcomes

Why are social-behavioral determinants important?

Factors associated with mortality



Health behaviors	30% to 50%
Social circumstances	15% to 40%
Genetics	20% to 30%
Access to medical care	10%

(Health Affairs Issue Brief, August 21, 2014)

Social-environmental factors likely have twice the impact on health as compared to quality healthcare

(Garg & Dworkin, 2016)



Social determinants, the circumstances in which people live and work, have a strong effect on health (CDC, 2015)



Population health management and value-based purchasing encourage attention to modifiable determinants of health

(IOM, 2014)



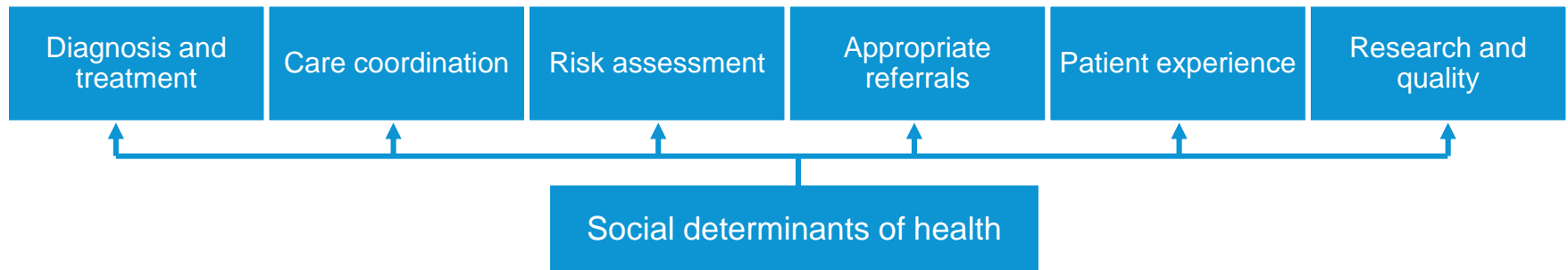
Linked with the development and management of chronic conditions

(Hill, Nielsen, & Fox, 2013)

Population health management and SBDH

- Population health are the health outcomes of a group of individuals. (Kindig & Stoddart, 2003)
- Population health management is
 - the accumulation and organization of patient data from multiple electronic sources, the aggregation of that data into a single, actionable patient record, and the actions, through which care providers can improve both clinical and financial outcomes. (Wellcentive, accessed August 8, 2016. Retrieved from <http://www.wellcentive.com/what-is-population-health-management/>)
- To excel in population health, an organization must understand how **individual characteristics** and **contextual factors**, **external** to the care delivery process, impact a population's health.

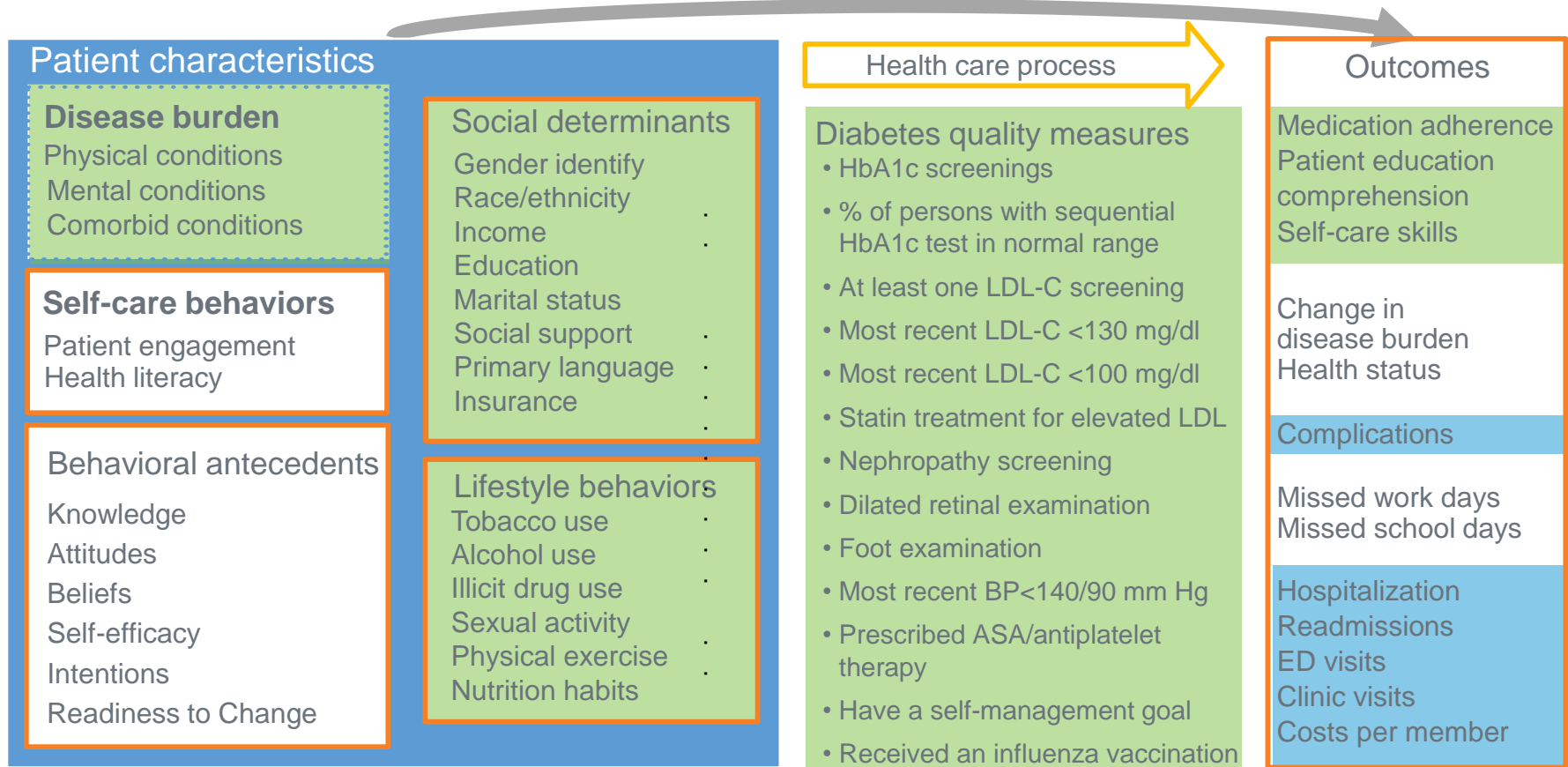
Improving population health using social determinants



- Careful planning is needed to capture SBDH data to meet multiple use cases, organizational needs and regulatory requirements
- Standardized assessment procedures and standardized data storage ensure that the meaning of SBDH data is consistent across populations and health system
- Adopt a rigorous, evidence-based methodology to support planning and determine implementation strategy

Source: Adler, Nancy E., and Stead, William W. (2015).
Patients in Context – EHR Capture of Social and Behavioral Determinants of Health. N Engl J Med, 372(8), 698-701.

Patient factors influence outcomes external to health care processes



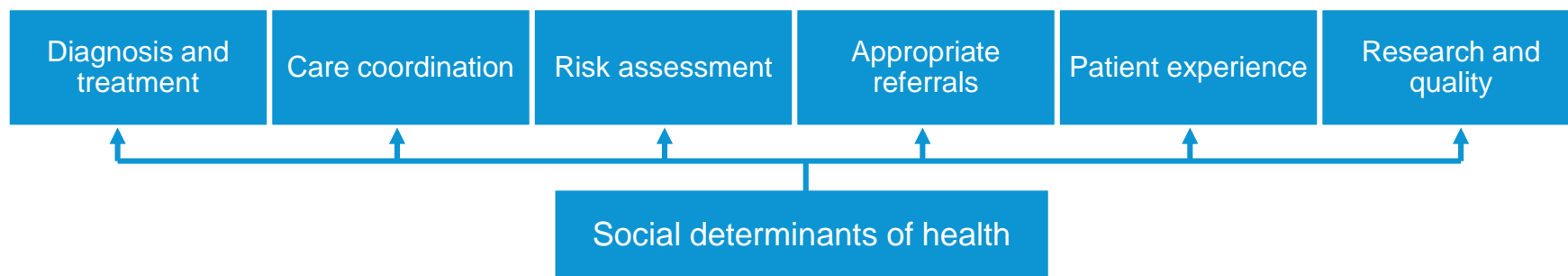
Planning and evaluation framework



SBDH data uses and organizational goals

- How will SBDH data be used? (macro-, meso-, micro-system level)
- How will SBDH data support achieving organizational priorities?
- How do we ask patients about SBDH, and who will do this work?
- How do you leverage your Community Health Needs Assessment?
- How would you characterize your relationship with community-based organizations?
- How **complete** are existing socio-demographics? **where** in the EHR do we record these data for easy extraction and mining for outcomes and research? How do providers access and visualize this information so they can connect their patient to services?

Planning and evaluation considerations



Criteria-based planning

- Regulations
- Population
- Context
- Evidence
- Data quality

Prioritizing based on domestic SBDH regulations

Measure	Healthy People 2020 (ODPHP,2016)	Institute of Medicine (IOM, 2014)	Medicare Social Risk (CMS,2016, NASEM, 2017)	Meaningful Use 3 (ONC,2015)	CMS Accountable Healthy Communities (Billoux, 2017)	National Quality Forum (2017)
Gender (gender identity)		X	X			X
Race		X	X			X
Ethnicity		X				X
Country of origin/nativity			X			X
Language (primary)	X		X			X
Education	X	X	X	X	X	
Employment	X	x	X		X	
Income			X			
Dual eligibility			X			X
Wealth			X			
Living alone			X			
Financial resource strain		X		X	X	
Food security					X	
Housing insecurity					X	
Utility assistance					X	
Marital status (partnership)			X			
Health literacy	X					
Stress		X		X		
Depression		X		X		
Anxiety						

Prioritizing based on domestic SBDH regulations

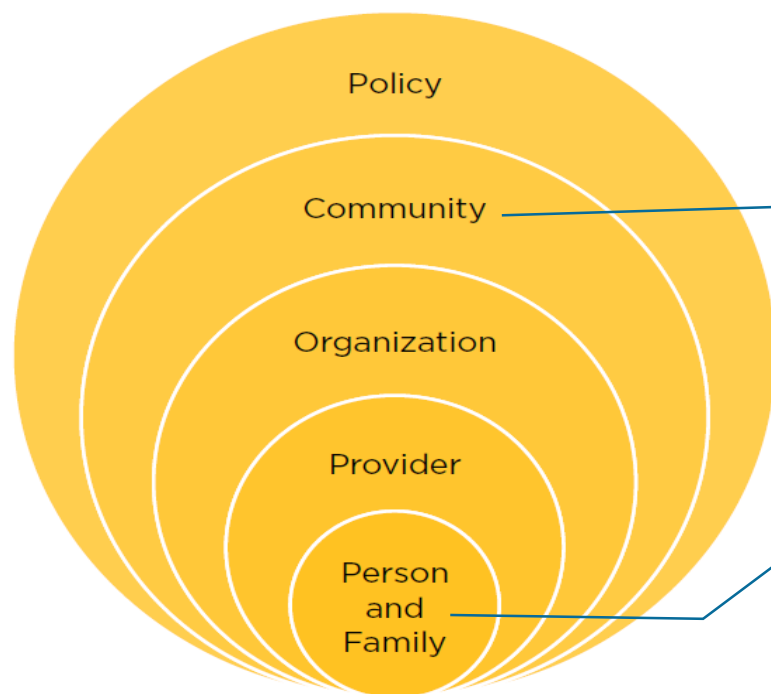
Measure	Healthy People 2020 (ODPHP, 2016)	Institute of Medicine (IOM, 2014)	Medicare Social Risk (CMS, 2016, NASEM, 2017)	Meaningful Use 3 (ONC, 2015)	Accountable Health Communities (Billoux, 2017)
Stress		X		X	
Depression		X		X	
Anxiety					
Psychological assets					
Conscientiousness					
Patient Engagement					
Optimism					
Self-efficacy					
Dietary/Nutrition patterns	X				X
Physical activity		X		X	X
Tobacco use & exposure		X			X
Alcohol use		X		X	X
Social connections- social isolation	X	X	X	X	X
Exposure to violence (safety)	X	X		X	X
Transportation					X
Mental health					X
Disabilities					X
Geocoding census tract median household income		X			
Urbanicity			X	X	
Housing			X	X	
Neighborhood deprivation			X	X	
Other environmental measures			X		

Prioritizing based on population needs and characteristics

CDC categories	Sub domain	Population
Economic stability	Poverty	Cross cutting
	Employment	Cross cutting
	Food security	Cross cutting
	Housing	Cross cutting
Education	High school graduation	Adult, senior
	Enrollment in higher education	Adult, senior
	Language and literacy	Cross cutting
	Early childhood education and development	Pediatric, adolescent
Health and health care	Access to health care	Cross cutting
	Access to primary Care	Cross cutting
	Health literacy	Adolescent, adult, senior

Prioritizing based on context

NQF (2017). A Roadmap for Promoting Health Equity and Eliminating Disparities: The Four I's for Health Equity



Social Vulnerability Index (SVI)
Connecticut Health Equity Index (CHE)
Social Deprivation Index (SDI)

age, gender, income, race, ethnicity, nativity, language,
sexual orientation, gender identity, disability,
geographic location

Social-ecological model

Prioritization based on scientific evidence

The conscientious use of current best **evidence** in making decisions about patient care (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000).

- Requires a review of the scientific literature to formulate what data should be captured to inform patient care interventions
- Use psychometrically sound instruments to standardize assessment, data capture and use
- Use instruments with established validity and reliability that are scored and have categorical cutpoints

In press in Health Informatics Journal. Wetta RE, Severin R, Gruhler H and Lewis, N.

- Capturing Health Literacy Assessment in the Electronic Health Record through Evidence-Based Concept Creation: A Review of the Literature and Recommendations for Action

Rationale for instrument use

A clinical diagnosis is made on the basis of medical signs, patient-reported symptoms and diagnostic tests

- Hyperlipidemia is diagnosed using **standard** lipid blood tests:
 - Total cholesterol
 - LDL (low density lipoproteins)
 - HDL (high density lipoproteins)
 - Triglycerides

Standardized collection of SBDH are analogous to lab tests

- Use psychometrically sound instruments to standardize assessment, data capture and use
- Instruments with established validity and reliability that are scored and have categorical cutpoints

Defining and measuring completeness of EHR data



NIH Public Access

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Defining and measuring completeness of electronic health records for secondary use

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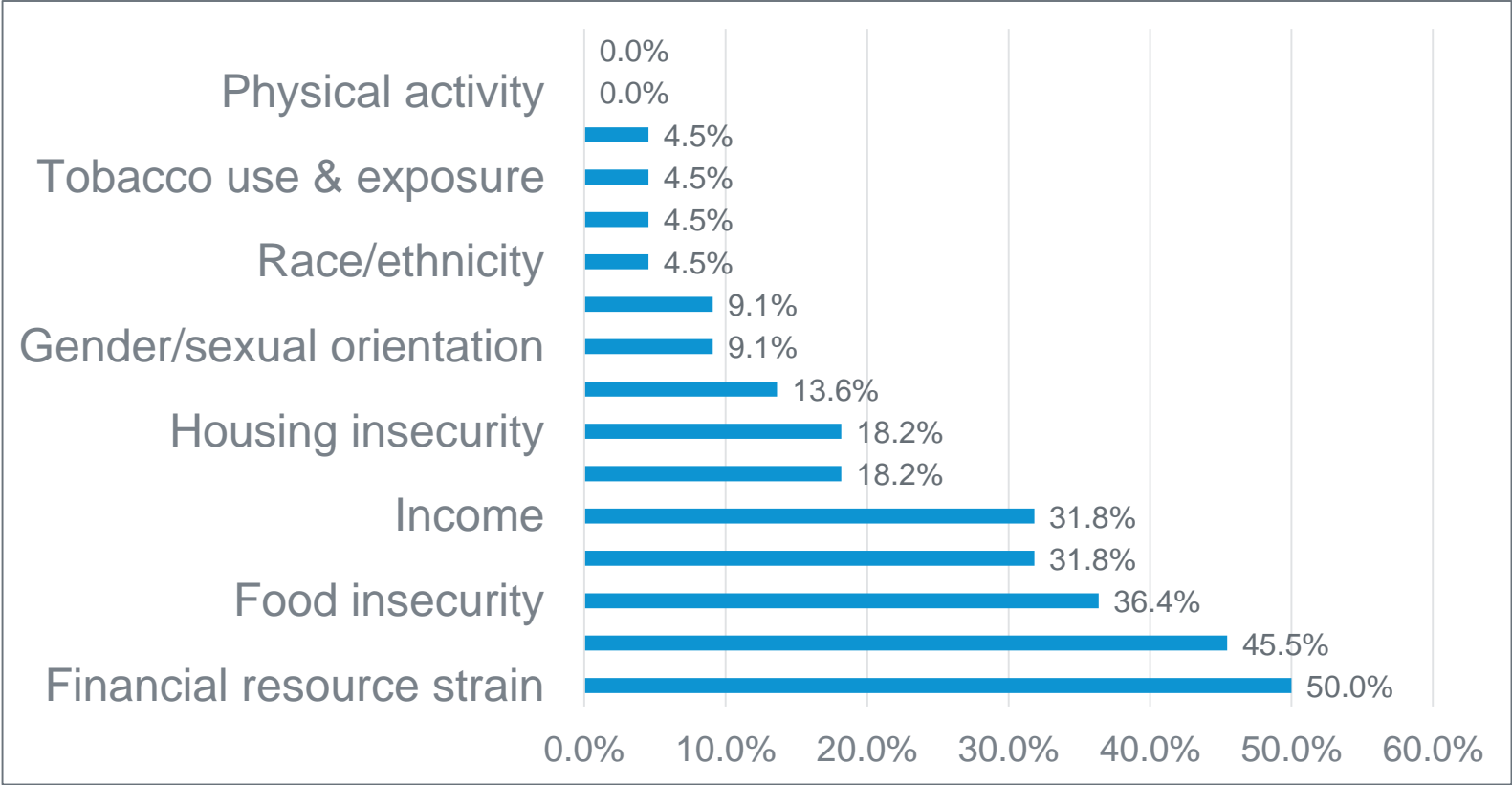
Abstract

We demonstrate the importance of explicit definitions of electronic health record (EHR) data completeness and how different conceptualizations of completeness may impact findings from EHR-derived datasets. This study has important repercussions for researchers and clinicians engaged in the secondary use of EHR data. We describe four prototypical definitions of EHR completeness: documentation, breadth, density, and predictive completeness. Each definition dictates a different approach to the measurement of completeness. These measures were applied to representative data from NewYork-Presbyterian Hospital's clinical data warehouse. We found that according to any definition, the number of complete records in our clinical database is far lower than the nominal total. The proportion that meets criteria for completeness is heavily dependent on the definition of completeness used, and the different definitions generate different subsets of records. We conclude that the concept of completeness in EHR is contextual. We urge data consumers to be explicit in how they define a complete record and transparent about the limitations of their data.

- Documentation: A record contains all observations made about a patient
- Breadth: A record contains all desired types of data
- Density: A record contains a specified number or frequency of data points over time
- Predictive: A record contains sufficient information to predict a phenomenon of interest

Implications for pediatric populations

Most frequently collected SDH in pediatric peer reviewed journals



Surveillance and Screening for Social Determinants of Health

The Medical Home and Beyond

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University School of
Medicine, Boston
Medical Center, Boston,
Massachusetts.

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Department of
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Connecticut School of
Medicine, Farmington;
and Office for
Community Child
Health, Connecticut
Children's Medical
Center, Hartford.

Recommendations for pediatric SDH screening

- Surveillance should be performed at all pediatric visits and family-centered
- Identification of needs should trigger a referral to community resources
- Screening should be performed with a valid and reliable instrument
- Use global screening tools to identify basic needs
- Use specific screening instruments to identify sensitive issues (maternal depression and intimate partner violence)
- Screening should be tailored to SDH most relevant to a family's context and to the community served by the medical home
- Expand the medical home to a health neighborhood (clinical practice is linked to community-based programs and services)

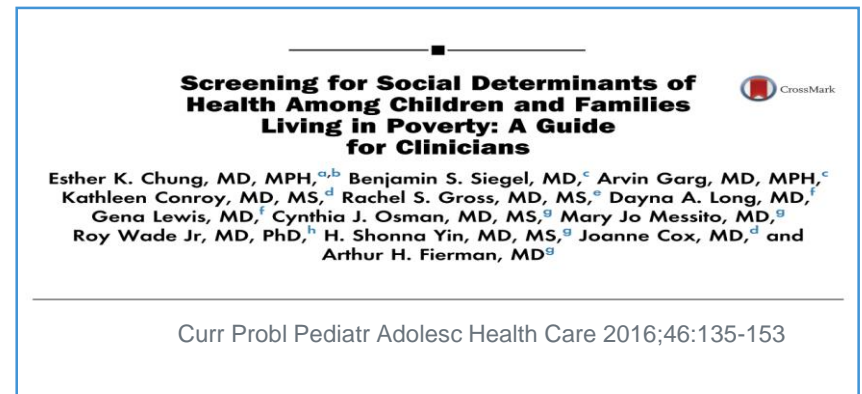
Pediatric social determinants of health

Pediatric SDH screening instruments

- Child maltreatment
- Family financial support
- Intimate partner violence
- Maternal depression/family mental illness
- Household substance abuse
- Parental health literacy

Evidence-based models to address SDH in a pediatric setting

- WE-CARE (Garg et al., 2015)
- Health Leads, Project DULCE, Safe Environment for Every Kid, Help Me Grow (Garg, Boynton-Jarrett, Dworkin, 2016)
- PROGRESS (Nambiar et al., 2015)
- KIND (Beck et al., 2014)
- Online Advocate Screening Tool (Hassan et al., 2015)



Social determinants of health evidence

Acad Pediatr. 2016 March ; 16(2): 168–174. doi:10.1016/j.acap.2015.06.001.

Multiple Behavior Change Intervention to Improve Detection of Unmet Social Needs and Resulting Resource Referrals

Jeffrey D. Colvin, MD, JD^{a,b}, Jessica L. Bettenhausen, MD^{a,b}, Kaston D. Anderson-Carpenter, PhD, MPH^c, Vicki Collie-Akers, PhD, MPH^d, Laura Plencner, MD^{a,b}, Molly Krager, MD^{a,b}, Brooke Nelson, MSW^f, Sara Donnelly, MSW^f, Julia Simmons, MD^{a,b}, Valeria Higinio, MD^e, and Paul J. Chung, MD, MS^{g,h,i}

JAMA Pediatrics | [Original Investigation](#)

Effects of Social Needs Screening and In-Person Service Navigation on Child Health A Randomized Clinical Trial

Laura M. Gottlieb, MD, MPH; Danielle Hessler, PhD; Dayna Long, MD; Ellen Laves, MD; Abigail R. Burns, MDc, MSWc; Anais Amaya, BA; Patricia Sweeney, BA; Christine Schudel, MSW, MPH; Nancy E. Adler, PhD

- Evidence describes successful adoption and use of screening instruments resulting in detection of social needs and important referrals to address needs
- Some populations may require assistance in follow-up for referrals versus receiving a referral
- Findings support the feasibility and potential effect of addressing social needs in pediatric health care settings

Conclusions and recommendations



- Careful planning is required to meet multiple use cases, organizational needs and regulatory requirements
- Standardized assessment procedures and standardized data storage ensure that the meaning of SBDH data is consistent across populations and health system
- Adopt a rigorous, evidence-based methodology to support planning and evaluation needs and determine implementation strategy
- Employ evidence-based methodology to align instrument choice with patient population need

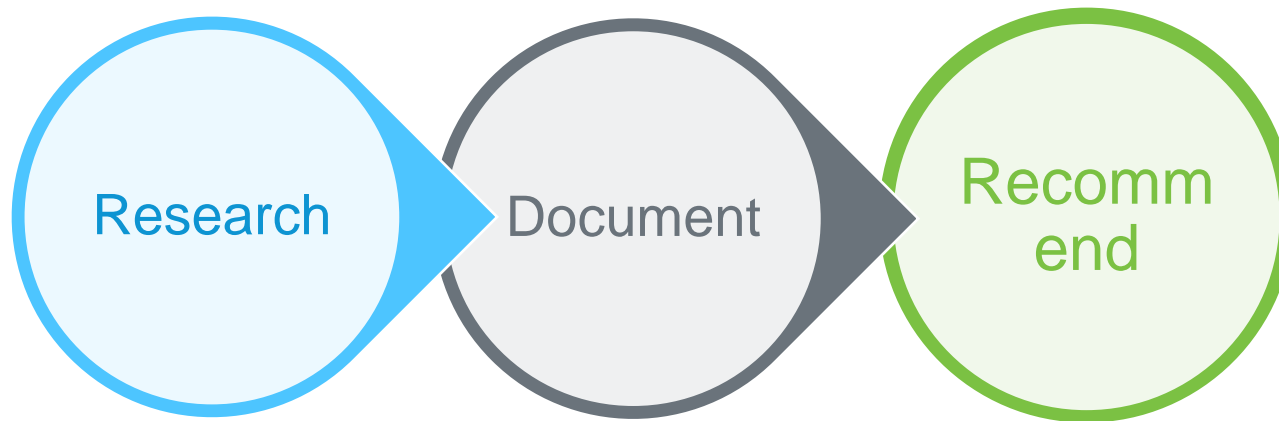
Household food security status



Marina Daldaldian, MPH

Senior Clinical Researcher, Cerner Corporation

Three step process



Research: Establish context



Research: Establish context



Objectives

- Integrate social determinants of health: measure food security status of adults and children in a clinical setting
- Reduce error and variance: implement stable, reliable, and complete measure of food security status
- Workflow integration: make instrument available directly in the electronic medical record
- Clinical decision support: provide scoring results and actionable clinical insights

Research: Define

Food security — “Access by all people at all times to enough food for an active, healthy life. Food security includes at a minimum: (1) the ready availability of nutritionally adequate and safe foods, and (2) an assured ability to acquire acceptable foods in socially acceptable ways (e.g., without resorting to emergency food supplies, scavenging, stealing, or other coping strategies).”

Food insecurity — “Limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways.”



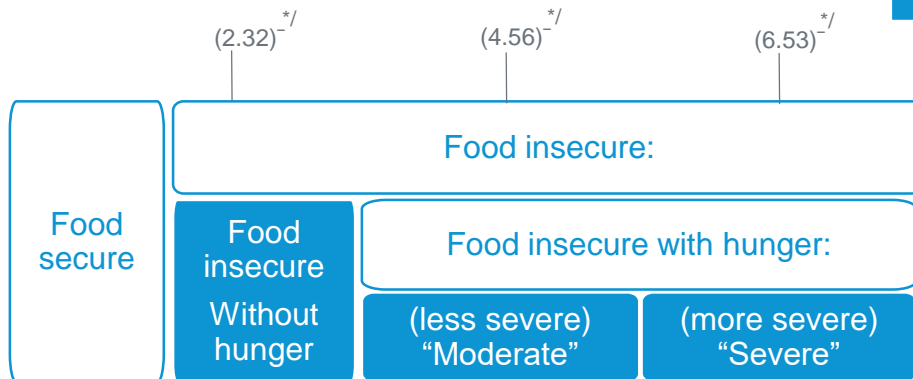
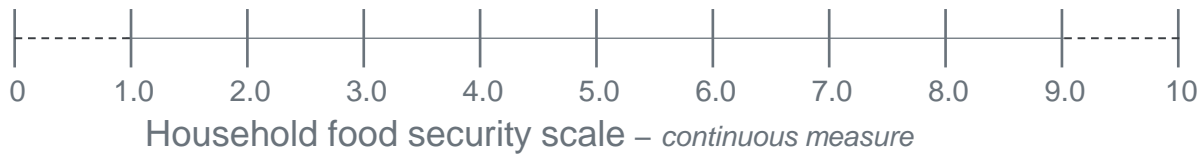
Research: Do the deep work

Background	Bickel G, Cook J. Guide to Measuring Household Food Security Revised 2000.; 2000.	https://www.fns.usda.gov/guide-measuring-household-food-security-revised-2000
Survey instruments	<ul style="list-style-type: none"> • U.S. Household Food Security Survey Module • CPS Food Security Supplement • Six-Item Short Form of the Food Security Survey Module • U.S. Adult Food Security Survey Module (10 items) • Self-Administered Food Security Survey Module for Youth Ages 12 and Older 	https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/survey-tools/
Peer-reviewed literature	Cohen, Barbara, James Ohls, Margaret Andrews, Michael Ponza, Lorenzo Moreno, Amy Zambrowski, and Rhoda Cohen. "Food Stamp Participants' Food Security and Nutrient Availability: Final Report," prepared for the USDA Food and Nutrition Service. Alexandria, VA (July 1999).	https://fns-prod.azureedge.net/sites/default/files/nutrient.pdf
	Di Napoli, Bethany, and Samara Viner-Brown. Assessing the Prevalence of Hunger and Food Insecurity In Rhode Island: Summary Report. Rhode Island Department of Health, Division of Family Health, The Rhode Island Food Security Monitoring Project. Providence, RI (November 1999).	http://www.doh.state.ri.us/family/rifsm/p/hunger99.htm
	Carol L. Connell, Mark Nord, Kristi L. Lofton, and Kathy Yadrick, 2004, "Food Security of Older Children Can Be Assessed Using a Standardized Survey Instrument," The Journal of Nutrition 134:2566-72.	https://www.ncbi.nlm.nih.gov/pubmed/15465749

Research: Do the deep work

Instrument	Items	Population	Strengths	Limitations
U.S. Household Food Security Survey Module	18	Adults and children	Has been in use in the US since 1998. Most stable, reliable, and complete measure of adult and child food security and hunger.	Time to administer. Respondent burden.
Six-Item Short Form of the Food Security Survey Module	6	Adults	Less respondent burden. Standard short form with known relationship to the full 18-item module.	Somewhat less precise and reliable than 18-item survey. Does not capture seven ranges of food insecurity or the condition of children in the household.
U.S. Adult Food Security Survey Module	10	Adults	Keeps respondent burden to a minimum. Avoids asking questions about children's food security which may be sensitive in some contexts.	Does not provide information on the food security status of children in the household.
Self-Administered Food Security Survey Module for Youth Ages 12 and Older	9	Youth ages 12-18	Self-administered form can reduce respondent burden and expand data collection.	No external validation available to date. Internal validation was conducted in a sample of school children from Mississippi.

Research: Do the deep work



Household food security status – categorical measure

U.S. household food security survey

For households with no child present:
 0 High food security
 1-2 Marginal food security
 3-5 Low food security
 6-10 Very low food security

For households with ≥1 child present:
 0 High food security
 1-2 Marginal food security
 3-7 Low food security
 8-18 Very low food security

Document

Instrument 2	Instrument 3	Instrument 4	Instrument 5
https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/survey-tools/	https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/survey-tools/	https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/survey-tools/	https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/survey-tools/

Household Food Security Survey
Recommendations for measurement

Objectives

- Integrate social determinants of health: measure food security status of adults and children in a clinical setting
- Reduce error and variance: implement stable, reliable, and complete measure of food security status
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Definitions

Food security — “Access by all people at all times to enough food for an active, healthy life. Food security includes at a minimum: (1) the ready availability of nutritionally adequate and safe foods, and (2) an assured ability to acquire acceptable foods in socially acceptable ways (e.g., without resorting to emergency food supplies, scavenging, stealing, or other coping strategies).”¹¹

Recommend



- Integrate social determinants of health: measure food security status of adults and children in a clinical setting
- Reduce error and variance: implement stable, reliable, and complete measure of food security status
- Workflow integration: make instrument available directly in the electronic medical record
- Clinical decision support: provide scoring results and actionable clinical insights

Recommend



- ✓ 18-item Household Food Security Survey
- ✓ Stable, reliable, and complete measure for adults and children
- ✓ Clear and consistent scoring methodology
- ✓ Skip minimize respondent burden
- ✓ Can be used across many health care settings and provide standardized, comparable data

Applying social determinants to patient panel management



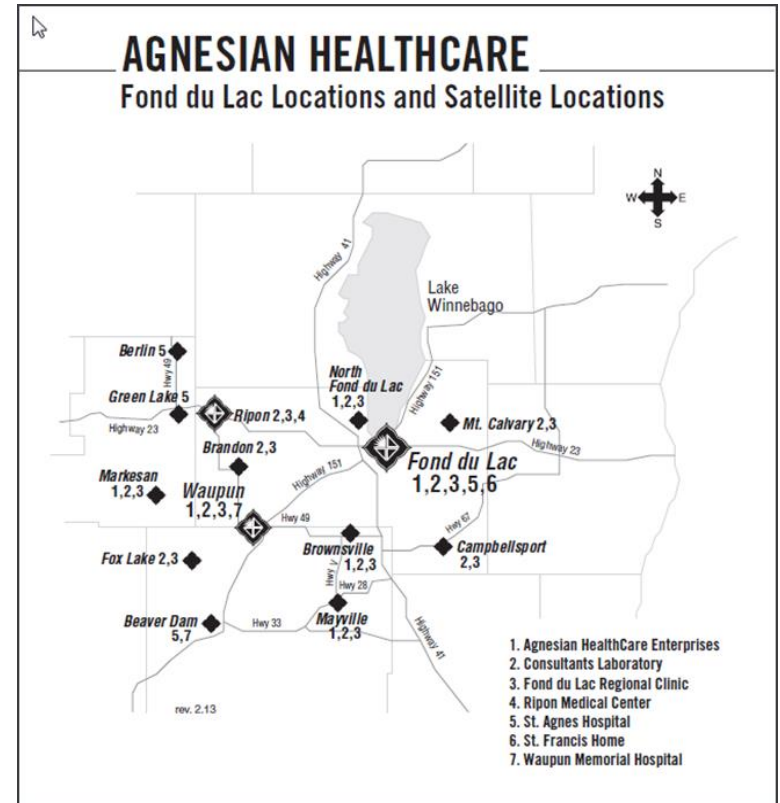
Sue Gullickson, MPA, NHA

Project Manager, Performance Excellence, Agnesian HealthCare

About Agnesian Healthcare

Established in 1897 by the Congregation of Sisters of St. Agnes in Fond du Lac, Wisconsin

Mission: Provide compassionate care that brings Hope, Health & Wholeness to those we serve by honoring the sacredness and dignity of all persons at every stage of life.



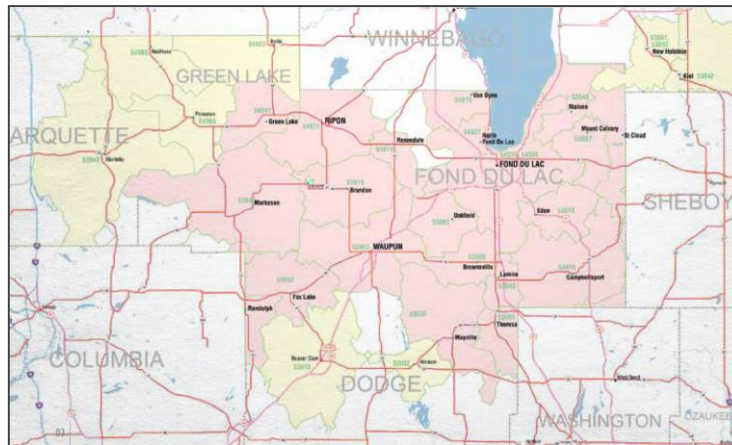
By the numbers

Our system

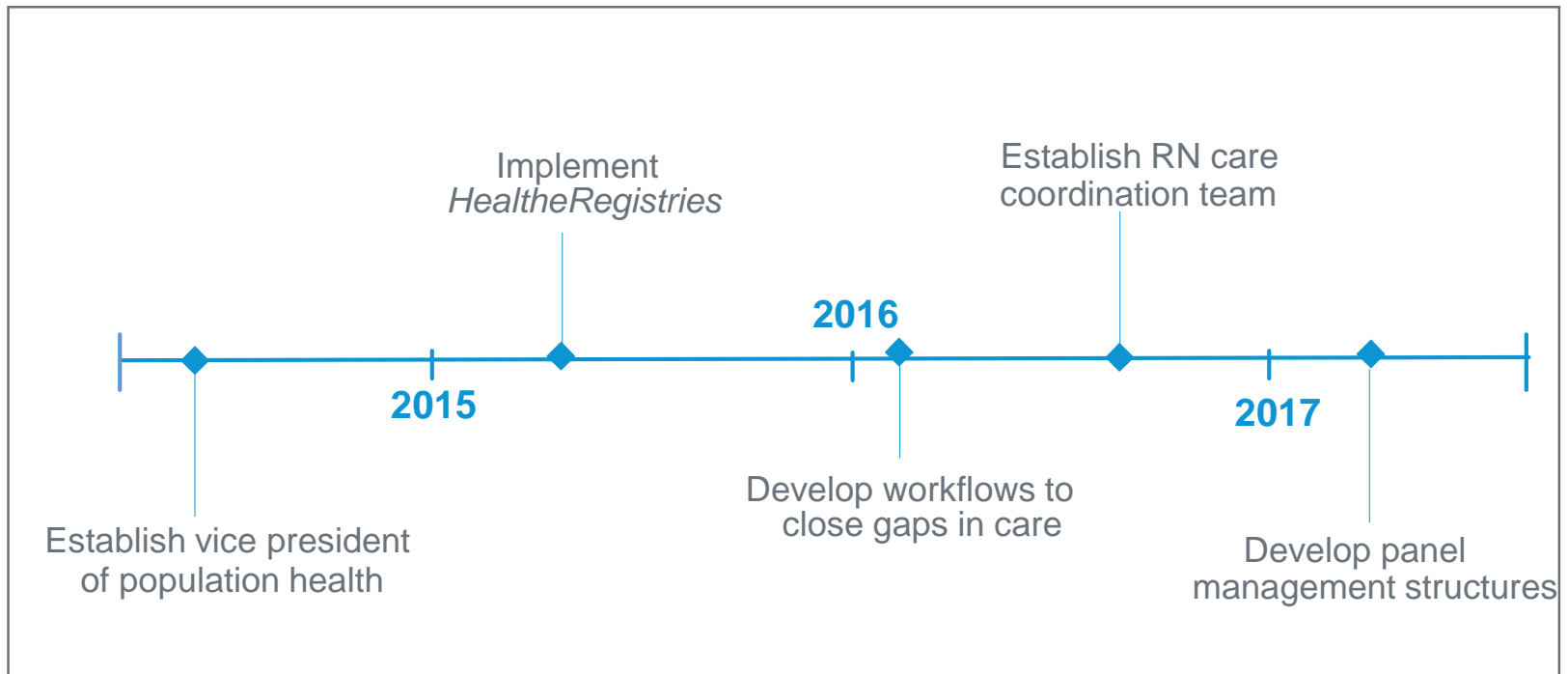
- 35 Locations
- 3 Hospitals
- 1 ambulatory surgery center
- 250 Physician multi-specialty clinic

Our population

- Market area
 - Primary: 134,669
 - Secondary: 53,311
 - Total: 187,980
- Attributed lives: 90,616



Agnesian's population management journey



Shifting philosophies using real-time tools

Manage gaps in care

Focus on provider performance in quality metrics

Work retrospectively, following up on missed care opportunities

“Get patients off the list” who have not come in for more than three years

Patients who have not done what we have asked them to do are “non-adherent”



Manage panel of patients

Focus on patient panel performance in quality metrics

Work pro-actively using registries at the patient level as a point of care tool to close care gaps

Engage patients who have not come in for more than three years

Patients who have not followed their care regimen are contacted to explore barriers and identify resources to address barriers

Social-behavioral determinants

Several national initiatives have recommended collection and use of the social determinants of health

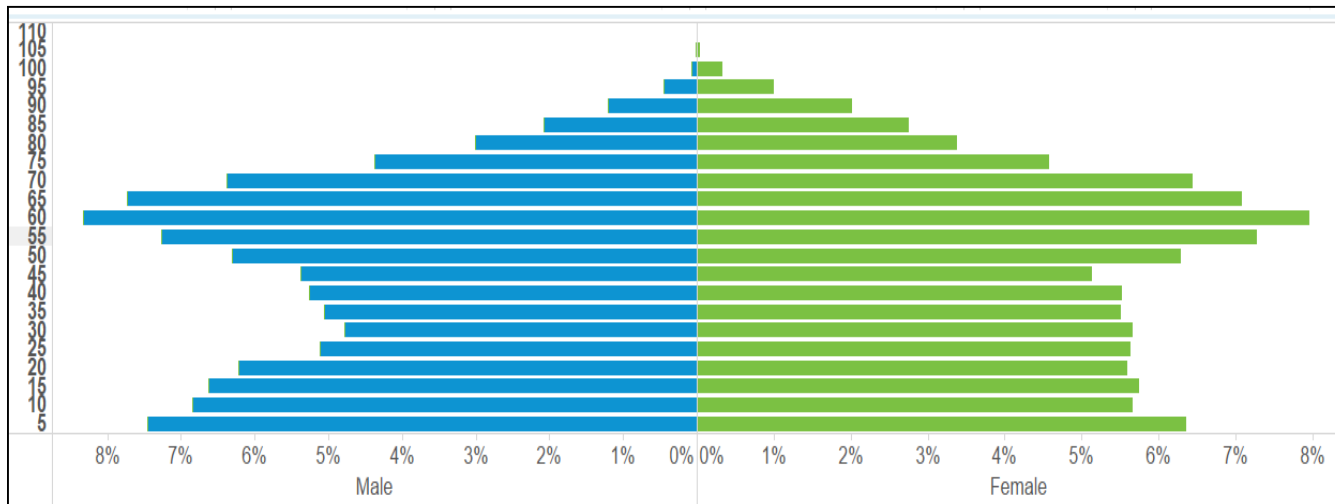
Sociodemographic: gender, race, ethnicity, country of origin, primary language, education, employment, income, living alone, financial resource strain (food insecurity, housing insecurity), marital status

Psychological: health literacy, stress, depression, anxiety, patient engagement, self-efficacy

Health behaviors: nutrition, physical activity, tobacco use and exposure, alcohol use/substance abuse, social connections/isolation, exposure to violence

Population pyramids

- Graphical representation of a population
- Age categories in 5 year increments on the y-axis
- Percentage of population on the x-axis
- Sex displayed on left and right x-axis (males=blue, females=green)



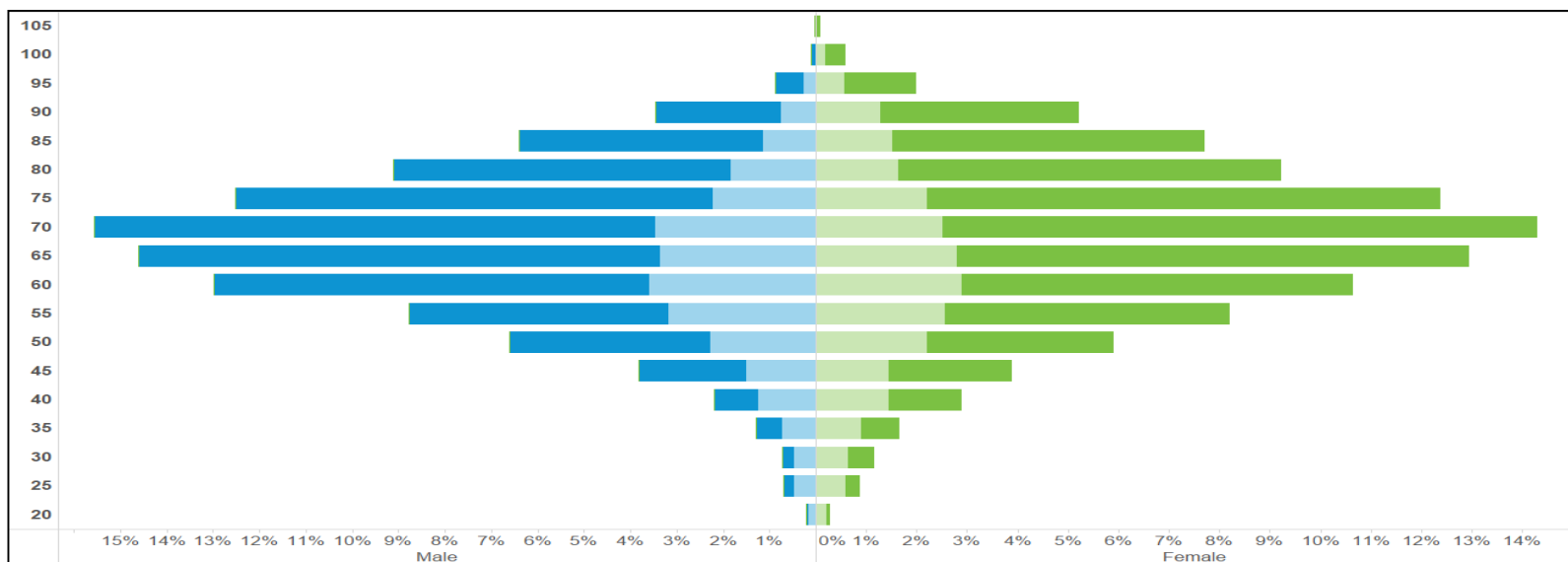
Agnesian registry population

Population pyramids - illustrations

Measure: HbA1c Control

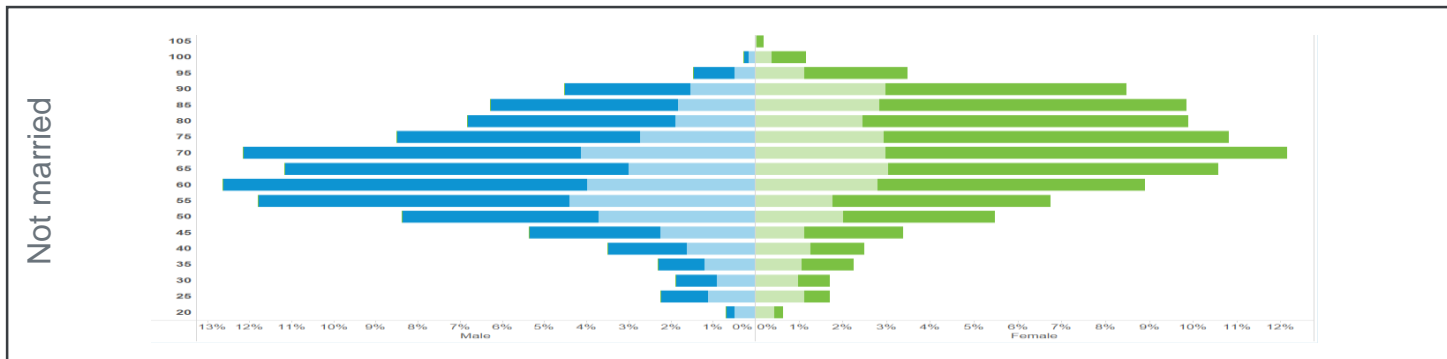
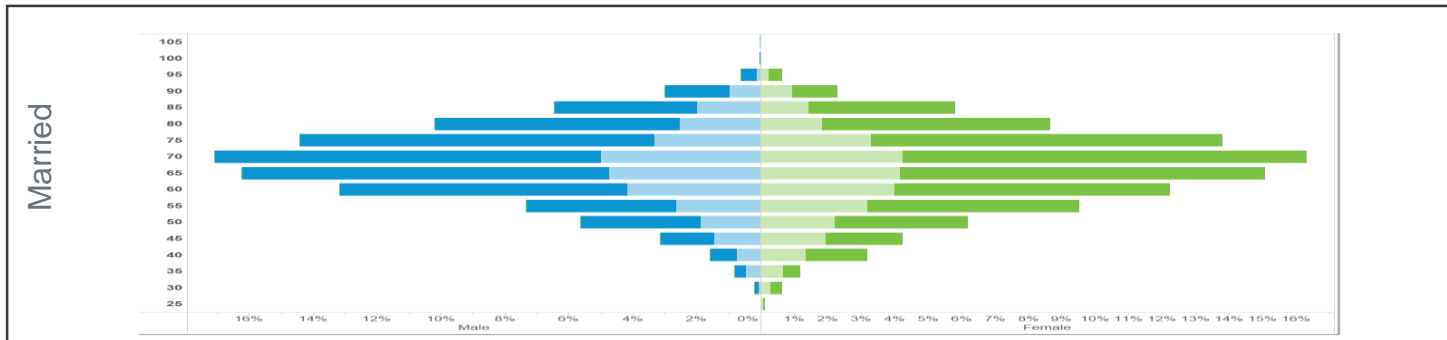
Dark blue = measure met
Dark green = measure met

Light blue = measure not met
Light green = measure not met



Population pyramids - comparisons

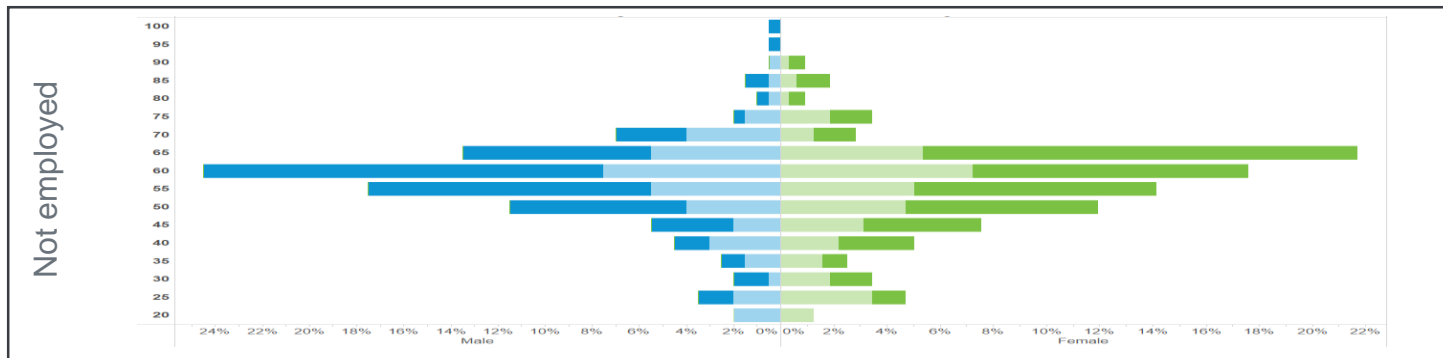
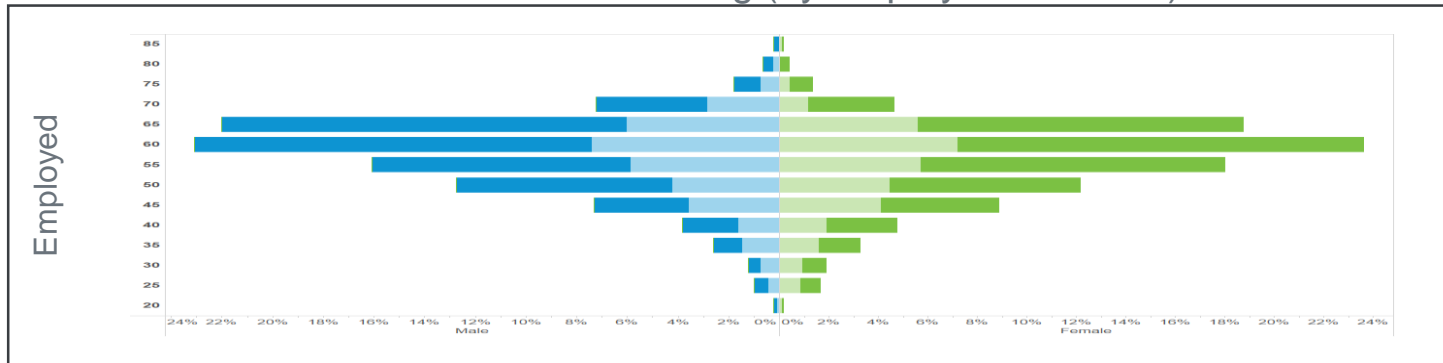
Measure: HbA1c Screening (by marital status)



Unmarried females aged > 65 years and unmarried males aged 50 to 75 years show lower MM%

Population pyramids - comparisons

Measure: HbA1c Screening (by employment status)



Unemployed males and females aged 55 to 65 years show lower MM%

Hemoglobin A1c screening by clinic, gender and marital status

HgbA1c screening not met percentage					
	Male	Female	X ²	df	p-value
Population	54.3	45.7	5.0523	1	0.024
Westwind	37.2	62.8			
	Married	Not Married	X ²	1	p-value
Population	55.9	37.6	5.7172		0.016
Brandon	88.2	11.88			

The gender distribution of not met measures at Westwind Clinic is different than the overall Agnesian population (e.g., there is a higher than expected proportion of females with measures not met)

The marital status distribution of not met measures at Brandon Clinic is different than the overall Agnesian population (e.g., there is a higher than expected proportion of married persons with measures not met)

Conclusions



Benefits of applying social determinants factors to panel patient management:

- Allows us to target interventions based on specific and real needs
- Facilitates the shift to proactive/preventive patient care by guiding us toward asking the right questions – ‘Who needs what?’

“Real time” data promotes:

- Continuous monitoring vs ‘special report requests’
- provider engagement

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Q&A



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