DEPARTMENT OF
**Family Medicine and
Community Health**
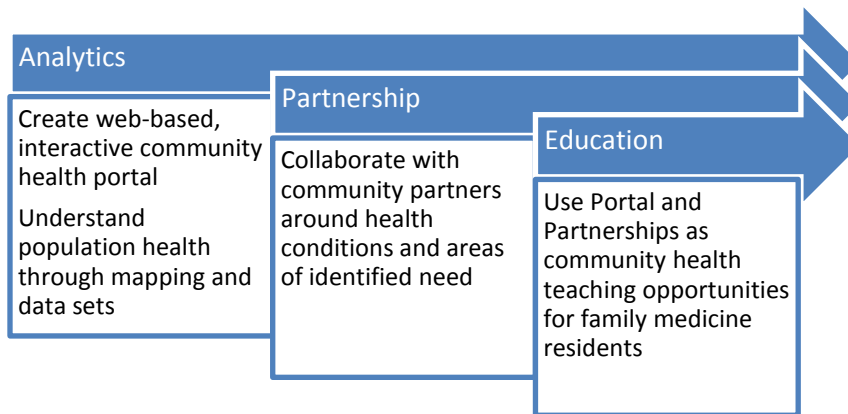UNIVERSITY OF WISCONSIN
SCHOOL OF MEDICINE AND PUBLIC HEALTH

Health Information Systems Design to Integrate Primary Care and Public Health
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Background: To improve population health, the Institute of Medicine called for greater integration between primary care and public health through the collaborative analysis of health data. This integration is a strategic priority for public health and it can improve patient care through better understanding of social determinants, health disparities, and by guiding data informed clinical and community interventions. The Department of Family Medicine and Community Health at the University of Wisconsin-Madison developed a Community Health Portal using available clinical electronic health records, community risk factor data and information about the built environment: http://www.fammed.wisc.edu/applications/chpp/
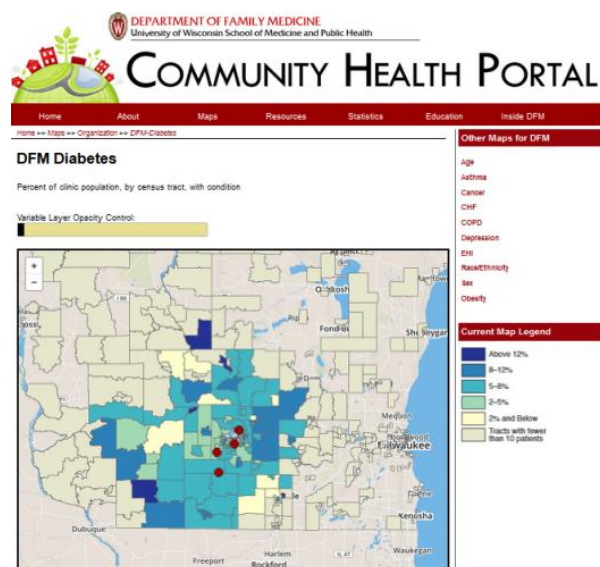
Goals:
Map health conditions by neighborhood to better understand most prevalent conditions and implications surrounding social determinants of health within local communities.

Analytics

Create web-based, interactive community health portal

Understand population health through mapping and data sets

Partnership

Collaborate with community partners around health conditions and areas of identified need

Education

Use Portal and Partnerships as community health teaching opportunities for family medicine residents

Methods: Using data from the electronic health record to map health conditions: asthma, cancer, congestive health failure, chronic obstruction pulmonary disease, depression and obesity as well as age, economic hardship index, race/ethnicity and sex.

During July 2014, the Portal was tested with learners and faculty from four Madison family medicine residency clinics. Users were asked to complete a series of three tasks using the Portal. Their mouse movements were documented for accuracy and efficiency and to identify problem areas. Participants answered a series of open-ended qualitative questions.

Results: Portal user testing revealed appreciation of interactive map capabilities. However data displays were challenging and the users' experience demonstrated need for enhanced statistical and geographic literacy.

- Strengths: Visually engaging maps, useful for stimulating discussion, begin to address population health questions
- Areas for Improvement: Gap in data literacy and geospatial literacy, difficulty understanding data packages, desired multivariate maps

Next Steps:
Short-Term:
- Improve design, displays, analytics
- Develop teaching materials to improve data literacy
- Develop population health competencies through residency curriculum and faculty development

Long-Term:
- Provide de-identified population health data
- Develop clinical and community interventions based on predict analytics to improve population health
- Evaluate clinical and community interventions

Synergies of Medicine and Public Health Collaboration	
Synergy	**Examples**
Improving quality and cost-effectiveness of care by applying a population health perspective to medical practice	• Use population-based analytic tools to enhance practice management
Using clinical practice to identify and address community health problems	• Use clinical opportunities to identify and address underlying causes of health problems
Strengthening health promotion and health protection by mobilizing community campaigns	• Conduct community health assessments • Advocate for health-related laws and regulations
Shaping the future direction of the health system by collaborating around policy, training and research	• Influence health system policy • Engage in cross-sector training • Conduct cross-sector research

Source: Lasker and Committee on Medicine and Public Health, IOM 1997

References
1. Guilbert TW, Arndt B, Temte J, et al. The theory and application of UW eHealth-PHINEX, a clinical electronic health record-public health information exchange. WMJ. 2012; June: 124-133.
2. University of Wisconsin Electronic Health Record – Public Health Information Exchange (UW eHealth PHINEX) http://thephinexcore.weebly.com/
3. IOM (Institute of Medicine). 2012. Primary Care and Public Health: Exploring Integration to Improve Population Health. Washington, DC: The National Academies Press.

Mapping Resources
1. Esri ArcGIS: http://www.esri.com/software/arcgis/arcgisonline
2. Health Landscape: http://www.healthlandscape.org/
3. QlikView: http://www.qlik.com/products/qlikview
4. UDS Mapper: http://www.udsmapper.org/

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