

Utilizing Data Mining, Zip Codes, Websites, and Other Resources to Educate Nurses About Health Disparities in Culturally and Ethnically Diverse Populations

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Introduction

- “The huge amounts of data generated by health care transactions are too complex and voluminous to be processed and analyzed by traditional methods. Data mining provides the methodology and technology to transform these mounds of data into useful information for decision making” (Koh & Tan, 2011, p. 64)
- No longer can we just look at a city or a county, we need to begin to target zip codes to delineate where to focus our interventions for more positive health outcomes
- A population’s zip code may be a better predictor of health than the genetic code (Goodman, 2014)
- A person’s address contributes to racial health disparities (New Orleans Health Department, 2013)
- Trustworthy websites and other sources can be used to retrieve data about health disparities, illness prevalence, and uneven distribution of resources

Data Mining

- Started around the 1960s
- Defined as the extraction of pertinent information from various databases to uncover previously unknown patterns and trends to predict the prevalence of disease
- Identified patterns of prevalent chronic diseases and high risk populations can be determined and tracked using geographic locations (zip codes)
(Durairaj & Ranjani, 2013)

Data Mining Application

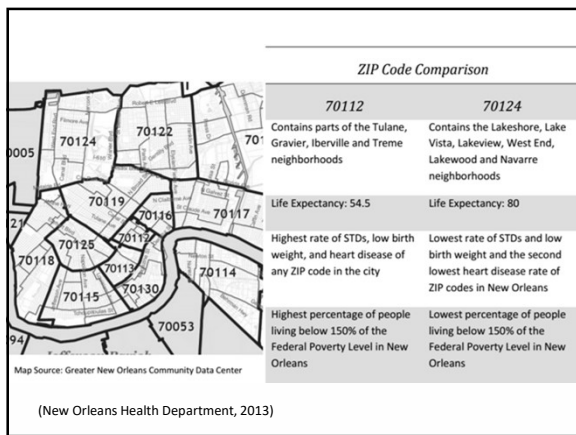
- Elicit information to critically construct the planning of safe health care services for ethnically and culturally diverse populations
- Identify health care disparities (the differences in health and illness associated with social and/or economical disadvantages) for populations located within zip codes negatively impacted by social determinants of health such as race, ethnicity, age, education, housing, and nutrition (CDC, Robert Wood Johnson Foundation, CDC Foundation, 2017; USDHHS, 2017)
- Develop culturally and linguistically appropriate educational activities through interprofessional health care teams to address health care disparities (Koh & Tan, 2011)

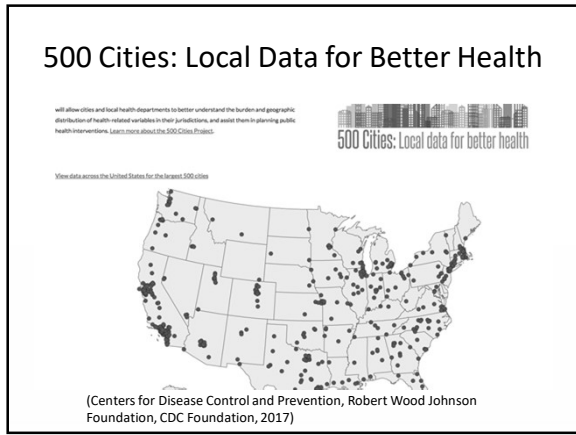
Websites

- Can be used to perform data mining searches to elicit specific health care information about geographical areas
- Focus today is on the city of New Orleans in the Orleans Parish which is located in the state of Louisiana
- Websites from highly reliable and credible local, state, and national government and private foundations can be accessed for retrieval of specific health care data

DEMOGRAPHICS <small>(U.S. CENSUS BUREAU, 2016A, C, F, G)</small>				
Demographic	Reading (2010)	Berks County (2015)	Pennsylvania (2015)	USA
White alone	48.4%	88.4%	82.6%	77.1%
Black or African American	13.2%	6.8%	11.7%	13.3%
Asian alone	1.2%	1.6%	3.4%	5.6%
American Indian and Alaska Native alone	0.9%	0.8%	0.4%	1.2%
Native Hawaiian and other Pacific Islander alone	0.1%	0.2%	0.1	0.2%
2 or more races	6.1%	2.2%	1.9%	2.6%
White alone, not Hispanic or Latino	28.7%	73.4%	77.4%	61.6%
Hispanic or Latino	58.2%	19.4%	6.8%	17.6%

DEMOGRAPHICS				
<small>(U.S. Census Bureau, 2016a, c, d, e)</small>				
Demographic	New Orleans (2010)	Orleans Parish (2015)	Louisiana	USA
White alone	33.0%	35.5%	63.2%	77.1%
Black or African American	60.2%	59.5%	32.5%	13.3%
Asian alone	2.9%	3.1%	1.8%	5.6%
American Indian and Alaska Native alone	0.3%	0.3%	0.8%	01.2%
Native Hawaiian and other Pacific Islander alone	0	0.1%	0.1%	0.2%
2 or more races	1.7%	1.5%	1.6%	2.6%
White alone, not Hispanic or Latino	30.5%	31.3%	59.1%	61.6%
Hispanic or Latino	5.2%	5.6%	5.0%	17.6%





Outcomes

1. Arthritis
2. Asthma prevalence
3. High blood pressure
4. High cholesterol
5. Cancer
6. Diagnosed diabetes
7. Chronic kidney disease
8. Chronic obstructive pulmonary disease
9. Chronic heart disease
10. Stroke
11. Mental health
12. Physical health not good
13. All teeth lost among adults

(CDC, Robert Wood Johnson Foundation, CDC Foundation, 2017)

High Blood Pressure

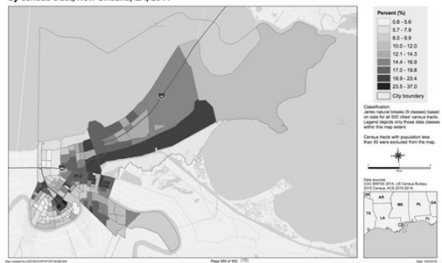
High blood pressure among adults aged ≥18 years by census tract, New Orleans, LA, 2013



(CDC, Robert Wood Johnson Foundation, CDC Foundation, 2017)

Diagnosed Diabetes

Diagnosed diabetes among adults aged ≥18 years by census tract, New Orleans, LA, 2014



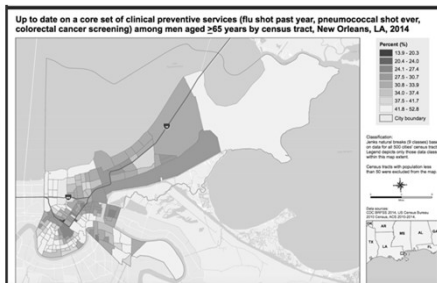
(CDC, Robert Wood Johnson Foundation, CDC Foundation, 2017)

Use of Preventative Services

1. Current lack of insurance
2. Visits to doctor for routine checkup
3. Visits to dentist or dental clinic
4. Taking medicine for high blood pressure
5. Cholesterol screening
6. Mammography
7. Papanicolaou smear
8. Fecal occult blood test, sigmoidoscopy, or colonoscopy
9. Up to date on a core set of clinical preventative services (flu shot past year, pneumococcal shot ever, colorectal cancer screening among men)
10. Up to date on clinical services (same as man plus mammogram in past 2 years)

(CDC, Robert Wood Johnson Foundation, CDC Foundation, 2017)

Clinical Preventative Services



(CDC, Robert Wood Johnson Foundation, CDC Foundation, 2017)

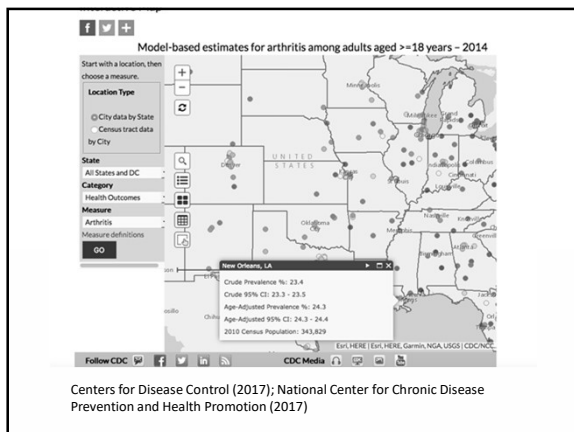
Cholesterol Screening



(CDC, Robert Wood Johnson Foundation, CDC Foundation, 2017)

Other Resources

- Bill & Melinda Gates Foundation
- The Henry Kaiser Family Foundation
- Josiah Macy Foundation
- The Andrew W. Mellon Foundation
- Pew Foundation
- Robert Wood Johnson Foundation
- W. K. Kellogg Foundation



Centers for Disease Control (2017); National Center for Chronic Disease Prevention and Health Promotion (2017)

New Orleans Community Health Improvement Plan

- Access to Physical and Behavioral Healthcare
- Social Determinants of Health
- Violence Prevention
- Healthy Lifestyles
- Family Health

(New Orleans Health Department, 2015)

Goals/Performance Measures

- Improve access to Physical and Behavioral Healthcare
 - Premature death: 11,091; Low birth weight: 12.5%; Poor or fair health: 18%; Poor physical days: 3.6%; Poor mental health days: 4.4%
- Social Determinants of Health
 - Persons below poverty level: 27.3%
 - Unemployment: 7.8%
 - Children in poverty: 41%
- Violence Prevention
 - Murder rate in New Orleans: 40 per 100,000
 - Percentage of youth who feel safe in their school (6th -12th grade: 69.2% to 80.6%

(New Orleans Health Department, 2015)

Goals/Performance Measures

- Healthy Lifestyles
 - Overall ranking among 50 populous metropolitan areas in the US: 39th
- Family Health
 - Low birth weight: 12.5%

(New Orleans Health Department, 2015)

Conclusion

- Utilizing this information outlined today, health care providers can plan culturally and linguistically appropriate interventions in their selected geographic areas
- Using these guidelines including Institutional Review Board approval, research studies should be presented and published

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