



Nonprofit Organizations: Health Informatics to Support their Contributions to Population Health

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ABSTRACT

Background
Healthcare spending is increasing exponentially secondary to unstable and ineffective chronic disease management. Persons 65 years and older often live with multiple comorbidities. With 10,000 persons turning 65 years old each day this population will be critical to monitor as they will be a primary source of healthcare spending and utilization. The U.S. workforce to be unprepared for associated care delivery of this population. This coupled with the current administration's effort to repeal and replace the Affordable Care Act (ACA), make the services provided by non-profit organizations a paramount importance to improving population health.

Purpose
The purpose of this report is to explore how health informatics can support these nonprofit organizations as they improve populations health. The report will also outline how data analytics about salary and benefits, telehealth and mobile applications are three of the ways this can be accomplished.

Project or Case Description [Nonprofit Organizations]
Nonprofit organizations will be of key interest when addressing health disparities and high utilization of medical care in communities. Nonprofits are readily equipped with change agents who are positioned to empower, advocate and ultimately be vehicles that link communities to health equity, its top leaders must be in tune and receptive to the change agent's needs.

Methodology for Proposed Intervention
First proposed intervention for analyzing health care cost associated with chronic disease management while collaborating with non-profit organizations. The second proposed intervention for reducing health care cost associated with chronic disease management is the implementation of outpatient telehealth monitoring. The third proposed intervention for reducing health care cost associated with chronic conditions is the use of health informatics data analytics.

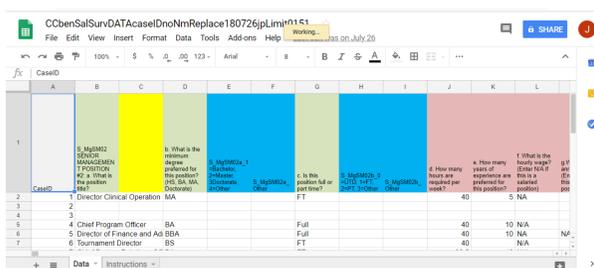
Results
Results will illustrate how nonprofit organizations can improve outcomes when they are supported in such as a way that bring in the most talented in the business.

PROJECT DESCRIPTION

Nonprofits are readily equipped with change agents who are positioned to empower, advocate and ultimately be vehicles that link communities to health equity



PROJECT TOOL: EXCEL



BACKGROUND



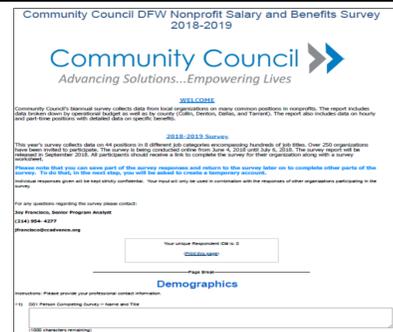
The U.S. workforce is unprepared for associated care delivery of this population. This makes the services provided by non-profit organizations a paramount importance to improving population health.

METHODOLOGY

- Intervention 1: Collaborating with non-profit organizations (Psych Data, SPSS Analytics Tool, Excel)
- Intervention 2: Telehealth Monitoring
- Intervention 3: Use of health informatics data analytics (nonprofit survey)



PROJECT TOOL: ONLINE SURVEY



PROJECT TOOL: SPSS STATS

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PURPOSE



To explore how health informatics can support these nonprofit organizations as they improve populations health

SEARCH STRATEGY

- An online review of literature was conducted via the Texas Woman's University library databases where EBSCO Host was used to search within CINAHL Plus with Full Text and MEDLINE plus with Full Text simultaneously.
- A search was also conducted via PUBMED using the key words *Big Data AND Chronic Disease*.
- The MESH headings option was also utilized. Keywords used were *telehealth AND congestive heart failure; nonprofit organizations AND chronic disease AND social determinants of health*.
- The search was refined by adding the following filters: (a) published from January 2013 to August 2018, (b) full text. The refined search yielded several results that were examined for appropriateness for this paper upon discretion.

RESULTS

- Nonprofit** - Braveman & Gottlieb, 2014 & Sterling et al, 2018 advocate that nonprofit health organizations should collaborate and leverage resources as they are a link to thriving communities.
- Nonprofit** - It is recommend that health care systems look towards services that address the social determinants of health to reduce cost associated with chronic disease management and care.
- Data Analytics** - Schiefelbein, 2014 reports that health informatics and big data analytics being largely beneficial to multiple areas including cost reduction and therefore have proved useful in various phases of chronic disease management and could help reduce the chronic disease burden.
- Telehealth** - Slight variations occur for telehealth monitoring and the ability to decrease all cause readmissions, (Smith, 2013 & Xiang, 2013) suggest that the implementation of outpatient telemonitoring of patients diagnosed with congestive heart failure that this particular intervention has the ability to decrease acute care hospital readmissions associated with heart failure; as a result this would decrease associated cost.
- Literature Review** - See table 1 for list of key evidence-based studies.

Key Literature Review Articles

1. Title	5. Patient Population	7. Intervention of Interest	10. Comparison of Interest	11. Outcome of Interest	14. Strengths
1. Title 2. First Author 3. Date 4. Country	6. Sample Size	8. Design (Experiment, observation, etc.) 9. Level of Evidence (e.g., RCT, meta-analysis, correlation, opinion)		12. Results of Study 13. Conclusion	15. Limitations
A. 1. Meta-analysis and meta-regression of telehealth programmes for patients with chronic heart failure. 2. Xiang, Rui 3. July 2013 4. USA	5. Congestive Heart Failure, Average age 69 years old 6. 7530 patients	7. Telehealth programmes 8. Design (Experiment, observation, etc.) 9. Meta-analysis and meta regression	10. Assess the effectiveness of telehealth used for chronic heart failure (CHF) patients as it relates to readmissions, length of stay (LOS), mortality	11. Decrease readmissions, LOS, mortality in patients diagnosed with CHF 12. Telehealth programmes had significant overall effectiveness in reducing all-cause mortality (Fixed effect model risk ratio 0.76, 95% CI 0.66 to 0.88), CHF-related hospitalization (Random effect model risk ratio 0.72, 95% CI 0.61 to 0.85) and CHF-related length of stay (Random effect model mean difference -1.41 days, 95% CI -2.43 to -0.39). 13. Telehealth programmes demonstrated clinical effectiveness in patients with CHF compared with usual care.	14. Meta-analysis 15. Limitations More evidence is needed to ascertain the correlations in certain covariates. Future work could include more well-designed cohort studies to increase sample size and possibly higher statistical power to detect significant differences.
B. 1. Effect of Telemonitoring on Re-Admission in Patients with Congestive Heart Failure. 2. Smith, Amy Christine 3. Jan/Feb 2013 4. USA	5. Patients diagnosed with Congestive Heart Failure 6. 14 papers met inclusion criteria, RCT, quasi experimental	7. Review of available evidence 8. Meta-analysis 9. telemonitoring interventions	10. Assess the effectiveness of telehealth used for chronic heart failure (CHF) patients as it relates to readmissions,	11. Decrease readmission rates related to CHF 12. For studies reporting all-cause mortality, pooled estimates revealed a statistically significant 20% (95% CI 8-31) reduction in this endpoint. Telemonitoring had a larger mortality effect (RR 0.62, 95% CI 0.45-0.85, p=0.003) than	14. Meta-analysis, provides practice recommendations with rationale and considerations for implementing a telehealth system 15. NA
C. 1. Patterns of health care utilization among vulnerable populations in Central Texas using data from a regional health information exchange. 2. Schiefelbein, Emily L 3. Feb 2014 4. USA	5. Patient Population vulnerable subgroups of an underserved population 6. Sample Size 58,614, ICare patients aged 0-64 years who had a clinic/office, emergency department (ED), inpatient (IP), or outpatient (OP) encounter in 2011. Intervention Use of HIE Design (Experiment, observation, etc.)	7. Intervention 8. Observation 9. Level of Evidence	Comparison of Interest use of HIE to identify patterns of utilization vs not using HIE	11. Identify causation of high health care utilization and cost within vulnerable populations 12. Approximately 20.9% of the population was vulnerable, with behavioral health being the most predominant. Homeless, disabled, and severe behavioral health patients had an increased risk of ED utilization. Behavioral health, disabled, and near elderly patients had an increased risk of IP utilization. Inpatient risk was even greater for patients with multiple vulnerabilities. 13. Improved primary care	14. Not available 15. The first is that the ICare study population is limited to patients who are publicly insured or uninsured, therefore the entire study population may be considered "vulnerable". The current study therefore describes a population with an even greater vulnerability. Medicare patients, a significant contributor to the population of publicly insured persons, are also not available in the data; however, we attempted to mitigate this limitation by excluding those persons ages 65 and older from our