How can we get the social determinants of health message on the public policy and public health agenda?

Translating data into an SDH Information Tool to inform policy and public health programs: Using existing databases to create community profiles of social factors that shape Utah's health

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Executive Summary

For the last 20 years, from 1990-2010, the State of Utah had consistently been ranked among the top 10 healthiest states in the United States.[1] However, a closer look at Utah's life expectancies belies problems that run deep into the local levels. Disaggregating state-level data into 29 counties[2] and then further down into 61 small areas as to groups or single zip codes,[3] revealed disparities in life expectancies at birth (2009 estimates).[4] Within the same county, there was a graded difference in life expectancies. Some areas have life expectancies over 80 years, far better than the nation's and comparable to the five best in the world.[5] Yet residents living just three to ten miles away within the same county, could die three to 10 years sooner (See Table 1),[4] with an average life span about as long as those in developing countries.[5] These disparities across counties was key to the drop in Utah's 2010 health ranking, from second in 2009 to seventh in the nation in 2010, the lowest it had ever garnered in the last 20 years.[1] Since life expectancies measure health status and summarize mortality across age groups in a specific area,[4,6] these differences in life expectancies point to inequalities in health stemming from the "causes of the causes,"[7] or the living conditions and processes that determine the overall quality of life, broadly referred to as the social determinants of health (SDH). Though much more apparent among the vulnerable, at-risk, and underserved populations, disparities in health occur differentially across social groups, limiting life spans as well as socio-economic mobility.

Despite the impact of social factors on health, translating the social determinants of health through policy and practice is fraught with challenges. First, health data are typically reported as individual indicators rather than being presented comprehensively by geographic area within the context of non-medical indices that likewise affect health. Without accounting for the relationship between health outcomes and social determinants, there is no way of fully assessing the impact of policies and programs on the health of the people. Second, even with years of data collection, there remains a lack of evidence translation into policies and public health activities consistent with the social determinants of health principles.[8] Public policy agenda and public health efforts remain dichotomous instead of being coherent and coordinated in the service of health. Thus, driving a sustainable change that distils into the various levels of governance becomes an almost herculean task.

The challenge in translating the social determinants of health message lies in linking health policy with public health practice. The overall purpose of this ongoing study is to translate the social determinants of health concept into practical approaches that are meaningful at the local levels of

governance and constituency in Utah by utilizing data as an SDH information tool for policy and public health programs. Using health and demographic indicators common across five existing population metrics, we developed a Community SDH Profile for Utah and its vulnerable populations down to the small area or zip code-level. This profile was then presented using an open-source data visualization software to provide policy makers, public health practitioners, and the public a visual image of how social factors within Utah impact health at the state down to the community level.

Key research lessons in translating the social determinants of health at the local level:

(1) **The social gradient is deeper.** Inequalities in health resulting in disparities in life expectancies are evident even at the lowest reportable data level, down to the small area or zip code-level. The challenge has always been what to do about it.

(2) **Communicating contextualized and actionable data.** In as much as comprehensive epidemiology reports are helpful and serve various purposes, to act on the evidence, policy makers and public health practitioners need simple, precise, accurate, easy-to-understand, easy-to-learn, visualize-able information at their constituents' level.

Where reliable data are already available and regularly reported; use technology and existing health metrics to support the SDH message. A succinct and visualize-able demographic and health landscape that focuses on vital priorities and trends at the community level can be a mechanism by which the social determinants of health message could be recognized, acted upon, directed, and evaluated[9] down to the local levels of governance.

(3) **Framing the message according to local needs: "What's wrong? Why does it matter? What should be done about it?"**[10] The problem is not always the lack of data as much as how data are communicated. How we communicate the evidence is strategic in engaging both policy makers and the public. Presented wisely, used effectively, directed to the right audience, within the context of the social determinants of health, data can persuade, elicit interest, help inform, engage, advocate, and initiate action. Existing data framed in a manner that speak to community needs and issues that the people can connect with and in a language that people can understand are much more likely to resonate across the political spectrum.

(4) **Keep repeating the message.**[8] The social determinants of message can get lost in a flurry of competing political and health issues. Marketing the message calls for repeatedly

disseminating and reiterating the information to counter the fatalistic mindset towards change.

(5) Engaging the right people in doing the right thing: Having a shared vision and focus of improved health and reduction of health disparities. The social determinants of health result from "the way we organize our affairs in society."[7] These factors are so intricately embedded in the realities of daily living that reducing the inequities we have created means partnering with the right people from various sectors ---those who share a vision and have the skills, courage, and resolve to bring about change in the system or with the system.[11,12]

Problem

How can we bring the social determinants of health message on the public policy and public health agenda?

Where are the disparities in Utah communities?

Utah faces challenges that could be very well addressed at the public health and policy levels. Breaking down Utah's 2010 seventh healthiest ranking in the nation, revealed that the state's lowest measures stemmed from public and health policies such as lack of health insurance, low public health funding, and low immunization coverage. In these measures, Utah ranked 24th, 33rd, and 30th respectively out of 50 states.[1] Its high geographic health disparity in death rates from one county to another was close to the bottom at 44th.[1] Likewise, high school graduation rate went down by 12 percent, from 88.6 percent in 2009 to 76.6 percent in 2010 while children in poverty increased from 8.8 percent to 13.9 percent.[1] In addition, disaggregating the average life expectancy in the state as to counties and small areas revealed as much as a ten-year difference in life span in communities within the same county (See Table 1).[4]

Social factors exert a combined effect on individual and population health. Paramount to effecting long-lasting changes in the social milieu will be the concerted efforts from various government and non-government sectors. However, linking policy efforts with public health practice at various levels of governance remains a challenge.

Context

Social Determinants of Health (SDH)

The disproportionate burden of disease in a population could not be completely explained by the biology of the disease. Biological factors explain only 45 percent of the prevalence and distribution of the disease in a community or a group of people.[15] The number of at-risk individuals in the population continues to grow unless behavior, which is intricately connected to social conditions in life, is changed. And yet, even if people are aware of their risk factors, it does not always lead to a sustainable behavior change.[16]

The conditions in which live, work, and play are so tightly woven into the fabric of our lives that they serve as the main driving forces that determine the quality of our lives, our health and well-being, even predict disease and death.[7,8,13] These conditions arise from how we interact and "organize our affairs in society"[7] and can be of an economic, political, or cultural nature. Such conditions are broadly referred to as the social determinants of health.

Why are the social determinants of health important? Research after research has shown that these intricately-bound realities of daily living, of which the most important is social class,[14,15] produce a health gradient that results in premature death or disease.[15,16] Central to these factors are the structural determinants[14] such as income, education, employment, access to resources, living and working conditions, policy and governance –-all of which can decide an individual's position in society. The rate and range with which a person can move up or down the social and economic ladder can create power plays and inequities that eventually impact both individual and community-level health.[13,14] These not only stratify one's social standing, but also determine access to resources and utilization of services. Though much more apparent among the vulnerable, at-risk, and underserved populations, disparities in health occur differentially across social groups, limiting life spans as well as socio-economic mobility. Leonard Syme, Professor Emeritus of Epidemiology at the University of California, Berkeley, argues that despite carefully designed and well-executed public health interventions, until the social "forces in the community" that lead to health disadvantage are addressed, a significant and long-lasting impact on population health will not be sufficiently achieved.[15] Such stratifying and limiting forces in society are best tackled at the system level through a robust public policy and by empowering communities to act.[14]

Utah's Demographic & Health Status

Utah became the 45th state in the United States in 1896.[17] Named after a Native American Tribe, the Utes,[17] Utah has a land area of 82,143.65 square miles.[18] It has a population size close to 3 million or 2,763,885 people with a density of 33.6 individuals per square mile (2010 estimate).[18] Although it is getting increasingly diverse ethnically, Whites still comprise 80.1 percent of the population followed by Hispanics at 13 percent, Asians at 2 percent, American Indians and Alaskan Natives at 1.2 percent, and Blacks at 1.2 percent.[17] The delivery of public health services is organized into 12 local health departments for Utah's 29 counties.[19] Half of these health districts provide services directed at single counties while the other half provide services for multiple counties.

Utah has consistently been among the top ten healthiest states in the nation. Based on the United Health Foundation's two decades worth of annual reporting on America's Health Rankings, Utah had ranked first for six consecutive years, from 1993-1998, and again in 2002.[1] It was ranked second four times; third three times; fourth three times; fifth twice, and sixth and seventh, once respectively. [1] Utah's strengths included a generally healthy lifestyle as evidenced by the low prevalence of smoking, binge drinking, and cancer deaths with the sixth lowest crime rate in the country.[1] Despite a high fertility rate, Utah has an impressively low infant mortality rate, the third best in the nation. [1]

Each state's health ranking, as reported annually, represents a broad range of issues that influence the health of the population, from genetic and personal factors to the social environment in which the individual, family, and community operate. There are four major groups of determinants that are measured in ranking the health of each state in the nation: personal behaviors, community and environment, public and health policies, and clinical care.[20] Personal behaviors include individual attitudes and behaviors as well as habits and practices established and reinforced in a family setting that affect health. Community and environment are the realities and conditions of daily life that determine both personal and community health. Public and health policies include factors that influence the availability of resources and the extent of reach of health programs into the population. Clinical care assesses the quality, cost, and appropriateness of care obtained by the population. Utah has performed outstandingly across the nation on personal behaviors.

Data disaggregation and analyses show that the dimensions of Utah's social environment may have just as much impact on health as personal behavior.[2,4,21] While health behaviors and lifestyle determine differences in exposure and vulnerability to disease, structural factors in society such as income, social status, gender, ethnicity, education, employment, and working conditions stratify one's social standing by determining access to resources and the utilization of services.[14] Breaking

down Utah's 2010 seventh ranking in the nation, the lowest it has garnered in 20 years, revealed that the state's performance is dismally low on public and health policies, particularly on components pertinent to insurance coverage and public health funding. Utah's lowest measures stemmed from public and health policies such lack of health insurance, low immunization coverage, and low public health funding. In these measures, Utah ranked 24th, 30th, and 33rd respectively out of the 50 states.[1] Its high geographic health disparity in death rates from one county to another was close to the bottom at 44th out of 50 states.[1] Likewise, high school graduation rate was down by 12 percent, from 88.6% in 2009 to 76.6% in 2010; while children in poverty increased from 8.8 percent to 13.9 percent.[1]

Utah's health outcomes are currently reported using 176 indicators presented in an online database known as Indicator-Based Information System for Public Health (IBIS-PH)[4,19] managed by the Utah Department of Health's Office of Public Health Assessment. This serves as the public health data source for both numerical and contextual information on the health of the population across the state, including Utah's health care system. While IBIS-PH contains many important datasets such as the BRFSS data, the categorization of health data as to individual indicators versus a contextualized presentation as to geographical or political boundaries within the framework of social factors limits users in grasping the relevance of the information. For instance, if a policy maker or public health practitioner wanted a reliable at-a-glance picture of the impact of various SDH indicators on the health of their community, he or she would have to sift through the layers of data within the IBIS system.

Creating a Community SDH Profile for Utah and its vulnerable populations is intended to articulate the social determinants of heath message by depicting variations in health outcomes across communities in Utah. Because data are presented visually, policy makers and public health practitioners can readily spot where inequalities lie between counties and local communities. Conversely, having a landscape profile of both social and health factors motivates a deeper look into the dimensions of Utah lifestyle that translate into improved health outcomes such as the biopsychosocial factors of religiosity, volunteerism, social support networks, and community cohesion.

Planning

The complexity of accounting for each and every interaction within and between the social and political ecological environments presents challenges in translating data into policy. To help narrow

the gap in evidence translation and encourage coherent and coordinated policy and practice efforts, our SDH Research Team from the Department of Health Science at Brigham Young University sought to create visualize-able SDH Profile at the community level as an SDH information tool. Our team consulted with the Pan American Health Organization and the Utah Department of Health Office of Public Health Assessment in charge of gathering demographic and health statistics for the State of Utah through the Indicator-Based Information System for Public Health (IBIS-PH).

To identify the best available SDH measures, demographic and health indicators that are already being collected and monitored in at least two of five existing population databases at the national and state levels were selected (See Table 2). These population databases included the following: Utah's Department of Health Indicator-Based Information System for Public Health (IBIS-Utah); CDC SDH Directory; Behavioral Risk Factor Surveillance Survey (BRFSS) data; University of Wisconsin's County Health Rankings; and the U.S. Department of Health and Human Services' Healthy People 2020. Once indicators common among these databases have been selected, they were grouped into six constructs based on The Marmot Review's Six Policy Objectives on the social determinants of health such as: (1) Give every child the best start in life; (2) Enable all children, young people and adults to maximize their capabilities and have control over their lives; (3) Create fair employment and good work for all; (4) Ensure a healthy standard of living for all; (5) Create and develop healthy and sustainable places and communities; (6) Strengthen the role and impact of ill-health prevention.

We are currently developing a Community SDH Profile for Vulnerable Populations starting with Hispanics in Utah. Our long-term goal is to make these Community SDH Profiles readily available to serve as a basis for informing health policy and practice, particularly in addressing the health needs of at-risk, vulnerable, and underserved populations in the State of Utah.

Research Goal: Inform policy makers, practitioners, and the public

To translate the social determinants of health message into practical approaches that are meaningful at the local levels of governance and constituency in Utah by utilizing data as an SDH information tool for policy and public health programs.

Main Research Questions:

1. How can currently reported public health and clinical data be systematically linked with non-medical indices or social determinants such as income, education, employment, or housing in a manner that would inform policy and practice?

2. How many of Utah's policy makers and public health professionals know enough about the social determinants of health to even consider the social determinants of health as a legislative and public health priority?

Specific Research Questions

1. **Health Data Needs in Policy & Practice**
    a. What are the health data needs of Utah policy makers and public health practitioners?
    b. In which format and amount of content would Utah policy makers and public health practitioners prefer to receive health information?
    c. How often do Utah policy makers interact or consult with public health practitioners on health issues at the state and local levels?
    d. If a Community SDH Profile was created for the communities that Utah policy makers and public health practitioners serve, will they have a need for this SDH Profile and will they use it as a basis for forming their policy position or decision on a health issue?
    e. Which factors facilitate or hinder the use of a Community SDH profile for policy creation and public health planning and improvement?

2. **Level of Awareness for the Social Determinants of Health in Policy & Practice**
    a. Which current indicators within the Utah Department of Health (UDOH) Indicator-Based Information System for Public Health (IBIS-PH) database and other existing population metrics best provide a profile of Utah's social environment to inform policy and practice?
    b. Which SDH indicators can be linked to improved health outcomes in Utah?
    c. How much do Utah policy makers and public health practitioners already know about the social determinants of health and what is their level of interest on this message?

3. **Framing the Social Determinants of Health Message for Policy & Practice**
    a. How should the social determinants of health message be framed for Utah policy makers and for public health professionals to increase its adoption in the areas of policy and practice?
    b. Will Utah policy makers and public health practitioners better recognize and relate to the social determinants of health if framed using common language that focuses on solutions and which acknowledges personal responsibility?

c. Which facets of the social determinants of health are perceived as priorities by Utah policy makers (local and state) and how likely they are willing to act on these social determinants of health to improve their constituents' health and well-being?

Research Objectives: To help narrow the gap in evidence translation and meet research goals, the objectives of this study are three-fold:

(1) **Creating a visualize-able Community SDH Profile for Utah using Google's Gapminder Motion Chart to present health data within the framework of social factors that impact health at the state and community-levels – completed**

- Contextualizing population health data in terms of the social determinants of health, demographic and health indicators utilized by at least two or more of five national and state-level databases were selected and classified based on the six policy objectives recommended by The Marmot Review[22] (See Table 2).

- Identifying the major social determinants of health indicators relevant for Utah communities based on existing population metrics.

- Using Google's Gapminder Motion Chart, present succinct, compelling, visualize-able, and contextualized image of available data for small area communities to educate policy and practice on local-level social determinants of health issues

- Using the Community SDH Profile for Utah and for Utah's Vulnerable Populations, train public health professionals and practitioners on an evidenced-based understanding, dissemination, and advocacy for the social determinants of health principles. Public health professionals and practitioners at the state and county levels will be trained how to use IBIS-PH statistics and how to visually present the data for the small area communities they serve to guide in planning, prioritization and allocation of resources, and program evaluation.

(2) Determining the level of SDH perception, awareness among policy makers and public health professional and practitioners through an online survey – June 2011 - ongoing.

- Taking the SDH pulse of policy makers and public health officers/practitioners through an online survey to determine their need for health data specific to their legislative districts; to assess their awareness and perception for the social

determinants of health; and to find out how to frame the social determinants of message according to what resonates best among policy makers and public health workers in terms of needs, mindsets, and verbiage.

(3) Building inter-sectoral partnerships using the Community SDH Profile for Utah to inform, engage, and strengthen community capacity and accountability – Ongoing.

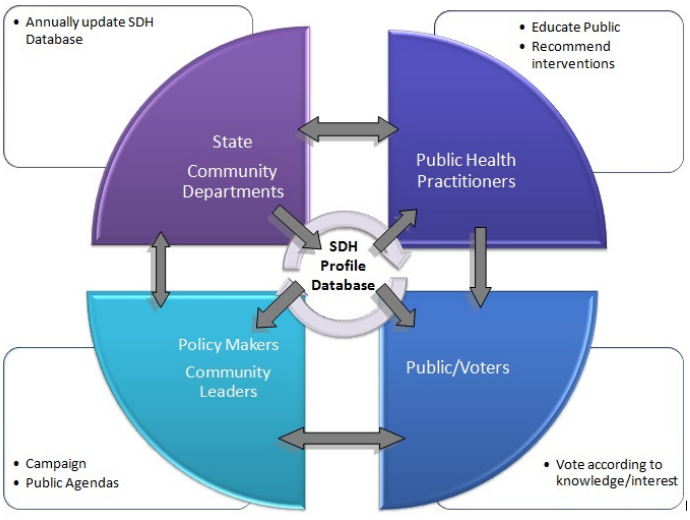
Using the Community SDH Profile for Utah and the SDH Profile for Utah's Vulnerable Populations to:

a. Explore opportunities for partnerships in communicating and acting on the social determinants of health message at the local and state levels with the Utah Department of Health Office of Public Health Assessment (IBIS-PH Data); American Heart Association and American Stroke Association-Utah Chapter; Utah Public Health Association (UPHA); LDS Church Public Affairs; Utah County Health Department;

b. Highlight local needs and guide the prioritization of resources, especially among at-risk, vulnerable, and under-served populations;

c. Encourage evaluation of the health impact of policies and programs, particularly those intended to improve population health.

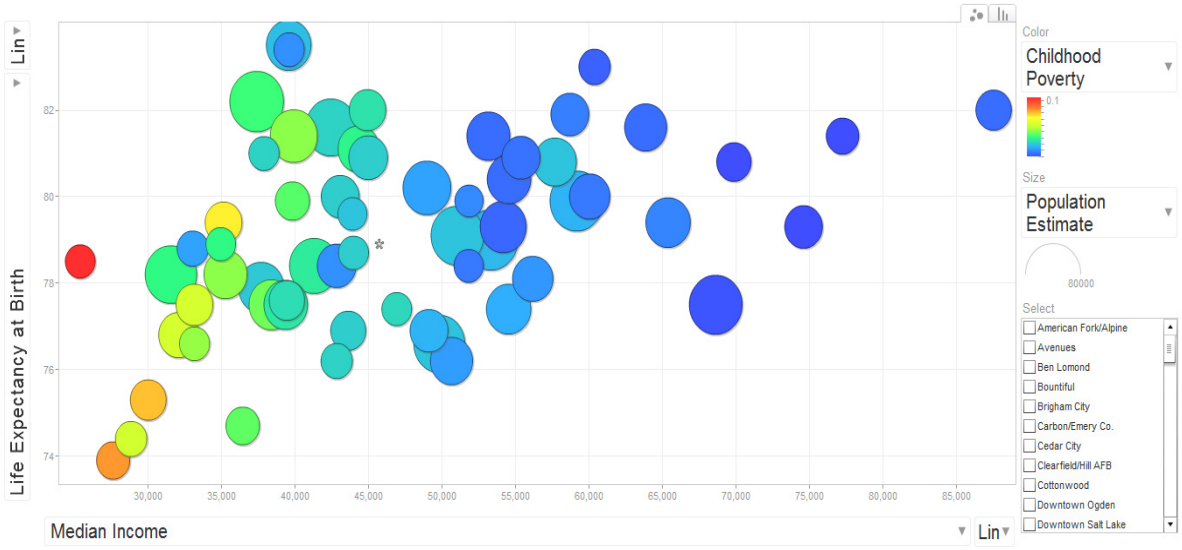
Figure 1. SDH Profile Database



To help policy makers and public health professionals make better use of various existing data, our research group converted the Community SDH Profile for Utah into a motion chart to visually demonstrate the impact of social factors on Utah's health. State and county-level data were disaggregated down to "small areas."[3] Small areas are made up of communities classified as to single or multiple zip codes by the Utah Department of Health for analyzing health status as a factor of lifestyles and the social environment at the community level.[3] Small areas have been grouped together as to population size, local health district and county boundaries, political boundaries, and similarities in income levels.[3]

Once the SDH indicators were selected, we created the Community SDH Profile for Utah and converted it into a motion chart using a dynamic data visualization system that is simple, clear, reliable, easy-to-use, interactive, and accessible such as the publicly-available software from Google, Gapminder[23] and Google's public data.[24] These visualization tools allow four variables to be depicted at the same time and to display changes and trends in health status and disparities over time within and between communities.

Figure 2. Community SDH Profile - Utah



Implementation

The SDH Profile we created for Utah communities utilizes demographic and health data by county and small areas. This enables legislators, researchers, public heath practitioners, and the public to easily identify, prioritize, and address health needs especially among at-risk, vulnerable, and under-served populations in their respective communities.

The initial version of the Community SDH Profile for Utah and its vulnerable populations had been presented in professional training sessions to the Women, Infants, and Children (WIC) nurses, dietitians, and educators of the Utah County Health Department and at the Utah Local Association of Community Health Education Specialists annual training meeting attended by Health Promotion Directors of each of the 12 local health districts in Utah. The impact of social factors over time on community-level health issues were visually and dynamically presented using Google's Gapminder. With four health and demographic variables presented at the same time, this visualize-able profile was a step above the traditional one-indicator-at-time tables, bar graphs, or charts for a specific locale. For example, visualize-able data was shown on how each of the 61 small areas in Utah fared in terms of the prevalence of heart disease as to overweight/obesity prevalence, median income, and levels of education. As a result, public health practitioners can more fully relate to the social determinants of health issues in the local communities that they serve.

The BYU SDH Research Team also presented the Community SDH Profile before the state representatives of the American Heart Association (AHA) and American Stroke Association (ASA) to show heart disease and stroke-related data among Hispanics in Utah. One of the long-term goals of this study is to also develop an SDH Profile specific to vulnerable populations in Utah to help meet the data needs of AHA and ASA and other organizations. It is envisioned that such profile will more effectively address the needs of at-risk, vulnerable, and under-served populations. Currently, the SDH Profile features selected demographic and health indicators for Hispanics at the state level, but not always down to the small area level because of the lack of sufficient data for Hispanics at the community level. This results in sampling errors that limit reporting of data specific to subpopulations.

Collaborative relationships are being explored with the following stakeholders: Utah County Health Department –UCHD (Eric Edwards); IBIS-PH Utah - Utah Department of Health Office of Public Health Assessment (Kathryn Marti & Brian Paoli); Academic Health Department (Dr. Miner, Eric Edwards, BYU Faculty); Utah Public Health Association - UPHA (Paul Wightman); Utah Association of Local

Health Officers & Local Boards of Health - UALBH (Kathy M. Froerer); and the Utah Local Association of Community Health Education Specialists –ULACHES (Eric Edwards and Heather Borski).

Evaluation of Results & Impact

Of the three objectives of this study, the creation of the Community SDH Profile for Utah and its vulnerable populations had been completed and continually refined. Through professional training meetings at both state and local levels, the initial version of the Community SDH Profile for Utah and its vulnerable populations are being used to inform Utah public health practitioners on health disparities in Utah communities within the context of the social determinants of health.

The online survey of policy makers and public health practitioners on health data needs and level of awareness and perception of the social determinants of health message and inter-sectoral collaborations are both ongoing. The online survey via Qualtrics is currently underway for ten weeks from July 2011 to September 2011 among two different populations: (1) public health professionals within the state of Utah and (2) policy makers (senators, house representatives, and local city officials in Utah. Mechanisms for distributing the survey included the Utah Public Health Association's Convio, a service software for non-profit organizations; listserves of the Utah Department of Health (UDOH), ULACHES, and the Health Educators' Association of Utah (HEAU); and via e-mail to public health officers and to local county and city officials in Utah. We are anticipating that the results of this survey will enable us to:

- Better understand legislators' and public health practitioners' views on health and their level of awareness of the social factors in Utah that impact health of Utahans;
- Effectively frame the social determinants of health message;
- Identify types and sources of health data currently used by policy makers to inform health policy including those which they perceive to be most effective in addressing local health needs including that of vulnerable populations;
- Determine whether policy makers and public health practitioners will actually use the Community SDH Profile that our team had created for the State of Utah and how it will specifically be used; and
- Identify:
    - facilitators and barriers shaping decisions and practices in adopting policies on reducing SDH inequities;
    - SDH-related policies; and

- Specific needs and preferences for the format, language, mode of delivery of health data for informing making policy decisions at the local and state levels;

Sustainability of Results & Established Processes

Disseminating the SDH message to policy makers and public health practitioners were facilitated by exploring partnerships with agencies from various sectors who share a common vision of improved health and reduction of health disparities. The results of the ongoing survey of policy makers and public health officers and practitioners at the state and federal levels will help refine the initial version of the Community SDH Profile for Utah and its vulnerable populations. This profile has the potential of narrowing the gap in data translation through effective data communication in policy and practice. Moreover, given that the data visualization software utilized in this study is publicly available, this SDH Profile may serve as a template for SDH data communication, presentation, dissemination, and advocacy for other states and communities in the nation. Since the data utilized for developing the SDH Profile were obtained from existing databases, majority of which were from IBIS-PH, costs were not incurred relative to data collection and analyses making it cost-effective and sustainable to regularly update the Community SDH Profile for Utah. As partnerships with IBIS-PH are being explored, the actual SDH Profile could be uploaded within the Utah Department of Health's IBIS-PH website or a link to the profile could be provided at the IBIS website.

Implications for Social Media Use

To continually and repeatedly inform the public and disseminate the social determinants of health message, use of social media will be explored such as blogging, mobile applications, and YouTube videos to access data visualization. Since the Google Gapminder application is based in FLASH, it can be readily published on the web and accessed by compatible mobile platforms. Health promotion through social media and other progressive tools like QR smartphone codes would certainly allow for significant exposure and public support of a data-driven SDH message.

Follow-Up and Lessons Learned

Key lessons being learned in translating the social determinants of health at the local level:

(1) **The social gradient is deeper.** Inequalities in health resulting in disparities in life expectancies are evident even at the lowest reportable data level, down to the small area or zip code-level. The challenge has always been what to do about it.

(2) **Communicating contextualized and actionable data.** In as much as comprehensive epidemiology reports are helpful and serve various purposes, to act on the evidence, policy makers and public health practitioners need simple, precise, accurate, easy-to-understand, easy-to-learn, visualize-able information at their constituents' level.

Where reliable data are already available and regularly reported; use technology and existing health metrics to support the SDH message. A succinct and visualize-able demographic and health landscape that focuses on vital priorities at the community level can be a mechanism by which the social determinants of health message could be recognized, acted upon, directed, and evaluated[9] down to the local levels of governance.

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Limitations

- Since the Community SDH Profile for Utah and its vulnerable populations are dependent on existing data obtained from the state IBIS-PH database, limitations in existing datasets prevented featuring each SDH indicator for each vulnerable population or minority group per small area in Utah. Low response rates and low sample sizes for certain indicators in some small area communities result in sampling errors exceeding 30 percent that their data were not reported by IBIS-Utah. Until IBIS-PH Utah is able to come up with sustainable data solutions, to work around this limitation, our team used data points and/or aggregated data for certain SDH indicators for greater accuracy in reporting.

- By using existing data that are more or less regularly tracked and reported, data collection costs were not incurred. However, access to more recent data is dependent on whenever more recent data are reported by the state IBIS-PH site. To address this limitation, our SDH Research Team is working with the Utah Department of Health Office of Public Assessment to allow us to access more recent data and to point us to other information sources, such as the American Cancer Society that regularly collects data down to the zip code level.

References

1. America' Health Rankings. Utah. Available at: http://www.americashealthrankings.org/yearcompare/2009/2010/UT.aspx. Accessed March 16, 2011.

2. Mokdad A. Utah life expectancy leads the nation, but falls behind some struggling countries. Deseret News, June 16, 2011. Available at: http://www.deseretnews.com/article/705374576/Utah-life-expectancy-leads-the-nation-but-falls-behind-some-struggling-countries.html. Accessed June 16, 2011.

3. Haggard LM, Shah G, Rolfs RT. Assessing community health status: establishing geographic areas for small area analysis in Utah. *Utah's Health: An Annual Review.* 1997-1998;5.

4. Utah's Indicator-based information system for public health (IBIS-PH). Data and confidence limits for life expectancy at birth by small area, Utah, 2009. Available at:

   http://ibis.health.utah.gov/indicator/view_numbers/LifeExpect.SA.html. Accessed June 16, 2011.

5. U. S. Census Bureau. Births, deaths, and life expectancy by country or area: 2009 and 2010. Available at: http://www.census.gov/compendia/statab/2010/tables/10s1303.pdf Accessed June 30, 2011.

6. Central Intelligence Agency. Country comparison-life expectancy at birth. The World Factbook. Available at: https://www.cia.gov/library/publications/the-world-factbook/rankorder/2102rank.html. Accessed June 16, 2011.

7. Marmot M. Social determinants of health inequalities. *Lancet.* 2005;365:1099-104.

8. Raphael D. Escaping from the *Phantom Zone*: social determinants of health, public health units and public policy in Canada. *Health Promotion International*. 2009;24(2):193.198.

9. Carter SM, Hooker LC, Davey HM. Writing social determinants into and out of cancer control: an assessment of policy practice. *Social Science & Medicine*. 2009, 68(8):1448-1455.

10. Dorfman L, Wallack L, Woodruff K. More than a message: framing public health advocacy to change corporate practices. *Health Education and Behavior*. 2005;32(3):320-336.

11. Collins J. Good to great: why some companies make the leap… and others don't. New York: HarperCollins Publishers, Inc; 2001.

12. Lavizzo-Mourey R. Force multipliers: how an anonymous band of fierce foot soldiers is revolutionizing health in America from the ground up. *Robert Wood Johnson Foundation.* Available at: http://www.rwjf.org/files/research/presidentmessagesinglepages.pdf. Accessed July 1, 2011.

13. Marmot M. Health in an unequal world. *Lancet*.2006; 368:2081-94.

14. WHO (2006). Commission on the Social Determinants of Health (2005). Towards a Conceptual Framework for Analysis and Action on the Social Determinants of Health. Geneva, World Health Organization.

15. Syme SL. Social determinants of health: the community as an empowered partner. Preventing Chronic Disease [serial online]. 2004. Available from: http://www.cdc.gov/pcd/issues/2004/jan/03_0001.htm. Accessed October 28, 2009.

16. Raeburn J, Beaglehole R. Health promotion: can it redress the health effects of social disadvantage? Community Health Stud. 1989;13(3):289-93.

17. Utah History. Available at: http://historytogo.utah.gov/facts/brief_history/statehood.html. Accessed June 20, 2011.

18. U.S. Census Bureau. State and county quick facts for Utah. Available at: http://quickfacts.census.gov/qfd/states/49000.html. Accessed June 21, 2011.

19. Utah's Indicator-based information system for public health (IBIS-PH). Local public health systems. Available at: http://ibis.health.utah.gov/home/LocalHealth.html. Accessed June 20, 2011.

20. America's Health Rankings. About the rankings. Available at: http://www.americashealthrankings.org/2010/about.aspx. Accessed July 1, 2011.

21. Lavizzo-Mourey R. It's time to connect what we know with what we do. Cited in the 2008 America's health rankings. Available at: www.americashealthrankings.org. Accessed May 8, 2009.

22. Marmot Review. Fair society, healthy lives: policy objectives and recommendations. Available at: http://www.marmotreview.org/AssetLibrary/pdfs/Reports/FairSocietyHealthyLives.pdf Accessed April 13, 2010.

23. Gapminder. Explore the world. Available at: www.gapminder.org. Accessed February 11, 2011.

24. Google. Public Data Explorer. Data visualizations for a changing world. Available at: www.google.com/publicdata. Accessed February 11, 2011.

Annex 1

Table 1. Life Expectancies at Birth in Utah as to Small Areas, 2009

County	County and/or Small Area (Single or multiple zip codes)	Life Expectancy at Birth, age in years*	Difference in Life Expectancies, years (Highest - lowest)
Toole County		78.6	
Summit County		82.7	
Wasatch County		81.4	
Uintah	Tri-County Local Health Dept.	76.7	
Juab/Millard/Sanpete Counties		78.4	
Sevier/Piute/Wayne Counties		76.9	
Carbon/Emery Counties		77.0	
Grand/San Juan Counties		78.2	
Iron	Cedar City	79.5	
Kane	Other Southwest	78.2	
Cache & Rich Counties	Logan	81.4	0.3
	Other Cache/Rich County	81.7	
Box Elder County	Brigham City	79.6	0.7
	Other Box Elder County	80.3	
Washington	St. George	80.9	1.6
	Other Washington County	79.3	
Davis County	Clearfield/Hill Air Force Base	**78.6**	3.3
	Layton	80.3	
	Syracuse/Kaysville	81.4	
	Farmington/Centerville	**81.9**	
	Woods Cross/North Salt Lake	79.6	
	Bountiful	80.8	
Weber County	Ben Lomond	**76.2**	4.8
	Morgan & East Weber County	**81.0**	
	Downtown Ogden	76.1	
	South Ogden	80.7	
	Roy/Hooper	78.4	
	Riverdale	77.2	
Utah County	Lehi/Cedar Valley	**83.2**	6.2
	American Fork/Alpine	80.8	
	Pleasant Grove/Lindon	81.6	
	North Orem	78.0	
	West Orem	80.7	
	East Orem	82.0	
	Provo/BYU	82.8	
	Provo South	80.7	
	Springville/Spanish Fork	80.3	

	Utah County South	**77.0**	
Salt Lake County	Rose Park	78.3	10.7
	Avenues	81.7	
	Foothill/University of Utah	**84.3**	
	Magna	77.2	
	Glendale	76.1	
	West Valley West	77.9	
	West Valley East	77.8	
	Downtown Salt Lake	78.1	
	South Salt Lake	**73.6**	
	Millcreek	80.3	
	Holladay	81.1	
	Cottonwood	81.3	
	Kearns	77.2	
	Taylorsville	76.6	
	Murray	77.3	
	Midvale	76.9	
	South Jordan	79.2	
	Sandy Center	78.1	
	Sandy, Northeast	81.3	
	Sandy, Southeast	79.2	
	Riverton/Draper	80.0	
	West Jordan, Northeast	77.6	
	West Jordan, Southeast	76.5	
	West Jordan West, Copperton	81.9	

*Source: Utah's Indicator-based information system for public health (IBIS-PH). Data and confidence limits for life expectancy at birth by small area, Utah, 2009. Available at: http://ibis.health.utah.gov/indicator/view_numbers/LifeExpect.SA.html. Accessed June 16, 2011.

Annex 2

Table 2 – Common SDH Indicators across Multiple Population Metrics

The Marmot Review Policy Objective & SDH Indicator	CDC	IBIS	BRFSS	CHR	HP 2020
(1) Give every child the best start in life. Early Childhood and Family Health					
Childhood poverty	✓	✓		✓	
Household structure		✓	✓	✓	
(2) Enable all children, young people and adults to maximize their capabilities and have control over their lives. Education					
Education level in population		✓	✓		
High school graduation rate	✓	✓			✓
Percentage of population with 4-year degree or higher		✓	✓	✓	✓

Educational attainment among 25+ population	✓		✓	✓	
Percent of adults w/o social/emotional support			✓	✓	
(3) Create fair employment and good work for all Employment					
Unemployment rate	✓		✓	✓	
(4) Ensure a healthy standard of living for all Income Distribution					
Median household income	✓	✓	✓		
Per capita personal income	✓		✓		
Persons living in poverty	✓	✓	✓		
Poverty Rate	✓		✓		
Gini Coefficient	✓				✓
(5) Create and develop healthy and sustainable places and communities Community Development					
Air quality	✓	✓		✓	✓
Crime rates	✓			✓	✓
Availability of healthy food	✓			✓	
(6) Strengthen the role and impact of ill-health prevention. Health Care and Services					
Primary care/provider rate	✓	✓		✓	✓
Percent of population w/o health insurance	✓	✓	✓	✓	✓
Health care costs	✓	✓			
Lifestyle					
Tobacco use	✓	✓	✓	✓	✓
Adult obesity rate		☐	☐	☐	☐
Child/adolescent obesity rate		☐			☐
Chlamydia rate		☐		☐	☐
Teen pregnancy rate		☐		☐	☐
Binge drinking		☐	☐	☐	☐
Adolescent Substance Abuse		☐			☐
Physical activity in adults	☐	☐	☐		☐
Physical activity in children/adolescents		☐			☐
Fruit/vegetable consumption		☐			☐

CDC= Centers for Disease Control and Prevention SDH Data Set Directory; IBIS-Utah =Indicator-Based Information System for Public Health (Utah) BRFSS = Behavioral Risk Factor Surveillance System CHR= County Health Rankings, University of Wisconsin; and HP=Healthy People 2020

The Marmot Review Six Policy Objectives: (1) Give every child the best start in life; (2) Enable all children, young people and adults to maximize their capabilities and have control over their lives; (3) Create fair employment and good work for all; (4) Ensure a healthy standard of living for all; (5) Create and develop healthy and sustainable places and communities, and (6) Strengthen the role and impact of ill-health prevention.

www.who.int/social_determinants/