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Development of a Provider Referral Network for the National Diabetes Prevention Program in Northeast Nebraska

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Abstract

Diabetes continues to be a significant health problem for Americans, including Nebraskans. The National Diabetes Prevention Program has designed a course for individuals with prediabetes to implement lifestyle changes and reduce their risk for developing diabetes. Although Elkhorn Logan Valley Public Health Department (ELVPHD) has offered this course for a few years, they have struggled to enroll enough participants for CDC recognition. The purpose of this project was to work with ELVPHD to develop a provider referral network for the National Diabetes Prevention Program (DPP) courses offered by the health department. In establishing this network, the goal was to increase participation and allow for state and national recognition of the program within the health department's jurisdiction. Establishing the referral network was accomplished through informational sessions held with area primary care providers describing the program and asking for input on referral methods. Pre and post session surveys were sent to providers to assess knowledge, willingness to refer, and views on potential referral systems. An additional goal of this project was to determine pre diabetes prevalence within clinics, counties, and the overall jurisdiction. This goal was approached through contacting clinics and asking for a query of medical records indicating pre diabetes diagnoses. Querying of medical records was intended to provide clinics with lists of eligible patients, allow for baseline prevalence data to be shared with the health department for analysis of their NDPP course impact on pre diabetes and to

demonstrate the burden of pre diabetes, and to provide insight into target subpopulations through examination of sociodemographic information.

<u>Introduction</u>

As of 2015, an estimated 30.3 million adults in the United States had diabetes, and diabetes is considered the seventh leading cause of death in the U.S (CDC, 2017). Hemoglobin A1C levels, or the average levels of blood glucose, were used to determine this prevalence estimate and are used to diagnose individuals with diabetes. An individual with an A1C level of 6.5 percent or higher is considered diabetic. These increased levels of blood glucose can lead to serious health problems. An individual with an A1C level of 5.7 to 6.4 percent is considered to have prediabetes and is also prone to health problems (NIDDK, 2014). Approximately 86 million adults are affected by this condition, and 15-30% of these individuals will develop type 2 diabetes within 5 years if a lifestyle change is not implemented. Structured lifestyle interventions are effective, cutting the risk of developing diabetes by over half (CDC, n.d.).

The National Diabetes Prevention Program (NDPP) was established in an effort to reduce and prevent type 2 diabetes and address the problem of prediabetes. As part of this effort, the NDPP developed a course for individuals with prediabetes to prevent progression into diabetes (CDC, 2016c). This course uses CDC-developed curriculum, a lifestyle coach, and group support to help participants eat healthier, add or increase physical activity in their lives, and deal with stress or challenges that arise with making these life changes. The course is designed to be a

year in length. During the first six months, participants meet every week to learn the skills to make necessary lifestyle changes. The last six months consists of participants meeting once a month to maintain lifestyle changes and enhance the skills that they have learned. These programs are offered both in person and online (CDC, 2016b). Thirty-six of these courses are currently offered in Nebraska, as recognized by the CDC. Two of these are offered within the jurisdiction of ELVPHD (CDC, n.d.).

Within the state of Nebraska, 7.6% of residents over the age of 18, or about 103,000 individuals, have been diagnosed with diabetes. Although slightly lower than the national median of 8.7%, the prevalence of diabetes in Nebraska continues to increase. Data from 2010 indicates that more than 76,000 Nebraskans have been diagnosed with prediabetes, although the total number of those with prediabetes could be as high as 450,000 (Rettig, 2012). Within the state, men and racial minority populations are more likely to be diagnosed with diabetes. Additionally, the percentage of adults with diabetes is greatest among those with the least education and lowest household income (Rettig, 2012). The estimated percentage of individuals with diagnosed diabetes in ELPVHD's jurisdiction of Burt, Cuming, Madison, and Stanton counties are 7.7, 5.6, 7.8, and 8.1 percent respectively (ELVPHD, 2016).

The National Diabetes Prevention Program's course for those with prediabetes has been successfully provided in Nebraska's Panhandle Public Health District with over 80 courses offered and 917 individuals participating since 2012, and CDC recognition has also been given to other organizations offering the

program throughout the state (Panhandle Public Health District, 2017). However, ELVPD's program has not recruited or retained enough participants in its initial course offerings to remain recognized by the CDC (T. Hinrichs, personal communication, July 25, 2017). Currently, the CDC requires at least 5 participants in each course to have had a blood test within the last year indicating prediabetes or to have a history of gestational diabetes for the program to be considered for full recognition. Furthermore, the CDC requires that 35% of the total course cohort meet this condition, among other necessary program components for recognition (CDC, 2018). Nebraska Department of Health and Human Services has the same requirements as the CDC for program recognition at the state level (J. Lamprecht, personal communication, April 16, 2018).

Importance of Proposed Project

The National Diabetes Prevention Program is working to prevent the ongoing health concern of diabetes and pre-diabetes in the United States. However, health departments without CDC recognition of their lifestyle changes course offerings as part of this program may struggle to keep funding, resulting in loss of the ability to provide the course at all. In rural communities, at-risk individuals may have few options to participate in lifestyle interventions. Therefore, it is imperative to develop a way to increase enrollment in these courses to allow for CDC recognition and to reach high-need rural residents who may benefit from participating and making positive changes in their lives. Developing a provider referral system for the ELVPHD will achieve two goals, 1) it will help residents of Burt, Madison, Cuming,

and Stanton Counties get information and assistance in becoming healthier and preventing diabetes; 2) it can provide groundwork for other rural local health departments in establishing their own referral systems as well.

Literature Review

The National Diabetes Prevention program and its lifestyle intervention component was constructed based off of the results of a large randomized clinical trial in the United States involving individuals who were considered at risk for developing type 2 diabetes (Diabetes Prevention Program Research Group, 2002). Participants were assigned to one of three intervention groups described as: "standard lifestyle recommendations plus metformin" (a treatment medication for diabetes), "standard lifestyle recommendations plus placebo", and "an intensive program of lifestyle modification" (Diabetes Prevention Program Research Group, 2002). The "standard lifestyle recommendations" consisted of written information and an annual 20-30 minute individual session emphasizing the importance of a health lifestyle. The intensive program consisted of a 16-lesson curriculum covering diet, exercise, and behavior modification. The curriculum was originally taught on a one-to-one basis during the first 24 weeks after enrollment. After this, individual and group sessions were held usually monthly to reinforce behavior change (Diabetes Prevention Program Research Group, 2002).

Results of the intervention groups showed that 50% of those in the intensive program achieved a goal of 7% body weight lost by the end of the first 24 weeks. The intensive group participants showed the highest decrease in daily energy intake and average fat intake and the highest increase in physical activity levels in

comparison to the other intervention groups. During the 4-year follow-up period, the intensive program participants also had the lowest incidence of diabetes, 58% lower than the placebo group (Diabetes Prevention Program Research Group, 2002).

Further research followed up with participants of this study ten years later. Although those in the intensive program group did regain some of their lost weight over time, cumulative incidence of diabetes remained lower in the intensive program group (and the metformin group) in comparison to the placebo group. Researchers concluded that the intensive lifestyle program delayed the onset of diabetes by 4 years and the metformin group delayed the onset by 2 years as compared to the placebo group (Diabetes Prevention Program Research Group, 2009).

Besides this study, other randomized control trials have shown similar effective results in reducing diabetes through a lifestyle intervention program. As of 2013, there were at least five major randomized control trials that documented 30-60% reductions in diabetes incidence among high-risk individuals through use of a lifestyle intervention program. These successful programs had in common one-on-one or small group intervention using a structured six-month to one year program with a following "maintenance" period to encourage sustained behavior change. These trials were conducted in a variety of settings, providing promise in translating this work into diverse communities. However, some potential complications to community translation included the high cost of these programs and the highly credentialed research staff that implemented the lifestyle intervention that likely

aren't available to implement these programs on a wider scale (Albright & Gregg, 2013).

Even with these concerns, Congress authorized the CDC to establish the National Diabetes Prevention Program in 2010. Reported results from the first four years of this program are promising. At this time, 220 organizations were delivering the diabetes prevention programs in 40 states and 14,747 participants had been associated with a program for 12 months. Overall weight loss for participants was 4.2%, with 35.5% of participants achieving the 5% or more weight loss goal. Participants who attended at least 17 out of 22 sessions achieved a median weight loss of at least 5%, and percent body weight loss generally increased as the number of attended sessions for individuals increased. Median physical activity minutes also increased with number of sessions attended, and participants who attended at least 18 sessions generally also met the physical activity goal of 150 minutes per week. For every additional session attended, participants lost an average of 0.31% of their body weight. The conclusion drawn from these results was that those who stay in the program are successful in reducing their risk of developing type 2 diabetes. Challenges remain for the program in identifying and retaining at risk individuals, but the CDC continues to work on further development of the program (Ely, Gruss, Luman, Gregg, Ali, Nhim, Rolka, & Albright, 2017).

The National Diabetes Prevention Program has four main components. These include training the workforce, developing intervention sites, ensuring the quality of courses offered, and health marketing to ensure referrals and assist in program uptake (CDC, 2016a). In regards to the fourth component of health

marketing, the CDC and American Medical Association have created a 3-step toolkit for provider use. The three steps involved are simply to screen patients using the CDC pre-diabetes screening test, test patients for pre-diabetes using one of three blood tests, and refer patients to a DPP course (AMA, n.d.). Additionally, the CDC has provided a similar framework for healthcare providers called M.A.P., which stands for Measure, Act, and Partner. Each of these three steps incorporates a point-of-care or retrospective method leading to eventual referral of a patient to a local program. To overcome the barrier of provider unawareness of pre-diabetes and offered diabetes prevention courses, the American College of Preventative Medicine has joined with the CDC to provide a variety of educational opportunities. These include learning opportunities through existing professional networks, meetings and conferences, online forums, and publications. The ACPM also plans to conduct provider peer-to-peer mentoring, develop provider "champions" to serve as spokespersons, and create demonstration projects to evaluate approaches to engaging providers (American College of Preventive Medicine, n.d.).

Other organizations and health departments offering DPP courses have had success with engagement of providers and establishing referral networks. For example, the Colorado Department of Public Health and Environment created a referral network in which they provided in-clinic presentations, emails notifying providers of new classes and how to refer patients, individualized emails to providers prompting providers to refer by providing a list of eligible patients, and regular communication of patient progress (Colorado Department of Public Health and Environment, 2015). Additionally, the California Department of Public Health

produced similar presentations for providers, which many local health departments used in conjunction with marketing strategies to the general public to increase enrollment in offered courses. New Mexico and Montana state health departments are also taking steps to inform and educate providers and establish referral systems in an effort to increase participation and enrollment in programs (CDC, 2016a).

The Nebraska Department of Health and Human Services created their most recent Diabetes Prevention Action Plan in August 2016. This plan has two priority areas: awareness of pre-diabetes and the effectiveness of the NDPP and coverage of the NDPP by employers, businesses, and insurance plans. The main objective of the awareness focus area is to enhance awareness of pre-diabetes and the NDPP in order to enroll double the number of new DPP participants across the state. One of the strategies in doing this does involve developing an educational and communication plan to promote referral and enrollment in the program. According to this plan, Nebraska DHHS will provide appropriate education and communication to each target audience based on identified best practices. However, no specific referral system or action for developing a system for providers is clearly identified in this plan (Nebraska Department of Health and Human Services, n.d.).

Elkhorn Logan Valley Public Health Department has never developed a formal referral system for providers to refer patients to the DPP course offered by the health department. In 2015, the department formed the Diabetes Prevention Advisory Council to increase referrals to the program. The project focused on educating health care providers on the DPP and working with them to identify and increase referrals. Additionally, between 2004 and 2016, 24 individuals from

various organizations were certified to teach the DPP courses in the area. Since 2014, 32 individuals have completed the program in the area, with an average weight loss of 14.2 pounds per person (Elkhorn Logan Valley Public Health Department, 2017). Even with these past efforts, the program is in need of more participants.

ELVPHD serves four primarily rural counties anchored by a regional city in northeast Nebraska. ELVPHD has jurisdiction over Madison, Stanton, Cuming, and Burt Counties. Of these counties, the westernmost has the largest population with an estimated 35,015 residents. Stanton, Cuming, and Burt Counties are estimated to have populations of 5,944; 9,016; and 6,546; respectively. Eighty-nine percent of Madison County's residents are white and the other counties have at least 93% of residents identifying as white. Residents identifying as Hispanic or Latino represent approximately 15% or less of the population in each county. Twenty-two to 25% percent of the population in these counties are under the age of 18, and 13.5-23.1% are over the age of 65.   Cuming County has the lowest percentages of residents with a high school degree or higher at 88.0%, and Stanton County has the highest percentage at 91.9%. The percentage of Nebraskans with bachelor's degrees is 29.3%. Comparatively, Madison County's percentage of residents with bachelor's degrees is 20.2%, with the other counties in ELVPHD's jurisdiction having percentages of residents with bachelor's degrees at lower than 20%. Median household income for these counties is around $50,000. This is similar to the state median at $52,997 and the national median at $53,889. Madison County has the

highest percentage of individuals living in poverty, at 13.8% of the population.
(United States Census Bureau, 2017).

It is important for efforts to reach and improve referral rates among providers it to understand who the practitioners are serving patients in this region. Within these counties, Madison County has the highest number of primary care providers at 75, with 26 of these individuals being medical doctors and the rest as nurse practitioners, physician's assistants, or similar providers (County Health Rankings and Roadmaps, 2017a) (County Health Rankings and Roadmaps, 2017b). Madison County also has the largest population and largest city in the jurisdiction, with the city of Norfolk having 30,768 residents (World Atlas, 2016a). The other counties are more rural, with smaller towns and fewer providers. For example, West Point is the next largest community with 4,862 residents and is located in Cuming County (World Atlas, 2016b). County-wide, Cuming County has a total of 8 providers, and less than half (n=3) are medical doctors. Burt County has 11 providers, with 7 medical doctors. Lastly, Stanton County does not report having any medical doctors, but does have 2 providers in the county. (County Health Rankings and Roadmaps, 2017a) (County Health Rankings and Roadmaps, 2017b).

The ultimate goal of this project was to increase the number of physicians willing to refer patients to the NDPP program and increase the number of potential patients identified and recruited to the NDPP initiative in that ELVPHD service area.

Methods

Research Question

What is the prevalence of prediabetes in each clinic, county, and overall within

Elkhorn Logan Valley Public Health Department's jurisdiction?

Study Design

Twenty-seven primary care clinics were identified in the ELVPHD service

area. All clinics were contacted to participate in both informational sessions about

the National Diabetes Prevention Program and electronic medical record data

collection for the purpose of identifying prediabetic patients and determining

prevalence estimates.

Informational sessions consisted of a brief explanation of the program

offered by the health department and a discussion on preferred methods of

referring patients, along with any other concerns or questions regarding the

program. Providers were also given information packets about the program and

allowed to look at course curriculum. The information packets consisted of a letter

to providers from the health educator teaching the courses (Appendix B), a fax

referral form (Appendix C), weight loss data from previous area DPP classes, step-

by-step CDC guides for point-of-care and retrospective identification and referral of

prediabetic patients, ELVPHD program flyers and postcards, and the CDC's self

screening tool for prediabetes. Components of the information packets were

reviewed and revised as necessary prior to inclusion. A PowerPoint presentation

was created to assist in presenting the information but was not used as most clinics

did not have the capability for showing the presentation and informational sessions were generally in small groups.

Provider surveys were mailed to all providers in the area prior to and following information sessions (Appendix A). Questions about provider knowledge of program, if providers were referring to the program, and if providers believed the program is beneficial were yes/no questions. Two additional question asked providers to write in any perceived benefits or drawbacks of the program. The post informational session survey included an additional write in question on preference of type of referral system. Write in answers were later categorized for analysis. Surveys were analyzed for changes in these areas from pre survey to post survey using Fischer's Exact Test for independence due to the small number of responses. Surveys were assumed to provide unpaired data as they were returned anonymously. Changes in number of referrals from providers following informational sessions were also tracked.

Querying of electronic medical records was identified as a source to identify eligible program participants and determine prevalence estimates. Clinics were asked to review medical records for patients aged 19 and above and identify prediabetic patients based on having a BMI greater than 24 and a blood test within the last year showing hemoglobin A1C of 5.7-6.4%, fasting glucose of 100 to 125 mg/dL, or plasma glucose of 140-199 mg/dL. Upon identification of individuals, clinics would provide a de-identified dataset containing age, gender, and race/ethnicity information. A sample size calculation for cross-sectional studies determined that approximately 350 records would need to be reviewed per county

to provide accurate prevalence estimates. Prevalence would be estimated first by clinic by determining the percentage of adults aged 19 or over with prediabetes out of all adults aged 19 or over with records at the clinic, and multiplying by 100,000. County and total area prevalence would be estimated through aggregating total numbers of patients aged 19 or older diagnosed with prediabetes, dividing by the total number of patients aged 19 or older seen at the clinics within the county or all clinics within the service area and multiplying by 100,000. Sociodemographic information would be summarized to provide insight into potential differences in prediabetes diagnosis among subpopulations.

ELVPHD Community Health Needs Assessment data from 2016 was also used to determine differences in diagnosis among subpopulations. Percentage breakdown by education and age was accomplished through estimation from graphs in the needs assessment, and percentages by income were shown in a table in the needs assessment. Counts within each category for education, age, and income were produced, and counts of participants that had been diagnosed with prediabetes were determined using these calculated counts and percentages of diagnosis by age, education, and income categorizations found in the needs assessment. Chi-squared tests for independence were then used to determine any significant difference in diagnosis between different sociodemographic groups.

Lastly, Elkhorn Logan Valley Public Health Department's neighboring health departments were contacted about providing any prediabetes prevalence data for their areas to use as a comparison to ELVPHD's data.

Results

Healthcare providers at 19 of 27 primary care clinics participated in informational sessions. Six of the nonparticipating clinics already provided some form of prediabetes education or counseling and did not feel a need to meet with us. The two other clinics declined our offer for providing the informational sessions. Initially, surveys were sent to 93 area providers. However, it was determined that the provider contact information compiled by the health department was out of date. Upon updating, it was found that there were only 75 primary care providers in the area, so post surveys were sent only to these 75 individuals. Of the 95 surveys sent out prior to informational sessions, 18 were completed and returned to the health department, producing a 19.3% response rate. When adjusting for the 75 individuals who could have actually completed the survey, this response rate increases to 24.0%. The response rate for post informational session surveys was 20.0%, with 15 providers returning a completed survey. Knowledge of the program increased from 38.9% to 53.3% following informational sessions. Prior to informational sessions, no area providers were referring patients to the program. This increased to one provider following the sessions. The percentage of providers believing that the program is beneficial decreased slightly after informational sessions from 83.3% to 78.6%. A smaller percentage of providers cited education, lifestyle modification, and prevention/management as benefits of the program following sessions, but a greater percentage specifically mentioned weight loss, exercise, and nutrition as benefits. Stated program drawbacks remained relatively the same with time commitment being the greatest concern both pre and post

informational sessions. No changes in knowledge, providers referring to the program, belief in the program being beneficial, or stated benefits or drawbacks were significant as shown in Table 1. Following informational sessions, one referred patient was actively involved in a DPP course. Prior to informational sessions, there had been no provider-referred patients in ELVPHD's DPP courses. Six providers indicated that they preferred the fax referral form that had been developed by ELVPHD or had no preference. One person indicated that an online referral system would work best. The eight other providers that returned the survey did not write an answer to this question.

		Pre-survey N (%)	Post-survey N (%)	P-value
Program Knowledge	Yes No	7 (38.9%) 11 (61.1%)	8 (53.3%) 7 (46.7%)	0.4067
Referring to Program	Yes No	0 (0.0%) 18 (100.0%)	1 (6.7%) 14 (93.3%)	0.2660
Believe Program is Beneficial	Yes No Maybe	15 (83.3%) 1 (5.6%) 2 (11.1%)	11 (78.6%) 3 (21.4%) 0 (0.0%)	0.2055
Program Benefits	Education Lifestyle Modification Prevention/Management Group Support Weight loss, exercise, nutrition	12 (75.0%) 4 (25.0%) 7 (43.8%) 5 (25.0%) 1 (6.3%)	5 (62.5%) 1 (12.5%) 3 (37.5%) 2 (25.0%) 3 (37.50%)	0.6466 0.6311 1.0000 1.0000 0.0909
Program Drawbacks	Time Travel Patient willingness	7 (46.7%) 4 (26.7%) 2 (13.3%)	5 (50.0%) 1 (10.0%) 2 (20.0%)	1.0000 0.6146 1.0000

Table 1: Provider surveys results before and after informational sessions

All area primary healthcare systems were contacted about conducting an electronic medical record query to determine program eligible patients for their main and satellite locations and providing sociodemographic information of these patients for analysis. Only one of the healthcare systems in the service area was able to provide any information from an electronic medical record query as of the writing of this document, although two systems are still determining their ability to contribute. Four healthcare systems, with a total of 13 clinics, were willing to provide information, but their electronic medical record system was unable to do an accurate query for prediabetes patients meeting program eligibility. Other healthcare systems did not provide information due to privacy rules or declination of research participation.

Dinklage Medical Clinic based out of West Point, Nebraska, did provide age, gender, and race/ethnicity information for patients that had a prediabetes diagnosis in 2017. Seventy-one patients had been diagnosed with prediabetes, and our contact person at this system estimated that the entire system contains charts for approximately 6,000 patients. This data produces a prevalence estimate of 1,183 individuals with prediabetes diagnosis per 100,000 population. Dinklage was not able to provide information on which clinic diagnosed patients were seen at, so a prevalence estimate could only be determined for the healthcare system as a whole. Additionally, out of six total clinics, three of these are outside of ELVPHD's service area. The three inside of the service area are in Cuming and Burt Counties. Out of the 71 patients diagnosed with prediabetes in this system, the median age was 68 with a range of 66. 60.6% are female, and 39.4% are male and 99% were classified

Dinklage Medical Center Prediabetes Patients Demographics

Cuming County Demographics
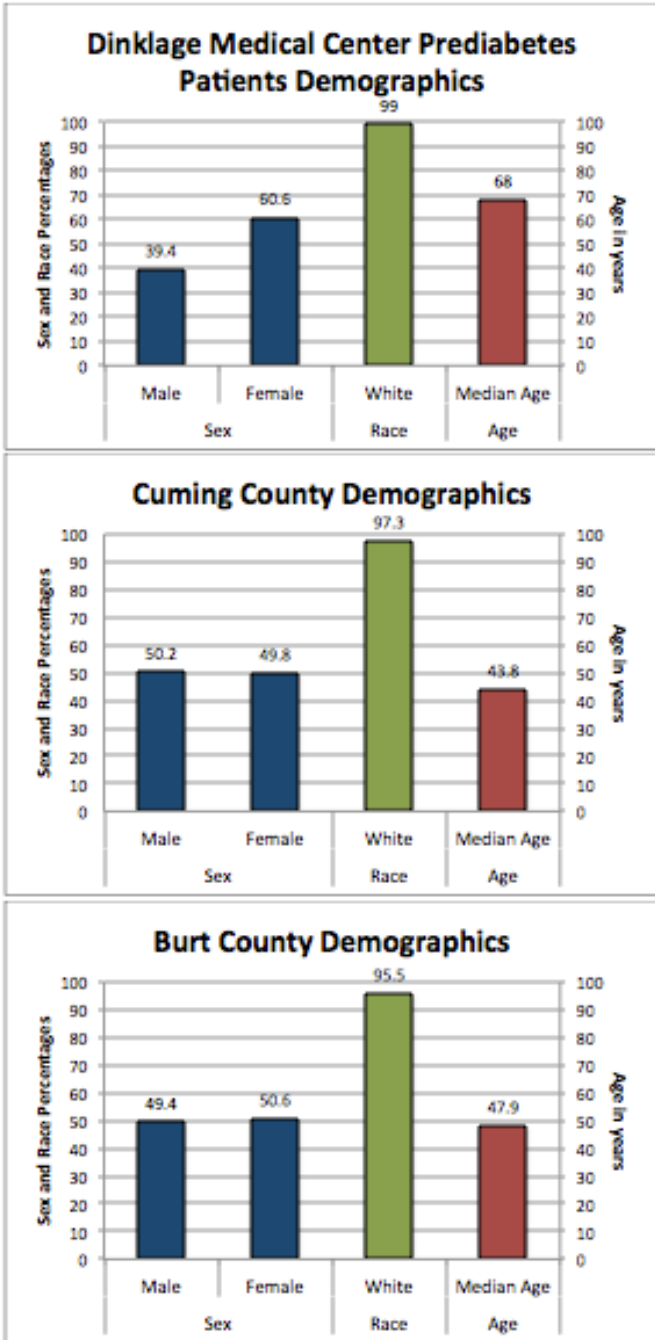
Burt County Demographics

Figure 1: Demographic data for Dinklage Medical Clinic prediabetic patients and Burt and Cuming Counties total populations

as white. Comparatively, US Census data shows that the median age for residents of Cuming County is 43.8 and of Burt County is 47.9. Census data also shows that Cuming County is 49.8% female and 50.2% male. Burt County is 50.6% female and 49.4% male. Lastly, 97.3% of Cuming County's residents' racial background is white, and 95.5% of residents are white in Burt County (United States Census Bureau, 2017). Demographic information for Dinklage Medical Center and Cuming and Burt Counties is shown in Figure 1.

ELVPHD's community health needs assessment had 1,480 survey participants. Of these, we estimated that 7.5% were between ages 18-24, 22.5% between 25-44, 22% between 45-54, 19.5% between 55-64, 20.5% between 65-74, and 8% aged 75 and above. Estimated educational attainment distribution was 3% completing less than high school, 15% completing high school, 23% completing some college, 44% completing a college degree, and 16% completing a graduate or professional degree. Income data showed that for needs

assessment survey participants, 4% earned less than $10,000 a year, 3% earned

between $10,000-14,999, 8% earned between $15,000-24,999, 9% earned between

$25,000-34.999, 12% earned between $35,000-49,000, 25% between $50,000-

74,999, 18% between

$75,000-99,999, 14% between $100,000-149,000, and 6% above $150,000.

ELVPHD reported that by age, 2.6% of 18-44 year olds reported having a

prediabetes diagnosis, compared to 8.1% of 45-64 year olds and 8.2% of those 65

and older. 6.1% of survey respondents stating an income of less than $25,000

reported having a prediabetes diagnosis, whereas prediabetes diagnosis among

those who earned $25,000-49,999 and those who earned $50,000 or greater had

prediabetes diagnoses of 4.9% and 4.3%, respectively. ELVPHD's data on

prediabetes divided educational attainment into three categories: less than high

school, high school/GED, and some college. 1.6% with less than a high school

education, 4.9% with a high school/GED attainment, and 7.5% with some college reported prediabetes diagnoses (ELVPHD, 2016). Determined counts from this data are shown in Table 2. Chi square testing determined a significant association between

	Prediabetes Diagnosis	No Prediabetes Diagnosis	P-value
Education Level			
< High School	1	43	
High School/GED	11	211	
Some College	26	315	0.2324
Income			
< $25,000	14	208	
$25,000-$49,000	15	296	
$50,000+	40	892	0.4421
Age			
18-44	12	432	
45-64	50	564	
65+	35	387	0.0004

Table 2: Chi square results of ELVPHD CHNA data

prediabetes diagnosis and age group (p=0.0004). There was no significant

association between educational attainment and prediabetes diagnosis or income

level and prediabetes diagnosis from this data.

Four health departments directly border ELVPHD. Although all were

contacted for data regarding prediabetes prevalence for comparison purposes, none

were able to provide any data.

Discussion/Recommendations

Although this project was a step in developing a provider network for the

Diabetes Prevention Program for Elkhorn Logan Valley Health Department, much

work still remains in continuing to promote, educate about, and implement the DPP

program in the area. This project demonstrated the association of increased age

with prediabetes diagnosis and that prediabetes is likely underdiagnosed in the

area. The informational sessions were not significantly effective in changing

knowledge or perceptions of the program.

This project contains limitations that should also be considered. Response to

the pre and post surveys around 20%, so results may not accurately represent the

knowledge and perceptions of area providers, especially in perceived benefits and

drawbacks, as there was a large amount of missing data for these questions.

Similarly, counts determined from the community health needs assessment data

may not be entirely accurate, as some percentages had to be estimated from graphs.

The education data, specifically, should be interpreted with caution, as prevalence

for individuals who had completed college or a graduate degree was not available,

which accounts for over 50% of the survey respondents. Certainly, the use of electronic medical records may also not be the most accurate way to determine prevalence, as many people with prediabetes may go undiagnosed or not regularly see a doctor at all. The prevalence estimate from Dinklage Medical Center likely underestimates the actual prevalence of prediabetes in Cuming and Burt Counties.

Many providers in the area may have gained knowledge of the program, but being able to remember to refer patients at the point-of-care is crucial. One provider, speaking about providing referrals to the program in the post-survey, mentioned, "will be hard in a busy practice like mine to remember to refer". Flyers and postcards were distributed for providers to keep in their offices, patient rooms, or waiting areas, but program promotion to both healthcare providers and patients may have to be addressed in a different way.

A number of the providers spoken to were also not aware of Elkhorn Logan Valley Public Health Department and the services it provides in the area. Improved and continued outreach by ELVPHD staff to local providers about all of ELVPHD's services may help foster the relationship between health department and healthcare facilities to increase program referrals, among other potential benefits. At this time, most clinics were not able to use electronic health records to provide data for the project. Further work should be done in collaboration with these clinics to be able to access records appropriately for use in identifying individuals for DPP and other programs offered by the health department. As more clinics complete the transition to electronic records, there will likely be increased opportunity to work with the health department in retrospectively identifying patients.

Although challenges exist, ELVPHD is dedicated to providing the NPPD program within its jurisdiction and has seen noticeable results from prior course offerings. ELVPHD is the only health district in northeast Nebraska that is actively promoting and delivering the Diabetes Prevention Program courses. Thus, further engagement of ELVPHD with peer departments may increase referrals and participation, especially at the 'edges' of the jurisdiction where there is flow of patients between jurisdictions.

ELVPHD is also currently working on offering the DPP course in Spanish, which should help engage more of the Hispanic population in this area. They should continue to try to reach all groups of their resident population in implementing this program. The department should also consider asking questions about prediabetes in their upcoming community health needs assessment as they have done in the previous assessment. Lastly, the department can continue to offer other programs that address nutrition, physical activity, and other healthful habits may be able to reduce the burden of prediabetes and prevent diabetes as well.

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Service Learning/Capstone Experience Reflection (Suggested discussion points)

Describe the experience with the placement site.

-What did you learn about the organization?

By working with Elkhorn Logan Valley Public Health Department, I learned that they offer more and a wider variety of services than I thought they did when I was a resident in the area. As I have discussed in my reflections thus far, I've learned that the staff are flexible in their roles and manage a variety of different tasks and projects.

-What was different than what you expected when you started the project?

I expected it to be much more difficult speaking with providers and doing the informational sessions. However, I learned that it really wasn't too difficult after the first few sessions. I think I assumed healthcare providers would be much more knowledgeable than me. Certainly they are in some areas, but I was the subject matter expert in this case. On the other hand, I expected the capstone activities to go much smoother, and didn't expect so much difficulty for healthcare organizations in using their EHR systems. I think I also expected more interaction with the health department as well; however, most of my activities were conducted offsite and did not require this interaction.

Describe how SL/CE activities were performed: what, where, when, with whom, how long, etc.

The main SL/CE activities were the informational sessions with providers. These took place at each individual clinic with as many providers as were available and lasted usually about 15 minutes. Not all the providers were available to speak with me at the same time at each clinic, so sometimes I just spoke to as many as I could while I was there or I came back a second time. I did the sessions by myself but was helped by Tayler and Tracy prior to doing the sessions. Tayler also did two sessions that I was not able to do myself.

Describe the product(s) (training manual, presentation, brochure, policy statement, database, etc.) that were outcomes of the Service Learning component.

The main product was to be the referral system, although it's not an actual tangible product. I wouldn't say we accomplished this completely, as there is still limited provider involvement in the program. However, this project was a start in the right direction in creating this "product".

-If a presentation was developed, for whom was the presentation developed?

A presentation was developed for use in the informational sessions, but ultimately was not used as clinics didn't have the ability to present it.

Related to your Service Learning activities, what do you think were your greatest contributions/accomplishments? What strengths did you bring into the project?

My greatest contribution of my service learning activities was conducting the informational sessions with providers and fostering that relationship between them

and the health department in regards to this program. To be honest, my greatest

strength was time. I had the time to drive out and do these sessions when it worked

for the different clinics, whereas someone working in the health department would

have had various things or potential scheduling conflicts keeping them from being

able to do the sessions. I was also very persistent which may have been annoying to

the healthcare systems, but eventually got me in to talk to the people I needed to

talk to.

What were the greatest challenges of your Service Learning/Capstone Experience?

I think the greatest challenge was trying to determine prevalence estimates

for the Capstone Experience. It was difficult for me to concisely explain to the

healthcare systems why I wanted access to some of their electronic health record

data. I also didn't expect so many systems to not want to participate without even

finding out more about the project or to just not respond to my attempts to contact

them.

-How did you address and overcome those challenges?

I continued to try to contact these systems through different people and in

different ways, including visiting many of the places in person when I phone and

email contact weren't working. I also started looking for additional data sources

that I could use instead of EHR data, which I found in the department's community

health needs assessment.

Appendix A

Provider letter from health educator

Elkhorn Logan Valley
Public Health Department
2104 21st Circle | P.O. Box 779
Wisner, NE 68791-0779

*Proudly serving Burt, Cuming,
Madison and Stanton Counties*

August 11, 2017

[Recipient Name]
[Company Name]
[Street Address]
[City, ST ZIP Code]

Dear [Recipient Name]:

Elkhorn Logan Valley Public Health Department has been hosting the National Diabetes Prevention Program (NDPP) classes in our service area since 2014. The NDPP, also known as Project: Healthier You, is an evidence-based, 16 week series of classes designed for individuals who have been diagnosed as pre-diabetic. NDPP has helped many people to not only lose excess pounds but also lower their diabetes risk. However, we know there is much more work to do. Therefore, we are reaching out to collaborate with clinicians to receive referrals into the program for their patients who meet the criteria and who would likely benefit from improving their BMI, A1C, nutrition and physical activity levels.

To begin building this collaboration, we would like to receive your input about the National Diabetes Prevention Program. Enclosed is a short 6-question survey about the NDPP which we would like for you to complete and return (in the enclosed envelope) by _____. Your time is greatly appreciated in completing this survey and we look forward to helping your patients adopt healthier lifestyles and prevent diabetes in our service area. Please contact me at 402-529-2233 if you have any questions about the survey or about NDPP.

Sincerely,

Tayler Hinrichs
Health Educator
Elkhorn Logan Valley Public Health
Enclosure

Appendix B

ELVPHD DPP Referral Form

Diabetes Prevention Program Referral Form

Patient Name: _____

Date of Birth: _____ Phone: _____

Medical Provider: _____

To qualify, participants must:
1. be at least 18 years of age; and
2. be overweight or obese (Body Mass Index >24); and
3. have prediabetes, as verified by a blood test.

Elkhorn Logan Valley Public Health

To be completed by health care provider

Body Mass Index
Height: _____ inches Weight: _____ pounds BMI: _____ kg/m² (Must be ≥25, ≥ 22 if Asian)

Pre-Diabetes Information (*check all that apply AND enter value*):
_____ Fasting plasma glucose (FPG) _____ mg/dL (100-125 mg/dL) or
_____ 2-hour plasma glucose (OGTT) _____ mg/dL (140-199 mg/dL) or
_____ Hemoglobin A1C _____ % (5.7%-6.4%)

Participation Information (*check one*)
I _____ DO _____ DO NOT recommend that this patient participate in ELVPHD's Diabetes Prevention Program where he/she will set goals to achieve a 7% weight reduction through changes in nutrition and physical activity (up to 150 minutes per week - equivalent to brisk walking).

Provider Signature: _____ Date: _____

Thank you for your referral!

Please fax the completed form to Tayler Hinrichs at 402-529-2211
Questions? Need more information? Call 402-529-2233

Elkhorn Logan Valley Public Health Department

Wisner Office (Main Office)	Norfolk Office	Tekamah Office
2104 21st Circle	302 W Phillip Ave Suite 100	1121 S 13th St.
Wisner, NE 68791	Norfolk, NE 68701	Tekamah, NE 68061

Update 4.2.18

Appendix C

Pre and post session provider surveys

NDPP Session Zero Survey

A

ELKHORN LOGAN VALLEY PUBLIC HEALTH DEPARTMENT

Name: _____ Clinic: _____

Date: _____

1) Are you familiar with the National Diabetes Prevention Program?

a) Yes
b) No

2) Are you currently referring clients to ELVPHD for the National Diabetes Prevention Program?

a) Yes
b) No

3) Do you feel that referring to this program would be beneficial to your client base?

a) Yes
b) No

4) If no, why?

_____

_____

_____

5) What do you perceive to be benefits of this program?

_____

_____

_____

_____

6) What do you perceive to be drawbacks of this program?

_____

_____

_____

_____

05/11/2017

B

ELKHORN LOGAN VALLEY PUBLIC HEALTH DEPARTMENT

1) Are you familiar with the National Diabetes Prevention Program?

    a. Yes
    b. No

2) Are you currently referring clients to ELVPHD for the National Diabetes Prevention Program?

    a. Yes
    b. No

3) Do you feel that referring to this program would be beneficial to your client base?

    a. Yes
    b. No

4) If no, why?

_____
_____
_____

5) What do you perceive to be benefits of this program?

_____
_____
_____
_____

6) What do you perceive to be drawbacks of this program?

_____
_____
_____
_____

7) What kind of referral system would work best for you?

_____
_____
_____

05/11/2017