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Utilization of Preventative Health Services by Nevadans with Disabilities

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Abstract: Health disparities are differences in access to health care, quality of health care and health outcomes observed between population-specific groups of people (Health Resources and Services Administration, 2000). Previous research has found that people with disabilities experience unequal access to preventative health care services. The purpose of this study was to conduct a secondary data analysis using data from the 2008 Behavioral Risk Factor Surveillance System (BRFSS) to determine differences in utilization of preventative health services between adults with and without disabilities in Nevada. Nevadans with disabilities were significantly more likely to have access to health insurance and to have seen a physician in the past year. Nevadans with disabilities were significantly more likely to engage in some preventative services (pneumonia and flu vaccination) and less likely to engage in other preventative services (pap in the past three years and dental cleaning in the past year). This may be the result of some preventative services being easily administered to patients whether they have disabilities or not (immunizations) while other preventative services are more difficult to administer to those with disabilities. Public health interventions are needed to address the unique needs of Nevadans with disabilities to ensure equal access to all recommended preventative health care services.

Key words: People with Disabilities, Health Care Disparities, Preventative Health Care Services

Introduction

In 2005, the US Census Bureau estimated that 54.4 million people in the United States had some form of disability with 34 million Americans having a severe disability (Brault, 2008). This represents a 4.7 million increase in the number of people in the US with a disability from 2000. In Nevada, 288,000 non-institutionalized people over the age of five report having a disability, equaling 12.9% of the population (Brault, 2008). This percentage is slightly less than the national percentage of 15.7%. The increasing number of people reporting disabilities is of concern for public health because people with disabilities have been identified in the literature as a

group that receives disparate health care (Dyke and White, 2009). Health disparities can be defined as the preventable population-specific differences in the presence of disease, health outcomes or access to health care (Health Resources and Services Administration, 2000). Previous research has found that people with disabilities have less access to some preventative health care (Haverkamp, Scandlin, Roth, 2004; Iezzoni, Davis, Soukup, 2002; Iezzoni, McCarthy, Davis, et al., 2000). Work by Rimmer (1999) suggests that engagement in preventative health care is more often limited by barriers in the environment than by the disability itself for people with disabilities.

The majority of studies regarding barriers to accessing preventative health care that people with disabilities encounter have been qualitative in nature (Barr, Giannotti, Van Hoof et al. 2009; Becker, Stuifbergen and Tinkle, 1997; Drainoni, Lee-Hood, Tobias et al. 2006; Kroll, Jones, Kehn and Neri, 2006; Mele, Archer and Pusch, 2005; Scheer, Kroll, Neri and Beatty, 2003). Categories and subcategories of barriers have emerged from the in-depth interviews with people with disabilities. Kroll, Jones, Kehn and Neri (2006), found that process, environment and equipment barriers often prevent patients with disabilities from engaging in preventative health practices. Process barriers included: medical providers lacking disability specific knowledge, unprofessional treatment by physician and staff, poor provider-patient communication and appointment scheduling issues. Environmental barriers include: inadequate disability parking, lack of ramps, doorways that were not wide enough and doors that were too heavy, and cramped examination and waiting rooms. Equipment barriers identified were too few practices with height adjustable exam tables or weight scales that could accommodate wheelchairs, and inaccessible diagnostic equipment (Kroll et al, 2006).

When people with disabilities encounter process, environmental or equipment barriers, disparities in utilization of preventative care emerge. Studies show that women with severe disabilities and/or major mobility problems were forty percent less likely to receive a papanicolaou (PAP) test in the past three years (OR 0.6, 95% CI 0.4 – 0.9) and thirty percent less likely to have had a mammogram in the past two years (OR 0.7, 95% CI 0.5 – 0.9) when compared to people without disabilities (Haverkamp, Scandlin, Roth, 2004; Iezzoni, McCarthy, Davis, et al., 2000). People with severe disabilities were less likely to receive tetanus shots ($p < .001$), to see a dentist (RR 2.1, 95% CI 1.7 - 2.6) or have their teeth cleaned (RR

2.2, 95% CI 1.6 – 2.8) (Iezzoni, Davis, Soukup, 2002).

Important preventative health information data is gathered through the Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS is an annual, national cross-sectional, random-digit dialing telephone survey that is conducted with non-institutionalized adults 18 years or older. Preventative health questions are part of the core component of the BRFSS questionnaire and are asked of every participant. In 2001, two disability questions became part of the core component of the BRFSS questionnaire. The two disability questions on the BRFSS include: 1) “are you limited in any way in any activities because of physical, mental or emotional problems?” and 2) “do you now have any health problem that requires you to use special equipment such as a cane, a wheelchair, a special bed or a special telephone?” (CDC, 2008).

Although health disparities that people with disabilities experience have been identified through analysis of BRFSS data (Armour, Thierry, Wold, 2009; Diab and Johnson, 2004; Havercamp, Scandlin, Roth, 2004), a thorough analysis of multiple preventative health services has not been conducted in Nevada. The purpose of this study was to use BRFSS data from 2008 to compare utilization of preventative services by participants with disabilities with participants without disabilities. The specific research question was: Did people with disabilities receive fewer preventative health care services than people without disabilities? Our hypothesis was that people with disabilities would report receiving fewer preventive services.

Methods

This study was a secondary data analysis of the 2008 Nevada BRFSS survey data. To provide an adequate sample size for smaller demographic areas in a state, disproportionate stratified sampling (DSS) was employed in the survey (CDC, 2008). Surveys were completed by trained interviewers who used computer assisted telephone interview software. The interview lasted approximately fifteen minutes and data was collected regarding demographics, health, preventive health, behavioral health risks, and chronic disease. After the data was collected, it was then weighted for population attributes and non-response (CDC, 2008).

In 2008, 4,771 Nevadans participated in the BRFSS survey. For the purpose of this study, data were analyzed comparing those who answered no to both

disability questions, and to those who answered yes to the disability question two – ‘Do you now have any health problems that require you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?’. Only question two was selected for identifying people with disabilities because previous research has shown a clearer link between people with mobility disabilities and health disparities (Iezzoni, McCarthy, Davis, et al., 2000; Havercamp, Scandlin, Roth, 2004; Jones and Sinclair, 2008). Participants answering yes to this question would be more likely to have mobility disabilities. In 2008, 459 participants answered yes to question two, 3425 answered no to questions one and two.

SAS 9.2 was used for the statistical analysis. Weighted descriptive statistics were performed to describe the characteristics of the population by gender, age, race, education, income and access to health care. Rao Chi square test was utilized to determine statistically significant differences in proportions of participants with disabilities compared to participants without disabilities with regard to descriptive statistics and preventative health behaviors using PROC SURVEYFREQ. A multiple logistic regression using PROC SURVEYLOGISTIC was utilized to calculate crude and adjusted odds ratios for dichotomous dependent variables for preventative health behaviors comparing participants with disabilities to participants without disabilities. Adjusted odds ratios included age, income, education, race, gender and access to health care as covariates. Variables and covariates used in this analysis were determined by previously published literature (Havercamp, Scandlin, Roth, 2004; Iezzoni, McCarthy, Davis, et al., 2000; Iezzoni, McCarthy, Davis et al., 2002, Prostate-Specific Antigen (PSA) Test, 2010; Recommendations for Early Detection of Cancer, 2010). Dependent dichotomous (yes/no) variables included flu vaccine in the past year (men and women 65+) and pneumonia vaccine ever (men and women 65+), mammogram ever (women 40+), mammogram in the past two years (women 40+), pap test ever (women 18+), pap test in the past three years (women 18+), prostate specific antigen (PSA) ever (men 40+), PSA in the past two years (men 40+), digital rectal exam ever (men 50+), digital rectal exam in the past two years (men 50+), and sigmoid / colonoscopy ever (men and women 50+).

Results

Descriptive statistics of the sample are provided in Table 1. Compared to participants without disabilities, participants with disabilities were significantly more

likely to have access to health care through insurance or an HMO (90.59 % compared to 77.11%; $\chi^2 = 16.92$, $p < 0.001$), to be in the fifty and older age group (71.45% compared to 34.38%; $\chi^2 = 82.69$, $p < 0.001$), and to be in the lower income versus higher income groups ($\chi^2 = 31.54$, $p < 0.001$). Both those with disabilities and those without disabilities had an approximately equal distribution of male and female participants and both groups reported a high prevalence of some college education (55.62% and 57.8% respectively). Compared to those without disabilities, people with disabilities reported a significantly higher proportion of White and other race and a significantly lower proportion of Hispanic participants ($\chi^2 = 30.58$, $p < .001$).

Table 1: Descriptive Statistics – People with Disabilities and People without Disabilities in Nevada, 2008

Variable	With Disabilities (n=459)	Without Disabilities (n=3425)	Rao-Scott χ^2	P
<u>Access to Health Care</u>				
Insurance	90.59	77.11	16.95	$P < .001^*$
Check-up – 12 Months	21.40	25.69	13.3	$P < .001^*$
<u>Gender</u>			0.93	$P = .34$
Male	48.27	52.17		
Female	51.73	47.83		
<u>Age</u>			82.69	$P < .001^*$
18-24	1.22	12.89		
25-49	27.33	52.73		
>50	71.45	34.38		
<u>Race</u>			30.58	$P < .001^*$
White	71.39	58.71		
Black	4.08	4.06		
Hispanic	7.32	26.52		
Other	17.11	10.71		
<u>Income</u>			31.54	$P < .001^*$
<\$20,000	28.38	12.53		
\$20K to <\$35K	21.94	19.68		
\$35k to <\$75K	27.89	32.10		
>\$75K	21.79	35.69		
<u>Education</u>			1.10	$P = .58$
< High School Grad	11.60	13.84		
High School Grad	32.45	29.13		
Some College	55.95	57.02		

* = Statistically Significant $p \leq 0.05$

Chi square statistics, crude odds ratios and adjusted odds ratios were calculated for preventative health services. Participants with disabilities over the age of 65 were significantly more likely to have had a flu vaccine (AOR 1.58, 95% CI 1.07 - 2.35), and a pneumonia vaccine (AOR 4.62, 95% CI 3.19 - 6.68). Women with disabilities were significantly more likely to have ever had a mammogram (AOR 3.96, 95% CI 2.05 – 7.66) and men with disabilities were significantly more likely to have ever had a PSA test (AOR 2.75, 95% CI 1.27 – 5.96). Participants with disabilities were significantly less likely to have had a dental cleaning in the past year (AOR .66, 95% CI .46 - .99). Women with disabilities were 48% (95% CI 0.29 - .81) less likely to have had a Pap test in the past three years (Table 2).

Table 2: Preventative Health Services - People with Disabilities Compared to People without Disabilities, Nevada 2008

Variable	Crude OR	Crude 95% CI	Adjusted OR	Adjusted 95% CI
Dental Cleaning	0.73	0.53 - 1.03	0.66*	0.46 - 0.99
Pneumonia Vaccine	5.33*	3.82 - 7.43	4.62*	3.19 - 6.68
Flu Vaccine	2.61*	1.90 - 3.58	1.58*	1.07 - 2.35
HIV Test Ever	1.14	0.74 - 1.75	0.95	0.59 - 1.53
Mammogram Ever	5.25*	2.94 - 9.39	3.96*	2.05 - 7.66
Mammogram Past Two Years	1.26	0.79 - 2.03	1.25	0.73 - 2.14
PAP Ever	1.53	0.73 - 3.24	1.10	0.40 - 3.03
Pap Past Three Years	0.35*	0.23 - 0.52	0.48*	0.29 - 0.81
PSA Ever	2.34*	1.16 - 4.74	2.75*	1.27 - 5.96
PSA Past Two Years	1.38	0.59 - 3.20	2.56	0.99 - 6.60
Digital Rectal Exam Ever	1.63	0.85 - 3.12	1.63	0.77 - 3.40
Digital Rectal Exam Past 2 Year	0.82	0.43 - 1.56	1.10	0.56 - 2.19

Discussion

The most important finding in this study was that Nevadans with disabilities were more likely to have had flu and pneumonia vaccination and to have ever had a mammogram or PSA test while being less likely to have had a Pap test in the past two years and dental cleaning in the past year. Participants 65 and older with disabilities were significantly more likely to have had flu and pneumonia vaccinations compared to participants without disabilities 65 and older. This is supportive of other work (Reichard,

Stolzle, Fox, 2010), and may be the result of participants with disabilities having greater access to health insurance and being significantly more likely to have seen their physician in the past year (Table 1). Regular contact with a physician increases the opportunity for vaccinations. This result may indicate an improved understanding of the importance of these vaccines for people with disabilities, both on the part of providers and patients.

Some previous studies have also found that women with disabilities were less likely to have had a mammogram (Armour, Thierry, Wolf, 2009; Havercamp, Scandlin, Roth, 2004), while others studies have not found a clear difference in mammography utilization (Iezzoni, McCarthy, Davis, 2000; Iezzoni, Davis, Soukup et al., 2002). The current study found that women (40+ years) with disabilities were equally likely to have had a mammogram in the past two years and significantly more likely to have had a mammogram ever. Additionally, men with disabilities (50+) were more likely to have ever had their PSA checked. Women with disabilities may have higher rates of mammogram ever and men with disabilities may have a higher rate of PSA test ever because they had significantly greater access to health insurance (Table 1) and were significantly more likely to be in the age bracket (Table 1) for which those test are recommended. Although qualitative studies with women with disabilities have identified inaccessible mammography equipment as a barrier to mammography, results from this study may indicate improvements in access to mammography for women with disabilities (Barr, Giannotti, Van Hoof et al. 2008; Becker and Stuifbergen, 1997; Mele, Archer, Pusch, 2005). Similar to flu and pneumonia vaccinations, PSA tests are easily administered to patients, whether the patient is a person with a disability or not. PSA tests and vaccinations do not require a patient to transfer to an examination table or other medical equipment, both of which have been found to be a limitation in access to some preventative services.

In this study, women with disabilities were 48% less likely to have had a pap test in the past three years compared to women without disabilities. This finding is consistent with other studies (Armour, Thierry, Wolf, 2009; Havercamp, Scandlin, Roth, 2004; Iezzoni, McCarthy, Davis, et al., 2000; Reichard, 2011). Qualitative studies with women with disabilities have identified the lack of height adjustable exam tables as a barrier to Pap test and other health services (Becker and Stuifbergen, 1997; Kroll, Jones, Kehn et al., 2006; Scheer, Kroll, Neri et

al. 2003). Other barriers include lack of disability knowledge on the part of providers or provider focusing solely on the patient's disability and not on other health care needs (Welner, 1998). Women with disabilities are often seen as asexual by the medical community and not a risk for cervical cancer (Schopp et al. 2002). Additionally, participants with disabilities were less likely have their teeth cleaned in the past year compared to those without disabilities. Rouleau et al (2011) found that people with disabilities were less likely to have had their teeth cleaned in the past year due to financial challenges and physical accessibility issues. People with disabilities in this study were identified as having a health condition that required they use special equipment, such as a cane or wheelchair. Although not specifically addressed by this study, these finding help to identify areas in which inaccessible equipment, such as exam tables and dental chairs, may product unequal access to preventative services for those with disabilities.

Findings from this study highlight the need for public health interventions that address the unique needs of people with disabilities in Nevada. Early diagnosis and intervention are paramount for reducing secondary conditions. While some preventative services are easily administered to people with disabilities, other preventative services are not. People with disabilities were significantly less likely to engage in preventative services that require a person to transfer (Pap test and dental cleaning) to an examination table or dental chair. Public health interventions are needed to ensure equal access to all recommended preventative health care services. Future research needs to focus specifically on health disparities that are experienced by disability type and severity. Additionally, continued research is needed to understand the reasons why barriers to health care services exist for the people with disabilities.

There were a number of limitations with this study. The BRFSS is a cross-sectional survey and therefore causation cannot be determined. There was also a possibility of bias resulting from self reported information. The participants may have over or under reported information if they perceived it to be a socially desirable response (Arnold, 1981). The BRFSS is a household telephone survey and in 2008 did not include cell phone numbers. People without a home telephone or those who use a cell phone as their home phone were excluded from the survey. There was no direct method for correcting for those who do not have a home telephone (CDC, 2008). People in lower income and socioeconomic groups are more likely to not have a home telephone and this

many have resulted in an underestimation of the true prevalence of disability in this group. The BRFSS does not include institutionalized adults which also may have led to an underestimation of disability in general.

The disability questions on the BRFSS do not provide information about severity of disability or type of disability. Because of this, it is not possible to determine if certain disabilities are more or less likely to influence the results. People with mobility limitations may be at a greater risk for not receiving preventative services than disabled people without mobility limitations. However, this cannot be determined with the current disability questions included on the BRFSS. Additionally, timing of disability in relation to participation in preventative services cannot be established. The preventative service (i.e. mammogram ever) may have occurred prior to the person becoming disabled.

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