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Medical Interpretation in Cache Valley Clinics

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MEDICAL INTERPRETATION IN CACHE VALLEY CLINICS

by

Blain Chaise Housley and Brandon Kay Shumway

Thesis submitted in partial fulfillment
of the requirements for the degree

of

DEPARTMENTAL HONORS

in

Spanish
in the Department of LPSC

Approved:

UTAH STATE UNIVERSITY
Logan, UT

~~Fall 2013~~
Spring ~~2013~~ 2013

Abstract

Interpretation by properly trained employees in a medical setting is an important part of ensuring quality care to Limited English Proficiency (LEP) patients. This study used surveys to assess the effective use of language resources in medical clinics in the Cache Valley area. The survey measured the number of interpreters and bilingual employees and the training that they have received as well as the perceived efforts of each clinic towards certain language service standards. The survey revealed a significant need for improvement and gave insight as to which activities future training efforts should be directed. Improvement in these areas will lead to improving the quality of care that LEP patients receive.

(*) Copy also appears
Fall 2012
under Brandon Shumway

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Introduction

In the United States in 2007, there were 55,444,485 people over the age of five that spoke a language other than English at home. Of those 55.4 million, 34,547,077 spoke Spanish in the home. Of these 34.5 million Spanish speakers, 29.1% reported their English speaking ability at “not well” or “not at all” (U.S. Census, 2010). The United States is considered the melting pot of the world. Many cultures from all around the globe are represented in this one country, which presents different types of problems as we try to live as one. It is apparent that many residents of the United States are not fluent in English which presents a potential problem in the quality of healthcare and language services provided by U.S. medical professionals, being a predominantly English speaking society. When communication barriers are present, the quality of received healthcare suffers. The lack of proper language services in health care reflects the main purpose of this study.

In the present study, we aimed to determine the quality of language services offered in Cache Valley clinics and to determine if there is a need for a training program to teach and certify bi-lingual employees and volunteers to become qualified medical interpreters. We hypothesized that the majority of the health clinics would be offering language services at a quality below the national standards.

Literature Review

The U.S. Census shows that the percentage of Americans over age five that speak a language other than English at home increased from 13.8% to 17.8% between 1990 and 2000 (U.S. Census Bureau, 2010). Similarly, the limited English proficiency (LEP) population rose from 6.1% to 8.1%, an increase by one-third, in that same period and one in ten Americans now

speaks Spanish at home (Ku & Flores, 2005). According to the 2010 census, ten percent of Cache Valley residents are of Hispanic or Latino origin, and 14.7 % of residents speak a language other than English at home (City-data, 2010). Thus the Spanish-speaking population of our nation is substantial, and Cache Valley is no exception.

Along with the growing numbers of Spanish speakers comes a number of challenges, among which is the challenge of providing culturally and linguistically appropriate health care services. Several studies have found that patients who cannot speak English well are less likely to receive error-free care and are at greater risk of not receiving preventive and other services (Gandhi et al., 2001; Hu & Covell, 1998; Woloshin, Schwartz, Katz, & Welch, 1997). For example, the National Healthcare Quality and Disparities Report (2010) found that Hispanics are half as likely as non-Hispanic whites to have a specific source of ongoing care and for people under 65 Hispanics are 2.7 times less likely to have health insurance (Casale, 2011).

It has also been shown that having professional interpreter services available increases the access that LEP patients have. One study found that a program of professional interpreter services can increase delivery of health care to LEP patients (Jacobs et al., 2001). Patients who used interpreter services had a significantly greater increase in office visits, prescription writing, prescription filling, and rectal exams than a control group. Disparities in rates of fecal occult blood testing, rectal exams, and flu immunization between Spanish-speaking patients and a comparison group were significantly reduced after the implementation of professional interpreter services (Jacobs et al., 2001).

Research done on ad hoc interpreting has revealed that using seemingly proficient but non-qualified Spanish interpreters greatly increases medical errors (Gadon, Balch, & Jacobs, 2007). In a study by Ku and Flores (2005), audiotape of a pediatric clinic revealed that ad hoc

interpreters made mistakes such as omitting questions about drug allergies, and instructions on taking prescription medicine (Ku & Flores, 2005). In one case, a paramedic, who had not received proper training in medical interpretation, interpreted the statement of a young Hispanic boy as “intoxicated” when in reality by saying “intoxicado,” the patient meant “nauseated.” As a result, the boy received drug abuse treatment for several days until he eventually suffered from a ruptured brain aneurysm. He was awarded \$71 million in a lawsuit after he ended up as a quadriplegic (Ku & Flores, 2005).

The question of national certification for healthcare interpreters is being raised more and more frequently. States, language agencies, and academic institutions are making valuable headway in developing assessment instruments, with the end goal of quality assurance. In Nebraska for example, Members of the Refugee Task Force in Omaha, the Douglas County Health Department, and the College of Saint Mary are currently leading an initiative to design an assessment tool to verify at least a minimum skill level in Nebraska healthcare interpreters (Kenny, 2008). In a statewide survey of medical interpreters in Nebraska it was found that, in the interpreters opinion, 48% of health care facilities were doing a poor, inadequate, or fair job in offering interpretive services to LEP patients, hiring bilingual staff, informing LEP patients of their right to an interpreter, ensuring family and friends are not interpreting, and displaying signs and providing health documents in multiple languages. Some findings were particularly disturbing, such as the response of one Nebraska health care facility nurse when asked to participate in this study: “We don’t have interpreters... our Mexican cleaning lady interprets for us when necessary” (Kenny, 2008, pg 58).

In addition to the motives to provide adequate interpretation services listed above there are also legal requirements in place. Title VI of the 1964 Civil Rights Act has been interpreted by

the U.S. Supreme Court to equate discrimination based on language to discrimination based on national origin. In 1980 the United States Department of Health and Human Services (USDHHS) issued a notice saying that, "No person may be subjected to discrimination on the basis of national origin in health and human services programs because they have a primary language other than English" (Chen, Youdelman, & Brooks, 2003, pg 1377). In December 2000, the Office of Minority Health (OMH) created national standards for culturally and linguistically appropriate services (CLAS) to a diverse patient base (USDHHS, 2001). As a result, not providing adequate interpreting services is a form of discrimination as recognized by the U.S. Department of Health and Human Services, which developed a set of mandates and guidelines for culturally and linguistically appropriate services. Earlier that year President Clinton issued Executive Order 13166, which requires that all agencies receiving Federal funding (which includes Medicaid and Medicare) prepare a plan to improve access by LEP persons. Health care providers who do not comply may be denied federal funding and may receive heavy fines.

Tragedies that can come from critical lapses in provider-patient communication are avoidable. This should be especially true in an area where so many people do speak Spanish and English fluently. In our survey, we aimed to gauge the adequacy of the medical interpretation services available in Cache Valley and to assess the need for a program which would better train medical interpreters. We also hoped to raise awareness of the need for professional medical interpreter programs. With proper training and interpreting programs in place, Cache Valley could have the potential to serve as an example to other communities nationwide who are seeking ways to provide culturally and linguistically appropriate health services to a growing Hispanic population.

Methods

To determine the quality of language services, all twelve independent medical clinics in Cache Valley were identified to participate in this study. Clinics associated with Logan Regional Hospital were not included in the study because of the reputable language program that is already in place. Receptionists and managers, who were familiar with the language services provided at their place of employment, were asked to participate in the study by completing a self-report survey (see Appendix A). Managers completed eight of the twelve surveys with the remaining four being completed by receptionists. A hard copy of the survey was dropped off at each clinic in person along with a letter of information describing the procedure, risks, benefits, and confidentiality of the study. The surveys were picked up within 24 hours after they were dropped off. Both the survey and letter of information were approved by the Institutional Review Board (IRB) at Utah State University (see Appendix B and C).

Instrumentation

The questions on the survey aimed to assess the quality of language services offered. The goal of the survey was to gain information about who interprets, the training they have, and the efforts that are being made to ensure the availability of displayed signs and documents in multiple languages. The survey asked the employment status of the survey participant and how long they had worked there. It asked the number of bi-lingual employees and the type of interpretation training, if any, they had. It continued by asking how many medical interpreters, not including bi-lingual employees, work at the facility and what type of training they had. The survey ended asking the participant to rate on a scale of 1 to 5, 1 being poor and 5 being excellent, the organization's efforts being made in five areas. First, informing limited English-

proficient patients of their right to an interpreter free of charge. Second, hiring interpreters in addition to bi-lingual health providers. Third, Displayed signs in multiple languages for patients to see. Fourth, making health documents readily available in multiple languages for patients. Fifth, making sure patients have a professional medical interpreter rather than allowing family and friends to interpret (see Appendix A). Answers from each question on the survey were then grouped together and used to make percentages from the data (see Results).

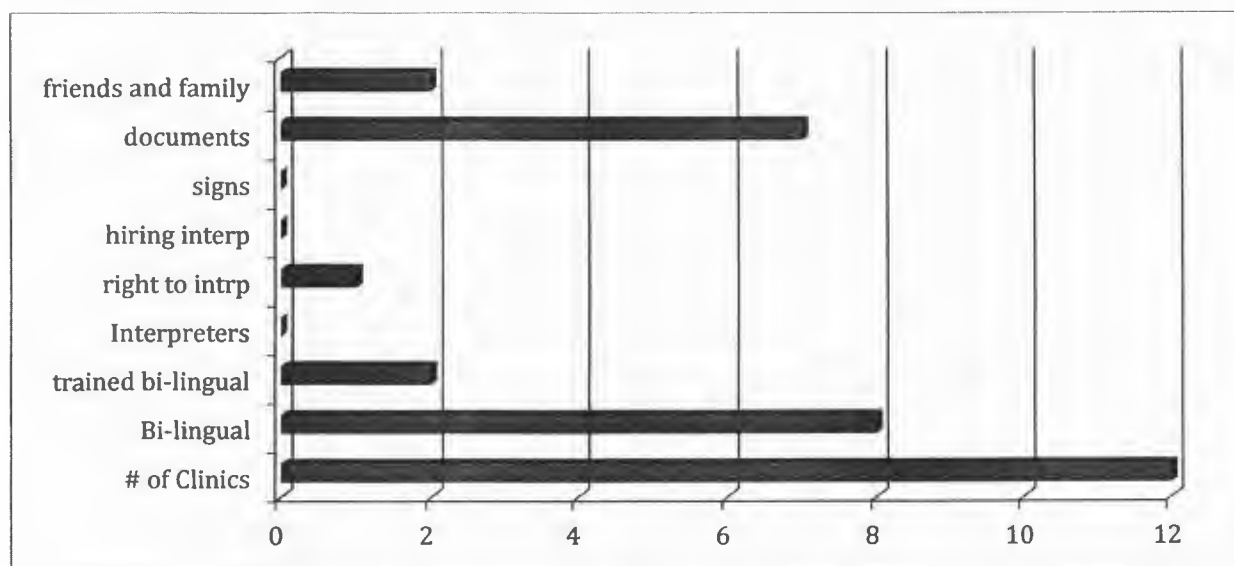
The survey questions were developed based on other studies done that had used surveys to determine the quality of interpretation by medical interpreters (Kenny, 2008). These questions were taken and, if needed, modified to apply to the goal of this study in which all of the twelve identified clinics participated, resulting in zero attrition.

Results

We received 100% responses from the clinics that we approached for a total of twelve clinics. Our survey participants included office managers (66%) and receptionists (33%) who self-identified as having accurate knowledge of language services for the given clinic. Among these participants 33% had worked in the clinic for longer than 10 years, 33% had between 5-10 years and the remaining third had less than 5 years. Although none of the clinics reported having any interpreters, 8 out of twelve clinics (66%) reported having at least one bilingual employee and 2 of those clinics (16.7%) had at least one bilingual employee who had received some training in interpreting. The frequency chart below shows the response on the second section of the survey:

5 (excellent) to 1 (poor)	Informing LEP patients of their right to an interpreter	Hiring bilingual health providers in addition to interpreters	Signs displayed in Spanish for patients to see	Making health documents readily available in Spanish for patients	discouraging interpretation by family and friends
5	1	0	0	5	1
4	0	1	0	2	1
3	1	1	1	0	0
2	2	0	2	1	1
1	8	10	9	4	9

The first five bars in the graph below show the number of clinics with a response greater than three. The next three indicate at least one person in the clinic who falls in that category.



Discussion

The results that we received from our survey were insightful in a few different ways both providing support and further direction for our original hypothesis that cache valley clinics are not providing adequate language services. We were pleasantly surprised however, to find that

the majority of the clinics had bilingual employees (66%) and provided bilingual documents (58.3% reported good or excellent rating in this area). The first of these findings may possibly be a result of the relatively high percentage of bilingual adults in the area due to former Latter-day Saint missionaries, many of whom speak a second language. This is encouraging because it shows that the resources available support the potential that this area has to provide appropriate language services for LEP patients in Cache Valley. However, language competency does not always equal cultural competency. The findings about provision of bilingual documents was explained by the comment of one survey participant who informed us that the clinic has all their documents in Spanish because the drug companies that supply their documents are legally required to provide them in both languages. However this report leads us to be concerned about the lack of effort of the other 42.7% of the clinics if supplying these documents is truly such a simple matter. More research is needed to determine what barriers exist for clinics to provide educational materials in other languages.

Other than these two aspects, however, our hypothesis was generally supported. None of the clinics employed interpreters, only one clinic (8.33%) reported informing their Spanish speaking patients of their right to an interpreter and only two clinics (16.7%) discouraged family and friends from interpreting for the patient. Only two of the employees (16.7%) had any professional language training and none of the clinics provided interpreters for LEP patients as is required by federal mandate (albeit an unfunded mandate). One survey participant remarked that they did not have anyone who spoke Spanish but that "we usually just have them (the LEP patients) bring in a family member who can translate for them." Although this is specifically discouraged by CLAS standards and by privacy laws, from our conversations with employees at

other Cache Valley clinics, the general consensus seems to be that it is the only financially reasonable solution to the language barrier.

Conclusion

The root problem behind lack of language services available seems to be the gap between what is recognized as an ethical and legal responsibility of these clinics and what is financially reasonable. One possible solution for this is a change in healthcare policy that would provide adequate compensation from insurance companies and federal aid for language services. This, along with other budget balancing efforts would be long term solution, however steps such as these may take many years to resolve and will depend on a complex combination of factors that affect our policy makers in their decision making process. We must still emphasize the importance of these changes and of overcoming any obstacles toward providing adequate health care for LEP patients. Malpractice issues and higher costs due to inadequate communication are real risks to those clinics who continue under current conditions.

In the meantime we propose two means of providing a temporary bridge over that financial/ethical gap. The first proposal is to better use the abundant resource of bilingual employees which were identified in our survey. The first step will be organizing training for those bilingual employees already working in the clinics. It could be a Saturday seminar that would focus on medical terminology, interpretation logistics, common interpretation errors made and the CLAS standards. This would help improve upon some of the efforts already being made and could help raise awareness of things like bilingual documentation and LEP patients' right to an interpreter.

The second proposal is the formation of a group of Spanish speaking USU students or community members who would be willing to attend these same trainings and volunteer their time in the clinics that have no bilingual employees or those clinics that would need additional help. These efforts would be coordinated by a student who would be the contact for those clinics. This would allow exposure to the medical environment for many pre-health students while providing a vital resource for these clinics. One issue which would need to be addressed is the legal protection for those volunteers. Volunteer interpreters should be protected under Utah's Good Samaritan Act which prohibits legal consequences for volunteers.

We feel that these two proposals would be a logical application of the resources available to the needs of our community. Implementation of these two ideas will lead to improved care for LEP patients and possibly increase the access that the local Hispanic community has to services such as primary care and preventative medicine. In our study we have identified a definite need and we hope that through these proposed efforts to help improve the quality of healthcare in Cache Valley.

Authors' Biographies

Brandon Shumway grew up in Blanding, Utah and graduated from San Juan High School in 2007. He attended USU as a Dean's scholar for one year before serving an LDS mission. Upon returning to school he added a Spanish major to his pre-medical class work and began working as a Spanish medical interpreter at Logan Regional Hospital. He has also been involved in research involving Latino families and helped to publish a workbook for Latino couples entitled *Relaciones Latinas de parejas Fuertes*. He is a pre-health specialist for peer advising and helps to lead the pre-SOMA club. He has also travelled with his wife Sirisha on humanitarian

projects in her hometown Hyderabad, India where they led several projects to improve sanitation and general health in the Hyderabad slums.

After graduating in December 2012, Brandon plans on applying for medical school and while waiting for acceptance he plans on returning to India to volunteer in rural clinics for a non-profit group called the LEPRO Society.

Blain Chaise Housley was born on January 5th, 1988 in Logan, Utah. He graduated from Sky View High School in Smithfield, Utah in 2006. From 2007-2009 Chaise served an LDS mission in Rosario, Argentina. Upon his arrival from the mission, he began school as a Presidential Scholar at Utah State University. He also volunteered as a medical interpreter for Logan Regional Hospital, which sparked his interest in the quality of language services offered elsewhere in Cache Valley. Chaise is the president of Medical Unity, a club on campus which helps prepare future healthcare providers operate in a multicultural environment. He is a member of Golden Key International Honour Society and the USU Honors program. Chaise is a Spanish major and a chemistry minor with plans to graduate in May of 2013. After graduation, Chaise hopes to attend and graduate from medical school.

References

- Casale, C. R., (2011, March). *Disparities in healthcare quality among racial and ethnic minority groups: Selected findings from the 2010 national healthcare quality and disparities reports*. Retrieved from <http://www.ahrq.gov/qual/nhqrd10/nhqrdminority10.htm>
- Chen, A. H., Youdelman, M.K., & Brooks, J. (2003). The legal framework for language access in healthcare settings: Title VI and beyond. *The Annals of Thoracic Surgery*, 76(4), 1377-1381.
- City-data. (2010). *Cache county, utah (ut)*. Retrieved from http://www.city-data.com/county/Cache_County-UT.html
- Gadon, M., Balch, G.I., & Jacobs, E.A. (2007). Caring for patients with limited English proficiency: The perspectives of small group practitioners. *Journal of General Internal Medicine*, 22(Suppl 2), 279-80.
- Gandhi, T. K., Burstin, H. R., Cook, E. F., Puopolo, A. L., Haas, J. S., Brennan, T. A., & Bates, D. W. (2001). Drug complications in outpatients. *Journal of General Internal Medicine*, 15(3), 149-154.
- Hu, D.J., & Covell R.M. (1998). Health care usage by hispanic outpatients as a function of primary language. *Western Journal of Medicine*. 144(4):490-493.
- Jacobs, E.A., Lauderdale, D.S., Meltzer, D., Shorey, J.M., Levinson, W., & Thisted, R.A. (2001). Impact of interpreter services on delivery of health care to limited-English-proficient patients. *Journal of General Internal Medicine*. 16(7), 468-474.
- Kenny, A. M. (2008, January). *Interpreters speak out, nebraska language access survey*. Retrieved from <http://dhhs.ne.gov/publichealth/Documents/InterpretersSpeakOut1-08.pdf>
- Ku, L., & Flores, G. (2005). Pay now or pay later: Providing interpreter services in health care. *Journal of Health Affairs*. 24(2), 435-444.
- U.S. Census Bureau. (2010). *Language use and English-speaking ability: 2000*. Retrieved from <http://www.census.gov/prod/2003pubs/c2kbr-29.pdf>
- United States Department of Health and Human Services (USDHHS)-Office of Minority Health (OMH). (2001). *Office of minority health's recommended national standards for culturally and linguistically appropriate services in health care*. Retrieved from https://cccm.thinkculturalhealth.hhs.gov/PDF_Docs/CLAS_Standards.pdf
- Woloshin, S., Schwartz, L.M., Katz S.J., & Welch, H.G. (1997). Is language a barrier to the use of preventative services. *Journal of General Internal Medicine*. 12(8):472-477.

Appendix A
Medical Interpretation in Cache Valley

What is your employment status at this clinic?

- 1) Receptionist
- 2) Manager
- 3) Nurse
- 4) Doctor
- 5) Other _____

How long have you worked here?

- 1) 0-1 years
- 2) 1-2 years
- 3) 2-5 years
- 4) 5-10 years
- 5) 10 or more years

How many bi-lingual (English and Spanish) employees work at this facility?

Of those bi-lingual employees, how many have had training specifically for medical interpreting?

If you have one or more bi-lingual employees who have been trained, what kind of training was it? – *Circle all that apply*

- 1) On-the-job training
- 2) Course or Seminar
- 3) Other _____
- 4) None

How many medical interpreters, not including bi-lingual employees, work at this facility?

Have your interpreters had training specifically for medical interpreting?

1) Yes

2) No

If yes, what kind of training was it? – *Circle all that apply*

1) On-the-job training

2) Course or Seminar

3) Other _____

4) None

Have your interpreters had any other interpreter training not specifically medical?

1) Yes

2) No

From your experience at this health organization, please rate the organization's efforts being made in the following areas: *Mark with an X from 5 (excellent) to 1 (poor).*

	5	4	3	2	1
Informing limited English-proficient patients of their right to an interpreter free of charge?					
Hiring interpreters in addition to bi-lingual health providers?					
Displayed signs in multiple languages for patients to see?					
Making health documents readily available in multiple languages for patients?					
Making sure patients have a professional medical interpreter rather than allowing family and friends to interpret?					

Appendix B

Institutional Review Board

USU Assurance: FWA#00003308

Exemption #2

Certificate of Exemption

FROM: Richard D. Gordin, Acting IRB Chair
True M. Rubal, IRB Administrator
To: Julie Gast, Brandon Shumway, Blain Housley
Date: March 08, 2012
Protocol #: 4293
Title: Medical Interpreting In Cache Valley

The Institutional Review Board has determined that the above-referenced study is exempt from review under federal guidelines 45 CFR Part 46.101(b) category #2:

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (a) information obtained is recorded in such a manner that human subjects can be identified, directly or through the identifiers linked to the subjects; and (b) any disclosure of human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

This exemption is valid for three years from the date of this correspondence, after which the study will be closed. If the research will extend beyond three years, it is your responsibility as the Principal Investigator to notify the IRB before the study's expiration date and submit a new application to continue the research. Research activities that continue beyond the expiration date without new certification of exempt status will be in violation of those federal guidelines which permit the exempt status.

As part of the IRB's quality assurance procedures, this research may be randomly selected for continuing review during the three year period of exemption. If so, you will receive a request for completion of a Protocol Status Report during the month of the anniversary date of this certification.

In all cases, it is your responsibility to notify the IRB prior to making any changes to the study by submitting an Amendment/Modification request. This will document whether or not the study still meets the requirements for exempt status under federal regulations.

Upon receipt of this memo, you may begin your research. If you have questions, please call the IRB office at (435) 797-1821 or email to irb@usu.edu.

The IRB wishes you success with your research.

4460 Old Main Hill Logan, UT 84322-4460 PH: (435) 797-1821 Fax: (435) 797-3769
WEB: irb.usu.edu EMAIL: irb@usu.edu

Appendix C



Department of HPER
7000 Old Main Hill
Logan UT 84322-7000
Telephone: (435) 797-1490



LETTER OF INFORMATION *Medical Interpretation in Cache Valley Clinics*

Introduction/ Purpose Dr. Julie Gast and students Blain Chaise Housley and Brandon Shumway at Utah State University are conducting a research study to find out more about medical interpretation services available in Cache Valley. You have been asked to take part because of your knowledge about interpretation services in this clinic. There will be approximately 12 total participants in this research.

Procedures If you agree to be in this research study, you will be asked to fill out a 10 minute survey one time on medical interpretation at your clinic. On the day we drop off the survey we will schedule a time to come back and pick it up. The total time required is the five minutes to fill out the survey and possibly another five minutes for us to drop it off and pick it up for a total of ten minutes of participation.

Risks Participation in this research study may involve minimal risks or discomforts. You may feel uncomfortable giving information about yourself or your workplace. We will minimize these risks by maintaining anonymity of all responses.

Benefits With this study, we hope to assess the need for a program which would better train medical interpreters. The information gained from this study has the potential to indirectly benefit clinics in Cache Valley by encouraging a future program to be established which could provide improved language services in health care settings.

Explanation & offer to answer questions Chaise Housley or Brandon Shumway has explained this research study to you and answered your questions. If you have other questions or research-related problems, you may reach (PI) Dr. Julie Gast at (435) 797-1490.

Voluntary nature of participation and right to withdraw without consequence Participation in research is entirely voluntary. You may refuse to participate or withdraw at any time without consequence or loss of benefits. You may be withdrawn from this study without your consent by the investigator.

Confidentiality Research records will be kept confidential, consistent with federal and state regulations. Only the investigator and student researchers will have access to the data. To



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LETTER OF INFORMATION
Medical Interpretation in Cache Valley Clinics

protect your privacy, personal, identifiable information will not be asked for. All information will be destroyed by the end of this study, tentatively 5/2/12.

IRB Approval Statement The Institutional Review Board for the protection of human participants at Utah State University has approved this research study. If you have any questions or concerns about your rights or a research-related injury and would like to contact someone other than the research team, you may contact the IRB Administrator at (435) 797-0567 or email irb@usu.edu to obtain information or to offer input.

Investigator Statement "I certify that the research study has been explained to the individual, by me or my research staff, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised have been answered."

Signatures of Researchers

Julie Gast, PhD
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