

# **AAC STRATEGIES FOR USE WITH LIMITED ENGLISH PROFICIENCY HOSPITALIZED PATIENTS.**

Richard Hurtig Ph.D., Emily Czerniejewski M.A., Jiyoung Na M.A.,  
Laura Bohnenkamp M.A. CCC-SLP, Debora Downey M.A. CCC-SLP &  
Lauren Zubow M.A. CCC-SLP

The University of Iowa

ASHA 2012

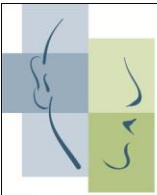
Atlanta

Conflict of Interest Disclosure:

The authors do not have any financial or contractual relationship with any  
commercial developer or vendor

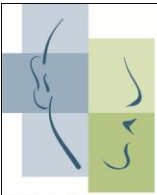
---

*Assistive Devices Lab at The University of Iowa*



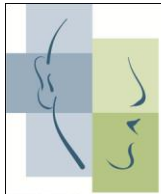
# SCOPE OF PROBLEM

- **20%** of the US population over the age of five does not speak English in the home.
- Approximately **44%** of these individuals rated their English proficiency as less than “very well”.
- Number of individuals who might have limited English proficiency (LEP) is **24,395,573**.
- The census of US hospitals revealed an average daily inpatient census of **641,000**.
- Thus over **128,000** of the daily inpatient population would fall into the LEP group and require professional interpreter services.



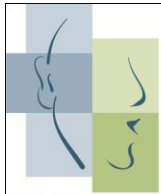
# A CASE EXAMPLE

- The University of Iowa Hospitals & Clinics
  - 729 staffed beds
  - 30,982 acute care admissions in 2008-09,
  - average length of stay of 6.33 days
- In 2010, UIHC provided
  - 11,772 translation services
  - 37 different languages.
    - Spanish accounted for 74%
    - Sign Language(ASL, SE & SEE) accounted for 9%



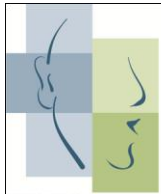
# CHALLENGE AND RESTRICTIONS

- Providing quality professional interpreting services for a wide range of languages
- Some hospitals need to rely on phone and video services for less frequently spoken languages.
- Professional interpreters cannot be at the bedside around the clock to interpret most of the interactions between the patients and their nurses.
- Many hospitals have instituted rules that
  - preclude the use of family members, children
  - bar cyber translation applications (e.g. Babel Fish) because of the high risk of translation errors



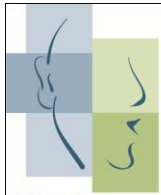
# CONSEQUENCES OF POOR PATIENT-PROVIDER COMMUNICATION

- Inadequate patient-provider communication is responsible for a range of adverse events including death .
- LEP patients were almost twice as likely to experience adverse events (49.1%).
  - **52.4% of these adverse events were likely the result of errors in communication.**
- The Joint Commission has set standards requiring hospitals to address the communication needs of all patients (JC, 2010; Blackstone et al., 2011a).



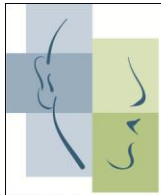
# THE ROLE OF THE SLP

- The role of the Speech Language Pathologist in meeting the communication needs of all patients should include solutions for the growing LEP population
- Speech generating AAC devices can offer LEP patients a means of communicating with their caregivers and to more actively participate in their care.



# UNIVERSITY OF IOWA BILINGUAL TEMPLATES

- We developed bilingual templates for use with low to high tech AAC devices and on tablets like the iPad.
- These templates were developed to specifically enhance the patient-nurse bedside interactions.
- The templates cover a range of material from vital signs, bedside cares, and pain management to feelings and emotions.
- The content was developed with input from patients, nurses and family members.

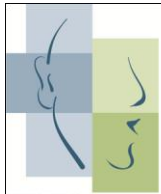


# University of Iowa

## Bilingual Templates

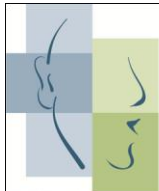
- Each template is divided into a patient and a nurse/caregiver part.
  - On the patient's side the individual selections (buttons) are labeled in the patient's language and when selected produce the professionally translated English equivalent.
  - On the caregiver's side the buttons are labeled in English and when selected produce the professionally translated version in the patient's language





# TEXT-TO-SPEECH VERSUS DIGITIZED SPEECH AND SIGN LANGUAGE VIDEOS

- Use a text-to-speech (TTS) engine if it is available in the patient's language.
- If no TTS engine is available, we have made native speaker audio recordings of the translated phrases.
- For Deaf patients we created an application that displays the signed translation of the selected template phrase.



# IOWA BILINGUAL TEMPLATE

D Y N A V O X

CARE POSITION FEELINGS FOOD FAMILY & FRIENDS ENTERTAIN

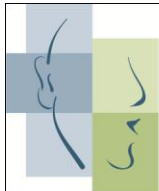
CARES VITALS CARE MGMT

IV FEEDING TUBE CATHETER SUCTION BREATHING TUBE CERVICAL COLLAR DIAPER RESTROOM PRESSURE CUFFS? CUFFS OFF? INTERPRETER

IV FEEDING TUBE CATHETER SUCTION EMPTY URINE BAG CHANGE URINE BAG EMPTY COLOSTOMY ADJUST CERVICAL COLLAR DIAPER PRESSURE CUFF

YES NO

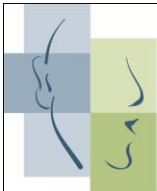
Start DynaVox - Series 5 1:49 PM



# BILINGUAL TEMPLATE

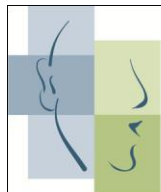
## SGD DEVICES AND iPad APPS

VITALS	POSITION	CARES	FEELINGS	FOOD	CARE MGMT	FAMILY	ENTERTAIN
<b>VITALS</b> 	<b>TEMPERATURE</b> 				<b>CHECK VITALS</b> 	<b>BLOOD SUGAR</b> 	
<b>BLOOD PRESSURE</b> 	<b>MEDICINE</b> 				<b>TEMPERATURE</b> 	<b>BLOOD</b> 	
<b>ICE CHIPS</b> 					<b>SHOT</b> 	<b>MEDICINE</b> 	
					<b>ICE CHIPS</b> 		
<b>INTERPRETER</b> 			<b>YES</b>	<b>NO</b>	<b>HIGH</b>	<b>NORMAL</b>	<b>LOW</b>

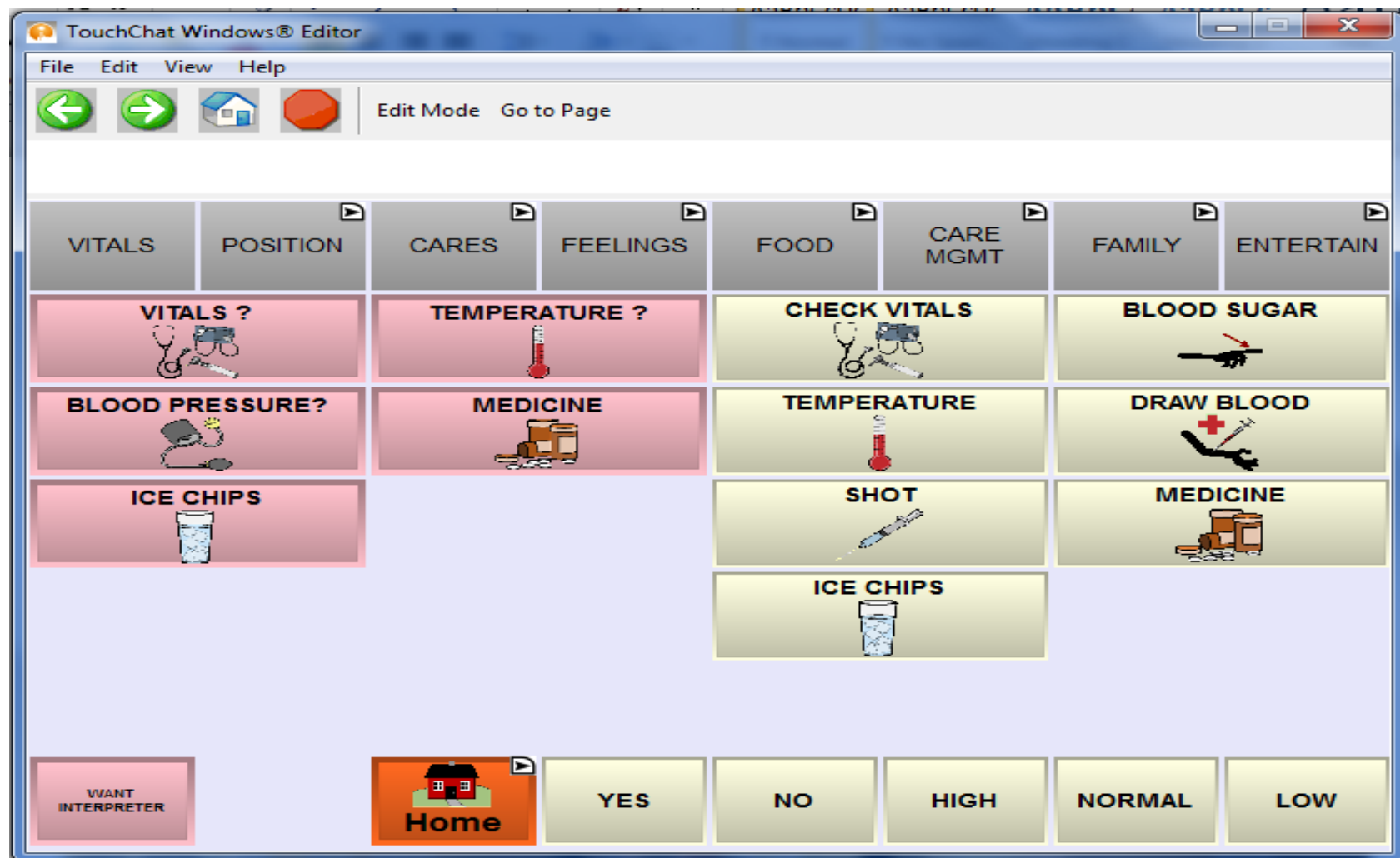


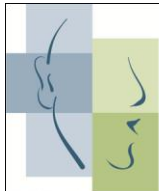
# TEMPLATE FOR DEAF SIGNING PATIENTS

VITALS		POSITION	CARES	FEELINGS	FOOD	CARE MGMT	FAMILY	ENTERTAIN
<b>VITALS</b> 	<b>TEMPERATURE</b> 					<b>CHECK VITALS</b> 	<b>BLOOD SUGAR</b> 	
<b>BLOOD PRESSURE</b> 	<b>MEDICINE</b> 					<b>TEMPERATURE</b> 	<b>BLOOD</b> 	
<b>ICE CHIPS</b> 						<b>SHOT</b> 	<b>MEDICINE</b> 	
						<b>ICE CHIPS</b> 		
<b>INTERPRETER</b> 			<b>YES</b>	<b>NO</b>	<b>HIGH</b>	<b>NORMAL</b>	<b>LOW</b>	



# SIGNING TEMPLATE VOCABULARY FOR TOUCHCHAT APP





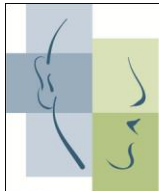
# INSTRUCTIONS FOR PARTNER AIDED SCANNING

**To assist patient in making choices:**

- Establish a consistent Yes/No response.
- First, point to each row in turn asking, “Is it in this row?”


- When the patient makes a row selection, point to each successive box in the row and ask, “Is it this one?”


- Be sure to modify your speed according to the individual patient’s needs.
- The message board at the bottom is for you to keep track of spelled selections.

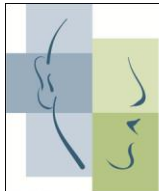


# KOREAN-ENGLISH MENU TEMPLATE

## 메뉴 Menu

기본 필요사항 Basic Needs	신체 부위 통증 Body Parts Pain	통증 정도 Pain Scale	감정 Feelings
사람들 People	개인 용품 Personal Items	질문 Questions	방 관련용품 Room Items
증상 Symptoms	대화 Talk	자판(키보드) Keyboard	빈 페이지 Blank Template

Made with Boardmaker® and the Picture Communication Symbols® © 1981-2004  
Mayer-Johnson LLC - P.O. Box 1579, Solana Beach, CA 92075 U.S.A. Phone (800) 588-4548  
web site: [www.mayer-johnson.com](http://www.mayer-johnson.com)



# KOREAN-ENGLISH FEELINGS TEMPLATE

## 감정 Feelings

긴장돼요  
anxious



끔찍해요  
awful



모르겠어요  
confused



혼란스러워요  
disoriented



좌절돼요  
frustrated



외로워요  
lonely



화가나요  
mad



괜찮아요  
okay



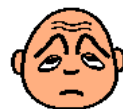
슬퍼요  
sad



무서워요  
scared



피곤해요  
tired



불편해요  
uncomfortable

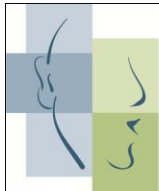


통증  
pain



Made with Boardmaker® and the Picture Communication Symbols® © 1981-2004  
Mayer-Johnson LLC - P.O. Box 1579, Solana Beach, CA 92075 U.S.A. Phone (800) 588-4548  
web site: [www.mayer-johnson.com](http://www.mayer-johnson.com)





# KOREAN-ENGLISH CHAT TEMPLATE

대화 Talk

안녕하세요  
Hello



잘 지내세요?  
How are you?



감사해요  
Thank you



안녕히가세요  
Goodbye



사랑해요  
I love you



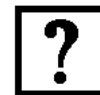
혼자있고 싶어요  
Leave me alone



모르겠어요  
I don't know



뭐라고요?  
What?



괜찮아요  
Is everything ok?



지금 말고요  
Not now



멈추세요  
Stop



잠깐 기다리세요  
Wait a minute



같이 있어주세요  
Stay with me



저희 가족은  
어디 있나요?  
Where is my family?



준비가 안됐어요  
I'm not ready



무서워요  
I'm scared







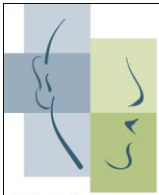
Made with Boardmaker® and the Picture Communication Symbols® © 1981-2004  
Mayer-Johnson LLC - P.O. Box 1579, Solana Beach, CA 92075 U.S.A. Phone (800) 588-4548  
web site: [www.mayer-johnson.com](http://www.mayer-johnson.com)

# KOREAN-ENGLISH BILINGUAL PAGES

D Y N A V O X

Welcome, Korean-2012.







<p>혈압/체온 Vital Signs</p> 	<p>조절 Adjustments</p> 	<p>신체적 필요 Physical Needs</p> 	<p>음식 / Food</p> 
<p>요청 Requests</p> 	<p>감정 Feelings</p> 	<p>병원방문 The hospital visit</p> 	<p>병원비 Finances</p> 
<p>어떠십니까?</p> 	<p>끝났습니다. 다음에 뵙겠습니다.</p> 	<p>How do you feel?</p> 	<p>I'm finished. See you later!</p> 



# KOREAN-ENGLISH VITAL SIGNS PAGE

D Y N A V O X

Welcome, Korean-2012.

저의 혈압과 체온이 어떨습니까? 				The vital signs are normal. 	The vital signs are abnormal. 		
		무슨말인지 잘 모르겠어요 	처음화면으로 				Close 

# KOREAN-ENGLISH ADJUSTMENTS PAGE

D Y N A V O X

Welcome, Korean-2012.

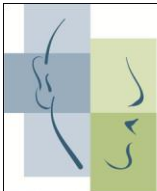
<p>더 편안하게 해주세요.</p>	<p>머리를 올려주세요.</p>	<p>머리를 내려주세요.</p>	<p>발을 올려주세요.</p>	<p>I am going to adjust your body.</p>	<p>Would you like your head raised?</p>	<p>Would you like your head lowered?</p>	<p>Would you like your feet raised?</p>
<p>발을 내려주세요.</p>	<p>침대를 올려주세요.</p>	<p>침대를 내려주세요.</p>		<p>Would you like your feet</p>	<p>Would you like your bed raised?</p>	<p>Would you like your bed lowered?</p>	
		<p>무슨말인지 잘 모르겠어요</p>	<p>처음화면으로</p>				<p>Close</p>

# KOREAN-ENGLISH HOSPITAL STAY QUESTIONS

D Y N A V O X

Welcome, Korean-2012.

<p>통역사와 이야기할 수 있을까요?</p>	<p>대기실에 저를 기다리는 사람이 있나요?</p>	<p>의사 선생님과 이야기할 수 있을까요?</p>	<p>간호사와 이야기할 수 있을까요?</p>	<p>Would you like me to contact an interpreter?</p>	<p>Would you like me to check the waiting room?</p>	<p>Could I get the doctor for you?</p>	<p>Could I get the nurse for you?</p>
<p>목사님과 이야기할 수 있을까요?</p>	<p>저를 위해 불러줄 수 있는 사람이 있습니까?</p>	<p>전화를 사용할 수 있을까요?</p>	<p>이메일을 보낼 수 있을까요?</p>	<p>Could I contact a pastor for you?</p>	<p>Can I contact someone for you?</p>	<p>Could I call someone for you?</p>	<p>Would you like to send an e-mail?</p>
<p>컴퓨터를 사용할 수 있습니까?</p>	<p>제가 읽을 수 있는 한국 책이 있습니까?</p>	<p>제가 볼 수 있는 한국 잡지가 있습니까?</p>	<p>제가 볼 수 있는 한국 영화가 있습니까?</p>	<p>Would you like to use a computer?</p>	<p>Could I get you some Korean books?</p>	<p>Could I get you some Korean magazines?</p>	<p>Would you like to watch a Korean movie?</p>
<p>음악을 들을 수 있을까요?</p>		<p>무슨 말인지 잘 모르겠어요</p>	<p>처음 화면으로</p>	<p>Would you like to listen to music?</p>			<p>Close</p>



# SPANISH-ENGLISH BILINGUAL PAGES

D Y N A V O X

Senas Vitales  
Vital Signs

Ajustos  
Adjustments

Necesitas Fisicas  
Physical Needs

Comida/  
Food

Pedidos  
Requests

Sentimientos  
Feelings

La visita en el  
hospital  
The hospital visit

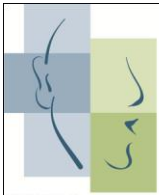
Finanzas  
Finances

Como se siente?

He Terminado. Nos  
vemos!

How do you feel?







I'm finished. See you  
later!

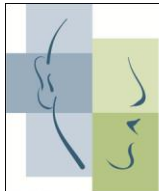


# Spanish-English Vital Signs Page

D Y N A V O X

Welcome, SP-ENG-PICS-NOV11.

<b>Cuáles son las señas vitales?</b> 				<b>I am going to check your vital signs.</b> 	<b>The vital signs are normal.</b> 	<b>The vital signs are abnormal.</b> 	
			<b>Cerrar</b> 				<b>Close</b> 



# Spanish-English Adjustments Page

D Y N A V O X

Welcome, SP-ENG-PICS-NOV11.

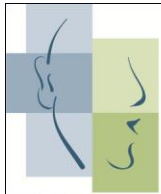
<b>Necesito acomodarme mejor.</b> 	<b>Podría levantarme la cabeza?</b> 	<b>Podría bajarme la cabeza?</b> 	<b>Podría levantarme los pies?</b> 	<b>I am going to adjust your body.</b> 	<b>Would you like your head raised?</b> 	<b>Would you like your head lowered?</b> 	<b>Would you like your feet raised?</b> 
<b>Podría bajarme los pies?</b> 	<b>Podría levantar la cama?</b> 	<b>Podría bajar la cama?</b> 		<b>Would you like your feet</b> 	<b>Would you like your bed raised?</b> 	<b>Would you like your bed lowered?</b> 	
			<b>Cerrar</b> 				<b>Close</b> 



# SPANISH- ENGLISH HOSPITAL STAY QUESTIONS

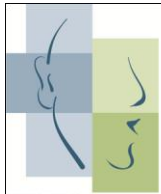
WELCOME, SP-ENG-PICS-NOV11.

<p>Podría hablar con un intérprete?</p>	<p>Hay alguien en la sala de espera esperán - dome?</p>	<p>Podría hablar con el doctor?</p>	<p>Podría hablar con una enfermera?</p>	<p>Would you like me to contact an interpreter?</p>	<p>Would you like me to check the waiting room?</p>	<p>Could I get the doctor for you?</p>	<p>Could I get the nurse for you?</p>
<p>Podría hablar con un pastor?</p>	<p>Hay alguien que puede contactar por mí?</p>	<p>Podría usar el teléfono?</p>	<p>Le podría enviar un e-mail a alguien?</p>	<p>Could I contact a pastor for you?</p>	<p>Can I contact someone for you?</p>	<p>Could I call someone for you?</p>	<p>Would you like to send an e-mail?</p>
<p>Podría usar una computadora?</p>	<p>Hay libros en español que puedo leer?</p>	<p>Hay revistas en español que puede leer?</p>	<p>Hay algunas películas en español que puedo mirar?</p>	<p>Would you like to use a computer?</p>	<p>Could I get you some Spanish books?</p>	<p>Could I get you some Spanish magazines?</p>	<p>Would you like to watch a Spanish movie?</p>
<p>Podría escuchar música?</p>			<p>Cerrar</p>	<p>Would you like to listen to music?</p>			<p>Close</p>



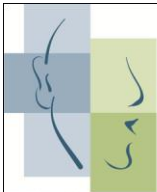
# EFFECTIVE COMMUNICATION REQUIRES TEAM WORK

- A key element of each template is to provide the patient with an effective means to request an interpreter if they feel the need to go beyond what is available on the templates.
- The template content was developed with input from patients, nurses and family members.
- We continue to adapt our templates to meet the specific communicative needs associated with the medical needs of patients across the hospitals (e.g. the needs of urology as opposed to trauma patients).



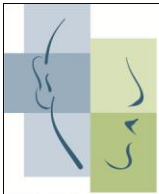
# SUMMARY

- SLPs working to implement bilingual AAC solutions with hospitalized LEP patients must adopt a dynamic assessment approach to insure that changes in the patients' medical status can be accommodated to insure optimal patient-provider communication.
- To accomplish this it is essential to work collaboratively with the nursing staff and the facility's interpreter service.



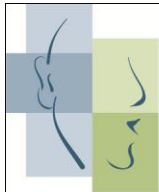
# REFERENCES

1. American Hospital Association. 2011. *AHA Hospital Statistics 2011 Edition*. AHA Co. Chicago Illinois.
2. Bartlett, G., Blais, R., Tamblyn, R., Clermont, R.J., & MacGibbon, B. (2008) Impact of patient communication problems on the risk of preventable adverse events in acute care settings. *Canadian Medical Association Journal*. 178 (2) 1555-1562.
3. Blackstone, S.W., Garrett, K. & Hasselkus, A. (2011a). New Hospital Standards Will Improve Communication: Accreditation Guidelines Address Language, Culture, Vulnerability, Health Literacy. *The ASHA Leader* Jan 18, 2011.
4. Blackstone, S. W., Ruschke, K., Wilson-Stronks, A. & Lee, C. (2011b). Converging Communication Vulnerabilities in Health care: An Emerging Role for Speech-Language Pathologists and Audiologists. *Perspectives on Culturally and Linguistically Diverse Populations*. March 2011, V.18, No. 1, 3-11.
5. Divi, C., Koss, R.G., Schmaltz, S.P., & Loeb, J.M. (2007) Language Proficiency and Adverse Events in US Hospitals: a Pilot Study. *International Journal for Quality in Health Care Advance Access*. Pp.1-8.



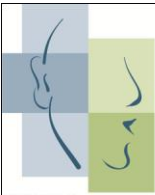
# REFERENCES

6. Finke, E.H., Light, J., & Kitko, L. (2008) A systematic review of the effectiveness of nurse communication with patients with complex communication needs with a focus on the use of augmentative and alternative communication. *Journal of Clinical Nursing*. 17, 2102-2115.
7. Flores, Glenn. 2005. The Impact of Medical Interpreter Services on the Quality of Health Care: A Systematic Review. *Med care Res Rev*. 62, 3, 255-299.
8. Hurtig, R.R., & Downey, D.A. (2009). Augmentative and Alternative Communication in Acute and Critical Care Settings. San Diego: CA: Plural Publishing Inc.
9. Karliner, Leah S., Jacobs, Elizabeth A., Chen, Alice Hm, and Mutha, Sunita, 2006, Do Professional Interpreters Improve Clinical Care for Patients with Limited English Proficiency? A Systematic Review of the Literature. *Health Services Research* 42:2,727-754.
10. Patak, L., Wilson-Stronks, A., Costello, J., Kleinpell, R., Henneman, E. A., Person, C., & Happ, M. B. (2009). Improving patient-provider communication: A call to action. *Journal of Nursing Administration*, 39(9), 372-376.



# REFERENCES

8. Shin, Hyon B. and Kominski, Robert A. 2010. *Language Use in the United States: 2007*, American Community Survey Reports, ACS-12. U.S. Census Bureau, Washington, DC.
9. The Joint Commission: Advancing Effective Communication, Cultural Competence, and Patient-and Family-Centered Care: A Roadmap for Hospitals. (2010) Oakbrook Terrace, IL: The Joint Commission, 2010.
10. The Joint Commission: New & Revised Standards & EPs for Patient-Centered Communication. (2010) Pre-Publication Version. Oakbrook Terrace, IL: The Joint Commission.
11. The Joint Commission: Summary Data of Sentinel Events Reviewed by The Joint Commission (2011, September) Oakbrook Terrace, IL: The Joint Commission.
12. The University of Iowa Hospitals and Clinics. (2008). Annual report. Iowa City, IA. <http://www.healthcare.uiowa.edu/AnnualReport/>



# CONTACT INFORMATION

Assistive Devices Laboratory

Department of Communication Sciences & Disorders

318 WJSHC

The University of Iowa

Iowa City, IA 52242

[richard-hurtig@uiowa.edu](mailto:richard-hurtig@uiowa.edu)

<http://www.uiowa.edu/~comsci/research/speechlab/assistive.html>

## Conflict of Interest Disclosure:

The authors do not have any financial or contractual relationship with any commercial developer or vendor