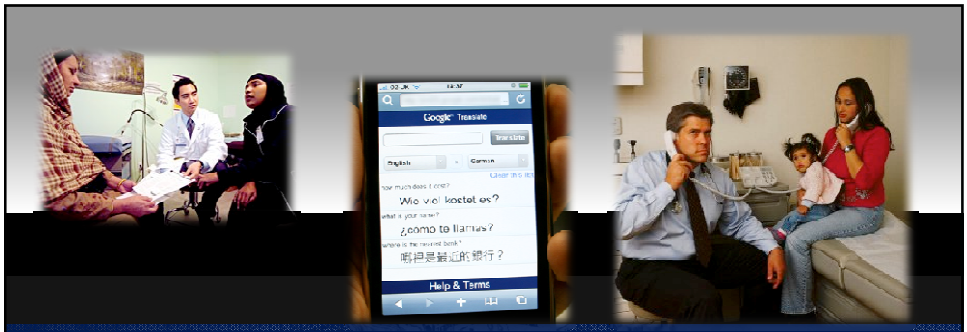

INTEGRATING COMMUNICATION SUPPORTS INTO PRIMARY CARE PRACTICE: INTERPRETERS, CULTURAL-BROKERS, AND GOOGLE TRANSLATE.

Kevin Pottie, MD, CCFP, FCFP, *Ottawa, ON*
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Integrating communication supports into primary care practice

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PRESENTATION OBJECTIVES

Describe the problem: language barriers in primary care

Discuss potential policy/practice options

Provide in-depth discussion on machine translation (Google Translate)

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CMAJ EVIDENCE BASED GUIDELINES

Canadian Collaboration for Immigrant and Refugee Health

Steering Committee Members:
Kevin Pottie (co-chair), Peter Tugwell (co-chair), Chris Greenaway, John Feightner, Vivian Welch, Erin Euffing, Laurence Kirmayer, Helena Swinkels, Meb Rashid, Lavanya Narasiah, Noni MacDonald

Photo Credit: Red Cross (Sri Lanka)

Community Partners
Edmonton Multicultural Health Brokers Co-operative (Lucenia Ortiz, Yvonne Chiu- 30 workers), Sara Torres and LAZO

Funding Partners
Public Health Agency of Canada, Citizenship and Immigrant Canada, International Organization of Migration (IOM), Calgary Refugee Program, Champlain Local Integrated Health Network, Canadian Institutes for Health Research.

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CCIRH GUIDELINE PROJECT OBJECTIVE

To develop evidence-based clinical preventive guidelines for immigrants and refugees new to Canada (focus on first 5 years) for primary care practitioner

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PRIORITY SETTING: DELPHI SELECTION PROCESS

- **Importance**
- **Usefulness**
- **Disparity**

Photo Credit L. Narasiah

Swinkels H, Pottie K, Tugwell P, Rashid M, Narasiah L. Development of guidelines for recently arrived immigrants and refugees to Canada: Delphi consensus on selecting preventable and treatable conditions. CMAJ 2011

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CMAJ EVIDENCE BASED CLINICAL GUIDELINES FOR IMMIGRANTS AND REFUGEES

Infectious Diseases
- MMR/DPTP-HIB
- Varicella (Chicken Pox)
- Hepatitis B*
- Tuberculosis*
- HIV/ AIDS*
- Hepatitis C
- Intestinal Parasites*
- Malaria

Mental Health and Maltreatment
- Depression *
- Post Traumatic Stress Disorder*
- Child Maltreatment*
- Intimate Partner Violence *

Other Chronic Disease
- **Diabetes***
- **Dental disease***
- **Contraception**
- **Cervical Cervix/HPV**
- **Iron Deficiency Anemia***
- **Vision Disorders**
- **Pregnancy Care**

Pottie K, Greenaway C, Feightner J, et al . Evidence Based Clinical Guidelines for Immigrants and Refugees. CMAJ 2011

KEY IMPLEMENTATION CHALLENGE

How can primary care practitioners/organizations overcome communication barriers with immigrant and refugee patients?

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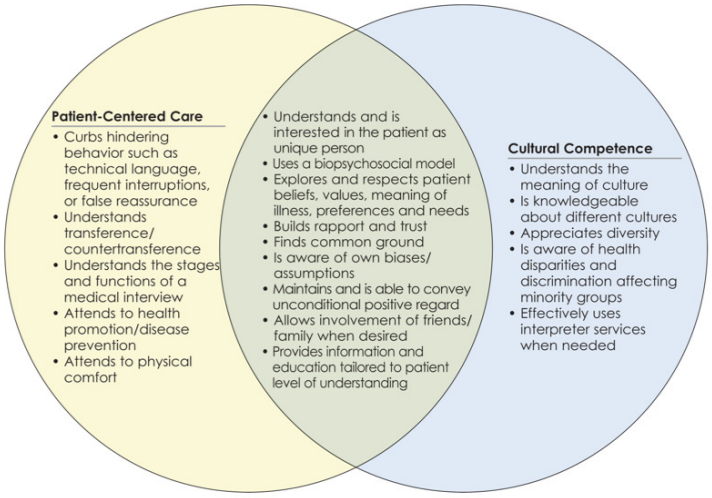
POLICY AND PRACTICE OPTIONS

- In-Person Interpreters Contract ($40-60/hr, Staff ($20/hr- admin challenges)
- Remote Interpretation (1-800…) ($2-7/minute- need speaker phones)
- Machine Translators (no cost, but imperfect- ? harms)

Why is medical interpretation in primary care needed?

- Evidence shows that patients who can't communicate effectively:
  - Lack understanding during medical encounter
  - Are less satisfied with care received
  - Are less adherent to medical instruction
  - Seek more care in the Emergency Department
  - Have a higher chance of being misdiagnosed and/or prescribed inappropriate medication

Patient-centredness and cultural competency



Saha, 2010

Immigrants and refugees experience impaired accessibility to quality health care services

- Language
- Cost
- Geographic Accessibility
- Transportation
- Community Awareness
- Cultural Sensitivity/Barriers

Asanin and Wilson, Soc Sc Med 2008

RISK FOR DECLINE IN HEALTH STATUS

- Prolonged limited proficiency in English or French associated with a transition to poor health (OR 2)
- Language issue significant for both sexes, but associated risk factors differed by sex:
  - Men: refugee status, self-reported discrimination
  - Women: age, health care access problems

Longitudinal Survey of Immigrants to Canada (Statistics Canada)

Ng, Pottie, Spitzer, Health Reports; 2011

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TRADITIONAL OPTIONS

Type of Interpreter	Advantages	Disadvantages
Professionally trained medical/cultural interpreter	- trained and accurate - Able to also provide cultural interpretation - high confidentiality	- requires booking and coordination - often unavailable in community setting - cost
Telephone interpretation service (1-800…)	- easy and rapid access - Confidential - Reasonable quality	- impossible to capture non-verbal cues - cost/minute - requires speaker phone/dual handset phone
Ad-hoc interpreter (i.e. person with no interpretation training)	- often easy to access - some appreciation of confidentiality	- may not correctly interpret medical terminology - Accuracy concerns
Family or friend	- Usually shares common socio-cultural background as patient - often accessible	- sensitive subjects may not always be addressed - confidentiality cannot be assured, accuracy concerns

Pottie K, Gruner D, Ferreyra M, et al Refugees and Global Health: A Global Health E-Learning Program, Available from http://www.ccirhken.ca/eLearning.html

PROGRAMS FOR INTERPRETATION

- The program is structured rather than ad hoc, with comprehensive written policies and procedure
- The program includes regular, systematic assessment of the language needs of people in the service area
- The program uses the community needs assessment and an assessment of its own resources in determining what types of oral language assistance to include in its delivery system
- The program establishes specific training and competency protocols for both interpreters and providers
- The program has a monitoring and evaluation system in place

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WORKING WITH AN INTERPRETER

Pre-Interview
- Discuss with the interpreter the goals of the interview
- Inform interpreter about approximate length of interview
- Give a brief overview of the topics to be covered
- If ad-hoc interpreter of family/friend interpreter, explain the "rules"
- Emphasize confidentiality

During the interview
- Seating arrangement- avoid triangle
- Interpreter should sit next to the patients or slightly behind to improve physician-patient connection
- Begin with introductions
- Explain the interpreter's role to the patient
- Assure confidentiality
- Make sure patient feels comfortable asking questions
- Frequently repeat back what you hear

At the end of the interview
- Encourage patient to ask questions
- Repeat important concepts more than once
- Review treatment plan carefully

Adapted from: Weiner et al., Bridging Language Barriers: How to Work with an Interpreter, 2004

Pottie K, Gruner D, Ferreyra M, et al Refugees and Global Health: A Global Health E-Learning Program, Available from http://www.ccirhken.ca/eLearning.html

WHAT IS GOOGLE TRANSLATE?

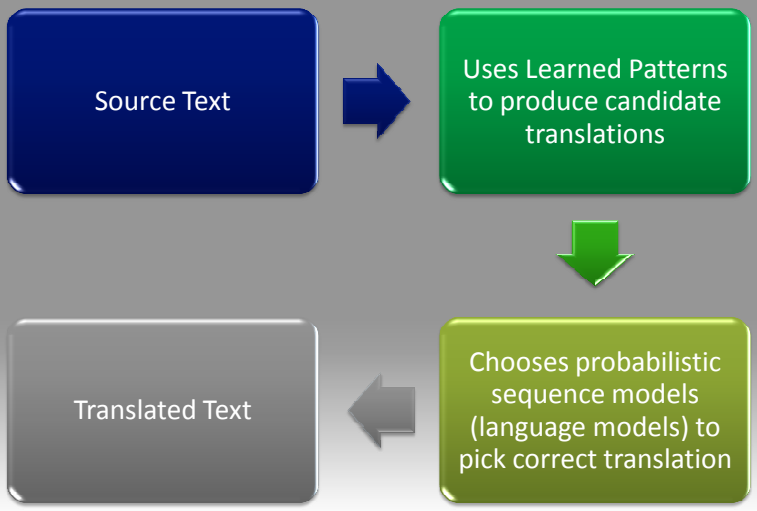
- Internet based machine translation system
  - No human effort required
- Currently GT is capable of 4032 pairs from the 64 languages it incorporates
- Easy interface
- Free accessibility (to date)
- Mobile applications → translate speech to speech
  - 15 Language Voice inputs, 23 language outputs

HOW DOES IT WORK?

- Statistical Machine Translation
- Text corpora:
  - Aligned bilingual translated texts
    - UN documents, EU documents, WWW
  - Monolingual texts
    - Google book scanning project, WWW
- Statistical learning techniques applied to recognize patterns between the translations of both languages

http://www.youtube.com/watch?v=Rq1dow1vTHY&noredirect=1

HOW DOES IT WORK? (CONT..)



NIST 2008 EVALUATION

- Evaluated Multiple Machine Translation systems (free and commercial)
  - Including: Google, IBM, ISI, NRC, SYSTRAN, others
- Translations:
  - Arabic to English
  - Chinese to English
  - Urdu to English
  - English to Chinese
- Amount of Data used to train the system:
  - Large Amount
  - Unlimited Amount
- Method of Evaluation: BLEU Score
  - BLEU4, BLEU-IBM, NIST, TER, METEOR
  - Human evaluation data (awaiting results from 3 researchers at NIST)

2008 NIST RESULTS

Arabic to English		
Rank	System	BLEU Score
1	**Google**	**0.4772**
2	IBM	0.4717
3	Apptek	0.4483

Chinese to English		
Rank	System	BLEU Score
1	**Google**	**0.3195**
2	CMU- SMT	0.2597
3	NRC-SYSTRAN	0.2523

Urdu to English		
Rank	System	BLEU Score
1	**Google**	**0.2281**
2	BBN	0.2028
3	IBM	0.2026

English to Chinese*		
Rank	System	BLEU Score
1	**Google**	**0.4142**
2	MSRA	0.4099
3	ISI-LW	0.3857

* No Significance Groups tested for English to Chinese Evaluation Condition

NIST, 2008

BLEU SCORE

- Automatic evaluation of machine translation accuracy
- Provides quick, cheap, repeatable evaluations
- Provides numerical value between 0 to 1
  - 1 = perfect translation
  - 0 = poor translation
- Involves comparison to reference human-translated texts
- Correlates with human evaluation

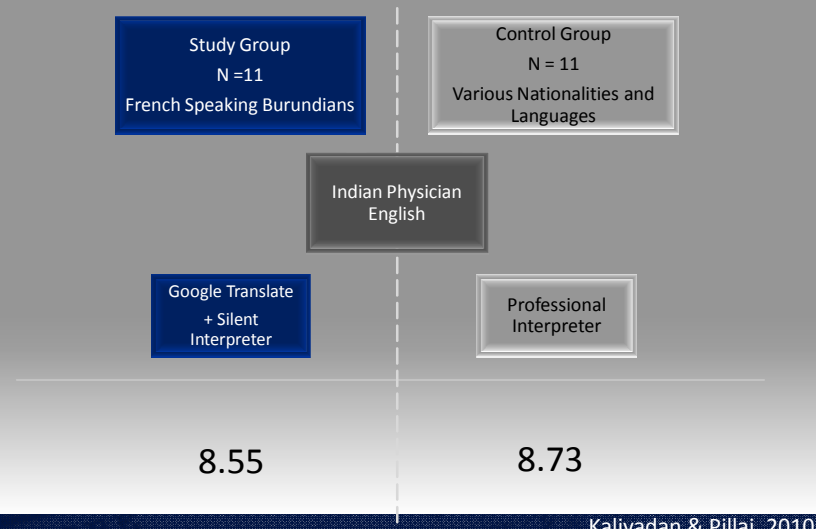
BLEU SCORES OF ALL LANGUAGE PAIRS

- Calculated accuracy of Google translations between 3192 pairs (57 languages x 56 languages)
- Stronger translations – common European languages
- Poorer translations – Eastern European/Asian languages

Translation Pair	BLEU Score
English & Indonesian	0.930
English & French	0.910
English & Swedish	0.890
English & Danish	0.885
English & Italian	0.880
English & Serbian	0.320
English & Persian	0.235
English & Vietnamese	0.180
English & Hindi	0.095
English & Thai	0.000

Aiken & Balan, 2011

INDIAN RCT – PATIENT SATISFACTION



Kaliyadan & Pillai, 2010

SUMMARY MACHINE TRANSLATION (GOOGLE TRANSLATE)

- No statistical patient satisfaction difference between machine translation and professional interpreters
- Quality of Evidence: very low- one small pilot RCT using machine translation in clinical practice
- Values and Preferences: imperfect translation may impair trust and accuracy- especially in context of low literacy, and machine translation performance varies between language pairs
- Cost (resource allocation) – no cost currently if internet available, time cost when using on-screen keyboards, and training costs may be an issue (not yet known)

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POLICY CONSIDERATIONS

What is the magnitude of the language problem?

Where is the problem most prevalent (i.e. new immigrants areas) and most dangerous (i.e. ER)?

What are the current approaches being used?

Who will pay for medical interpretation? (hospital/CHC/FHT (MOH), Citizenship and Immigration, NGO, patient)

How will training of interpreters and practitioners be addressed?

What are the opportunities for policy innovation?

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PROGRAM CONSIDERATIONS

1. Need organization-wide support for interpretive program (i.e. Access Alliance CHC, Toronto)
2. Need to develop policies (i.e. Massachusetts Department of Public Health)
3. Need to disseminate and support policies with training and resources

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Thank You!

Related Practice Resource
Migrant Health CCIRH Knowledge Exchange Network Website

www.ccirhken.ca

Complete series of CCIRH guideline papers at www.cmaj.ca

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