



uOttawa

Health Literacy in the Context of Medication Use

Examining the role of pharmacists and pharmacy tools to support health literacy and the transfer of medication information to acute and chronic disease patients



Dr. Régis Vaillancourt, B.Pharm, Pharm.D, FCSHP, FFIP

Director of pharmacy
Children's Hospital of Eastern Ontario

www.cheo.on.ca



Panel of experts and format of presentation

Speaker 1: Rebekah Moles, Senior Lecturer **(10 minutes):** Functional Health Literacy and the Measurement of Doses in Caregivers of Children Aged 5 Years and Under: How to Prevent Medication Errors/Overview of work in relation to health literacy in the context of medication use

Speaker 2: Anne Metzger, Assistant Professor University of Cincinnati **(10 minutes):** Correlation Between Medication Adherence and Health Literacy / Overview of work in relation to health literacy in the context of medication use

Speaker 3: Annie Pouliot, Research Facilitator **(10 minutes):** Health Literacy in the Context of Medication Use or Medication Literacy

Speaker 4: Carolyne Dufresne, RN, Lecturer **(10 minutes):** Patient Education, Health Literacy and Chronic Disease: Lessons Learned from A Multicultural Community in Quebec, Canada/Overview of work in relation to health literacy in the context of chronic disease

Questions and Debate for the panel of experts



Affiliations - Disclosure



CANADA



Ontario College
of Pharmacists

Putting patients first since 1871



Canadian Society of Hospital Pharmacists
Société canadienne des pharmaciens d'hôpitaux



**Beyond The Development and Validation of
Pictograms to Communicate Drug
Information: Application of Tools and
Lessons Learned from the Pictogram
Project at the International Pharmaceutical
Federation**

“A Picture is Worth a Thousand Words.”

This quote is a Chinese Proverb, fabricated by an advertising executive in an attempt to compel users to buy baking soda. The executive assumed that consumers would be compelled to buy a product that had the weight of a Chinese philosophy behind it.



畫意能達萬言
CHINESE PROVERB
One picture is worth
ten thousand words

ROYAL
BAKING
POWDER
ABSOLUTELY PURE

ROYAL
NO ALUM

“Make a Cake for Bobby”

—that’s what this car card said every day to many millions of women. It rounded all mothers every day of a sure way to give a treat to their own children. And hundreds of thousands got an extra thrill with their new cake making because of the happy expression of the boy on the car card.

The moral of this story is that the same influence could not be created even with the same picture in any other advertising medium.

In the magazines, the reminder would not be often enough to change the average housewife’s baking habit. In the newspapers, with no color, there would be no appetite appeal. On a twenty-four sheet poster, seen for only a few seconds at a time, the great appeal of the expression on the boy’s face would be lost.

Almond
Royal Advertising Manager

STEELES RAILWAYS ADVERTISING CO.

One Picture is Worth Ten Thousand Words.
<http://www2.cs.uregina.ca/~hepting/research/web/words/history.html>



1 tablet 4 times a day
Lot: **EP-41**
expiry date: **2004**
Dr Rodriguez Ph

Pharmacopoeia of United States



1 tablet 4 times a day
Lot: **EP-41**
expiry date: **2004**
Dr Rodriguez Ph

Canadian Forces - HSS Coy
Canada
Erythromycin 250 mg # 40



9020 OROCH...
Dr Rodriguez

Indomethacin
25 mg
Lot: **EP-41**
expiry date: **2004**
Dr Rodriguez Ph



Pictogram, World Health Organization

Photos, medication sachets for use in humanitarian aid missions
- Kabul 2004

Completed Projects

Development & Validation of Pictograms for Safe Medication Use

Current Projects

Illustrated Counselling Tools to Increase Patient Understanding

○ Pediatric patient controlled **analgesia**

○ **Sickle-cell** anemia action plan

○ For **healthcare workers**

○ **Eczema** action plan

○ **Asthma** action plan

○ Medication **side effects**

○ Pediatric **anaphylaxis** action plan

○ **FIP** survey

○ During **humanitarian aid** missions

○ **Mexico** Rx – Diabetes

○ **Gabon**
○ **Benin**
○ **Nigeria** Rx

○ In children with **asthma**

○ Type II **Diabetes** Counseling

○ In different **cultures**

○ **First Nations** Rx – diabetes

○ In **elderly** population

○ In **youth**

2009

2011

2013

2015

2002

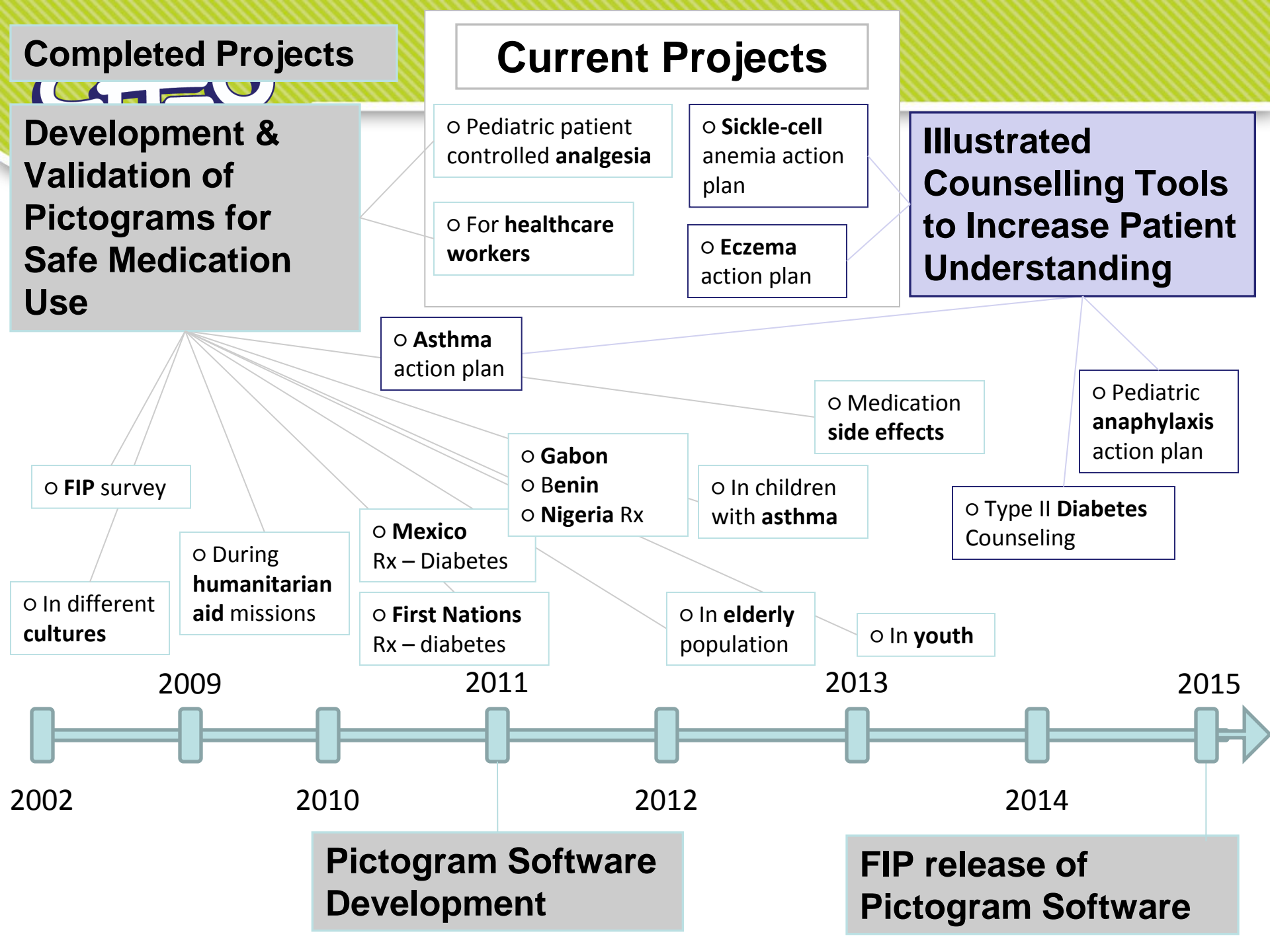
2010

2012

2014

Pictogram Software Development

FIP release of Pictogram Software





Method used for the validation of the pictograms by the FIP



Pictogram and Infographic Development

1. Semiotic analysis of key counselling points

2. Pictogram design

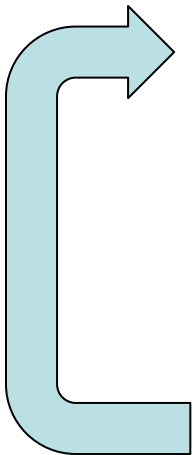
3. Initial Testing

- Transparency (guessability) & Translucency

4. Recall

- Transparency

5. Pictogram redesign





“The study of how signs are perceived and how they should be designed.”

Pictogram and Infographic Development

1. Semiotic analysis of key counselling points

2. Pictogram design

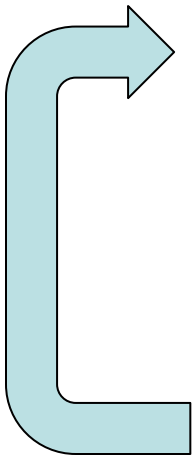
3. Initial Testing

- Transparency (guessability) & Translucency

4. Recall

- Transparency

5. Pictogram redesign





“The study of how signs are perceived and how they should be designed.”

Pictogram and Infographic Development

1. Semiotic analysis of key counselling points

Internet Semiotic Analysis

Image search (20+)

Image element analysis

Extract key graphic elements

Pictogram and Infographic Development

1. Semiotic analysis of key counselling points

Internet Semiotic Analysis

Image search (20+)

Image element analysis

Extract key graphic elements



Shake well before use.

© 1997 USPC



Shake before use



Shake well



Pictogram and Infographic Development

1. Semiotic analysis of key counselling points

Preferred Image Semiotic Analysis

Image proposal

Preferred image element analysis

Extract key graphic elements



Pictogram and Infographic Development

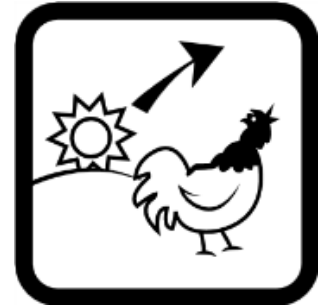
2. Pictogram Design (Anaphylaxis)

- Use of extracted graphic elements
 - *Open mouth* 0.8
 - *Worried eyebrows* 0.6
 - *Closes eyes* 0.6
 - *Leaning forward* 0.55
 - *Bags under eyes* 0.55
 - *“Tight” eyes* 0.5



Pictogram and Infographic Development

3. Initial testing



- **Comprehension test:** ISO standards 9186
 - *Transparency (guessability): Ability to guess what an image means when significance is unknown*
- **Translucency:** The relationship between the image and its meaning, measured by the subject's perception of the image.



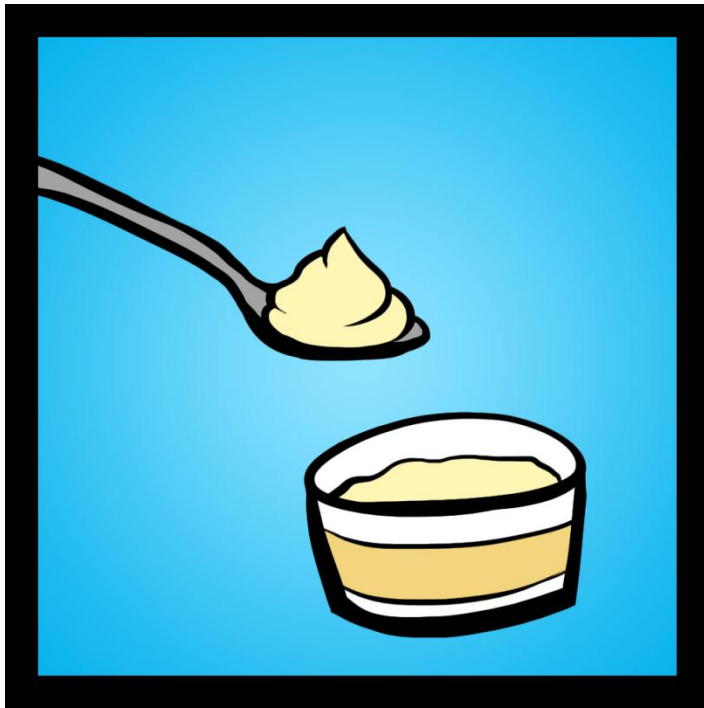
LESSONS LEARNED



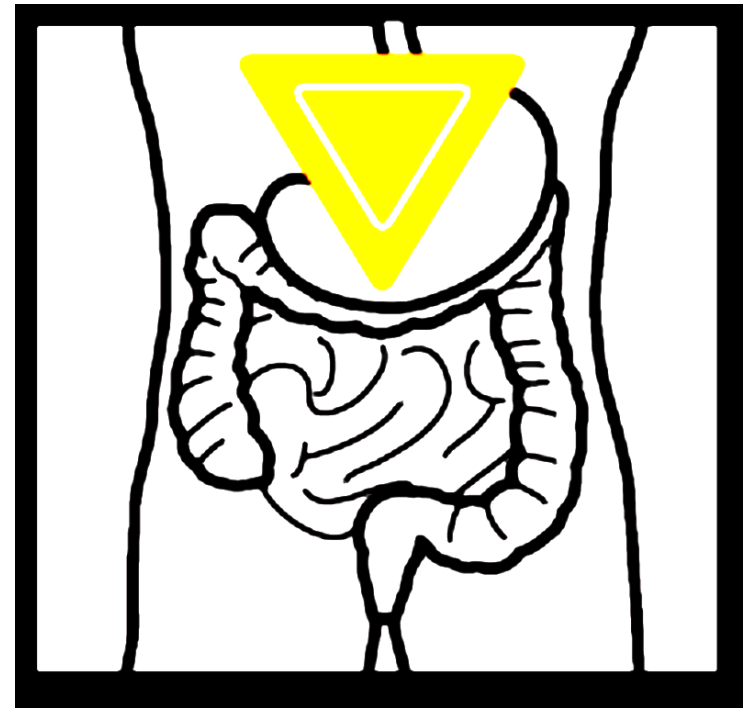
Pictogram and Infographic Development – General rules

- Provide context to pictogram
- Avoid images that are too abstract
- Use recognizable elements
- Use symbols cautiously
- Using text if needed
- Uncluttering

Pictogram Clarity: Context



Pictogram Clarity: Abstract



Pictogram Clarity: Symbols



Pictogram Clarity: Symbols



Uncluttering Pictograms

- Unnecessary elements
- Unnecessary details
- Colour



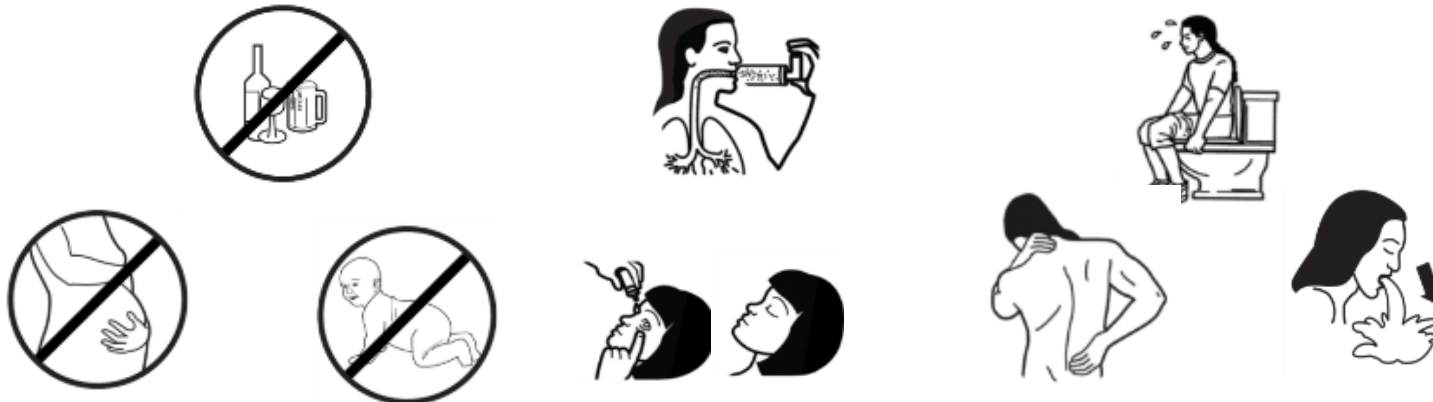


Population specific



General observations on the development and validation of the pictograms

- Pictograms depicting basic day-to-day medication usage are much easier to comprehend
- Pictograms depicting side effects, time intervals, complex instructions or abstractions are more challenging





Current Projects

- Usability testing of software to relay pharmaceutical information using pictograms to overcome language barriers and poor health literacy
- Medication Safety pictograms for secure medication handling by healthcare workers
- Validation of an illustrative multimedia information tool for pediatric patients using patient-controlled analgesia
- Evaluation and validation of pictograms to support eczema counselling - RCT
- Recall of Sickle Cell disease pictograms used in the Sickle Cell Action Plan and Prescription for children
- Evaluation and validation of medication pictogram labels, storyboards and Calendars



Infographics: Anaphylaxis Action Plan & Prescription

CHEO

Emergency Department
ANAPHYLAXIS ACTION PLAN & PRESCRIPTION

ADDRESSOGRAPH

Weight: _____ kg

These are the Signs and Symptoms of an allergic reaction to _____ (allergen):



Skin: Hives, swelling, itching, warmth, redness, rash

Breathing: Coughing, wheezing, shortness of breath, chest pain/tightness, throat tightness, hoarse voice, trouble swallowing

Stomach: Nausea, pain/cramps, vomiting

Heart: Pale/blue colour, weak pulse, dizzy/lightheaded

If You Develop Any Symptoms:



- Give epinephrine at the **first sign** of a known or suspected anaphylactic reaction.
- Call 9-1-1 or local emergency medical services. Tell them the child is having a life-threatening allergic reaction.
- If the reaction continues or worsens, give a second dose of epinephrine in 5 to 15 minutes.
- If the child is feeling lightheaded, have them lie on their back with their knees bent.

Medications:

Epinephrine **0.15 mg** autoinjector if between 10 and 25 kg:
Brand: [] EpiPen [] Allerject [] Other: _____

Epinephrine **0.3 mg** autoinjector if greater than 25 kg:
Brand: [] EpiPen [] Allerject [] Other: _____

[] Referral to allergist

Physician: _____ (print name) License #: _____ Signature: _____ Date: _____ (dd/mm/yyyy)

How to use Auto-Injectors:

EpiPen®:



- Hold firmly with orange tip pointing downward.
- Remove blue safety cap by pulling straight up. Do not bend or twist.



- Swing and push orange tip firmly into mid-outer thigh until you hear a "click."
- Hold on thigh for several seconds.

Allerject™:



1. Pull Allerject™ from the outer case. Do not go to step 2 until you are ready to use Allerject™. If you are not ready to use, put it back in the outer case.



2. Pull off RED safety guard. To reduce the chance of an accidental injection, do not touch the black base of the auto-injector, which is where the needle comes out. If an accidental injection happens, get medical help immediately.
NOTE: The safety guard is meant to be tight. Pull firmly to remove.



3. Place BLACK end AGAINST the MIDDLE of the OUTER thigh (through clothing, if necessary), then press firmly and hold in place for five seconds. Only inject into the middle of the outer thigh (upper leg). Do not inject into any other location.

NOTE: Allerject™ makes a distinct sound (click and hiss) when you press it against your leg. This is normal and indicates Allerject™ is working correctly.

4. Seek immediate medical or hospital care. Replace the outer case and take your used Allerject™ with you to your pharmacist or physician for proper disposal and replacement.

Avoiding Allergens:



Food: Avoid allergen containing foods. Read food labels. Bring own food to school. Avoid food swapping.



Insects: Cover up as much as possible. Wear shoes when outdoors. Avoid scents.



Medication: Let doctors, pharmacists, dentists and nurses know of any medication allergies. Wear medic-alert bracelet.

Controlling your Anaphylaxis

1. Avoid allergens.
2. Know how and when to use your epinephrine autoinjector.
3. Ensure you/your child **always** has an epinephrine autoinjector immediately available.
4. Ensure your autoinjector is not expired. Do not store in very hot or very cold place.
5. If you are a long distance from a hospital have a backup supply of an epinephrine autoinjector.
6. Wear a Medic Alert bracelet that tells what allergens you are anaphylactic to.

Note: Children with asthma are at higher risk for severe anaphylaxis

PICTO-RX

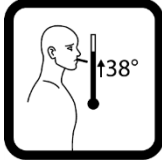
- FREE software
- Creates pictogram based:
 - *Medication labels*
 - *Information sheets*
 - *medication calendars*



PICTO-RX

Acetaminophen 160 mg/5 mL for Children 16-21.9 kg

دواعي الاستعمال / استطباب :



حمى



صداع



آلام العضلات



الم في الظهر

جرعة / طريقة إعطاء:

الأطفال 16-21.9
kg



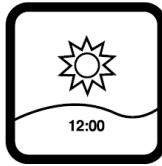
7.5

ml

تكرار:



الصباح



الظهر



المساء



الليل

احتياطات / محاذير:

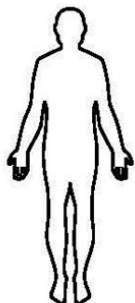








تحريك من اجل الخلط

اعراض جانبية :

ملاحظات / تعليقات:

Example - Medication Storyboard

<p>Indication:</p>  <p>Personalized Indication</p> <p>Acetaminophen 50mg Story Board for Joe Meds</p>	<p>Dose / Route:</p>  <p>1 tablet</p>	<p>Medication:</p> <p>Medication Name: Acetaminophen 50mg Date: 2015/08/18 Quantity: 90 tablets Refills: 1 Prescriber Name: Annie Pharmacy Info: CHEO Pharmacy</p>
	<p>Frequency:</p>    <p>Morning Noon Night</p>	<p>Side Effects:</p>  <p>Rash</p>
	<p>Precaution:</p>  <p>Do not take with alcohol or drug</p>	<p>Comments:</p> <p>Do not exceed 8 tablets daily</p>



Panel expert #1

Rebekah Moles



Panel expert #2

Anne Metzger



Panel expert #3

Annie Pouliot



Panel expert #4

Carolynne Dufresne



Q & D

Let's debate!



Panel question #1?

Are the current tools used to measure health literacy convenient for pharmacists in order to detect patients with low medication literacy in their daily practice? Which tools do you use in practice to identify patients with low medication literacy?



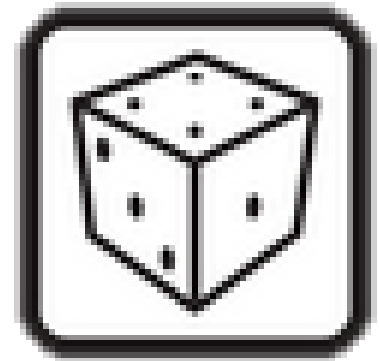
Annie: Universal Precautions Approach

- Ensure that all discussions and materials are simple enough for all patients to understand
- Focus on patients' experience with disease, desired behavior, and useful day-to-day, drug-related information
- Recognize the individual health literacy needs of patients and families and tailor an approach to meet their specific needs
 - *Very challenging for pharmacists in our hospital to use a test when counselling patients.*
 - *In research, the Newest Vital Sign and REALM-Teen, however, are not validated in French.*



Regis' experience in community pharmacy

- Group at risk:
 - *People over the age of 65*
 - *Recent immigrants*
 - *People with low income*
 - *People who have low education levels*
 - *People who have low English or French proficiency*
- Signs to look for from a healthcare provider standpoint:
 - *Those who have trouble filling out forms or provide excuses for not filling out forms*
 - *Those who appointments and do not follow-up*
 - *Those who describe medication by appearance and not by the name or what it is used for*
 - *Those who smile and nod a lot without asking questions*
 - *Those who cannot respond to open ended questions*





Identifying 'at risk' patients during medication reconciliation in hospital

- Difficulty speaking English
- Living outside of the Ottawa area
- Have no drug coverage or provincial drug coverage (RAMQ or ODB)
- Show potential for non-adherence based on interviews
- Cannot provide the name of the medication taken
- Discrepancies b/w patient interview and pharmacy record
- Have complex medication regimens



Panel question #2

What are the roles of the different health care professionals when it comes to health education in a multicultural context and providing counselling to patients with different health literacy levels?



Panel question #3

Relationship between medication adherence and health literacy: what are the issues and next steps?



Panel question #4

What tools are being used at your centers to provide drug information counselling and ensure a universal approach to health literacy?



Literacy-Sensitive Tools and Interventions

- Use plain language and avoid jargon
- Focus on actions rather than information
- **Ask Me 3 / It's Safe to Ask**
- Combination of oral, written, and validated graphics
- Solicit questions
- **Teach back method**
- Product demonstrations
- Brown bag medication review