

# DESIGN, DEVELOPMENT, AND EVALUATION OF CULTURE-SENSITIVE PICTOGRAPHIC INSTRUCTIONS FOR DISPENSING MEDICATIONS

Régis Vaillancourt, Pharm D<sup>1,2</sup>, Beatrice Alvarez<sup>1</sup>, Julie Wade<sup>1</sup>, Elena Pascuet, MSc<sup>1</sup> ; Jane Dawson, B Pharm, MNZCP<sup>3</sup>; Sylvain Grenier, PharmD<sup>4</sup>.

<sup>1</sup>Children's Hospital of Eastern Ontario (CHEO), 401 Smyth Rd, Ottawa, ON K1H 8L1; <sup>2</sup>2004 to 2008 President, Military and Emergency Pharmacy Section of the International Pharmaceutical Federation; <sup>3</sup>New Zealand Defence Forces; <sup>4</sup>Canadian Armed Forces



## BACKGROUND

Research has shown that low literacy rates in patients has increased the risk of poor compliance to drug therapy. Pictographic instructions has been shown to improve communication with patients having low literacy and/or language barriers. The Military and Emergency Pharmacy Section of the International Pharmaceutical Federation (FIP) has been working on using pictograms to label drugs.

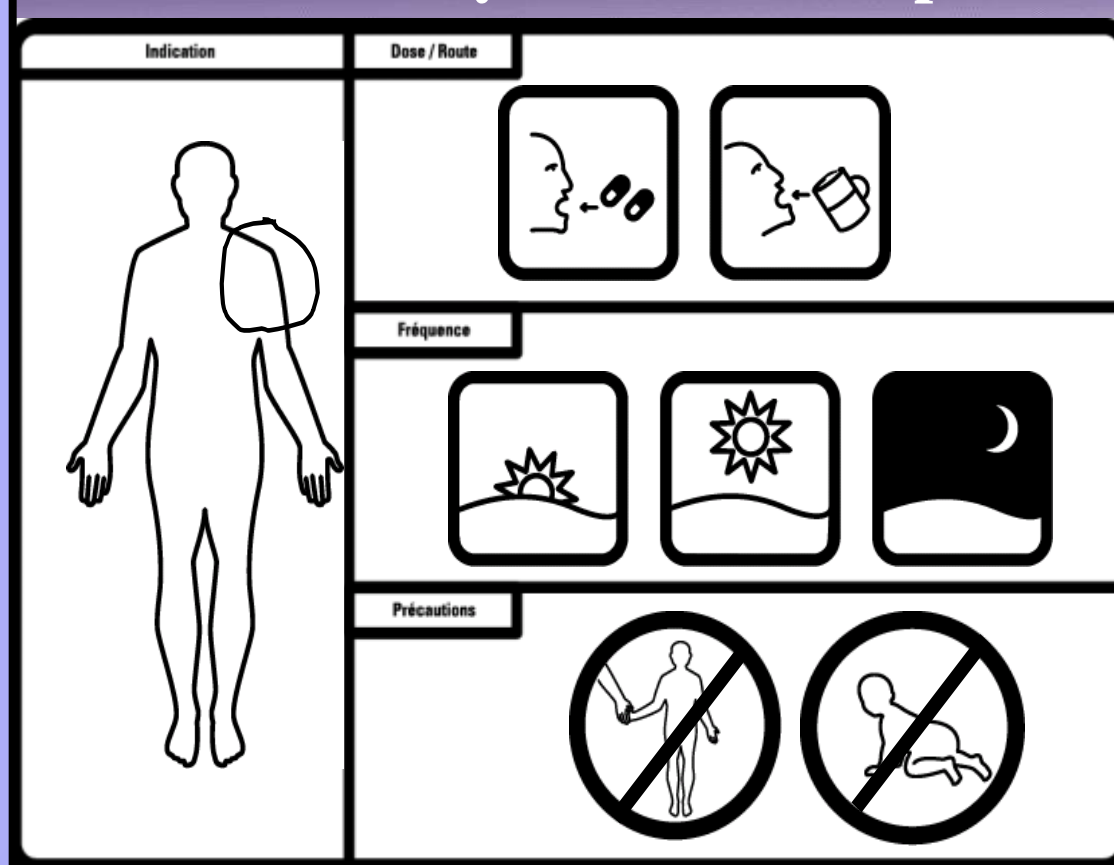
## METHOD 1: International Pharmacy Student Focus Groups (May 2006)

In collaboration with the International Federation of Pharmacy Students, culture-specific pictograms were created by a graphic designer and submitted to the students from various geographical regions for their approval. These originals were selected by the pharmacist focus groups who identified them as being culture-sensitive. A total of 8 pictograms were originally submitted to the students under 7 categories.

## METHOD 2: Online Survey (February 2008)

Further testing of the culture-specific pictograms was done via an online survey. The survey was made available on the FIP website and emailed out to members of different organizations. In addition to the same six from Method 1, pictograms depicting eye drops, ear drops, drowsiness, and inhaler were also tested (not included here).

## The Storyboard Concept



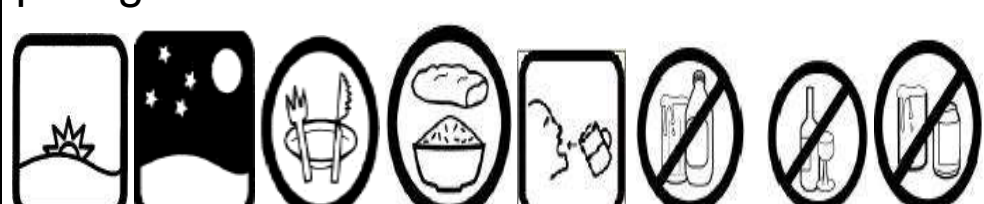
## OBJECTIVES

To design and evaluate culture-specific pictographic instructions for use within a multicultural practice setting.

Online pictogram tool:  
[http://www.fip.org/files/fip/MEPS/Pictogram\\_Building\\_v3.doc](http://www.fip.org/files/fip/MEPS/Pictogram_Building_v3.doc)

## DISCUSSION

Pictograms that were selected 15% or less selection by all continents were eliminated from the inventory of culture-specific pictograms.



## RESULTS

	Original	France	United Kingdom	Australia	Egypt	Singapore	Sri Lanka	Hungary	Indonesia	Taiwan
Take with water										
Take with food										
Do not take with alcohol										
Morning										
Noon										
Evening										
Night A										
at										
Night B										

## RESULTS

Demographics	n (%)
<b>Profession</b>	
Physician	55 (5.8)
Dentist	2 (0.2)
Pharmacist	619 (65.1)
Student	109 (11.5)
Other	166 (17.5)
<b>Highest Level of Education Completed</b>	
Primary school or less completed	9 (0.9)
High school completed	117 (12.3)
College/University completed	425 (44.7)
Post-graduate degree	378 (39.7)
Refused/Other	22 (2.3)
<b>Age</b>	
Less than 21 years old	35 (3.7)
21 – 30 years old	289 (30.4)
31 – 40 years old	203 (21.3)
41 – 50 years old	210 (22.1)
51 – 60 years old	158 (16.6)
Over 61 years old	56 (5.8)

### Q10: Take medication with water

Pictogram	Australia	Egypt	Singapore	Sri Lanka	Hungary	Indonesia	Taiwan
	11 (6.3)	1 (0.6)	11 (6.3)	35 (20.0)	83 (47.4)	34 (19.4)	
	8 (8.1)	2 (2.0)	13 (13.1)	22 (22.2)	40 (40.4)	14 (14.1)	
	31 (8.3)	2 (0.5)	38 (10.1)	67 (17.9)	194 (51.7)	43 (11.5)	
	3 (17.6)	1 (5.9)	2 (11.8)	3 (17.6)	7 (41.2)	1 (5.9)	
	5 (9.4)	2 (3.8)	5 (9.4)	14 (26.4)	24 (45.3)	3 (5.7)	
	2 (9.5)	0 (0.0)	3 (14.3)	2 (9.5)	11 (52.4)	3 (14.3)	
	4 (40.0)	0 (0.0)	1 (10.0)	2 (20.0)	1 (10.0)	2 (20.0)	
	7 (6.9)	1 (1.0)	17 (16.7)	16 (15.7)	51 (50.0)	10 (9.8)	

p=0.026

### Q9: Take medication with food

Pictogram	Australia	Egypt	Singapore	Sri Lanka	Hungary	Indonesia	Taiwan
	89 (50.9)	5 (2.6)	8 (4.6)	6 (3.4)	9 (5.1)	50 (28.6)	2 (1.1)
	37 (37.4)	1 (1.0)	3 (3.0)	4 (4.0)	6 (6.1)	39 (39.4)	7 (7.1)
	160 (42.7)	10 (2.7)	23 (6.1)	23 (6.1)	15 (4.0)	119 (31.7)	16 (4.3)
	5 (29.4)	3 (17.6)	2 (11.8)	1 (5.9)	3 (17.6)	1 (5.9)	0 (0.0)
	6 (11.3)	2 (3.8)	9 (17.0)	1 (1.9)	11 (20.8)	15 (28.3)	2 (3.8)
	11 (52.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	8 (38.1)	1 (4.8)
	7 (70.0)	1 (10.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (20.0)
	36 (35.3)	6 (5.9)	6 (5.9)	0 (0.0)	14 (13.7)	30 (29.4)	1 (1.0)

p<0.001

### Q6: Take medication in the morning

Pictogram	Australia	Egypt	Singapore	Sri Lanka	Hungary	Indonesia	Taiwan
	17 (9.7)	95 (54.3)	63 (36.0)				
	18 (18.2)	66 (66.7)	11 (15.2)				
	31 (8.3)	222 (59.2)	122 (32.5)				
	3 (17.6)	12 (70.6)	2 (11.8)				
	14 (26.4)	34 (64.2)	5 (9.4)				
	1 (4.8)	11 (52.4)	9 (42.9)				
	2 (20.0)	8 (80.0)	0 (0.0)				
	13 (12.7)	72 (70.6)	17 (16.7)				

p< 0.001

### Q11: Do not drink alcohol with your medication

Pictogram	Australia	Egypt	Singapore	Sri Lanka	Hungary	Indonesia	Taiwan
	1 (0.6)	6 (3.4)	133 (76.0)	1 (0.6)	17 (9.7)	14 (8.0)	3 (1.7)
	4 (4.0)	6 (6.1)	71 (71.7)	2 (2.0)	6 (6.1)	9 (9.1)	1 (1.0)
	5 (1.3)	29 (7.7)	228 (60.8)	3 (0.8)	63 (16.8)	46 (12.3)	1 (0.3)
	0 (0.0)	2 (11.8)	5 (29.4)	0 (0.0)	9 (52.9)	0 (0.0)	1 (5.9)
	6 (11.3)	7 (13.2)	24 (45.3)	2 (3.8)	8 (15.1)	3 (5.7)	3 (5.7)
	0 (0.0)	4 (19.0)	14 (66.7)	1 (4.8)	2 (9.5)	0 (0.0)	0 (0.0)
	0 (0.0)	1 (10.0)	6 (60.0)	0 (0.0)	2 (20.0)	1 (10.0)	0 (0.0)
	5 (4.9)	5 (4.9)	65 (63.7)	1 (1.0)	13 (12.7)	9 (8.8)	4 (3.9)

p<0.001

### Q7: Take medication in the evening

Pictogram	Australia	Egypt	Singapore	Sri Lanka	Hungary	Indonesia	Taiwan
	6 (3.4)	148 (84.6)	21 (12.0)				
	6 (6.1)	83 (83.8)	10 (10.1)				
	17 (4.5)	312 (83.2)	46 (12.3)				
	0 (0.0)	10 (58.8)	46 (12.3)				
	1 (1.9)	38 (71.7)	14 (26.4)				
	0 (0.0)	20 (95.2)	1 (4.8)				
	0 (0.0)	7 (70.0)	3 (30.0)				
	4 (3.9)	81 (79.4)	17 (16.7)				

p = 0.016

### Q8: Take medication at night

Pictogram	Australia	Egypt	Singapore	Sri Lanka	Hungary	Indonesia	Taiwan
	134 (76.6)	10 (5.7)	4 (2.3)	27 (15.4)			
	69 (69.7)	6 (6.1)	4 (4.0)	20 (20.2)			
	286 (76.3)	32 (8.5)	6 (1.6)	51 (13.6)			
	4 (23.5)	2 (11.8)	0 (0.0)	11 (64.7)			
	24 (45.3)	6 (11.3)	3 (5.7)	20 (37.7)			
	16 (76.2)	1 (4.8)	1 (10.0)	3 (14.3)			
	7 (70.0)	1 (10.0)	1 (10.0)	1 (10.0)			
	61 (59.8)	20 (19.6)	4 (3.9)	17 (16.7)			

p < 0.001

## CONCLUSION

Both these projects were successful for identifying and validating culturally-specific pictograms that may be used to increase comprehension for drug therapy. An online, easily accessible pictogram program has been created adding all the culture-specific pictograms that have been created based on the focus groups and online survey results.