Improving Prescription Medication Labels for Older Adults in Singapore: Why and How?

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CARE Experts Webinar

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  ➢ Prescription medication labels

  ➢ Prescription medication labels and the elderly (in Singapore)

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  ➢ Prescription Medication Label Improvement for Singaporean Elderly (PROMISE)

    ▪ Findings till date, and next steps

- **Questions (and Answers)**

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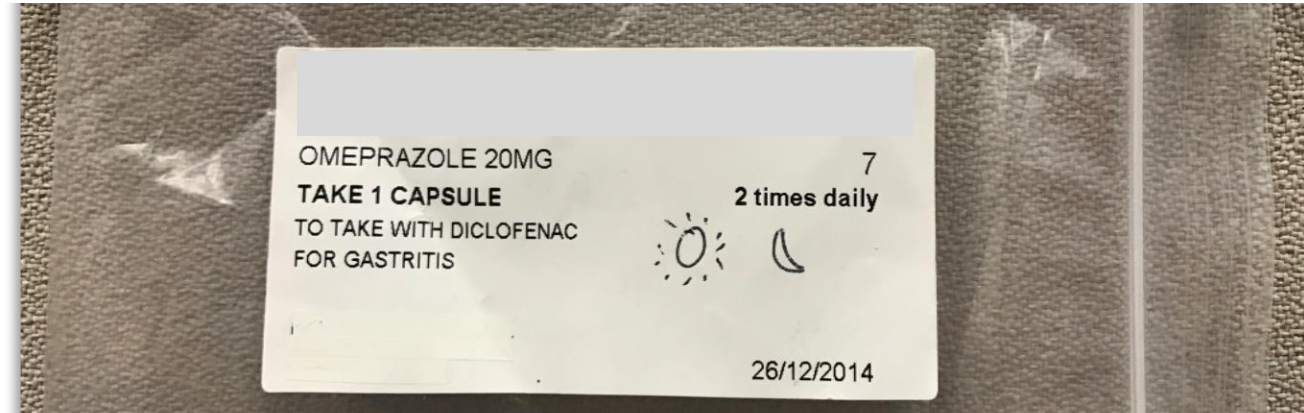- **HOW - Identifying and testing two solutions**

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Prescription medication labels (PMLs) in Singapore

OMEPRAZOLE 20MG   7
TAKE 1 CAPSULE   2 times daily
TO TAKE WITH DICLOFENAC
FOR GASTRITIS

26/12/2014

Public and private clinics and hospitals <u>dispense</u> prescription medications with **a pharmacy generated label** that provide medication-related information and instructions for patients
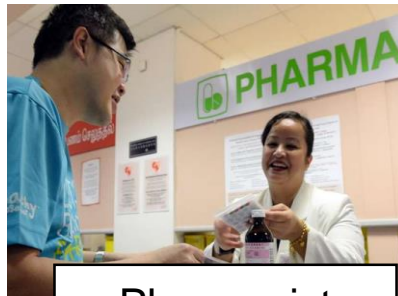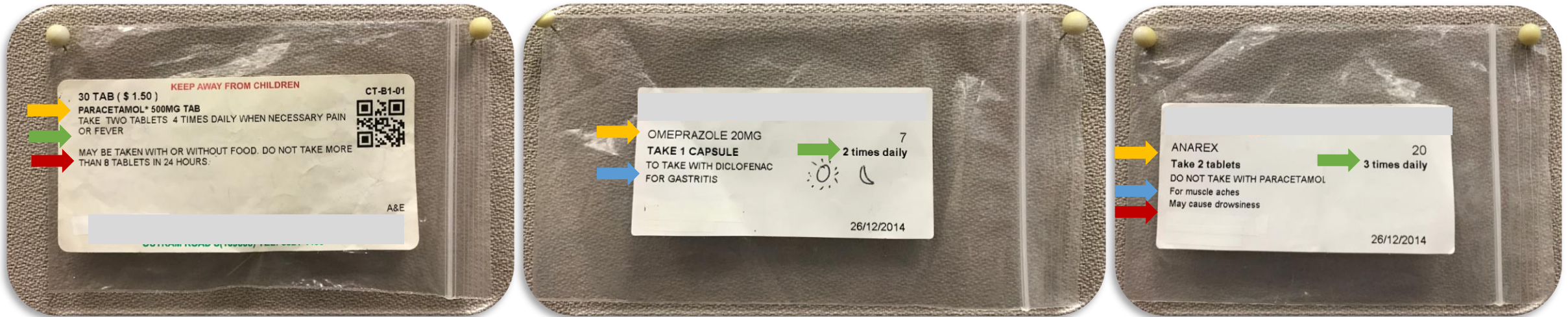

Pharmacist

Clinic Assistant

Frontier Healthcare; Mediacorp (images)
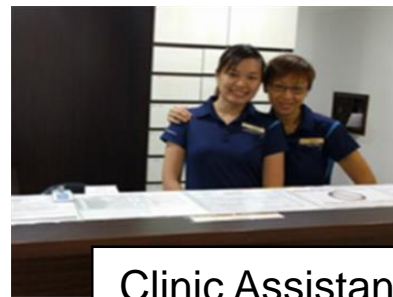
Actual PMLs from public and private providers

Key medication information (and patient and clinic details)

→ (yellow) **drug name, dose, quantity dispensed**

→ (green) **dosage and route**

→ (blue) **indications**

→ (red) **precautions and side-effects (if any)**

- Variable format and presentation
- **English is the commonly used language**

WHY? – From a personal perspective

Understanding of PMLs is important
— especially among the Elderly

- Essential for proper medication adherence and patient safety

- Incorrect understanding ~ related to increased healthcare utilization (outpatient)

- Increased healthcare utilization with age = **Elderly** are more likely to receive prescription medications (vs younger)

- **Elderly** are more likely to interpret medication labels incorrectly

- Ensuring understanding of prescription medication labels:
  - Empowers the **elderly** for self-care
  - Enables the **elderly** to take responsibility for own medication, supporting higher-level functioning (i.e., an Instrumental Activity of Daily Living)

Brown MT et al., 2011; Williams CM, 2002; Davis TC, 2006; Ministry of Health Singapore, 2006; Jeetu G et al., 2011; Davis TC, 2006; Morrell RW et al., 1989; Moisan J et al., 2002; Tsai TI et al., 2014; Barer ML et al., 1998; Wiener JM et al., 2002; Lubitz J et al., 2001; Williams CM, 2002

PMLs are the principal source of medication information for **the elderly (in Singapore)**

Key adjunct to medication counselling

Increasing proportion of elderly living alone (Singapore included)
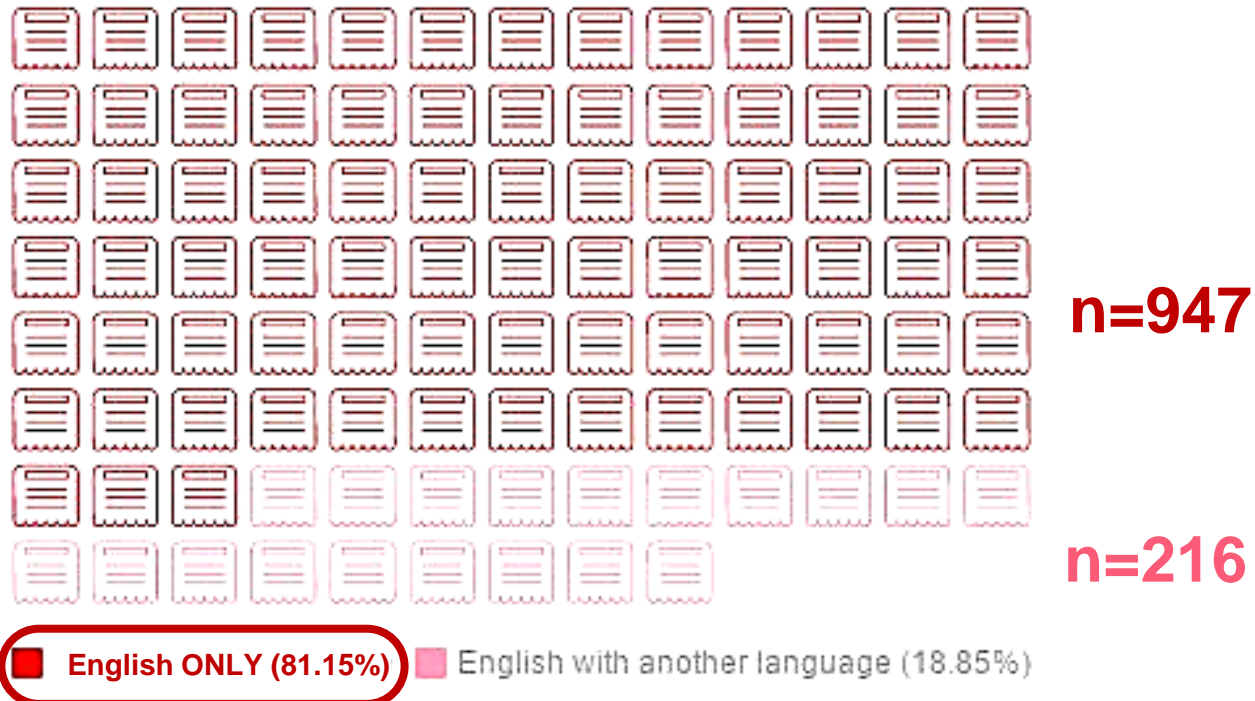

Do they actually use the internet to access medication information?

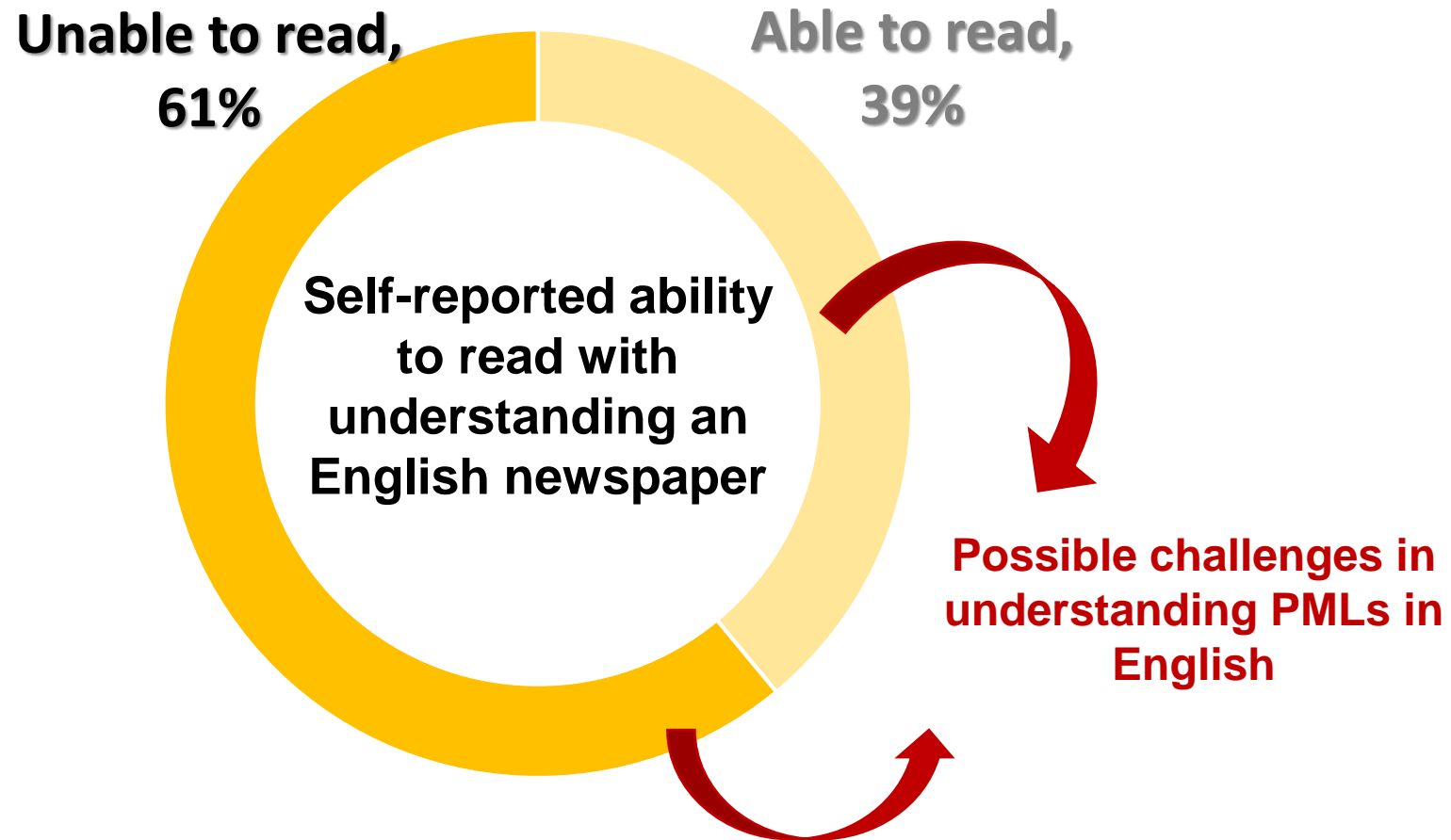# PMLs of elderly Singaporeans on regular prescription medications

SAFE-PHASE examined 1,167 PMLs

99.7% used the English language (with or without any other language)

Language used in medication instructions

n=947

n=216

■ **English ONLY (81.15%)** ▨ English with another language (18.85%)

Many Singaporeans aged 65 years and older are unable to read English

Unable to read, 61%

Able to read, 39%

Self-reported ability to read with understanding an English newspaper

Possible challenges in understanding PMLs in English

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Some strategies for improving understanding of PMLs

Multilingual instructions

- Adults with limited English proficiency
- Benefit for care provider and patients
- Effective communication of product use information
- Improved product knowledge
- Improved mean scores for ease of use

Pictograms

- Low literate and elderly populations
- Use in combination with written text
- Requires proper cultural adaptation and validation in the target population

Can these strategies help the elderly Singaporeans in understanding PMLs?

Mohan A et al., 2013; Sansgiry S et al., 2007; Bailey SC et al., 2015; Bailey Sc et al., 2012; Berthenet M et al., 2016; Ng AWY et al., 2016; Barros IM et al., 2014; Katz M et al., 2006

Aim

To compare the **understanding*** of **PMLs** among **elderly** Singaporeans *randomized* to 1 of 4 prototype labels, which contain the <u>same</u> **medication information** and **instructions** but <u>vary</u> **in their use of an additional language along with English and/or pictograms**

*Based on the response to a standard set of questions

Prototype	Three PMLs (Augmentin, Metformin and Phenytoin) with the same information and instructions provided in:
ET label	English Text
ETP label	English Text <u>with</u> FIP Pictograms
BLT label	Bi-Lingual Text (i.e., English with Chinese or Malay or Tamil)
BLTP label	Bi-Lingual Text (i.e., English with Chinese or Malay or Tamil) <u>with</u> FIP* Pictograms

*FIP, International Pharmaceutical Federation

Label 1: AUGMENTIN, and questions

English-text label

English-text-with-pictogram label

Bilingual-text label

Bilingual-text-with-pictogram label

Augmentin

Assume that your doctor prescribed a medication for you that you received in a packet with this label.	
Q1	**How many times a day do you have to take this medication?** _____ times / Don't know / Not sure
Q2	**How many tablets do you have to take each time you take this medication?** _____ tablets / Don't know / Not sure
Q3	**If you were to take this medication correctly as prescribed by the doctor, how many days will your medication last?** _____ days / Don't know / Not sure
Q4	**Assume that you took the first dose of this medication at 8 o'clock this morning. About what time, or when, should you take the next dose?** _____ / Don't know / Not sure
Q5	**For which specific side effect of this medication should you consult a doctor?** _____ / Don't know / Not sure

Proportions of elderly with *complete understanding* and *any understanding*, by label
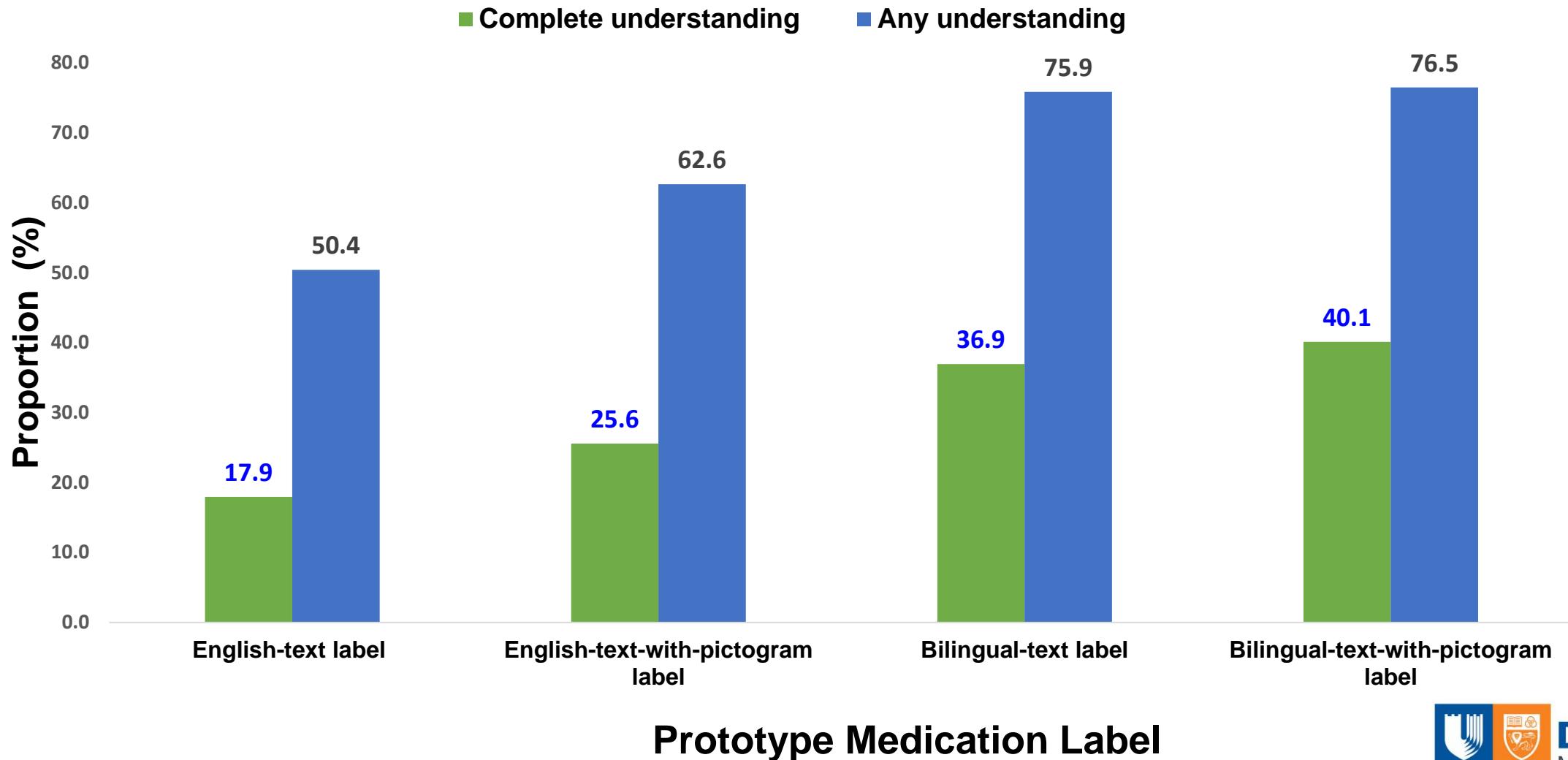
Proportions of elderly with *complete understanding* and *any understanding*, by label and English-reading ability
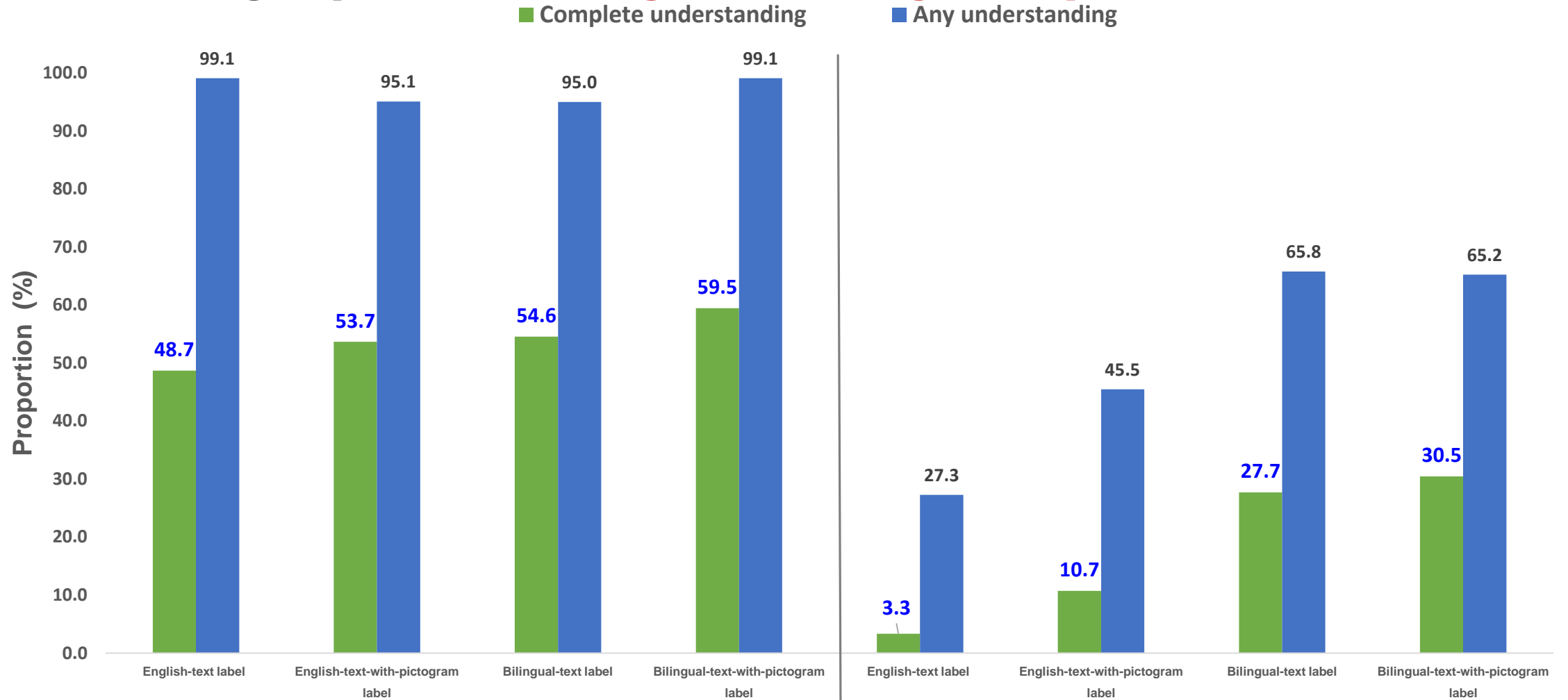
The Gerontologist

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Intervention Research

Bilingual Text *With or Without* Pictograms Improves Elderly Singaporeans' Understanding of Prescription Medication Labels

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Centre for Ageing Research & Education

DukeNUS Medical School

Conclusion

- Adding a **preferred official second language** and/or **pictograms** to 'regular' purely English text PMLs will **enhance PML understanding** among elderly Singaporeans

- Low proportions (<50%) with *complete understanding* across all prototypes ~ more careful assessment of **other issues related to label design and content**

- Pictograms helped?

  - **BLTP label** had the **highest proportion** of elderly with *complete* and *any understanding,* similar to the BLT label and much higher than the ETP label

  - **Local adaptation of the FIP pictograms**

Recent prescription medication packets in Singapore

Challenges that remain

Bilingual PMLs

- Finding equivalent terms
- Maintaining similar reading levels
- Accounting for dialects and regional differences

Pictograms

- Cultural adaptation
- Pre-testing

Standardization across providers and settings

Administrative and Financial (and Environmental)

Bailey et al., 2012

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Prescription Medication Label Improvement for Singaporean Elderly (PROMISE)

Further investigation on prescription medication labels for elderly Singaporeans – ONGOING

Funding: Ministry of Health, Singapore sub-award through Centre for Ageing Research and Education (CARE), Duke-NUS Medical School, Singapore (PI: Rahul Malhotra)

PROMISE (Prescription Medication Label Improvement for Singaporean Elderly) study group (listed alphabetically, after the Principal Investigator):
Rahul Malhotra (Principal Investigator; Centre for Ageing Research and Education, Duke-NUS Medical School, Singapore and Health Services and Systems Research, Duke-NUS Medical School, Singapore); **John Carson Allen** (Centre for Quantitative Medicine, Duke-NUS Medical School, Singapore); **Ang Wee Ping** (Clinic Pharmacy, SingHealth Polyclinics, Singapore); **Bek Siew Joo Esther** (National Healthcare Group Pharmacy, Singapore); **Chan Alexandre** (Department of Pharmacy, Faculty of Science. National University of Singapore, Singapore and Department of Pharmacy, National Cancer Centre, Singapore); **Chew Lita Siu Tjien** (Department of Pharmacy, Faculty of Science. National University of Singapore, Singapore and Department of Pharmacy, National Cancer Centre, Singapore); **Koh Choon-Huat Gerald** (School of Public Health, Saw Swee Hock School of Public Health, National University of Singapore, Singapore); **Lee Ting Yee** (Clinic Pharmacy, SingHealth Polyclinics, Singapore); **Ng Wai Chong** (Tsao Foundation, Singapore); **Sumithra Suppiah** (Centre for Ageing Research and Education, Duke-NUS Medical School, Singapore); **Tan Ngiap Chuan** (Department of Research, SingHealth Polyclinics, Singapore); **Tan Shu Ying Valerie** (National Healthcare Group Pharmacy, Singapore); **Tan Yi Wen** (Centre for Ageing Research and Education, Duke-NUS Medical School, Singapore); **Tang Imel** (Clinic Pharmacy, SingHealth Polyclinics, Singapore); **Tang Wern Ee** (National Healthcare Group Polyclinics, Singapore); **Tay Siew Cheng Sarah** (Clinic Pharmacy, SingHealth Polyclinics, Singapore); **Régis Vaillancourt** (Department of Pharmacy, Children's Hospital of Eastern Ontario, Canada); **Csilla Weninger** (National Institute of Education, Nanyang Technological University, Singapore)

PROMISE

GOAL: To provide the evidence-base for developing and implementing easily understood, context- and culturally-appropriate PMLs for elderly Singaporeans

AIM 1: Document the experience of elderly patients, family caregivers of the elderly, and healthcare providers (pharmacists/pharmacy technicians in public polyclinics) with PMLs from primary healthcare clinics in Singapore

AIM 2: Assess the validity of the FIP pictograms among elderly Singaporeans, and if needed, adapt the FIP pictograms (or develop new pictograms) to the Singapore context

AIM 3: Assess the validity of the 're-designed' FIP pictograms (or new pictograms) among elderly Singaporeans

AIM 4: Quantify the preferences of elderly Singaporeans for the content and format of PMLs

AIM 5: Enable the implementation of improved PMLs

AIM 1: Interviews with elderly, family caregivers & pharmacy staff

Elderly

- **20** in-depth interviews
- **10** with elderly who **could read** in English & 10 with elderly who **cannot read** in English.

- Singaporeans/Permanent Residents aged ≥60 years.
- Taken prescription medications dispensed from polyclinics/GP clinics in the past 3 months.
- Not cognitively impaired, deaf or blind.

Family Caregivers

- **10** in-depth interviews

- Singaporeans/Permanent Residents aged ≥21 years.
- Involved in the management of medications of a Singaporean/ Permanent Resident who is aged ≥60 years.
- Elderly's medication must be dispensed from polyclinics/GP clinics in the past 3 months.

Pharmacy Staff

- **10** in-depth interviews
- Across 6 polyclinics in Singapore.

- Polyclinic pharmacists and pharmacist technicians who dispense prescription medications **AND** provide medication counselling to elderly patients

Elderly's perspectives	**Pharmacy staff's solutions**

Illiteracy and Limited English Proficiency

"Sometimes it is not clear. Because some… <u>words are very complex</u>. Because our English is not very good what. But for your Mandarin ones, we can read very well."

"Much better if they write (in) Malay and English language… <u>'Two' in number is better</u>. No need to put in words anymore lah."

"If you have animation, pictures, you know? Like those… <u>little icon things</u> ah, like taken with food..."

28 TABLET — KEEP AWAY FROM CHILDREN
AMLODIPINE BESILATE 5MG TAB
TAKE 1 TABLET EVERY MORNING
DISCARD IF UNUSED BY EXPIRY DATE OR AFTER 12 MONTHS
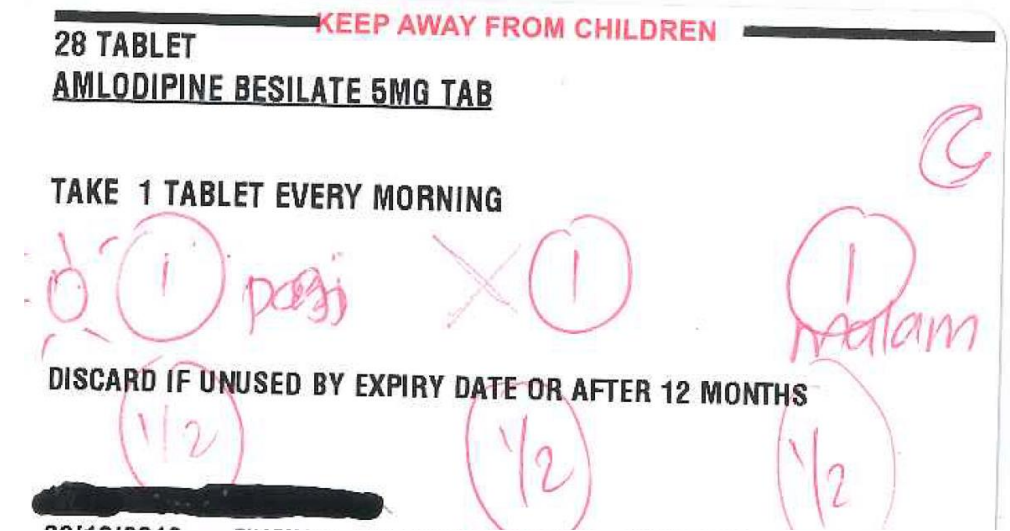
- **Re-write in patients' preferred language**
- **Re-write numbers as numerals**
- **Sketch pictures**

Elderly's perspectives	**Pharmacy Staff's Solution**

Small Font Size

"But this one is too small, far too small... Ya, especially this line. For me, sometimes I can't see, I take the magnifying glass to read."

"I have to… wear glasses and slowly, slowly read every writing… You see these (words) are stuck together hor? It is stuck together, you must be very careful mah. Like there is space here then ok la."
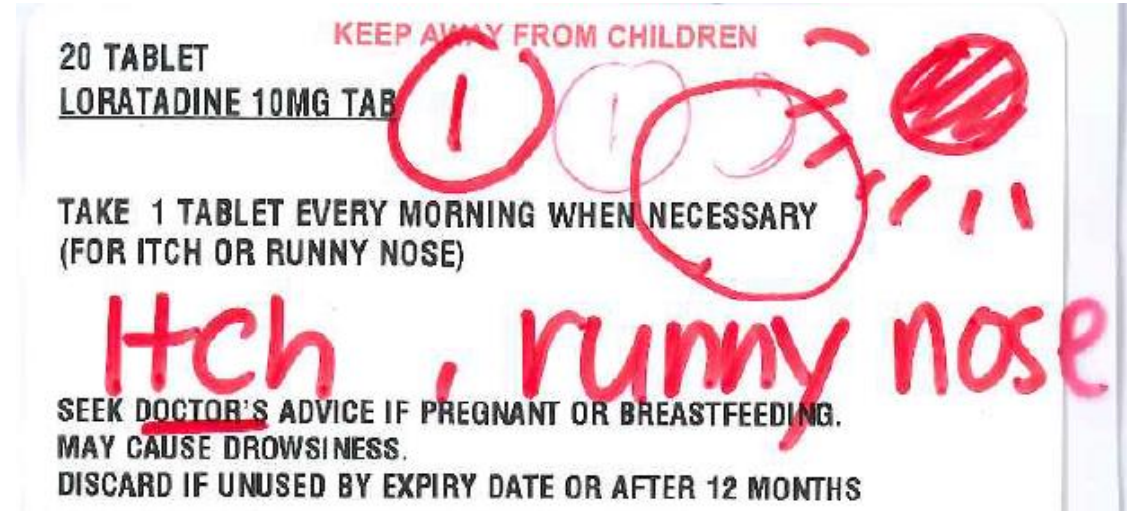
- **Re-write instructions in a larger handwriting either in English or another preferred language**
- **Use of bold point markers**

Elderly's perspectives	Pharmacy Staff's Solution

Lack desired information

"I think that's important. Because, I mean, if I were to take medication, I want to know what is it for. I just can't take it blindly."

"Ya, sometimes I have to look (for expiry date) here (at the medicine foil), it's so difficult to look, you know?"

"More details, one in the morning, one at night. That's the best. Ah, we want to know… when it finishes."

28 TABLET
ATORVASTATIN 20MG TAB

KEEP AWAY FROM CHILDREN

TAKE 1 TABLET EVERY MORNING

SEEK DOCTOR'S ADVICE IF YOU ARE PREGNANT OR BREASTFEEDING.
DISCARD IF UNUSED BY EXPIRY DATE OR AFTER 12 MONTHS
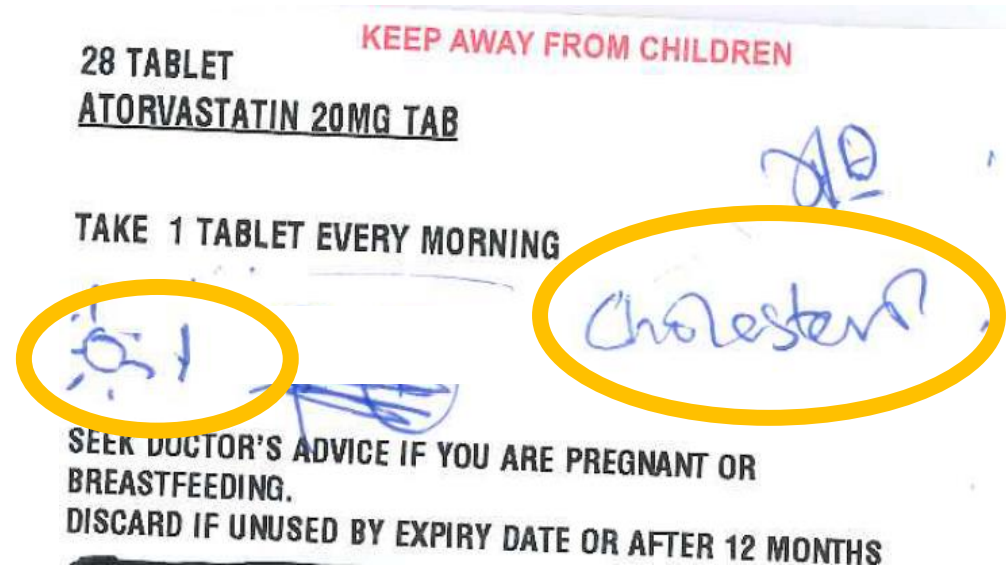
- **Write indication** of medication either in **English or preferred language**

- **Sketch** pictures to represent frequency

AIM 1: Conclusion

- **Strong need to improve current PMLs**

  - Older Singaporeans (and their caregivers) experience difficulties reading and obtaining desired medication information from PMLs

  - "Ad-hoc" solutions by pharmacy staff

- Older Singaporeans, and their caregivers, voiced several **PML improvements**

  - **Format**: Larger **font**; Dose in **numeric** (vs text); **Tabular** presentation of dose and frequency; Presentation of dose and frequency in context of **time of the day** (than times per day); **List** / Better **spacing** instead of a lump of text

  - **Content**: Simpler language; Bilingual text; Pictograms; Indication; Expiry date; Food instructions; Missed dose instructions

AIM 2: Elderly feedback on pharmaceutical pictograms

Dose
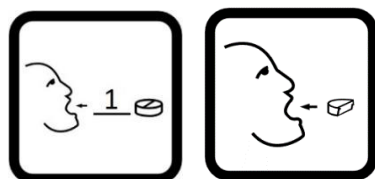
Route

Frequency
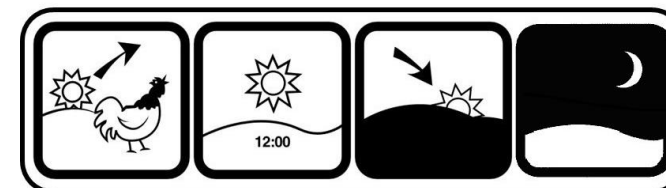
Precautions

Indications/Side effects

Storyboards
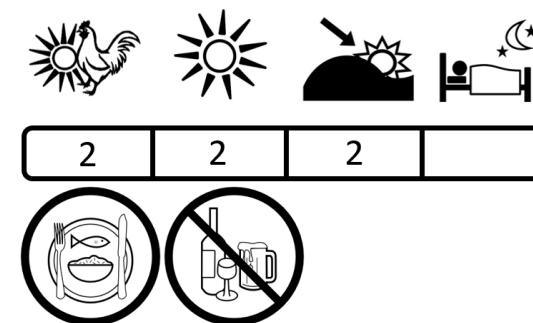
A total of <u>54</u> pictograms (52 from FIP) and <u>3</u> storyboards tested among <u>250</u> elderly (≥60 years) <u>unable to read English</u> who attended NHGP and SHP polyclinics (Mar – Aug 19)

AIM 2: Elderly feedback on pharmaceutical pictograms (Methodology)

Transparency

If you see this picture on a medicine label, what do you think it means?

Any response other than "don't know"/ "not sure"

Don't know/ not sure

How do you know?

Tell me everything you see in this picture.

Translucency

Inject under the skin

注射在皮下

Suntik di bawah kulit

தோலுக்கு அடியில் ஊசி போடவும்

1. On a medicine label, this picture means, <u>inject under the skin.</u> How can we make the picture better?

2. Do you have any other suggestions to make this picture more appropriate for the elderly?

3. How well does this picture represent the intended meaning "Inject under the skin"? Please rate on a scale of 1 to 7, where 1 is <u>Does not represent</u> and 7 is <u>Completely represents</u>.

- Each pictogram / storyboard was shown to at least 50 respondents
- Each respondent was shown 11 pictograms and 1 storyboard

AIM 2: Elderly feedback on pharmaceutical pictograms

A pictogram is valid if:

✓ it has **high transparency**, i.e., ≥66.7% (*ISO 9186*) of respondents have a "correct" response in the assessment of transparency *and*

✓ it has **high translucency**, i.e., ≥85% of respondents reply that the pictogram is strongly related to its referent (i.e., translucency score of ≥5).

Mok G, Vaillancourt R, Irwin D, Wong A, Zemek R, Alqurashi W. Design and validation of pictograms in a pediatric anaphylaxis action plan. Pediatric allergy and immunology : official publication of the European Society of Pediatric Allergy and Immunology. 2015;26(3):223-233.
Berthenet M, Vaillancourt R, Pouliot A. Evaluation, Modification, and Validation of Pictograms Depicting Medication Instructions in the Elderly. Journal of health communication. 2016;21 Suppl 1:27-33.

AIM 2: Elderly feedback on pharmaceutical pictograms

High Transparency AND High Translucency = 14 FIP pictograms

	PICTOGRAM	% Consolidated transparency scores [Ref.: ≥66.7%]	% Consolidated translucency scores that are ≥5 [Ref.: ≥85%]
1	1 drop in the left ear	100.0	88.2
2	1 drop in the right eye	98.0	90.2
3	Inject under the skin	98.0	92.2
4	Headache	98.0	92.0
5	High blood pressure	98.0	94.1
6	Back pain	96.1	90.2
7	Cough	94.1	92.2
8	Dissolve 1 sachet in water	90.2	90.2
9	Morning	86.3	88.2
10	Inhale	84.3	92.2
11	Vomiting	82.4	86.3
12	Morning, Noon, Evening, Night	80.4	98.0
13	Do not drink alcohol	76.5	86.3
14	Keep in the fridge	70.6	86.3
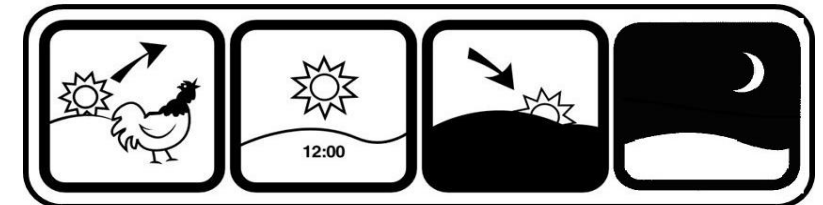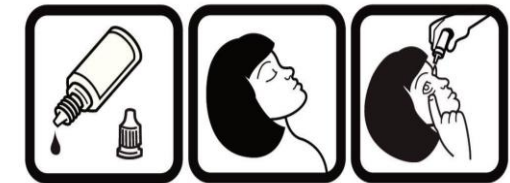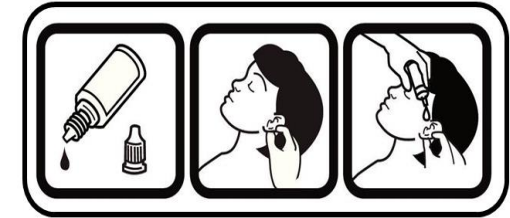
Validated! – Not be re-designed or re-tested

AIM 2: Elderly feedback on pharmaceutical pictograms

High Transparency AND Low Translucency = 6 FIP pictograms

	PICTOGRAM	% Consolidated transparency scores [Ref.: ≥66.7%]	% Consolidated translucency scores that are ≥5 [Ref.: ≥85%]
1	Night	94.1	82.4
2	2 tablets	92.0	80.0
3	1 tablet	88.0	78.0
4	1 tablet	86.0	76.0
5	Rash	80.4	80.4
6	8 mL	70.6	82.4
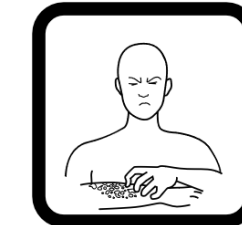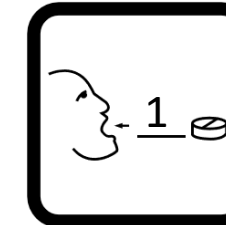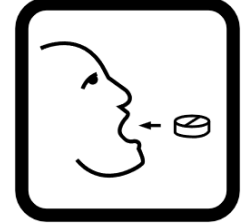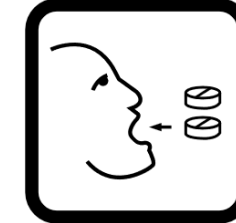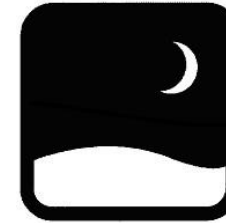
Partially Validated - Not be re-designed or re-tested

(as the transparency scores are above the threshold)

AIM 2: Elderly feedback on pharmaceutical pictograms

Low Transparency AND Low Translucency = 30 FIP pictograms

	PICTOGRAM	% Consolidated transparency scores [Ref.: ≥66.7%]	% Consolidated translucency scores that are ≥5 [Ref.: ≥85%]
1	Insert 1 suppository	60.8	82.4
2	Noon	58.8	74.5
3	Fever	51.0	72.5
4	Evening	49.0	74.5
5	Shake	43.1	68.6
6	Keep out of reach of children	43.1	68.6
7	Diarrhea	41.2	62.7
8	Fatigue	41.2	60.8
9	Muscular pain	41.2	72.0
10	Drowsiness	40.0	68.6
11	Weight gain	39.2	78.4
12	Constipation	39.2	80.4
13	Do not crush	36.0	72.5
14	Half a tablet	35.3	74.5
15	Giddy when getting up	33.3	76.5
16	Nausea or Feeling of wanting to vomit	31.4	78.4
17	Blurred vision	29.4	54.9
18	Do not drive	26.0	74.0
19	Do not eat grapefruit or drink grapefruit juice	23.5	74.5
20	Seek medical advice	21.6	72.5
21	Sensitive to sunlight	19.6	66.7
22	Gastric or Reflux	17.6	52.9
23	Ringing in ears	17.6	66.7
24	Difficulty in breathing	17.3	48.1
25	Apply to affected area	15.7	64.7
26	Tremors or Shaky hands	13.7	43.1
27	Take on empty stomach	9.8	58.0
28	Confusion	7.8	54.9
29	Difficulty in sleeping	3.9	54.9
30	Take until finished	0.0	51.0
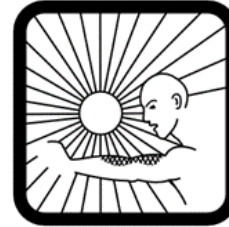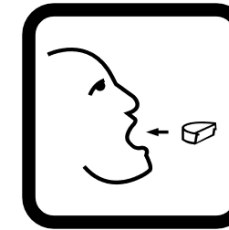
Not valid for use locally!

26 of the 30 pictograms will be **re-designed,** resulting

in **Singapore-specific pictograms.**

AIM 2: Elderly feedback on pharmaceutical pictograms

Low Transparency AND High Translucency = 4 pictograms

	PICTOGRAM	% Consolidated transparency scores [Ref.: ≥66.7%]	% Consolidated translucency scores that are ≥5 [Ref.: ≥85%]
1	Morning, Noon, Evening, Night	54.9	90.2
2	Morning, Noon, Evening, Night	49.0	98.0
3	Take with food	41.2	90.2
4	Inhale with spacer	0.0	92.2

Data does <u>not</u> support Validity

- Only 1 will be re-designed and re-tested

AIM 2: Conclusion

- Majority of the tested FIP pictograms (61.5%) did not achieve validity (≥66.7% comprehensibility), highlighting **the need for contextual validation of pharmaceutical pictograms prior to use**.

- Pictograms that did not achieve comprehensibility are being modified based on participant feedback and will be re-tested in AIM 3.
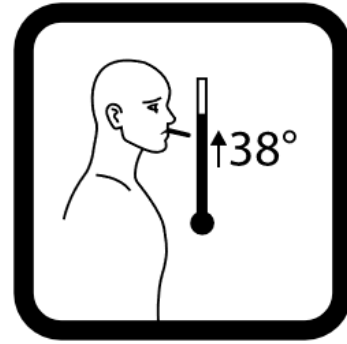
FIP Original Pictogram 40

Fever
发烧
Demam
காய்ச்சல்

NEW redesigned pictograms:

Option 1

Option 2

Option 3

FIP Original Pictogram 29

Take with food
与食物一同服用
Ambil bersama makanan
உணவுடன் எடுக்கவும்

NEW redesigned pictograms:

Option 1   Option 2   Option 3

AIM 4: Eliciting PML *format* preferences from elderly using Discrete Choice Experiment (<u>DCE</u>)

What is a Discrete Choice Experiment (DCE) and how is it applied to PROMISE?

- Quantitative technique used to elicit preferences

- Will be used to elicit preferences for **format** of PMLs in PROMISE.

- Individuals will be shown 2 hypothetical prototype labels each time (task) and asked to choose their **preferred medication label**.

- Each label design varies in several format attributes (e.g. Font size, spacing, etc).

- There will be **6 tasks** per person. Each task requires individuals to **trade-off less of one attribute for more of another** when selecting their preferred label.

- Responses will eventually reflect the **relative importance of these attributes** on PMLs.

AIM 4: Eliciting PML *format* preferences from elderly using <u>DCE</u> – Sample DCE Task

Attributes	Design A	Design B
▪ **Font size**	Small font	Large font
▪ **Spacing between letters**	Increased spacing	Regular spacing
▪ **Format of dose and frequency instructions**	"TAKE 2 TABLETS IN THE MORNING. TAKE 2 TABLETS IN THE EVENING"	"TAKE TWO TABLETS TWO TIMES A DAY"
▪ **Format of dose**	Numeral	Word
▪ **Format of precautionary statement**	Bullet points	Prose
▪ **Colour of precautionary statement**	Black	Red

KEEP AWAY FROM CHILDREN

20 TABS
METFORMIN 850MG TAB

TAKE 2 TABLETS IN THE MORNING
TAKE 2 TABLETS IN THE EVENING

- Take with or after food.
- Warning - avoid alcoholic drinks.
- DO NOT take this medication on the morning before the fasting blood test.

xxxxx134T MARY   **20/01/2020 DUKE-031294**
DUKE-NUS PHARMACY 8 College Road, S (169857) Tel: 66015976

KEEP AWAY FROM CHILDREN

20 TABS
METFORMIN 850MG TAB

TAKE TWO TABLETS TWO TIMES A DAY

Take with or after food. Warning - avoid alcoholic drinks. DO NOT take this medication on the morning before the fasting blood test.

xxxxx134T MARY   **20/01/2020 DUKE-031294**
DUKE-NUS PHARMACY 8 College Road, S (169857) Tel: 66015976

AIM 4: Eliciting PML *format* preferences from elderly using <u>DCE</u> – Sample DCE Task

Attributes	Design A	Design B
• **Font size**	Large font	Small font
• **Spacing between letters**	Regular spacing	Increased spacing
• **Format of dose and frequency instructions**	"TAKE 2 TABLETS IN THE MORNING AND EVENING"	Table format
• **Format of dose**	Numeral	Word
• **Format of precautionary statement**	Bullet points	Prose
• **Colour of precautionary statement**	Black	Red

KEEP AWAY FROM CHILDREN

20 TABS
METFORMIN 850MG TAB

TAKE 2 TABLETS IN THE MORNING
AND EVENING

• Take with or after food.
• Warning - avoid alcoholic drinks.
• DO NOT take this medication on the morning before the fasting blood test.

xxxxx134T MARY   **20/01/2020 DUKE-031294**
DUKE-NUS PHARMACY 8 College Road, S (169857) Tel: 66015976

KEEP AWAY FROM CHILDREN

20 TABS
METFORMIN 850MG TAB

Morning	Afternoon	Evening	Night
Two tablets	X	Two tablets	X

Take with or after food. Warning - avoid alcoholic drinks. DO NOT take this medication on the morning before the fasting blood test.

xxxxx134T MARY   **20/01/2020 DUKE-031294**
DUKE-NUS PHARMACY 8 College Road, S (169857) Tel: 66015976

AIM 4: Eliciting PML *content* preferences from elderly using Best-Worst Scaling (BWS)

What is Best-Worst Scaling (BWS) and how is it applied to PROMISE?

- BWS is another form of preference elicitation technique.

- BWS involves **less cognitive burden** for respondents.

- From an initial list of **10 types of desired medicines information** (*informed through Component 1 in-depth interviews*), **3 attributes** are shown to the respondents at each time.

- Individuals are required to complete **5 tasks** of choosing the most and least important features.

- Each task requires individuals to **trade-off less of one attribute for more of another** when selecting their preferred medicines information.

AIM 4: Eliciting PML *content* preferences from elderly using <u>BWS</u>

List of 10 medicines information attributes to be randomized:

1. Indication

2. Expiry date

3. Pictures

4. Food instructions

5. Precautionary statement

6. Side effect

7. Interaction/ Paired medicines

8. Missed dose action

9. Bilingual text

10. Quick response code *(directing to a website with additional information about your medicines)*

AIM 4: Eliciting PML *content* preferences from elderly using __BWS__ – Sample BWS Task

What do you think is the **most important** feature and the **least important** feature for you on a medicine label?

Most Important	Feature	Least Important
☐	QR Code	☐
☐	Indication	☐
☐	Expiry date	☐

Feature	Example
Quick Response (QR) Code: Refers to a barcode that can be scanned using a smartphone. You will be directed to a website which may contain additional information about your medicines.	
Indication: Refers to what the medicine is for.	*Diabetes, hypertension*
Expiry date: Refers to when you should discard your medicine.	*Discard 1 month after opening*

What do you think is the **most important** feature and the **least important** feature for you on a medicine label?

Most Important	Feature	Least important
☐	Bilingual text	☐
☐	Side effect	☐
☐	Food instructions	☐

Feature	Example
Bilingual text: Refers to medicine instructions in English and another official language (Malay or Chinese or Tamil)	KEEP AWAY FROM CHILDREN 请勿让儿童接触 20 TABS (粒) METFORMIN 850MG TAB TAKE 2 TABLET(S) 3 TIMES A DAY 每天 3 次，每次服用 2 粒 Take with or after food. Warning - avoid alcoholic drinks. DO NOT take this medication on the morning before the fasting blood test. 与食物一同服用或饭后服用。警告 - 避免喝酒精饮料。在早上的空腹验血之前，请勿服用这个药物。 xxxxx134T MARY 20/01/2020 DUKE-031294 DUKE-NUS PHARMACY 8 College Road, S (169857) Tel: 66015976
Side effect: Refers to unintended effects which occur when taking or using a medicine.	*Example: May cause drowsiness. May discolour urine or stools.*
Food instructions: Refers to when you should take your medicines in relation to food.	*Example: Take half to one hour before food, May be taken with or without food*

Summary

- **Need to improve current PMLs**

- Adding another **preferred official language** and/or pictograms to 'usual practice' purely English PMLs will enhance their understanding among elderly Singaporeans

- Need for contextual validation of pictograms prior to use

- Other label format and content features - have to be considered

- Opportune time - National Pharmacy Strategy (redesigned, standardized labels?)

Thank You!

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