



Supplementary materials

DETAILED RESULTS

Dose, frequency and method of use.



Pictogram group on how to use medications, their doses and frequency of use - 14 images (pictograms 1 – 14)

Pictogram 1: Use 5ml of the medicine in liquid form

	Medical information: Use 5ml of the medicine in liquid form / use half the size of the dispenser attached to the packaging of the medicine		
The number of patients participating in the validation: 22 (+5)	Comments: Pictogram was modified during the study - at the end of the first session of interviews (n = 5). Based on the patients' comments, a 3-dimensional image of the dispenser was used, as it better reflects the liquid form of the medicine. A scale was added onto the dispenser.		
Health literacy (n=22)	Average	± SD	95% CI:
	2,63	±1,64	1,90 - 3,36
Guessability n (%)	correct answer partially correct answer wrong answer opposite answer I don't know / I can't guess		<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 10px;"> 20 (90,9%) 2 (9,1%) - - - </div>  </div>
Translucency	Average	± SD	95% CI:
	6,91	±0,29	6,77 - 7,03
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Use pictogram with an indication of the time of the day / frequency of use ● 10 ml graduation may be misleading, the patient might fill the dispenser to the top, e.g. with water 		



Recall test	correct answer	22 (100%)
	partially correct answer	-
	wrong answer	-
	opposite answer	-
	I don't know / I can't guess	-
Comments	No	

Pictogram 2: Use 3 drops 3 times a day

	Medical information: Use 3 drops 3 times a day			
The number of patients participating in the validation: 28	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=28)	Average		± SD	95% CI:
	2,78		±1,95	2,03 - 3,54
Guessability n (%)	correct answer 15 (53,6%) partially correct answer 13 (46,4%) wrong answer - opposite answer - I don't know / I can't guess -			
Translucency	% ≥6	Average	± SD	95% CI:
	78,5%	6,07	±1,69	5,41 - 6,73
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● White drops/drop outlines are misleading for patients (n=4) ● Unclear information about the frequency of use (add 3x3) (n=2) ● Lack of information where the drops should be applied (ears, eyes, nose) (n=2) ● Suggestion about writing out the meaning (n=3) 			
Recall test	correct answer 20 (71,4%) partially correct answer 8 (28,6%) wrong answer - opposite answer - I don't know / I can't guess -			



Comments	
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Pictogram 3: Use once a week



	Medical information: Use the medicine once a week (use the medicine every Friday)			
The number of patients participating in the validation: 28	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=28)	Average		± SD	95% CI:
	2,64		±2,04	1,85 - 3,43
Guessability n (%)	correct answer 21 (75,0%) partially correct answer 3 (10,2 (7,1%)) wrong answer 3 (10,7%) opposite answer 1 (3,6%) I don't know / I can't guess 1 (3,6%)			
Translucency	% ≥6	Average	± SD	95% CI:
	67,8%	6,03	±1,55	5,43 - 6,63
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Specifying the day the medicine should be taken by using an indicator - colour, bold text, marking all the specific days of the week (e.g. Fridays) with frame, colour or bold (n=6) ● Suggestions to write the meaning (n=1) ● Add content describing the meaning ● Suggestion to write the name, to indicate if taking the medicine(n=1) on other days 			
Recall test	correct answer 22 (78,6%) partially correct answer 3 (10,7%)%) wrong answer 3 (10,7%) opposite answer - I don't know / I can't guess -			

Comments	No
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Family of pictograms 4 – 7: Use according to the time of the day and number of the tablets

	Medical information: Take 2 tablets in the morning/ around 8:00 a.m.			
The number of patients participating in the validation: 18 (+3)	Comments: Pictogram was modified during the study - at the end of the first session of interviews (n=3). The symbol of a rooster was used and a specific hour was written, to enable better understanding of the time of day when the medicine should be taken.			
Health literacy (n=18)	Average		± SD	95% CI:
	2,16		±1,58	1,38 - 2,95
Guessability n (%)	correct answer			
	partially correct answer			
wrong answer			-	
opposite answer			1 (5,56%)	
I don't know / I can't guess			-	
Translucency	% ≥6	Average	± SD	95% CI:
	88,8%	6,67	±0,82	6,24 - 7,08
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Symbol showing use of tablets should be on the top (n=1) 			
Recall test	correct answer			17 (94,4%)
	partially correct answer			1 (5,56%)
	wrong answer			-
	opposite answer			-
	I don't know / I can't guess			-


Comments	No
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	Medical Information: Take one tablet at midday/ around 12:00 p.m.			
The number of patients participating in the validation: 14 (+5)	Comments: Pictogram was modified during the study - at the end of the first session of interviews (n=5). The symbol of the sun was used and a specific hour was written, to enable better understanding of the time of day when the medicine should be taken.			
Health literacy (n=14)	Average	± SD	95% CI:	
	2,43	±1,78	1,39 - 3,46	
Guessability n (%)	correct answer	12 (85,7%)		
	partially correct answer	1 (7,1%)		
	wrong answer	1 (7,1%)		
	opposite answer	-		
	I don't know / I can't guess	-		
Translucency	% ≥6	Average	± SD	95% CI:
	78,5%	6,50	±0,98	5,91 - 7,08

Areas for improvement and patients' suggestions	● The symbol of taking a tablet should be at the top (n=1)	
Recall test	correct answer	13 (92,9%)
	partially correct answer	1 (7,1%)
	wrong answer	-
	opposite answer	-
	I don't know / I can't guess	-
Comments	No	



	Medical information: Take 3 tablets in the evening/ around 19:00.		
The number of patients participating in the validation: 13 (+4)	Comments: Pictogram was modified during the study - at the end of the first session of interviews (n=4). The symbol of the moon was used and a specific hour was written, as to enable a better understanding of the time of day when the medicine should be taken.		
Health literacy (n=13)	Average	± SD	95% CI:
	2,15	±1,57	1,20 - 3,10
Guessability n (%)	correct answer	10 (76,9%)	
	partially correct answer	3 (23,1%)	

	wrong answer			-	
	opposite answer			-	
	I don't know / I can't guess			-	
Translucency	% ≥6	Average		± SD	95% CI:
	76,9%	6,35		±0,84	5,87 - 6,84
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestion to use a different symbol representing the evening(n=1) 				
Recall test	correct answer				13 (100%)
	partially correct answer				-
	wrong answer				-
	opposite answer				-
	I don't know / I can't guess				-
Comments	no				

	Medical information: Take half of the tablet before sleep/ around 22:00
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The number of patients participating in the validation: 15 (+6)	Comments: Pictogram was modified during the study - at the end of the first session of interviews (n=6). A different symbol was used and a specific hour was written, to enable a better understanding of the time of day when the medicine should be taken.			
Health literacy (n=15)	Average		± SD	95% CI:
	2,46		±1,84	1,44 - 3,49
Guessability n (%)	correct answer 11 (73,3%) partially correct answer 4 (26,7%) wrong answer - opposite answer - I don't know / I can't guess -			
Translucency	% ≥6	Average	± SD	95% CI:
	80,0%	6,53	±0,99	6,98 - 7,08
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Write specific information to use the medication before sleep 			
Recall test	correct answer 15 (100%) partially correct answer - wrong answer - opposite answer - I don't know / I can't guess -			
Comments	No			

Pictogram 8: Apply to the nose

	Medical information: Apply to the nose			
The number of patients participating in the validation: 30	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=30)	Average		± SD	95% CI:
	2,87		±1,83	2,18 - 3,55
Guessability n (%)	correct answer 24 (80,0%) partially correct answer 3 (10,0%) wrong answer 3 (10,0%) opposite answer - I don't know / I can't guess -			
Translucency	% ≥6	Average	± SD	95% CI:
	73,3%	6,17	±1,34	5,66 - 6,66
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestions to change the image of the nose to make it clearer (showing the nose as the part of the face, drawing the eye) (n=11) 			
Recall test	correct answer 28 (93,3 %) partially correct answer 1 (3,3%) wrong answer 1 (3,3%)			



	opposite answer - I don't know / I can't guess -
Comments	The pictogram may be interpreted by the patients as an aerosol coming out of the dispenser. The nose resembles the medicine coming out of the dispenser too much.

Pictogram 9: Apply to the eye

	Medical information: Apply to the eye			
The number of patients participating in the validation: 16	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=16)	Average	± SD	95% CI:	
	2,56	±1,89	1,55 - 3,57	
Guessability n (%)	correct answer 16 (100,0%) partially correct answer - wrong answer - opposite answer - I don't know / I can't guess -			
Translucency	% ≥6	Average	± SD	
	81,2%	6,56	±0,96	6,04 - 7,07
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestions to connect the site of application with the medication dosage (n=1) 			
Recall test	correct answer 16 (100,0%) partially correct answer - wrong answer -			



	opposite answer	-
	I don't know / I can't guess	-
Comments	None.	

Pictogram 10: Apply to the ear

	Medical information: Apply to the ear			
The number of patients participating in the validation: 20 (+7)	Comments: Pictogram was modified during the study - at the end of the first session of interviews (n=7). A more precise symbol of the ear was used as the previous ear was easily mistaken for an eye.			
Health literacy (n=20)	Average		± SD	95% CI:
	2,55		±1,67	1,77 - 3,33
Guessability n (%)	correct answer 18 (90,0%) partially correct answer - wrong answer 2 (10,0%) opposite answer - I don't know / I can't guess -			
Translucency	% ≥6	Average	± SD	95% CI:
	85,0%	6,35	±1,49	5,65 - 7,05
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● The image of the ear is not clear, suggestions to draw an eye, the head, hair (n=5) ● Suggestions to change the shape of the drop and the dispenser (n=2) 			
Recall test	correct answer 20 (100%) partially correct answer - wrong answer - opposite answer -			



	I don't know / I can't guess	-
Comments	Pictogram passed the validation test. Despite this, it is necessary to improve it in line with the patients' suggestions.	

Pictogram 11: Sublingual medicine

	Medical information: Sublingual medicine			
The number of patients participating in the validation: 19	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=19)	Average		± SD	95% CI:
	2,79		±2,04	1,80 - 3,77
Guessability n (%)	correct answer 8 (42,1 %) partially correct answer 4 (21,1 %) wrong answer 6 (31,6 %) opposite answer - I don't know / I can't guess 1 (5,3%)			
Translucency	% ≥6	Average	± SD	
	68,4%	5,37	±2,40	4,20 - 6,53
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Change the shape and place of the tongue (higher, more lifted) (n=3) ● Change the shape of the jaw and add lips(n=2) ● Misleading direction of the arrow(n=1) 			
Recall test	correct answer 19 (100%) partially correct answer - wrong answer -			



	opposite answer - I don't know / I can't guess -
Comments	Pictogram needs re-designing. We suggest showing the jaw and the tongue as a part of the whole face, so that it is not associated with dentures, and to change the position of the arrow to show clearly that the tablet should be put under the tongue and not just in the mouth. The result of validation was significantly influenced by the experiences of patients who use dentures.

Pictogram 12: Apply vaginally

	Medical information: Apply vaginally			
The number of patients participating in the validation: 25 (+7)	Comments: Pictogram was modified during the study - at the end of the first session of interviews (n=7). Changes were made which aimed to illustrate more precisely the place of application of the medication.			
Health literacy (n=25)	Average		± SD	95% CI:
	2,84		±2,15	1,95 - 3,73
Guessability n (%)	correct answer 7 (28,0 %) partially correct answer 8 (32,0%) wrong answer 9 (36,0%) opposite answer - I don't know / I can't guess 1 (4,0%)			
Translucency	% ≥6	Average	± SD	95% CI:
	32,0%	4,72	±1,89	3,92 - 5,51
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> • Change the direction of the arrow to point the area of the vagina and not above the knee (n=7) • Change the appearance of the body, adding elements which indicate that it is a woman (slimmer leg, breasts) (n=6) • Change of the shape of the globule (n=2) 			
Recall test	correct answer partially correct answer			23 (92,0%) 2 (8,0%)



	wrong answer - opposite answer - I don't know / I can't guess -
Comments	Pictogram needs re-designing. We suggest changing the appearance of the body by introducing elements suggesting that is is female. In addition, the arrow should point to the vagina and not above the knee.

Pictogram 13: Apply rectally

	Medical information: Apply rectally			
The number of patients participating in the validation: 23 (+6)	Comments: Pictogram was modified during the study - at the end of the first session of interviews (n=6). There were changes made that aimed to illustrate the specific place of the medicine application so that it is not confused with the vaginal application.			
Health literacy (n=23)	Average		± SD	95% CI:
	2,57		±1,67	1,84 - 3,29
Guessability n (%)	correct answer 11 (47,8%) partially correct answer 4 (17,4%) wrong answer 8 (34,8%) opposite answer - I don't know / I can't guess -			
Translucency	% ≥6	Average	± SD	95% CI:
	65,2%	6,00	±1,18	5,48 - 6,52
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Changing the direction of the arrow so that it points to the area of the anus (n=4) ● Changing the appearance of the body (n=1) ● Changing the image of the suppository so that it is not mistaken for a sanitary pad or an ointment (n=3) 			
Recall test	correct answer 22 (95,7%) partially correct answer 1 (4,3%) wrong answer -			



	opposite answer - I don't know / I can't guess -
Comments	Pictogram needs re-designing. We suggest that the arrow should be changed and point to the anus, not to the back. In addition, the image of the suppository should be more clear so that it is not mistaken with other things such as toilet paper or ointments.

Pictogram 14: Apply to skin

	Medical information: Apply to skin/rub in skin			
The number of patients participating in the validation: 24 (+6)	Comments: Pictogram was modified during the study - at the end of the first session of interviews (n=6). The symbol of a tube was added to indicate that it is an ointment/cream/gel or other form of medicine which is to be rubbed into the skin.			
Health literacy (n=24)	Average		± SD	95% CI:
	3,00		±1,71	2,24 - 3,76
Guessability n (%)	correct answer partially correct answer wrong answer opposite answer I don't know / I can't guess			<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: right;"> 17 (70,8%) 4 (16,7%) 3 (12,5%) - - </div> <div style="text-align: center;">  </div> </div>
Translucency	% ≥ 6	Average	± SD	95% CI:
	87,5%	6,67	±0,81	6,32 - 7,01
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Emphasis on the hand movement more (n=2) 			
Recall test	correct answer partially correct answer wrong answer opposite answer			<div style="text-align: right;"> 24 (100,0%) - - - </div>



	I don't know / I can't guess	-
Comments	Patients interpret the pictogram literally - indicating application of the medicine to the arm, hand muscles or joints. There is a risk that the general information about rubbing the medicinal product in the skin can be interpreted as rubbing it only in the skin of the hand/arm (as presented on the pictogram).	

Pictogram 15: Apply to the affected area

	Medical information: Apply to the affected area			
The number of patients participating in the validation: 24 (+7)	Comments: Pictogram was modified during the study - at the end of the first session of interviews (n=6). Changes were made to illustrate that the medication should be applied to the affected area.			
Health literacy (n=24)	Average		± SD	95% CI:
	2,25		±1,80	1,49 - 3,01
Guessability n (%)	correct answer 19 (79,2%) partially correct answer 2 (8,3%) wrong answer 3 (12,5%) opposite answer - I don't know / I can't guess -			
Translucency	% ≥ 6	Average	± SD	95% CI:
	91,3%	6,61	±1,15	6,11 - 7,11
Areas for improvement and patients' suggestions	No suggestions			
Recall test	correct answer 21 (87,5%) partially correct answer 3 (12,5%) wrong answer - opposite answer -			



	I don't know / I can't guess	-
Comments	The affected area may prove to be an abstract concept for the patient. As each patient interprets it in a personal way e.g. wound, irritation, bite, damage, pimple, bleeding, painful area - this leaves a large margin of error for proper application.	

Pictogram 16: Inhale

	Medical information: Inhale/inhaler			
The number of patients participating in the validation: 15	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=15)	Average		± SD	95% CI:
	3,20		±1,89	2,15 - 4,25
Guessability n (%)	correct answer 12 (80,0%) partially correct answer 2 (13,3%) wrong answer 1 (6,7%) opposite answer - I don't know / I can't guess -			
Translucency	% ≥ 6	Average	± SD	95% CI:
	93,3%	6,80	±0,77	6,37 - 7,23
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Write out the method of application 			
Recall test	correct answer 15 (100,0%) partially correct answer - wrong answer - opposite answer -			

	I don't know / I can't guess	-
Comments	None.	

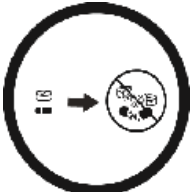

Pictogram 17: Injections

	Medical information: Injection			
The number of patients participating in the validation: 20	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=20)	Average		± SD	95% CI:
	2,45		±1,62	5,34 - 6,85
Guessability n (%)	correct answer 17 (85,0%) partially correct answer 3 (15,0%) wrong answer - opposite answer - I don't know / I can't guess -			
Translucency	% ≥ 6	Average	± SD	95% CI:
	75,0%	6,10	±1,58	6,79 - 7,07
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Showing the place of injection (n=2) ● Adding elements associated with injections (nurse, tourniquet used during blood draw)(n=2) ● Adding hair on the hand, veins (n=1) 			
Recall test	correct answer 19 (95,0%) partially correct answer 1 (5,0%) wrong answer -			

	opposite answer - I don't know / I can't guess -
Comments	The patients identify literally the place where the medicine should be applied. There is a risk that such a presentation of the pictogram will suggest an exact area of injection. Patients cannot identify, on the basis of the pictogram, the type of injection: intramuscular, intravenous, subcutaneous.



Practical aspects and specific conditions of the medicine use

Pictogram 18: Swallow whole

	<p>Medical information: Swallow whole/do not crush</p>			
<p>The number of patients participating in the validation: 31</p>	<p>Comments: None. The same pictogram was used throughout the research study.</p>			
<p>Health literacy (n=31)</p>	<p>Average</p>	<p>± SD</p>	<p>95% CI:</p>	
	<p>2,90</p>	<p>±2,02</p>	<p>2,16 - 3,64</p>	
<p>Guessability n (%)</p>	<p>correct answer 16 (51,6%) partially correct answer 1 (3,2%) wrong answer 11 (35,5 %) opposite answer 1 (3,2%) I don't know / I can't guess -</p>			
<p>Translucency</p>	<p>% ≥ 6</p>	<p>Average</p>	<p>± SD</p>	<p>95% CI:</p>
	<p>64,5%</p>	<p>5,71</p>	<p>±2,03</p>	<p>4,96 - 6,45</p>
<p>Areas for improvement and patients' suggestions</p>	<ul style="list-style-type: none"> ● Present the act of "crushing" better ● Place written information „swallow whole” ● Describe ● Lack of presentation of the act of taking the medicine ● Show the silhouette of a person 			



<p>Recall test</p>	<p>correct answer</p>	<p>30 (96,8%)</p>
	<p>partially correct answer</p>	<p>1 (3,2%)</p>
	<p>wrong answer</p>	<p>-</p>
	<p>opposite answer</p>	<p>-</p>
	<p>I don't know / I can't guess</p>	<p>-</p>
<p>Commenst</p>	<p>Pictogram needs re-designing. We suggest showing the pictogram in the form of a prohibition sign (crossed out) with the silhouette of a person who is crushing/crushed the medicine.</p>	

Pictogram 19: Shake before use

	Medical information: Shake before use			
The number of patients participating in the validation: 17	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=17)	Average		± SD	95% CI:
	2,88		±2,05	1,82 - 3,94
Guessability n (%)	correct answer 5 (29,4%) partially correct answer 1 (5,8%) wrong answer 10 (58,8 %) opposite answer 1 (5,8%) I don't know / I can't guess -			
Translucency	% ≥ 6	Average	± SD	95% CI:
	47,0%	5,35	±1,76	4,44 - 6,26
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestion to place arrows showing an up and down movement to indicate a shaking movement (n=5). 			
Recall test	correct answer 14 (96,8%) partially correct answer 1 (3,2%) wrong answer 1 (3,2%) opposite answer -			



	I don't know / I can't guess	1 (3,2%)
Comments	Pictogram needs re-designing. We suggest drawing arrows to indicate an up and down movement in order to better illustrate the shaking motion, as suggested by the participants.	

Pictogram 20: Dissolve in water and drink

	Medical information: Dissolve in water and drink			
The number of patients participating in the validation: 26	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=26)	Average		± SD	95% CI:
	2,81		±2,04	1,98 - 3,63
Guessability n (%)	correct answer 17 (65,4%) partially correct answer 9 (34,6%) wrong answer - opposite answer - I don't know / I can't guess -			
Translucency	% ≥ 6	Average	± SD	95% CI:
	84,6%	6,57	±1,02	6,16 - 6,99
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestion to present the sachet better(n=6) 			
Recall test	correct answer 26 (100,0 %) partially correct answer - wrong answer - opposite answer -			

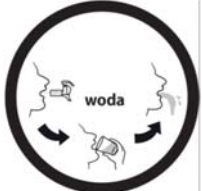

	I don't know / I can't guess	-
Comments	Pictogram needs re-designing. We suggest presenting the sachet in a clearer way, as suggested by the participants.	

Pictogram 21: Use up until the last dose

	Medical information: Use up until the last dose/use the whole package			
The number of patients participating in the validation: 15	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=15)	Average	± SD	95% CI:	
	2,53	±1,92	1,46 - 3,60	
Guessability n (%)	correct answer - partially correct answer - wrong answer 14 (93,3%) opposite answer - I don't know / I can't guess 1 (6,67%)			
Translucency	% ≥ 6	Average	± SD	95% CI:
	46,6%	4,07	±2,71	2,56 - 5,57
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestion to include only one package in the picture. (n=2) 			
Recall test	correct answer partially correct answer wrong answer opposite answer			13 (86,7 %) - 2 (13,3 %) -

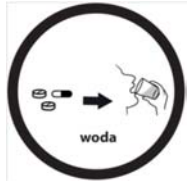

	I don't know / I can't guess	-
Comments	Pictogram needs re-designing. Clarification between the containers of medicine could be made by only including one picture of a container in the pictogram.	

Pictogram 22: Rinse mouth with water after taking the medicine

	Medical information: Rinse mouth with water after taking the medicine			
The number of patients participating in the validation: 14	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=14)	Average	± SD	95% CI:	
	2,71	±1,73	1,71 - 3,71	
Guessability n (%)	correct answer partially correct answer wrong answer opposite answer I don't know / I can't guess			<div style="display: flex; justify-content: space-between;"> <div style="text-align: right;"> 11 (78,6%) 2 (14,3%) - 1 (7,1%) - </div> <div style="text-align: center;">  </div> </div>
Translucency	% ≥ 6	Average	± SD	95% CI:
	76,9%	5,79	±1,80	4,74 - 6,83
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestion to highlight the action of spitting out the water after rinsing the mouth (n=4) ● Suggestion to add specific instruction (n=1) 			
Recall test	correct answer partially correct answer wrong answer opposite answer			<div style="display: flex; justify-content: space-between;"> <div style="text-align: right;"> 13 (92,9 %) - 1 (7,1 %) - </div> </div>



	I don't know / I can't guess	-
Comments	None.	

Pictogram 23: Drink water after taking medicine

	Medical information: Drink water after taking medicine			
The number of patients participating in the validation: 24	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=23)	Average	± SD	95% CI:	
	2,50	±1,88	1,70 - 3,29	
Guessability n (%)	correct answer 22 (95,7%) partially correct answer - wrong answer 1 (4,3%) opposite answer - I don't know / I can't guess -			
Translucency	% ≥ 6	Average	± SD	95% CI:
	91,3%	6,78	±0,59	
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestion to add written instructions ● Fill the glass with more water 			
Recall test	correct answer 22 (95,7 %) partially correct answer - wrong answer 1 (4,3 %) opposite answer -			



	I don't know / I can't guess	-
Comments	None.	

Pictogram 24: Use no more than 30 days after opening

	Medical information: Use no more than 30 days after opening			
The number of patients participating in the validation: 33	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=33)	Average		± SD	95% CI:
	3,03		±1,87	2,36 - 3,69
Guessability n (%)	correct answer 29(87,9%) partially correct answer 1 (3,0%) wrong answer 1 (3,0%) opposite answer - I don't know / I can't guess 2 (6,1%)			
Translucency	% ≥ 6	Average	± SD	95% CI:
	75,7%	6,39	±0,99	6,04 - 6,74
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestion to write „expiration date” (n=2) ● Change the number for words (text) (n=1) 			
Recall test	correct answer 31 (94,0 %) partially correct answer 1 (3,0%) wrong answer 1 (3,0 %)			

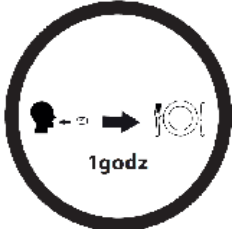

	opposite answer	-
	I don't know / I can't guess	-
Comments	None.	

Pictogram 25: Keep in the fridge

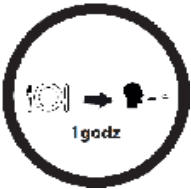

	Medical information: Keep the medicine in the fridge			
The number of patients participating in the validation: 27	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=27)	Average		± SD	95% CI:
	2,91		±1,77	2,12 - 3,69
Guessability n (%)	correct answer 25 (92,6%) partially correct answer 1 (3,7%) wrong answer - opposite answer 1 (3,7%) I don't know / I can't guess -			
Translucency	% ≥ 6	Average	± SD	95% CI:
	96,3%	6,91	±0,41	6,73 - 7,09
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● The fridge looks like a cupboard 			
Recall test	correct answer 27 (100,0 %) partially correct answer - wrong answer - opposite answer -			

	I don't know / I can't guess	-
Comments	None.	

Family of pictograms (26 and 27): Use before/after meal

	Medical information: Take the medicine on an empty stomach/take the medicine before a meal/take the medicine an hour before a meal			
The number of patients participating in the validation: 14	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=14)	Average		± SD	95% CI:
	2,64		±1,86	1,56 - 3,71
Guessability n (%)	correct answer 12 (85,8%) partially correct answer - wrong answer 1 (7,1%) opposite answer 1 (7,1%) I don't know / I can't guess -			
Translucency	% ≥ 6	Average	± SD	95% CI:
	78,5%	5,86	±2,21	4,52 - 7,19
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestion to move the writing denoting the time over in the direction of the head (n=1) 			
Recall test	correct answer 14 (100,0 %) partially correct answer - wrong answer -			



	opposite answer	-
	I don't know / I can't guess	-
Comments	None.	

	Medical information: Take the medicine after a meal /Take the medicine an hour after a meal		
The number of patients participating in the validation: 13	Comments: None. The same pictogram was used throughout the research study.		
Health literacy (n=13)	Average	± SD	95% CI:
	2,38	±1,80	1,29 - 3,47
Guessability n (%)	correct answer partially correct answer wrong answer opposite answer I don't know / I can't guess	11 (84,6%) 1 (7,7%) 1 (7,7%) - -	
Translucency	% ≥ 6	Average	± SD
	84,6%	6,91	±0,30
			95% CI: 6,70 to 7,1116

Areas for improvement and patients' suggestions	● None.	
Recall test	correct answer partially correct answer wrong answer opposite answer I don't know / I can't guess	12 (92,3 %) - 1 (7,7 %) - -
Comments	None.	



Warnings connected to medicine use

Pictogram 28: Avoid sun exposure

	Medical information: Avoid exposure to the sun / UV rays/sun beds				
The number of patients participating in the validation: 28	Comments: None. The same pictogram was used throughout the research study.				
Health literacy (n=28)	Average		± SD	95% CI:	
	2,50		±2,10	1,68 - 3,31	
Guessability n (%)	correct answer partially correct answer wrong answer opposite answer I don't know / I can't guess		9 (32,1%) 12 (42,9%) 5 (17,8%) 1 (3,6%) 1 (3,6%)		
	% ≥ 6	Average	± SD	95% CI:	
Translucency	75,0%		6,00	±1,70	5,34 - 6,66
	Areas for improvement and patients' suggestions <ul style="list-style-type: none"> ● Suggestion to remove the umbrella as it is misleading (n=2) ● Place a person under the umbrella ● Suggestion to write out the information (n=2) 				
Recall test	correct answer		22 (78,6 %)		
	partially correct answer		4 (14,3 %)		



	wrong answer	2 (7,1 %)
	opposite answer	-
	I don't know / I can't guess	-
Comments	<p>Pictogram needs re-designing. We suggest to use an image which would indicate sunbathing or using sun beds etc. while taking a medicine is prohibited. Pictogram does not indicate what should be protected from the sun: the medicine or the patient?</p>	

Pictogram 29: Use cautiously during pregnancy

	Medical information: Use cautiously during pregnancy /do not use during pregnancy			
The number of patients participating in the validation: 17	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=17)	Average		± SD	95% CI:
	2,76		±1,92	1,77 - 3,75
Guessability n (%)	correct answer 10 (58,8%) partially correct answer 6 (35,3%) wrong answer 1 (5,9%) opposite answer - I don't know / I can't guess -			
Translucency	% ≥ 6	Average	± SD	95% CI:
	68,7%	5,82	±1,74	4,93 - 6,72
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestion to add second cross out line (X) (n=2) ● Suggestion to change the woman's position so that her hand, which is placed on her back, does not suggest a backache (n=3) 			
Recall test	correct answer 15 (88,2 %) partially correct answer 2 (11,8 %) wrong answer - opposite answer -			



	I don't know / I can't guess	-
Comments	Pictogram needs re-designing. We suggest changing an image of a woman so that it is not associated with backache. The result of validation is affected by patients' experience: if they were pregnant, it was many years ago. Elderly patients associate the curved back and the hand placed near the spine with backache, ignoring completely the baby bump.	

Pictogram 30: May impair driving/ do not drive

	Medical information: May impair driving/do not drive			
The number of patients participating in the validation: 17	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=17)	Average	± SD	95% CI:	
	2,65	±2,09	1,57 - 3,72	
Guessability n (%)	correct answer 14 (82,4%) partially correct answer 1 (5,9%) wrong answer 2 (11,7%) opposite answer - I don't know / I can't guess -			
Translucency	% ≥ 6	Average	± SD	95% CI:
	88,2%	6,41	±1,69	5,54 - 7,28
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> Written information indicating that it is not about being a passenger but about driving a car is necessary. 			
Recall test	correct answer 16 (94,1%) partially correct answer - wrong answer - opposite answer -			



	I don't know / I can't guess	1 (5,9%)
Comments	None.	

Pictogram 31: Do not drink alcohol

	Medical information: Do not drink alcohol			
The number of patients participating in the validation: 20	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=20)	Average		± SD	95% CI:
	2,10		±1,83	1,24 - 2,95
Guessability n (%)	correct answer 19 (95,0%) partially correct answer - wrong answer 1 (5,0 %) opposite answer - I don't know / I can't guess -			
Translucency	% ≥ 6	Average	± SD	95% CI:
	90,0%	6,75	±0,78	6,38 - 7,12
Areas for improvement and patients' suggestions	None.			
Recall test	correct answer 19 (95,0%) partially correct answer - wrong answer 1 (5,0%) opposite answer -			



	I don't know / I can't guess	-
Comments	None.	

Pictogram 32: Do not eat dairy products

	Medical information: Do not eat dairy products			
The number of patients participating in the validation: 14	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=14)	Average		± SD	95% CI:
	2,50		±1,78	1,47 - 3,53
Guessability n (%)	correct answer partially correct answer wrong answer opposite answer I don't know / I can't guess		5 (35,8%) 1 (7,1%) 7 (50,0%) - 1 (7,1%)	
Translucency	% ≥ 6	Average	± SD	95% CI:
	42,8%	4,43	±2,68	2,88 - 5,97
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestion to add second cross out line (X) (n=1) ● Suggestion to change the image showing eggs and milk (n=5) ● Adding colour (n=1) ● Use written information instead of pictures (n=1) 			
Recall test	correct answer partially correct answer		10 (71,4 %) -	

	wrong answer	3 (21,4%)
	opposite answer	-
	I don't know / I can't guess	1 (7,2%)
Comments	Pictogram needs re-designing. We suggest improving the images of the carton of milk and eggs. One of the respondents interpreted eggs as glasses. In addition, we suggest writing out „MILK“ instead showing spots/cow patches to symbolise milk.	

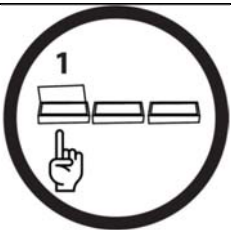

Pictogram 33: Do not drink grapefruit juice and do not eat grapefruits

	Medical information: Do not drink grapefruit juice and do not eat grapefruits			
The number of patients participating in the validation: 14	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=14)	Average		± SD	95% CI:
	2,42		±1,95	1,30 - 3,55
Guessability n (%)	correct answer partially correct answer wrong answer opposite answer I don't know / I can't guess		4 (28,6%) 2 (14,3%) 8 (57,1%) - -	
Translucency	% ≥ 6	Average	± SD	95% CI:
	28,5%	4,57	±1,78	3,540 - 5,60
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestion to use the word juice (n=1) ● Suggestion to place a picture of the whole fruit instead of a picture of a slice of fruit (n=5) ● Use colours 			
Recall test	correct answer partially correct answer wrong answer		14 (100,0 %) - -	

	opposite answer	-
	I don't know / I can't guess	-
Comments	Pictogram needs re-designing. We suggest re-designing the image of the carton of juice because the respondents mistook it for rubbish bin; or by putting written information such as „JUICE“. In addition, the slice of fruit was interpreted by one of the respondents as the wheel of the car. We suggest re-designing the image of the fruit and specifying grapefruit vs. other citrus fruits.	



Other pictograms

Pictogram 34: Use this packaging first

	<p>Medical information: use this packaging first</p>			
<p>The number of patients participating in the validation: 17</p>	<p>Comments: None. The same pictogram was used throughout the research study.</p>			
<p>Health literacy (n=17)</p>	<p>Average</p>		<p>± SD</p>	<p>95% CI:</p>
	<p>2,47</p>		<p>±1,94</p>	<p>1,47 - 3,46</p>
<p>Guessability n (%)</p>	<p>correct answer partially correct answer wrong answer opposite answer I don't know / I can't guess</p>		<p>- 1 (5,9%) 14 (82,3%) - 2 (11,8%)</p>	
<p>Translucency</p>	<p>% ≥ 6</p>	<p>Average</p>	<p>± SD</p>	<p>95% CI:</p>
	<p>23,5%</p>	<p>4,00</p>	<p>±2,00</p>	<p>2,97 - 5,03</p>
<p>Areas for improvement and patients' suggestions</p>	<ul style="list-style-type: none"> ● Suggestion to add information „short expiration date” or to leave some space for writing the exact expiration date (n=6) ● Suggestion that the image of the medicine package should resemble medicine package more. (n=2) 			
<p>Recall test</p>	<p>correct answer partially correct answer</p>		<p>13 (76,5 %) 1 (5,9 %)</p>	

	wrong answer	3 (17,6 %)
	opposite answer	-
	I don't know / I can't guess	-
Comments	Pictogram needs re-designing. We suggest re-designing the image of packages so that they are more strongly associated with medicine packages. In addition, it would be best to add written information: USE FIRST, or to leave some space to write in the expiration date by the pharmacist or the patient.	

Pictogram 35: Replacement medicine

	Medical information: Replacement medicine			
The number of patients participating in the validation: 33	Comments: None. The same pictogram was used throughout the research study.			
Health literacy (n=33)	Average		± SD	95% CI:
	2,87		±1,90	2,20 - 3,55
Guessability n (%)	correct answer partially correct answer wrong answer opposite answer I don't know / I can't guess		25(75,8%) - 7 (21,2%) - 1 (3,0%)	
Translucency	% ≥ 6	Average	± SD	95% CI:
	69,7%	6,03	±1,46	5,51 - 6,55
Areas for improvement and patients' suggestions	<ul style="list-style-type: none"> ● Suggestion to make the letters bigger (n=2) ● Suggestion to add some space as to what kind of medicine was replaced(n=2) 			
Recall test	correct answer partially correct answer wrong answer		31 (93,4 %) 1 (3,03 %) 1 (3,03 %)	

	opposite answer - I don't know / I can't guess -
Comments	None.