

HISTORY OF DEVELOPMENT AND USAGE OF PHARMACEUTICAL PICTOGRAMS IN CZECHOSLOVAKIA

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Activities at pharmacies and the pharmacists' work as well as their role significantly changed in 20th century. Number of medicines compounded at pharmacies decreased due to the increasing number of mass-produced medicines. A lot of new drugs appeared and the knowledge on medicines grew rapidly as well. So, a new need has emerged: to instruct patients how to use medicines correctly, and to provide information on medicines (administration, side effects, drug-food or drug-drug interactions). This should have led to higher effectivity and safety of pharmacotherapy. A pharmacist – a producer of medicines, became not only a distributor of mass-produced medicines, but also a distributor of information on all aspects coupled with medicines. At the same time, new approaches and devices to simplify this new pharmacist's role were investigated. In former Czechoslovakia, the workers of Pharmaceutical Faculties and Pharmacy Development Centre were engaged in this topic to support pharmacy consulting in daily practice.

In 1977, an intention of Smečka's group (Faculty of Pharmacy of Charles University) to use special pictorial symbols – pharmaceutical pictograms – to express information on medicines was published in a Czechoslovak professional journal for the first time (1). The idea was based on finding that some information is repeated and could be expressed briefly by combination of appropriate pictograms.

In 1978, Smečka and Neuwirth proposed a set of 43 pictograms (Fig. 1) and discussed their practical usage. The pictograms were divided into 6 information groups: instructions for dispensation, use, bans and warnings, storage, interactions, and clinical data (2). They elaborated their work in the following years.

The proposed practical usage of pictograms was to support pharmacist's memory during dispensation. According to the authors, small cards displaying appropriate pictograms (Fig. 2) should have been placed on front edges of shelves with drugs in a pharmacy (Fig. 3) (3).

Smečka's pictograms were also used in an information booklet of Pharmacy Development Centre (PDC) published in 1981 (4), which contained information about 500 medicines used in Czechoslovakia (Fig. 4). The booklet could have been used for rapid information retrieval during dispensation. The booklet was issued as a supplement to Bulletin of PDC and was distributed to all Czechoslovak pharmacies. A modified set of 35 pictograms was used (Fig. 5). This paper booklet was considered as a provisional solution. Some other alternatives were tested: a card index combining pictograms with more detailed text information, or microfiche readers (2, 3).

The pictograms printed on wraps and packings of medicines (Fig. 6) could have been also used to provide instructions to patients for proper medicine usage and storage in a simple way. Only pictograms understandable to patients (13-19 pictograms, Fig. 7) could have been used and only general information could have been displayed (3). Only 26 % of Czechoslovak mass-produced medicines for oral use contained patient information leaflets in 1980 (5). The leaflets were - and still can be - often hard understandable to patients. Due to these facts to use pictograms this way could lead to better usage of medicines too.

The Smečka's pictograms attracted attention abroad as well. The International Pharmaceutical Federation with the participation of the Czech authors repeatedly pursued the pictograms. The federation considered to use pictographic information especially for illiterate patients in developing countries (6). The pictograms were publicized in Austria and former Eastern Germany (6). Framm utilized a set of 13 Czechoslovak pictograms in his book *Arzneimittelprofile für die Kitteltasche* in 1998 (7). This book has been issued 4 times in Germany. The Czech version was issued in 2002 and the book was also published in Poland and Hungary).

In spite of all effort, the pictograms were almost not used in Czechoslovakia (6, 8). On the other hand, several papers and diploma theses concerning pictograms were published in Czechoslovakia and abroad. This endeavour can be considered as an important step to intensify pharmaceutical consulting at Czechoslovak pharmacies in the 2nd half of 20th century. Nowadays,

the modified pictograms are still used in some Czech pharmacy information systems (Fig. 8) during dispensation.

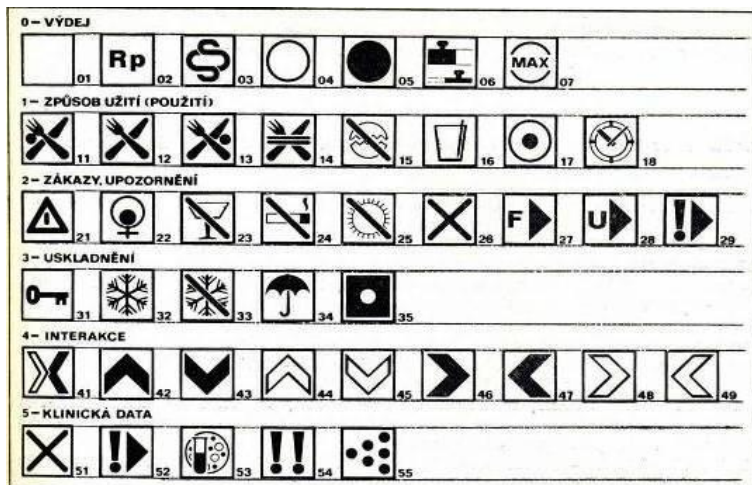
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References

- (1) Nosek, V.: Zpráva z jednání Komise racionalizace a techniky (KRT) při RLS Praha. Farmaceutický obzor 46 (1977), 477-478
- (2) Smečka, V., Neuwirth, O.: Studie expediční práce v lékárnách. XIX. Farmaceutický obzor 47 (1978), 367-375
- (3) Neuwirth, O., Smečka, V.: Studie expediční práce v lékárnách. XX. Farmaceutický obzor 48 (1979), 77-82
- (4) Zprávy Rozvojového lékařského střediska : Příloha č. 36. Praha: Zdravotnické zásobování, 1981
- (5) Dofková L., Smečka, V.: Studie expediční práce v lékárnách. XXII. Farmaceutický obzor 49 (1980), 415-424
- (6) Smečka, V.: Jak jsem to viděl já – moje farmaceutická činnost v letech 1947 - 2007. Solutio 2009 [online]. Available on <http://www.medon-solutio.cz/online2008/index.php?linkID=txt15&lang=1> [cited 2009-08-04]
- (7) Framm, J.: Arzneimittelprofile für die Kitteltasche. Stuttgart: Dt. Apotheker-Verl., 1998. 252 p.
- (8) Rusek, V., Smečka, V.: České lékárny. Praha: NUGA, 2000. p. 133

Figures

Figure 1: The original set of Smečka's 43 pictograms and explanations



- 0 – Dispensing of Drugs
 01 Over-the-counter drugs
 02 Prescription drugs
 03 Dispense according to the narcotics rules
 04 Dispensing in exceptional circumstances only at the expense of National Health Control
 05 No dispensing at the expense of National Health Control
 06 Different concentrations of the active ingredient in the same mass-produced pharmaceutical
 07 Maximal dose assessment

- 1 – Instructions for Use
 11 Use before meal
 12 Use with meal
 13 Use after meal
 14 Use between meals (not with meal)
 15 Do not break or chew
 16 Swallow with water
 17 Dissolve
 18 Use at regular intervals

- 2 – Side Effects
 21 Decreased attention, apathy
 22 Do not use during pregnancy
 23 No alcohol
 24 No smoking
 25 No sunbathing
 26 General restrictions (must be written out)
 27 Faeces (write out changes)
 28 Urine (write out changes)
 29 Other comments

- 3 – Storing
 31 Keep out of the reach of children
 32 Keep in a cool place
 33 Keep in temperatures above 0C
 34 Keep in a dry place
 35 Keep in a dark place

- 4 – Interactions
 41 Interaction in general
 42 Effect of the given pharmaceutical is increased by other pharmaceuticals
 43 Effect of the given pharmaceutical is decreased by other pharmaceuticals
 44 The given pharmaceutical increases the effects of other pharmaceuticals
 45 The given pharmaceutical decreases the effects of other pharmaceuticals
 46 Effect of the given pharmaceutical is prolonged by other pharmaceuticals
 47 Effect of the given pharmaceutical is reduced by other pharmaceuticals
 48 The given pharmaceutical prolongs the effects of other pharmaceuticals
 49 The given pharmaceutical reduces the effects of other pharmaceuticals

- 5 – Clinical Data
 51 Contraindications (forbidden)
 52 Instructions (comments)
 53 Laboratory investigation
 54 Warning
 55 Danger of addiction

Figure 2: The information cards for drugs dispensation

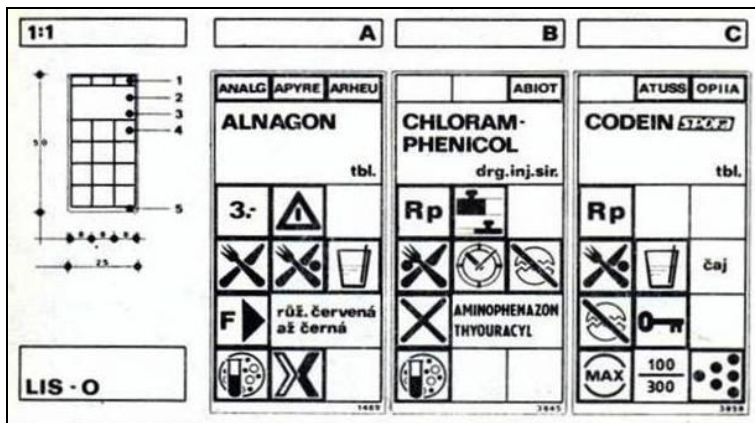


Figure 3: A dispensation shelf with drugs and corresponding information cards with pictograms

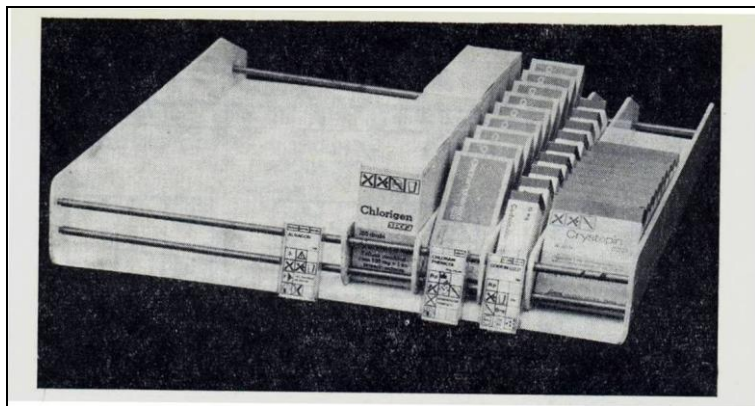


Figure 5: The modified set of 35 pictograms and explanations as printed in PDC's information booklet

0 - VÝDEJ

1 - ZPŮSOB UŽITÍ (POUŽITÍ)

2 - ZÁKAZY, UPOZORNĚNÍ

3 - USKLADNĚNÍ

4 - INTERAKCE

5 - KLINICKÁ DATA

Klíč k použitým pictogramům:

0 - Výdej	4 - Interakce
01 Všeobecné	41 Interakce obecná
02 Výdej vášán na předpis	
03 Výdej vášán na předpis	5 - Klinická data
04 Levý výdej jen vyjímání na účet SZZ	51 Kontrolní kůže (základ)
05 Nežse vydat na účet SZZ	52 Příznaky, příznaky
06 Rozdílné dávky stejné aplikační formy	53 Laboratorní vyšetření
07 Stanovení maximální dávky	54 Varování
	55 Nebezpečí návyku
	56 Veřejný projev
1 - Způsob užití (použití)	
11 Ústí před jídlem	
12 Ústí při jídle	
13 Ústí po jídle	
14 Ústí mezi jídly (ne při jídle)	
15 Nežít, nekouřit	
16 Zapít	
17 Nežít	
18 Užívat v pravidelných časových intervalech	
2 - Zákazy - upozornění	
21 Stříhaná pozornost	
22 Zákaz užití v šotatelnosti	
23 Zákaz při alkoholických nápojích	
24 Zákaz kouření	
25 Zákaz sknutí	
26 Zákaz obecný (nutno vypsat)	
27 Státie (vypsat změny)	
28 Moč (vypsat změny)	
3 - Ukladání	
31 Ukladání mimo dosah dětí	
32 Ukladání v chladu	
33 Ukladání v prostředí nad 0°C	
34 Ukladání v suchu	
35 Ukladání v temnu	

Figure 6: Examples of medicine and drug packings with pictographic patient information



Figure 7: An example of a modified set of 19 pictograms understandable to patients

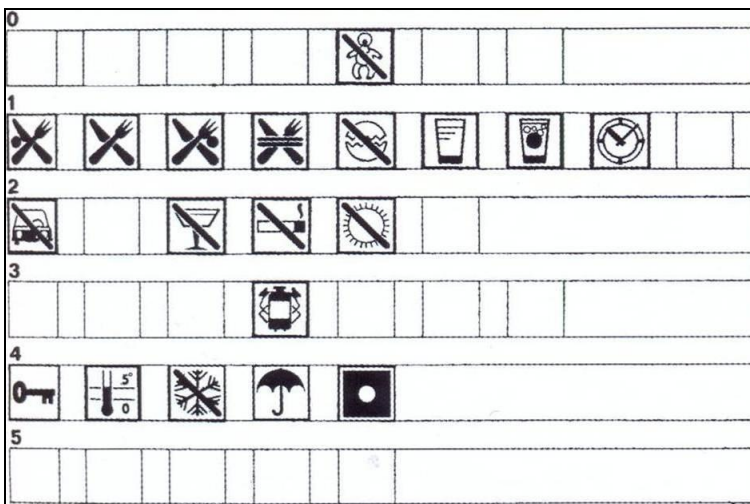


Figure 8: An example of pharmacy information software using the pictograms

Receipt 468997/ 600374 Datum 15/09/2009

R.č. [redacted] ! IČZ [redacted] ZP 111 D. Expedice 15/09/2009

[redacted] [] Vložit šarže 10.00 sklad 29.00 Obj 0

Rp [pictograms]

I: [redacted] II: [redacted] ! Sn:15.62! SI: 0.00

Název	Doplňěk	PCena SD	Kusů	Doplatek	Celken	*
▶ WARFARIN [redacted] 5MG	TBL 100X5MG	193.50	1.00	0.00	0.00	R
WARFARIN [redacted] 5MG ! TBL 100X5MG ! DPH=9% ! ZD: 0.00						
I. úhrada poj.	193.50	RP: 30.0	II. úhrada poj.	0.00	RP: 0.0	
SL: 0.0	1.00 ks/ 193.50	ZD: 0.0	SL: 0.0	0.00 ks/ 0.00	ZD: 0.0	
- Cenový přehled 1 doklad volný celken						
Úhrada pojišřovny =	193.50/	193.50	:	0.00	:	193.50
Prodejní cena SD =	193.50/	193.50	:	0.00	:	193.50
Doplatek pacienta =	0.00/	30.00	:	0.00	:	30.00
Stanice H Sklad 5.0 - Hlavní sklad JAN						