

LITERATURE REVIEW

- In 2000 there were 793 pharmacies in Finland and they dispensed about 38 millions prescriptions which mean 7,3 prescription per inhabitant in a year.
- In 2000 charges of health care in Finland were about 8,3 billion euros (€)
- In 2000 total value of medicine wholesale was about 1,65 billion euros (€)
- In 2000 the most sold medicines were medicines for heart and blood diseases, medicines for nervous system and medicines for alimentary track and metabolism
- OTC-medicines wholesale value was 0,24 billion euros (€) in 2000
- In 2000 the National Insurance Institution of Finland paid reimbursement for about 0,67 billion euros (€) to the inhabitants

- Expired and unused medicines classification is hazardous waste in Finland
- Communities and pharmacies have an agreement that people can return unused medication to the pharmacy and the community transports them to the waste treatment institution (Ekokem®) in the city of Riihimäki. Ekokem deals with 600 000 – 700 000 kilograms of unused medication in a year, which are coming from the pharmacies, hospitals and the medical industry.
- In Finland it is quite commonly known that people can return unused medication to the pharmacy even though pharmacy can not give them their money back
- Nobody knows exactly how much medicines are brought back to pharmacies
- The results from different studies from different countries presents that 1-34 % of people return unused medication to the pharmacy (Atherton and Rubinstein 1989, Gill and Portlock 1990, Sullivan and George 1993, Kuspis and Krenzelok 1996) (table 2)
- In Great Britain there are estimated that 4,6 % of the value of medicine wholesale is wasted (Alberson and Rubinstein 1989)

CHAPTER 6 MATERIAL AND METHODS (page 16)

- In picture number 1 there are the amounts of people returning unused medication. There were all together 675 people from which 11 persons were declined out of the study.
- The final amount of the people returning medication was 664 persons
- The five pharmacies of the study (in the cities of Kuopio, Helsinki, Tampere, Oulu and Turku) are big Finnish Pharmacies from different part of Finland. The pharmacies have long opening hours and the hypothesis was that people return lots of unused medication to these pharmacies (so that I could get a proper material and enough material for the study)
- In Finland the average amount of dispensed prescriptions per one pharmacy in a year is about 50 000 – 60 000 and for the study pharmacies those numbers of dispensed prescriptions in 2000 were 176 314 – 348 731, so they were really big pharmacies in big cities including the capital Helsinki.
- The material included all unused medication returned to those five pharmacies during October 2000. Pharmacists asked information about a person who returned medication and put that paper with the medication bags. Later I wrote all the details about returned medicines to the study blank. The program which was used in analysis of the material / blanks was SPSS for windows 9.0. The results are showed as frequencies and averages.
- I used Anatomical Therapeutic Chemical (ATC) classification for identification of medication (I'm not sure if you have the same classification there?)

CHAPTER 7 RESULTS OF THE RETURNED MEDICINES (page 23)

7.1. Persons who returned unused medication

- There were 664 persons, who returned unused medication, 79 % were women and 21 % were men
- The average age of the people was 54 years (also see the table number 5), the youngest person was 11 years old and the oldest was 91 years old

7.2. Reasons for the returning

- The persons who returned medication (537 persons, so all did not answer to that question) told, that they were returning their own medication (47 % of the answers) or their family's medication (34 %)
- The persons had one or more possibilities to give a reason for the returning, 513 persons gave some reason (one person could give one or more reasons)
- The most typical reason was that medication has become old (=outdated/expired) (60 % of the answers), medication was not necessary any more (11 % of the answers) and the user of the medication was dead (6 % of the answers)
- 23 % of the persons did not mention the reason for returning medicines

7.3. Amount of the returned packages

- In October 2000 there were 167 993 customers in the 5 pharmacies that included in the study and 0,4 % of the customers returned the medication back to the pharmacy
- More than half of the persons (58 %) brought 1-5 packages at the same time to the pharmacy
- The biggest amount of the packages that one person brought was 138 packages
- Average number of the returned packages per person was 8 packages
- The final study material includes 5 516 packages and 560 blisters of the tablets without packages

7.4. What persons returned to the pharmacies

- 87 % of the returned packages (4679 packages) were human medicines
- 67 % of the returned medicine packages were prescription medicines and 33 % OTC-medicines
- The most often returned medication main groups were medicines for the alimentary track and metabolism (14 % of the returned packages, ATC group A), medicines for the respiratory system (13 %, ATC group R) and medicines for the nervous system (11 %, ATC group N).
- The most often returned medicine groups were medicines for eye diseases (9 % of the returned packages, ATC group S01), systemic antibacterial medicines (7 %, ATC group J01) and anti-inflammatory and anti-rheumatic medicines (5 %, ATC group M01) and medicines for the asthma (5 %, ATC group R03).

- (For the asthma medication it should be noticed that I could not find out the amount of content of the packages from all the asthma medication (inhalation sprays etc.) and there were lots of empty packages in that group also.)
- The most often returned pharmaceuticals were timolol (103 packages, ATC code S01ED01), salbutamol (101 packages, ATC code R03AC02) and drops for the dry eyes (78 packages, ATC code SO1XA20).
- 204 persons returned all together 560 blisters without packages. The most often returned blisters included acetylic salicylic acid, ibuprofen and paracetamol.
- People returned mainly human medicines but also medicines for the animals, drugs from the nature, chemicals, batteries and everything else.

7.5. Reimbursement of the returned medication

- The classification of the reimbursement of the returned prescription medicines found out of 41 % of prescription packages (1170 packages)
 - 60 % of the prescription packages included to the lowest reimbursement classification, 11 % of the packages to the second best reimbursement classification and 10 % to the best classification, 18 % of the packages did not include to the reimbursement system
- (In 2000 the reimbursement system in Finland:
- 1) lowest classification: reimbursement 50 % if medicine cost over 10 euros (€)
 - 2) second best classification: reimbursement 75 % if medicine cost over 5 euros (€)
 - 3) the best classification: reimbursement 100 % if medicine cost over 5 euros (€)

7.6. Amount of the content in the packages

- 26 % of the packages were full of medicines (=tablets, capsules etc.), 29 % of packages included more than half of the content left, 12 % included half of the content, 27 % less than half of the content and 6 % of the packages were empty
- the packages that were full included most often systemic antibacterial medicines, medicines for the eye diseases and anti-inflammatory pain killers

7.7. When the returned medicines were bought and when they expired

- The time when the medicine was bought found out from 1237 packages
- 69 % of those were bought during the last five years (1996-2000) (table 11)
- 70 % of the returned packages (5356 packages) were expired, 24 % of packages were unexpired and for 7 % of the packages it was impossible to find out if they are expired or not
- table number 12: expiring year of the returned packages

7.8. Examples of the value of returned medication per person (pages 31-35)

- that part I think is not so interesting for you (?)

CHAPTER 9 AND 10 DISCUSSION AND CONCLUSION

- Let me know if you want that I translate these chapter