#EHMA2019

EHMAthon & Business Model and Healthtech Innovations Competition

Mr. Mart Vesinurm
Aalto University, Finland
EHMAton x Business Model and Healthtech Innovations 2019

Märt Vesinurm 19.6.2019
What is it?

10 Students of technology and business from Aalto University

5 Students of medical fields from University of Helsinki

3 Groups

2 Weeks

1 Problem
"Ecologically sustainable medication: How can we reduce the ecological impact of medicines?"
THE JURY

• Mrs. Hanna Järvinen, Lääketietokeskus
• Mr. Pekka Rissanen, THL
• Mr. Usman Khan, European Patients’ Forum
• Mr. Federico Lega, EHMA, University of Milan
Reducing the ecological impact of medicines

From the perspective of pharmacist
On board

Erlea Melgosa
Chemical and Bio Engineering

Suvi Ojala
Environmental Engineering

Kaisla Kasteenpohja
Psychology

Ella Huttunen
Information Networks

Jalmari Stenberg
Medicine

You!
Content of presentation

1. Introduction
2. Results
3. Consumers
4. Pharmacist
5. Solution
6. Conclusion
How many percent of the purchased medicine end up in sewage in Finland?
The amount of medicine ending up in sewage is 20 - 40%.

*Fimea - Finnish Medicines Agency

Kujala, K & Salimäki, J. Voiko lääkejätteen määrää vähentää?, Luonto ja lääke (3/2016), Kuopio, Finland.
60 000 kg

as waste

95-125 million euros annually thrown away
Results of our research
Consumers
Who participated in our survey?

*200 participants
The importance

Do you take leftover medicine back to the pharmacy?

- Yes: 27%
- No: 73%

Found it important or extremely important to consider the environmental impact of drugs (5-6):

- 65%

Somewhat important (3-4):

- 28%

Not important (1-2):

- < 8%
Pharmacists
Information is power

Education  Conversation  Social media
Our campaign
ECOCONSCIOUS
PHARMACIES 2020

Reduce the ecological impact of medicines. Return your old medicines to the pharmacy.

PARTICIPANTS

Join these people and return your medical waste to a location.
Would you participate in our social media contest?

40 %

Said YES!
The pharmacies participating will get the permission to use this stamp on their websites and marketing.

Why participate?

- Free publicity
- Get rewarded
- Activate customers
- Do good for the environment
Be a start for a bigger CHANGE
How doctors can promote more sustainable medicine usage

Rami Kurimo
Maria Haukka
Oona Kivato
Aarne Talvela
Pirta Salojärvi
Are you concerned about the environment?
Are you concerned about the environment?

Do you consider the environmental impact of medicines when dealing with them?
Well the majority of doctors who answered the survey did not!

Do you consider the environmental impact of medicines when prescribing them?
Results
70 responses from medical doctors and 41 from medical students (total 111).

Conclusions
Doctors have a lot of will but little information to consider the environmental impact of their decisions.
Drugs remain unused

95-125 million euros worth of drugs in Finland

Almost half of this is attributed to too big package sizes.

Drugs are not disposed of properly

20-40% of unused medicine ends up in the trash or sewers.

Contamination of water bodies

Many substances are toxic to aquatic life.

Drugs end up in nature due to incorrect disposal as well as through human metabolism and insufficient wastewater treatment.
What could the Pharmaceutical Information Centre (PIC) do?
Rating drugs based on toxicity and prevalence

Presenting the information as a simple color scale system

98% of doctors would be willing to consider the environment when prescribing drugs at least to some extent

Combining both a simple color code and a number scale

Scale system example

Green leaf: 0-2, low risk
Yellow leaf: 3-7, moderate risk
Red leaf: 8-10, high risk

Reasoning for the rating and further instructions visible by clicking the symbol
02 INFORMATION CHANNELS

**Terveysportti (Duodecim)**
- Medical database
- PIC is one of the information providers

**Pharmaca Fennica**
- Medicine database
- PIC provides the information

**Patient Information System**
- Extremely fast at doctor’s appointment
- Expensive and difficult to implement

PIC = Pharmaceutical Information Centre
### Patient Information System

**Patient Information System**

#### Medical Treatments Information Table

<table>
<thead>
<tr>
<th>Drug ID</th>
<th>Drug Name</th>
<th>Environmental effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Drug option 1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Drug option 2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Drug option 3</td>
<td>9</td>
</tr>
</tbody>
</table>
75% of doctors think that a wider discussion about the environmental effects of medicines is needed.

But only 20% of doctors felt they had at least a moderate amount of information about the environmental effects of medicines.
Future aspects

- More education about the environment in the medical studies
- Patients could bring redundant drugs to doctor’s appointment.
  - This helps doctors to monitor and optimise medication.
- Further research is needed!
Does anyone have any questions?

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This is where you give credit to the ones who are part of this project.

- Presentation template by SlidesGo
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INNOVATIONS IN DRUG DISPOSAL METHODS

Business Model and Healthtech Innovations Project 2019
The Problem?
DIGITALIZING THE MEDICATION PACKAGE INSERT
20 - 40% of medicinal waste in Finland ends up in Water Systems...

... more antibiotics in the environment causes growth of antibiotic-resisting super bacteria
KNOW IT'S IMPORTANT

ACTUALLY RETURN DRUGS
MEDICATION DISPOSAL BOX
FINANCIAL INCENTIVE

36%

38%

MORE LOCATIONS
Common Finnish bottle deposit machinery
Australia Belgium Canada Croatia Czech-Republic Denmark Estonia Fiji Finland Germany Hungary Iceland Israel Japan Lithuania Netherlands New Zealand Norway Sweden Switzerland Turkey United-Kingdom
COMBINING MEDICINE DISPOSAL WITH BOTTLE RECYCLING

A DEPOSIT SYSTEM FOR PACKAGING REGARDLESS OF DRUG CONTENT
WHY SUPPORT THIS?

- Existing infrastructure
- Minimal change in logistics and transportation
- No additional impact on the environment

- Reduces the amount of medicine in the environment
Thank you.

Joao Hämäläinen
Oona Paananen
Villem Puntonen
Julia Ranta
Jihan Zaki