

Best Practice Paper on Green and Sustainable Pharmacy in Europe

Pharmaceutical Group of European Union





About PGEU

The Pharmaceutical Group of the European Union (PGEU) is the association representing community pharmacists in 32 European countries. In Europe over 400.000 community pharmacists provide services throughout a network of more than 160.000 pharmacies, to an estimated 46 million European citizens daily.

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Executive Summary

Community pharmacists share the increasing concerns on the negative effects pharmaceuticals can cause on the environment, and as a result, on public and animal health. As medicines experts they are well placed to increase public awareness, promote the prudent use and correct disposal of pharmaceuticals, and provide advice on the availability of 'greener' pharmaceuticals where such information is available. Moreover, it is also vital that the network of 400.000+ community pharmacies in Europe are guided and supported to help contributing to a healthier planet as much as possible.

Environmental protection contributes to safeguarding the health and safety of future generations; at the same time medicines play a critical role in ensuring a

high level of public health. A right balance needs to be achieved between increased awareness and appropriate policy approaches to prevent the potential negative effects pharmaceuticals can cause on the environment on the one hand, and access to safe and effective medicines with demonstrated benefits on public health on the other.

This paper outlines the contribution that community pharmacists can make in promoting a green and sustainable future for pharmacy in Europe and provides an overview of ongoing best practices across Europe.

PGEU calls for a number of coordinated actions that should be taken at different policy levels. In particular, PGEU calls on:

Member States, in close collaboration with the European Commission and the European Medicines Agency (EMA), to:

1. Take action to increase the public awareness on the prudent use and waste collection of pharmaceuticals.

Community pharmacists are, as medicine experts, ideally placed to advise patients on the appropriate handling and disposal of pharmaceuticals and should therefore be closely engaged in any public campaigns.

2. Develop guidelines and information materials for healthcare professionals on the prudent use of pharmaceuticals.

For community pharmacists, these guidelines should be developed in close collaboration with the national and local pharmacy associations to ensure an appropriate integration in pharmacy practice.

3. Explore the inclusion of environmental aspects for pharmaceuticals posing a risk to or via the environment in the training of pharmacy students and continuous professional development programmes

as part of a One Health approach.

4. Develop and ensure compliance with environmental quality standards for pharmaceuticals

as a measure to promote greener manufacturing.

5. Ensure appropriate funding of pharmacy-led disposal and collection schemes for medicines and used sharps,

where implemented, as an easily accessible channel for the public to correctly dispose of their leftover or expired medicines and used sharps.

6. Reduce pharmaceutical waste caused by leftover medicines

by ensuring that systems are in place that encourage the prescription and dispensing of quantities of certain risk medicines in package sizes matching the duration of treatment as much as possible.

7. Support the development of environmentally friendly practices and sustainability policies in pharmacies.

The European Commission to:

1. Ensure that actions to address the risk of pharmaceuticals in the environment **do not jeopardise sufficient room for independent clinical decision-making by healthcare professionals on public health grounds.**

2. **Fund and encourage more research** to fill current existing knowledge gaps on the potential negative impact of pharmaceuticals on the environment as well as the links between the presence of antimicrobials in the environment and the development and spread of antimicrobial resistance.

3. **Foster best-practice exchanges between Member States** on measures addressing the growing presence and negative impact of pharmaceuticals in the environment.

4. **Encourage action in third countries** where pharmaceutical emissions from manufacturing and other sources are suspected of contributing to the global spread of antimicrobial resistance.

Reducing the impact of pharmaceuticals in the environment

The European Commission has, as required by EU legislation¹, published a Communication on a European Union Strategic Approach to Pharmaceuticals in the Environment² on 11th March 2019. It identifies six action areas concerning all stages of the pharmaceutical life cycle, both for pharmaceuticals for human and veterinary use, where improvements can be made.

In response to the Communication, PGEU reinforced the commitment of European community pharmacists to reduce and prevent the impact of pharmaceuticals in the environment in its 2019 position paper³.

In September 2020 the European Parliament has adopted a resolution on pharmaceuticals⁴ in the environment

calling for new measures to tackle pharmaceutical pollution. The resolution welcomes the European Commission's Communication but regrets the serious delay in presenting a strategic approach and concrete actions to be taken at EU level. The resolution calls for more prudent use of medicines, the development of greener manufacturing and better waste management in the EU.

A first Update on Progress and Implementation of the EU Strategic Approach on Pharmaceuticals in the Environment was published in November 2020 which showed that overall, progress has been made so far in certain areas and some actions presented in the strategy are already advanced or have been completed⁵.

Increase awareness and promoting prudent use of pharmaceuticals

According to the European Commission Communication, the largest source of pharmaceuticals entering the environment is their use. Generally between 30% and 90% of the orally administered dose of a wide range of commonly used pharmaceuticals are excreted as active substances in the urine and faeces⁶. Due to the varying ability of wastewater treatment to eliminate pharmaceutical residues, the emissions mostly come from municipal wastewater systems following the consumption of medicines in households, with a smaller proportion coming from hospitals and health care facilities.

Still too often, the possible impact of a certain pharmaceutical on the environment is generally unknown, as well as the links between the presence of antimicrobials in the environment and the development and spread of antimicrobial resistance. It is crucial that

these knowledge gaps are filled and that this information is appropriately integrated in policies and guidelines.

As part of their role in improving public health, community pharmacists see it as their duty to advise citizens on environmental health and safety. This includes advising on appropriate handling, adherence and disposal as well providing information to the public on the availability of 'greener' pharmaceuticals where such information is available⁷. In order to fulfill this role, the development of guidelines and information materials for healthcare professionals on the prudent use of pharmaceuticals posing a risk to or via the environment should be encouraged. The Joint FIP/WHO Guidelines on Good Pharmacy Practice⁸ highlight that an important requirement for the community pharmacy practice is to have access to evidence-based, unbiased, comprehensive, objective and current information about

therapeutics, medicines and other health-care products in use, including potential environmental hazard caused by disposal of medicines' waste. Any guidelines or protocols to healthcare professionals should at the same time provide the healthcare professional with sufficient room for independent clinical decision-making on a case-to-case basis, so that at all time the health outcomes of the patient can be the key decision factor in any start or (dis)continuation of therapies.

In addition to professional guidelines, environmental aspects for pharmaceuticals posing a risk to or via the environment could also be included in the training of pharmacy students and continuous professional development programmes as part of a One Health approach. These measures can empower pharmacists in advising on environmental health and safety as well as allowing for a complete risk/benefit analysis of the medicines they are dispensing, taking into account environmental factors.

As part of their role in improving public health, community pharmacists see it as their duty to advise citizens on environmental health and safety. This includes advising on:



Appropriate handling,



Appropriate disposal,



Adherence,



Providing information to the public on the availability of 'greener' pharmaceuticals where such information is available.

Promoting greener manufacturing

Some medicinal products have a negative impact on the environment in countries where they are sold, but more so in the countries where they are manufactured. Some of the active pharmaceutical ingredients (API) are being produced in environmentally friendly factories that use efficient sewage plants - but far too many do not. The result is pollution in nearby waters, such as lakes and rivers that can be an active reproduction area for amongst others antibiotic resistant genes⁹. We therefore welcome the European Commission recommendation to increase collaboration with Member States on setting environmental quality standards for pharmaceuticals posing a risk at national level and to encourage action in third countries where pharmaceutical emissions from manufacturing and other sources are suspected of contributing to the global spread of antimicrobial resistance as well as harming the environment and ecosystems.



Reducing wastage and improve the management of waste

It is estimated that around 8-10% of pharmaceutical substances in the environment originate from improperly disposed medicines - flushed down the toilet, poured into drains, or otherwise disposed inappropriately in household waste by patients or even by medical institutions^{10 11}. Educating citizens across the EU can therefore lead to a change in behaviour that can make a substantial difference.

In order to raise public awareness about the correct disposal of unused and expired medicines, several European stakeholder organisations have collaboratively initiated, on a voluntary basis, the #medsdisposal campaign¹². In addition to conducting social media campaigns in different languages, the campaign's public website contains a map with information on the disposal of medicines in the different European countries.

In addition to several State or government-led disposal and collection schemes for medicines, the majority of the European population can return expired or unused medicines to their community pharmacy, although the organisation and financing of these schemes varies. Since community pharmacies are easily accessible and frequently visited by the public, Member States should ensure that, where implemented, pharmacy-led disposal and collection schemes are appropriately funded in order to make the best use of these resources. Today, still in too many EU countries pharmacies are asked to finance these systems themselves, which leads to insufficient uptake and is in our perspective an unfair and incorrect approach taking into account the positive

results observed in countries where pharmacies are empowered in this role. At the same time, it also key that for certain risk medicines the quantity of medicines prescribed and dispensed matches the duration of treatment as much as possible in order to reduce the amount of leftover medicines, especially by optimising the package size of certain risk medicines.

In addition to several State or government-led disposal and collection schemes for medicines, the majority of the European population can return expired or unused medicines to their community pharmacy¹³, including antimicrobials. Encouraging the return of expired or unused antimicrobials for appropriate disposal is crucial in preventing the inappropriate use or reuse of these medicines by persons who were not originally prescribed them, thus helping to encourage their prudent use and tackling AMR.

In some European countries, citizens are also able to return used sharps, including needles, syringes and lancets, to pharmacies via sharp containers as part of separately organised collection programmes. Inadequate management and disposal of waste generated by injection and pricking activities in households such as sharps and infectious waste can have a negative impact on the health of patients and their family members, as well as on the community and the environment. With the increasing use of injectable medicines in primary care, it is therefore vital that the associated waste can be disposed correctly via easily accessible channels for the public such as community pharmacies.



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As part of their daily practice, pharmacists encourage return of expired and unused medicines and prevent the inappropriate use or reuse of these medicines.

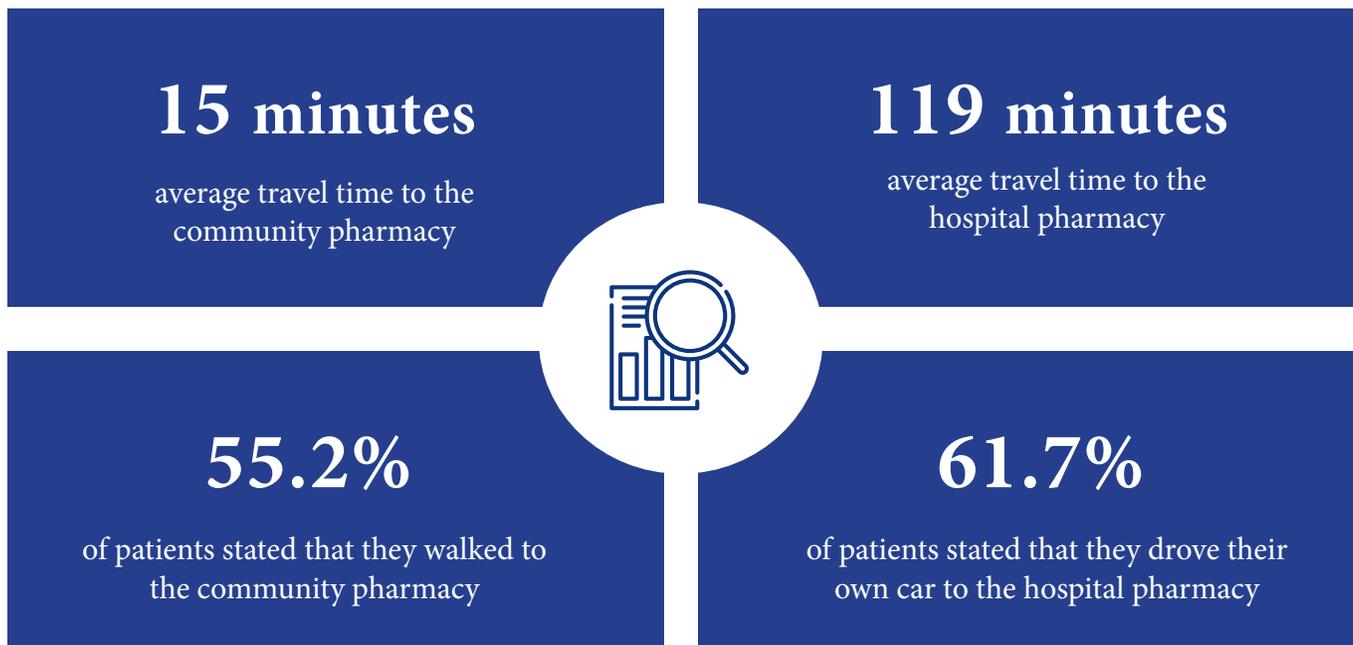


In some European countries, citizens are also able to return used sharps, including needles, syringes and lancets, to pharmacies.

Reducing the environmental footprint by ensuring a wide range of medicines are available locally, close to the patient's home or place of work

The wide network of community pharmacies ensures European citizens access to medicines and medical devices close to their homes or place of work. Almost two-thirds of Europeans can access a pharmacy within five minutes, while 98 percent can do so within 30 minutes¹⁴. By keeping a wide stock, community pharmacies can meet most patients' needs immediately. If a product is not in stock or sold out, patients can often be offered an alternative or be supplied on the same day. This system reduces the number of unnecessary journeys due to the need of ordering packages not in stock.

In Portugal, a pilot study which evaluated the dispensing of hospital only medicines in the community setting (at the community pharmacy or home delivery) revealed that patients noted an average travel time of 15 minutes to the community pharmacy, significantly less than the 119 minutes reported if the travel had been to the hospital pharmacy¹⁵. 55.2% (n=229) of patients stated that they walked to the community pharmacy, whilst 61.7% (n=297) reported that they drove their own car if they had to visit the hospital pharmacy.



The total number of journeys that can be avoided as a result, contributes significantly to a reduced environmental footprint throughout Europe. On the other hand, ordering single packs of medicines by mail, does not only takes more time, but it generally also has a greater impact on the environment.

Recommendations to Community Pharmacies

Community pharmacies across Europe are strongly committed to help reducing the impact pharmaceuticals can have on the environment and preventing unnecessary waste. At the same time, they can make a meaningful difference in contributing to a healthier planet by integrating sustainability policies within their daily practice.

PGEU therefore makes a number of recommendations to community pharmacies across Europe on becoming green and sustainable:

Prevent and reduce the negative impact of pharmaceuticals in the environment by:



Actively participating in collection schemes and campaigns for returning unused and expired medicines where appropriate.



Adopting effective waste collection policies for the compounding of medicines in pharmacy practice.



Collaborating with prescribers to encourage the rational prescribing of medicines aimed at preventing leftover medicines as much as possible.

Promote the prudent use of medicines by:



Advising patients on the availability of 'greener' medicines where such information is available.



Supporting patients with therapy adherence during consultations and the provision of structured pharmacy services.

Reduce carbon footprint and contribute to a healthier planet overall by:

Providing bags to patients made of recyclable materials only where possible and where needed.

Reducing plastic waste overall in pharmacies and help raising awareness on unnecessary single use packaging towards wholesalers and manufacturers of medicines.

Encouraging environmental-friendly commuting of pharmacy staff.

Making use of renewable energy sources as much as possible.

Adopting environmentally-friendly procedures related to procurement and distribution processes, including home deliveries of medicines.

Annex: Best Practices from Pharmacists

Pharmacy collection schemes and campaigns for returning unused and expired medicines

In addition to several State or government-led disposal and collection schemes for medicines, the majority of the European population can return expired or unused medicines to their community pharmacy, although the organisation and financing of these schemes varies.

It is well known that the improper disposal of pharmaceuticals into sinks and toilets and into landfill

is a main source of the pharmaceutical pollution in the environment². The separate collection of pharmaceutical waste ensures that it can be processed responsibly and consequently does not end up in the environment. In some areas, it is recommended that pharmaceutical waste is disposed of in general household waste, which is then incinerated.



Belgium

In collaboration with the regional authorities, the various stakeholders from the pharmaceutical sector organize a selective collection of expired or unused medicines so that they can be disposed of in a safe way¹⁶.

The main objective of this collection is to prevent residues of medicines from ending up in the environment or in the wrong hands.

According to the Royal Decree of 21 January 2009, all pharmacists are obliged to take back expired and unused medicines free of charge if the patient presents them in the correct manner. Subsequently, the pharmacist must collect the medicines, store them separately from other goods, and return them to the wholesaler-distributor so that he can in turn take steps, in accordance with the legal provisions, to have the expired products destroyed by a specialized company.

Community pharmacies organise together with the other pharmaceutical stakeholders regularly awareness campaigns to inform the general public about the correct sorting of expired medicines. For example, a practical

sorting guide has been created. This information leaflet provides to citizens a clear overview of the products that the pharmacist may or may not take back.

**MÉDICAMENTS PÉRIMÉS
OU NON UTILISÉS?**
Rapportez-les à votre pharmacien!



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Czech Republic

In the Czech Republic, pharmacies are obliged to accept expired and unusable medicines from patients. These drugs are stored separately from other drugs. At regular intervals, these drugs are transported by authorized companies from pharmacies to the waste incineration plant and are burned¹⁷.



Denmark

Danish community pharmacies are obliged to collect medicine waste from civilians, whereas the municipalities are responsible to collect this medicine waste at the pharmacies without any cost for the pharmacies. During the spring of 2021, the Association of Danish Pharmacies will launch a campaign at the community pharmacies with a focus on the citizens handing over medicine waste for the sake of the environment.

Tack back project

The community pharmacies in three municipalities in Denmark participate in a 6-month period in a project where they collect empty insulin pens from diabetes patients¹⁸. Plastic, metal and glass from the insulin pens must be recycled. The project takes place in partnership with, among others, the community pharmacies, patient associations, wholesalers, the municipalities, the Danish Environmental Protection Agency and the pharmaceutical company Novo Nordisk. If the project proves to be a success, it will be spread to all of Denmark, just as other pharmaceutical companies wishing to reuse packaging can participate.



Europe: #Meddisposal campaign

PGEU is one of the founding partners of the pan-European interdisciplinary stakeholder collaboration “medsdisposal”¹⁹. #medsdisposal is a campaign to raise awareness on the appropriate disposal of expired or unused medicines in Europe and includes associations representing European healthcare, industry and student organisations. Crucial to this project’s relevance is an interactive map of Europe with direct links to the official websites providing information on the appropriate way of disposing medicines in each country in the national language(s).

In order to increase awareness of this website, social media is used extensively to guide members of the public to the resources on the campaign’s website²⁰.



France

Since 2007, there is a compulsory collection scheme for medicines called Cyclamed²¹. All community pharmacies collect unused medicines returned by patients, check them and store them in a dedicated area, in boxes brought by wholesalers on behalf of the Cyclamed body. Pharmacists provide this service for free; the recycling process is financed by a tax on manufacturers. Boxes are picked up by wholesalers, who deliver them to Cyclamed, which destroys them (they are burnt to produce steam and electrical energy which is recovered).

The scheme is well-known, with campaigns keeping the flame alive: posters²² are available to display in the pharmacy and recently Cyclamed provided pharmacists with a stamp to apply on prescriptions to remind patients that they should bring unused medicines back to the pharmacy (in big cities, campaigns are also run on public transportation advertising spaces on a regular basis)²³. Pharmacists

separate unused medicines from cardboard boxes, in order for the latter to be channelled through their own general recycling scheme.

In addition, there is a specific collection scheme in place for sharp medical waste. Since pharmacists collect on behalf of patients, they do not have to pay for the collection service. When they started the flu vaccination service (first national season: 2019/20), it was decided that they would not have to pay for the collection of their own-produced sharp waste, contrary to other health professionals, in view of the service they render by stocking patient waste.



Greece

In Greece the Institute of Pharmaceutical Research and Technology (IFET), under the supervision of Greek medicines agency EOF and with support of stakeholder organisations such as the Panhellenic Pharmaceutical Association, has created a new system for the collection, transportation, temporary storage, management and rational destruction of household medicines and household medicine residues. Special containers have been installed in all pharmacies in Greece, where civilians can go to deposit the medicines they either no longer need, or have expired.

Once the containers are full, the pharmacists will notify the local Pharmacists' Cooperative and its certified employees collect the contents using a special bag. All these bags are collected in the storage area of the Cooperative and then are sent to the central warehouse designated by IFET before being forwarded to special inactivation units. IFET has developed a special system for the supervision of the transfer orders, in order for the whole process to be strictly controlled and a special destruction protocol is returned from the units. In

2019, IFET collected approximately 120 tones, which is estimated to be 45% of the total wasted medicines.

In order to complement these efforts, the Panhellenic Pharmaceutical Association has launched a campaign in collaboration with the Greek Ministry of Education aiming to raise the awareness of younger people. Moreover, Greek community pharmacists encourage, support and educate the public regarding the proper disposal of home medicines. Currently, another initiative is underway regarding the proper management and disposal of influenza vaccination waste (i.e. needles etc.).



Italy

In Italy, several supply chain stakeholder associations have organised a stakeholder model to collect expired medicinal products in almost all Italian pharmacies since 1980. Assinde²⁴ is a company whose shareholders are industries, wholesalers and pharmacies (both private and municipal ones).

The aim of the initiative is twofold, from one side affording an optimal management of the pharmacy stock as most expired medicines are partially reimbursed to the pharmacy, but the most important objective is the effect on the environment as all expired medicines (included veterinary ones) are collected, transported and destroyed according to all law requirements. Moreover, in January 2016 Assinde signed an agreement with the ministry of environment to guarantee a best control of the waste management process of all dangerous and non-dangerous wastes produced in the supply chain.

In addition to this, municipalities have their own disposal plans for medicines expired in the patient's house. According to this scheme, community pharmacies collect these medicines through the use of municipality containers put inside or outside pharmacy premises. Almost all Italian towns have organized this scheme of waste management.





The Netherlands

The medicines waste / left-over are classified as small chemical waste or small hazardous waste. This is because it is harmful if these residues end up in the surface water. Based on the Dutch Environmental Act, municipalities are responsible for the collection and processing of small chemical waste from their residents. Residents can therefore take their medicine waste to the local collection point from the municipality, instead of flushing a multitude of unused pills down the toilet or emptying cough drops into the sink. Many patients, such as the elderly, often have difficulty walking. It is therefore desirable that they can also dispose of their medicine waste close to home. That is why pharmacists support municipalities by offering the pharmacy as an extra collection point. Municipalities have a collection obligation for the waste of civilians. It is therefore the national trend that municipalities is responsible for the costs of disposing of the collected medicine waste and that pharmacists no longer have to pay for it. A number of municipalities have not yet decided to do this, for example because they see the collected medicine waste as industrial waste. In 21 out of a total of 355 Dutch municipalities, pharmacists still have to pay for the voluntary collection and disposal of medicine waste from citizens.

The Dutch Pharmacists Association (KNMP) is in favour of a national regulation for disposing waste/left-over medicine by pharmacists free of charge. With this regulation the pharmacists can maintain the accessible collection from patients. Therefore, when the municipality charges costs for the removal of medicine waste from patients, the KNMP recommends that pharmacists should contact the municipality.

The KNMP produces several information materials²⁵ to support pharmacies in this mission such as a poster for patients to inform them to bring left overs over medicine to the community pharmacy and making the information on their public website²⁶ from pharmacists with 1.7 million visitors each month.

MEDICIJNAFVAL? LEVER HET IN BIJ DE APOTHEEK!

HOE?

- **Doosjes:** alleen de strips
- **Flesjes en tubes:** verwijder het etiket, voor uw privacy
- **Gebruikte naalden:** altijd in een naaldencontainer
- Vanwege het coronavirus graag uw medicijnafval eerst 24 uur thuis bewaren in een afgesloten zak.

Wij voeren uw medicijnafval veilig af



Veilig medicijngebruik?
Vraag het uw apotheker!



Chain Approach to Medicine residues in Water

The Dutch government is collaborating with the water boards, drinking water companies, and parties from the pharmaceutical/care sectors to reduce medicine residues in surface and groundwater²⁷. It is only a collective approach, with measures close to the source and right up to water purification, which is believed to reduce levels effectively. The basic principle herein is the fact that medicines must remain accessible to everyone who needs them. The various parties have agreed to work pragmatically and will take actions where possible.



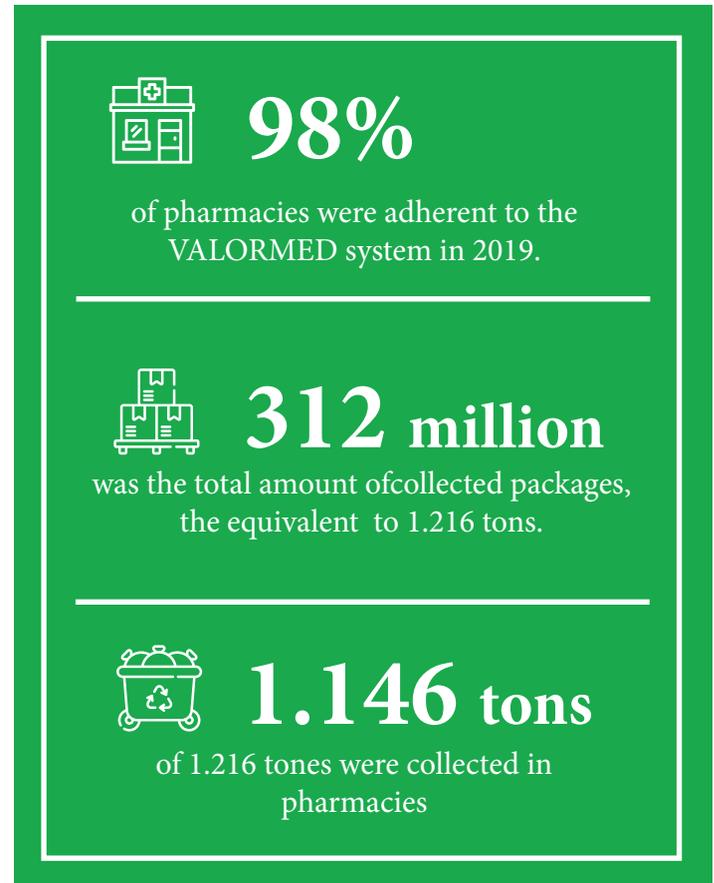
Portugal: “Medicines use – we are all responsible” campaign and VALORMED

The main goal of the campaign “Medicines use – we are all responsible”²⁸ is to inform, promote best practices and raise awareness among the general population, healthcare professionals, and policymakers about responsible use of medicines.

The campaign, besides a strong presence on different communication channels, organized several multidisciplinary debate sessions, where renowned healthcare professional participated together with policymakers, representatives from patients and consumer associations and citizens. The Portuguese Pharmaceutical Society also developed campaign materials, like a video²⁹ and brochures³⁰, handed out to patients during their visits over 2,900 pharmacies. The responsible use of antibiotics and the safe and eco-friendly elimination of medicines were some of the main topics addressed in this campaign.

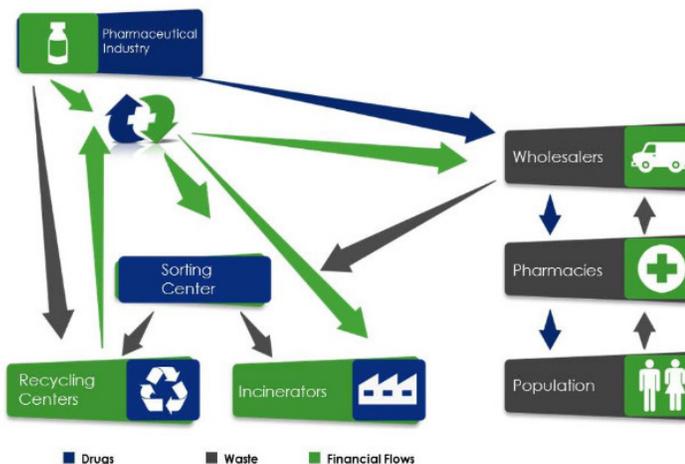
In Portugal, 1% of the solid waste produced originates from the medicine sector. As a consequence, in 1999, pharmaceutical chain stakeholders (pharmaceutical industry, wholesalers and pharmacies) created VALORMED³¹, in order to implement a safe and effective procedure to collect and treat the waste of unused medicines and packaging. Currently, the association representative of the pharmaceutical industry (APIFARMA), alongside the representative associations of pharmacies (ANF) and distributors (ADIFA and GROQUIFAR), are members of VALORMED.

| Data from Portugal:



In 2019, 2,910 pharmacies (98%) were adherent to the VALORMED system. The total amount of collected packages was 312 Million, the equivalent to 1.216 tons. Of this amount, pharmacies collected about 1.146 tons.

The role of community pharmacies³² is to assure that packages and expired medicines return to pharmacies and are deposited in VALORMED’S containers and taken by wholesalers in order to be treated in specific locations. Pharmacies also participate in the VALORMED information and communication campaigns by promoting materials and awareness among patients.



VALORMED promotes nationwide campaigns (TV, newspapers, outdoors) to alert the public to the environmental impact of medicines waste as well as pedagogic materials that can be used by pharmacies at local level³³.

VALORMED's activity also includes the correct disposal of medicines waste used in veterinarian services, which covers a lot of waste that was previously not treated. Concerning the process of medicines disposal, since 2008, all the material that is collected is, after intermediate storage in distributors with the aim of enabling a transfer amount, sent to the Sorting Centre of VALORMED, under an outsourcing contract established with a major operator of waste management. There, the waste is separated and classified, so that it can, later, be forwarded to recycling systems and / or proper treatment for energy recovery. In this process, VALORMED sorts the plastic and carton containers that can be recycled from the unused or expired medicines that are properly destroyed.

Within the Syringe Exchange Program³⁴, pharmacies establish contracts with specialised companies to organise a separate waste collection. This type of waste should be placed in specific containers in the pharmacy and asked for removal as it hits two thirds of the maximum capacity. Portuguese pharmacies also contribute to the X-Ray Recycling³⁵, collecting from the citizens radiographs with more than 5 years or no diagnostic value.



In Portugal, pharmacies are a central part of the chain that helps patients and pharmacies to have a much more responsible action concerning medicines disposal. Whether through the role of taking medicines back, or by raising awareness among patients, concerning a more responsible behaviour regarding medicine disposal.



Slovak Republic

Pharmacists inform about the disposal of unused when communicating with the patient in the pharmacy or through campaigns on social networks.

In 2016, the Slovak Chamber of Pharmacists launched an awareness campaign focused on medicines in households. It also included information materials for patients on how to properly dispose of unused medicines. Pharmacists receive unused medicines from patients and disposes them in specialized incinerators through special company "Blue Planet". To eliminate the amount of plastics, pharmacists use paper bags for patients.



Spain

The pharmacy collection schemes for returning unused and expired medicines are carried out by SIGRE³⁶. SIGRE is a non-profit organization launched in 2001 as part of a collaboration between the pharmaceutical industry, pharmacies and pharmaceutical distribution companies. Its activity focuses on the recycling and environmental treatment of packaging and medicine waste.

SIGRE pursues a double objective:

- Reducing pharmaceuticals in the environment: reducing the environmental damage that packaging and drug residues can cause, through the prevention of waste at source and the correct environmental treatment of the waste generated.
- Promoting prudent use: favouring the non-accumulation of medicines at home and making the citizens aware of the health risks derived from the inappropriate use of them.



Pharmacists advise, inform and encourage citizens to deposit the containers and waste of medicines at the SIGRE Point located in the pharmacy³⁷. They are the meeting point between SIGRE and the citizen. Thanks to the proximity of the pharmacy to the citizen's home, and to the trust that he has placed in the pharmacist, he becomes an essential figure for this environmental advice on the correct way to dispose of the remains of medicines and their containers³⁸.



Sweden

The waste handling of pharmaceuticals in Sweden is regulated by legislation. Since 2009 the pharmacies have the ordinance of producer responsibility for pharmaceuticals. Pharmacies are obliged to take-back left-over household pharmaceuticals without financial compensation and should further inform the public about how and why they should hand in their medicines to pharmacies. The pharmacies costs for handling take-back household pharmaceuticals are expected to be covered by trade margins which are set by the Dental and Pharmaceutical Benefits Agency (TLV) in Sweden.

The pharmacies themselves work with dissemination of information on the environmental impacts of pharmaceuticals and how the households can reduce their impacts. For example, all the pharmacies have information texts concerning take-back of unused medicines on their websites, although to varying extents. The different chains also work separately with their own campaigns (for example “The big collection day”). Almost all the pharmacy chains offer their members bonus credits for handing in unused medicines. To increase the take-back of unused drugs as well as coordinated by the trade association The Swedish Pharmacy Association also coordinate collection of data in order to get a total amount of returned medicines in pharmacies in Sweden.

Sweden has a long tradition (since 1971) of returning unused pharmaceuticals to pharmacies. Swedish pharmacies collect 1 300 tons unused medicines from the public each year. This is reported in the annual Trade Report³⁹ of the Swedish Pharmacy Association.

1 300 tons

of unused medicines were collected in Swedish pharmacies from the public each year.

Community pharmacists' roles in advising on 'greener' pharmaceuticals



Finland: Environmental classification for medicines coming

The Finnish Medicines Agency intends to publish the environmental classification of medicines in the coming years⁴⁰.

The classification would provide information for healthcare professionals and patients on drug use levels, risks and environmental burden. Currently, the best available information is on the aquatic effects of drugs. The Medical Information Centre's ambitious goal is

to provide much more extensive information on the environmental impact of medicines throughout their life cycle.

Pharmacies in Finland have been working for a cleaner nature and the well-being of the environment for a long time with almost all pharmacy outlets collect leftover and expired unused medicines from customers.



Sweden: Transparency guide for OTC medicines launched in February 2021

Pharmacies in Sweden have noticed that people are asking more and more questions about the origin of production of their medicines their impact on the environment.

A few years ago, the Swedish Pharmacy Apotek Hjärtat started an eco-label on its non-prescription range that would help customers make environmentally friendly choices⁴¹. In 2019, the project was handed over to the Swedish Pharmacy Association so that it can apply to the entire industry. The environmental symbol that a drug receives after the responsible company has met certain criteria for more transparency in the manufacturing process will in the future be visible in all pharmacies.

The transparency guide⁴² is aimed at consumers so that they can see which companies meet the three set criteria for increased transparency. The criteria are that:

- The company reports sustainability according to the Global Reporting Initiative (GRI) standard and the report should be reviewed externally by independent third parties.
- The company is a member of Pharmaceutical Supply Chain Initiative (PSCI) which indicates that the company contributes to driving responsible supply chain practices.
- Specific known pollutants may not be included in the product according to Swedish legislation for water quality. Medicines that contain it will not have the symbol associated with the product, but if the company otherwise meets the criteria, its other over-the-counter medicines will be labelled with it.

Once a company has met the criteria, its over-the-counter medicines will have a special symbol in all pharmacies and in e-commerce. All pharmacy employees will also receive in-house training so that they can provide information to customers.

Reducing the environmental footprint of community pharmacies



The Netherlands

Green Deal for Sustainable Care

The Royal Dutch Pharmacists Association KNMP is one of the signatories of the Dutch Green Deal for Sustainable Care⁴³. This initiative is in line with the central government's choice for 'green growth, that is, economic growth that is not at the expense of the environment'⁴⁴.

Pharmacists in the Netherlands have been working on sustainability for years. In addition to the collection of the leftover and expired medicines, the advice pharmacists give to patients is aimed at effective use of medicines and adherence to therapy, so that we prevent waste of medicines. Community pharmacists discuss also the subject of sustainability with their local general practitioners' colleagues during their Pharmacotherapy Audit Meetings (FTO).

Other initiatives ongoing on promoting green and sustainable pharmacy in the Netherlands are around the close cooperation with the Ministry of Health, Welfare and Sport in the Approach Waste in Healthcare program. The KNMP has also drawn up the Sustainable Packaging Sector Plan⁴⁵ together with the Dutch associations of Innovative Medicines (VIG), Biosimilars and Generic medicines (Bogin) and self-medication (Neprofarm). Together, these organisations form the Coalition of Sustainable Pharmacy. The mission of this coalition is to minimize the footprint in the lifecycle of a medicine with the focus on sustainable development, production, use and waste. The Sustainable Packaging Sector Plan describes proposals to reduce packaging in the pharmaceutical and self-care sector and make it more sustainable for the period 2019-2022.

Finally, the KNMP is also one of co-authors of the inspiration guide 'Towards a sustainable pharmacy chain'⁴⁶. The KNMP, Neprofarm, VIG, Bogin and Partners for Innovation want to use this guide to help healthcare providers, organizations and companies in the sector to make the pharmaceutical chain more sustainable. The guide contains current developments and practical examples in this field.

Home delivery of medicines via bicycle couriers

In the Netherlands, several urban community pharmacies collaborate with private initiatives that deliver medicines to patients' homes via bicycle couriers. The pharmacies work with local couriers, who are often able to deliver faster, cheaper and more environmental-friendly than deliveries made by cars.

PharmaSwap: innovative sharing marketplace to reduce wastage of medication

Wastage of medication contributes to an unnecessary increase in healthcare costs and to ecologically harmful production processes. It is estimated that in the Netherlands alone, at least 100 million Euros' worth of medicines are left unused every year. Besides patients also pharmacies and suppliers have to deal with leftovers and wastage on regular basis.

The aim of the Dutch initiative Pharmaswap⁴⁷ is to reduce wastage of medicines within pharmacies that would otherwise end up passing the expiration date. These medicines have been retained and stored according to the applicable rules and legislation and are still of high quality. Through an innovative sharing marketplace pharmacists can create transparency in supply of and demand for medicines. Storage and shipment of traded goods is always under strict GDP compliant conditions.

During a 6- month pilot, across 20 pharmacies the destruction of 68 packages with a procurement value of €54,000 was avoided; instead they were re-issued to patients.

This initiative, along with other KNMP initiatives such as the Farmabuddy project⁴⁸, has been highlighted as a best practice by the Dutch Minister for Medical Care and Sports in a letter directed to the Dutch Parliament on avoiding wastage of medicines⁴⁹.



Sweden

Carbon neutral pharmacy transports

Several pharmacy groups in Sweden have committed to implement carbon neutral transports of products to and from their pharmacies^{50 51 52}. Individual initiatives also commit to be fully carbon neutral by 2030 by becoming dependent on renewable energy only.

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