



PGEU GPUE
policy statement

Targeting Adherence

Improving
Patient
Outcomes in
Europe
through
Community
Pharmacists'
Intervention



PGEU GPUE

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Representing European Community Pharmacists

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Older people are the largest consumer group of medication and health care and often pictured as a burden for our health systems. For this reason, AGE members are particularly concerned with the promotion of healthy ageing. In our view healthy ageing is not just about prolonging life. It is about promoting the necessary means to enable older people to continue to participate fully in society and to best cope with the ageing process we all face.

In AGE's view, community pharmacists have a crucial role to play to help safeguard everyone's health and well being. By providing reliable and tailor-made information to the elderly, they can ensure proper adherence to the treatment they have been prescribed and inform them about potential interaction with over-the-counter medication. As forefront actors, they can encourage patients to adopt healthier lifestyles and to play a more pro-active role in the preservation of their health.

They can also provide guidance and help overcome reluctance linked to depression, undesirable side effects, dementia, mistrust or anxiety. In case of chronic diseases, such as hypertension or diabetes, they can help patients understand the importance of adhering to their life-long treatment to prevent the deterioration of vital functions.

Whilst we are concerned that poor adherence to treatment and over-consumption have an economic cost which puts our health systems under threat, we are even more concerned by the threat it puts on the quality of life and well being of the elderly.

This is why AGE campaigns for the rational use of health resources. The consumption of medicines increases with old age, and older people and health professionals need to be made aware of the inappropriate use of medicines and the

consequences linked to over/under consumption by the elderly and/or interaction of medication. It is, therefore, crucial that patients, their physicians, nurses and pharmacists work together to provide reliable information about the medicines older patients use and do their utmost to ensure that they follow their treatment carefully.

With the rapid ageing of our population and the higher number of very old, demented and/or dependent people, we are concerned that an increasing number of them will no longer have direct access to the fundamental information services that community pharmacists provide. A challenge which I hope will be addressed within the debate that PGEU is launching with this brochure. We welcome PGEU's initiative to devote their annual brochure to this issue and we hope to be able to develop together some concrete recommendations to make community pharmacists even more age friendly.

Anne-Sophie Parent
Director

AGE - the European Older
People's Platform





executive summary

At a time where different voices point to a “Pharmageddon”^[1] (also described as the “prescription pill epidemic”), on one hand, and to “under-treatment of patients with medicines” as costing billions of euros to EU health systems, on the other hand, it is worth asking where policies promoting the rational use of medicines and the improvement of patients’ adherence to therapies stand.

The cost of non-adherence can be calculated both in terms of generating additional costs for healthcare systems due to misuse or non-use of medicines leading to further treatment or even hospitalisation, and by simply wasting resources through the non-use of prescribed medicines funded by healthcare systems. We are currently confronted with figures such as the following:

- 194,500 deaths per year in the EU due to misdose and non-adherence of prescribed medication. Non-adherence is estimated to cost the European Union €1.25bn annually ^[2].

- Poor adherence has been estimated to cost approximately \$177 billion (approx. €1.95bn in 2001) annually in total direct and indirect healthcare costs in the USA ^[3].

- Patient non-adherence costs the pharmaceutical industry more than \$30bn in lost revenues (Datamonitor). For a \$1bn product, a 5% increase in patient adherence can reap \$30-40 million in revenue ^[4].

Considering the above, it is not difficult to conclude that if non-adherence is to be more effectively addressed, joint action is needed and cannot be dissociated from the overall principle of the rational use of medicines. It is not just a matter of economics. An appropriate balance between health, social, and economic policies, as well as multiprofessional and interinstitutional efforts is critical.

Future action needs to be embedded in a common vision. A vision that considers that a key success factor in improving adherence to

therapies is that clear strategies are in place and framed within the organisation of the healthcare system as a whole; and a vision which gives due consideration to the role and contributions of all involved in the adherence process: from patient to policy maker. It goes without saying that an active participation of all health care professionals (and, therefore, of community pharmacists), with clear definition of roles and competences and using their knowledge and skills to their full potential, is fundamental.

Therefore, this paper is intended to contribute to a much-needed debate about adherence, from the perspective of European Community Pharmacists. Its main objective is to explore the potential of pharmacists to improve rates of patients’ adherence to therapies in general and most importantly to long-term therapies commonly used in treating chronic conditions and their risk factors. Concrete examples on how this is already happening throughout Europe will be provided.

[1] <http://www.haiweb.org/17072007/Pharmageddon.pdf>

[2] Medi-Voice project

http://cordis.europa.eu/fetch?CALLER=FP6_PROJ&ACTION=D&DOC=3019&CAT=PROJ&QUERY=1170700793308&RCN=75025

[3] Ernst FR and Grizzle AJ, “Drug-related Morbidity and Mortality: Updating the Cost-of-Illness Model”, *Journal of the American Pharmaceutical Assn.* March/April 2001

[4] Datamonitor, “Addressing Patient Compliance: Targeted marketing driving a shift in focus from acquisition to retention” (August 23, 2004)

introduction

In February 2007, the PGEU published a statement dedicated to medication safety, entitled “Maximising Patient Safety in Europe through the safe use of medicines” [1]. Indeed, patient safety is (or should be) a fundamental principle of all health systems [2].

As we described in the patient safety document, medication errors may cause different types of drug-related problems (DRP) leading to several negative impacts ranging from none or poor therapeutic benefit for the patient to severe harm and possible death. The community pharmacist’s contribution to identifying DRP has been well documented [3].

However, a DRP may have other causes, as we will explore further on in this document. For example, a DRP happens when the patient is not taking the medicine he/she requires. A patient may decide not to take a certain medicine for many different reasons: e.g. may not afford to initiate an expensive treatment or to maintain a long-term one; may stop taking it because is facing discomfort or unbearable side effects; may distrust or not fully understand the information about the benefits and risks of a certain medicine; may simply disbelieve in science or may well not be willing to undergo a treatment which will change his/her way of living.

Policy makers, health managers and even healthcare professionals often tend to underestimate the opportunity to improve health outcomes through monitoring what happens after a medicine has been prescribed. At present, poor adherence presents a serious problem for health systems. Each year millions of people suffer from drug related morbidity or mortality [4] as a result of poor adherence. In addition, poor adherence also reduces the effectiveness of drug

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therapy. Not only does this have negative health consequences for the individuals themselves, it also increases the burden on health systems at a time where there are ever greater demands on resources. It is therefore not enough to ensure that the patient outcome of taking a medicine is solely the avoidance of an adverse drug event. There is a need to go beyond the safety aspects and discuss how to improve patient outcomes when using medicines and following a specific treatment.

‘Medication errors may cause different types of drug-related problems’

With the current document, we propose to have a more in-depth look into adherence - a key area that

has been demonstrated to have a significant impact in improving patient outcomes; has shown to be an important enhancer of health system effectiveness; and, overall, also has a beneficial effect on patient safety [4].

Community pharmacists are in an excellent position in the healthcare system to impact patient medication adherence. They are not only experts on medicines but also among the most accessible and most consulted health professionals. By having direct access to patients, they can identify poor adherence, help remove barriers and facilitate the incorporation of adherence interventions into the care of their patients. Having the right training and knowledge

[4] Drug-Related Morbidity and Mortality is a condition which incorporates treatment failure through a number of mechanisms as well as can produce new medical problems through the use of medicines or death.



they help in improving patient outcomes and in reducing overall health care costs.

Our main objective is to explore the potential of pharmacists to improve rates of patients' adherence to therapies in general and, most importantly, to long-term therapies commonly used in treating chronic conditions and their risk factors. Concrete examples on how this is already happening throughout Europe will be provided.

As we did when addressing the issue of Patient Safety, and because we are absolutely convinced that enabling the continuum of care is a critical success factor, we will look into both the community pharmacy setting and its interfaces of cooperation with other healthcare settings, giving special attention to the teamwork that has to be nurtured among the different healthcare professionals involved. Equally important is realising that the link and the focus will always be the patient. The patient is an active element in the process of adherence to therapies and has to therefore have an active

voice and a shared responsibility.

From our point of view, all health actors and agents of change have a responsibility and an obligation to contribute to improved health and quality of life. Pharmacists take their share of responsibility seriously and, as such, warmly welcome policies aimed at promoting and developing collaborative care among different health professionals and across the healthcare system.

Throughout this document we will highlight the fact that improving adherence and achieving maximal patient outcomes imply different degrees of involvement and commitment of many stakeholders. We can only speak on behalf of community pharmacists, but as the reader will conclude, an appropriate balance between health, social, and economic policies, as well as multiprofessional and interinstitutional efforts, is critical.

Many will say this is so complex that we should continue to do as always.

We dare to disagree.



Part I - Adherence and Patient Outcomes

In this first part we will briefly introduce the topic of adherence to therapies by addressing (a) What are patient outcomes, (b) What is adherence to therapies and (c) Facts and Figures about poor adherence and improved adherence, and then develop five key headings: 1. Improving adherence to therapies; 2. Teamwork and communication with other healthcare professionals; 3. Information to Patients; 4. Therapeutic Patient Education; 5. Training and skills, and 6. Additional Barriers and Incentives to improved Adherence, as structured below.

What are Patient Health Outcomes?

Generally speaking, health outcomes are the direct result of a patient's health status as a consequence of contact with the health care system. E.g. a patient receiving the necessary preventive medications could decrease the chance of dying from a heart attack.

Patient outcomes which are specifically linked with the use of medicines can basically be classified in three main types [5]:

- Economic outcomes - such as hospitalisation; visits to the physician; work absenteeism; prescription medicines;
- Clinical outcomes - such as symptoms; diagnosis; adverse drug events; medicines interactions;
- Humanistic outcomes - such as patient satisfaction; health-related quality of life; preference for one treatment vs. another.

These three aspects need to be looked at

in a holistic way. For example, an improved clinical outcome may lead to reduced demands on national drug budgets, but also have the 'humanistic' result of promoting satisfaction with the health system.

As we shall see, improved adherence to medicines has a positive impact on all of these three aspects of patient outcomes.

Notwithstanding the fact that healthcare professionals strive to make all outcomes positive, patients' participation and cooperation is essential and determinant to achieve success.

As we will also see, this is an essential aspect of improving adherence.

Moreover, one cannot forget the relationship between outcomes, processes and structures and that an understanding of the three is important to improve the efficiency of health care services. Although improving outcomes is the goal, studying processes can point the way to achieving that goal. This is the reason why, while understanding the adherence process, one may understand how this will impact on patient outcomes.

What is adherence to therapies?

WHO explains adherence as "the extent to which a person's behaviour - taking medication, following a diet and/or executing lifestyle changes - corresponds with agreed recommendations from a healthcare provider [4]." Adherence to medication is usually expressed as a percentage of a medicine's doses taken as prescribed.

A patient who shows, e.g. an adherence of 60% to his oral antidiabetics is missing doses, intentionally or not, or giving himself some “medicines holidays”, i.e. short periods during which he is consciously not taking medication, but he intends to restart thereafter.

The difference between an adherence of 60% and 80% can be significant. Although ideally the goal should be a 100% adherence, in certain situations having slightly lower percentages of adherence, between 80% and 100% may be acceptable, leaving room for improvement. In others, this can put the patient in a situation of high-level risk. E.g. patients missing doses of beta-blockers have 4.5 times increased risk of ischemic heart disease [6]. Among HIV-infected people, high-level adherence (in the range of 90% to 95% of doses taken correctly) is necessary to prevent viral resistance and to improve health outcomes.

Facts and figures about poor adherence

Medicines will not be effective if patients do not take them or do not follow prescribed treatment, yet in developed countries only 50% of patients who suffer from chronic diseases adhere to treatment recommendations. [4]

It is estimated that 20% to 30% of patients do not adhere to medication regimens that are curative or relieve symptoms, and 30% to 40% fail to follow regimens designed to prevent health problems [7]. When long-term medication is prescribed, 50% fail to adhere. Each year, millions of people suffer from drug-related morbidity and mortality as a result of non-adherence. [8]

Studies carried out in the USA suggest that non-adherence, especially when in taking medication and making lifestyle changes, can be directly related to subsequent increases in health care costs. In the USA, an estimated 11% to 20% of hospital admissions (30% for the elderly), emergency department visits, and repeat doctor visits may be due to non-adherence. [9,10]

It is estimated that non-adherence to medication regimens may cost upwards of \$100bn yearly

as a result of hospitalisations, emergency department visits, and repeat physician visits. [11,12] Approximately 125,000 deaths annually occur due to non-adherence [13]. In fact, poor adherence to therapies is a worldwide public health problem of dramatic proportions which has in recent years become more evident in developed countries.

For example, in the UK, evidence [14] shows that:

- Estimated medication costs for England in 2004 due to non-adherence were of approximately €12 million;

- 1 in 9 (11%) households have at least one prescribed medicine that the patient no longer requires;

- Wastage of medicines accounted for 2.3% of total medication costs;

- Estimated proportion of medicines wasted according to literature is in the region of 16%.

Another example comes from Portugal, where evidence [15] shows that the average wastage cost per medicine dispensed was €4.44, with 60.1% supported by the Portuguese National Health System, in 2006.

NB: Adherence, compliance and persistence are both used to define the extent to which a patient takes his medication as prescribed (or indicated in the case of non-prescription medicines).

There are, however, important differences between the three ideas.

Compliance is the extent to which patients follow advice given to them by healthcare professionals (e.g. information on taking medications or making lifestyle changes).

The term implies an obedience-based approach in which the healthcare professional dictates in a unilateral and passive form what the patient has to do. Thus, when non-compliance occurs, it is viewed as the patient's fault [7].

On the other hand, adherence indicates that goals of treatment are discussed and negotiated between the patient and the healthcare professional. The term implies an interactive and collaborative partnership and respects the role of patients' involvement in managing their own condition. When failures or successes occur these are shared.

Causes for poor adherence and possible solutions are jointly explored, using the healthcare professional's expertise in diagnosing an illness or in pharmacotherapy and the patient's expertise on his own issues and activities of daily living [7].

Persistence is used to describe whether a patient is continuing to use the prescribed medication.

1. Improving adherence to therapies



A medicine, irrespective of its legal status (prescription only or non-prescription) is an essential and valuable technology that can work wonders, but not do miracles. It has to be used appropriately taking into account benefit-risk aspects and cost-effectiveness issues. These are basic principles that must be respected in order to continue to benefit from medicines use and accessibility.

Research [16-19] has shown that by assessing patients understanding of the illness and therapy, communicating benefits of treatment, assessing the patient's readiness to carry out the plan, and discussing any barriers to adherence can significantly improve patients' adherence to therapies and, particularly, medication adherence.

This is where the Community Pharmacists' role is most valuable. In fact, pharmacists' direct and frequent contact with the patient, their easy availability and their unique expertise in medicines put them in a key position within the healthcare system to provide an effective contribution to any intervention intended to promote patient's adherence to therapies with the ultimate goal of improving patient health outcomes.

The idea that community pharmacists are only responsible for handing over medicines to patients is far too simple to fairly represent all that pharmacists do at the community pharmacy level.

Overall, community pharmacists' practice is about managing patient care and ensuring that appropriate therapeutic outcomes are achieved when medicines are dispensed (an activity that has become known as "pharmaceutical care" [20,21]).

This is done by providing opportunities for patient education and information, monitoring parameters such as e.g. blood pressure, managing medication, assessing medication adherence and identifying the situations when referral to other specialists is needed.

More specifically, at a community pharmacy level, several initiatives and actions have been taken in order to improve medication adherence and achieve optimal patient outcomes in the past decades. They can range from less to more systematic approaches, some of them already recognised by national governments and made part of national strategies to improve patient outcomes and lead to health cost savings. These initiatives are described in more detail in Part II of this document, but here it is worth drawing attention to one form of initiative which is gaining ground world wide - medication reviews programmes. Clinical medication review has been shown to be effective in optimising therapy, improving health outcomes, reducing the likelihood of drug-related problems and reducing waste [22-24].

Results from research in Sweden pointed out that medication reviews performed for elderly people reduced the average number of medicines use by the patient from 12.4 to 10.7. The average patient's medication cost was also reduced by 1488 SEK per patient per year (approx. €160 per patient per year) [25]. In Denmark, further research showed that systematic medication reviews for the elderly would result in savings of €50 million per annum [26].

In the UK, medication reviews are part of the NHS contract, recognising the great potential of



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community pharmacists in this area.

In fact, medication reviews can be seen as a natural role for pharmacists because they employ both clinical skills (e.g. knowledge of therapeutics and patient counselling) and technical skills (e.g. supply, and product knowledge), the combination of these attributes being unique to pharmacists [27].

In Finland, a pharmacist-conducted medication review was introduced in community pharmacies in 2005 targeting elderly patients.

The medication review model is very comprehensive, starting with an interview with the patient, preferably in the patient's home, assessing the medication through discussion with the patient, the physician and homecare nurse and researching laboratory results. Finally a report is created as a tool for the physician's decision-making process.

In France, the French Council of pharmacists (Ordre national des pharmaciens) took the initiative to put in place medication records ("Dossier Pharmaceutique"). The medication record has been a reality since 2007 and records in a central database for every patient all medicines dispensed to him/her in any French pharmacy. Through the medication record the pharmacist can monitor all medication the patient is taking allowing for the identification and avoidance of potential drug-induced diseases (iatrogenic

diseases) and redundant treatments. The pharmacist can therefore inform physicians of their patients' current medication (including prescription and non-prescription medicines) and contribute to a possible review of the medication.

In Austria, the "Medication Safety Belt (MSB)" is the first major step towards implementing superior e-health services for patients based on individual medication data, accessible by every connected pharmacy. The project involves a central medication database and patient management client software for each participating pharmacy. The pharmacies are linked to the "health information network", a high-security broadband connection with the Association of Austrian Social Security Institutions. Through this network, patient data will be available for medication safety checks in every connected pharmacy the patient chooses to visit.

The patient's participation and access to the MSB features and their data is based on the individual "e-card", the Austrian personal health insurance card. Access by pharmacies is authorised by using their professional card ("a-card"). One principal feature of the program is a medication adherence check. Based on a unique program logic, including dosage, therapy categories and 'daily dose intake' range calculations, the pharmacist can spot inconsistencies in the patient's adherence to prescribed medication.

The system warns if either too little or too many daily doses have been taken since the last visit to a pharmacy.

Being a real-time process integrated into the dispensing procedure, the medication database is not only an archive for research purposes but functions as an important tool for medication and patient management on-the-spot. As a result, many medicines-related problems such as poor adherence and double medication, can be avoided or recognised before negative effects for the patient occur and additional healthcare costs are generated.

The evaluation of this initiative has showed that there is an enormous potential impact if the MSB is used nationwide and systematically: based on a population of around 8 million, there are 250,000 potentially serious interactions that could be avoided.

In Portugal, 98% of the pharmacies use IT for product dispensing and product identification is made via bar code. Most prescriptions are still handwritten, despite the positive results with a pilot undertaken using electronic prescriptions. Community pharmacists are prepared and totally committed to endorse reception and handling of electronic prescriptions, as soon as the competent authorities decide upon this matter. Moreover, new software has been launched and is currently being used by more than 400 pharmacies - this software allows entering patient data (following patient written consent) and medication history plus values of point-of-care measurements, enabling the existence of Patient Medication Records and the ability to share this data with physicians, in the patient's best interest. The new software also contains safety warnings - duplication of therapy, interaction, contraindication and adverse drug reaction - forming a powerful tool for community pharmacists to identify major patient safety issues.

1.1 Long-term therapies

In this section we will explore adherence to therapies for treating long-term or chronic conditions.

A chronic disease is one which "has one or more of the following characteristics: they are permanent, leave residual disability, are caused by non-reversible pathological alteration, require special training of the patient for rehabilitation, or may be expected to require a long period of supervision, observation or care" [28].

Chronic diseases are a major cost and a

profound economic burden to individuals, their families, health systems and societies.

In particular, chronic diseases have a significant economic impact through, for example, reduced productivity.

There are many studies showing that patients suffering chronic conditions like asthma, diabetes, obesity or HIV/AIDS usually fail to adhere to their therapies. It is often the case that healthcare professionals tend to overestimate patients' adherence.

As it has been underlined by WHO, "increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any improvement in specific medical treatments" [4].

In the case of chronic conditions where medications have to be taken indefinitely, adherence often falls off significantly after six months [29-31], particularly for asymptomatic illnesses, such as hypertension, hyperlipidemia, osteoporosis, or cardiovascular diseases. This happens because patients feel that everything is alright - no pain, no fatigue, no cough; no symptoms make patients easily lose necessary cues that remind them to take their medication. It is part of the pharmacist's intervention not simply to remind the patient to take his medication but to find together with him ways to help to remind him to take it.

In the case of long-term therapies where the condition is progressive and cannot be cured (e.g. multiple sclerosis), patients tend to stop taking their medication as they lose faith in it.

In these cases pharmacist's intervention is essential in explaining that following treatment can help in slowing down functional decline and allowing the patient more quality time with his family. The pharmacist has to have the ability to present the benefits and the risks of taking a





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certain medicine in a way which will allow the patient to take an informed decision and to encourage him or her to take the necessary measures.

Another aspect that can contribute to non-adherence to long-term therapies is the fact that certain administration techniques, such as insulin injections in cases of diabetes or inhalers use in asthma cases, ask for a level of patient confidence and skill some times difficult to achieve. Again, the pharmacist's intervention in educating the patient on how to use some medical devices needed for the administration of his medication plays an important role not only in ensuring that the medicine is administrated correctly but in empowering the patient to self-manage his or her treatment.

Long-term therapies for treating non-communicable diseases

The case of Hypertension

In Europe, approximately 44% of the population have hypertension [32] and are at increased risk of adverse outcomes. Although a growing body of evidence supports that effective treatment reduces risk, [33-35] most patients with hypertension have poorly controlled blood pressure [36-39]. In fact, it is estimated that blood pressure is inadequately controlled in

approximately two-thirds of people living with hypertension [40].

Research [41] in Portugal has shown that reminder 'alarm' cards have a positive effect in compliance with antihypertensive medication in patients taking angiotensin-converting enzyme inhibitor (ACEI) once daily as monotherapy, over three months.

Pharmacists' intervention in this area has proven to be one of the most effective [42]. Pharmacists have targeted their efforts to improve control and inform their patients about the importance of blood-pressure control to reduce cardiovascular events, motivating them to engage with their treatment; i.e. to adhere to their antihypertensive treatment while introducing some changes in their diet and physical activity.

Examples of pharmacists' interventions in this area can be found in the countries' experiences in Part II of this document.

The case of Diabetes

Type 2 Diabetes is a major source of cost to the health systems (studies [43] estimate the costs at over €3,000 per patient per year).

The Ashville Project (USA), a landmark pharmaceutical care programme targeted at people with diabetes, is one example of how pharmacist's intervention can bring better patient outcomes in chronic disease management. An improvement adherence to oral antidiabetics and to insulin was one of many other elements of the programme [44].

Similar programmes are currently on going in some EU countries. In Portugal, a Diabetes Disease Management Programme has been developed which has proven to be effective in achieving the control of glycaemia (blood sugar levels) in non-controlled diabetic patients. The proportion of non-controlled diabetics who achieved the control of glycaemia after three months of follow-up by the community pharmacist was 21%. This value was sustained over six months. It should also be stressed

that the pharmacist intervention resulted in the improvement of blood pressure control in the diabetic patients under follow-up. Such outcomes have been possible due to a targeted intervention in the area of identifying and solving drug-related problems. In fact, the majority of DRP identified in the diabetic patients under the programme were of effectiveness (78.5%). Most of these could be solved by identifying the causes of poor adherence and proposing ways to improve it. In the scope of this programme, physicians have started or modified the therapeutics in 147 cases due to DRP reports provided by the community pharmacists.

In Finland, the Diabetes Programme for Pharmacies was started in 2001, as a part of Dehko (The Development Programme for the Prevention and Care of Diabetes) together with The Finnish Diabetes Association. Within the Diabetes Programme for Pharmacies, pharmacies are encouraged to develop best practices in cooperation with other health care professionals and patient organisations regarding the efforts of preventing diabetes as well as the active management of diabetes care among diabetes patients. To achieve a good adherence to therapies encouragement and motivation are key factors and the introduction of a common message within all local players in diabetes care is essential. The diabetes contact person in the pharmacy induces in-house training of diabetes care as well as managing the local cooperation with health care professionals and other partners in the programme.

More examples have been described in the documents on our website.

The case of Asthma

The prevalence of asthma is increasing in most countries, especially among children. Asthma is a significant burden, not only in terms of health care costs but also of lost productivity and reduced participation in family life. It has been estimated that, in severe cases, if asthma could be

well-controlled health costs could be cut by 45% [45].

Complete control of asthma is commonly achieved with treatment, however non-adherence rates to asthma treatment can vary from 30% to as high as 70% [46]. Moreover, adherence to asthma treatment not only depends on when the medication is taken, but also on how it is taken - as most asthma medication is presented and administered through the use of inhalers and other complex devices. Even if the patient has a satisfactory adherence rate, the inhalation technique can be incorrect and an inadequate amount of medicine is delivered.

In a study of asthma patients [47], the two most common errors made by patients were device-independent errors and included not breathing out before actuation of the device (29%) and failure to hold their breath for a few seconds after inhalation (28%). These errors were observed in 40-47% of the patients and some patients made more than one error.

The case of asthma, because it often implies treating younger and adolescent patients using complex devices, illustrates an area where pharmacists have to approach treatment in collaboration with the patient or his direct carers.

Different studies of community pharmacy based asthma services performed in EU countries show positive effects on patients' self-reported symptoms, improvements in asthma related quality of life and significant improvement in Peak Expiratory Flow rates [48-53].

In Germany, for example, a study [54] shows that a single consultation between a patient and a pharmacist can reduce incorrect use of asthma inhalers by 65%.

These results are taken from a study involving 55 pharmacies where pharmacists demonstrated to 750 patients how to improve their





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inhalation techniques. During a second meeting held after four weeks the percentage of patients using their inhalers incorrectly had dropped from 79% to 28%. Considering that 3.4 million patients have asthma in Germany and 6.7 million suffer from chronic obstructive pulmonary disease, the community pharmacist's intervention is seen as a successful element in improving the treatment of these conditions and in achieving better outcomes from the prescribed treatment.

In Finland, for example, an Asthma Programme for Pharmacies was started in 1997 as part of the nationwide asthma programme (1994-2004). According to the Asthma Programme, the community pharmacist assists the physician and other hospital personnel in providing asthma patients with guidance concerning their medication, in addition to monitoring it. An important task is to motivate the patient to take medicines which are supposed to be administered regularly and to ascertain the patient's ability to administer asthma medication, the devices used to administer it and the PEF meter (a device used to measure the peak expiratory flow).

In Portugal, a specific national campaign was launched in May 2006 aimed at improving the use of inhaler devices. Pharmacies were requested to perform ACT (Asthma Control Test) to eligible patients. Approx. 53% of community pharmacies have participated in the nationwide campaign and 24% reported data - pharmacies administered ACT to 5,553 patients and results have demonstrated that 61% did not have their asthma

controlled in the previous four weeks. Pharmacists' intervention consisted of:

- underlining the importance of adhering to preventive medication (e.g. inhaled corticosteroids) as a means of controlling asthma in the long term;
- clarifying the role of relief medication (e.g. short acting b-2 agonists) reserved for crisis only;
- teaching and assessing the correct use of the patients' inhaler device, in order to maximise effectiveness and reduce safety issues.

In Denmark, the Danish Asthma TOM research programme (Therapeutics Outcomes Monitoring) developed a disease-specific pharmaceutical care model with strong emphasis on the user-perspective. The programme had a positive impact on knowledge, inhalation errors, drug prescribing and health outcomes and use of health care resources. The project also resulted in further research and development of a number of cognitive services for asthma patients, one of which - the inhaler technique assessment service - has been reimbursed by the government since 2004.

More examples of pharmacists' interventions in this area can be found in the countries' experiences included in the second part of this document.

The case of Hyperlipidemia

Hyperlipidemia, which represents one of the major risk factors for cardiovascular disease, is an elevation of lipids (fats) in the bloodstream. These lipids include cholesterol, cholesterol esters (compounds), phospholipids and triglycerides. Poor patient adherence to medication regimen is a major factor in the lack of success in treating hyperlipidaemia. Evidence shows [55] that only 50% of patients taking lipid-lowering medicines will persist with their medication six months after it has been prescribed, and only 30-40% are taking them after 12 months.

A study [56] performed in 52 Portuguese community pharmacies comprising 1,270 people

showed that the rate of non-persistence after three months of treatment was 33.7% and, after six months, 48.8%. The main reasons reported for non-persistence were patient non-adherence and physicians' decisions to discontinue therapy.

Pharmacists' intervention in this area includes improving patient persistence and adherence with lipid-lowering medicines and improving cholesterol levels of patients over time. As in other care processes, this is only fully possible if there is appropriate communication and flow of clinical information among patients, pharmacists, and physicians.

An interesting example in this area is the Project IMPACT [57], an initiative undertaken in the USA. Results of this project demonstrate that a pharmacist-oriented programme to improve adherence can dramatically improve health outcomes. Project IMPACT, which stands for Improve Persistence And Compliance with Therapy, was conducted in 26 community-based ambulatory care pharmacies in 12 states (USA).

The programme's objective was to demonstrate that pharmacists, working collaboratively with patients and physicians, could improve patients' adherence to prescribed therapy.

Over an average of 24.6 months, 93.6% of Project IMPACT patients adhered to their prescribed therapy and 90.1% persisted with therapy through to the study's end, figures well above typical adherence rates.

In the EU context, an interesting example comes from the Netherlands where a pharmacy service for the improvement of adherence in chronic conditions, such as hyperlipidemia (statines), was selected by the Dutch government in 2007 as a best practice. A programme to embed this service in local physicians'/pharmacists' care nationwide was initiated by the Dutch Institute for appropriate use of medicine (DGV). Patients who are late to refill their prescriptions are identified by a pharmacist. When intervention is necessary the pharmacist consults a general practitioner.

Next, the patient is approached by either pharmacist or physician in order to discuss their therapy care plan.



Long-term therapies for treating communicable diseases

The case of HIV/AIDS

Among HIV-infected people, high-level adherence (in the range of 90-95% of doses taken correctly) is necessary to prevent viral resistance and to improve immunologic, virologic, and clinical outcomes. Regardless, adherence often is reported to be less than 70% [58].

Pharmacists' intervention in this area includes helping patients understand the relationship between adherence and resistance and the need to take all doses.

In addition, discussing with the patient how to fit medication into the daily routine and being comfortable taking medicines in front of others, also contributes to good adherence. Pharmacists can also propose and discuss the effectiveness of using external cues such as pagers, mobile telephone text messages, medication charts and weekly pillboxes.

Together with the healthcare team, pharmacists can assist in finding the simplest regimen possible, reducing the number and frequency of pills required.

Most importantly, pharmacists can alert and train the patient regarding how to manage side effects and therefore help the patient to become more adherent to his or her treatment [59].

Pharmacists can contribute enormously to the development of the patient's skills and knowledge. This has led to the possibility of HIV/AIDS patients, in some countries, accessing their medicines in community pharmacies and not only in hospitals. Such a possibility has been carefully discussed with national governments



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and is framed in specific programmes which include specialised training of pharmacists and ensured privacy in the community pharmacy. Alternatively, home-based care offers an accessible and affordable option for HIV/AIDS care which is also being implemented in some countries with the collaboration of community pharmacists.

Long-term therapies for treating substance dependence such as tobacco, alcohol and drugs

The case of smoking cessation

Tobacco smoke is one of the most widely recognised causes of poor health and successful smoking cessation could reduce heart and lung disease risk and improve life expectancy in many smokers [60].

Helping to quit smoking could save millions of lives around the globe.

The area of smoking cessation is very challenging in terms of adherence as it involves not only adherence to, for example, nicotine replacement therapies, but also adherence to changes in lifestyle.

Pharmacists are already actively involved in various types of pharmacy-based programmes and campaigns within their services in community pharmacies that help patients quitting smoking all around Europe.

For example, in Spain, a “Plan for Pharmacists to tackle tobacco use” was launched in 2005. This plan intended to integrate into the pharmacist’s activities actions aimed at facilitating the end of tobacco use. The objective of this initiative was to promote tobacco cessation among the population through health advice on the safe use of the prescribed medicines (more than 4,000 pharmacists participated in this action). Pharmacists’ interventions included advice without dispensing (in 36,43% of interventions), delivery of a NPM treatment with information (30,16%), or signposting to a physician (14,50%).

More examples of pharmacists’ interventions in this area can be found in the countries’ experiences featured in Part II.

1.2 Use of antibiotics and antibiotics resistance

Non-adherence to antibiotic therapies results in antibiotic resistance, now recognised as a major health issue in the developed world.

Understanding the correct use of antibiotics is crucial if the developing phenomenon of antibiotic resistance is to be controlled [61], and adherence is crucial to this. Pharmacists’ intervention in this area includes not only best dispensing practices, but also information about the importance of taking the antibiotic as prescribed, both in terms of regimen (e.g. every 12h) and extension of treatment (e.g. for 7 days).

In Spain, for example, the Spanish Health Ministry and the Spanish General Council of Pharmacists signed, in October 2006, a framework agreement in order to collaborate towards improving the rational use of antibiotics and the quality of the pharmaceutical care. In the context of this agreement, in December 2006, a workshop was organised to debate the problem of the antimicrobial resistance and the role of the pharmacists. The main conclusion was that the pharmacists should fight against the self-



medication of antibiotics by informing the patient about the need of adherence and by detecting wrong uses of the medicines.

Examples of pharmacists' interventions in this area can also be found in the countries experiences section on the website.

1.3 Adherence to healthy lifestyles and to lifestyle changes

Adherence is not just about ensuring that the patient takes the appropriate medicine in the correct way at the right time, but is also to enable a learning process which will help the patient to incorporate lifestyles which will help him or her better manage his or her condition and, consequently, become more confident and empowered.

While studies estimate that 50% to 60% of patients are non-adherent with their medication regimens, adherence with lifestyle changes is even lower, at 30% [6.62]. It is estimated that 20% to 30% of patients do not adhere to medication regimens that are curative or relieve symptoms, and 30% to 40% fail to follow regimens designed to prevent health problems [6].

As for any changes, these are particularly difficult to make if they are not successfully incorporated into the individuals' daily routine.

Pharmacists can often introduce the question of lifestyle changes when discussing and negotiating treatment goals with their patients.

1.4 The case of elderly care

It has been recognised and widely debated in the past few years that Europe is getting older.

Europe's population aged 65 and over is estimated to rise by 58 million (77% approx) between year 2004 and 2050. The elderly population - especially the very old, aged 80 and above - is projected to sharply increase. The number of

very old people is expected to almost triple, reaching 50 million in 2050 [63].

Increased life expectancy has led to higher demand for long-term therapies and ensuring effective therapies to elderly people has become an important issue for local, national and European policy makers. This has also led EU policy makers to strongly encourage the development of healthy ageing strategies [64].

Notwithstanding the fact that pharmacists can certainly play an important role in promoting healthy ageing and in encouraging the elderly to adhere to healthy lifestyles, the area where pharmacists' interventions have proven to be most effective in relation to elderly care is adherence to medication.

Failure to adhere to medication among elderly people is a widespread and costly problem. Evidence shows [65] that 65% of people who are 60 or more years of age have two or more chronic conditions, but also that frequent adherence rates in this age group are 60% or less. In addition, up to 50% of cardiovascular disease admissions may be due to poor adherence. This suggests that, although an intensive pharmacist-led approach could imply a higher cost, the end result when solving the problem of adherence will be a lower total healthcare cost.

Elderly patients are subject to specific risk factors for non-adherence. Because they often suffer from more than one chronic condition and have a higher prevalence of certain diseases, such as Alzheimer, Parkinson, glaucoma, osteoarthritis, and congestive heart, they tend to take more medicines than their younger counterparts. It is not unusual to see an elderly patient taking four or more medicines concurrently (polypharmacy), with complex regimens and therefore with a higher probability for interactions to happen. Moreover, elderly patients are more likely to face problems of memory and of understanding regimens and



are now offered by several pharmacies to the municipal health administrations.

In Sweden, dose dispensing in multi-dose packages is also a service with the aim of getting a good adherence and optimal outcome from the medication. In Sweden there are 170,000 people, mostly elderly, enrolled in this service all over the country. But it can also be people with psychiatric diseases or people with some form of handicap. This service is often combined with medication-use review (MUR). The government has directed money for MUR in order to optimise patient outcomes of medicine use. In these cases the pharmacist is working very closely with doctors and nurses. The pharmacist motivates and gives recommendations to change the medication for one reason or another.

instructions. Finally, problems with visual acuity (e.g. reading the information leaflet or the mode of use on the label) and dexterity (e.g. opening the vial of a bottle or pushing a pill out of a blister) may hinder their ability to take their medication properly [66-68].

Again, because community pharmacies are widely accessible, from urban to rural areas, in prosperous or poor regions, pharmacists can more easily be reached by elderly patients than any other healthcare professional. In addition, community pharmacists in collaboration with other members of the healthcare team are developing specific interventions for elderly patients living in the community [25, 69]. This includes homecare programmes. These facilitate care of patients in a more familiar and comfortable environment and also tackle problems of poor (or lack of) mobility, ensuring that this is not a reason for poor adherence to therapies.

In Denmark, for example, the Danish research programme 'Improving drug therapy for the elderly' developed and tested a generic pharmaceutical care model for a specific patient group, elderly polypharmacy patients. The project demonstrated a positive impact on health related quality of life and lead to health care cost savings. It was conducted in collaboration with seven European countries. This project has been the basis for the development of community pharmacy services to the elderly and nursing homes, and these models have been tested in demonstration research projects. These services

2 Teamwork and communication with other healthcare professionals

Addressing problems with treatment adherence requires the involvement of the entire multidisciplinary patient care team, where the contribution pharmacists can make is key to successfully achieving positive results.

All health actors and agents of change have a responsibility and an obligation to contribute to improved health and quality of life. Pharmacists take their share of responsibility seriously but they cannot do it all and, most certainly, they cannot do it alone.

A growing number of studies has found intervention programmes involving community-based pharmacists and including coordination and consultations with other healthcare providers to have a beneficial effect on clinical outcomes and treatment adherence [70-72].

The key is collaboration and continuity. With collaboration and communication across the healthcare team, a true patient-centred care process will emerge. This is essential in addressing adherence through pharmacy-based programmes such as the ones we have illustrated throughout this document. If this concept works well, everybody will benefit: patients are

healthier and more satisfied, physicians have more time for doing what they do best, pharmacists use their expertise in developing cognitive services in their pharmacies, and payers reduce costs. Overall, society gains!

An area where increased collaboration and communication is most needed to support effective interventions for improving medication adherence is the one dealing with the development and implementation of electronic health records. This is also vital to ensure and reinforce continuity and consistency of care.

Building centralised electronic records available to healthcare professionals can be vital to improving clinical interventions and enhance patient outcomes. In the specific case of pharmacists, building medication records which are part of an overall patient health record and accessing relevant patient data (with the patient's consent) for the purpose of providing appropriate pharmaceutical care, is critical.

Within an ideal model of collaborative care, shared patient records (respecting the necessary security and confidentiality criteria) would allow a better flow of information and contribute to overall medication management, both of prescription-only medicines and non-prescription medicines. This would certainly represent a powerful support tool to identifying and solving adherence problems.

PGEU strongly believes that the impact of these actions on continuity of care and, therefore, on the wellbeing of patients, can be greatly amplified if appropriate collaboration and communication between different health professionals and different healthcare settings exist. It is not only important that ICT solutions are interoperable, but more significantly, it is crucial to develop frameworks for communication and collaboration between members of the healthcare team about a patient's condition.

This is essential to better use the expertise of each member to the benefit of the patient. ICT

can support this, but it will not work per se.

It is never too much to say that good results lead to better results, reinforced recognition and motivation and, above all, please the patient who sees and feels the result of such good collaboration. This is possible when each healthcare professional understands the boundaries, the complementarities and the synergies of their roles, respect their competences and expertise, and have faith in the care each one provides to their patients.



3 Information to Patients

A non-informed or poorly informed patient may not be aware of the consequences of skipping one dose now and then or taking the two daily doses at once so as not to forget one.

Poor health literacy is also one of the major reasons of improper medication use and failed adherence to therapies. Some patients find it hard to read and understand directions of properly prescribed medication use.

In these cases, community pharmacists can contribute to removing this barrier by improving the patient's knowledge about health-related information, answering questions and confirming whether the prescribed regimen is understood correctly.

Crucial to improving adherence is the raising of awareness among patients and carers, and ensuring that they have the appropriate skills and knowledge at their disposal.

The fact that a patient enters the pharmacy and presents a prescription to the pharmacist does not necessarily mean that he/she is ready to take the steps to properly manage the treatment regimen. And this is true both in the case of a first prescription and in the case of one that has been repeated for several months.

In many cases it is not the patient himself who comes to the pharmacy but someone else

responsible for his care. Similarly, it is vital to ensure that the carer is informed and able to encourage the person under his care to adhere to his or her treatment.

Dealing with this situation is not just the responsibility of the patient himself but of all those involved in the process of ensuring he will get the best outcome possible. The importance of providing the patient (and carers) with all the necessary information, skills and motivation to better deal with their condition and treatment is the basis for undergoing specific educational techniques to improve adherence, as we will further explore under section 4.

The ability to access independent and personalised information on the medicines, diseases and healthy lifestyles that will have an impact on the patient's quality of life is fundamental. We also strongly believe in the added value of discussion with those involved in the patient treatment, including the patient, as an essential aspect and a necessary condition for improving adherence. If adherence is to be achieved, the information process cannot be a passive one. There is a need for an interaction, an exchange of opinions and an agreement of goals to achieve, based on the information received or gathered.

There are several examples of good practice in the provision of information to patients in community pharmacies [73].

The pharmacist is not only able to make information available at the point of care but also must be aware and competent enough to guide patients to valid and reliable sources of health information, available via media, the internet, and special literature. Depending on the situation, pharmacists can refer patients to other healthcare professionals and signpost relevant patient groups. Pharmacists can provide a second opinion or discuss with the patient information he or she has found.

The discussion process will help in developing trust and mutual respect; two fundamental determinants for improving adherence to treatments.

4 Therapeutic Patient Education

As discussed in the previous section, the fact that patients have access to relevant information is an important determinant in improving adherence. But this has to be supported by what the WHO has defined as therapeutic patient education (TPE). This is the "education managed by health care providers trained in the education of patients, and designed to enable a patient (or a group of patients and families) to manage the treatment of their condition and prevent avoidable complications, while maintaining or improving quality of life" [74].

Interventions targeted at improving adherence to medication are strongly based on therapeutic patient education. TPE is essential, especially in cases of chronic conditions (though can be highly valuable in acute cases as well), as the patient has to deal with his condition for an extensive period and may even need to learn how to

'The education process is aimed at helping patients to trust and understand their therapies'

live with it for the rest of his life. To make patients' efforts and therapeutic regimens more productive, pharmacists need to be able to educate patients. This encompasses equipping patients with certain skills of self-management. The education process is aimed at helping patients to trust and understand their therapies, building a good relationship and cooperation between the patient and the pharmacist and, consequently, reducing costs to the individual and society, through improved long-term condition management.

5 Training and Skills

As recognised by WHO, healthcare professionals can have a significant impact by assessing risk of non-adherence and delivering interventions to optimise adherence. To make this practice a reality, practitioners must have access to specific training in adherence

management, and the systems in which they work must design and support delivery systems that respect this objective. Such training needs to simultaneously address three topics: knowledge (information on adherence), thinking (the clinical decision-making process) and action (behavioural tools for health professionals) [4].

Pharmacists are the most qualified health professionals to deal with aspects of medicine use. Nonetheless, and as in any other case of very specialised interventions in the health field, undergraduate education is not sufficient and additional expertise needs to be gained.

Appropriate training of pharmacists is needed to ensure that specialised services are implemented to their full potential. This is evident in the process of, for example, implementing medication review programmes where ensuring adequate training, accreditation and ongoing continuous professional development are necessary conditions for achieving effective pharmacists' medication reviews [27].

Well-prepared pharmacists will contribute to well-educated patients and vice-versa. One cannot forget that pharmacists are experts on medicines and their use but patients are experts on their conditions and ways of living. This is the reason why appropriate education, training and skills are fundamental to tackle adherence problems. All in all, adherence and non-adherence are behaviours. To change them it is essential that both patients and pharmacists (and all healthcare professionals in general) feel motivated to do it. The best way of achieving empowered patients and confident healthcare professionals is through education and training.

6 Additional Barriers and Incentives for improved Adherence

Generally speaking, barriers to adherence

include social and economic factors, health-care team and system factors, characteristic of disease, disease therapies and patient related factors.



Patient related reasons for non-adherence could be classified as unintentional and intentional ones. Unintentional non-adherence occurs when a patient is willing to adhere to his therapies but fails to do so because of forgetfulness or inability (misunderstanding, language barriers, incorrect device techniques). Intentional non-adherence follows an active decision by the patient not to follow prescribed therapy by not taking his medication or taking less or higher doses. It is usually associated with individual beliefs and, in some cases, driven by the cost of medicines [75].

Specific examples of barriers include patient access to a specific healthcare setting, transport, availability of the medicine, cost of the medicine, communication and knowledge of the disease. Comorbidities, especially poor mental health, as well as cultural and health beliefs and the strength of the patient's support system also influence adherence.

Some barriers to adherence can be overcome by focusing on treatment-related factors such as regimen, its side effects and how often the medicines have to be taken. These include solutions such as reducing dosage per day, which have been shown to result in better adherence in many studies [76-80] especially in chronic cases and multiple diagnoses when a patient has to use more than one medicine or take it a few times per day. Possible ways to reduce the number of daily doses are, for example, the use of extended-release formulations and fixed-dose combinations (pills having two or more active compounds). Other solutions focus on the medicines package, e.g. single-dose blister packaging where the patient's medication for the entire week is packed per day of the week and per time of the day (morning, lunch, dinner). This is particularly effective in cases of polypharmacy.

There is also a growing concern to ensure that medical devices are designed and enhanced in ways which will aid patient safety and user friendliness - as one of the barriers for poor adherence may be the difficulty of using them.

Nonetheless, the key to this is the importance of the patient/healthcare professional relationship. This cannot be underestimated and a therapeutic alliance must be developed with sensitivity and the understanding of the patient.

There are, of course, many other barriers related to patient adherence with medication as well as lifestyle recommendations. However, these would need a much more comprehensive analysis in the wider context of social and healthcare systems. PGEU would strongly support and actively contribute to such an analysis and to debating possible solutions.

Part II - Specific Examples of Community Pharmacists' Contribution to improving Adherence

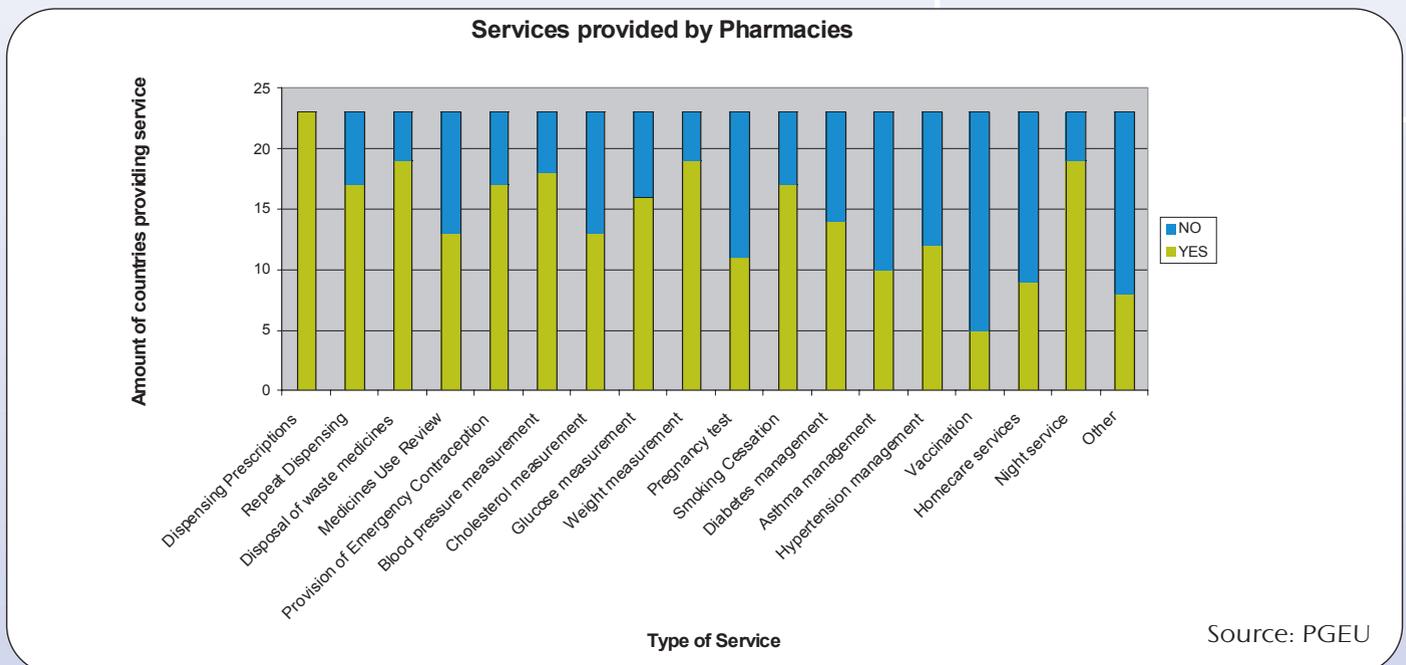
Community pharmacies are recognised by members of the public as a vital, integral part of the health services in their country. They are also known to be conveniently accessible places where sound, objective advice on health issues

can be obtained, from a knowledgeable health professional, in an informal environment in which they feel relaxed, without the need to make an appointment. In brief, pharmacies are obvious centres in every community for the effective transmission of messages designed to encourage healthy lifestyles and assure the population of the safety, quality and efficacy of the medicines they use.

Within the enlarged EU, more than 400,000 community pharmacists provide services throughout a network of over 160,000 pharmacies, to an estimated 46 million European citizens daily. In the chart below some of most common services provided in EU community pharmacies are outlined .

In recent decades, community pharmacy has evolved from a product-oriented practice to a patient-centred and service-oriented practice. Community pharmacists have, for example, firmly and strongly committed to the implementation of pharmaceutical care, developing pharmacy based programmes to improve care of people with chronic conditions such as diabetes, asthma, hypertension, and high blood cholesterol. In Europe, apart from these four major areas, recent initiatives include care for the elderly and medication management.

PGEU is aware that there is no single solution to



improved adherence which can be used universally, as national realities may differ considerably.

But learning about successful examples from other countries can be very helpful and enriching.

Hence, we have collected several examples from different countries of projects, and/or initiatives where community pharmacists have been engaged.

As the reader will see from the detailed examples, very few governments have already adopted a nationwide strategy to enhance adherence using the skills, competences and accessibility of pharmacists.

Most of the initiatives we have gathered still remain private initiatives from the national professional associations.

This is a trend we would like to see recognised and further supported by national governments and EU institutions.

concluding statement

In the past decade, the problem of poor adherence has been recognised as both an element in the reduced effectiveness of health services, but also a source of financial pressure on health systems.

An evolution has also occurred in terms of moving away from a tendency to blame the patient for poor adherence. Instead, further consideration is now given to all those involved in the adherence process.

In more recent years, stakeholders have also recognised a need to replace the idea of a patient who is perfectly rational with a more realistic hypothesis that accounts for behavioural influences as an essential step toward understanding adherence.

Although the problem of poor adherence has been extensively addressed and discussed there is still no clear framework for systematic or

sustained interventions.

Separately, and in isolation, multidisciplinary approaches, expanded research, health professionals' training, patient education campaigns and supportive government policies and regulations will not work and will certainly need further attention.

Apparently, this important matter seems to be still considerably dormant within the European institutions' political agendas.

Addressing problems with treatment adherence requires the involvement of the entire multidisciplinary patient care team, and the contribution pharmacists can make is key to successfully achieving positive results.

However, these efforts alone will not be sufficient to vigorously tackle the issue of poor adherence throughout Europe and there is a growing sense that national adherence initiatives are needed to coordinate different efforts and bring in and leverage the added value of synergies. As we have addressed throughout this document, to effectively improve adherence there are several conditions that need to be in place.

Future action needs to be embedded in a common vision. A vision that considers that a key success factor in improving adherence to therapies is that clear strategies are in place and framed within the organisation of the healthcare system as a whole; and a vision which gives due consideration to the role and contributions of all involved in the adherence process: from patient to policy maker.

It goes without saying that an active participation of all health care professionals (and therefore of community pharmacists), with clear definition of roles and competences and using their knowledge and skills to their full potential, is fundamental.

However, as we have shown in this document, European Community Pharmacists are already actively engaged in improving the health outcomes of their patients and strongly committed to, among other things, improving adherence to medication and healthy lifestyles.



Specific Examples of Community Pharmacists' Contribution to improving Adherence

1. Austria

Improving Adherence and Medication Safety through the use of the 'Medication Safety Belt'

The Medication Safety Belt (MSB) is Austria's first major step towards implementing superior e-health services for patients based on individual medication data, accessible by every connected pharmacy.

The project involves a central medication database and patient management client software for each participating pharmacy. The pharmacies are linked to the "Health information network", a high-security broadband connection with the Association of Austrian Social Security Institutions. Through this network, patient data will be available for medication safety checks in every connected pharmacy the patient chooses to visit. The patient's participation and access to the MSB features and their data is based on the individual "e-card", the Austrian personal health insurance card.

Access by pharmacies is authorised by using their professional card (a-card).

How the system of the MSB works

After patient's consent (by using the e-card in the pharmacy) his complete medication - including prescription as well as non-prescription medicines - will be transferred and saved at a central e-medication database, creating a personal medication record. The standard pharmacy procedure is a central server based software tool which checks - at the moment of advising the patient - every new medication item for medicines interactions and double medication. An online and real time process (average 4.5 seconds) allows pharmacists to react to these warnings immediately and solve medication-related problems during the patient's visit to the pharmacy. All safety checks are applied only to current medication, thus avoiding non relevant

data of - for example - interactions with medication the patient doesn't take anymore.

One principal feature of the programme is medication adherence check. Based on a unique program logic including dosage, therapy categories and 'daily dose intake' range calculations, the pharmacist will be signalled of inconsistencies in the patient's adherence to prescribed medication.

The system warns if either too little or too many daily doses have been taken since the last visit to a pharmacy. Being a real-time process integrated into the dispensing procedure, the medication database is not only an archive for research purposes but functions as an important tool for medication and patient management on-the-spot.

As a result, many medicines-related problems, such as poor adherence and double medication, can be avoided or recognised early - before negative effects for the patient occur and additional healthcare costs are generated.

Preliminary report shows success and high potential impact

A pilot project rolled out in the region of Salzburg in February 2007 shows the success of the MSB. A report delivered to the Ministry for Health, Family and Youth in December 2007 provides for the first time empirical evidence of pharmacists' intervention supported by highly sophisticated eHealth tools.

Seventy-one pharmacies are participating in this pilot and have acquired more than 8,700 relevant patients registered in the MSB [1]. These patients account for a total number of medications of 77,500 and 145,000 dispensing processes.

These figures provide a more than sound basis for evidence-based health policy conclusions.

The warnings generated by the MSB show 20,500 "problematic" situations of which 5,300 concerned "compliance" problems which have been solved by a pharmacist. Furthermore, 12,000 interaction problems and 3,000 double medication incidents were detected and solved by the intervention of a pharmacist. Two hundred and sixty-eight cases of interactions were classified as "serious". Over the course of the pilot project it can be observed that the use of the MSB significantly reduced the number of interactions (42%). In other words: 4,400 interactions less for patients, thanks to the use of this new system.

[1] It must be noted that general practitioners refused to cooperate and publicly oppose the system and in some cases actively discouraged patients to take part in the MSB.

The results of the project also prove that non-prescription medicines (or commonly referred to as OTC) must be considered in an appropriate way: roughly 10% of problematic interactions were related to OTCs, which are more often responsible for problematic interactions than Rx medicines (47% of OTC interactions compared to 41 % of Rx medicine interactions are “problematic”).

A very rough extrapolation of the findings marks an enormous potential impact if the MSB was used nationwide and systematically: based on a population of around 8 million, 250,000 potentially serious interactions that could be avoided.

The project was carried out in cooperation with the Ministry for Health, the Association of Austrian Social Security Institutions, the Chamber of Pharmacists and the Pharmaceutical Salary Fund (which operates a NATO security standard data center). A rollout in all Austrian pharmacies is foreseen in the government agreement and is planned for 2008/2009, with the MSB pharmacists in Austria taking the lead in implementing e-health services in the community.

However, as patient safety demands an interdisciplinary approach, the patient medication data and the medication safety checks will also be made available to other health care professionals with the patient's consent.

2. Denmark

Preventing ill health

General Campaigns

In 2000, the Danish pharmacies started public campaigns on different topics to promote better use of prescription medicines and better self-care and life-styles. The aims of the campaigns are to raise awareness and compliance in the public by means of the pharmacy's expertise and counselling services in the pharmacy, as well as advice in general. Campaigns are only of value if the public actually notices them. To evaluate the results, The Danish Pharmaceutical Association contacted the opinion-research institute Vilstrup to conduct a running market survey. The latest results of the survey (from a campaign on allergy) showed that 32% - almost one third - of the Danes noticed our campaign on allergy and almost 70% of the respondents said that they would visit the

pharmacy if they needed advice on allergy.

Moreover, Danish pharmacies have been working with patients to enhance adherence, concordance, and self-management in the research programme 'Safe and effective use of medicines'.

Based on EuroPharm Forum programmes on diabetes and hypertension, Pharmakon and Danish pharmacies have developed practice models and carried out compliance and concordance demonstration projects within these areas.

The programmes have been shown to be effective in achieving improved adherence, clinical outcomes, knowledge, and patient perceived outcomes and satisfaction.

The model comprises the following elements:

- Quick screening for non-adherence and identification of problem types;
- Patient story-telling as the key starting point;
- Assessment and possible adjustment of drug therapy;
- Finding resources in the patient-system;
- Individual coaching, in order to tailor solutions to individual needs and resources;
- Offering relevant reminder technology and/or patient instruction/education;
- Follow up;
- Close collaboration with the patient's GP.

Therapies for treating long-term or chronic conditions

Asthma Programme for Pharmacies

The Danish Asthma TOM research programme (Therapeutics Outcomes Monitoring) developed a disease-specific pharmaceutical care model with strong emphasis on the user-perspective.

The programme had a positive impact on knowledge, inhalation errors, drug prescribing and health outcomes and use of health care resources. The project also resulted in further research and development of a number of cognitive services for asthma patients, one of which - The inhaler technique assessment service - has been reimbursed by the government since 2004.

The particular case of elderly care

The Danish research programme, 'Improving drug

therapy for the elderly', developed and tested a generic pharmaceutical-care model for a specific patient group, elderly poly-pharmacy patients. The project demonstrated a positive impact on health-related quality of life and led to health-care cost savings. It was conducted in collaboration with seven European countries. This project has been the basis for the development of community pharmacy services to the elderly and nursing homes, and these models have been tested in demonstration research projects. The services are now offered by several pharmacies to the municipal health administrations.

Long-term therapies for treating substance dependence, such as tobacco, alcohol and drugs

Since 1991 The Danish pharmacies have offered smoking cessation services to the public, both as group and individual services. The staff members who provide the quit-smoking services must receive special training. Every second pharmacy (170) in Denmark offers this service. The pharmacies use a national standard programme based on EuroPharm Forum and WHO's models for quit-smoking groups and their individual quit-smoking model. 30% of the participants are still smoke-free after one year. Each group of 10-12 people has six one-and-a-half-hour meetings over eight weeks. The pharmacy staff is the group moderator. The courses are based on group discussions and motivational interviewing.

There are regular feedback and advice sessions, which evaluate the participants' progress and motivate them to continue. Nicotine-replacement therapy is a natural part of the group course, but it is not a must. In the individual model, the smoker and the pharmacy staff decide on the terms of a contract between the smoker and the pharmacy. The smoker might, for example, agree to begin an exercise programme to avoid putting on weight.

The pharmacist advises, supports and motivates the smoker through eight consultations over eight weeks. These last for about 10 minutes each.

Life style changes campaigns

The increasing prevalence of obesity has created a need for alternative counselling sites. The Danish pharmacies have offered slimming courses since 1994, latterly combined with physical activity

counselling. The staff members who provide the slimming service must receive special training. Each group of 10-12 people has eight one-and-a-half hour meetings over twelve weeks. The pharmacy staff member is the group moderator.

The courses are based on group discussion. There are regular feedback and advice sessions, which evaluate the participants' progress and motivate them to continue. A study of the pharmacy service shows that the initial weight loss, and maintenance and dropout rate are comparable with results from general practitioners and hospital outpatient clinics, but the costs are substantially lower.

3. Finland

Therapies for treating long-term or chronic conditions

The Association for Finnish Pharmacies has made a conscious decision to focus the efforts of the work towards improvement of adherence in areas of major chronic, long-term diseases; asthma, diabetes and cardiovascular conditions. These efforts have been turned into practice through The Professional Programmes for Pharmacies, used in approximately 95% of the pharmacies in Finland. The programmes have been created together with patient organisations, utilising their expertise in the subjects.

Asthma Programme for Pharmacies

In Finland, Asthma Programme for Pharmacies was started in 1997 as part of the nationwide asthma programme (1994-2004). The Association of Finnish pharmacies (AFP) created a network of circa 700 asthma pharmacists in local pharmacies, reaching 94% of the Finnish pharmacies.

Initial training and continuous training courses for asthma pharmacists have been organised. According to the Asthma Programme, pharmacies assist the physician and other hospital personnel in providing asthma patients with guidance concerning their medication, in addition to monitoring it. An important task is to motivate the patient to take medicines which are supposed to be administered regularly and to ascertain the patient's ability to administer asthma medication, the devices used to administer it and the PEF meter.

As result of the programme, in 2004 pharmacists provided patients with written or oral information

on “preventers” and “relievers” during 98% of their purchases of antiasthmatic medicines. Instructions on inhalation technique were provided to 98% of new asthmatics, and to 34% of others. The inhalation technique was actually checked for 53% of new asthmatics and for 12% of the others.

To tackle common diseases like asthma requires a multidisciplinary action programme. The National Asthma Programme, including the Asthma Programme for Pharmacies, has been in the front-line of creating new models for cooperation between primary and secondary care nurses and doctors, patient organisations and pharmacies.

Diabetes Programme for Pharmacies

The Diabetes Programme for Pharmacies was started in 2001, as a part of Dehko (The Development Programme for the Prevention and Care of Diabetes) together with The Finnish Diabetes Association.

Within the Diabetes Programme for Pharmacies, pharmacies are encouraged to develop best practices in cooperation with other health care professionals and patient organisations regarding the efforts of preventing diabetes, as well as the active management of diabetes care among diabetes patients. To achieve a good adherence to therapies, encouragement and motivation are key factors and the introduction of a common message within all local players in the diabetes care is essential.

The diabetes contact person in the pharmacy induces in-house training of diabetes care and manages the local cooperation with health care professionals and other partners in the programme.

The Heart Programme for Pharmacies

The Pharmacy Heart Programme supports the action programme for cardiovascular health among Finns, which was launched by the Finnish Heart Association in 2005. The pharmacies participating in the programme appoint a contact person, a pharmacist or a pharmaceutical assistant to familiarise her/himself with the national standards of prevention and treatment of cardiovascular disease.

The heart contact person in the pharmacy induces in-house training of cardiovascular care as and also manages the local cooperation with health care professionals and other partners in the programme. Shared views on patient guidance and a

common message throughout all levels of the local health care ensure that the information provided to the patient is always consistent, thus enhancing adherence to the cardiovascular care.

Long-term therapies for treating substance dependence such as tobacco, alcohol and drugs

Personalised tobacco cessation service was developed in 2005. A few pharmacies offer this service for those who wish to quit smoking and are in need of additional support from a health professional. This model of service involves 4-6 visits to the pharmacist for individual behavioural change support and telephone follow-up over 4-6 months. The patients usually choose to use nicotine replacement therapy (NRT), which is tailored for each patient. The correct use of NRT is guided thoroughly. The use of NRT and potential problems the patient has encountered are addressed at each visit to the pharmacist. Improving adherence to sufficient duration of NRT use with an adequate dose is an essential part of the service.

Adherence to prophylactic measures

Through the professional pharmacy programmes in asthma, diabetes and cardiovascular diseases, the pharmacies take part in national and local campaigns, offered by major patient organisations, such as Heart week, World Heart day, World Diabetes day and National Asthma week.

During these campaigns the pharmacies offer extended information on treatment and, above all, on prevention of these diseases.

The particular case of elderly care

Life-expectancy has increased in all European countries and the growth of the elderly population is showing a steady upward curve.

At the same time, availability of new pharmacotherapy has improved, especially for diseases among the elderly. Authorities in Finland face the health/medical and economical challenge and many projects are underway at ministry level as well as in patient organisations to improve the quality of elderly care. The pharmacies have several tools to meet the needs of elderly customers, aiming at improving and managing medication safety, especially among this patient segment.

Automated Dose Dispensing

An automated dose-dispensing service, provided by the community pharmacy, was introduced to patients in 2001. The pharmacy serves the customers in two ways; the prescription/medication management and the actual dose dispensing. The patient's medication is reviewed by the pharmacist and the physician and, hereafter, the medicines are provided for the patient in two-weeks rations, packed and labelled in plastic bags.

Each bag is labelled with necessary information, such as the patient's name and time of day when that specific dose is to be taken. The patient is also provided with a medication review leaflet containing all the medicines in use and the dose of the medicines. Automated dose dispensing saves the patient's money and improves drug adherence, as well as patient safety.

Comprehensive Medication Review

The pharmacist-conducted medication review was introduced in community pharmacies in 2005. The model was developed during the pilot education course on the subject. The course was designed to develop competencies required to conduct the reviews as well as to work in collaboration with the physicians in the Finnish health care system.

The continuous education course (35 ECTS) is organised by the University of Kuopio, Centre for Training and Development. After fulfilling the course requirements, the pharmacist can offer the service to the health care system for patients with specific needs. The medication review model is very comprehensive, starting with an interview with the patient, preferably in the patient's home, assessing the medication through discussion with the patient, the physician and homecare nurse and researching laboratory results. Finally, a report is created as a tool for the physician's decision-making process.

Collaboration/Joint projects with Patient Organisations, Competent Authorities and other Health Professionals

The Tippa Project - counselling practices for improving adherence

In 2001, a joint project on improving patient

information and counselling in the Finnish community pharmacies was established. The Ministry of Social Affairs and Health, The National Agency of Medicine, The Social Insurance Institution, The Association of Finnish Pharmacies, The Finnish Pharmacists' Association, The University of Kuopio, The University of Helsinki, The Pharmaceutical Learning Centre and the University of Kuopio Centre for Training and Development were stakeholders in the project.

A database was created and is updated constantly to provide easy to use knowledge and information for the pharmacists during the counselling process, thus improving the adherence to the medication and the treatment.

4. France

National context for improving adherence to therapies

At national level, numerous initiatives are aimed at improving adherence, but there is not one single organisation with a global approach on this issue. As far as pharmacists are concerned, they apply in their daily practice the EuroPharm Forum guidelines [2]. On 29 March, 2006, a national convention that organises the relationship between community pharmacies' owners and the union of health insurance (UNCAM), was signed. It provides for the possibility of adherence and therapeutic education programmes.

Community Pharmacists' involvement

Role of the CESPARM for pharmacists

The reference organisation for the provision of information to patients in community pharmacies in France is the CESPARM. This permanent committee was created in 1959 by the National Council of French Pharmacists, in order to help pharmacists fulfilling their public health mission.

To this end, the Cespharm has several roles: conceiving and producing public health actions led by pharmacists; taking over national campaigns organised by public authorities among pharmacists; producing and circulating both scientific and general public-orientated information on public health issues and good use of the medicines.

It is composed of elected members of the national

[2] <http://www.europharmforum.org/>

council of French pharmacists, together with representatives of the trade unions and other pharmacists' professional associations, a representative of the health ministry, academics and community pharmacists. The functioning of the committee and its activities are financed by the national council of French pharmacists.

Cespharm proposes to every pharmacist registered to order free of charge brochures on various topics. In particular, Cespharm puts at the disposal of pharmacists various documents in order to inform patients or the proper use of medicines, the importance of compliance (dosage, length of the treatment, ways to take the treatments).

Assessing the added value of the pharmacist in adherence

The Iphadac study (Intervention PHArmaceutique dans la Dispensation des AntiCoagulants)

Between May 2006 and May 2007, a study was led on the pharmacists' role in the dispensation of anticoagulant treatments, with 964 cases of dispensation analysed. The results show that the pharmacist had to contact the prescriber in 21.2% of the cases studied, detecting dosage problems, problems related to the duration of the prescription, the absence of platelet monitoring, or a lack of information on the patient (i.e. weight, etc).

In particular, the creatinine clearance, which is normally required for patients over 75 years old, is never mentioned on prescriptions.

Those interventions led to modifying 17% of the initial prescriptions in the case of curative treatments, and 5% of prescriptions in the case of preventive treatments.

Adherence to prophylactic measures

Role of the pharmacist in dispensing emergency contraception

In 2002, emergency contraception became free for people under 18 in France.

The implementation decree made provision for the fact that the pharmacist has to have an interview with the person before dispensing the medicine. During this interview, the pharmacist passes on educative messages, which include both information on how to use the pill properly and general prevention messages on risky behaviour.

Long-term therapies for treating substance dependence such as tobacco, alcohol and drugs

Tobacco cessation

Since a decree of 1999, which allowed nicotine replacement therapy to be sold without a prescription, pharmacists in France have gained an important role in tobacco cessation.

Study on use and impact of nicotine replacement therapy

In 2001, Cespharm and the French Office for tobacco prevention (OFT) realised a study involving 207 pharmacists and 600 patients buying nicotine replacement therapy. Three months later and one year later patients were contacted again in order to assess the abstinence rate. The study showed that there was no problem for patients to be looked after by pharmacists: pharmacists feel they are well educated and are satisfied about the fact that nicotine replacement therapy is available without prescription. The abstinence rate at 3 months and 12 months is not significantly different in the absence or presence of a follow-up made by a pharmacist. This result is very encouraging for pharmacists and gives them a big role in patients follow up.

Collaboration/Joint projects with Patient Organisations, Competent Authorities and other Health Professionals

Dossier pharmaceutique (DP) - Pharmaceutical record

The pharmaceutical record (DP) encourages coordination among community pharmacists when patients buy their medicines from several pharmacies. The DP allows pharmacists to know all of the medicines (POM and OTC) that the patient bought in any French community pharmacy during the last four months.

Thanks to this general overview, the DP contributes to identifying over-consumption risks or interactions, it improves pharmaceutical advice and facilitates pharmaceutical care and compliance by having a patient-centred approach.

Data exchanges (all the data are secured and encrypted) are allowed through a professional internet network. Connection with the hosting system is automatic. Only community pharmacists

and people allowed to help them are authorised to access the DP via the pharmacy software, thanks to their professional smart card and to the patient's smart card (used in the presence of the patient).

After the agreement of the French data protection authority (CNIL) on May 15th 2007, a pilot has been launched in six "departments" (smaller than a region): Doubs, Meurthe et Moselle, Nièvre, Pas de Calais, Rhône and Seine Maritime. This first phase allowed France to test the effectiveness and trustworthiness of this tool and to validate the usage and use of the DP together by pharmacists and patients. Over just a few months, 400 community pharmacies located in these six departments put this tool in place. 140,000 patients have allowed pharmacists to create them a DP.

The National Council of French pharmacists is in charge of implementing the DP by law. It is now expecting the CNIL to agree with the spread of the DP across all France during 2008.

5. Germany

In Germany, cognitive pharmaceutical services (CPS) have been developed over the past 15 years. Many different projects in pharmaceutical care have been carried out in community pharmacies, mainly commissioned by the ABDA - Federal Union of German Associations of Pharmacists e.g. in the following disease states/patient groups: asthma, diabetes, CHD, hypertension, elderly, to name a few.

Helping patients to make the best use of medicines in order to improve outcomes was, and still is, the main focus. Improving adherence to medicines is therefore one major issue.

As a result of projects in pharmaceutical care, including continuing education and quality assurance tools, community pharmacies in Germany now offer different cognitive pharmaceutical services.

Two of these services which are aimed, among other things, at improving compliance are the detection as well as prevention or solution of drug-related problems (DRPs) and the provision of pharmaceutical care. Both services are part of the so-called family pharmacy contracts.

Improving Adherence through the Family Pharmacy Contract

The development of the family pharmacy contract with the remuneration for the so-called

Pharmaceutical Management, an advanced service for asthma and COPD patients, was based on a three-stages concept. The first stage was a controlled asthma trial with the aim of proving efficacy. The second stage was an intervention study for asthma patients to prove the effectiveness of the programme, as well as health economic savings. In both studies it was shown that community pharmacy-based interventions significantly improved clinical parameters, asthma-specific quality of life, self-efficacy, self-management, and adherence to therapies.

The third stage was the nation-wide implementation of this programme into daily practice, including remuneration for pharmaceutical care, the "Pharmaceutical Management" for asthma and COPD patients.

The main family pharmacy contract was established in late 2003 between the German Pharmacists Association (DAV) and the largest nation-wide operating health insurance fund (BARMER Ersatzkasse - with approximately 7.26 million insured people). In December 2004, a trilateral contract was signed between the DAV, the general practitioner's (GP) association, and the BARMER Ersatzkasse. This trilateral contract combines the family physician and the family pharmacy concept where patients choose both their GP and their family pharmacy.

The family pharmacy concept is aimed at optimising care, i.e. therapeutic outcomes with regard to drug safety and efficacy, as well as efficiency. The concept includes direct communication between the community pharmacist and the GP on issues concerning drug therapy which is remunerated by the health insurance company.

In the family pharmacy, all medication data (prescription as well as OTC/pharmacy-only drugs) are recorded in the pharmacy's computer. The detection of non-compliance is the first step towards the improvement of adherence. The family pharmacy concept offers an important tool to detect noncompliance, in that the medication profile offers an overview over the refill-compliance. Also, a close cooperation and a good working relationship with other healthcare professionals is required to improve adherence. Therefore, the family pharmacy concept is optimal for detecting noncompliance and improving compliance/adherence together with patients and physicians. Currently, more than 18,800 (85%) of the

community pharmacies, more than 38,000 (appr. 70%) of the GPs and 2 million (appr. 30%) members (insured persons) of the BARMER Ersatzkasse joined the contract.

6. The Netherlands

Therapies for treating long-term or chronic conditions

Asthma Programme for Pharmacies

At the end of the 1990s and the beginning of 2000, an asthma management programme offered by Royal Dutch Pharmacists Association (KNMP) was implemented nationwide. It included information about medication and therapies while dispensing correct inhalation instructions for the asthma patients, as well as training the pharmacy team.

The continued care of inhaled medicine has been a regional initiative since 2007. It involves control of prescriptions of inhaled medicines and correct use of inhalers. It provides feedback to patients and doctors.

Diabetes Programme for Pharmacies

Between the end of the 1990s and the beginning of 2000, a diabetes management programme offered by Royal Dutch Pharmacists Association (KNMP) took place nationwide. It included information about medication and therapies at the first time and second time dispensing, training pharmacy team as well as control of regular glucose level in blood measurements.

A regional project in the district of Groningen together with a health care insurer took place in 2007. The goal was adherence improvement through the intervention of community pharmacists. The project showed promising results in improving adherence and is now spread nationwide.

Hyperlipidemia Control Programme for Pharmacies

A pharmacy service for the improvement of adherence in chronic conditions such as hyperlipidemia (statines), was selected by the Dutch government in 2007 as a best practice.

A programme to embed this service in local physicians/pharmacists care nationwide was

initiated by the Dutch Instituut for appropriate use of medicine (DGV). Patients who are late in refilling their prescriptions are identified by a pharmacist.

When intervention is necessary, the pharmacist consults a general practitioner. The patient is approached by either the pharmacist or physician in order to discuss their therapy care plan.

The particular case of elderly care

Medication review

Dutch research (the HARM-study) shows that each year 19.000 patients end up in Dutch hospitals as a result of potentially avoidable medication related problems. Elderly patients using multiple medications are especially vulnerable.

Pharmaceutical Home Counselling and Clinical Medication review are new approaches that are in a developing and researching phase in the Netherlands. Pharmacists, together with doctors, review the medication of a patient and discuss a therapy plan with a patient later on.

One Community Pharmacy has been contracted by a health insurer to perform medication reviews of elderly patients in the city of The Hague in 2008. The pharmacist is paid €150 per consultation. It includes exploring medication-related problems and exploring medication-taking skills, based on the patient's actual use and experiences. Royal Dutch Pharmacists Association (KNMP) is developing a project to support a similar service to patients nationwide by their community pharmacies.

Automated Dose Dispensing

Dutch pharmacies offer various services to ease the medication management of the patient. That includes weekly medication dose dispensing with exact dates and time of the medicine-use schedule on the labels. Pharmacies also offer synchronised delivery - meaning that the pharmacy delivers a monthly or quarterly supply of medication to the patient's home on a regular basis.

Adherence to lifestyle changes

Each year, community pharmacists in cities with a foreign patient population with dominant Muslim origin offer a programme to improve medication in relation to the Ramadan period. Medication use and

especially diabetes management during Ramadan are addressed.

7. Norway

Therapies for treating long-term or chronic conditions

Diabetes Programme for Pharmacies

In 2002, the Norwegian diabetic association together with the Norwegian Pharmacy Association (Apotekforeningen) and a special Diabetic interest group in pharmacies (IDA), made a declaration about how to welcome the diabetic patient in a Pharmacy. The aim of is to contribute to better and safer drug use among diabetic patients. The pharmacy is also obliged to distribute different diabetic equipment, such as blood/glucose tests and insulin pens and to explain the correct use of the equipment. The pharmacists and pharmacy technicians' knowledge of diabetes will be a help to the patient in getting information about the disease.

Automated Dose Dispensing

All pharmacies in Norway can deliver automated dispensed medicines (multidose) to patients. Nursing homes and home-care services are using this service for their patients. The multidose service ensures pharmacist control of the patient's total medication list. About 20,000 patients get their medicines dispensed in this way. When the medicines are dispensed automatically under the control of a pharmacist, the quality of each dose is high.

Long-term therapies for treating substance dependence such as tobacco, alcohol and drugs

In 2006, 20 pharmacies were involved in a smoke cessation programme. Altogether 118 customers received this service, which consisted of five individual consultations. Each consultation lasted for about 15 minutes. Of the 118 participants, 41 were smoke-free at the end of the programme (35%).

8. Portugal

Therapies for treating long-term or chronic conditions

Diabetes Disease Management Programme

The Diabetes Disease Management Programme proved to be effective in achieving control of glycaemia in non-controlled diabetic patients. The proportion of non-controlled diabetics who achieved the control of glycaemia after three months of follow-up by the community pharmacist was 21%. This value was sustained in a period of six months. The Diabetes Disease Management Programme has resulted in the improvement of the control of glycaemia after six months of follow-up by the community pharmacist of 13,5 mg/dL in fasting blood glucose and of 34,02 mg/dL in postprandial blood glucose.

It should also be stressed that the pharmacist intervention resulted in the improvement of blood pressure control in the diabetic patients under follow-up. In fact, it was verified that an average decrease of the systolic blood pressure of 3,39 mm Hg and of the diastolic blood pressure of 1,45 mm Hg occurred. The Diabetes Disease Management Programme resulted in the improvement of all the physiological and biochemical parameters analysed, namely:

- An average decrease of the cholesterol of 7,99 mg/dL;
- An average decrease of the "triglycerides" of 5,50 mg/dL;
- An average decrease of the "IMC" of 0,08 kg/m²;
- An average decrease of the "Hb1Ac" of 0,66% in all patients with diabetes;
- An average decrease of the "Hb1Ac" of 0,8% in patients with Diabetes type 2.

The patients who did not achieve the control of glycaemia after six months showed a positive and statistically relevant evolution of all parameters. The majority of the "MRP" (medicines related problems) identified in the diabetic patients under the programme were of effectiveness (78,5%), of necessity (18,1%) and, in a very low proportion, MRP related with safety (3,4%). Within the scope of this programme, doctors have started or modified the therapeutics in 147 cases due to MRP reports provided by the community pharmacists.

9. Spain

Therapies for treating long-term or chronic conditions

Optimising treatment of COPD (Chronic Obstructive Pulmonary Disorder)

The Spanish General Council of Pharmacists launched a campaign in 2007 in order to optimise the treatment of COPD and strengthen the role of the pharmacist by fostering his active participation in the detection of health public problems.

The Spanish General Council carries out this campaign in collaboration with GlaxoSmithKline, and 3,000 pharmacists take part in it all over the country.

This campaign has two main objectives: improving the specific knowledge of the pharmacists about this disease, and providing better information to the patients to make the treatment more efficient. For the implementation of this campaign, many initiatives have been developed, such as guidelines on COPD, material to display in pharmacies, questionnaires and brochures for the patients.

Pharmacotherapeutic follow-up of hypertension patients with a related cardiovascular risk

In 2006, the four actions of the “Strategic Plan on Pharmaceutical Care” were launched in collaboration with CINFA Laboratories. This action comprises a campaign addressed to hypertension patients. The campaign received the “health interest” label from the Spanish health ministry and was certified by the National Commission for Continuing Education. 3,575 pharmacists registered.

Antibiotic therapies

In October 2006, the Spanish Health Ministry and the Spanish General Council of Pharmacists signed a framework agreement in order to collaborate towards improving the rational use of antibiotics and the quality of the pharmaceutical care.

In the context of this agreement, in December 2006, a workshop was organised to debate the problem of anti-microbial resistance and the role of the pharmacists. The main conclusion was that the pharmacists should fight against the self-medication of antibiotics by informing the patient about the need of adherence for by detecting wrong uses of the medicines.

Long-term therapies for treating substance dependence such as tobacco, alcohol and drugs

In 2005, the “Plan for pharmacists to tackle tobacco use” was launched. This was intended to integrate in the pharmacist’s activities actions aimed at facilitating the end of tobacco use.

In the context of this plan, the second action of the “Strategic Plan on Pharmaceutical Care” was implemented: “Indicación Farmacéutica de Deshabitación Tabáquica”.

The objective of this initiative was to promote tobacco cessation among the population through health advice on the safe use of the prescribed medicines (more than 4,000 pharmacists participated in this action).

A survey was carried out to check the situation in Spain:

- In 86.68% of the cases, the patient asks for help (patient’s initiative);
- 56.67% are men (35-65 years old);
- 39.29% are young women (18-35 years old);
- 93.76% of the reasons for asking for advice refer to tobacco addiction;
- 6.24% of the reasons are related to medicines;
- Average patients have a low motivation level (57.42%), moderate addiction (41.81%), and smoke less than 20 cigarettes per day;
- Pharmacist’s intervention is advise without dispensing (36.43%), delivery of NPM treatment with information (30.16%), or sending the patient to a doctor (14.50%).

10. Sweden

During the last few years, the focus regarding patient outcomes in Sweden has been to help people to get the best out of their medicine use. Therefore, Apoteket AB has developed several services for patient counselling and recommendations to other care givers regarding medicines.

All over Sweden, pharmacists are cooperating with doctors and nurses in hospital wards and in elderly homes. The government has directed money for Medication Use Reviews (MUR) in order to optimise patient outcomes of medicine use. In these cases, the pharmacist is working very closely with doctors and nurses. The pharmacist motivates and gives recommendations to change the medication for one reason or another.

Many projects have shown that there is a positive outcome and that most doctors appreciate this cooperation.

Patient Counselling Appointments

Community pharmacies in Sweden offer different services directly to the patient. This is done by inviting patients to make an appointment with the pharmacist to get a counselling session in privacy. The goal is that the patient understands why he got the medicine, how it should be taken, for how long and what kind of outcome he should expect. There is time for answering questions and the advice is individualised for the patient concerned.

This was launched through a national campaign to encourage people to make an appointment with a pharmacist for counselling about their medicines. During the period between January and March, 2007 a total of 12,000 appointments were made, and between April and June the number of appointments rose to 15,000.

At present, Swedish pharmacies offer two different levels of counselling appointments:

- 15-minute sessions are intended to answer the questions the patient has after the dispensing of a new medicine, or any question the patient might have. 750 out of 900 pharmacies offer this service and we have 6,000 appointments per month. A questionnaire is sent out to customers using this service and we have a very high score of satisfaction 47 out of 50. Ninety nine percent said they would recommend the service to a relative or friend.

- 30-minute sessions are offered those people who want to have a patient medication profile in their pharmacy. During the appointment session, the patient and the pharmacist go through the whole medication list and discuss different questions. The aim is to improve the use of medicines. The profile makes it possible to have a good overview? not only about their prescription medicines but also no-prescription medicines. They can also add personal information such as allergies, pregnancy, bad eyesight, frequent driver or whatsoever suitable. 250 out of 900 pharmacies offer this service and have specially trained Pharmacists and Prescriptionists. We have about 7,000 patients in this service, with 200 newcomers every month. We have about 700 follow-up appointments in this service every month.

Dose dispensing in multidose packages

Dose dispensing in multidose packages is also a service which aims to get a good adherence and

optimal outcome of the medication. This service is often combined with MUR described above. In Sweden, there are 170,000 people, mostly elderly, enrolled in this service all over the country. But it can also be people with psychiatric diseases or people with some form of handicap.

The pharmacy serves the patient in two ways; the prescription/medication management and the actual dose dispensing. The patient's medication is reviewed by the pharmacist and the physician and, hereafter, the medicines are provided for the patient in two-week rations, packed and labelled in plastic bags. Each bag is labelled with necessary information such as the patient's name and the time of day that the specific dose is to be taken. This technical service is often combined with a medication-review service. Apoteket has also implemented an e-dose-prescription service, which means that prescribers can make the medicinal changes directly on the electronic prescription list instead of faxing handwritten prescriptions, hence improving patient safety.

Collaboration/Joint projects with Patient Organisations, Competent Authorities and other Health Professionals

"Health Points" is a specific programme of Apoteket in Sweden, in which a pharmacy collaborates with district nurses, dieticians, other health-care professionals, plus various organisations to serve as a forum for better health. For example, individuals are given the opportunity - for a fee - to have their blood pressure and fitness checked, to obtain advice about weight loss, diet and health and to attend lectures about such subjects as health and fitness and group exercises.

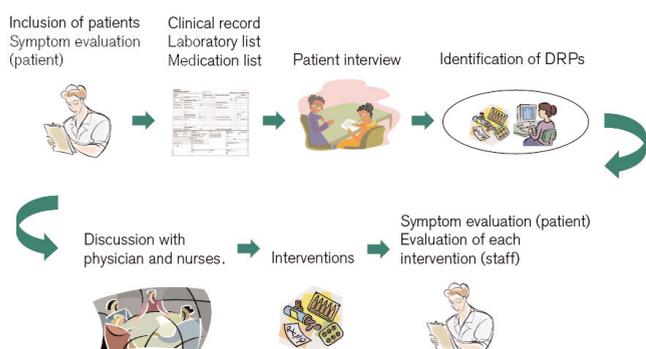
Lifestyle counselling by so-called health coaches has also been available in some other pharmacies, again for a fee.

The particular case of elderly care - Comprehensive Medication Review

Medication reviews have been performed in Swedish nursing homes for a long time. They have also been introduced in hospital wards during the past few years, as well as in some health care centres, where the pharmacist meets the patient before or after the visit to the doctor to review all of the patient's drugs. This is in order to detect and

resolve drug-related problems (DRPs).

Method of Medication Review



11. UK

The NHS Community Pharmacy Contractual Framework - Enhanced Service - Medication Review (Full Clinical Review)

This is a structured, critical examination of a patient's medicines with the objective of reaching an agreement with the patient about the continued appropriateness and effectiveness of the treatment, optimising the impact of medicines, minimising the number of medication related problems and reducing waste.

The pharmacist will provide further advice and support regarding the patient's use of medicines and, where appropriate, will refer the patient to another health care professional. To do so, the pharmacist has access to the patient's medical notes in order to maximise impact, for example by assessing the ongoing requirement for a medicine and consideration of relevant test results.

This service will support people who may be experiencing problems with taking their medicines, particularly those with complex regimens. This service will also support the recommendations outlined within the NSF for Older People [All people over 75 should have a medication review every 12 months or, if they are prescribed four or more regular items, the review should be carried out every six months].

Aims and intended service outcomes

To ensure patients are on optimum therapy by

reviewing and making recommendations to improve therapy to the prescriber:

- effectiveness of treatment;
- appropriateness of treatment based on latest evidence;
- adverse drug effects;
- test results, interpreting them and acting on them where required; and
- whether the recommendations of previous reviews have been acted upon;
- recommend new treatments, e.g. aspirin or statins in CHD patients; and
- if the pharmacist is a prescriber they would be able to make changes to the patient's treatment as agreed with the doctor.

To improve patient compliance with therapy by:

- providing an opportunity for the patient to discuss concerns and ask questions about their medicines;
- improving the patient's understanding of their medicines;
- simplifying the medication regimen and drug ordering process where appropriate;
- identifying practical problems in medicine taking and referring the patient for assessment of support required if necessary;
- providing advice and support to the patient and carer, including referral to specialist centres or other health and social care professionals where appropriate; and
- ensuring that there is active participation of the patient, with shared decision making and agreement about any changes.

In order to perform this service in the pharmacy, and among other conditions, there are some key aspects that need to be ensured: a) the part of the pharmacy used for provision of the service provides a sufficient level of privacy and safety; b) pharmacists involved in the provision of the service have relevant knowledge and are appropriately trained in the operation of the service. It is relevant to mention that to perform this service, pharmacists undergo a specific certified training; c) the pharmacy maintains appropriate records to ensure effective ongoing service delivery and audit; d) The pharmacist has access to the patient's medical notes.



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