Pharmaceutical care, European developments in concepts, implementation, teaching, and research: a review

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Abstract
This article discusses the concept of pharmaceutical care especially from the European perspective. It tries to clarify the current status of pharmaceutical care research and implementation, and if and how it can be part of the practice of pharmacy. Pharmaceutical care basically means improving the medication use process in order to improve outcomes, including the patients' quality of life, and that involves a focus change for pharmacy from product to patient. This change in focus also implies that the pharmacy curriculum should be adapted, in order for the pharmacist to be able to acquire new knowledge and skills. In most countries this change currently is taking place but not in very deliberate or structured manner. Some basic decisions have to be made, in order to guarantee that every patient receives pharmaceutical care when needed.

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Introduction

Pharmaceutical care is a buzz-word in pharmacy. Although the term originated in the USA, it is also increasingly used in Europe. The concept of pharmaceutical care is continuously being discussed, and the question whether pharmacists should be the professionals to deliver pharmaceutical care has not yet been fully resolved. Because pharmacists in most countries are well educated experts on medicines, it seems logical that they start providing pharmaceutical care. Some European organisations see pharmaceutical care as a responsibility shared by all health professionals, while others restrict it to the pharmacy profession. But most countries have active programs aimed at the introduction of pharmacy-based pharmaceutical care, and this concept is the focus of our analysis in this article. This paper comments on the current development of the concept and its implementation in Europe, mainly in the primary care setting, but this cannot be done without a look at developments on other continents.

Defining pharmaceutical care

The first definition of pharmaceutical care was published in 1975 by Mikael et al.[1] in the USA. In 1990, Charles D. Hepler from the University of Florida, Gainesville, published the widely used definition of pharmaceutical care from a systems perspective, in his shared publication with Linda M. Strand. They state that pharmaceutical care is 'the responsible provision of drug therapy for the purpose of achieving definite outcomes which improve a patient's Quality of Life'[2]. Later, however, Strand together with Cipolle and Morley approached the topic from a more humanistic perspective when they stated in 1997 that pharmaceutical care is 'A practice for which the practitioner takes responsibility for a patient's drug therapy needs and is held accountable for this commitment'[3,4]. She stressed that pharmaceutical care is not only a theory of practice, but also a philosophical worldview. Most theories now clearly state that a shared responsibility between different actors around medicines is necessary and do emphasize pharmaceutical care as a core responsibility of the pharmacist. But it is not yet clear if other health care professions agree with this viewpoint.

The European approach to pharmaceutical care seems less systematic and comes very close to the way it was being interpreted by Strand during her lecture when she was awarded with the Remington Medal in 1997. The individual patient stands in the centre of pharmaceutical care and monitoring and documenting are essential activities. Nevertheless, the more clinical approach of Hepler also fits in Europe because many pharmaceutical care processes are disease- and outcome-based. In 1996, Hepler described pharmaceutical care as 'an outcome oriented, cooperative, systematic approach to provide drug therapy directed at the improvement of all dimensions of health related quality of life'[5]. His approach currently seems to concentrate on the issue of preventable drug-related morbidity and drug morbidity indicators[6,7]. This is, however, only one aspect of pharmaceutical care (although important), because if no drug-related morbidity occurs, there nevertheless can be ways to improve the quality of life of a patient by stimulating the correct medicine use.

The current European opinion in the field seems to be that pharmaceutical care is individually oriented care around pharmaceuticals or drug therapy, and the pharmacy profession claims that care[8,9]. But even within one country there can be differences in definitions. Where the Scottish pharmacists organisation speaks of pharmaceutical care, the English pharmacists organisation rather uses the term 'medicines management' for approximately the same concept.

Under the increasing pressure of cost containment, it can also be recognised that, in general, the emphasis on the humanistic outcomes of the pharmaceutical care process (quality of life and satisfaction) seems to get lost when studies are interpreted. In spite of the introduction of humanistic outcomes in the drug approval process in the last century, the clinical and economic outcomes still seem to be considered as the main endpoints in the evaluation of clinical studies as well as in the general medical liter-

ature. When discussing the value of pharmaceutical care, a proper analysis of the humanistic outcomes is often neglected.

European considerations

Especially in Europe, there are some additional considerations when discussing the definition of pharmaceutical care[10].

With the many different languages in Europe, the term 'Pharmaceutical Care' cannot always be literally translated. Especially the concepts behind the English words 'care' and 'outcomes' are sometimes difficult to translate. An influence of the pharmacy system and the health-care system on the conceptualisation of pharmaceutical care in community and hospital pharmacy should also be recognised.

The European understanding is that pharmaceutical care basically is 'the professional care for the individual patient in a pharmacy'. It can be described as follows: Pharmaceutical care is a practice philosophy for pharmacy. It is the way of pharmacists to coach the individual patients with their medication. The concept deals with the way a patient should receive and use medication and should receive education on the use of medicines. The concept also deals with responsibilities, medication surveillance, counselling and the evaluation of all the outcomes of care.

In the UK, that what other countries call pharmaceutical care now, is also named 'medicines management' although there are slight differences[11]. But this 'management' still seems to be very patient orientated.

The process of pharmaceutical care

In a very schematic way, Hepler has depicted the process of pharmaceutical care as a Demming quality improvement cycle[12,13] (Figure 1).

The way to prevent, detect and correct drug-related problems in a patient is to systematically analyse the patient, his drug profile and his drug use behaviour. The therapeutic objectives of the drug treatment should be assessed. After dispensing the medication, the patient should be monitored whether the therapeutic objectives are reached, and whether unwanted effects are occurring. If any drug-related problem becomes evident, the pharmacist (or another professional) then should reassess the therapeutic objectives and the therapeutic plan, respectively.

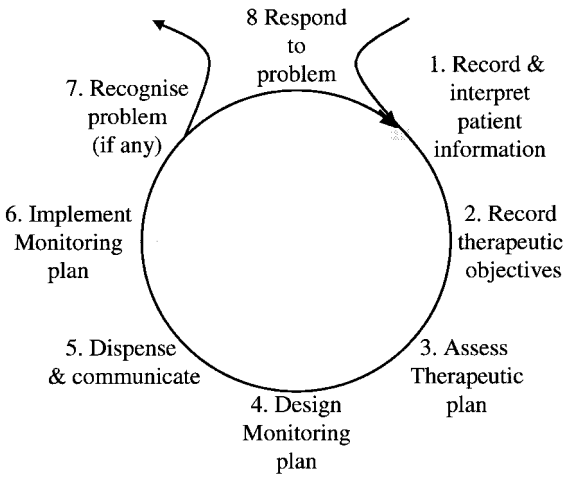

Figure 1 *Heplers' pharmaceutical care cycle.*

Of course, the care can only be provided when a good relationship with the patient exists and the pharmacists can communicate well with the patient about the pharmacotherapy and related subjects. In 1997, the American Society of Health-System Pharmacists (ASHP) has issued an interesting set of guidelines on the pharmacist-conducted patient education and counselling. Establishing a caring relationship with the patient is described as step one in the pharmaceutical care process[14]. It should be emphasised that such a relationship involves not only the technical aspects of information provision and communication, but also emotional aspects and empathy.

The need for pharmaceutical care

Medicines are a very complex technology, not only complex in a pharmacological way, but also in application (that is prescribing by the physician, dispensing and counselling by the pharmacist and taking in by the patient). The effects of the application of this technology on the human body is studied in clinical pharmacy and clinical pharmacology, and clinicians and researchers have discovered that medicines do not always have the expected effects. With the increasing complexity of the technology and the increasing role of self-medication[15], misadventures in the medication system occur. The focus of pharmaceutical care is on the preventability of drug misadventures. These misadventures are also called medication errors (when occurring within the prescribing and dispensing chain), or drug-related problems (when occurring in the whole medication-use chain). Such problems can often be prevented or corrected by a thorough analysis of the medication and patient characteristics, and subsequent interventions.

Drug misadventures

The consequences of these drug misadventures are quite extensive. In the USA, approximately 3–5% of all hospital admissions are caused by a drug-related problem. Such problems emerge as a result of inappropriate prescribing, inappropriate dispensing or inappropriate medicine use. Over 218,000 people have supposedly died due to drug-related problems in 2000. The costs of these drug misadventures were estimated to be 170 billion US dollars, an enormous amount of money[16]. In an international review, Patel et al. found that as many as 28% of all emergency department visits were drug-related[17]. Of these, 70% were preventable, and as many as 24% resulted in hospital admission. Drug classes often implicated in drug-related visits to an emergency department were non-steroidal antiinflammatory medicines, anticonvulsants, antidiabetic medicines, antibiotics, respiratory medicines, hormones, central nervous system medicines, and cardiovascular medicines. Common drug-related problems resulting in emergency department visits were adverse drug reactions, non-compliance, and inappropriate prescribing.

It has been widely established that medicines may cause all kinds of adverse effects, and adverse effects (side effects and interactions) form an important part of drug-related problems. In Spain, a study by Marco et al. investigated the number of hospital admissions

due to drug-related problems, and found a relatively low percentage (0.45%)[18]. A study in Denmark in 1988, however, found that 8% of all admissions in one hospital were somehow medicine – problem related[19].

Literature review indeed shows that a considerable part of all hospital admissions are related to adverse drug reactions[20]. However, these data are not homogenous, i.e. larger studies display a lower percentage of ADR-related hospital admissions, while smaller studies display a higher percentage. This could be due to the way of analysing available data, which can be more thorough in small studies.

Subgroup analysis in the meta-analysis of Beijer and de Blaey showed that for elderly people the odds of being hospitalised by ADR-related problems is 4 times higher than for younger ones (16.6% vs. 4.1%). A considerable part of these hospitalisations can be prevented. Subgroup analysis revealed that in the elderly up to 88% of the ADR-related hospitalisations are preventable; for the non-elderly this figure is 24%. Applying the principles of pharmaceutical care may contribute to preventing such drug-related morbidity and mortality[21].

Prevention: medication review and counselling

A study in Denmark, carried out through participatory action research, found that the perceptions and factual knowledge of angina pectoris patients varied greatly, and that only a quarter actively and reflectively self-regulated their medication. Half of the patients occasionally forgot to take their medication[22]. In an UK study in patients over 75 and undergoing multiple drug therapy, Krska et al. identified (potential) problems in medication records of general practitioners practices[23]. They found that all patients had at least two pharmaceutical care issues (issues that involved a drug-related problem) at baseline. Half of these were identified from the prescription records, the rest from notes and patient interviews. Such studies confirm the need to regularly counsel patients. This need for counselling has (again) been confirmed in Finland by Kansanaho et al.[24]. In many studies, patients also express their wish to be counselled about the proper use of medicines[25].

In some countries medication analysis or review is a standard part of pharmacy practice. Hawksworth et al. published a study about the UK, in which pharmacists intervened in 0.74% of the dispensed items[26]. In the Netherlands, pharmacies documented their activities as a result of prospective computerised medication review; 38% of all interventions resulting from computer generated alerts or other forms of professional assessments led to a change in the prescription or patient education activities. These interventions represented over 9% of all prescriptions dispensed[27]. Buurma et al. found that 4.9% of prescriptions for prescription-only medicines (mean 14.3 per pharmacy per day) were modified in the Netherlands to prevent or correct drug-related problems[28]. Increasingly other European countries like UK, Denmark, Sweden, Germany, Switzerland, among others also keep track of medicines dispensed to patients in computerised databases, and this enables prospective medication reviews.

There are logical reasons to believe that the provision of pharmaceutical care can reduce the impact of drug-related problems on clinical, humanistic and economic outcomes of patients by improving the quality of the system and the quality of individual drug therapy. But to date only very few studies have shown that impact in the field of humanistic outcomes, in spite of the thorough analysis of the problem. This might be, at least in part, due to the inadequacy of the instruments available[29].

Although the impact on satisfaction has often been shown, it can (and should) be discussed if this outcome has been measured appropriately and if the satisfaction was the result of the pharmaceutical care process or the communication with the health professional only.

Evidence of pharmaceutical care effectiveness in Europe

Of course, it is only worth providing pharmaceutical care (and reimbursing the practitioner) if we have proof that the application of clinical pharmacy and pharmaceutical care has an advantage for the patient and the society. During the last couple of years, different research groups partially have already provided this proof but more robust research is still needed. In many countries projects are under way to prove the beneficial effect of pharmaceutical care. Especially in the USA, many publications have already appeared in peer reviewed journals, to prove that value and the Australian value proposition report also showed clear evidence for effectiveness of pharmaceutical care services[30]. This report dealt with randomised clinical trials and non-randomised studies which monitored patient outcomes as end-point, and was published in English between 1990 and 2002. Another such analysis was carried out in the UK, and the report about peer-reviewed literature also included some non-English papers[31,32]. During the Social Pharmacy Workshop in Malta (2004), a Danish Community Pharmacy Evidence Database was presented with 231 data sheets with articles since 1990, from which evidence reports about different topics are generated[33].

In 1998, Kennie, Plumridge, and McLean found that the quality of the published papers on pharmaceutical care can be disputed, especially in the field of process monitoring and the outcomes studied, but they also concluded that the evidence for the beneficial effects of pharmaceutical care is there if you add up all publications[34–36]. A similar conclusion was reached by Beney et al. in a review by the Cochrane Effective Practice and Organisation of Care Group[37]. Most of these publications were based upon reviews of principally American literature. One should, however, realise that the structure and standards of health care are quite different on the east side of the Atlantic and that models from the USA cannot be implemented in Europe without adaptations. Additionally in Europe, many articles on the impact of pharmaceutical care are published in the national language and not included in international reviews that are based upon literature in the English language. This provides an important bias to the published reviews.

In many European countries, pharmacists already are active in preventing and correcting drug-related problems. Several studies in e.g. Belgium[38], France[39], Germany[40], The Netherlands[27,28], Norway[41], UK[26, 42] and Sweden[43] have indicated that the community pharmacists already intervene frequently in order to avoid (future) drug-related problems. In Spain, approximately 500 pharmacies work with the Dadér methodology for identifying and resolving drug-related problems.[44]

European pharmaceutical care studies in the hospital in-patient setting have hardly been published except for UK, where for example the frequency of drug-related problems has been studied by Bates et al.[45]. In some countries like the UK and the Netherlands, pharmacists do give prescribing advices to physicians (pharmacotherapeutic consultations, outreach visits, academic detailing) to influence prescribing, in order to prevent possible future pharmacotherapy problems[46–49]. The results of this type of interventions on prescribing quality are not always very convincing[50].

Up until now, the benefits of 'full blown' pharmaceutical care in Europe have really been proven in asthma projects in community pharmacies in Denmark[51–53], Finland[54], Germany[55], Malta[56], The Netherlands[57], Northern Ireland[58] and Spain[59]. The impact of a hypertension project has been shown in Portugal[60], and in Northern Ireland a positive effect in the field of congestive heart failure was established[61]. The more general European Elderly project (coordinated by the Pharmaceutical Care Network Europe, PCNE) has had an impact that varied considerably across the different countries[62]. No publications about the benefits of pharmaceutical care in the European hospitals can yet be identified. As Bonal has already indicated: 'The implementation of evidence-based pharmacotherapy (in hospital) is not an easy task for three reasons: a lack of scientific evidence in many medical areas, a lack of authority of pharmacists in Europe to take an active part in decision-making for drug prescribing, and reluctance of some physicians to accept pharmacists within the health care team'[63].

Performing research

Performing research into the effects of pharmaceutical care is complicated. The continuing education session of the community pharmacy section of FIP in Barcelona in 1999 was dedicated to teaching how to establish the value of such a new practice philosophy[64]. The major conclusions, not only from that session, but also from other research are:

- Structure, process and outcomes need to be well monitored during a study. Although the participating pharmacists in many practice studies certainly are willing to implement new processes, in practice they often simply forget to provide care because of their product focus and time limitations.
- It is especially the process that needs to be well monitored during a study. Irrespective of outcomes of a study as encouraging or disappointing, you must be sure that the process has been applied well. A publication of Weinberger et al. illustrates this point[65]. Some of the comments on this study are summarised in an Editorial in *Pharmacy World & Science*, including the issue of process monitoring[66].
- Documentation is another difficult topic in the pharmacy practice environment. But for a study it is necessary to have good data, meaning that the participating pharmacists really must document everything the research team asks.
- Researchers have the obligation to select the right amount of appropriate indicators to be documented. That is a challenging process, often involving specialised expertise in specific clinical fields, plus the knowledge about the day-to-day practice in the pharmacy.
- On a more integrated level, the performance of the total care process in the pharmacy needs to be documented and analysed, e.g. around one specific disease or group of patients.

Of course the above conclusions are somewhat arbitrary and depend on the chosen research perspective.

For the researchers it can be helpful to consider the Kozma model of outcomes[67]. Looking at that model from our perspective, we can identify a lack of good and validated instruments for assessing, especially the humanistic outcomes of pharmaceutical care, like satisfaction, knowledge, attitudes and beliefs, or quality of life[68]. The PCNE has addressed these topics its during its working conferences in 1999, 2001, and 2003[69,70]. An instrument to assess the attitudes towards medicines is now being validated in the PCNE, but in the mean time other validated instruments have also become available in Europe, e.g. an instrument dealing with patients beliefs that was published in 1999 in the UK[71]. The network also addresses the issue of documenting what drug-related problems can be detected during the pharmaceutical care process and how practitioners tried to solve those problems.

Most published studies into the effects of pharmaceutical care use the characteristics of reductionism, repeatability and refutability as they originate from natural sciences research. But because the pharmaceutical care researchers study the behaviour of objects that are learning and open to environmental influences during the study (patients, pharmacists and often also physicians), the use of methods originating from social sciences should certainly also be considered[72]. This, also becomes clear when reading the work of Rossing from Denmark.[73]. To answer her research question, she mainly performed quantitative research in pharmacy practice, but this research had very strong qualitative roots.

When discussing the result of pharmaceutical care studies, one must take into account that the natural sciences approach still prevails in the medical world.

Constraints on pharmaceutical care in Europe

The constraints on the provision of pharmaceutical care in Europe do not differ much from the rest of the world. Of course, there is much more diversity in health care systems and pharmacist education in Europe than in the USA or Australia.

The primary concern is that the professional that should provide pharmaceutical care can currently only be a pharmacist or a clinical pharmacologist. Others have not received a training that is likely guarantee the necessary knowledge to uncover drug-related problems.

But it must be stressed that providing pharmaceutical care requires more than knowledge alone[74]. The providers should also have certain skills and a certain attitude, and one can wonder if pharmacists indeed have the appropriate competence in Europe[75,76]. Another significant barrier is the lack of resources in the pharmacy, which translates into the lack of separate remuneration for pharmaceutical care activities[77]. There is a continuous debate if pharmaceutical care gives 'value for money'[78]. The difficult relationships between pharmacists as counsellors and the prescribers have also been the topic for contemplations and research[79,80].

A look at the competence needed for pharmaceutical care functions, indicates the requirements for education. For clinical activities, pharmacists will need knowledge about pharmacology, pharmacotherapy and clinical pharmacy (see Figure 2). Clinical pharmacy is one of the cornerstones of pharmaceutical care, and skills are needed for performing drug use evaluations (DUE, to detect and prevent drug-related problems), for documenting and for responding to symptoms at the counter. In order to improve clinical knowledge, can be considered combining certain parts of the pharmacists' curriculum with the medical education[81]. This also stimulates the communication between the two health professionals and should generate mutual respect. If pharmacists are to perform the full scope of pharmaceutical care activities, then certain teaching and communication skills are necessary. The latter skills are important because the relationships change. Relationships with the medical field (physicians and nurses) become more important, and also the relationship with a customer changes into a relationship with a patient, and possibly the relatives and carers of that patient.

In many European countries, ethics, clinical pharmacy, social pharmacy, communication, and health promotion are currently no or marginal topics for the university curriculum for pharmacy. It is therefore not surprising that pharmacists are reluctant to change their way of practice towards pharmaceutical care. They lack the knowledge and the skills associated with their potential newer functions. The main problem in this field is that most universities are still focussed on educating pharmacists for their classical functions, being drug development, compounding and production, drug analysis, and dispensing. But even then they do not teach organisational aspects, although that is the lifeline of each and every pharmacist in community, hospital pharmacy, and even in university.

The European Association of the Faculties of Pharmacy (EAFP) in 1999 has discussed the demands to which a modern pharmacist in community and hospital should be able to respond. They suggested a change in the structure for the curriculum[82]. In their report a clear shift is proposed during the study for pharmacist, from laboratory-based sciences to practice and clinical sciences (see Figure 3).

There is still a role for the classic education in order to learn clinical sciences since you still need a certain background on chemistry, physics and biology. But it would probably also be advisable, from the beginning of the curriculum, to pay attention to health care structure and social pharmacy. Especially, social pharmacy would help the students to put the more theoretical subjects in a society-oriented perspective[83].

After the regular education, it remains necessary that pharmacists (pharmaceutical care providers) take part in continuing professional development. It will be clear that the suggested curriculum also will lead to a field of pharmacy practice research, which is currently hardly being addressed in the European universities on a large scale, except for the UK and some Scandinavian countries.

Implementation

In spite of the aforementioned constraints, daily application of the principles of pharmaceutical care is being implemented in a number of European countries. And, in the field of self-care, a certain form of pharmaceutical care already existed in many countries where often standards and protocols for the coaching of self-care were implemented already by the end of the last century. Additionally, remuneration for some forms of pharmaceutical care (pharmaceutical care services) can now be obtained by pharmacists in five European countries: The Netherlands, Portugal, Switzerland, Germany, and the UK. In The Netherlands, some insurance companies (e.g. Achmea) have started linking a small reimbursement to the provision of pharmaceutical care in certain fields like incontinence advising. In Portugal, a successful disease-state management (DSM) programme for diabetic patients carried out by pharmacists was key to the agreed reimbursement contract with the Ministry of Health (personal communication Dr. Suzette Costa, ANF, October 2003).

One major new development is the concept of family or domiciliary pharmacies in Germany. These are community pharmacies with a focus on case management for major disease states. Under this programme, the patients choose their family pharmacy from a list of participating pharmacies. All personal and medication data is recorded and processed

PROCESS	SKILLS	KNOWLEDGE	(RELATIONS)
Logistics (dispensing)	Management Compounding	Law & Ethics Accounting Management	Staff Wholesalers Customers
Clinical Pharmacy	Performing DUE Documenting Responding to symptoms	Pharmacology Pharmacotherapy Clinical Pharmacy	Physicians Nurses DI-centres
Pharmaceutical Care	Teaching Communicating	Social Pharmacy Communication Health Promotion	Patients Relatives Carers

Figure 2 *Skills and knowledge needed for pharmacy activities.*

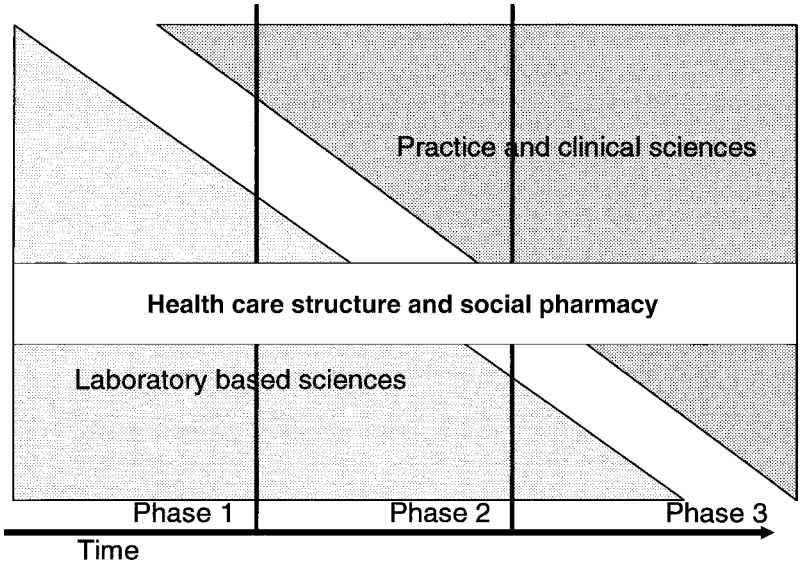

Figure 3 *The modified proposal of the EAFP.*

in the pharmacy's computer which means that all medicines (prescriptions and over the counter), supplements and devices are delivered by this pharmacy. These pharmacies also offer medication regimen reviews, possibly including cost analysis in a further step. The agreed family/domiciliary pharmacy concept (contract with health-insurance funds) includes remuneration for advanced services i.e. pharmaceutical care[84]. In the UK, the negotiations about reimbursement for especially defined pharmacy services have just started. Primary health care practices that have a pharmacist performing medication review, already receive a separate remuneration.

The EuroPharm Forum (EFP, http://www.euro.who.int./europharm) in Copenhagen, and the PCNE (http://www.pcne.org) are two major international players in the European implementation of pharmaceutical care. The EFPs activities are mainly facilitated through the task forces on diabetes care, CINDI-hypertension, smoking cessation, ask about your medicines, asthma services and HIV/AIDS. In addition to professional bodies/organisations like in the Netherlands (KNMP), Germany (ABDA) or Denmark, the EFP has published standards of pharmaceutical care for different disease states (asthma, diabetes, hypertension). The PCNE is an independent non-for-profit-network of researchers and research teams within the field of pharmaceutical care and provides education for research through their international Working Conferences held every other year since 1999 in Hillerød, Denmark[69,70]. Their focus on outcome research has increasingly come to include implementation research as well. Since Tokyo 1993, the community pharmacy section of FIP offers a comprehensive continuing education/professional development programme at their annual meetings[85]. Additional tools and approaches available to facilitate implementation of pharmaceutical care services include training courses, manuals, marketing support, quality circles, disease management, total quality management (TQM) and continuous quality improvement (CGI) programmes, pseudo-customer methodology, to name a few. They are developed either by pharmacy associations (e.g. ANF in Portugal, WINaP in the Netherlands, ZAPP/ABDA in Germany, TIPPA-programme in Finland, SAV in Switzerland, Apoteket in Sweden) or foundations (Spain), university-based departments (UK, Finland), private institutes (QIPC or SIR in the Netherlands) or colleges (Pharmakon in Denmark).

Many implementation projects are not really monitored well. In Denmark, a system of participatory action research has been developed at the university, where pharmacy students address patient as to their expectations and assess the level of implementation of care in a pharmacy during their internships. These studies seem to give good results that are relevant for practice[86,87]. Elsewhere sometimes pseudo customers are being used[88,89].

Such results of implemented European pharmaceutical care programmes and (controlled) intervention studies are mainly presented internationally at meetings of PCNE, ESCP, BPC, FIP, EFP, and Social Pharmacy Workshops.

The many health-care systems in Europe differ substantially. However, there is increasing evidence that pharmacists in Europe face similar problems as elsewhere in the world that prevent implementation of pharmaceutical care in day-to-day practice. An ongoing joint project of the universities of Sydney and Copenhagen (Spain and Germany are also interested) tries to better understand practice change in community pharmacy[90].

Future developments

It may safely be assumed that pharmaceutical care will be beneficial for the patient. But before the future developments of pharmaceutical care in Europe can be discussed, a number of basic decisions have to be made mainly on a political level:

(1) Is pharmaceutical care a special service or an obligation within the (para-)medical professions, to be conducted at all times for every patient?

In some countries (e.g. The Netherlands, France, Morocco, USA), pharmacists or pharmacy students deliver an oath equal to, or resembling, the oath of Hippocrates, Asaf, Galien, or Maimonides. Because those professionals have stated that they will do everything possible to promote health and avoid harm to the patient, it is logical that pharmaceutical

care should be part of their everyday professional life, and remunerated in the total professional fee, as soon as the professional has mastered the necessary skills and knowledge. In other countries, the provision of pharmaceutical care may be regarded as a separate or advanced service e.g. for specific patient needs, and such a service should eventually be remunerated separately too. But also under such circumstances, the fact that pharmacists are professionals will eventually force them (from an ethical perspective) to start providing pharmaceutical care[91].

(2) Partially related to this issue, it should be discussed if remuneration for the pharmaceutical care process or pharmaceutical care services is desirable and eventually available[92]. That question is not specific for Europe. In some countries where drug use analysis in combination with clinical interventions has been defined as a separate activity for a group of especially trained pharmacists like in Australia or in Quebec, Canada, remuneration can be obtained[93]. As already said before, remuneration for a limited number of pharmaceutical care like services can now be obtained in some European countries as well, and the feasibility of remunerating specific pharmaceutical care like services is being studied in the UK[94].

(3) Would all pharmacists in all situations be able to deliver the full scope of pharmaceutical care or not. The more limited but also potentially beneficial concepts can e.g. be found when looking at 'pharmaceutical care at the counter/the counselling pharmacy' project (in Denmark, Sweden or Spain)[95–98], 'cognitive pharmaceutical services' (e.g., Denmark, Australia)[90] or 'advanced counselling' often in conjunction with monitoring drug profiles or doing medication reviews (e.g., in the UK, The Netherlands, Switzerland, Portugal, Sweden, Germany, Spain). The medication reviews in the UK are not necessarily performed in the pharmacy but mostly in primary health care centres by pharmacists[99].

One can imagine a kind of 'pharmaceutical care light', where the level of individuality is less, and a more general framework is used for whole groups of patients. In that case, the necessary competence is different from a situation where all pharmacists must be able to deliver the full scope of pharmaceutical care.

Anyway, if pharmacists must be able to provide pharmaceutical care, then it will be necessary for many European universities to adapt their curriculum, and equip the pharmacists with the knowledge and skills needed for delivering pharmaceutical care. Additionally, it probably will be wise to require a special post-graduate training for the full scope of pharmaceutical care activities and include pharmaceutical care in the quality management system of the pharmacy. And one should also not forget to adapt the education of possible other certified staff members in the pharmacy.

Since the introduction of the concept in 1990, no other professionals but pharmacists have recognized the importance of delivering pharmaceutical care. In 1998, the International Pharmaceutical Federation (FIP) has even published a statement of professional standards that more or less requires pharmacists to deliver that care, because it was made part of Good Pharmacy Practice (GPP)[100]. In their resolution ResAp(2001)2, the Council of Europe (Committee of Ministers) also expressed concerning the pharmacist's role in the framework of health security that 'one of the pharmacist's basic function, as an expert in medicinal products, is to help prevent avoidable iatrogenic risks…, and pharmaceutical care is an essential element in the prevention and reduction of iatrogenic risks and should be implemented systematically'[101].

Many people in society and also the medical field discuss problems in prescribing or the patients' drug use. But no coherent and systematic effort is made to correct those problems. Structured pharmaceutical care (or to a certain extent medicines management) is the answer, and is worth to be introduced as soon as possible. But in many countries there is a strict separation between the prescriber and provider of medicines. If the pharmacist as the provider is going to systematically detect (potential) drug-related problems, he will need some form of indication for the drug treatment and this might bring him into conflicts with the prescriber. Hence, this relationship with the prescriber remains also an issue to be addressed, although the wellbeing of a patient is of course more important than the status of the relationship between a pharmacist and a physician.

If pharmacists with the proper training will be able, in practice, to deliver pharmaceutical care to all patients and under all circumstances, still remains to be seen, and a certain underlying structure might be advisable as Hepler already recognized in 1993[102]. One can also imagine forms of (regional) cooperation in countries with small pharmacies. But pharmacist organisations and professional bodies in Europe now must start to take their responsibility of regulating the provision of pharmaceutical care in their professional standards.

Conclusions

Pharmaceutical care is the individual care for the medicine-using patient and aimed at improving the patients' outcomes, including quality of life. There is a clear need, also in Europe, and the value has been proven. Society probably will only be satisfied when such care also creates economic benefits, and this remains difficult to guarantee under all circumstances. But the provision of pharmaceutical care is beneficial to the individual patient and as such is the early answer of pharmacy to the new patient safety movement in the field of medicines and to the concept of 'medication errors'. And this patient will be glad with any improvement in his clinical and humanistic outcomes.

Pharmaceutical care offers especially to pharmacists a real possibility to be responsible healthcare professionals. If pharmacists are to provide pharmaceutical care, their curriculum in many countries need to be adapted, and during their education co-operation with medical schools should be sought. In daily practice, some form of structuring of the activities and or cooperation with colleagues and the national pharmaceutical associations might be desirable.

Epilogue

Mankind is its own worst enemy. Currently the same goes for pharmacists. Pharmacists should move from behind the counter and start serving the public by providing care instead of pills only. There is no future

in the mere act of dispensing. That activity can and will be taken over by Internet, machines and/or hardly trained technicians. The fact that pharmacists have an academic training and act as health care professionals puts a burden upon them to better serve the community than they currently do.

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