measures adopted should pursue the goal of improving the health of the population by tapping into the professional qualifications of pharmacists that are currently wasted on task of lesser importance. This is not so much a question of improving economic benefits, but of moving towards a sector design that corresponds with the current drug-provision cycle. This approach would thus account for the changes that have taken place in recent years, rather than continuing to perpetuate what is now an outdated image of the sector.

REFERENCES


The over-the-counter pharmaceutical market – policy and practice

Christine Bond

Summary: The European non-prescription medicines and consumer over-the-counter (OTC) self-medication market is today worth some €29 billion at consumer prices and represents 36% of world sales.1 In this personal reflection from a UK perspective, I consider the background to and changing context of OTC medicines, the implications for the pharmacy profession and patients, and the benefits and challenges.

Keywords: Over-the-counter Pharmaceuticals; Pharmaceutical Policy, UK

In most of the world, access to and supply of medicines is governed by a regulatory framework which is based on perceptions of the risks and benefits of the medicine to the population. In the UK, for example, there are three broad categories of medicines: POM (prescription only medicines), P (pharmacy supervised sale), and GSL (general sales list).

POM medicines are primarily only available to the public when prescribed by a medical practitioner, although historically dentists have long been able to supply from a limited Dental Formulary. More recently in the UK, full prescribing rights have also been accorded to other health care professionals such as nurses and pharmacists, as long as certain specified conditions are met. P medicines can only be sold under the supervision of a pharmacist from premises registered with the Royal Pharmaceutical Society of Great Britain (RPSGB), and GSL medicines are available from any retail outlet. When moving from POM through to P then GSL there is an increasing ease of public access to medication and an equivalent decrease in professional control and vice versa. Within this framework are ‘controlled drugs’ (CD) which are subject to additional controls, and herbal medicines which are least controlled (see Table 1).

Although this paper is about the OTC market, which is traditionally understood to be P and GSL medicines, it is important to be aware of POM medicines as the three categories together contribute to the pharmaceutical market which is in dynamic equilibrium. When a new medicinal compound is first licensed for use by the public in the UK, and depending on the evidence of safety and efficacy in the pre-marketed period, it is classified as POM. After two years this classification defaults to P unless there is a specific application to retain the POM status, which is the more normal practice. Subsequent moves to reclassify a medicine require a rigorous process of evidence submission to, and consultation by, the MHRA (Medicines and Health care products Regulatory Agency). In Europe there is also clear guidance on the criteria to be applied when retaining a medicine in the POM category (Directive 92/26/EEC). These are summarised in Box 1.

In general, a large subset of POM medicines and a smaller proportion of P and GSL medicines are supplied within a national state health care system, through systems ranging from ‘no cost’ to the patient (for example, Wales) to co-payment systems based on a range of
different models (for example, France or England). Whilst most of the POM medicines would fall within a state health system, OTC drugs, sold to the public, more generally become part of private healthcare.

Since the late 1980s in Europe, and more recently in other parts of the developed world such as the USA and Australia, there have been moves to increase the numbers of medicines available OTC, and the above European criteria and re-regulation processes have been extensively applied and adopted. The rationale for these moves has been multifactorial. Firstly, as drug budgets have continued to rise year on year there has been a wish to transfer drug distribution costs from the government to the individual consumer. It is also said that this shift in responsibility for care from the professional to the individual consumer will empower the public, widen access to medicines and bring additional financial return to the pharmaceutical industry, particularly for drugs nearing the end of their protected, patent, period.

The trend to deregulation from POM status has also been supported by the pharmacy profession as a way of extending the range of effective advice and treatments they can provide to patients presenting symptoms in community pharmacies. In general, the medical profession have supported the deregulation in principle, although caveats have been expressed for certain specific medicines. A recurring issue is whether or not, as professionals, pharmacists are qualified to diagnose, a skill which is clearly the first step when considering the patient’s symptoms and considering ‘prescribing’. This is despite the fact that in the early 20th century, and in the UK specifically before the introduction of the NHS in 1948, many people obtained the vast majority of their advice and treatment from their local pharmacist, depending on what were known as ‘Chemist’s Nostrums’ to cure their various ills.

Bearing in mind these concerns therefore, the first medicines to be deregulated tended to be for conditions that pharmacists had historically diagnosed, such as diarrhoea. Indeed loperamide was one of the first of the recent tranches of deregulations providing a safe and effective remedy in lieu of the traditional codeine or other opiate-based remedies (1983). As time went on, and as the confidence of the public and opinion leaders in health grew, medicines already available for an established diagnosis, for example, hydrocortisone for contact dermatitis, were proposed for deregulation for additional indications such as eczema, and for longer term use. The final and then logical move was to deregulate new medicines for new diagnostic areas, whilst operating within the European framework. Examples of

<table>
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<tr>
<th>Classification</th>
<th>Supply controls</th>
<th>Record keeping</th>
<th>Level of control</th>
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<tr>
<td>CD Misuse of Drug Act schedules</td>
<td>Special supply regulations apply</td>
<td>Records in controlled drugs register and routine records</td>
<td>Most professional control – least patient control. Hardest to access</td>
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<tr>
<td>POM Prescription only medicine</td>
<td>Prescribed by specified health care professional</td>
<td>Record kept</td>
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<tr>
<td>P Pharmacist supervised sale</td>
<td>Sold by or under the supervision of a pharmacist</td>
<td>Record rarely kept</td>
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<tr>
<td>GSL General Sales List medicine</td>
<td>Available from any retail outlet</td>
<td>Record never kept</td>
<td></td>
</tr>
<tr>
<td>Herbal</td>
<td>New regulations imminent</td>
<td>Available from any retail outlet and some self appointed specialist shops</td>
<td>Record never kept</td>
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**Box 1: European criteria for retaining a medicine in the POM category**

- There is direct or indirect danger to health if the medicine is used without medical supervision (for example the ADR (adverse drug reaction) profile needs a doctor to assess risk–benefit, or misdiagnosis might lead to the patient being put at risk);
- The medicine is frequently used incorrectly leading to direct or indirect danger to health (for example, products liable to misuse);
- The activity of the drug or the side effects require further investigation;
- The drug is parenterally administered.

**Table 1: UK medicines classification and implications for supply, record keeping and professional control**

**Figure 1: Progress from POM to P and overall cultural change**

**Chronic conditions**

- Minor self-limiting conditions
  - Traditional area of care
    - Medicine already OTC
      - (dyspepsia treated with antacids)
  - Newly deregulated medicine
    - (dyspepsia treated with H2 blocker or proton pump inhibitor)

- New area of care
  - Medicine already OTC
    - (hydrocortisone for eczema)
  - Newly deregulated medicine
    - (simvastatin for hyperlipidaemia)

Based on Sue Kilby, Royal Pharmaceutical Society of Great Britain, personal communication.
such a move in the UK are the deregulation of the Emergency Hormonal Contraceptive pill (levonorgestrel) and the lipid lowering drug simvastatin (Figure 1).

Implications for pharmacy practice
As noted, whilst a large part of the rationale for deregulation came from the industry and health policy makers, the pharmacy profession supported the move because it provided an opportunity for their members to use their skills more fully. The professional pharmacy bodies have played a key role in the deregulation process which has contributed to the paradigm shift of community pharmacists from a technical supply orientated role to a more clinical cognitive role. Indeed, whilst some of the deregulation moves were driven by the industry for specific proprietary products, other moves for deregulation of a general product have come from the profession. This change in role to utilise the profession more fully in an integrated health care service has been increasingly recognised in UK Government policy papers since its early mention in the publication of the Nuffield report on pharmacy on 1986, culminating in recent pharmacy strategies in the countries of the UK. The better use of community pharmacy also reflects the shifting balance of care from hospital to community.

One of the other results of the changing paradigm of pharmacy has been the impact on the remuneration of pharmacists. In the UK, as in many other countries, pharmaceutical remuneration has been traditionally linked to the volume of items dispensed against prescriptions. This was initially an appropriate basis, given the skilled compounding required. However, as manufactured proprietary products became the norm, the professional contribution to the dispensing process, whilst still a key component of a safe supply process, in providing a final clinical check on a medicine, became reduced. Other roles, such as general health care and lifestyle advice, were also increasingly delivered out of goodwill for reasons of professionalism, or formally paid for as part of locally negotiated agreements. Until recently, these were not remunerated on a national basis. New contracts in the UK, introduced in the early 21st century have changed the basis for remuneration to one which recognises these other non-supply oriented services.

Deregulation has contributed to this more general move for pharmacists to be seen as clinicians in their own right. In the UK, as well as being able to sell a wider range of potent OTC medicines, they have also increasingly acquired a right to supply medicines under the NHS, including OTC products through mechanisms such as the Minor Ailments Schemes, Patient Group Directors and direct prescribing rights. Further discussions of these are outwith the scope of this paper, but are mentioned as an important illustration of how it is not possible to change one component of a complex professional remit without affecting other components.

European perspective
Whilst the detail of this paper is drawn from experience in the UK it can be regarded as a proxy for the rest of Europe. However, there are variations across Europe despite initiatives to achieve a general harmonisation of pharmaceutical regulations. In most, if not all, countries the concept of deregulation of medicines for OTC sale has been replicated although there are interesting differences in detail of what is, and is not, available across the different countries as Table 2 illustrates. This is despite the fact that the principles of retaining a drug with a POM status are,

<table>
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<th>Table 2: OTC availability in selected countries</th>
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<td><strong>Cimetidine</strong></td>
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Rx – Prescription only; OTC – available without a prescription; NR – not registered in that country.

as previously stated, guided by European standards. However, in general, policy on pharmacy and access to medicines is probably more visionary in the UK than in most, if not all, other European countries.

Other European differences include the exact nature of the POM, P and GSL categories. In the UK and France, medicines in the P category can only be sold ‘under the supervision’ of a pharmacist from a registered pharmacy, but GSL products are available from any retail outlet, including pharmacies. In Italy, the equivalent of P and GSL medicines exist as SOP (senza obbligo di prescrizione) and PDB (prodotto di banco), but both are only available in pharmacies. The difference between the categories is that the GSL equivalent category, the PDB, is available for customer self selection and can be advertised directly to the public. In the Netherlands, as in USA, there are only POM and OTC categories. Dutch pharmacies focus much more on POM medicines and have a minority role in the sale of OTC products, 75% of which are sold from ‘drogist’ (chemists). These intermediate outlets are neither registered pharmacies nor general retail outlets.

**Benefits and challenges of wider availability of OTC medicines**

As noted earlier the rationale for deregulation of medicine is said to have been driven by government, the profession and the industry. The success of deregulation from these interlinked perspectives will now be considered.

From the government’s perspective deregulation is part of a philosophy to increase safe and convenient access to medicines, empower the public and encourage them to take greater responsibility for their own health. This is also part of a wider agenda recognising that most people actually understand their own needs and symptoms better than the professional and that the best way to treat them is in partnership with the health care professionals. Thus, the ‘expert patient’ programme and medicines partnership initiatives (see http://www.npc.co.uk/med_partnership) have emerged. Whilst the focus of the former is more on prescribed medicines, the latter encompasses both prescribed and OTC medicines, and for OTC medicines sold from pharmacies the health professional who provides the advice and guidance is the pharmacist, or the pharmacy assistant. Increasingly in the UK the previously untrained pharmacy assistant is becoming professionalised. Mandatory training has been in place since 1996, and more recently encouragement to become qualified as a pharmacy technician and registered with the RPSGB.

The role of pharmacists and their staff with respect to OTC medicines is therefore to ensure, as far as possible, that medicines are sold within the conditions of the OTC licence (which may be more restricted than the indication for prescribed use), that the potential for drug interactions (with both other OTC and prescribed medicines) is assessed and avoided, and that people with contra-indications are not sold the preparations.

Using one of the most frequently sold OTC drugs, ibuprofen, as an example, this non steroidal, anti-inflammatory analgesic should not be used long-term (more than seven days continually), should not be used together with other non steroidal anti-inflammatory drugs or some anti-hypertensive medications, and should not be taken by people with a history of peptic ulcer disease or asthma. Whilst this appears deceptively simple to deliver, in practice we know that this guidance is not adhered to, as a long term follow up study of purchasers of ibuprofen and a general public survey showed (see next section).

The challenge therefore is to empower pharmacists and their staff to provide more directive advice to people buying medicines, without compromising the principles of increased public access to medicines and public empowerment. Until the recent rounds of deregulations, over the past twenty years, most of the drugs sold OTC did not have any body of published information to support evidence based use. Indeed, there is little evidence at all for many of the much hyped and advertised cough and cold remedies traditionally sold. This is not, however, the case for all OTC treatments, particularly the newly deregulated products such as analgesics, products for gastrointestinal problems (antacids and antiulcer) and dermatological products.

As with prescribed medicines, knowledge of all factors required for ‘safe’, clinically effective supply does not necessarily translate into practice. For OTC sales the pharmacy staff (pharmacists and non-pharmacists) must have all the knowledge, they must be able to communicate it to the purchaser and also obtain information from the purchaser on relevant medical history to ensure appropriate management recommendations are made. This is not always easy. Use of algorithmic guidelines summarising the necessary knowledge have been shown to be acceptable to and popular with staff, but have not necessarily supported evidence based product supply.

For some years a mnemonic WWHAM (Who is the medicine for, What is the medicine for, How long have the symptoms been present, Actions already taken, Medicine taken for other reasons prescribed or otherwise) has been used as an aide memoire to remind pharmacy staff of the generic questions to be asked, and information needed to support every OTC sale. Whilst pharmacy staff state they use the mnemonic and find it useful, in practice not all the questions are routinely asked. Where more questions are asked, the sale is more likely to be appropriate. Reasons often cited for not asking the questions included lack of customer receptiveness and time.

There should therefore be a policy agenda to raise public awareness of the need to treat OTC medicines with respect. They must be reminded that, despite being advertised to the public (in contrast to POM medicines in many countries including the UK), OTC medicines are not just an ordinary commodity, and that change in regulatory status from POM to P has not changed a drug or its potential to cause side effects. There is early research evidence which suggests that the public perceive OTC medicines to be safer and less effective than POM medicines (unpublished work by the author and colleagues) which could explain the current attitude of many of the public to giving information OTC. Mechanisms could build on the fact that when experiencing symptoms of minor illness such as colds and flu the pharmacist is their first preferred option for advice.

To what extent has deregulation increased the market for medicines no longer protected by patent and to what extent have costs shifted from the government to the patient? Two of the early deregulations, loperamide and topical hydrocortisone, were said to have saved the UK NHS £4.2 million and £2 million per annum respectively in 1987. Similar Swedish research estimated that the deregulation of sixteen different products had saved $400 million per annum. However, it is not possible to generalise across all drugs from this data, as each product will be different.
For example, consider a product for an acute condition, such as topical acyclovir for the treatment of cold sores (herpes simplex). This was deregulated in 1993, and routine data indicate that prescriptions for this product fell sharply and remained low.\(^\text{18}\) Thus supply was changed from NHS supply to OTC supply. In contrast, this drop in prescribed volume was not observed for the anti-ulcer H2 blockers, such as cimetidine, famotidine and ranitidine. It is suggested that OTC availability widened the target population, and that people transferred from self-treatment of dyspepsia with simple cheap antacids to the more expensive newer products. However, once realising their effectiveness, long term use was translated back into increased prescription use. Thus, in this instance, the overall market increased probably in both the NHS and self care arena. This pattern has also been observed with antihistamines.\(^\text{19}\) Economic modelling based on consumer surplus also provides theoretical understanding of the above observed effects. If the acquisition cost of the drug is cheaper over the counter there will be financial benefits for both patient and government.\(^\text{20,21}\)

**Disadvantages of deregulation**

Whilst the deregulation of medicines has many benefits, as already outlined, there are also some disadvantages. It is important to be aware of and address these issues, rather than allowing them to ultimately result in reversal of the policy.

Firstly, side effects and adverse events from medicines are an important and well recognised consequence of the pharmacological activity of a drug. Although the licensing procedure includes requirements for evidence of safety in the context of use, it is only once a medicine is used by people in that context that ‘real world’ circumstances apply. Thus whilst newly launched POM medicines are deemed safe on the basis of the pre-launch clinical trial data, it is often only after product launch, and use by larger numbers of people with a range of co-morbidities and taking concurrent medication, that rare but potentially fatal side effects are identified.

This is likewise the case when a medicine is deregulated from POM to P and is used by an even wider range of people, without the individualised, normal medical advice that would have supported prescription use. Examples of medicines subsequently needing to be reclassified include the antihistamine terfenadine and the anti head lice treatment carbaryl. Moreover, as already noted, once a medicine is badged P or GSL, there is emerging evidence that the public no longer respect its potency in the same way that they would if it were a POM medicine. It is therefore no wonder that after purchase of a P or GSL medicine, a significant number of purchasers use it outwith the conditions of the OTC license as described below.

Drug safety depends on appropriate use (i.e. at the right dosage, for the right indication, and in the absence of contraindications), and knowledge of the adverse event profile of the drug and its interactions. Long term follow up studies of purchasers/users of ibuprofen (a proxy for other OTC drugs) shows that if these criteria are applied there maybe cause for concern.\(^\text{7,8}\) The current OTC dosage is 1–2g ibuprofen daily, in divided doses, for a maximum of seven days, yet this study found that 38% of purchasers/users (who responded to the study questionnaire) were taking it for chronic conditions (defined as having been experienced for more than thirteen weeks). Nearly a quarter had been using ibuprofen regularly for more than eight weeks, 8% had exceeded the maximum OTC daily dose (and 1% the maximum prescribed dose). People were, in general, using it for appropriate conditions but not in the absence of contraindications. 4% had a history of stomach ulcer, 7% a history of asthma, 4% had sought advice about gastro-intestinal symptoms during the week after purchase, 7% were using concurrently with a gastro-intestinal medicine and 4% with an asthma medicine. Finally 38% were using it with a medicine with a potential for interaction: 27% with another analgesic, 11% with an antihypertensive and 8% with a diuretic.

Ways to avoid these drug interactions need to be considered, such as enhanced NHS record keeping, access for pharmacists to selected parts of the medical records, and increased public and professional awareness. So whilst most OTCs probably are theoretically safe, we need to be sure that this is the case in practice, and have systems in place to prove this. We also need to consider whether the level of side effects experienced is commensurate with the benefit. A side effect profile which is acceptable for a treatment which prolongs life in advanced cancer will be quite different from one for a lifestyle medicine. Pharmacovigilance systems, designed to monitor and identify side effects also need to take these different criteria into account.

At present in the UK the main system of pharmacovigilance, the Yellow Card System (http://yellowcard.mhra.gov.uk/the-yellow-card-scheme), only requires all adverse events to be reported for newly launched medicines; only life threatening events are invited for established medicines. As more medicines are deregulated it may be necessary to change these criteria so that unacceptable prevalence levels of unpleasant, but not severe, side effects are detected. This requires public and professional campaigns. Whilst there is a danger of overwhelming the routine pharmacovigilance system, increased automation in reporting (for example on-line) and improved analysis should mean this can be accommodated. A problem with the signal generation system which depends on spontaneous reporting is that the reporter has to make the association between the drug (the cause) and the effect, before thinking of reporting it. Once again the perceived safety of OTC medicines becomes an issue and people, both professional and the public need to be reminded that today’s OTC drug was yesterday’s prescription speciality.

In prescription drug monitoring, dedicated follow up exercises are an alternative method of pharmacovigilance using routinely held records to identify people who have taken a drug and then reviewing records for any evidence of side effect or drug interactions. However as no records are routinely kept of medicines supplied OTC this is not possible, other than as a dedicated follow up exercise, such as the ibuprofen and hayfever follow up studies reported above, and similar.\(^\text{7,19,22}\)

So, the lack of record keeping of OTC purchases is a problem, and one which it may be hard to resolve. Although in the UK, where community pharmacies are increasingly being linked to NHS IT systems, a future mechanism to link OTC purchases to a single patient record is technically possible, this is not the case for all countries and/or for GSL medicines sold from non-pharmacy outlets. Again, as IT develops, it may ultimately be possible to automate this, with individual purchaser consent, for example, through bar coding and swipe cards.

Finally, making medicines available over the counter is inextricably linked to private purchase and therefore is an inequitable policy. Whilst there are cheaper ‘value for money’ equivalents of well established medicines such as paracetamol available for OTC purchase this is not the case for the
newer deregulated medicines. Thus, those who are less affluent are disadvantaged.23–24

A national initiative to address this has recently been introduced in Scotland, based on earlier research in England25 as part of a revised community pharmacy contractual framework. In this new framework a Minor Ailment Service (MAS) is one of the four core services delivered by all community pharmacies. People, who would normally be exempt from prescription charges (on the grounds of income, age or morbidity) can access, free of charge on the NHS, a range of OTC medicines from the pharmacy. This therefore removes the inequity of access introduced by private purchase but runs counter to any cost shifting from the public to the private purse. The MAS scheme has been carefully developed and includes computerised registration of the patient at a particular pharmacy with NHS records maintained containing the patient’s unique NHS identification number (the CHI – Community Health Index). A current shortcoming of the system is that it does not link to other health records, such as the general practitioner (GP) held medical record, although there are longer term plans to address this. Therefore, in the short term GPs need to continue to remember to ask about, and patients need to report, use of OTC medicines. At the moment this does not always happen.26

Conclusion
Recent moves have increased the range of medicines available without a prescription. This move has potential benefits for all stakeholders. However for these benefits to be fully realised issues of record keeping, pharmacovigilance and public and professional attitudes all need to be resolved. Whilst many of the potential risks can be contained within a pharmacy environment, this is more complex in a general retail environment, and in countries where the P and GSL categories are distinct, the secondary stage of deregulation from P to GSL should be considered extremely carefully.

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