Paediatric drug utilization in Europe

Valorisation

The results of this thesis can be valorised by the relevant implications they have on the following aspects of Public Health at a national or European level.

a. Saving financial resources by avoiding oversupply with pharmaceuticals

In general, it should be stated that both prescription drugs and OTC drugs should be used according to need and after a careful risk–benefit evaluation only. In light of the high prevalence rates of drug use among a supposedly quite healthy sample of children/adolescents in Germany, it may at first be critically questioned whether all drugs used by children/adolescents are really necessary from a medical perspective, not least in view of the fact that active pharmaceutical ingredients also have the potential to harm. Consumption of drugs is, of course, a consumption of private or public financial resources as well. The mean price of pharmaceuticals used by adolescents in Germany is around €9.75 for OTC drugs and €69.28 for prescription drugs. The results of this thesis suggest that, on average, an adolescent may use about 0.58 packages of OTC drugs and 0.24 packages of prescription drugs within an observation period of 4 weeks, creating monthly expenditures on drugs (OTC and prescription drugs together) of roughly €24 on average per adolescent. Furthermore, the findings of chapter 6 imply that the use of prescription drugs and OTC drugs also partly follows habitual patterns. Drug utilization during childhood may to a certain degree determine drug use during adolescence or adulthood and, hence, result in (probably avoidable) expenditures on pharmaceuticals in the future. Thus, detecting the 'necessity' of drug use already at an early stage in life and subsequent efforts to reduce drug utilization to the required amount could be a relevant contribution to keep the expenditures of statutory health insurance companies on pharmaceuticals under control. However, 'necessity' might be perceived differently by different individuals and needs to be defined accurately.

b. Value of self-medication and over-the-counter drugs to society

According to evidence based on studies conducted in the United States, Australia, and Brazil [1–3], self-medication with OTC drugs helps to relieve social security systems. Depending on the source, every dollar/Brazilian real spent on self-medication saves 4–7 dollars/Brazilian reals for the health care systems. Savings can be derived from reduced costs for prescription drugs, avoided costs for physician visits, and maintenance of the population's working productivity. A prerequisite for exploiting the potential benefits of OTC drugs is that they are used in time as 'early intervention' to prevent, e.g. sick leave or consultation with a physician, which additionally would be likely to result in using

cost-intensive prescription drugs (in Germany, prescription drugs are about six times more expensive than OTC drugs). However, as shown in chapter 5, lower social background may predict lower use of OTC drugs among adolescents. Furthermore, according to the results from chapter 7, adolescents from a higher social background may be more likely to use higher priced OTC drugs. Thus, higher prices could generally discourage particularly people from a lower socioeconomic background from taking medically advisable but not reimbursable OTC drugs. Against this background, reimbursement of at least some defined categories of OTC drugs by social security could also make sense economically in relation to public health expenses to avoid higher costs caused by delayed treatment. Of course, all OTC drugs (as well as prescription drugs) should be used properly. This highlights the importance of further fostering of personal health literacy and good medical and pharmaceutical advice that is ideally not influenced by conflicting economic interests.

Additionally, it could be worth reflecting on whether and how the role of pharmacists could be strengthened with regard to the reimbursability of OTC drugs when bought without a medical prescription. For instance, in Germany, in the meantime, an increasing number of statutory health insurance companies reimburse expenditures on OTC drugs again, but coverage normally still requires a physician's prescription (causing consultancy fees) on an OTC prescription form, which can be presented for reimbursement after having purchased the OTC drug at the pharmacy.

c. Pharmaceuticals as an economic factor

The pharmaceutical industry is one of Europe's key markets. As mentioned in chapter 1, it generates a yearly turnover of about 190 billion euros in Europe and provides jobs for roughly 690,000 employees (figures for 2012 and 2013). Additionally, a substantial number of people are working in the public health care sector (e.g. some 150,000 people as pharmaceutical personnel alone in German community pharmacies [4]). Where pharmaceuticals promote health in any way, expenditures on pharmaceutical products appear to be justified. A proper use of, e.g. OTC drugs, may not only save costs for health insurance companies but also supports the health economy. However, according to the results in chapter 5, there might be an undersupply of OTC drugs especially in the socioeconomically lowest stratum of the (paediatric) population. Closing this supply gap could bring further revenues to the health economy and at the same time a health benefit to those who are presumably using fewer drugs than actually needed or at least recommended. However, market mechanisms have to make sure that OTC drugs as well as generic or innovative prescription drugs also remain affordable in the future, if necessary regulated by political measures.

d. Harmonization of supply with medicinal products across the European Union

Health and access to healthcare services such as treatment with medicinal products are high values that should not be limited by national borders and, undoubtedly, a healthy population is also an important pillar of a productive and prosperous society.

The European Union promotes freedom of movement for goods, workers, services, and capital. Not least against the background of the new EU directive on patients' rights in cross-border health care, it may not appear very meaningful if different rules apply for the same medicinal products across the various EU member countries, e.g. with regard to the classification of drugs into freely available, presciption only status, or narcotics, but also with regard to the coverage of medicinal products by social security. The case of emergency contraceptives (chapter 8) suggests that a centralized recommendation by the European Medicines Agency (EMA) can strongly contribute to harmonization of, e.g., the legal status of a medicinal product across the EU member countries. Therefore, centralized drug supply standards may help to reduce disparities between EU countries with regard to access to medicinal products (which, in a certain sense, also represents a social inequality) and might contribute to further promote European integration.

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