

not only for the treatment of diseases associated with the respiratory tract, but also their prophylactics (for example, after staying in a large group of people in time seasonal illnesses).

SPECIAL PHARMACEUTICAL PACKAGING WITH FUNCTION OF «PROTECTION» FROM CHILDREN

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Introduction. As you know, children often show an increased interest in packaging with drugs and their contents. According to statistics from EU member states, it was found that every year more than 100,000 of child poisoning cases exactly tied with drug. Particularly subject to such poisoning are children aged 1 to 5 years. Still fifty years ago, in the USA, the state began to improve the type of drug packaging, when pediatricians started talking about the alarm about the numerous cases of drug poisoning and raised the question of the need to protect children from such dangers.

The first step was to reduce the number of tablets in a package. It did help decrease the severity of the poisoning, but the number of incidents remained the same. Then efforts were directed to that the package received "Protection" function.

In 1970, the United States received the «Poisons Prevention Packaging Act» (PPPA), the world's first normative act, which contained requirements for packaging that was safe for children. Special packaging must be manufactured in such a way that a child under the age of 5 years, will find it difficult to open and get out its toxic or dangerous to the health substance. At the same time, the use of the package should not be difficult for an adult.

PPPA also contains a list of substances that must be safely packed for children. In Europe, there are also documents containing such requirements and a list (for example, Directive 1999/45 / EC).

Aim. The aim of our work is to study modern packaging with the function of "protection" from children.

Materials and methods. During our research, we reviewed scientific publications in the pharmaceutical industry; analyzed the main international and European normative documents on the regulation of quality requirements and safety of packages with drugs for children.

Results and discussion. In last years, packaging developers have proposed a range of innovative drug packaging designs that provide protection from children's access:

Dial-Blister – the capsule can be pushed out only after the blister is turned to the correct position, align the capsule from the point of gap of the blister

Blister Peel-Push. In order to press out the tablet out of the blister through the foil, you must to remove the protective film from the corresponding segment.

Slide-Pack- Blister. Between the foil through which the tablet pressed out and cells with tablets laid protective plate. Only by moving the tablet exits.

Tear- Blister The tablet is not squeezed out of it, but get out when the segment is incised in a certain place.

Medi-Lock-Box. The packaging design is such that it can be opened only at the same time by pressing certain points (like opening the lock). In this case, it is calculated that for children's fingers such a task cannot be done.

Today there are standards – DIN EN ISO 8317 (Child-resistant packaging – Requirements and testing procedures for reclosable packages) and DIN EN 14375 (Child-resistant non-reclosable packaging for pharmaceutical products – Requirements and testing), which regulate the requirements for packaging of drugs safe for children. These documents are interesting because they control not only the safety of the packages for children, but also the convenience of using them for both adults and the aged

Conclusions. By developing new types of packaging, pharmaceutical manufacturers not only fulfill regulatory requirements, but also offer consumers important quality advantages. After all, modern packaging should in the first place ensure safety for children and at the same time be easy to use for the rest.