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DRUG REPURPOSING: OLDER DRUGS NEW TRICKS.

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ABSTRACT

Despite the massive investment in science, technology, clinical trials, pharmaceutical product development still costs at least 10 to 15 years and more than $500 million and 42 billion. Moreover the quantity of chemical, biological entities that have been approved by the U.S.FDA has been decreasing since the late 1990s. so to overcome this loss of productivity and economy drug repurposing plays a major role.Drug repurposing can also be named as drug reposioning,retasking or reprofiling.It means that those drugs that have been abandoned or not being used can be identified and used for new disease or ailment. Novel uses of existing drug cost much less to develop compared to new drug discovery and development. Recycling of old drug, recuing of shelf life and extending patients' lives makes drug repurposing an attractive form of discovering drug.Re- Profiling the existing drug for novel results could deliver the increased productivity that the industry needs while shifting the locus of production to biotechnological companies. The companies are increasingly using existing pharmacopoeia for reposioning candidate and thus there is success in it.

This repositioning studies has promised to be innovative computational methods for the identification of new opportunities for the use of old drugs. There are many examples of repurposed drugs whose additional indications were discovered serendipitously. For instance, buproprion (Wellbutrin) was originally developed to treat depression but found another use in smoking cessation (marketed as Zyban for this indication). Duloxetine (Cymbalta) was also developed to treat depression, but was hypothesized— based on mechanism of action, not serendipity—as a treatment for stress urinary incontinence. Also minoxidil is an example of such pathway. It was successfully developed and marketed for both indications. The purpose of this paper is to explain the role and need of drug repurposing in the healthcare system, its applications constraints and future prospects.

Keywords: drug repositioning, pharmacotherapies, recycling, FDA, drug discovery.