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PHARMACOECONOMICS – AN EXCLUSIVE DISCIPLINE ABOUT GIVING COST EFFECTIVE HEALTHCARE

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ABSTRACT

Pharmacoeconomics, a scientific discipline aims to achieve quality of life in minimum cost where pharmacist intervention studies in comparing value of drug or drug treatment to another helps in decreasing and necessary expenditure related to societal and Healthcare. The study design methodology includes analysis basic comparison with cost of illness, cost -minimization, cost -effectiveness, cost - benefit and cost -utility. The inputs (information) measured during the pharmacy service hours with the output (production units) like number of prescriptions dispensed or monitored patients. pharmacoeconomic discipline specialize pharmacist serves in resolving the issues concerning patients on choosing best medicine and therapy within their Limited financial plan. In the study many pharmaceutical companies shown interest and conduct this economic evaluation research studies having economic impact in Health care budget.

KEYWORDS: Pharmacoeconomics, pharmacist, Economic impact, cost-effectiveness analysis.

INTRODUCTION

The study and analysis of medication therapy's costs to society and healthcare systems is known as pharmacoeconomics. A relatively recent subfield of economics, pharmacoeconomics has only recently been identified in the scientific literature on economics since the 1960s. Health economics is the parent subject of pharmacoeconomics. When reviewing two medications that belong to the same therapeutic class, it can be very helpful in making decisions regarding cost and availability of the appropriate treatment to the appropriate patient at the appropriate time. It facilitates

the development of economic relationships by bringing together medication research, manufacturing, distribution, storage, cost, and consumer use. Numerous methodologies. including cost-benefit. costeffectiveness. cost-utility, and cost-minimization analysis, can be used to study pharmacoeconomics. Pharmacy practitioners and administrators will be able to make better, more informed judgments about the goods and services they offer if pharmacoeconomics is applied correctly these are summarized below in table no.1.

Table No.	1: Summar	y of pharma	coeconomic ana	lysis.
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Analysis	SUMMARY	ADVANTAGES	DISADVANTAGES
Cost minimization analysis	Evaluate the expenses of 2 or more alternatives that results in same health outcomes	makes it possible to compare the costs of comparable resources that offer Equivalent results in terms of efficacy and safety.	It is limited to comparisons of therapies that offer equivalent efficaciousness or benefits.
Cost effectiveness analysis	compares two or more health initiatives that are vying for the same resources and share a common goal.	helpful for evaluating both the monetary and health effects of several interventions on the same health result	Results in natural units have to be analysed independently and cannot be merged.
Cost benefit analysis	A methodical approach for weighing the possible	Costs and consequences are measured in the same	It's possible that decision-makers won't

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	costs and benefits of a given project or decision	units, making decisions clear and transparent.	agree with the findings or won't understand the evidence.
Cost utility analysis	incremental health gain, measured in quality- adjusted life years, is compared to the program's cost from a specific perspective.	Programs with similar non-monetary goals can be evaluated and compared using CUA.	Compared to clinical assessments, quality of life metrics are typically more arbitrary lacks the ability to record non- health consequences.

A brief note about these analyses

1. Cost minimization analysis

Cost-minimization analysis is a technique used mostly in the health sector to quantify and compare the expenses of various medical interventions. The two main constraints of this cost evaluation method are that costs must be calculated precisely and that it can only be used to evaluate therapies that offer the same benefits or efficacy. A decision-maker can then select the course of action that has the lowest overall cost. The process of cost assessment involves determining the viewpoint of the study, counting all of the resources that were utilized, and putting those numbers into tangible amounts.

Without considering patient preferences, medication allergies, or other mitigating conditions, the goal of CMA is to find the least expensive treatment alternative; the results are not given a monetary value. Since it is hard to prove that all treatment options provide the same results in practice, this kind of analysis is not very useful.

Comparisons aimed at minimizing costs typically compare various dosing methods, dosage intervals, or therapeutic substitutes.

Including all of the drug's administration expenses is necessary to ensure an accurate analysis. This covers extra costs that the patient bears as well as hard-toquantify expenses like nursing time. Just tally up the expenses for every therapy under consideration, then compare the sums. The least costly (minimum cost) is the one with the lowest sum.

Example: a prospective observational study was carried out in Ireland using cost minimization analysis. For tasks using trastuzumab SC and IV, active HCP time was noted. Using fully loaded salary costs, staff costs were computed. The human capital technique was used to compute the expenses associated with patients' lost productivity. In order to determine whether treatment pathway is more economical and efficient in terms of time spent by active healthcare professionals (HCPs), study compares the intravenous (IV) and SC therapy paths for trastuzumab two hospitals.

Result: Compared to trastuzumab IV treatment, which resulted in larger HCP time savings in both research sites, trastuzumab SC treatment has shown to be a more economical choice (seweryn et.al 2024).

2. Cost effectiveness analysis

An esteemed method for economic analysis, costeffectiveness analysis has been applied extensively to guide or rationalize decisions about the distribution of resources in the health sector. Increased focus on cost effectiveness has primarily benefited immunization programs, which provide highly effective services at a low cost. for instance, when choices are made regarding raising coverage goals, launching new vaccinations, and/or altering the tactics used in immunization programs as well as how to implement the findings of cost-effectiveness analysis. Program planners may want to consider both monetary and non-monetary incentives as part of those efforts to motivate managers to do costeffectiveness evaluations and use the findings.

An approach to economics that makes it possible to compare the costs and benefits of two or more different actions. The ratio of costs to effects is commonly used to express the CEA. In contrast to cost-benefit analysis (CBA), where benefits are ascribed monetary values, the effects in CEA do not necessarily need to be quantified.

EXAMPLE: According to a study conducted in Iran. The research was carried out between 2019 and 2020. This study addressed the health-care system as an entire entity. All knee replacement patients were included in the study. In Tehran, 203 patients were referred to Shafa Yahyaeian Hospital while 300 patients were referred to Rasoul Hospital. The purpose of the study was to examine the cost-effectiveness of rivaroxaban against enoxaparin for venous thromboembolism prevention in knee replacement patients.

Result

Rivaroxaban decreased the cost of knee replacement surgery while improving patients' quality of life. Since rivaroxaban was given orally and did not require constant monitoring, it would be less expensive for both the patient and the health system, and its use as a thrombo-prophylactic medicine following surgery was recommended.

3. Cost benefit analysis

cost-benefit analysis (CBA) expresses the costs and consequences in monetary terms.

Cost-benefit analysis (CBA) is a type of economic study where expenses and outcomes are stated in monetary terms.The term "cost-benefit analysis" (CBA) refers to the process of weighing a program's projected savings against its cost. Indirect costs of decreased productivity and diminished social contribution are included in the cost calculation, in addition to direct expenses. Reductions in morbidity and mortality can avert premature death, and this has the added benefit of saving money on medical expenses including hospital stays, doctor visits, prescription medication, and other related expenses.

EXAMPLE: A comprehensive cost analysis of a program in the United States for phenylketonuria, a congenital metabolic condition, revealed that the program's administration, confirmation testing, special diet for affected individuals, and screening of 660,000 babies came to a total of US\$1.39 million. The benefits amounted to US\$2.31 million, or US\$1.26 million for medical and other services and US\$1.05 million for avoided productivity loss. The ratio of benefit to cost was 2.31/1.39, or 1.66. Therefore, society gained US\$1.66 for every dollar invested(sacharow et.al., 2024).

Cost utility analysis

In a cost-utility analysis (CUA), the incremental health improvement measured in quality-adjusted life years (QALYs) is compared to the program's added cost from a specific perspective.

It is employed to calculate utility costs in terms of quantity and quality of life. Cost-utility analysis, as opposed to cost-benefit analysis, compares two distinct medications or medical procedures whose benefits could vary. Value for money is expressed in terms of a particular category of health outcome via cost utility analysis.

EXAMPLE

According to a cost-utility analysis of glaucoma conducted in United states, based on the findings of the Ocular Hypertension Treatment Study (OHTS), 37 treating all patients similar to the OHTS population with a 5% or greater annual risk of developing glaucoma would have an incremental cost-effectiveness ratio of US \$3670 per QALY as opposed to US \$42,430 per QALY if all patients with a 2% or greater annual risk were treated first. According to the same group's modelling, cost-effectiveness is also based on the patient's life expectancy overall(kennedy et.al., 2024).

CONCLUSION

Pharmacoeconomics study analysis with its merits and demerits guides to make decisions regarding the treatment and drugs itself for the patient who is limited to his financial resources. Expertise in this field will bring breakthrough financial advantages both to the patient and industry.

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