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# ASSESSMENT OF RATIONAL USE OF MEDICINES IN PEDIATRICS BY USING WHO CORE INDICATORS ON DRUG USE IN HOSPITALS OF PAKISTAN

[1]Dr. Sidra Khan, [2]Dr. Saman Habib, [2]Dr. Burhan Ahmad
[1]Jinnah Hospital Lahore, [2]Mayo Hospital Lahore.

**Abstract:**
*Aim: Silly medication use is particularly an explanation behind grimness and mortality in Paeds. To examine the example of medication, use in pediatrics outpatient branch of tertiary consideration clinics by utilizing WHO center medication use pointers, was the primary goal of this assessment cycle.*

*Methods: An elucidating cross-sectional investigation was intended to audit all out 2000 solutions from the pediatrics outpatient office of two tertiary consideration habitats of Mayo Hospital Lahore, Pakistan during May 2018 to April 2019. The information was gathered on standard center medication use marker structures for assessing WHO endorsing, tolerant consideration and wellbeing office markers. WHO has proclamated that perfect criteria have been used for observable inquiry against any of the points and SPSS programming has been used.*

*Results: Insights received for promoting the metrics found that the usual amount of pharmaceutical goods per solution was 4.27. Non-exclusive assistance was completely lacking, the experiences with microbial hostiles were 76.4%, infusions were up to 9.26% and 98.9% of the medicines approved by EDL). The patient care metrics showed a standard therapy period and a season spread of 2,76 min. and 22,27 seconds, with a total distribution of 94,66% of medicines. Both offices have a copy of the EDL and 92,5% of essential medications are in storage for the bureau's explicit indicators.*

*Conclusion: In the tertiary hospitals, several use of WHO center drug metrics has been shown to be non-adaptive. The consequence calls for WHO intercessions and instruction in objective drug usage by physicians, pharmacy professionals and patients.*

**Keywords:** *Pediatrics, WHO Indicators, Hospitals, Pakistan.*

**Corresponding author:**
**Dr. Sidra Khan,**
*Jinnah Hospital Lahore.*

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## INTRODUCTION:

The World Health Organization characterizes sedates as sound use: patients receive medications tailored to their therapeutic criteria within a suitable time period, with minimal costs for themselves and the network, in doses that fulfill their particular requirements [1]. Good treatment with herbal items is a vital aspect of the treatment of the patient and it is a reflection of the care that the medical facilities of each country offer for citizens. Meds being the basic some portion of treatment must be viewed as double-edged blade thus the insightful utilization of medications has raised concerns. In the last decade, considering the existence of a few laws, drugs have been used unreasonably [2]. WHO has estimated that more than half of the medicines funded, sold and acted are remotely targeted at placing the lives of patients at risk. The most extreme explanations behind the loose utilization of prescriptions are; polypharmacy, patient's self-drug, ill-advised usage of antimicrobials, over-utilization of the parenteral and recommending of prescriptions aside from the standard clinical guidelines, absence of analytic ability among doctors, the medication conveyance structure, confusion identified with drugs and benefit meaning mentality of medication selling organizations [3]. There is no question that unreasonable medication recommending and use is a worldwide predicament however this difficulty is escalated in developing nations because of restricted assets and deficient medication strategies [4]. Pakistan being a low pay nation is going through upsetting conditions of irresistible illnesses along with lack of meds, muddled wellbeing and medication strategy and capable guardians and at last these outcomes pushes the prescribers to recommend nonsensically when they experienced with such conditions particularly medication lack [5].

## METHODOLOGY:

The investigation was led in two public area tertiary consideration clinics of Lahore, the biggest city of Punjab, Pakistan. The two emergency clinics Mayo Hospital, Lahore and Mayo medical clinic covers the greater part populace of city and fringe regions. An elucidating cross-sectional investigation was intended to audit all out 2000 solutions from the pediatrics outpatient office of two tertiary consideration habitats of Mayo Hospital Lahore, Pakistan during May 2018 to April 2019. Pediatrics OPDs of these two medical clinics were taken into account. Mayo medical clinic is known for its significance in various zones of medical services and it is the most seasoned emergency clinic in Lahore, while Mayo Hospital, Lahore is newly set up and covers large outlying areas in Lahore and between 2000 and 2,500 people go through a regular examination every day. The display of tertiary care attention was examined by analyzing the main areas of discernible drug utilization, i.e. supporting, knowing what is more, well-being office metrics by means of an illuminating cross-sectional analysis. The essence of the administrations given by medical frameworks offered by Zhi and Zhang was decided through a record system. For each of the metrics the perfect record was set to 1. The discoveries closer or equivalent to 1 shown objective medication use. Then again, the qualities closer to 0 showed irrationality. 2200 solutions from the pediatrics OPD branch of every clinic were assessed reflectively, with respect to the absolute 34,500 solutions roughly, that were drawn up under a time span of a half year. To accumulate the information, foundational arbitrary examining strategy was followed. So as to maintain a strategic distance from prejudice, the solutions inside this a half year time frame were isolated into four quarters (1.6-month solutions in each quarter). In this way, 550 solutions were arbitrarily picked from each quarter.

**Table 1:**

| Author, Year | Study Design | Study Population | Anticoagulated Patients/ Controls, n | Age, y | Follow-up, mo | Duration of Anticoagulation, mo | Type of Anticoagulation | Indexes of LC Severity | PVT Recanalization | PVT Unchanged | PVT Extension | Bleeding Outcomes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Francoz, 2005[10] | P CS | Patients with cirrhosis listed for transplantation | 19 treated | 49 | 36 | 8.1 | LMWH (Nadroparin 5700 UI/d) followed by acenocumarol (INR target 2.5) | MELD: 13.0 (overall) CTP: A=26% B=41% C=33% | 8/19 | 10/19 | 1/19 | 1 postprocedural bleeding |
| | | | 10 untreated | | | - | - | | 0/10 | 4/10 | 6/10 | None reported |
| Garcovich, 2011[11] | R CS | Patients with cirrhosis with nonmalignant PVT | 15 treated | NR | 6 | 3–6 | LMWH | Only CTP A and B | 7/15 | NR | NR | NR |
| | | | 15 untreated | | | - | - | | 5/15 | | | |
| Senzolo, 2012[12] | P CS | Patients with cirrhosis with nonmalignant PVT | 35 treated[a] | 55.5 | 24 | 6 | LMWH (Nadroparin 95 antiXa U/kg body weight td) | MELD: 12.6 CTP: A=11; B=16; C=8. | 12/33 complete 9/33 partial (>50%) | 7/33 | 5/33 | 1 cerebral, 1 epistaxis, 1 hematuria, 1 variceal |
| | | | 21 untreated | 52.3 | | - | - | MELD: 13.7 CTP: A=5; B=9; C=7. | 1/21 | NR | 15/21 | 5 variceal |
| Cai, 2013[13] | R CS | Patients with hypersplenism caused by cirrhotic portal hypertension underwent to partial splenic embolization | 5 treated | 52.8 | 37 | 3 | 2 pts: LMWH (Nadroparin 85 IU/Kg every 12h) 3 pts: warfarin | CTP: A=4; B=1; C=0. | 4/5 all complete | 1/5 | 0/5 | None reported |
| | | | 6 untreated | | | - | - | CTP: A=2; B=4; C=0. | NR | NR | 2/6 | 1 variceal, 1 variceal with hematemesis, 1 melena |
| Chung, 2014[14] | R CS | Patients with cirrhosis with nonmalignant PVT | 14 treated | 59.4 | 4 | 3.7 | Warfarin | CTP: A=6; B=8; C=0. | 11/14 (6 complete, 5 partial) | 2/14 | 1/14 | None reported |
| | | | 14 untreated | 58.7 | | - | - | CTP: A=7; B=6; C=1. | 5/14 (3 complete and 2 partial) | 2/14 | 3/14 | 1 variceal, 1 subarachnoid hemorrhage |
| Risso, 2014[15] | R | Patients with cirrhosis with nonmalignant PVT liver transplantation | 50 treated | NR | NR | NR | NR | NR | 35/50 | NR | NR | 17% all minor bleeding |
| | | | 20 untreated | | | - | | NR | 8/20 | NR | NR | NR |
| Chen, 2015[16] | R CS | Patients with cirrhosis with nonmalignant PVT | 30 treated | 44.9 | 33 | 7.6 | Warfarin | MELD: 9.9 CTP: 7.68 | 15/22 | 4/22 | 3/22 | 4 hematemesis/ melena, 1 epistaxis, 3 gingival |
| | | | 36 untreated | 47.8 | | - | - | MELD: 8.9 CTP: 7.71 | 4/16 | 6/16 | 6/16 | None reported |

**Table 2:**

| National medicines policies and strategies (numbers in parenthesis refer to the number of countries contributing data to each analysis) | % of primary care cases receiving antibiotics | % of upper respiratory infection cases given ABs | % of acute diarrhea cases that received antibiotics | % of cases not needing antibiotics that received them (inappropriate use) |
|---|---|---|---|---|
| **National policies** | | | | |
| 1  National strategy to contain antibiotic resistance (n = 35, 25, 23, 18) | -3.4 | -15.3* | -30.7* | -2.7 |
| Educational policies | | | | |
| 2  Undergraduate training of doctors on the Standard Treatment Guidelines (n = 28, 21, 20, 17) | -4.1 | -17.9 | -13.5 | -7.5 |
| 3  Undergraduate training of nurses on the Standard Treatment Guidelines (n = 27, 20, 20, 16) | -1.9 | -14.3 | -5.8 | -7.0 |
| 4  Public education on antibiotics in last 2 years (n = 38, 28, 27, 17) | -1.1 | -19.5 | -8.8 | -4.0 |
| **Managerial Policies** | | | | |
| 5  National Essential Medicines List updated in the last 2 years (n = 32, 24, 23, 17) | -3.9 | -8.6 | -3.7 | -7.6 |
| 6  National Formulary updated in the last 5 years (n = 43, 31, 28, 22) | -4.8 | -11.9 | -4.9 | -2.4 |
| Economic Policies | | | | |
| 7  No Drug sales revenue used to supplement prescriber income^ (n = 40, 29, 28, 20) | -2.6 | -7.6 | -13.7* | -11.9 |
| 8  Drugs dispensed free of charge to all patients (n = 40, 29, 26, 20) | -6.4 | -12.5 | -18.8* | -19.7 |
| 9  Drugs dispensed free of charge to patients < 5 years (n = 38, 28, 24, 18) | -4.5 | -11.3 | -10.0 | -13.5 |
| **Regulatory policies** | | | | |
| 10  Antibiotics not available over-the-counter* (n = 41, 30, 28, 21) | -1.8 | +2.2 | -12.1 | -11.3 |
| 11  Joint regulation of drug promotion by government and industry (as opposed to regulation by government alone) (n = 40, 29, 27, 21) | -2.0 | -5.0 | -3.0 | -13.0 |
| **Administrative/Structural policies** | | | | |
| 12  National MOH unit on promoting rational use of medicines (n = 35, 26, 25, 21) | -5.1 | -22.2* | -18.1* | +4.2 |
| 13  Half or more of all general hospitals have a Drug and Therapeutic Committee^ (n = 36, 26, 25, 18) | -0.9 | -25.3* | -1.4 | -7.1 |
| 14  Half or more of all provinces/districts have a Drug and Therapeutic Committee^ (n = 35, 25, 23, 19) | -8.2 | -21.2 | -0.5 | -1.4 |
| 15  Presence of National Drug Information Centre (n = 37, 27, 24, 21) | -10.2 | -25.1* | -6.9 | -8.5 |
| **Human resource policies** | | | | |
| 16  No prescribing by staff with less than one month's training in public primary care^ (n = 35, 25, 24, 17) | -2.6 | -3.1 | -5.4 | +0.1 |

^ Graded response converted to a "yes/no" response.

* p< 0.05. Note: these P values are not corrected for multiple testing and are presented here to help identify patterns in the data not to test hypotheses regarding the relative effectiveness of the different policies.

**RESULTS:**

On normal 4.27 medications were endorsed per singular (SD = 2.7), nonexclusive endorsing was missing totally, 78.5% solutions contained an anti-infection, infusions were embraced up to 9.28% and 96.9% of the medications were endorsed as per Essential Drugs List (Table 2). It was 1,76 minutes for the usual conference time; 23,35 minutes, 95,66% for the medicines were delivered in actual terms in the chosen offices; the name of the solution was remarkably 100%. The patient's correct dose plan details, however, was 18.8 percent (Table 3). The

chosen offices reported that a copy of EDL was available and that 93.6% of Essential medicines were

available. Neither office had its own EDL or Type (Table 4), neither had a specific form (Table 4).

**Table 3:**

| OPD wards | Prescribing indicators | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Average drugs/ encounter | | % drugs prescribed by generic name | | % encounters with an antibiotic prescribed | | % encounters with an injection prescribed | | % drugs prescribed from EDL/formulary | |
| | BVH | Civil | BVH | Civil | BVH | Civil | BVH | Civil | BVH | Civil |
| Gynecology | 3.1 | 2.8 | 66.0 | 51.3 | 38.0 | 43.3 | 0.0 | 0.0 | 100 | 87.1 |
| Ophthalmology | 1.2 | 1.6 | 28.2 | 84.1 | 48.0 | 71.6 | 0.0 | 0.0 | 100 | 99.4 |
| Dermatology | 2.2 | 2.8 | 44.2 | 54.4 | 48.0 | 35.0 | 0.0 | 0.0 | 100 | 98.8 |
| ENT | 3.2 | 2.8 | 72.5 | 62.2 | 80.0 | 55.8 | 0.0 | 0.0 | 100 | 100 |
| Surgery | 3.2 | 2.7 | 62.5 | 55.7 | 86.0 | 28.3 | 0.0 | 0.0 | 100 | 99.3 |
| Pulmonology | 3.7 | 2.0 | 55.6 | 56.0 | 54.1 | 6.6 | 0.0 | 0.0 | 100 | 98.3 |
| Dental | 2.8 | 2.5 | 45.1 | 39.3 | 95.0 | 95.0 | 0.0 | 0.0 | 100 | 99.7 |
| Cardiology | 4.6 | 4.1 | 52.8 | 67.0 | 0.0 | 10.0 | 0.0 | 0.0 | 100 | 95.5 |
| Pediatrics | 2.5 | 3.0 | 57.4 | 53.5 | 65.0 | 84.1 | 0.0 | 0.0 | 100 | 98.9 |
| Medical | 3.2 | 2.5 | 65.1 | 58.6 | 39.0 | 47.5 | 0.0 | 0.0 | 100 | 100 |
| Mean | 3.0 | 2.7 | 54.9 | 58.2 | 55.3 | 47.7 | 0.0 | 0.0 | 100 | 97.7 |
| MEAN (SD)[a] | 2.8 (1.3) | | 56.6 (1.2) | | 51.5 (0.5) | | 0.0 (0.0) | | 98.8 (1.3) | |

[a]Calculated based on the total sample size, *OPD* outpatient department, *EDL* essential drugs list, *BVH* Bahawal Victoria Hospital, *ENT*, ear, nose & throat

**Table 4:**

| Percentage of drugs prescribed by generic name | Percentage of encounters with an antibiotic | Percentage encounters an inje prescribed |
|---|---|---|
| 0% | 82.8% | 6.7% |
| 0% | 70% | 9.8% |
| 0% | 76.4% | 8.25% |

time was presented to dispensing time was actually dispensed in

the selected facilities; pr surprisingly 100%. Ho knowledge about correct % (Table 3).

**DISCUSSION:**

The findings revealed that in Mayo Hospital (office 1), the usual number of drugs per solution was 4.24 and in Mayo Hospital, Lahore (office 2) was 3.2 while, according to WHO, the optimal value range of regular tranquilizations is 1.7-1.9. This imaginable polypharmacy can be explained in many ways [6]. In the case of a sample, the practitioner would be timid

because professional practice guidelines are unavailable, research details are unreliable and the correct medications are not correct too [7]. There was no particular recommendation, although the WHO notes that medicine should be 100% accepted by its non-exclusive titles. A comparative report acted in Yemen portrayed that the normal number of drugs per individual were 3.9 and nonexclusive endorsing was

38.4% [8]. The endorsing of anti-toxins in office 1 was 83.9% and in office 2 was 73% while the, infusions were supported in office 1 up to 6.7% and in office 2 up to 9.8%. The ideal worth extents given by WHO is (24.1- 27.9) for anti-toxins and (13.4-24.1) for infusions [9]. Comparative investigations were done in different pieces of the globe, as in Nigeria, the level of endorsed anti-infection agents and infusions was 35.3% and 9% separately. In Brazil, the level of endorsed anti-infection was 22.5% furthermore, level of infusions endorsed was 9.4%. Nonsensical utilization of hostile to microbial is a boundless difficulty that winds up to unfriendly medication responses and expanded grimness [10].

## CONCLUSION:

The discoveries of the investigation made us reach to a end that nonsensical utilization of prescriptions in Paeds is the critical reason for expanded dismalness and death rate. The pediatric wellbeing care suppliers need to comprehend and actualize mediations so as to decrease this preventable damage from unreasonable utilization of medications. Sequential preparing and instructive meetings for the clinical staff, examination of specialists' recommending example and abidance of refreshed clinical rules is recommended so as to authorize judiciously. Also, we recommend delegating drug specialists in every clinic for sufficient conveying of drugs and improving the patient's information with respect to drugs use.

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