

STUDY ON PRIORITY AND MISUSED DRUGS

Submitted To
USAID/USP
USA



PHARMACEUTICAL HORIZON OF NEPAL (PHON)

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November, 1998

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ACKNOWLEDGEMENTS

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Acknowledgements

We are grateful to USAID/USP, Washington D.C for the financial support to conduct the study. We would like to express our sincere thanks to Dr. Keith Johnson, Vice President, USP and Ms. Nancy Blum Coordinator of International Programs, USP for taking keen interest in the proposal and for having study done through PHON. We also express sincere thanks to Mr. James Bates, ex-Director, RPM Project for taking keen interest in initiating this study.

Our thanks are also due to Mr. Shiba B. Karkee for his valuable contribution during the formulation of the study proposal. We express our sincere thanks to our organization members Mr. B.B.Thapa and Mr. R.R.Prasad for their help in preparing the report.

Last but not the least, we would like to thank Mrs. Jyoti Shrestha for editing and Mr. Govinda Maharjan for typing the report.

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EXECUTIVE SUMMARY

The specific objectives of this study were to find out the:

- use of priority drugs by qualified prescribers at health facilities and private sector;*
- use of inappropriate drugs by qualified prescribers at health facilities and private sector;*
- use of ineffective drugs by qualified prescribers at health facilities and private sector;*
- use of needlessly expensive drugs by qualified prescribers at health facilities and private sector;*
- use of harmful drugs by qualified prescribers at health facilities and private sector;*
- drug use for diarrhoea, ARI, anaemia in pregnancy and STDs by qualified prescribers at health facilities and private sector;*
- drug use for diarrhoea, worm infestation, cough, pneumonia, weakness, typhoid, TB, anaemia in pregnancy, bronchial asthma, joint pain, syphilis and gonorrhoea by unqualified practitioners at private practice.*

Methodology

The study included qualified prescribers and unqualified practitioners from Kathmandu valley, regions, zones and districts. The study covered hospitals, health posts, subhealth posts and private clinics. The study had four central level hospitals, two regional hospitals, three zonal hospitals, six district hospitals, 18 health posts and 18 subhealth posts. The central and regional hospitals were purposively selected. The zonal hospitals were randomly selected whereas district hospitals and health posts were stratified and randomised. The subhealth posts were selected near the health posts. The study also included ten percent of private practising medical doctors and paramedicals from Kathmandu valley, regions, zones and districts. The study had ten percent of practising unqualified practitioners from the same selected levels.

The number of encounters from public sector facilities was 3,742 whereas it was 975 encounters at private sector. The methodology for unqualified practitioners included interview and Focus Group Discussions (FGDs). The number of interview was 109 and 12 FGDs were conducted.

Results

- average number of drugs in public sector is less than private sector
- 51 % of drugs prescribed was priority drugs. Twelve percent, 4 %, 3 % and 0.3 % of drugs prescribed was inappropriate, ineffective, needlessly expensive and harmful drugs respectively.
- prescribing practices of qualified prescribers for diarrhoea at public and private sector showed about 57% encounters received ORS combined with antimicrobials or antidiarrhoeals. However, ORS alone was prescribed only to three percent of encounters in public sector but none in private sector.
- prescribing practices of qualified prescribers for ARI at public and private sector showed about 70% encounters received antibacterials combined with antipyretic/analgesic or cold preparations or other drugs. However, antibacterials alone was prescribed to 15% of encounters in public sector and 5% of encounters in private sector.
- prescribing practices of qualified prescribers in pregnancy showed about 30% encounters received iron preparations in public sector but none in private sector.
- usual recommendation of 25% of unqualified practitioners for diarrhoea was ORS.
- usual recommendation of 55% of unqualified practitioners for pneumonia was antibacterials.
- the usual recommendation of 85% of unqualified practitioners for worm infestation was broad spectrum anthelmintics.
- usual recommendation of 50% of unqualified practitioners for typhoid was chloramphenicol and ciprofloxacin. Twenty percent of unqualified practitioners referred typhoid cases.
- usual recommendation of 80% of unqualified practitioners for anaemia in pregnancy was iron preparations.
- usual recommendation of 80% of unqualified practitioners for asthma was bronchodilators.
- the usual recommendation of 50% of unqualified practitioners for cough was expectorants.
- usual recommendation of 65% of unqualified practitioners for weakness was vitamin Bcomplex.
- usual recommendation of about 60% of unqualified practitioners for pulmonary tuberculosis was referral.
- the usual recommendation of about 90% of unqualified practitioners for joint pain was anti-inflammatory drugs.
- usual recommendation of about 35% of unqualified practitioners for syphilis and gonorrhoea was penicillins.

The findings from FGDs were consistent with findings from interview.

1. INTRODUCTION

There is a couple of studies done on drug use, mostly at Health Posts, Sub-health Posts and Central-level Hospitals in Nepal (1,2,3). There are, however, only two studies done on prescribing practices of medical professionals in the private practice (4,5). But there is hardly any study done so far to show prescribing practices at District, Regional and Zonal-level hospitals. Similarly, there is no study done to see the prescribing habits of unqualified practitioners. Unqualified people share a large proportion of drug recommendation in Nepal. About 65% of sick population obtain medication from unqualified practitioners (6).

2. OBJECTIVES

The objectives of the study were to find out the prescribing practices of qualified prescribers at different levels and sectors and drug recommendation of unqualified practitioners at private sector.

The specific objectives of this study were to find out the:

- use of priority drugs by qualified prescribers at health facilities and private sector;
- use of inappropriate drugs by qualified prescribers at health facilities and private sector;
- use of ineffective drugs by qualified prescribers at health facilities and private sector;
- use of needlessly expensive drugs by qualified prescribers at health facilities and private sector;
- use of harmful drugs by qualified prescribers at health facilities and private sector;
- drug use for diarrhoea, ARI, anaemia in pregnancy and STDs by qualified prescribers at health facilities and private sector;
- drug use for diarrhoea, worm infestation, cough, pneumonia, weakness, typhoid, TB, anemia in pregnancy, bronchial asthma, joint pain, syphilis and gonorrhea by unqualified practitioners at private practice.

ARI

3. SIGNIFICANCE OF THE STUDY

The findings of the study will be useful in strategy development for improving practices of qualified and unqualified practitioners.

4. METHODOLOGY

4.1 Overall Approach and Study Design

The study was analytical and assessed the prescribing practices of the qualified prescribers at health facilities as well as private sectors, and unqualified practitioners at private sector using interview and Focus Group Discussion (FGD).

4.2 Sample Selection

The study had purposively selected four central level hospitals from the Kathmandu valley and two regional hospitals. The study also included randomly selected three zonal hospitals; stratified and randomized six district hospitals, and three randomly selected health posts and three sub-health posts near the health posts from each selected district.

The study selected ten percent of private practicing medical doctors, paramedical and unqualified practitioners from the Kathmandu valley, and from the selected regions, zones and districts.

The study included at least ten encounters from each qualified prescriber at private sector.

The study used encounters for collecting data for qualified prescribers from health facilities and private sector. Interviews and Focus Group Discussions were used for collecting data from unqualified practitioners.

The number of encounters from the selected health facilities and qualified private practitioners are listed. (Table I and II) Similarly, the number of interviews from unqualified practitioners is also tabulated. (Table III)

Table: I Health Facilities and Encounters

Level of Health Facility	Name of Health Facility	Number of Encounters
Central (Kathmandu Valley)	Bir Hospital, Kathmandu	198
	TU Teaching Hospital, Kathmandu	213
	Kanti Childrens Hospital, Kathmandu	200
	Maternity Hospital, Kathmandu	200
Regional Hospital	Koshi Regional Hospital, Biratnagar	305
	Gandaki Regional Hospital, Pokhara	305
Zonal Hospital	Mechi Zonal Hospital, Bhadrapur	208
	Sagarmatha Zonal Hospital, Rajbiraj	203
	Lumbini Zonal Hospital, Butwal	223
District Hospital	Ilam Hospital, Ilam	100
	Sunsari Hospital, Inaruwa	102
	Nuwakot Hospital, Trisuli	99
	Parbat Hospital, Kusma	97
	Dang Hospital, Ghorahi	104
	Jumla Hospital, Jumla	103
Health Post	Phikkal, Ilam	30
	Shakejung, Ilam	31
	Sulbung, Ilam	30
	Chatra - BarahaKshetra, Sunsari	30
	Madheli, Sunsari	30
	Ramnagar Bhutaha, Sunsari	30
	Bhadratar, Nuwakot	30
	Kaule, Nuwakot	25
	Nuwakot, Nuwakot	30
	Bajung, Parbat	33
	Tilahara, Parbat	22
	Pang, Parbat	31
	Laxmipur, Dang	31
	Manpur, Dang	29
	Shishuhaniya, Dang	31
	Hakum, Jumla	29
	Dipalgaun, Jumla	29
	Mahatgaun, Jumla	30
Sub-Health Post	Kanyam, Ilam	30
	Shanti Danda, Ilam	16
	Maipokhari, Ilam	47
	Bhasijhumka, Sunsari	32
	Gautampur, Sunsari	30
	Khanar, Sunsari	33
	Chaughada (bhadratar), Nuwakot	23
	Fikuri (Kauli), Nuwakot	25
	Gorkhu, Nuwakot	41
	Chitre, Parbat	28
	Durlung, Parbat	30
	Katuachaupari, Parbat	28
	Shonpur, Dang	31
	Rampur, Dang	30
	Narayanpur, Dang	31
	Talium, Jumla	28
	Garjyangkot, Jumla	30
	Lamra, Jumla	30
Total		3,742

Table: II Qualified Prescribers and Encounters at Private Sector *

Location	Category of Practitioners	Encounters
Central	1.Medical Doctors	392
	2.Paramedicals	117
Regional	1.Medical Doctors	77
	2.Paramedicals	80
Zonal	1.Medical Doctors	72
	2.Paramedicals	99
District	1.Medical Doctors	53
	2.Paramedicals	85

* Qualified prescribers may or may not providing services in public sector

Table: III Unqualified Practitioner at Private Sector

Location	Interview
Central	12
Regional	18
Zonal	32
District	47
Total	109

Twelve Focus Group Discussions (FGDs) were conducted including one each from the Kathmandu valley, and the selected regions, zones, and districts.

An Unqualified Prescriber has been defined as a practitioner other than Medical Doctors. Certificate in General Medicine and Community Medicine Auxilliary using modern medicine.

4.3 Coding

The drugs were coded as priority drugs inappropriate, ineffective, needlessly expensive and harmful drugs (7). (Annex I)

Priority drugs have been defined as the drugs categorized for different level of health facilities in the "Essential Drugs List of Nepal".

Inappropriate drugs have been defined as the drugs, which are not necessary or not useful.

Ineffective drugs have been defined as the drugs, which have been claimed to be effective but not effective.

Needlessly expensive drugs have been defined as the drugs, which are expensive, but having little therapeutic benefits or decreased side effects.

Harmful drugs have been defined as the drugs banned in Nepal.

4.4 Secondary Coding

The drugs prescribed by qualified prescribers for diarrhoea and ARI in children, anaemia in pregnancy and sexually transmitted diseases were coded (Annex II). The drugs usually recommended by the unqualified practitioners for diarrhoea, worm

infestation, cough, pneumonia, weakness, typhoid, TB in children and adult, and anaemia in pregnancy, asthma, joint pain, syphilis and gonorrhoea in adults were coded (Annex III).

4.5 Survey Organization and Implementation

Eleven teams conducted the study, each team consisting of one supervisor and two research assistants. Supervisors were from PHON, INRUD/Nepal and from Department of Health Services. The research assistants were either MBBS or Bachelor in Pharmacy students. The research assistants as well as supervisors were oriented to instruments by the study team. The data was collected in August 1997 and Jan 1998 from only Jumla (because of cancellation of flight during the rainy season).

4.6 Data Analysis

The data were entered into database software and analyzed. Data analysis included the calculation of percentage and calculation of average. The data are presented in the tabulated form.

5. RESULTS

5.1 Overall Data

Data were collected from the central, regional, zonal and district level health facilities. The total encounters from health facilities and private sector were 3,742 and 975 respectively. The total interview with unqualified practitioners was 109. Twelve Focus Group Discussions (FGDs) were conducted with unqualified practitioners. The drug use in health facilities and private sector showed mostly the use of priority drugs.

Table: IV Drug Use in Health Facilities and Private Sector

Total prescribed drugs	11,002	
Average number of drug in private sector	2.7	✓
Average number of drug in public sector	2.3	✓
Harmful drugs (%)	0.3	✓
Inappropriate drugs (%)	12.4	✓
Ineffective drugs (%)	4.5	✓
Needlessly expensive drugs (%)	2.9	✓
Other drugs (%)	28.3	✓
Priority drugs (%)	51.6	✓
Percentage of encounters with an antibacterial	50.7	→

5.2. Prescribing Practices

5.2.1 Qualified prescribers at health facilities

The study showed more than 70 % priority drugs use in health post and sub-health posts where paramedicals are the prescribers. The use of inappropriate, ineffective,

needlessly expensive and harmful drugs was more in hospitals than in health posts and sub-health posts. The antibacterials use was more at district, health post and sub-health post levels than health facilities above those level (Table V).

Table: V Prescribing Practices of Qualified Prescribers at Health Facilities

	Central	Regional	Zonal	District	Health Post	Sub-Health Post	Average
Harmful(%)	0.2	0.1	0.1	0.3	0.0	0.1	0.1
Inappropriate(%)	13.0	11.1	13.4	15.3	6.0	7.3	11.1
Ineffective(%)	4.2	7.5	6.6	3.2	0.7	1.4	3.9
Needlessly Expensive(%)	3.8	4.5	2.2	1.2	0.3	0.4	2.1
Other drugs(%)	33.4	38.1	34.0	16.8	16.0	18.4	26.1
Priority (%)	45.4	38.7	43.7	63.2	77.0	72.4	56.7
Percentage of encounters with an antibacterial	41.4	38.0	49.2	61.7	58.6	58.9	51.3

5.2.2 Qualified prescribers at private sector

The use of priority drugs by paramedicals in private sector was less than fifty percent. The antibacterials use by paramedicals was usually higher than doctors (Table VI).

Table: VI Prescribing Practices of Qualified Prescribers at Private Sector

	Central Level		Regional Level		Zonal Level		District Level		Average
	Doctor	Paramedical	Doctor	Paramedical	Doctor	Paramedical	Doctor	Paramedical	
Harmful(%)	0.4	0.4	0.0	0.7	1.0	1.6	2.7	1.0	1.0
Inappropriate(%)	11.6	17.4	21.7	14.1	16.4	20.1	7.3	18.5	15.9
Ineffective(%)	4.3	6.1	7.2	4.4	5.6	3.3	3.5	4.2	4.8
Needlessly Expensive(%)	6.1	4.5	7.7	6.2	2.5	2.6	6.1	2.2	4.7
Other drugs(%)	38.7	28.4	30.7	30.5	35.5	21.3	19.5	24.6	28.7
Priority (%)	38.9	43.2	32.7	44.1	39.0	51.1	60.9	49.5	44.9
Percentage of encounters with an antibacterial	44.6	35.8	46.8	70.0	31.9	54.6	64.2	52.9	50.1

5.2.3 Qualified prescribers and encounters at public and private sector

Diarrhoea

Three percent of diarrhoeal cases received ORS alone; ORS combined with antimicrobials was prescribed to 20 % of cases; ORS combined with other drugs was prescribed to 18 % of cases; ORS combined with antimicrobials and other drugs was prescribed to 20 % of cases in public sector.

The prescribing practice of qualified practitioners at private sector showed ORS alone was not prescribed. ORS combined with other drugs was prescribed to 12 % of

cases; ORS combined with antimicrobials and other drugs was prescribed to 31 % of cases. (Table VII)

Table: VII Prescribing Practices of Qualified Prescribers at Health Facilities and Private Sector for Diarrhoea Encounters

Prescribed Drugs	Health Facilities(n=65)*	Private(n=14)*
Antimicrobial+Antidiarrhoeals+Other drugs	2.5	18.8
Antimicrobials + Other drugs	16.9	0.0
Antimicrobials alone	10.9	29.2
Antimicrobials + Antidiarrhoeals	7.7	0.0
ORS + Antimicrobials	20.0	0.0
ORS + Antimicrobials +Other drugs	20.5	31.3
ORS + Others drugs	18.5	12.6
ORS +Antidiarrhoeals	0.0	8.1
ORS alone	3.1	0.0

* n denotes number of diarrhoea encounters.

ARI

Fifteen percent of ARI cases were treated with antimicrobial alone. Antipyretics/analgesic combined with antibacterials was prescribed to 23% of cases. Antipyretics/analgesic combined with antibacterials and other drugs was prescribed to 31 % of cases. (Table VIII)

The prescribing practices of qualified prescribers at private sector showed 5% of ARI cases was treated with antibacterials alone; antipyretic/analgesic with antibacterials was prescribed to 30% of cases. Antipyretics/analgesic combined with antibacterials and other drugs was prescribed to 7% of cases. (Table VIII)

Table: VIII Prescribing Practices of Qualified Prescribers at Health Facilities and Private Sector for ARI Encounters

Prescribed Drugs	Health Facilities(n=64)*	Private(n=25*)
Antipyretic /Analgesic alone	1.6	2.4
Antipyretic/Analgesics+Antibacterials	23.4	29.8
Antipyretic /Analgesic +Antibacterials +Other drugs	31.3	7.1
Antibacterials + Corticosteroids + Others drugs	1.6	2.4
Antibacterials	15.6	5.5
Antibacterials+Cold Preparations	7.8	21.2
Antibacterials+Others drugs	9.4	9.5
Cold Preparations alone	3.0	12.5
Corticosteroids + Others drugs	1.6	2.4
Other drugs	4.8	7.2

*n denotes number of ARI encounters

Pregnancy

Iron preparations alone were prescribed to 33% of cases; Iron preparations combined with Vitamin B-complex were prescribed to 17% of cases and iron preparations combined with B-complex and other drugs were prescribed to 25% cases in public sector.

Iron preparations alone were not prescribed in the private sector. Iron preparations combined with B complex and other drugs were prescribed to 17% of cases. Vit B complex combined with other drugs was prescribed to 50% cases. (Table IX)

Table: IX Prescribing Practices of Qualified Prescribers at Health Facilities and Private Sector in Pregnancy Encounters

Prescribed Drugs	Health Facilities(n=11)*	Private(n=6)*
B complex + Others drugs	8.3	50.0
Iron Preparations + B complex	16.7	0.0
Iron Preparations	33.3	0.0 →
Iron Preparations+Bcomplex+Other drugs	25.0	16.7
Other drugs	0.0	33.3

*n denotes number of pregnancy encounters

Sexually Transmitted Diseases (STDs)

There was only one case of STDs encounter in public sector and penicillin was prescribed to this case.

5.2.4 Usual recommendations of unqualified practitioners at private sector

Diarrhoea

The usual recommendation for diarrhoea in children showed 28% recommending ORS; 37% recommended antimicrobials and 31% recommended ORS and antimicrobials.

The usual recommendation for diarrhoea in adult showed 21% recommending ORS; 38% recommended antimicrobials and 34% recommended ORS and antimicrobials. (Table X)

Table: X Usual Recommendation of Unqualified Practitioner at Private Sector for Diarrhoea (n=109) **

Drugs	Children(%)	Adult(%)
Antimicrobials	36.7	37.6
Antidiarrhoeals	0.00	2.8
Antidiarrhoeals/ Antimicrobials	1.9	1.9
Antimicrobials / Other drugs	0.9	0.0
ORS / Antidiarrhoeals / Antimicrobials	0.9	0.9
ORS / Antidiarrhoeals / Antimicrobials / Other drugs	0.00	0.9
ORS / Antimicrobials / Other drugs	0.00	0.9
ORS	28.4	21.1
ORS/Antimicrobials	31.2	33.9

**n denotes number of unqualified practitioners

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually recommended antimicrobials in acute diarrhoea in children. They mostly referred severe cases of diarrhoea in children to hospitals.

Pneumonia⁺

The usual recommendation for pneumonia in children showed, 58% recommending antibacterials; 7% recommended antibacterials and corticosteroids and, 13% referred the cases.

The usual recommendation for pneumonia in adults showed, 54% recommending antibacterials; 6% recommended antibacterials and corticosteroids and 15% referred cases. (Table XI)

Table: XI Usual Recommendation of Unqualified Practitioner at Private Sector for Pneumonia (n=109) **

Drugs	Children (%)	Adult (%)
Antipyretic Analgesics / Antibacterials	2.8	2.8
Antibacterials	57.7	54.1
Antibacterials /Corticosteroids	7.3	6.4
Antibacterials /Others drugs	4.6	5.5
Antibacterials/Corticosteroids/Other drugs	3.8	3.7
Cold preparations	0.9	0.9
Corticosteroids	1.8	0.9
Corticosteroids/Other drugs	0.9	0.0
Don't Know	4.6	10.1
Other drugs	3.0	0.9
Referral	12.6	14.7

** n denotes number of unqualified practitioners

⁺ Unqualified practitioners recognise the problem as pneumonia than ARI.

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually recommended antibacterials, antibacterials with antipyretic/analgesics, and vitamin B complex in pneumonia in children. They mostly referred serious children to hospitals.

Worm Infestation

The usual recommendation for worm infestation in children showed 37% recommending albendazole; 27% recommended mebendazole; 23% recommended pyrantel pamoate and 12 % recommended piperazine.

The usual recommendation for worm infestation in adults showed 54% recommending albendazole; 26% recommended mebendazole; 11% recommended pyrantel pamoate and 7% recommended piperazine. (Table XII)

Table: XII Usual Recommendation of Unqualified Practitioners at Private Sector for Worm Infestation (n=109) **

Drugs	Children (%)	Adult (%)
Albendazole	36.7	54.1
Albendazole/ Other drugs	0.9	0.0
Mebendazole	27.6	25.7
Mebendazole /Other drugs	0.0	1.8
Piperazine	11.9	7.3
Pyrantel Pamoate	22.9	11.1

** n denotes number of unqualified practitioners

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually recommended piperazine but unqualified practitioners in Kathmandu recommended albendazole and mebendazole in worm infestation. They also advised for stool test.

Typhoid

The usual recommendation for typhoid in children showed 41% recommending chloramphenicol; 11% recommended ciprofloxacin; 7% recommended cotrimoxazole and 19% referred the cases.

The usual recommendation for typhoid in adults showed 34% recommending chloramphenicol; 17% recommended ciprofloxacin; 4% recommended cotrimoxazole and 21% referred the cases.

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually recommended antibacterials, antipyretic/analgesics, and vitamin B complex in pneumonia in children. They mostly referred serious children to hospitals.

Worm Infestation

The usual recommendation for worm infestation in children showed 37% recommending albendazole; 27% recommended mebendazole; 23% recommended pyrantel pamoate and 12 % recommended piperazine.

The usual recommendation for worm infestation in adults showed 54% recommending albendazole; 26% recommended mebendazole; 11% recommended pyrantel pamoate and 7% recommended piperazine. (Table XII)

Table: XII Usual Recommendation of Unqualified Practitioners at Private Sector for Worm Infestation (n=109) **

Drugs	Children (%)	Adult (%)
Albendazole	36.7	54.1
Albendazole/ Other drugs	0.9	0.0
Mebendazole	27.6	25.7
Mebendazole /Other drugs	0.0	1.8
Piperazine	11.9	7.3
Pyrantel Pamoate	22.9	11.1

** n denotes number of unqualified practitioners

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually recommended piperazine but unqualified practitioners in Kathmandu recommended albendazole and mebendazole in worm infestation. They also advised for stool test.

Typhoid

The usual recommendation for typhoid in children showed 41% recommending chloramphenicol; 11% recommended ciprofloxacin; 7% recommended cotrimoxazole and 19% referred the cases.

The usual recommendation for typhoid in adults showed 34% recommending chloramphenicol; 17% recommended ciprofloxacin; 4% recommended cotrimoxazole and 21% referred the cases.

Table: XIII Usual Recommendation of Unqualified Practitioners at Private Sector for Typhoid (n=109) **

Drugs	Children %	Adult %
Chloramphenicol	41.3	33.9
Ciprofloxacin	11.0	17.4
Referral	19.3	21.1
Ciprofloxacin / Chloramphenicol	3.8	5.5
Cephalosporins	2.8	1.8
Penicillins	2.8	3.7
Cotrimoxazole	7.3	3.7
Don't Know	11.7	12.9

** n denotes number of unqualified practitioners

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually recommended chloramphenicol, ciprofloxacin and amoxycillin in typhoid but unqualified practitioners in Kathmandu referred to hospitals.

Anaemia in Pregnancy

The usual recommendation for anaemia in pregnancy showed 82% recommending iron preparations; 4% recommended vitamin B complex and iron preparations and 8% referred the cases. (Table XIV)

Table: XIV Usual Recommendation of Unqualified Practitioners at Private Sector for Anaemia in Pregnancy (n=109) **

Drugs	%
Don't Know	3.7
Iron Preparations	82.6
Iron/B complex	3.7
Iron/Other drugs	1.8
Referral	8.3

** n denotes number of unqualified practitioners

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually recommended iron preparations but unqualified practitioners in Kathmandu referred to hospitals in anaemia in pregnancy. They also advised nutrient food.

Asthma

The usual recommendation for asthma in adults showed 80% recommended bronchodilators; 6% recommended antibacterials and bronchodilators and 5% recommended corticosteroids and bronchodilators.

Table: XV Usual Recommendation of Unqualified Practitioner at Private Sector for Asthma (n=109) **

Drugs	%
Antibacterials	0.9
Antibacterials/Bronchodilators	6.4
Bronchodilators	79.8
Bronchodilators/Corticosteroids	4.6
Don't Know	3.7
Referral	4.6

** n denotes number of unqualified practitioners

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually recommended bronchodilators, cough syrup and antibacterials. They also advised for not smoking.

Cough

The usual recommendation for cough in children showed 50% recommending expectorants; 20% recommended cough suppressants and 6% recommended antibacterials.

The usual recommendation for cough in adults showed 72% recommending expectorants; 8% recommended cough suppressants and 5% recommended antibacterials alone. (Table XIV)

Table: XVI Usual Recommendation of Unqualified Practitioners at Private Sector for Cough (n=109) **

Drugs	Children %	Adult %
Anti-bacterials	6.4	4.6
Anti-bacterials / Other drugs	0.0	0.9
Antihistamines	0.9	0.9
Antihistamines / Antibacterials	0.9	0.9
Antihistamines / Other drugs	1.8	0.9
Expectorants	50.5	72.5
Expectorants / Other drugs	0.9	0.9
Expectorants /Cough Sedatives	0.9	0.0
Expectorants / Anti-bacterials	4.6	5.5
Others drugs	5.5	2.8
Referral	0.9	0.9
Cough Sedatives	20.2	8.3
Cough Sedatives/ Antibacterials	2.8	0.0
Cough Sedatives/ Other drugs	0.9	0.9
Do not know	1.8	0.0

** n denotes number of unqualified practitioners

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually recommended cough expectorants and rarely antibacterials in cough.

Weakness

The usual recommendation for weakness in children showed 64% recommending vitamin B complex; 17% recommended multivitamin preparations and 3% recommended B complex and other drugs.

The usual recommendation for weakness in adults showed 74% recommending B complex; 6% recommended Iron and B complex and 2% recommended multivitamins.

Table: XVII. Usual Recommendation of Unqualified Practitioners at Private Sector for Weakness (n=109) **

Drugs	Children (%)	Adult (%)
B complex	64.2	74.3
B complex / Others drugs	2.8	2.8
B complex/Multivitamins	0.0	0.9
Calcium preparations	2.0	0.0
Calcium preparations /Bcomplex/Other drugs	0.9	0.9
Calcium preparations /Multivitamins	0.0	0.9
Calcium preparations /Multivitamins/Bcomplex	0.9	0.0
Don't Know	1.8	0.9
Iron preparations /Multivitamins	0.0	1.9
Iron preparations /Others drugs	0.0	0.9
Iron preparations	0.9	2.8
Iron Preparations/Bcomplex	1.8	6.4
Multivitamins	19.2	1.8
Others drugs	0.9	0.0
Referral	4.6	5.5

** n denotes number of unqualified practitioners

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually recommended vitamin B complex and iron preparations, and advised for nutrient food.

Pulmonary Tuberculosis

The usual recommendation for pulmonary tuberculosis in children showed 62% referring the cases and 21% did not know the treatment.

The usual recommendation for pulmonary tuberculosis in adults showed 63% referring the cases and 18% did not know the treatment. (Table XVIII)

Table: XVIII Usual Recommendation of Unqualified Practitioners at Private Sector for Tuberculosis (n=109) **

Drugs	Children %	Adult %
Don't Know	21.1	18.9
Ethambutol/Pyrazinamide/Others drugs	1.0	0.9
Ethambutol/Streptomycin	0.9	0.0
Isoniazid/Rifampicin/Others drugs	0.0	0.9
Isoniazid	0.0	0.9
Isoniazid/Pyrazinamide	0.0	0.9
Isoniazid/Pyrazinamide / Ethambutol	0.0	0.9
Isoniazid/Streptomycin/Rifampicin	1.0	1.8
Referral	62.4	63.8
Rifampicin	1.8	0.9
Rifampicin/Ethambutol/Pyrazinamide	3.6	2.8
Rifampicin/Isoniazid	3.6	5.5
Rifampicin/Isoniazid /Ethambutol	3.6	1.8
Rifampicin/Others drugs	1.0	0.9

** n denotes number of unqualified practitioners

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually referred pulmonary tuberculosis.

Joint Pain

The usual recommendation for joint pain in adults showed 90% recommending anti-inflammatory drugs and 5% recommended anti inflammatory and other drugs(Table XIX).

Table: XIX Usual Recommendation of Unqualified Practitioners at Private Sector for Joint Pain (n=109) **

Drugs	%
Anti-inflammatory drugs	89.9
Don't know	2.8
Anti-inflammatory/Corticosteroids	0.9
Anti-inflammatory /Others drugs	5.5
Anti-inflammatory/Corticosteroids / Others drugs	0.9

** n denotes number of unqualified practitioners

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually recommended anti-inflammatory drugs for joint pain.

Syphilis

The usual recommendation for syphilis showed 38% recommending penicillins; 11% fluoroquinolones; 17% referred the cases and 30% did not know the treatment.(Table XX)

Table: XX Usual Recommendation of Unqualified Practitioners at Private Sector for Syphilis (n=109) **

Drugs	%
Penicillins	37.6
Fluoroquinolones	11.0
Tetracyclines	7.3
Others	7.5
Referral	17.4
Don't Know	12.8
Penicillins/ Fluoroquinolones	0.9
Tetracyclines /Penicillins	4.6
Tetracyclines/ others drugs	0.9

** n denotes number of unqualified practitioners

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually recommended penicillins and fluoroquinolones for syphilis.

Gonorrhoea

The usual recommendation for gonorrhoea showed 33% recommending penicillins; 14% recommended fluoroquinolones; 18% referred the cases and 14% did not know the treatment.(Table XXI)

Table: XXI Usual Recommendation of Unqualified Practitioners at Private Sector for Gonorrhoea (n=109) **

Drugs	%
Don't Know	14.7
Fluoroquinolones	13.8
Fluoroquinolones/ Other drugs	0.9
Others drugs	4.6
Penicillins	33.0
Penicillins/ Fluoroquinolones	1.8
Penicillins/Other drugs	2.7
Referral	19.4
Tetracyclines	6.4
Tetracyclines / Penicillins	1.8
Tetracyclines/ Penicillins/Other drugs	0.9

** n denotes number of unqualified practitioners

Finding from Focus Group Discussion

Focus Group Discussion with unqualified practitioners found that they usually recommended penicillins and fluoroquinolones for gonorrhoea.

Drug Use in Pregnancy

Finding from Focus Group Discussion

When unqualified practitioners were asked about drugs that they usually recommended in pregnancy, they stated paracetamol, vit.A and iron preparations. They also referred the cases.

6. DISCUSSION AND RECOMMENDATIONS

6.1 Discussion

The study shows that more drugs are prescribed in private sector than in public sector. Although practices shows mostly use of priority drugs and minimal use of needlessly expensive and harmful drugs, the use of priority drugs has been more in public sector than in private sector. On the other hand, use of inappropriate, ineffective, needlessly expensive and harmful drugs are more in private sector than in public sector.

The prescribing practices of qualified prescribers for diarrhoea shows ORS alone or ORS combined with antimicrobials or other drugs are more in public sector than in private sector. The private sector prescribing shows, antimicrobials alone or ORS combined with antidiarrhoeals being prescribed more than in public sector.

The usual recommendations of unqualified practitioners for diarrhoea is mostly antimicrobials or antimicrobials and ORS.

The prescribing practices of qualified prescribers for ARI shows antibacterials alone are prescribed more in public sector than in private sector. On the other hand, antibacterials combined with cold preparations are prescribed more in private sector than in public sector.

The usual recommendation of unqualified practitioners for pneumonia is mostly antibacterials. They also recommend antibacterials and corticosteroids.

The prescribing practices of qualified prescribers in pregnancy shows, iron preparations alone are prescribed in public sector whereas in private sector it is mostly Bcomplex and other drugs.

The usual recommendation of unqualified practitioners for anaemia in pregnancy is mostly iron preparations.

The usual recommendation of unqualified practitioners for worm infestation is mostly broad spectrum anthelmintics.

The usual recommendation of unqualified practitioners for typhoid is mostly chloramphenicol and ciprofloxacin. They also refer typhoid cases.

The usual recommendation of unqualified practitioners for asthma is mostly bronchodilators.

The usual recommendation of unqualified practitioners for cough is mostly expectorants.

The usual recommendation of unqualified practitioners for weakness in children is B complex or multivitamin but in adults it is B complex.

The usual recommendation of unqualified practitioners for pulmonary tuberculosis is referral. They say that even they do not know the treatment.

The usual recommendation of unqualified practitioners for joint pain is anti-inflammatory drugs.

The usual recommendations of unqualified practitioners for syphilis and gonorrhoea are penicillins or fluoroquinolones. They even refer or do not know the treatment for syphilis and gonorrhoea.

The findings from interview are consistent with FGDs with unqualified practitioners.

6.2 Recommendations

- The strategies should be tested and effective strategy should be implemented for improving use of priority drugs at district, zonal, regional and central hospitals.
- The inappropriate drugs should be identified and these drugs should be eliminated from the market by regulatory measure.
- The qualified prescribers at public and private sector should receive information about drugs through different media including electronic and printed materials.
- The unqualified practitioners should be made aware of harmful effects of drugs through training, meetings, seminars etc.
- The community should be made aware through teachers community leaders and health workers about the possible risk and unnecessary expenses because of use of harmful, expensive and ineffective drugs by unqualified practitioners.

7. CONCLUSION

There are differences in prescribing practices of qualified prescribers at public and private sector. The practices for common problems are better in public sector than at private sector. The unqualified practitioners recommend drugs for common problems and their usual practices include even the use of harmful, ineffective and expensive drugs.

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Annex: I

Priority drugs

Drugs included under Essential drug List (EDL), National List for Central Level Hospitals, Regional Level Hospitals and Zonal Level Hospitals; District List for District Level Hospitals; Health Post List for Health Post Level; Sub Health Post List for Sub health Post Level.

Inappropriate Drugs

Appetite Stimulant (e.g. cyproheptadine), Systemic Nasal Decongestants, Loperamide, Diphenoxylate + Atropine, Multi-ingredient Vitamins/Tonic, Disodium Hydrogen Citrate and B-complex

Ineffective Drugs

Cough Expectorants, Kaolin, Pectin, Attapulgit, Anabolic Steroids, Intestinal Enzymes, Lactobacillus, Pyritinol, Piracetam, Chymotrypsin, Serratiopeptidase

Needlessly Expensive Drugs

Expensive Antihistamines:	Cetirizine, Dexchlorpheniramine, Astemizole, Terfenadine.
Expensive NSAID:	Flurbiprofen, Naproxen, Piroxicam.
Expensive Antibiotics:	Amikacin, Nalidixic Acid, Cefotaxime, Ceftriaxone, Ceftrizoxim, Ceftazidime, Cefuroxime, Cefadroxil, Cefoperazone, Minocycline, Cefaclor etc

Harmful drugs

Banned Drugs in Nepal

Coding for Drugs Prescribed by Qualified Prescriber

Anaemia in Pregnancy

Iron preparations, Vitamin B-Complex, other drugs

ARI

Cold preparations, Antipyretic/analgesics, Anti-bacterials, Corticosteroids, other drugs.

Diarrhoea

ORS, Anti-diarrhoeals, Anti-microbials, Other drugs

STDs

Penicillins, Fluroquinolones, Tetracyclines, Other drugs



LIBRARY

Annex: III

Coding for Drugs recommended by Unqualified Practitioners

Diarrhoea

ORS, Anti-diarrhoeals, Anti-microbials, Other drugs

Worm Infestation

Piperazine, Pyrantel pamoate, Albendazole, Mebendazole, Other drugs

Cough

Expectorants, Cough Sedatives, Antihistamines, Antibacterials, Other drugs,

ARI (Pneumonia)

Cold Preparations, Antipyretics/Analgesics, Antibacterials, Corticosteroids, Other drugs.

Weakness

B-Complex, Calcium preparations, Iron preparations, Multivitamins, Other drugs, referral

Typhoid

Chloramphenicol, Ciprofloxacin, Cephalosporins, Penicillins, Cotrimoxazole, other antibacterials, other drugs, referral

Tuberculosis

Isoniazid , Rifampicin, Ethambutol, Pyrazinamide, Streptomycin, Other drugs, referral,

Anaemia in Pregnancy

Iron preparations, B-complex, Other drugs, referral

Asthma

Bronchodilators, Corticosteroids, Antihistamines, Other drugs, referral

Joint Pain

Anti-inflammatories, Corticosteroids, Others drugs, referral

Syphilis

Penicillins, Fluoroquinolone, Tetracyclines, Other drugs, referral

Gonorrhea

Penicillins, Fluoroquinolones , Tetracyclines, Other drugs, referral

Annex: IV

Questionnaire for Unqualified Practitioners

1. What time of year/month do you have the most patients for Diarrhoea?
2. What products do you prescribe most often for a child with diarrhoea?
 - Jeevan Jal
 - Normal Saline
 - Dextrose
 - Ringer's Lactate
 - Others (Specify)
 - Don't know
3. What products do you prescribe most often for an adult with diarrhoea?
 - Jeevan Jal
 - Normal Saline
 - Dextrose
 - Ringer's Lactate
 - Others (Specify)
 - Don't know
4. What products do you prescribe most often for a child with ascariasis?
 - Pipracite
 - Hexacide
 - Zentel
 - Nemocid
 - Others (specify)
 - Don't know
5. What products do you prescribe most often for an adult with ascariasis?
 - Pipracite
 - Hexacide
 - Zentel
 - Nemocid
 - Others (specify)
 - Don't know
6. What products do you prescribe most often for a child with cough?
 - Avil Expectorant
 - Phencodin
 - Solvin Expectorant
 - Others (Specify)
 - Don't know
7. What products do you prescribe most often for an adult with cough?
 - Avil Expectorant
 - Phencodin
 - Solvin Expectorant
 - Others (Specify)
 - Don't know

8. What products do you prescribe most often for a child with Pneumonia?
 - PPF
 - Hostacycline
 - Roscillin
 - Wymox
 - Others (Specify)
 - Don't know
9. What products do you prescribe most often for an adult with Pneumonia?
 - PPF
 - Hostacycline
 - Roscillin
 - Wymox
 - Others (Specify)
 - Don't know
10. What products do you prescribe most often for a child with weakness?
 - Polybion
 - Macalvit
 - Tonoferon
 - Ostocalcium
 - Others (Specify)
 - Don't know
11. What products do you prescribe most often for a pregnant woman with weakness?
 - Polybion
 - Denovo
 - Hemfer
 - J.P. Tone
 - Others (Specify)
 - Don't know
12. What products do you prescribe most often for a child with Typhoid?
 - Chloromycetin
 - Cefran
 - Septran
 - Others (Specify)
 - Don't know
13. What products do you prescribe most often for an adult with Typhoid?
 - Chloromycetin
 - Cefran
 - Septran
 - Others (Specify)
 - Don't know
14. What products do you prescribe most often for a child with lung Tuberculosis?
 - Isonex
 - Combutoi

- Reinex
 - Rifatar
 - Others (Specify)
 - Don't know
15. What products do you prescribe most often an adult with lung Tuberculosis?
- Isonex
 - CombutoI
 - Reinex
 - Rifatar
 - Others (Specify)
 - Don't know
16. What products do you prescribe most often for a pregnant woman with Anaemia?
- Fersolate
 - Anaemidox
 - Autrin
 - Fefol
 - Others (specify)
 - Don't know
17. What products do you prescribe most often for an adult with Asthma?
- Deriphyllin
 - Ephedrine
 - Asthallin
 - Others (specify)
 - Don't know
18. What products do you prescribe most often for an adult with Joint Pain?
- Brucet
 - Voveran
 - Brufen
 - Others (specify)
 - Don't know
19. What products do you prescribe most often for an adult with Syphilis?
- Penidure
 - PPF
 - Dox CTL
 - Others (Specify)
 - Don't know
20. What products do you prescribe most often for an adult with Gonorrhoea?
- Penidure
 - PPF
 - Cefran
 - Others (Specify)
 - Don't know

The choices are brand names of commonly used drugs.

Questionnaire for Focus Group Discussions(FGDs)

1. In your opinion, what are the common problems coming to you?
2. What products do you prescribe most often for a child with diarrhoea?
3. What other advice do you offer other than drugs for a child with diarrhoea?
4. What products do you prescribe most often for a child with cough and cold?
5. What other advice do you offer other than drugs for a child with cough and cold?
6. What products do you prescribe most often for a child with pneumonia?
7. What other advice do you offer other than drugs for a child with pneumonia?
8. What products do you prescribe most often for a pregnant woman?
9. What other advice do you offer other than drugs for a pregnant woman?
10. What products do you prescribe most often for a pregnant woman with anaemia?
11. What other advice do you offer other than drugs for a pregnant woman with anaemia?
12. What products do you prescribe most often for an adult with syphilis?
13. What products do you prescribe most often for an adult with gonorrhoea?
14. What products do you prescribe most often for worm infestation?
15. What other advice do you offer other than drugs for worm infestation?
16. What products do you prescribe most often for weakness?
17. What other advice do you offer other than drugs for weakness?
18. What products do you prescribe most often for typhoid?
19. What other advice do you offer other than drugs for typhoid?
20. What products do you prescribe most often for lung tuberculosis?
21. What other advice do you offer other than drugs for tuberculosis?
22. What products do you prescribe most often for asthma?
23. What other advice do you offer other than drugs for asthma?
24. What products do you prescribe most often for joint pain?
25. What other advice do you offer other than drugs for joint pain?