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A study on the antibiotic prescription
by
the informal health care providers in
Ujjain district, Madhya Pradesh

Introduction

- ✓ India is a country with wide disparities, and social inequalities. With a total population of 1210.2 million (Rural- 68%, according to census2011).
- ✓ The percentage of persons below the Poverty Line in 2011-12 has been estimated as 25.7% in rural areas, 13.7% in urban areas and 21.9% for the country as a whole.
- ✓ The health care delivery system in India comprises of Sub-Centres, Primary Health Centres, Community Health Centres, Sub- divisional hospital and District hospitals.
- ✓ There is shortfall of 43776 SCs (23%), 7954 PHCs (26%) and 3044 CHCs (40%) across the country as per the Rural Health Statistics (RHS) 2012.
- ✓ Informal (without formal training) healthcare providers are the dominant sources of healthcare services for rural population who are mostly poor.

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- ✓ Informal health care providers are without state accredited medical qualification and are not legalized to practice allopathic medicine.
 - ✓ Different types of informal health care providers identified in the community are: Community Health Visitor (CHV), Village Health Worker (VHW), Rural Medical Practitioner (RMP), traditional healers, compounders, patent medicine vendors etc.
 - ✓ There are three principal reasons for using IHCPs: convenience, affordability, and social and cultural effects.
 - ✓ Very little evidence is present on the quality of care provided by the IHCPs, there is a general acceptance that they provide substandard treatment.

Research Problem

Absence of regulatory framework and shortage of qualified healthcare providers in rural areas, gives opportunities to informal health care providers (without a formal education in medicine) to serve. Informal providers reported inadequate drug provision, poor adherence to clinical national guidelines, and that there were gaps in knowledge and provider practice. Studies on antibiotic prescription by informal healthcare providers are required to device effective policy interventions.

Review of Literature

- ✓ The study “On the role of informal providers in health care delivery”. Aim of the study was to bring further attention to the prevalence and practices of informal providers. Founded that IPs are relatively knowledgeable about certain care standards and undertake appropriate practice in some areas. Some governments have supported a growing formalization of their practices.
- ✓ In another study named “What Is the Role of Informal Healthcare Providers in Developing Countries? A Systematic Review” found that IPs reported inadequate drug provision, poor adherence to clinical national guidelines, there were gaps in knowledge and provider practice.
- ✓ According to a study “Quality of Informal Healthcare Providers in Rural Bangladesh: Implication in the Future Health System”. Inappropriate use of drugs is highly prevalent among the informal healthcare providers. This has impoverishing effects and life-threatening consequences for those who use their services. There is a need for interventions to reduce harmful and inappropriate practices.

Rationale of Study

Since, there is a growing concern about the dangers of healthcare practices among informal health care provider, leading to the emergence of antimicrobial resistance. It is important to improve the knowledge and accountability of informal health care providers, and to make their products and services more accessible, more affordable and safer, in order to reduce the irrational use of antibiotics; an energetic prompt action on the first, will tend to prevent the latter adverse outcomes. Greater attention needs to be given to the entire spectrum of informal health care providers practicing in the society.

Research Question

What is the antibiotic prescription pattern practiced by the informal providers in the rural areas in Ujjain District?

Hypothesis

Irrational use of antibiotic by the informal health care providers, who are not legalized to practice allopathic medicine, is leading to the emergence of antibiotic resistance and inadequate treatment of diseases leads to increase burden of the diseases, and increase risks for spreading of blood borne infections with the high use of injectable medicines.

Research Objectives

- ✓ To understand the treatment choices of informal providers for various diseases treated by them
- ✓ To describe the antibiotic prescribed in term of frequencies, its groups, and the route of administration.
- ✓ To understand the practice of which antibiotic is more frequent.
- ✓ To determine whether drugs they use may contribute to antibiotic resistance.

Methodology

- ✓ **Type of study:** Descriptive study
- ✓ **Location of the study :** Study was carried out in 12 villages from 3 blocks of Ujjain district (Mahidpur, Ghatiya and Tarana), Madhya Pradesh State, India, which were selected purposively.
- ✓ **Medium of instruction:** Hindi.
- ✓ **Variables :** Characteristic of informal healthcare providers(Age, Sex, Medical qualification, years of experience), Age group of patients treated, Type of illnesses treated, Number of antibiotic prescribed, Route of administration, strength and duration of antibiotics prescribed.
- ✓ **Target Population:** Informal health care providers.

- ✓ **Sampling** :Study was conducted from Jan 2012 to June 2012. Considering the time and the resources available, first a survey was undertaken to map the IHCP's currently present in the Ujjain district (unpublished results 2012-13). We found close to four thousand informal health care providers working in Ujjain. Among all the health workers in the selected 3 blocks of Ujjain district, 24 were approached and were handed a specifically designed prescription pad from which 18 returned the prescription. Itotal 2089 prescriptions for 2054 cases were studied.
- ✓ **Sources of data** : The secondary data which was collected by the project in charge Dr. Vishal Diwan about the antibiotics prescribed by the informal providers for various diseases treated by them was used.
- ✓ **Data collection tool**: Specially designed prescription pads were used. Each pad having 50 prescriptions, with a duplicate copy of each page, one to be handed to the patient and the other to be given to the research team at the end of the data collection period. Each prescription included space for the name of the patient, age, sex and the disease or symptoms, in addition space to record the antibiotics or other drugs they prescribed with the dose, route of administration and the duration of treatment. There was no external validation for the diagnosis. Prescription pads were supposed to be returned to the research team once they are full.

- ✓ **Data Process and Analysis:** Analysis was carried out using SPSS software version 18.0(SPSS, Inc., Chicago, IL) (2010d).Patients were given a special code, to filter the duplicated patients whenever needed. Age of the patients were recoded into age groups (0-5years, 6-15 years,16-45 years ,more than 45 years). Drugs were recoded into pharmacological groups [according to the WHO, Anatomical Therapeutic Chemical Classification System (ATC)] and recommended doses into correct dose, substandard (under-dose) and overdose. Illnesses treated were classified into new variable infectious (antibiotic plausible) and non infectious (were antibiotic treatment is not required). Frequency distributions of all variables were calculated and factors that could influence the treatment by informal health care providers were compared in terms of proportions. Tests of significance were done using chi-square to detect statistical significance.

Results

✓ **Characteristics of informal Health care providers in 12 villages of Ujjain districts:**

A total of 18 IHCPs returned the prescription pads, provided to them during the study. Among 18 IHCP, majority were the CHV (12). All the health workers were male. All were above 25 years of age and were literate having received at least primary education. 40% of the IHCPs were having more than 15 years of work experience.

- ✓ Informal care providers mean age in this study was higher than that identified in other studies. Providers older than 35 years were prescribing more numbers of antibiotics ($p \text{ value} < 0.01$) compared to the younger than 35 years as showed in this study. However from different point of view, those providers were the most experienced with regard to years of practice ($p \text{ value} < 0.01$). It is clear that the experience without relevant education is not consequential for better practice.

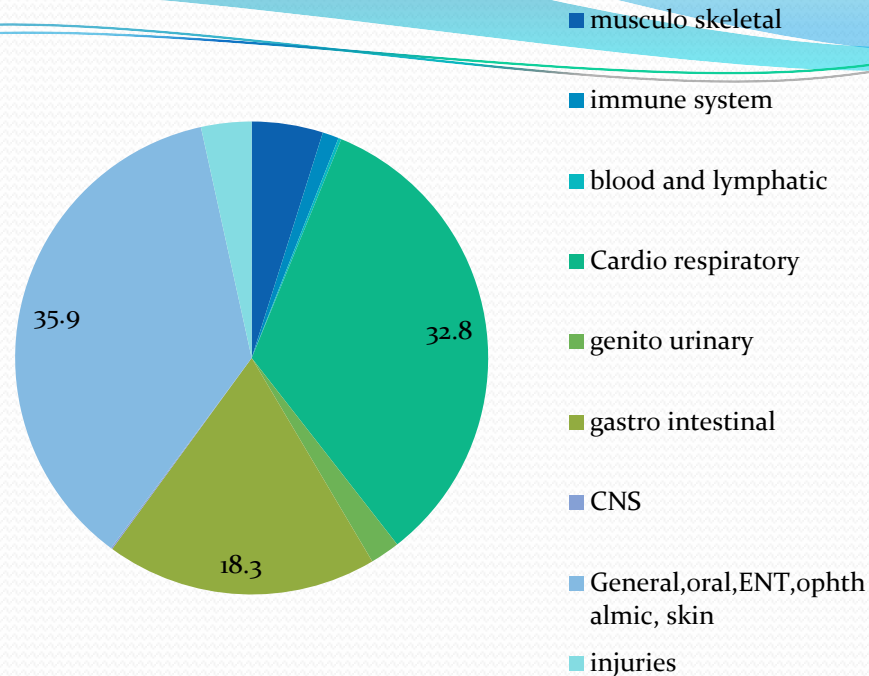
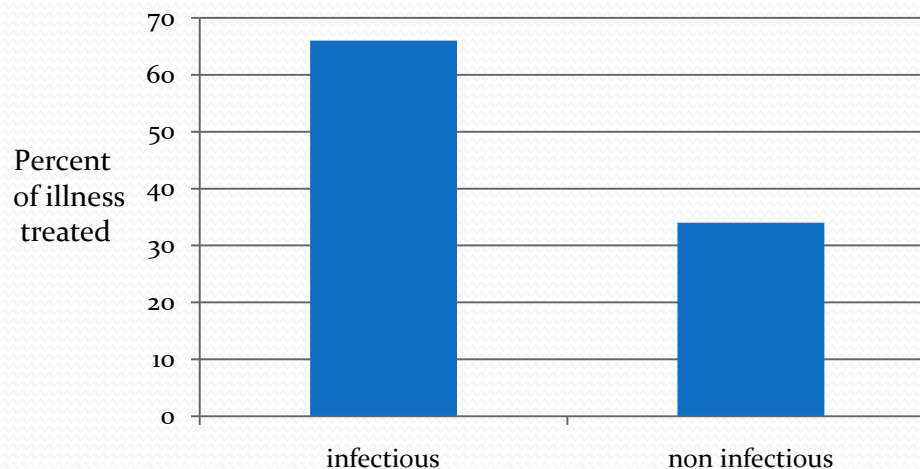


Fig: Percentage of illnesses treated and categorized according to body system

✓ **Characteristic of patients and the illnesses treated by the informal Health care providers:**

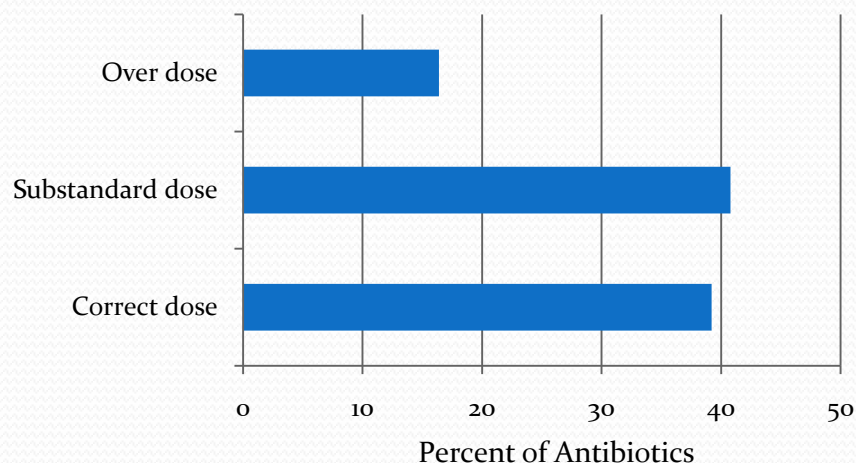
Patient age was recoded into four age groups. 46% of the patients treated were in the middle age group (16to45). Children treated were 11.6%. The common illnesses seen were Cardio respiratory (cough and cold, asthma etc.) which was 33% followed by general illnesses such as fever, headache, body ache, etc.

- ✓ Illnesses treated were further classified into the infectious (antibiotic plausible) and non infectious where antibiotic treatment was not mandatory. 66% of them were infectious and 33% illnesses reported were found to be non infectious. Among the illnesses found to be non infectious, 58% were prescribed antibiotics.



✓ **Characteristic of Antibiotics prescribed by informal health care providers**

Among the 2089 prescription studied, 73% received some kind of antibiotic and out of them 26% received more than one antibiotic. 28 types of antibiotics were prescribed by the providers to treat various illnesses. Ciprofloxacin was most frequently prescribed antibiotic (14.4). Oral was the most common route of administration of drug (63%), followed by intra muscular (32%). Doses of the antibiotics prescribed were found to sub standard (41%).



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- ✓ There are growing urges in public health regarding the relevance of antibiotics prescription for common illness, because 75% of these prescriptions were “questionable”. Results of this study support such argument because 42.2% of the patients were receiving antibiotics without apparent indication. The rest were given antibiotics without scientific evidence and lab confirmation. Out of the antibiotics prescribed in this study about 11% were drugs not in India’s list of essential medicines and 20% were antibiotics to be taken under supervision in secondary or tertiary health facilities.

Limitations of Study

- ✓ The symptoms reported by the informal providers were too scattered to be analyzed. To analyze the reported symptoms they were classified differently (as per body system, or based on the clinical sense) which was not as reported by the providers, because interpretation of what they reported was not feasible.
- ✓ The research team did not observe informal health care providers full time. This was the first study in the area and the aim was to make them feel comfortable to continue their routine practice; however that made much of valuable information being ambiguous such as:
 - ❖ How do they reach the diagnosis of the disease?
 - ❖ Did the providers record the antibiotics in the prescription pads when they dispense it themselves?
 - ❖ Did they apply any kind of safety measure with when administering and disposing the syringes for injectable antibiotics they prescribed, did they use a new one every time and did they dispense the syringes or patients brought them.

Conclusion

The antibiotic prescription pattern by the IHCP's was found to be influenced by their medical qualification and years of work experience. The treatment provided was not according to the clinical guidelines. Multifaceted interventions are needed to reduce unnecessary antibiotic use; peer education and feedback on doctors' use of antibiotics can promote behavior change. Educational interventions for the public should include a public relations campaign with simple messages; clinic based patient education, and community outreach activities. Health organizations should develop policies to support judicious antibiotic use and evaluate whether existing policies may unintentionally promote overuse of antibiotics.

Recommendations

- ✓ Based on the finding of this study the following is recommended for the future studies:
- ✓ Consideration to include actual or proportional representation from the different categories of providers and their patient's characteristics.
- ✓ To distribute a laminated check list of the symptoms based on the International Classification of Diseases (ICD), to avoid the wide variation and misinterpretation of the reported symptoms and to make it possible to analyze.
- ✓ To add a qualitative part in the study design and to have in-depth interviews to highlight the perception of the informal providers towards diagnosis of the diseases and their choices of prescribing the appropriate medication.

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- ✓ To ask the informal providers to give prescription for all the patients present to them. That will give better reflection for the percentage of patients who did receive antibiotics compared to the total number of patients.
 - ✓ Having an observer all the time, could alter the behavior of the prescriber. However the research team need to stay with the providers while working for many reasons such as:
 - ✓ To observe how providers reach the diagnosis of the diseases.
 - ✓ To make sure that the care providers use the prescription pad with all the patients they see.
 - ✓ To make sure that the providers write all the medicines whether they dispense those medicines themselves or patients will obtain them from somewhere else.
 - ✓ To observe if the provider follow the universal precautions measures especially with regard to injections.



THANK YOU