Internship Training

at

International Institute of health Research RD Gardi Medical College, Ujjain M.P

Dispensing of antibiotics for URTI Infections at private pharmacies of Ujjain .MP

by

Name: Dr. Ankita Khare (PT)

Enroll No. **PG/13/05**

Under the guidance of

Dr Vinay Tripathi

Post Graduate Diploma in Hospital and Health Management

2013-15

International Institute of Health Management Research
New Delhi

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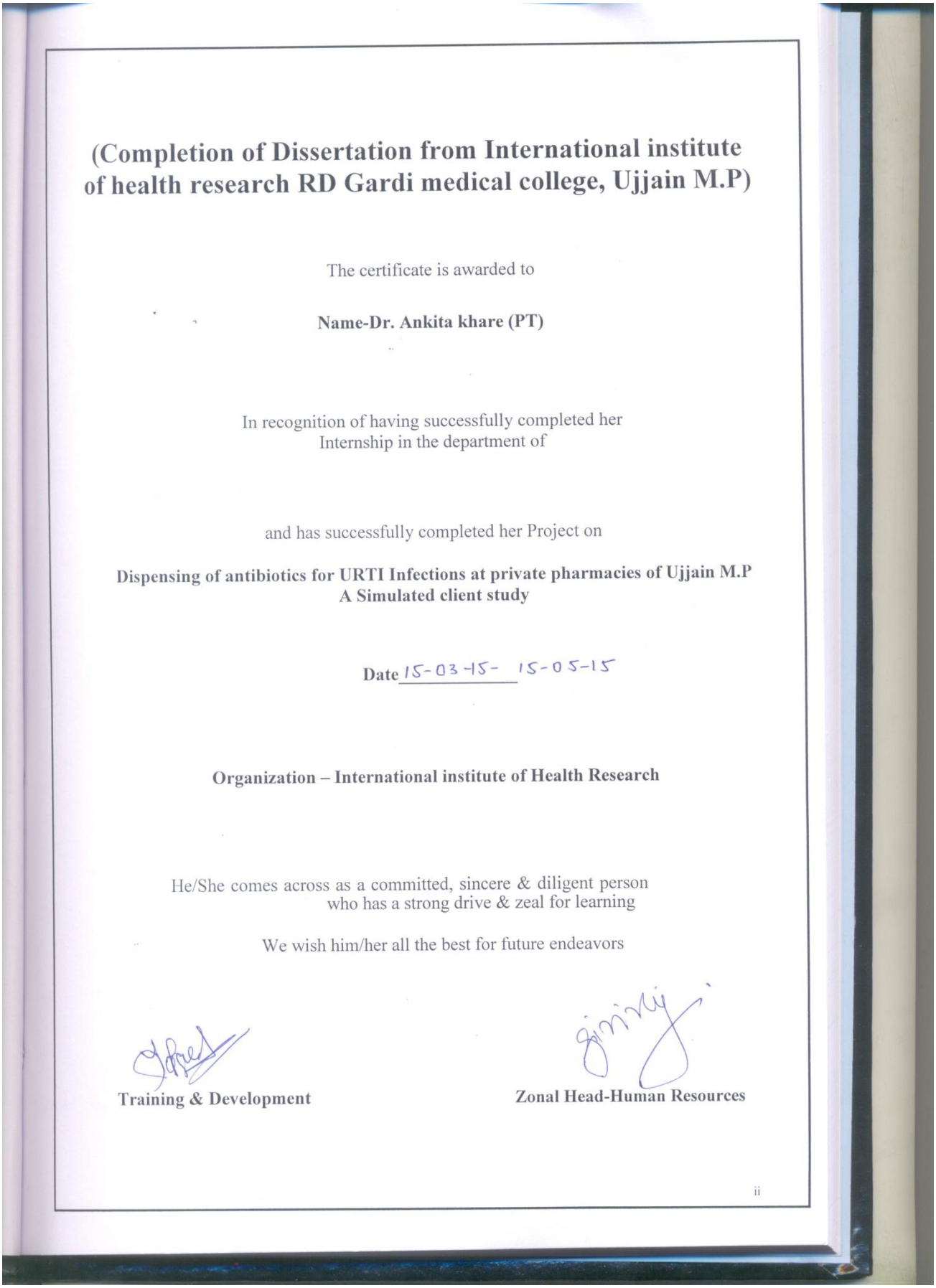

(Completion of Dissertation from International institute of health research RD Gardi medical college, Ujjain M.P)

The certificate is awarded to

Name-Dr. Ankita khare (PT)

In recognition of having successfully completed her Internship in the department of

and has successfully completed her Project on

Dispensing of antibiotics for URTI Infections at private pharmacies of Ujjain M.P A Simulated client study

Date 15-03-15- 15-05-15

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He/She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning

We wish him/her all the best for future endeavors

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TO WHOMSOEVER IT MAY CONCERN

This is to certify that Dr Ankita Khare (PT) student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at International Institute of health research RD Gardi medical college Ujjain M.P from 16 March 2015 to 15 may 2015.

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.

Dr. A.K. Agrawal
Dean, Academics and Student Affairs
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Dr. Vinay Tripathi
IIHMR, New Delhi

Certificate of Approval

The following dissertation titled **"Dispensing of antibiotics for URTI Infections at private pharmacies of Ujjain M.P-A Simulated client study"** at **"International institute of health Research, RD Gardi medical college Ujjain.** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
Prof Vidya Koul	
Dr Preetha GS	

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Ankita khare (PT)**, a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. He/ She is submitting this dissertation titled "**Dispensing of antibiotics for URTI Infections at private pharmacies of Ujjain M.P-A Simulated client study**" at "**International institute of health Research, RD Gardi medical college Ujjain**" in partial fulfilment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management.**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Dr. Vinay Tripathi

(Assistant professor)
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Dr. Vishal Diwan (Associate professor)

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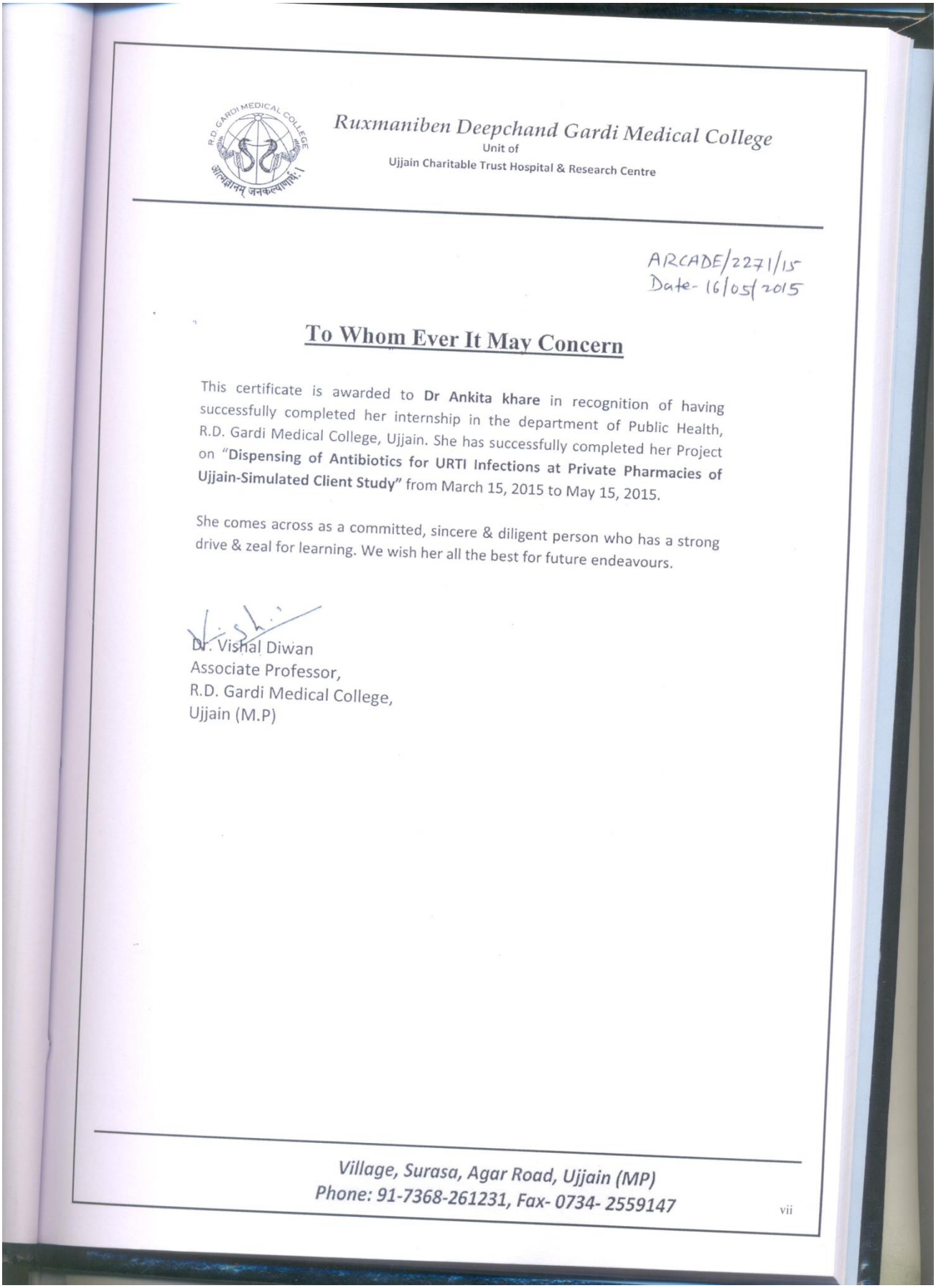

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ARCADE/2271/15
Date- 16/05/2015

To Whom Ever It May Concern

This certificate is awarded to **Dr Ankita khare** in recognition of having successfully completed her internship in the department of Public Health, R.D. Gardi Medical College, Ujjain. She has successfully completed her Project on "**Dispensing of Antibiotics for URTI Infections at Private Pharmacies of Ujjain-Simulated Client Study"** from March 15, 2015 to May 15, 2015.

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning. We wish her all the best for future endeavours.

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INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH,
NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **"Dispensing of antibiotics for URTI Infections at private pharmacies of Ujjain M.P-A Simulated client study"** and submitted by Dr.Ankita Khare(PT) Enrollment No-PG/13/05 under the supervision of Dr. Vinay Tripathi for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from 15march 2015 to 15 may 2015 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Ankita
Signature

FEEDBACK FORM

Name of the Student: Ankita Khare

Dissertation Organisation: R.D. Gardi Medical College, Ujjain

Area of Dissertation: Public health /Simulated client data analysis

Attendance: Satisfactory

Objectives achieved: Yes

Deliverables: Yes Cleaning of data , Analysis of data , Report writing

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Date: 15/7/15

Place: Ujjain

Abstract

Provision of safe and effective medicines to patients is one of the central goals of a public health system which intends to achieve the twin objectives of efficiency and equity. However, inefficiencies and inequities in health care financing and delivery have been attributed as reasons for impeding access to safe medicines in developing countries and in particularly in India. Inefficiencies in public procurement and distribution of pharmaceuticals could be due to poor governance and lack of transparency in financing, drug prices, procurement, supply chain systems, inappropriate prescriptions, dispensing & use of essential medicines. Access to medicines therefore is critical to the provision of equitable, affordable and quality healthcare. Pharmacists play a valuable role in identifying, solving, and preventing drug-related problems (DRPs) for the purpose of achieving optimal patient outcomes and quality of life. Ambulatory based pharmacists have the opportunity and responsibility to foster safe, appropriate, effective, and economical use of all medications, especially those therapies patients are self-selecting. Pharmacists are uniquely trained to assist patients in the selection of appropriate drug therapy and the circumstances under which a physician should be consulted before patients embark upon independent self-care Unregulated prescribing and dispensing of medicines is a common practice in developing countries, and this makes antibiotics vulnerable to developing resistance. The irrational overuse of antibiotics should be minimized but changing these practices is challenging. A better understanding is needed of practices and economic incentives for antibiotic dispensing in order to design effective interventions to reduce inappropriate antibiotic use

Keywords- inefficiencies, inequities**,** dispensing**,** vulnerable, pharmacists

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At the onset of the report I would like to acknowledge my sincere thanks to my institute, **International Institute of Health Management Research**, for providing me a platform to gain enough knowledge and skills in different aspects of health management.

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Finally, most importantly, I would like to express my heartfelt thanks to my beloved **Parents** as their blessings helped me in many ways for effective execution of this work.

ANKITA KHARE

IIHMR NEW DELHI

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ABBREVIATIONS

SCM- Simulated client method

URTI-Upper Respiratory tract infection

DRPs-Drug related problems

MDG-Millennium development goal

GAPPD-Global action plan for pneumonia and diarrhoea

ORS-Oral rehydration salts

NGOs-Non government organizations

ARI-Acute respiratory infections

SC-Simulated client

WHO-World health organization

UNICEF-United nation children fund

BACKGROUND

The thesis is divided into 2 parts

1. **Literature review for diarrhoea and ARI.**

   Globally, pneumonia and diarrhoea are among the leading causes of child mortality. Despite this heavy loss of young life, and the simplicity and cost effectiveness of necessary interventions, relatively few global resources are dedicated to tackling pneumonia and diarrhoea. Public health investment in the prevention and control of these diseases is not commensurate with the magnitude of the problem

2. **Dispensing of antibiotics for URTI Infections at private pharmacies of Ujjain M.P.**

   Inappropriate use of antibiotics is a worldwide problem, leading to increasing treatment costs, adverse events and emergence of antibiotic resistant organisms' .Self Medication, over the counter sale of antimicrobials is some reasons of irrational use of Antibiotics

1. Literature Review of diarrhoea and ARI

Acute respiratory infections and diarrhoea identified as major threats to survival of children under 5 globally and It is also the same for developing countries like India where these two diseases are the major cause behind child mortality.[8] Pneumonia is the most serious presentation which is alone responsible for almost one fifth of total mortality in this vulnerable age group.[47]

Recently data showed that there is no such reduction in diarrhoea related morbidity in developing countries like India .in viewing the Millennium development goals 4- which aims to reduce childhood mortality 2/3 by the year 2015 which show minimal progress in this regard.[6]

An in-depth analysis of these two diseases namely diarrhoea and pneumonia becomes mandatory not only because of their high degree of fatality but also because they are not preventable by vaccinations.

A .Pneumonia and Diarrhoea –At a Glance

Diarrhoea is defined as having loose or watery stools at least three times per day, or more frequently than normal for an individual. Though most episodes of childhood diarrhoea are mild, acute cases can lead to significant fluid loss and dehydration, which may result in death or other severe consequences if fluids are not replaced at the first sign of diarrhoea.

Pneumonia is an infection that inflames the air sacs of one or both lungs filled with fluid or pus causing cough with phlegm or pus, fever, chills and difficulty in breathing. Most people who develop pneumonia initially have a viral infection such as cold or flu which produces symptoms such as headache, muscle ache, fever, if it develops completely the symptoms commonly include high fever, chills, and shortness of breath etc .Pneumococcal is responsible for 18% of severe pneumonia and 33% of childhood pneumonia deaths.

The majority of these deaths occur in just a few high-burden countries in sub-Saharan Africa and South Asia. Yet, most deaths could be prevented with highly effective interventions such as exclusive breastfeeding, hand washing with soap, micronutrient supplementation, safe drinking water and improved sanitation, vaccinations, as well as low-cost treatment.

B Pneumonia and Diarrhoea -Global burden

Over the past decade and a half since 2000, significant gains have been made in the reduction of pneumonia and diarrhoea mortality in children worldwide

According to the latest child mortality estimates (published in 2014 for the year 2013), pneumonia and diarrhoea caused over 1.5 million under-five child deaths globally in 2013, compared to 1.6 million deaths in 2012.This means that in every 20 seconds, a mother and father lose their young child to one of these deadly, but preventable diseases. Between 2000 and 2013 the number of deaths due to pneumonia and diarrhoea in children under the age of five years has been reduced by 44% and 54%, respectively Despite major reductions in pneumonia and diarrhoea mortality globally, progress in the highest-burden countries remains fairly stagnant.[43].In 2009 WHO,UNICEF and partners launched two separate strategies for control of pneumonia and diarrhoea

- GAPPD
- Diarrhoeal disease prevention and control strategies

Since these strategies have launched it has been recognized that pneumonia and diarrhoea are most effectively addressed in a coordinated manner. They share the same determinants and thus also share control strategies as well as delivery systems.

Table-1.1

INDIA CONTRIBUTION TO WORLD BURDEN

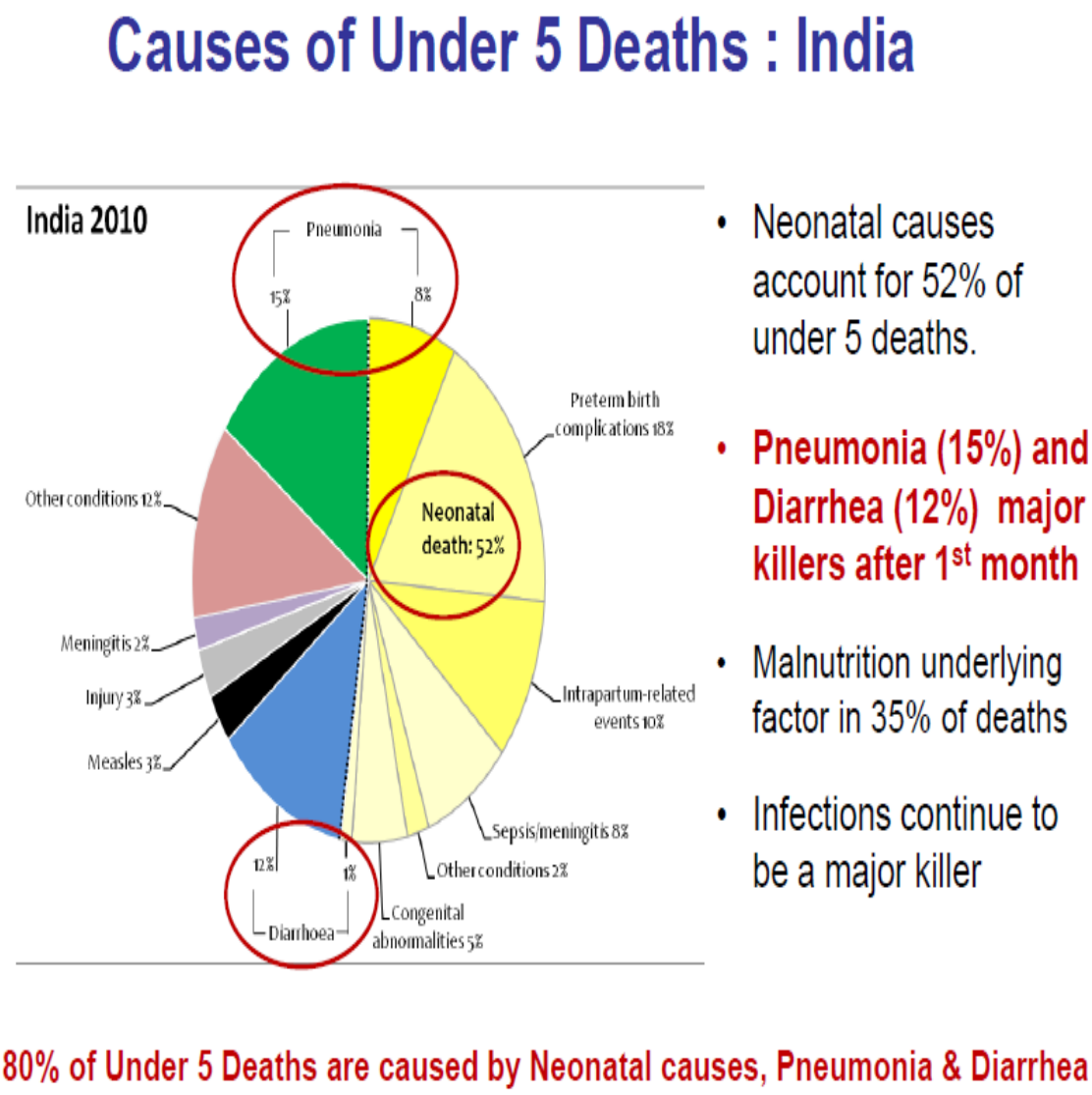
MORTALITY	**GLOBAL**	**INDIA**
NEONATAL	**2.85 Million**	**758,000**
INFANT	**4.8 Million**	**1.1 Million**
UNDER 5	**6.6 Million**	**1.36 Million**
PNEUMONIA DEATHS	**1.1 Million**	**388,000**
DIARRHOEA DEATHS	**0.6 Million**	**130,000**

C. Pneumonia and Diarrhoea- In Developing Countries-India

Diarrhoea is more prevalent in the developing world due, in large part, to the lack of safe drinking water, sanitation and hygiene, as well as poorer overall health and nutritional status. According to the latest available figures, an estimated 2.5 billion people lack improved sanitation facilities, and nearly one billion people do not have access to safe drinking water

Pneumonia accounts for 23% of all total deaths in children under 5 years. (1st month -5%,(1 month – 5 yrs -15%).It is responsible for 38000 deaths each year which is highest in the world.

Figure 1.1



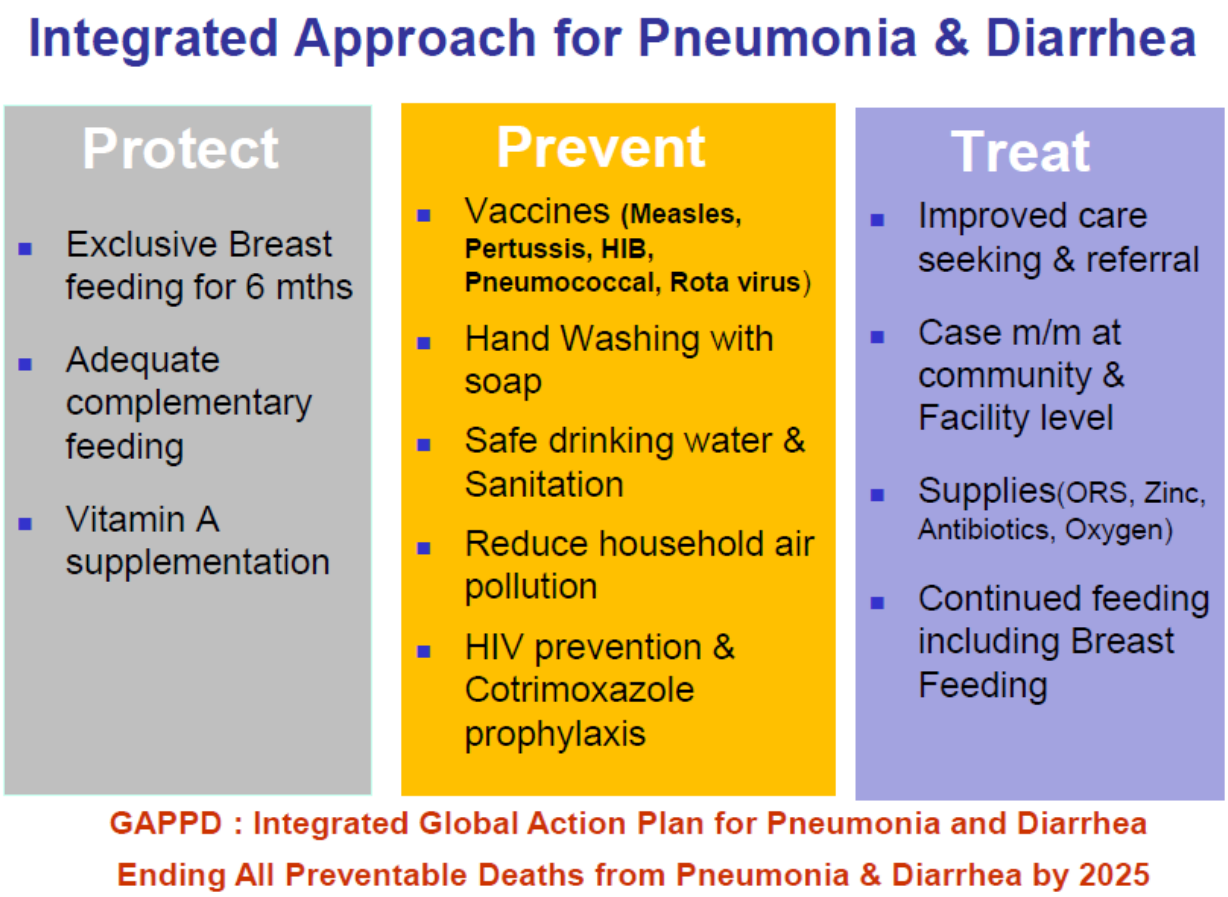
It is seen from previous studies that low socioeconomic status, maternal illiteracy, poor nutritional status, overcrowding, indoor air pollution, parental smoking behaviour, improper sanitation and hygiene, lack of exclusive breastfeeding and vaccination are the leading causes of diarrhoea and pneumonia.

Simulated client method is very effective tool as compared to other methods used for data collection The method, however, attempts to study actual practice, something which is difficult through other methods but essential to develop context-appropriate interventions ultimately benefiting drug sellers and patients. It enables genuine and more authenticated data collection and has minimum chances of bias.

D Pneumonia and Diarrhoea- Interventions Done

The integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea (GAPPD)

Figure-1.2



Stopping the loss of millions of young lives from pneumonia and diarrhoea is a goal within our grasp. GAPPD proposes a cohesive approach to ending preventable pneumonia and diarrhoea deaths These major killers of children are mainly attacked on poor, hungry and remote living children who are often outreached and neglected. Thus targeted interventions with proven efficacy will enable us to reduce the gap of inequalities.

Effective Interventions

Previous studies quote that these interventions are effective

- Excusive breast feeding for six months with appropriate complimentary feeding
- Use of vaccines against streptococcus pneumonia, rotavirus, measles and pertussis
- Oral rehydration salts(ORS)
- Water ,sanitation and hygiene interventions including to ,and access to safe drinking water and reduction of open defecation
- Reduction in household air pollution with improved stoves.

Why it is still a problem in India

There are lessons which should be learned from past experiences. An international commitment to tackle childhood diarrhoea in the 1970s and 1980s resulted in a major reduction in child deaths. This came about largely through the scaling up of oral rehydration therapy, coupled with programmes to educate caregivers on its appropriate use. But these efforts lost momentum as the world turned its attention to other global emergencies and the millennium development goal (MDG-4) remains unachieved

The solutions to tackling pneumonia and diarrhea do not require major advances in technology. Proven interventions exist. Children are dying because services are provided piece meal and those most at risk are not being reached. Use of effective interventions remains too low

Challenges faced in scaling up diarrhea and pneumonia

- **Empowerment** -The authority to make the changes necessary to facilitate collaboration across programmes

- **Surveillance** -The quality of routine data collection to measure progress on pneumonia and diarrhea control is often inadequate, and health information systems do not usually include community-level activities. As a result, community-level data are not available for decision making at higher levels

- **Monitoring and evaluation**

- **Political commitment**-Strong political will to achieve MDGs from global, regional and national levels, and strong partnerships for child survival

Pneumonia and diarrhea deaths are not distributed evenly through the global population or within any one country. The highest death rates from these diseases are recorded in the, least-resourced countries and in the poorest populations within those countries. Children of lower socioeconomic class or caste, minority ethnic groups and those living in isolated geographical areas suffer from cumulative inequities. These children are subject to higher prevalence rates of pneumonia and diarrhea, and more difficult access to health services despite being in greater need of those services. Evidence suggests that children from families in the poorest wealth quintile are less likely to receive high impact interventions than those in the richest quintile.

Recommendations

The action plan calls on government and the various stake holders of health need to prioritize and focus on comprehensive control strategies including improvement of water quality, hygiene, and sanitation; provision of oral rehydration solution and zinc supplements; overall improved case management and research in the field of cost effective interventions. on these two leading killers of children with additional and innovative efforts [55]

In scaling up and refining existing efforts to protect children from diarrhoea and pneumonia and treat them appropriately when affected, improved coordination between existing programmes and a wide range of actors, including the community and the private sector, will be key. Efforts must also be sustainable over the longer term.

Existing public health programs should develop effective approaches to promote hand washing that cost less and can be used to reach millions of at risk households.

Recommended actions can be

- Involvement of private sectors ,NGOs
- Engagement of stake holders of health-UN agencies and other donors
- Innovative actions-Planners can integrate proven innovations to eliminate barriers to health and produce better outcomes. These approaches may be applied to all activities: leadership and management ,financing (including incentives to achieve better performance and results), tools and interventions, service delivery, and monitoring and evaluation. Innovation can increase efficiency and impact.

Targets for improving the health of children beyond 2015 will not be achieved without urgent action on pneumonia and diarrhea from national governments as well as supporting partners at the global level. Focused, coordinated and integrated international, national and sub-national action on pneumonia and diarrhea control, as foreseen in the GAPPD, is needed now. In a changing world Programmes for diarrhea and pneumonia must be flexible and able to understand risks and adapt to changes in context

The Academy has successfully launched the Mission Uday Program which aims to create a pool of skilled personnel to deal with these killers more effectively and efficiently with evidence-based science. The vision of the IAP Mission Uday is that every child is protected against diarrhoea, pneumonia and other vaccine preventable diseases, is well nourished, and has access to preventive and treatment measures with ultimate goal to reduce under five mortality.

The question is not , if India can afford to do it…

The question is can India afford not to do it…

2 Dispensing of antibiotics for URTI infections

Introduction

Acute respiratory infections are a major cause of mortality and morbidity in children and particularly significance in developing countries like India Respiratory tract infections are most frequent infections in all age groups. The frequency of RTI in adults is 3-5 episodes per year and it Is even more in children. Upper respiratory tract infections are more frequent than the lower respiratory tract infections. URTI is the most frequently occurring illness of childhood and one of the most common reason for paediatric consultation.[1]

Several issues need to be focused while considering the role of antibiotics in URTIs infections. the initial step is the detection that whether a infection is of viral, bacterial or mixed nature and the second issue is to detect the need of antibiotics as most of the URTI resolve without it.[5]

URTI are generally viral in nature and using antibiotics to treat them is considered inappropriate except for cases where bacterial infections are obvious It is a self limiting condition that requires symptomatic treatment alone and antibiotic treatment is more likely to cause harm than benefit [4]

Most upper respiratory tract infections are self diagnosed and self treated by taking medications from the pharmacists.[3]

In developing countries like India pharmacies play a very important role as they are proven to be the major site for healthcare delivery system. Community pharmacies are seen as quick source of advice, referrals, medicines and information by the patient.[2]

It is estimated that more than 50% of antibiotics worldwide are purchased without a prescription from pharmacies [9] .The situation in developing countries is of particular concern because use of antibiotics without prescription is largely facilitated [10]

Self medication is also a very common practice where people can go directly to the pharmacies and obtain medicines for their self limiting symptoms. It is also a very important part for healthcare delivery system in India especially in sub urban and rural areas due to limited access of healthcare services. Self medication is noted particularly for cold and upper respiratory tract infection. Which are self limiting and mostly caused by virus [11] it is known that inappropriate self medication of antibiotics may contribute to antibiotic resistance [12]

Simulated client method

The simulated client method has been used in dozens of studies to evaluate the performance of physicians, pharmacists, family planning clinics and other health care providers. This method aims to highlight the importance of studying provider/client patient interactions and develop a framework for interventional strategies. Simulated client method has been used over 20 years to study and evaluate the performance and behaviour of professionals in health care domain. In this method research assistants visit the provider and request their assistance, providers are not aware of the research procedures .later the simulated client report the meeting of their visit and the data is analyzed. This method removes observation bias and issues of privacy and confidentiality that may usually occur with direct observation or interviews with the providers. The simulated client undergo training of the case scenario prepared by the research team

This method has been used in other professional fields or industry other than health care such as

- Business
- Journalism
- Criminal justice
- Social science research

Advantages of SCM

- First hand actual practice without observation bias
- Adaptable to range of study questions, settings, sizes etc
- Reliability and authenticated data collection

Disadvantages of SCM

- Looks at small portion of provider overall pattern of care
- Ethical issues are at major concern
- Possibility of poor recall
- Selection and recruiting of appropriate SC is quite difficuilt
- **Ethical consequences-**
    - Controversial
    - Possible harm to provider-legal consequences, professional consequences

Methods and Materials

Research question

- To study and assess the quality and pattern, and the trends of dispensing antibiotics without prescription for URTI Infection and to evaluate the cost variation availability and trend of the drugs dispensed at private pharmacies of Ujjain, M.P?

Objectives

- To explore and analyze secondary data on dispensing practices for URTI Infections at the retail pharmacies of Ujjain Madhya Pradesh
- To assess the quality and pattern of private pharmacy practices focusing on antibiotic sales without prescription
- To detect the cost variation , availability and trend of dispensing drugs between different pharmacies of Ujjain

Study site

The study was carried out in Ujjain

Ujjain District is a district of **Madhya Pradesh** state in central India. The historic city of Ujjain is the district headquarters. The district has an area of 6,091 km², and a population of 1.9 million**.** A 2012 census of private pharmacies in the Ujjain district identified 475 pharmacies, of which 387 were urban

Study design

A cross sectional design was chosen for this study using simulated client method as a tool for collecting data.

Study population

The study restricted to Ujjain district of Madhya Pradesh. 200 private pharmacies were selected as the study population by random sampling technique

Sampling technique

Trained simulated clients were instructed to play their roles according to the scenario set by the research team.200 pharmacies were selected for this study in Ujjain district of Madhya Pradesh. Four simulated clients were trained and allotted to play the roles of a patient or guardian of the patient presenting the case scenario or disease condition to the pharmacist.

Data collection

Each pharmacy was visited once by investigators who simulated having/suffering clinical scenario according to simulated-client method pharmacy surveys. In present study included clinical scenarios are URTI symptoms like cold, cough, fever etc .The investigators concealed their identity. Immediately after leaving the pharmacy, investigators completed a standardized data form that included information about the location of the pharmacy, antibiotics dispensing practice, pharmacists' inquiries about associated symptoms, allergy history; type of antibiotic ,if dispensed; and advice to see a physician if this was provided by the pharmacist.
A set of questionnaire is prepared by the research team which is to be filled by the simulated clients on the basis of their conversation with the pharmacist and the data is collected. SC clients were given 40-50 rupees and instructed to buy medicines if prescribed or advised by the pharmacist. The duration of data collection was 35-40 days between may-july2012.

Training of simulated client

Four male local health workers (aged 30-35 yrs) linked to the medical college were recruited as simulated clients for this study .Proper training was given to these people assigned as simulated client, for which two sessions organized for their orientation of their roles they need to play for the data collection.

Ethical considerations

Ethical approval was obtained from the ethics committee of R.D Gardi Medical College, Ujjain, India. Informed consent could not be obtained from the participating pharmacies, as it would have revealed the study (revealing the study would have compromised the study design and its results).

Data analysis

Data collected is then coded and entered to STATA Version 10 for further analysis

Result

Two hundred private pharmacies were sampled for the study but 183 (91.50%) were able to participate, rest 17 (8.50%) were closed at the time of survey and 13(6.50%) refused to dispense medicines without prescription.

Table- 1.1

S.NO	OUTCOME	Pharmacies(percent)
1	**Total pharmacies selected for study**	**200**
2	**Closed at the time of Survey**	**17 (8.50%)**
3	**Sampled pharmacies**	**(200-17) = 183 (91.50%)**
4	**Refuse to dispense medicines without prescription**	**13 (6.50%)**

The average duration for consultation of pharmacies by the simulated client was 1.96 minute. Most pharmacists asked about the duration of cold (78.1%), cough (82%) and fever (71.78%) while maximum pharmacies do not inquired about the severe symptoms like presence of sputum or blood in sputum or colour of the sputum.

Only 16 Pharmacies (8.74%) out of 183 asked about the presence of sputum and 10 pharmacies (5.46%) inquired about the presence of blood in the sputum. Only 27 pharmacies (14.75%) bothered to inquire that the client had consulted a doctor or have a prescription. Out of total 183 pharmacies only a few pharmacies 35 (21.47%) have the computer facility to operate and maintain the records ,41 pharmacies (20.5) have qualified staff and It was seen that only a few staff members hold the degree of pharmacy, rest all were unqualified. to operate the drug store legally.

TABLE-1.2

S.NO	History of illness	Pharmacy (total no. of pharmacies)	Inquired by Pharmacist (percent)
1	Cold	183	78.1
2	Cough	183	82
3	Fever	183	72.78
4	Presence of sputum	183	8.74
5	Presence of colour of sputum	183	5.46

The amount of antibiotics, NSAIDs, anti allergic, corticosteroids and others were dispensed in the proportion as tabulated below

Table-1.3

s.no	Medicines Dispensed	Pharmacies
1	Antibiotics	34%
2	NSAIDs	22%
3	Anti allergic	22%
4	Corticosteroids	2%
5	others	20%

The medicines dispensed mainly are allopathic medicines (93-50%) as compared to ayurvedic and homeopathic medicines. The various medicines available in the various pharmacies studied in Ujjain is tabulated below

Tabe-1.4

s.no	Medicines Dispensed	Pharmacies
1	Antibiotics	34%
2	NSAIDs	22%
3	Anti allergic	22%
4	Corticosteroids	2%
5	others	20%

The most commonly dispensed drugs among antibiotics are amoxicillin 40% Ofloxacin (20%) ciprofloxacin (12%).Among anti allergic and NSAIDs maximum amount of cetrizine and paracetemol respectively is dispensed and recommended for average duration of (1-2 days) with a dosage of twice a day, advised to be taken after the meals.

Only seven Pharmacies (4.14%) advised simulated clients to visit the doctor .Though most of the pharmacist advised the dosages and duration of dispensed drugs, but not in correct regimens and combinations. Our findings illustrate the intricate balance between adhering to regulations and providing access to medicines.

Discussion

Treatment practices

The dispensing practices of pharmacies were studied and analyzed for the treatment of URTI infections in Ujjain district of Madhya Pradesh Province. Out of total 183 pharmacies visited 170 pharmacies (85%) dispensed drugs without prescription. The results of this study indicate that antibiotics can be very easily bought in pharmacies of Ujjain without prescription. Only13 Pharmacies (6.5%) pharmacist refused to dispense medicines without prescription, and a very few asked for any justification for the purchase. Antibiotics and Anti allergic were the most commonly drugs dispensed in the pharmacies studied.

Consultation regarding history of illness

The average duration for consultation was.1.96 minute this is very low as compared to other studies. The inquired questions about the history of illness by the pharmacist were very low as compared to other studies and were insufficient to diagnose the condition or prescribe appropriate medications. There was very less inquiry about the severity of the disease like presence of sputum or presence of blood in sputum and the frequently asked questions were regarding the duration of cold, cough and fever.

Antibiotic use

Overuse of antibiotics in the community is caused by people buying antibiotics after self-diagnosis or diagnosis by, often poorly trained, health-care providers. The reasons for irrational antibiotic prescribing in Ujjain are the same as in other regions including perceived expectations of patients, time constraints, lack of knowledge, lack of diagnosis capability and financial benefits for the prescriber[54]

The most commonly prescribed antibiotic and ant allergic in the present study was amoxicillin (40%) and cetrizine (60%)

Eighty percent of India's health financing is out-of-pocket, including medicines hence an overuse in antibiotics leads not only to an increased risk of drug resistance, but also to increased costs and side effects for individuals and their families

The dispensing of antibiotics without prescription is not the only way of antibiotic overuse and misuse. Leftovers from previous treatment courses due to non completion of the previous treatment or the dispensing of excess medication, acquisition of antibiotics over the internet and inappropriate prescription by physicians for viral upper respiratory infections are further contributing factors. These causes need to be addressed in order to ensure that this valuable class of medications is safeguarded.[32]

Conclusion

The dispensing medicine for URTI infections in the pharmacies visited by the simulated clients in Ujjain was inappropriate .There was severe inappropriate dispensing widespread. Health education programs should be directed towards general public pharmacists to know the dangers and misuse or overuse of antibiotics

Poor knowledge on the basic pharmacology of antibiotics was substantiated by dispensing practices and misinformation provided by the dispensers

Our study results may strengthen the legal process which is underway in restricting the use of antimicrobial agents in India. It may result inaccurate treatment of patients and the prevention of antibiotic resistance.

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Field tool

URTI simulated client

ऊपरी श्वास मार्ग का संक्रमण सूचित करने वाला मरीज/ सहभागी

You have a cough, running nose and fever since a few days. You go to the pharmacy and ask for treatment for this.

"I have cough, running nose and fever since a few days. Please give me some medicine."

आप खांसी, नाक से पानी बहना तथा बुखार/ ज्वर से कुछ दिनों से ग्रस्त है / पीड़ित है आप किसी औषधी दुकान पर जाते है और इसके लिये इलाज / दवाई पूछते है

"मुझे कुछ दिनोंसे सर्दी, खासी और बुखार है| कृपया कोई दवा दीजिए |"

Pharmacy Name & Address / औषधी दुकान का नाम पता	Date दिनांक __ __/__ __/__ __ __ __ Time समय __ __/__ __
Ward No./ Village name वार्ड क्र. / गाव का नाम:	Unique code विशेष संकेतक

SCM id:

Total time spared by the pharmacist with you in this interaction / दवा दुकानदारने आपके साथ बातचीतमें बिताया कुल समय?

- ☐ Less than half minute / आधे मिनिटसे कम
- ☐ Half to one minute / आधे मिनिट से १ मिनिटतक
- ☐ More than one minute / मिनिटसे अधिक

Section 1 (Questions) खंड १ (प्रश्न)		
Wait for the 'pharmacist' to respond now. If he asks you any of the following questions, these should be your answers. If no questions asked, mark N in the last column and skip to section 2. औषधि विक्रेता के जवाब का इंतजार करें / यदि औषधि विक्रेता आपसे निम्नलिखित प्रश्नों में से कुछ भी पूछते है तो आपके जवाब निम्नलिखित होंगे | यदि कोई प्रश्न नही किये जाते है तो आखरी खाने मे '**नही**' लिखे और खण्ड २ की ओर बढे |		
Question **प्रश्न**	**Your answer** **आपका जवाब**	**Pharmacist asked question** **औषधि विक्रेता ने प्रश्न पूछा (Y/N) (हां/नही)**
How long since you have the cold/cough/ fever (circle which symptom he asked)? कितने समय से आप सर्दी/ खांसी बुखार से पीड़ित है (पूछे गए लक्षण पर गोला करिये)?	4 days चार दिन से	
Is the fever high? क्या बुखार तेज था?	I haven't measured, just know I am feverish मैने बुखार नापा नही, मगर मुझे बुखार महसूस हो रहा है|	
Any Headache /body ache? क्या कुछ सिरदर्द / बदन दर्द था ?	Occasionally कभी-कभी	
Any sputum ? कुछ खगार (बलगम) भी था?	Yes हां	
Colour of sputum ? खगार का रंग कैसा था ?	White सफेद सा	
Blood in sputum? क्या खगार में खून भी निकला?	No नही	
Do you have a prescription? क्या आपके पास डॉक्टर के द्वारा दी गई कुछ दवा की पर्ची है|	No नही	

Have you seen a doctor? क्या आपने डॉक्टर की सलाह ली है?	I do not have so much time. Also don't want to spend मेरे पास इतना समय नही है मै और समय बर्बाद नही करना चाहता हू|	
List any other questions he asks you and your response below. इसके अलावा यदि औषधी विक्रेता ने कुछ अन्य प्रश्न किये तो वे प्रश्न और उसपर आपके जवाब नीचे लिखे		
Section 2 (Treatement खंड २ (उपचार)		
Name of drug दवाई का नाम	Particulars he tells you (Y/N) क्या विक्रेताने आपको दवाई संबन्धित निम्मलिखित विशेष जानकारी दी(**हां/नही)**	Details of particulars (NA if not told) विशेष जानकारी का विश्लेषण (अगर जानकारी नहीं मिली तो ये लागू नहीं होगा)
1.	Dosage दवाई की मात्रा Duration उपचार की कालावधि Food relationship खानापीना संबंधित जानकारी Side effects दुष्परिणाम	
2.	Dosage दवाई की मात्रा Duration उपचार की कालावधि Food relationship खानापीना	

	संबंधित जानकारी Side effects दुष्परिणाम	
3.	Dosage दवाई की मात्रा Duration उपचार की कालावधि Food relationship खानापीना संबंधित जानकारी Side effects दुष्परिणाम	
Instructions: If cough syrup is given, at the end of the interaction say you will buy it later. If antibiotics are prescribed, ask if it is ok that you just buy todays dose for now and buy only that much. If antibiotics are prescribed skip to section 3. If no antibiotics are prescribed, ask the pharmacist the following: Can you give me a strong medicine for this. I have a lot of work to finish in the next 2 days. **निर्देश**: यदि आपको खाँसी की शीशी दी गई तो औषधी विक्रेता से चर्चा कर अंत में कहिये की आप उसे बाद मे खरीद लेंगे |अगर कोई प्रतिजैविक दवाई दी गई है तो पुछे की क्या मे सिर्फ एक दिन की दवाई खरीद सकते है ? यदि हाँ तो केवल एक दिन की दवाई खरीदे | यदि प्रतिजैविक दवा दी गई है तो खंड ३ की तरफ बढ़े | यदि कोई प्रतिजैविक दवा नहीं दी गई है तो औषधी विक्रेता से बिनती करें की "क्या आप मुझे इस बीमारी की कुछ तेज (अच्छी) दवाई दे सकते है? मुझे अगले दो दिनों मे मुझे बहुत सारे काम निपटाने है |"		
Prescribes antibiotics / क्या प्रतिजैविक दवाई दी	Y /N हाँ / नहीं	(if Y fill particulars below, else skip to section 3) यदि हाँ तो निम्नलिखित जानकारी

गई		दीजीये, अन्यथा खंड ३ की ओर बढ़े |
Name of antibiotic	**Particulars he tells you(Y/N) क्या विक्रेताने आपको दवाई संबन्धित निम्मलिखित विशेष जानकारी दी (हां/नही)**	**Details of particulars (NA if not told) विशेष जानकारी का विश्लेषण (अगर जानकारी नहीं मिली तो ये लागू नहीं होगा)**
1.	Dosage दवाई की मात्रा Duration उपचार की कालावधि Food relationship खानापीना संबंधित जानकारी Side effects दुष्परिणाम	

Section 3 (Advice) खण्ड ३ (सलाह)		
List non pharmacological advice if any अगर कोई दवाई के अलावा सलाह दी जाती है तो निम्न खानों मे जानकारी भरिये |		
Advice सलाह	Y/N हां / नहीं	
Steam inhalation भाप लिजीये		
Go and visit a doctor जाइये और डॉक्टर की सलाह लीजिये		
Other (list)		

अन्य (सूचित करें)		

Section 4 (Any other information on the interaction)

खण्ड ४ यदि भेट के दौरान मिली हुई कोई अन्य जानकारी मिले तो यहाँ लिखे |

TB simulated client

You have a cough with expectoration and fever since two months. You go to the pharmacy and ask for treatment for this.
Section 1 (Questions) Wait for the 'pharmacist' to respond now). If he asks you any of the following questions, these should be your answers. If no questions asked, mark N in the last column and skip to section 2.

Question	Your answer	Pharmacist asked question (Y/N)
How long since you have the cold/cough/ fever (circle which symptom he asked)?	2 months	
Is there any fever ?	Yes	
Is the fever high ?	No, there is mild fever when I go back to home in evening	
Any sputum ?	Yes	
Colour of sputum ?	Yellow / White	
Blood in sputum?	Sometimes	
Any loss of appetite / weight loss?	Yes	
Have you taken any medicine so far	Yes some medicine from govt. hosp. – no more recall	
List any other questions he asks you and your response below		

Do you have a prescription?	No	
Go and see a doctor?	I do not have so much time. Also don't want to spend	
Section 2: treatment		
Name of drug	Particulars he tells you (Y/N	Details of particulars (NA if not told)
1.	Dosage Duration Food relationship Side effects	
2.	Dosage Duration Food relationship Side effects	
3.	Dosage Duration Food relationship Side effects	
If cough syrup is given, at the end of the interaction say you will buy it later. If antibiotics are prescribed, ask if it is ok that you just buy todays dose for now and buy only that much. If antibiotics are prescribed skip to section 3 If no antibiotics are prescribed, ask the pharmacist the following: Can you give me a strong		

medicine for this. I have a lot of work to finish in the next 2 days		
Prescribes antibiotics	Y /N	(if Y fill particulars below, else skip to section 3)
Name of antibiotic	Particulars he tells you(Y/N)	Details of particulars (NA if not told)
1.	Dosage Duration Food relationship Side effects	
Purchase todays antibiotic dose only		
Section 3 (Advice). List non pharmacological advice if any		
Advice	Y/N	
Steam inhalation		
Visit a doctor		
Suggests TB		
Other (list)		
Section 4 (Any other information on the interaction)		

Pharmacy name	Date __ __/__ __/__ __ __ __ Time __ __/__ __

Address **Ward No./ Village name:**	Unique code Contact No

SCM id:

GI infection simulated client

Surveyors' name / सर्वेकर्ता का नाम _____

Your child (male 4 years) has loose motions since two days. You go to the pharmacy and ask for treatment for this. **"My child has loose motions since two days. Please give me some medicine"**

Pharmacy Name & Address / औषधी दुकान का नाम पता	Date दिनांक __ __/__ __/__ __ __ __ Time समय __ __/__ __
Ward No./ Village name वार्ड क्र. / गाव का नाम:	Unique code विशेष संकेतक

Total time spared by the pharmacist with you in this interaction / दवा दुकानदारने आपके साथ बातचीतमें बिताया कुल समय?

- ☐ Less than half minute / आधे मिनिटसे कम
- ☐ Half to one minute / आधे मिनिट से १ मिनिटतक
- ☐ More than one minute / १ मिनिटसे अधिक _____ _____minute / मिनिट

Section 1 (Questions)		
Wait for the 'pharmacist' to respond now). If he asks you any of the following questions, these should be your answers. If no questions asked, mark N in the last column and skip to section 2.		
Question	Your answer	Pharmacist asked question (Y/N)
How old is the child?	4 years	
What gender?	Male	
How long since the child have the loose motion ?	2 days	
How many stools a day?	Say 5-6 times a day	
Any fever?	I haven't measured	
Any pain in abdomen or colic?	Mild	
Child eating/drinking/loss of appetite?	Child a bit listless, not eating so much because he feels unwell	
Any weaknss/	Little	
Colour of stool ?	Yellow	
Consistency of stool	Loose	
Blood / mucus in stool?	Not noticed	
Do you have a prescription?	No	
Have you seen a doctor?	I do not have so much time. Also don't want to spend	
List any other questions he asks you and your response below		

Section 2: Treatment		
Name of drug	Particulars he tells you (Y/N	Details of particulars (NA if not told)
1.	Dosage Duration Food relationship Side effects	
2.	Dosage Duration Food relationship Side effects	
3.	Dosage Duration Food relationship Side effects	
If antibiotics are prescribed, ask if it is ok that you just buy today's dose for now and buy only that much. If antibiotics and/or anti motility are prescribed skip to section 3 If antibiotics and/or anti motility agents not prescribed, ask the pharmacist the following: Can you give me a strong medicine for this. I have a lot of work to finish in the next 2 days		
Prescribes antibiotics	Y /N	(if Y fill particulars below, else skip to section 3)
Prescribes antimotility agent	Y /N	(if Y fill particulars below, else skip to section 3)
Name of antibiotic /	Particulars he tells you(Y/N)	Details of particulars (NA if not told)

antimotility agent		
1.	Dosage Duration Food relationship Side effects	
2.	Dosage Duration Food relationship Side effects	
Purchase today's antibiotic / antimotility dose only		
Section 3 (Advice). List non pharmacological advice if any		
Advice	Y/N	
Salt sugar water / rice water / coconut water / other home based fluids _____		
Visit a doctor		
Other (list)		
Section 4 (Any other information on the interaction)		