

---

## ORIGINAL ARTICLE

# Resident Doctors' Attitude and Perception about Antibiotics usage, and Resistance in a Tertiary Care Hospital, in Lahore

RIZWAN ZAFAR AHMAD<sup>1</sup>, NADEEM HAMEED<sup>2</sup>, FOZIA UMBER QURESHI<sup>3</sup>, R. ARSHAD<sup>4</sup>, ASIF HANIF<sup>5</sup>

<sup>1</sup>Associate Professor of Medicine SMDC/Shalamar Hospital, Lahore. <sup>2</sup>Associate Professor Pediatrics, SMDC/Shalamar Hospital, Lahore. <sup>3</sup>Associate Professor of Gynecology, SMDC/Shalamar Hospital, Lahore. <sup>4</sup>Assistant Professor of Medicine, SMDC/Shalamar Hospital, Lahore. <sup>5</sup>Assistant Professor & Head of department Bio-Statistics, GD-PGMI, Lahore.

Correspondence Author:- Dr. Rizwan Zafar Ahmad Email drrzafar@hotmail.com Cell No:- 0300-4759180.

## ABSTRACT

The objective of this study was to assess attitude of resident doctors towards antibiotic prescribing patterns, and their perception of antibiotic resistance. This study was conducted in Shalamar teaching hospital Lahore. 100 resident doctors were enrolled but 86 residents responded to the questionnaire. 78(90.6%) residents agreed that antibiotics are over prescribed nationally. Only 41(47.6%) residents were satisfied with their current knowledge of antibiotics. 59(68.6%) residents considered antibiotic resistance as a problem. This study provides helpful information for designing strategies to optimize antibiotic usage and to prevent antibiotic resistance.

## INTRODUCTION

Antibiotics are among the most widely prescribed medicines in the world. It is because they are indicated in vast range of infective disorders<sup>1</sup>. Studies have revealed that they are often prescribed inappropriately and unnecessarily<sup>2,3</sup>, leading to increased risk of developing resistance to antibiotics globally<sup>4</sup>. Antibiotic resistance has become a major public health problem and is on rise. It leads not only, to increased morbidity and mortality, but is also a source of economic burden on patient and nation, specially in underdeveloped countries.<sup>5</sup> Decreasing the antibiotic misuse by treating physician is a fundamental step to reduce antibiotic resistance. Treating physicians attitude, perception and knowledge plays an important role in preventing or promoting the antibiotic resistance. Studies have been published on physician's attitude and knowledge in USA, Brazil and other parts of world<sup>6</sup>. Studies with similar objectives have been published in USA, France and Scotland<sup>7</sup>. Studies on antibiotic resistance pattern have been conducted in Karachi, Pakistan<sup>8</sup>. A study on irrational use of antibiotics and the hazardous outcomes of such misuse, was conducted in Hayatabad medical complex, Peshawar<sup>1</sup>.

The objective of this study is to understand attitudes of residents and common factors leading to antibiotics resistance in our healthcare system, and to develop recommendations for judicious use of antibiotics, and to prevent antibiotic resistance. This study is also likely to promote optimized

usage of antibiotics, thereby decreasing the morbidity, mortality, hospital stay, and cost of treatment.

## MATERIALS AND METHODS

This cross sectional study was conducted at Shalamar hospital Lahore. 100 internists working as house officers, medical officers and post graduate registrars from medical, surgical and allied specialties, willing to participate were enrolled in the study. A predesigned structured questionnaire based on our study objectives and taking guidance from previous literature, was given to internists.

## DATA COLLECTION PROCEDURE

The internists were verbally briefed about study protocol. Predefined questionnaire was manually distributed to all participants, after taking their informed consent. Their basic demographical details were taken. They were requested to fill the questionnaire to assess attitudes domain of resident doctors about antibiotic usage (Table 1) and resident doctors' perception about factors contributing towards antibiotics resistance (Table 2). The questionnaire was collected back on the same day or the next day, as per convenience of the resident.

## TOTAL NUMBER OF RESPONDENTS

Questionnaire was manually distributed to 100 residents, but 86 residents filled the questionnaire and handed it back to us. We could not get back

## Resident Doctors' Attitude and Perception about Antibiotics usage, and Resistance in a Tertiary Care

the questionnaire from remaining 14 residents, inspite of one repeat visit, and one telephonic call.

### RESULTS

In this study 86 residents were taken with mean age of  $28.09 \pm 4.02$  years. There were 45(52.3%) male and 41(47.7%) female residents in this study. According to their year of resident 66(76.7%) were 1<sup>st</sup> year, 14(16.3%) were 2<sup>nd</sup> year and 6(7%) were 3<sup>rd</sup> year residents. A total of 7(8.1%) residents disagreed, 78(90.6%) residents agreed while 1 resident was undecided on asking that antibiotics are overprescribed nationally. 30(34.8%) residents disagreed, 50(58.1%) residents agreed and 6(6.97%) were undecided that too many broad spectrum antibiotics are being prescribed unnecessarily in our institution. 14(16.3%) residents disagreed, 67(77.9%) residents agreed and 5(5.8%) were undecided that they confidently can use antibiotics optimally in the wards. 17(19.7%) residents were not confident that they can use antibiotics optimally in the ICU, 57(66%) were confident and 12(13.9%) were undecided. There were 14(16.3%) residents who disagreed, 68(79%) agreed and 4(4.6%) were undecided on interactions with pharmaceutical representatives do not influence their antibiotic selections. Locally developed guidelines for antibiotic treatment would be more useful than the national ones was supported by 40(46.5%) while 26(30.2%) residents were disagreed and 20(23.2%) residents were undecided regarding the above statement. A total of 16(18.6%) residents disagreed, 64(74.4%) residents agreed and 6(6.97%) were undecided that they consider cost while making selection of

antibiotics. Among all residents 18(20.9%) residents disagreed, 41(47.6%) residents agreed that they were satisfied with their current knowledge of antibiotics. On asking "antibiotic resistance is a problem" 25(29%) residents were disagreed, 59(68.6%) residents were agreed. 53(61.6%) were satisfied with current trends of prescribing the antibiotics in their institution while 15(17.4%) residents were not, and 18(20.9%) were undecided.

Resident doctors' were also asked about their perception about factors contributing towards antibiotics resistance. There were 34(39.5%) residents who were strongly agreed, 46(53.4%) were agreed, 6(6.97%) were disagreed that incomplete treatment is a factor for antibiotic resistance. 15(17.4%) doctors strongly agreed and 49(56.9%) were agreed that inadequate dosage is factor for antibiotic resistance. Moreover, 30(34.8%) doctors were strongly agreed, 37((43%) were agreed and 17(19.7%) were disagreed that over prescription of antibiotics is a factor contributing towards antibiotics resistance. A total of 22(25.5%) doctors were strongly agreed and 45(52.3%) were agreed that inappropriate choice of antibiotic is a factor contributing towards antibiotics resistance. We also analyzed that 15(17.4%) were strongly agreed, 46(52.1%) were agreed that poor quality of antibiotic is a factor contributing towards antibiotics resistance. On asking self medication is a factor contributing towards antibiotics resistance 34(39%) doctors were strongly agreed while 38(45%) were agreed and 11(12.7%) were disagreed.

**Table 1:** Attitudes domain of resident doctors about antibiotic usage

	Disagreed	Agreed	Undecided
'	7	78	1
Too many broad spectrum antibiotics are being prescribed unnecessarily in my institution	30	50	6
I am confident that I can use antibiotics optimally in the wards	14	67	5
I am confident that I can use antibiotics optimally in the ICU	17	57	12
Interactions with pharmaceutical representatives do not influence my antibiotic selections	14	68	4
Locally developed guidelines for antibiotic treatment would be more useful than national ones	26	40	20
I consider cost while making selection of antibiotics	16	64	6
I am satisfied with my current knowledge of antibiotics	18	41	27
Antibiotic resistance is a problem	25	59	2
Are you satisfied with current trends of prescribing the antibiotics in your institution?	15	53	18

**Table 2:** Resident doctors' perception about factors contributing towards antibiotics resistance

	<b>Strongly agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Don't Know</b>
Incomplete treatment	34	46	6	0
Inadequate dosage	15	49	22	0
Over prescription of antibiotics	30	37	17	2
Inappropriate choice of antibiotic	22	45	18	1
Poor quality of antibiotic	15	46	19	6
Self medication	34	38	11	3

## DISCUSSION

### Attitude Domain

The present study is an attempt to understand the approach and prescribing patterns of resident doctors regarding antibiotics usage, in our setup. The baseline information gathered from this study may be used to design interventions for appropriate usage of antibiotics. Most respondents(90%) agreed that antibiotics were over prescribed nationally, but only 58.1% had the opinion that they were over prescribed in our institution. These results are consistent with perceptions of residents in prior surveys<sup>9</sup>. Majority of residents were confident that they can prescribe antibiotics independently in wards and ICU.79% respondents agreed that pharmaceutical representatives do not influence their choice of antibiotic selection. As observed in earlier studies by Giblin TB et al, majority of the residents agreed that locally developed guidelines for antibiotic treatment would be more useful than national ones<sup>10</sup>. As regards their knowledge about antibiotics,47.6% residents were satisfied, but surprisingly 31.3 % were undecided about level of their knowledge.

### Perception About Antibiotics Resistance

Antimicrobial resistance poses a formidable challenge for the research workers worldwide. In this study 68.6% residents agreed that antibiotics resistance was a problem. This finding closely resembles to study by Wester CW et al, in which 63% of the respondents considered antibiotic resistance as a problem in their institution.<sup>11</sup> Majority of the residents agreed that incomplete treatment, inadequate dosage, improper choice of antibiotics, were among the major contributory factors in promoting antibiotics resistance. These observations are supported by published data by Davey P, et al.<sup>12</sup>

This study has demonstrated several areas, meriting improvements, for example development of local institutional guidelines for prescribing antibiotics, and starting antimicrobial stewardship educational activities, as only 47.2% of residents in our study were satisfied with their current knowledge of antibiotics. The induction of infectious disease specialist and microbiologist can be of high value in promoting appropriate use of antibiotics, and discouraging the development of antimicrobial resistance.

## REFERENCES

1. Salman K, Adeeb S, Omer S, Inpatient antibiotics pharmacology and physiological use in Hayatabad medical complex, Pakistan. Int J Physiol Pathophysiol Pharmacol 2013;5(2):120-127
2. Guarner F and Malagelada JR. Gut flora in health and disease. Lancet 2003; 361: 512-519.
3. Fanaro S, Chierici R, Guerrini P and Vigi V. Intestinal microflora in early infancy: composition and development. Acta Paediatr Suppl 2003; 91: 48-55.
4. Uphill PF, Jacob F and Lall P. Vitamin B12 production by the gastro-intestinal microflora of baboons fed either a vitamin B12 deficient diet or a diet supplemented with vitamin B12. J Appl Bacteriol 1977; 43: 333-344.
5. Okeke I (2010) Poverty and root causes of resistance in developing countries. In:Sosa A, Byarugaba D, Amabile-Cuevas C, Hsueh P, Kariuki S et al., editors. Antimicrobial resistance in developing countries. First ed. New York: Springer. 27–36.
6. Guerra CM, Pereira CA, Neves Neto AR, Cardo DM, Correa L. Physicians' perceptions, beliefs, attitudes, and knowledge concerning antimicrobial resistance in a Brazilian teaching

## Resident Doctors' Attitude and Perception about Antibiotics usage, and Resistance in a Tertiary Care

- hospital. *Infect Control Hosp Epidemiol* 2007; 28: 1411–1414
- 7. Pulcini C . Williams, N. Molinari, Davey P, Nathwani; Junior doctors' knowledge and perceptions of antibiotic resistance and prescribing: a survey in France and Scotland. *Clin Microbiol Infect* 2011; 17: 80–87
  - 8. Sturma, R. Van der PolB , A. J. Smitsb, F. M. van Hellemondtb, S. W. Moutonb, B. Jami ; Over-the-counter availability of antimicrobial agents, self-medication and patterns of resistance in Karachi, Pakistan *Journal of Antimicrobial Chemotherapy* (1997) 39, 543–547
  - 9. Srinivasan A, Song X, Richards A, Sinkowitz-Cochran R, Cardo D, Rand C. A survey of knowledge, attitudes, and beliefs of house staff physicians from various specialties concerning antimicrobial use and resistance. *Arch Intern Med* 2004;164(13):1451–1456.
  - 10. Giblin TB, Sinkowitz-Cochran RL, Harris PL, et al. Clinicians'perceptions of the problem of antimicrobial resistance in health care facilities. *Arch Intern Med* 2004;164(15):1662–1668.
  - 11. Wester CW, Durairaj L, Evans AT, Schwartz DN, Husain S, Martinez E. Antibiotic resistance: a survey of physician perceptions. *Arch Intern Med* 2002; 162: 2210–2216.
  - 12. Davey P, Brown E, Fenelon L et al. Interventions to improve antibiotic prescribing practices for hospital inpatients. *Cochrane Database Syst Rev* 2005; CD003543.