



# Knowledge of Inhaler Therapy among Undergraduates and Resident Doctors in Tertiary Care Hospital, Nepal

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## ABSTRACT

**Introduction:** Inhalation therapy is the administration of the aerosolized medication directly into the lungs and it is the most effective form of management of the obstructive airway disease including chronic obstructive airway disease, asthma and overlap syndrome. There is less data on the knowledge of inhaler therapy among the junior doctors who are managing obstructive airway disease at the first contact point. This study was done to assess the knowledge of undergraduate doctors and resident doctors who are treating the patients before the consultation with senior consultants working in one of the tertiary care hospital. The findings of the study will help find the strategies of filling the gaps of the knowledge of inhalation therapy among junior doctors while managing obstructive airway disease

**Objective:** The primary objective of the study was to find the Knowledge of Inhaler Therapy among Undergraduates and Resident doctors in Bir Hospital

**Methods:** The study was a cross sectional questionnaire based descriptive study conducted in Bir Hospital, National Academy of medical Sciences. The study included purposeful sampling of the medical officers and residents working in medical ward and emergency.

**Results:** Out of 70 respondents, 79% and 82% percent responded the correct method of the administration of the DPIs and MDIs respectively. Forty percent of the respondents had heard of the breath actuated devices and 88% of the respondents had heard of the spacer device. Forty one percent of the respondents said they teach the patients about the method of inhalation technique while prescribing the inhalation therapy. Seventy three percent of the respondents thought inhaler therapy as the first line therapy for managing COPD and Asthma.

**Conclusion:** Prescription of inhalers, knowledge among junior MBBS undergraduate doctors regarding inhalation therapy, and correct use of inhalers varied, and was generally inadequate. More effort, academic training and exposure is needed to change the attitude of medical officers and residents regarding the concept of inhalation therapy.

**Keywords:** Doctors, Inhaler, Knowledge



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## INTRODUCTION

Inhalation therapy is the administration of the aerosolized medication directly into the airways and it is the most effective form of management of the obstructive airway disease including chronic obstructive airway disease (COPD), asthma and overlap syndrome.<sup>1-3</sup> The practice of inhaler therapy varies among different treating physicians in different part of the world.<sup>4</sup>

The patients can be appropriately instructed only if the health care providers themselves are well trained to do so.<sup>5</sup> Different studies have shown that there is inadequate knowledge of the inhaler therapy among the patients, and also the health

care workers including nurses who themselves teach the patients.<sup>6,7-9</sup> However there is less data on the knowledge of inhaler therapy among the junior doctors who are managing obstructive airway disease at the first contact point.<sup>5</sup>

This study was done to assess the knowledge of undergraduate doctors and resident doctors who are treating the patients before the consultation with senior consultants working in Bir Hospital. The findings of the study will help find the

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strategies of filling the gaps of the knowledge of inhalation therapy among junior doctors while managing obstructive airway disease.

### MATERIALS AND METHODS

The study was a cross sectional descriptive study done in Bir Hospital in July 2021. Purposeful sampling of medical officers and residents working in medical wards and emergency was done to enroll the participants in the study. The questionnaires on knowledge of inhaler therapy were self-prepared and printed and also developed in google form. During the study period, those who were on duty in the hospital were given printed questionnaire and those who were off duty were mailed using google form. The consent to enroll in the study was placed as option in questionnaire. There were six questions on the basic information of the participants and twenty-five questions were related with the subjective knowledge of the inhalation therapy. Those who had given complete response were included in the analysis. Data generated by the google form and the hard copies were transformed into the excel sheet and analysed.

### RESULTS

Out of 75 medical officers and residents, 72 responded and only 70 had complete response which were analyzed. Sixty six percent were male doctors and 34 percent were female doctors. The mean age of the doctors was 30 years. Seventy seven percent of the doctors were graduates from Nepal and twenty three percent were from abroad.

Ninety seven percent of the doctors were sure of that they know about the inhalation therapy and three percent were unsure. Only twenty three percent of the doctors thought that all of metered dose inhaler (MDI), dry powdered inhaler (DPI), nebulizer solutions and oxygen are part of inhalation therapy. Ten percent thought that MDIs are only inhalation therapy while 3% thought DPIs are only inhalation therapy and percent thought that MDIs and DPIs are only inhalation therapy.

All of the participant had thought that the inhalation device can be cleaned but only 44% of the participants were aware of the timing of cleaning the device. 64 percent and 85 percent of the participants thought that they were sure of the technique of using DPIs and MDIs respectively, however 79% and 82% percent of the participants responded for the correct method of the administration of the DPIs and MDIs respectively. Sixty one percent of the doctors think that inhaler medicines should be used only with the unique device of the same pharmaceuticals.

Forty percent of the respondents had heard of the breath actuated devices and 88% of the respondents had heard of the spacer device.

The prescription pattern of the inhalation methods are presented in the chart 1.

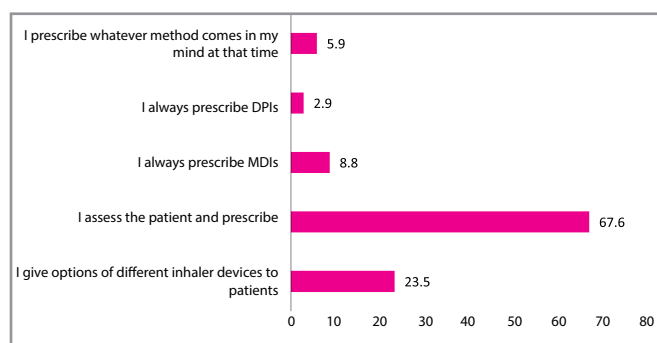


Chart 1. Prescribing pattern of the method of inhaler therapy.

It was found that forty one percent of the respondents teach the method of inhalation technique while prescribing the inhalation therapy, however only twenty three percent of the respondents used to check the technique of the use of inhaler devices during follow up. Those who don't teach the technique of inhaler use, the reasons explained were busy schedule by 74% percent of respondents and 13 percent think that it is the duty of pharmacists or nurses.

All respondents think that patients should be asked to gargle after using inhaled steroid but 97 % knew the rationale of such a prescription.

Fifty-six of the respondents think that MDIs are appropriate for method of inhalation therapy for patients with moderate to severe COVID-19, while 15% still think that nebulization is appropriate for such patients. And 55% of the respondents think that nebulisation is a more efficacious method of delivering drugs while 35% think that nebulization and MDIs are equally efficacious in patients with breathing efforts.

Seventy three percent of the respondents thought inhaler therapy as the first line therapy for managing COPD and Asthma while 26.5% think that inhaler therapy should be initiated only when patients do not respond to oral bronchodilators. 50% of the respondents thought that inhaled steroid is helpful in treating dyspnea due to interstitial lung disease with restrictive pattern. The fact that inhaled steroid is used in all COPD patients was accepted by 18 percent of the doctors. For treatment of the intermittent asthma, 46% think that intermittent use of the inhaled bronchodilator is enough and 23 percent think regular use of inhaled steroid and bronchodilator is needed.

### DISCUSSION

We found that seventy three percent of the respondents think inhaler therapy as the first line therapy for managing COPD while Chokhani et al reported 54 percent of the physicians prescribe inhaler therapy to all COPD patients.<sup>4</sup>

It was found that only twenty three percent of the respondents used to check the technique of the use of inhaler devices during follow up which was similar to Chokhani's another study in which 39.95% of the physicians evaluated their patients' inhalation technique on every visit.<sup>4</sup>

Forty one percent of the respondents said that they told the method of inhalation technique while prescribing the inhalation therapy. Similar data was found in one study in which about 52% stated that healthcare providers themselves provided device training for their patients.<sup>10</sup>

The preference for MDI over DPI (8.8% vs 2.9%) was observed in our study. Chokhani et al also reported that 72% physicians preferred a pressurized metered-dose inhaler (pMDI) to a dry powder inhaler (DPI).<sup>11</sup> pMDIs were preferred by 64.8% of physicians in another study.<sup>10</sup>

67.6 % percent of the respondents said that they assess the patients and then prescribe appropriate method of inhalation therapy and forty one percent of the respondents teach the method of inhalation technique. While in another study, 51.74% nurses always assess/observe the patient and 61.34% always train the patients for correct inhalational technique.<sup>12</sup>

In this study, all of the participants had thought that the inhalation device can be cleaned but only 44% of the participants were aware of the timing of cleaning the device. But it was found that 6.5% of nurses was aware of instructions to clean the rotahaler in another study.<sup>9</sup>

The study has some limitations. The questions were few which may underestimate the total knowledge. Further it only included theoretical aspects only, practical procedure and demonstrations were not done.

## CONCLUSION

Prescription of inhalers, knowledge among junior MBBS undergraduate and resident doctors regarding inhalation therapy, and correct use of inhalers varied, and was generally inadequate. More effort, academic training and exposure is needed to change the attitude of medical officers and residents toward the concept of inhalation therapy.

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