



Evaluation of the Knowledge and Correct use of Metered Dose Inhalers by Health Care Professionals and Medical Students in Gauteng.

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Study Aims & Objectives

1. To evaluate healthcare professionals' and medical students' level of knowledge and understanding of metered dose inhaler (MDI) technique.
2. To assess the study participants' inhaler technique via a placebo inhaler.
3. To determine the study participants' compliance in checking and demonstrating MDI technique to patients on inhaled therapy at every hospital admission / outpatient related visit.

Methods

- Prospective study

- Study Site:

- Departments of Internal Medicine, Emergency Medicine and Pulmonology at Helen Joseph Hospital and Chris Hani Baragwanath Academic Hospital.

- Apparatus:

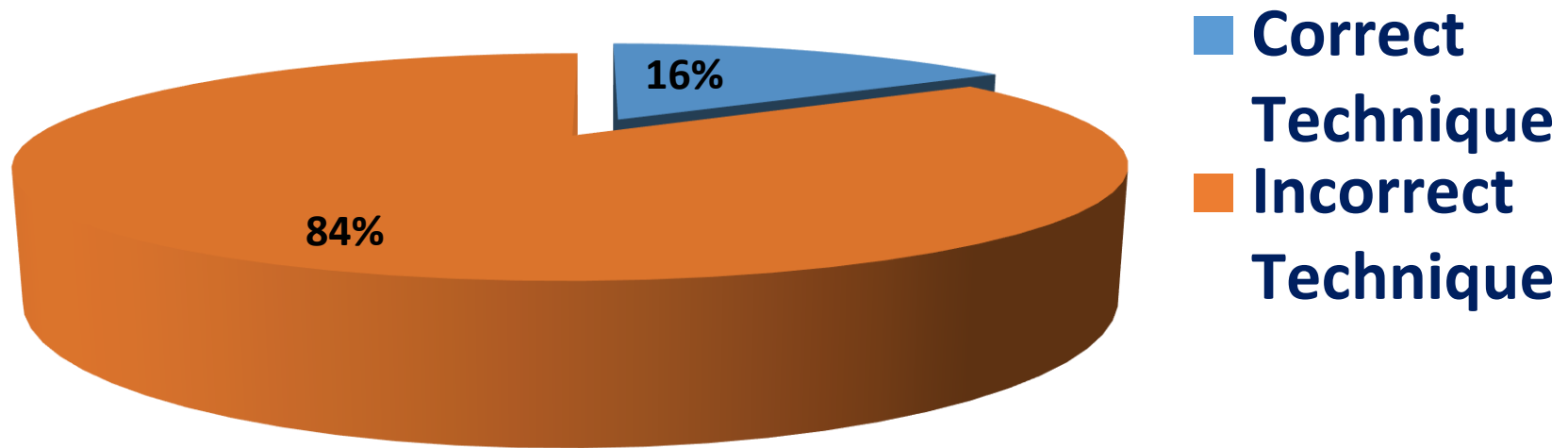
1. Questionnaire
2. Demonstration of inhaler technique using a placebo inhaler device by all study participants.
3. Evaluation of inhaler technique using scoring system (proficiency scored by allocating 1 point for each of 6 sequential steps required)

Results 1: Demographics of study participants

Demographics	N (%)
Gender	(n=195)
• Female	130 (67)
• Males	65 (33)
HCP Total	(n=133)
• Medical Doctors	96 (72)
• Nurses	37 (28)
HCP Years of Experience*	(n=133)
• >10 Years	15 (11.3)
• 5-10 Years	51 (38.3)
• <5 Years	67 (50.4)
Final Year Medical Students	62

- **N=195 participants**
- 130 females(67%) and 65 males.
- A total of 133 (68%) HCPs
- 62 were final year medical students.

Results 2:



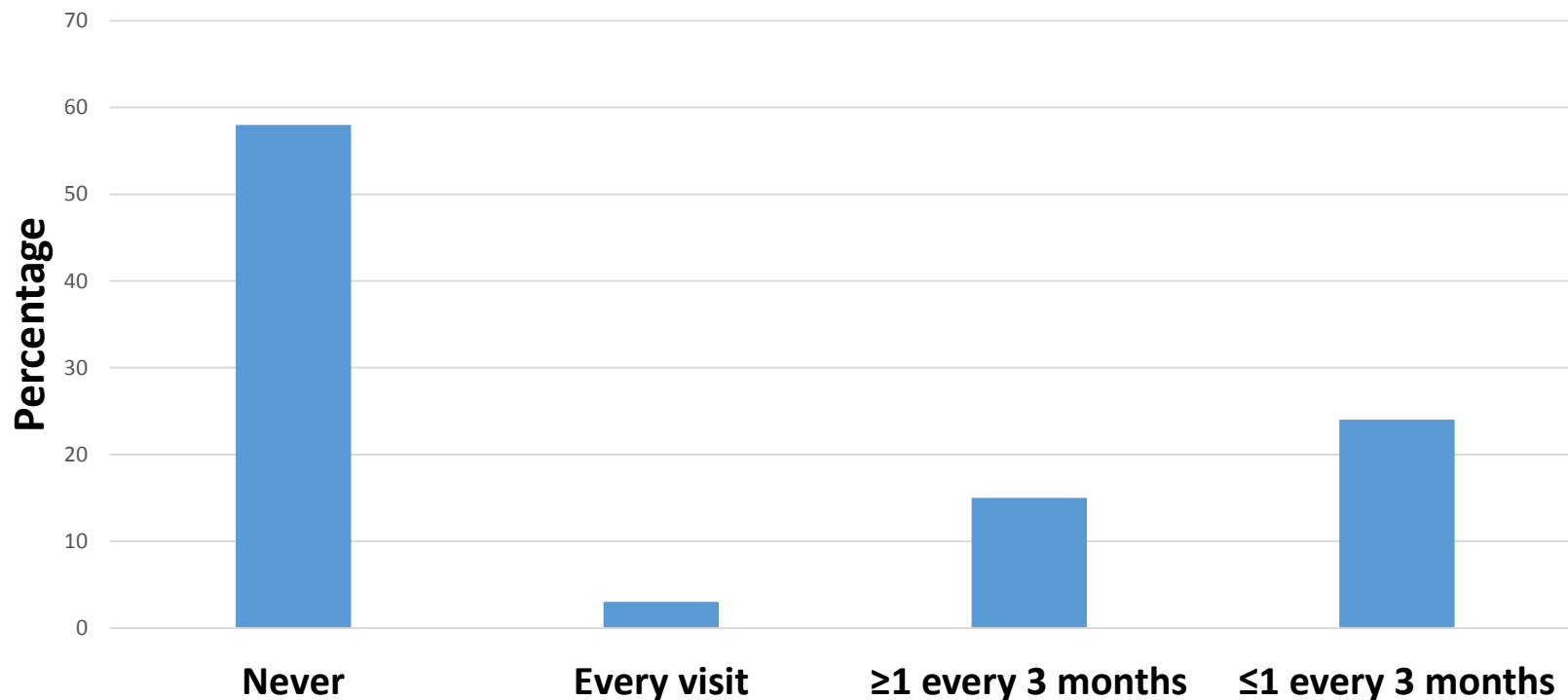
- Overall, **only 16%** demonstrated adequate MDI technique.
- There was **no difference** between medical students and qualified medical staff regarding their knowledge of MDI technique ($p=0.5243$).

Result 3: MDI technique manoeuvres

	Performed: N (%)	Not Performed: N (%)
1. Shaking Canister	124 (64)	71 (36)
2. Exhaling to Residual Volume	75 (38)	120 (62)
3. Coordinated simultaneous activation of the MDI with initiation of inspiration	157 (81)	38 (19)
4. Inhaling through the mouth	180 (92)	15 (8)
5. Slow Deep Inhalation over 5- 6 Seconds.	106 (54)	89 (46)
6. Holding of breath for at least 5 seconds prior to exhalation	118 (61)	77 (39)

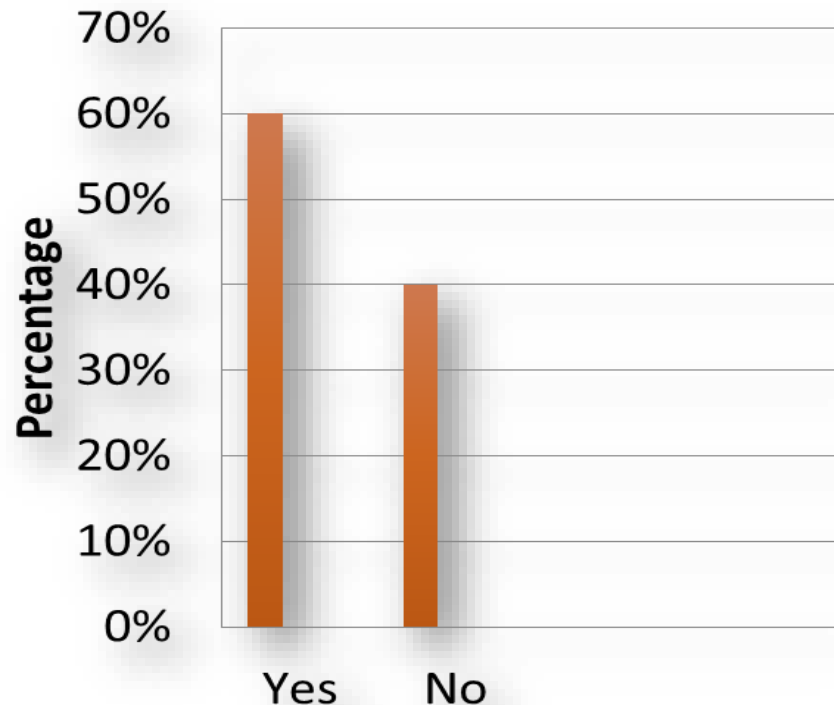


Results 4: HCPs' observation of patients' MDI technique



- **57%** of study participants **did not observe** patients' MDI technique during hospital-related visits.

Result 5: Demonstration of MDI technique to patients by HCPs.



- **40%** of study participants **did not demonstrate** MDI technique to their patients during hospital visits.
- Although 60% of study participants declared demonstrating MDI technique to patients, this study revealed poor MDI technique overall → **INCORRECT MDI TECHNIQUE TAUGHT TO PATIENTS**

Results 6:

	Adequate MDI Technique: n (%)	Inadequate MDI technique: n (%)
Total Number	(n=32)	(n=101)
Male	15 (47)	35 (35)
Female	17 (53)	66 (65)
Demonstrates MDI technique		
Yes	8 (25)	72 (71)
No	24 (75)	29 (29)
Checks patients' MDI technique		
Yes	4 (12.5)	53 (52)
No	28 (87.5)	48 (48)

- There was **no relationship** between knowledge of correct MDI technique and the healthcare providers' practice of demonstrating ($p=0.0728$) and/or observing patients' inhaler technique ($p=0.1564$).

Conclusions

- HCPs and final year medical students have poor knowledge of correct inhaler technique.
- Majority do not routinely demonstrate or observe patients' inhaler technique during inpatient or outpatient contact visits.