

# Knowledge and Practices of Medical Shop Workers in the Diagnosis and Treatment of Corneal Infections



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## INTRODUCTION

- Many people in Nepal use medical shops as primary site of health care.
- Knowledge base of medical shop workers not well characterized, especially for eye disease.
- Corticosteroid eye drops commonly dispensed, but should not be used for corneal ulcers or abrasions, since this could worsen the infection and cause irreversible deterioration of vision.

## METHODS

- Cross-sectional study (June 2017).
- All medical shops in Chitwan and Nawalparasi districts near Bharatpur Nepal enrolled.
- Consenting workers were presented 4 illustrated clinical vignettes and asked the same set of questions for each scenario:
  - Diagnosis (open-ended)
  - Treatment they would dispense (free-response, then multiple-choice by showing a figure with different bottles of eye drops)
  - Other recommendations (to elicit whether they would refer)
- The 4 scenarios were:
  - Corneal ulcer
  - Corneal abrasion
  - Allergic conjunctivitis
  - Normal eye exam

## RESULTS

- 117 medical shops were enrolled; no refusals.
- Characteristics of respondents shown in Table 1

**Table 1.** Demographic information of 117 pharmaceutical shop workers

Characteristics	N (%) or mean (±sd)
Male	93 (79.5%)
Age, years	39.2 (±11.6)
Received training from eye hospital <sup>a</sup>	21 (17.9%)
Pharmaceutical training	
Some	
Medical degree	2 (1.7%)
Pharmacy degree	9 (7.7%)
Homeopathic Pharmacy degree	1 (0.9%)
Health assistant	8 (6.8%)
Community medical assistant	62 (53.0%)
Staff nurse	1 (0.9%)
Government workshop	12 (10.3%)
None	22 (18.8%)

- Responses shown in Table 2. Of note:
  - Most did not correctly identify corneal abrasion/ulcer
  - Most would prescribe antibiotic for each of 3 conditions
  - In free-response question, few would prescribe a topical steroid
  - But in multiple-choice question, 21% would offer a corticosteroid for corneal ulcer
- No significant association between training (either some pharmacologic training, or participation in an eye hospital workshop) and:
  - Providing a correct diagnosis for corneal ulcer
  - Dispensing a corticosteroid for corneal ulcer
- See Table 3

**Table 2.** Survey responses of 117 pharmaceutical shop workers.

Photograph	Correctly identified	Most common mis-diagnosis	Would dispense topical antibiotic		Would dispense any topical steroid		Would refer
			Free response	Multiple choice	Free response	Multiple choice	
Corneal ulcer	47 (40%)	Conjunctivitis (27%)	94 (80%)	98 (84%)	6 (5%)	25 (21%)	91 (78%)
Corneal abrasion	50 (43%)	Corneal ulcer (24%)	96 (82%)	88 (75%)	7 (6%)	15 (13%)	81 (69%)
Allergic conjunctivitis	86 (74%)	Corneal ulcer (12%)	80 (68%)	78 (67%)	28 (23%)	30 (26%)	67 (57%)
Normal eye	43 (37%)	Don't know (46%)	34 (29%)	41 (35%)	6 (5%)	8 (7%)	55 (47%)

**Table 3.** Relationship between training and diagnosis/management of corneal ulcers.

Outcome	Pharmacology training			Eye Hospital		
	Yes N=95	No N=22	OR (95%CI)	Workshop		OR (95%CI)
				Yes N=21	No N=96	
Correct diagnosis	38 (40%)	9 (41%)	0.9 (0.3 to 2.4)	7 (33%)	40 (42%)	0.6 (0.2 to 1.6)
Dispense corticosteroid	6 (6%)	0 (0%)	3.3 (0.4 to 444)	0 (0%)	6 (6%)	0.3 (0.01 to 3.0)

## DISCUSSION

- This study found that a minority of pharmaceutical shop workers could correctly diagnose a corneal ulcer or corneal abrasion when presented with an illustrated vignette.
- Most respondents would appropriately dispense a topical antibiotic for each of these conditions; fewer would include a topical corticosteroid.
- Neither pharmacologic training nor participation in an eye hospital workshop significantly changed the odds of a correct diagnosis or of dispensing a topical corticosteroid.

## CONCLUSIONS

- Most pharmaceutical shop workers recommended appropriate management for corneal ulcers and abrasions, even if they were unable to diagnose the specific conditions.
- Educational gaps that could be addressed with medical shop workers:
  - Correct diagnosis of corneal abrasions and corneal ulcers
  - Knowledge that these conditions should not be treated with a corticosteroid.

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