

## MANAGEMENT OF SORE THROAT IN DUBAI'S PRIMARY CARE FACILITIES

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### ABSTRACT

**Background:** Sore throat is a common problem in primary care. In the UAE, the resistance level to common antibiotics for respiratory tract infections is high and inconsistencies have been observed in antibiotic prescriptions for respiratory tract infections.

**Materials & Methods:** In our audit, we conducted a retrospective analysis of 30 consultations by identifying ICD codes relevant to sore throat symptoms. These consultations involved general practitioners, family medicine specialists, and pediatricians. They were subsequently reviewed for the Centor criteria [as mentioned in National Institute of Clinical Excellence (NICE)'s Guideline No. 69]. We also evaluated if the antibiotic prescriptions being issued were in accordance with the guidelines of Public Health England (PHE) and NICE. A similar exercise was performed for the re-audit. Due to the lack of availability of penicillin V in the UAE, amoxicillin and co-amoxiclav were considered as alternatives for the purpose of this audit.

**Results:** The initial audit's results revealed a compliance level of 76.6% with NICE's guidelines on antibiotic prescriptions for upper respiratory infections. A correct antibiotic prescription was issued in 30.7% of the cases. The re-audit was carried out after the implementation of the changes. The re-audit revealed a compliance level of 73.3% with NICE's guidelines on antibiotic prescriptions for upper respiratory infections. A correct prescription was issued in 21% of the cases.

**Conclusion:** Although the prescription of antibiotics was largely consistent, when indicated, for upper respiratory infections, there was marked variability in the actual prescription of antibiotics (in terms of the choice, length of course, frequency, and dosage of antibiotics). These findings indicate a lack of knowledge with regard to appropriate antibiotic prescriptions in Dubai's primary care facilities.

**Keywords:** Centor criteria, antibiotic resistance, lack of knowledge, over-the-counter antibiotics

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### INTRODUCTION

Sore throat is a very common problem seen by doctors. It can be caused by a number of viruses. Up to 10% of sore throat cases are caused by the Epstein-Barr virus. Group A beta-hemolytic streptococcus (GABHS), the most common type of bacteria, causes sore throat in up to 35% of the cases. Other sore throat-causing organisms include haemophilus influenzae (H influenzae), neisseria

gonorrhoeae, neisseria meningitides and candida<sup>1,2</sup>.

The level of resistance to penicillin, macrolide and quinolone is reportedly high in the UAE. This was evident among isolates from patients with community-acquired respiratory tract infections. According to a study, isolates of streptococcus pneumoniae and H influenzae were tested for susceptibility to antibiotics. Only 57% of those were sensitive to penicillin; however, 98% were sensitive to amoxicillin or clavulanate<sup>3</sup>. In another survey of isolates in the Gulf states, it was discovered that macrolide susceptibility was 45–60% in the UAE and Bahrain<sup>4</sup>.

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Penicillin V, a first-line antibiotic, is recommended by most guidelines for the treatment of streptococcal throat infection<sup>1, 5</sup>. This antibiotic, however, is not available in Dubai. Moreover, current practice includes the use of various other antibiotics.

The audit cycle was carried out at Medicentres (Motorcity branch) over six months to investigate antibiotic prescription practices in Dubai's primary care facilities. It was based on the sore throat audit toolkit developed by the Royal College of General Physicians (UK)<sup>6</sup>. The audit cycle's aim was to identify whether an antibiotic was being prescribed appropriately in terms of clinical indication and assess if the prescriptions were accurate and in accordance with the standards specified by the National Institute of Clinical Excellence UK (NICE) and PHE<sup>5, 7</sup>. As penicillin V is not available locally, the prescription of amoxicillin or co-amoxiclav was considered acceptable.

To assess the clinical indication for the prescription of antibiotics, we used the Centor criteria as our standard. The Centor score allocates one point each for tonsillar exudates, tender anterior cervical lymph nodes, a history of fever, and the absence of cough in patients with a sore throat. A score of 4 suggests that the likelihood of GABHS is between 25% and 86%, whereas a score of 1 suggests a likelihood of 2–23%<sup>1, 2</sup>. It should be noted that at the time of this audit's commencement, PHE's guidance was based on the Centor criteria. However, in May 2016, it was replaced by the FeverPAIN score<sup>7</sup>. For the purpose of this audit, the Centor criteria were used for appropriate comparison of the initial audit and re-audit. NICE and Scottish Intercollegiate Guidelines Network

(SIGN) guidelines from the UK advocated the use of the Centor criteria<sup>1, 5</sup>.

### Aim

The audit's aim was to check for inconsistencies, if any, in the prescription of antibiotics for sore throat. This was measured against NICE clinical guideline 69 (*Respiratory Tract Infections – Antibiotic Prescribing*) and PHE's guidelines (or local infection management guidelines).

### Purpose

The need for this audit arose after the internal evaluation of Medicentres' prescription practices through a patient prescription survey carried out earlier.

## MATERIALS & METHODS

### Standards<sup>5, 7</sup>

1. Patients with one criterion or none of the Centor criteria are most unlikely to have witnessed a bacterial sore throat; therefore, a delayed antibiotic prescription is an option, especially if the patient or GP are unsure of the most appropriate approach, the patient is not able to return to the surgery or the GP is not prepared to take the "risk" of a no-prescribing option.
2. Patients with two criteria may merit testing, including rapid antigen tests.
3. Antibiotic prescriptions should be limited to patients with three or four criteria. If the Centor score is 3 or 4, a two- or three-day delayed or immediate antibiotics prescription or a rapid antigen test can be considered.
4. PHE's current primary care guidance for the acute sore throat antibiotics prescription is given below.

**Table 1.** PHE's guidelines on appropriate antibiotics<sup>7</sup>

Illness	Comments	Drugs	Dosage	Duration
Acute sore throat	Avoid antibiotics as 90% of the cases get resolved in seven days without antibiotics, and the pain reduces in 16 hours	Phenoxymethylpenicillin (not available locally)	500mg QDS or IgM BD	10 days
		Penicillin allergy: Clarithromycin	250–500 mg BD	5 days

### Preparation, Planning, and Data Collection

A search was conducted for consultation records with the clinical conditions mentioned below and the IT team searched for the corresponding codes.

**Table 2.** Codes searched for audit purposes

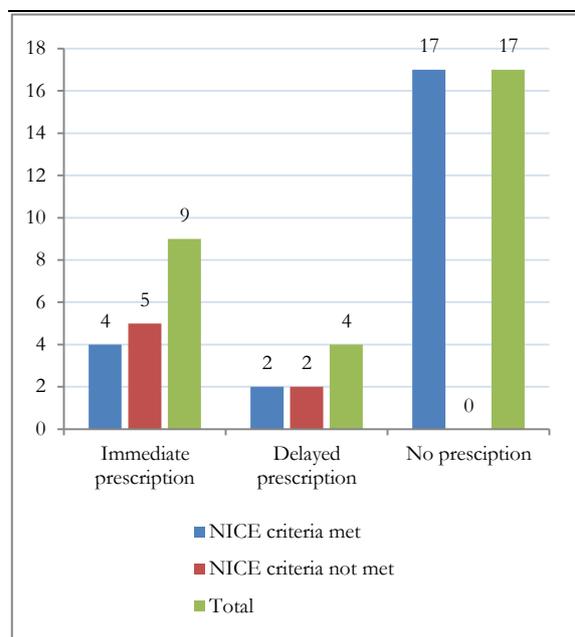
<b>J02.9</b>	Acute pharyngitis, unspecified
<b>J02.8</b>	Acute pharyngitis due to other specified organisms
<b>J06.9</b>	Acute upper respiratory infection, unspecified
<b>J03.9</b>	Acute tonsillitis, unspecified
<b>J03.8</b>	Acute tonsillitis due to other specified organisms
<b>J03.00</b>	Acute streptococcal tonsillitis unspecified
<b>J02.0</b>	Streptococcal pharyngitis
<b>R07.0</b>	Pain in throat

1. After the search was carried out, a list was provided.
2. A retrospective analysis of 30 consultations on Mediware EMR (the online patient record system) for the Motorcity branch of Medicentres Polyclinics was carried out for January 2016 initially in March 2016 and for June 2016 in July 2016 (re-audit).
3. The Centor criteria were searched for in the documentation.
4. Data collection forms (previous version) were used from the RCGP audit toolkit section.
5. Consultations were analyzed according to the data collection forms to determine overall compliance with the primary care standards set by NICE and PHE.
6. Consultation encounters were randomly selected and involved GPs, family physicians, pediatricians and other specialists who had encountered the cases mentioned above.

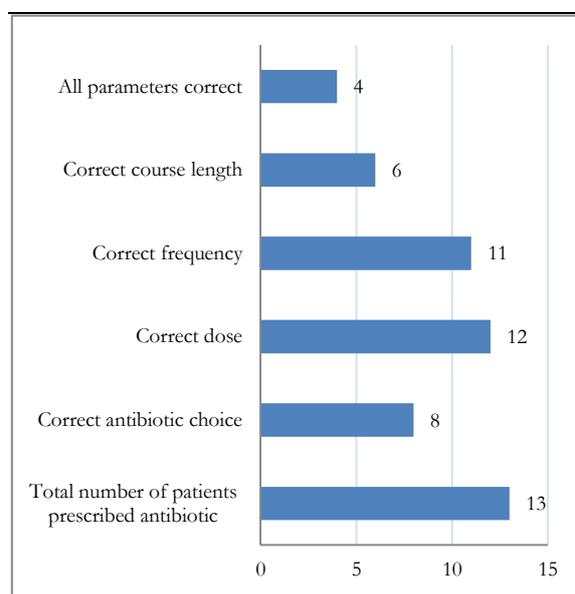
### RESULTS

#### Results of Initial Audit

**Figure 1.** Results of antibiotic prescription based on Centor criteria (initial audit: January 2016)



**Figure 2.** Parameters of antibiotic prescription (initial audit: January 2016)



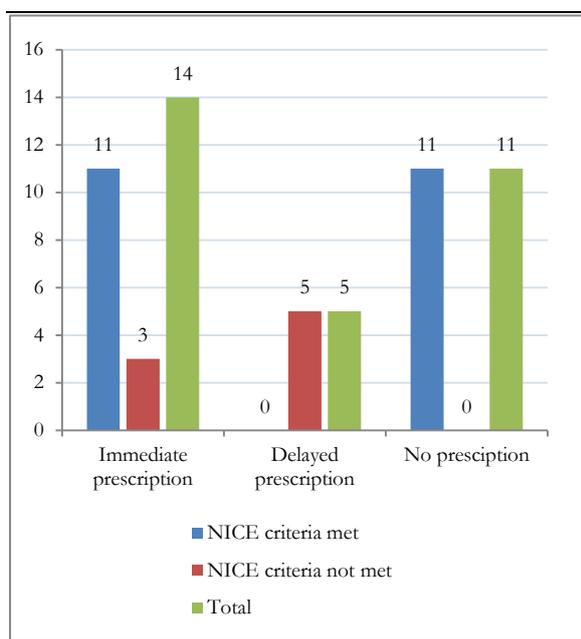
#### Interventions After Initial Audit

1. The audit's results were presented at a medical meeting and emailed to all doctors of Medicentres.
2. The Centor criteria checklist was used during consultations and the NICE guidance tables were used as guidance where clinically indicated.

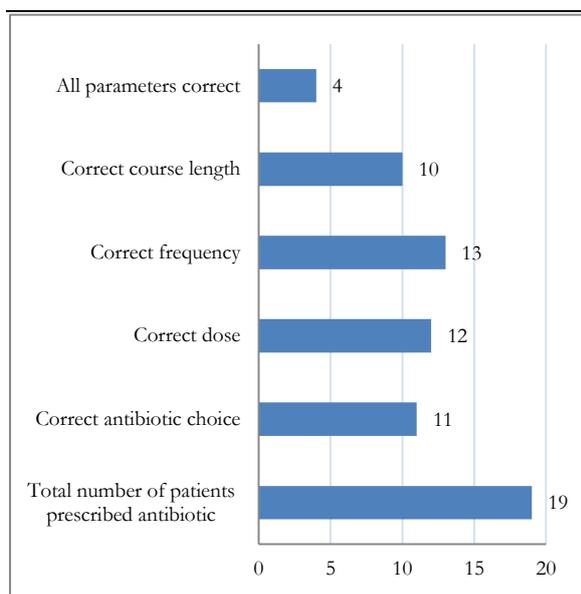
3. The Centor criteria were pasted on the nursing triage station to enable nurses to be prepared in case rapid strep tests or throat cultures were required.
4. The appropriate use of the rapid strep test was established after identifying two or more Centor criteria or in the case of clinical indication.
5. A re-audit was conducted in six months.

**Results of Re-audit (June 2016)**

**Figure 3.** Results of antibiotic prescription based on Centor criteria (re-audit: June 2016)



**Figure 4.** Antibiotic prescription parameters for June 2016 data set



**Overall Compliance Calculations**

**Table 3.** Compliance data calculations

	Data Collection 1 (January 2016)	Data Collection 2 (June 2016)
<b>Overall compliance with NICE guidance (whether to prescribe) = Total NICE criteria met/total number of patients (NICE criteria met + NICE criteria not met) x 100</b>	76.6%	73.3%
<b>Overall compliance to HPA primary care guidance (whether antibiotic prescription parameters are correct) = All parameters of antibiotic prescribing correct/total number of patients prescribed an antibiotic x 100</b>	30.7%	21.0%

**DISCUSSION**

Public Health England’s guidelines changed from using the Centor criteria to the FeverPAIN score for managing sore throat in May 2016. Even the Royal College of General Practitioners updated its sore throat audit data collection forms to reflect this. At that point, the first audit had already been completed. To ensure appropriate comparison of the results, we used the former PHE guidelines on the management of infections in primary care facilities and the older version of the RCGP sore throat audit pro forma.

This audit presents a snapshot of the practices to treat a sore throat in Dubai’s primary care facilities. In more than 70% of the cases, consistency was observed in the practice of whether or not to prescribe antibiotics (Table 3); within those cases, consistency was 100% when it came to no prescription. All 17 cases in the initial audit and all 11 cases in the re-audit

appropriately received no prescription. However, it was noted that there is a lack of knowledge with regard to the choice, length of course, frequency, and dosage of antibiotics. This is because Dubai, a cosmopolitan city, is home to healthcare professionals from all over the world. Due to the lack of definitive local guidelines, practices may vary across the city and other emirates. Clinicians may feel more comfortable following the local guidelines of their place of origin. Moreover, there will be times when patients will report side effects to first- or second-line antibiotics; in such cases, the use of other groups is justified. Such cases were excluded from our audit. Furthermore, there will be instances when patients will demand a certain type of antibiotic, as they may have had a previous good experience with it. Explaining and educating the patient in such circumstances are essential steps to prepare them for future appropriate use. Otherwise, due to the easy availability of antibiotics over the counter, patients can easily purchase inappropriate medicines. This also highlights the need for the development of local guidelines and policies on the management of sore throat based on local microbiological patterns. We know that penicillin resistance in the UAE is high and local guidelines should enable consistent and safer antibiotic prescription practices<sup>3</sup>.

## REFERENCES

1. Management of sore throat and indications for tonsillectomy. Edinburgh: Scottish Intercollegiate Guidelines Network (SIGN); 2010 Apr. Report No.: 117.
2. Ebell MH, Smith MA, Barry HC, Ives K, Carey M. The rational clinical examination. Does this patient have strep throat? *JAMA*. 2000;284(22):2,912–8.
3. Senok A, Al-Zarouni M, Al-Najjar J, Nublusi A, Panigrahi D. Antimicrobial resistance among *Streptococcus pneumoniae* and *Haemophilus influenzae* isolates in the United Arab Emirates: 2004–2006. *J Infect Dev Ctries*. 2007;1(3):296–302.
4. Jamsheer A, Rafay AM, Daoud Z, Morrissey I, Torumkuney D. Results from the survey of antibiotic resistance (SOAR) 2011–13 in the Gulf states. *J Antimicrob Chemother*. 2016;71 Suppl 1:i45–61.
5. Respiratory tract infections – antibiotic prescribing: Prescribing of antibiotics for self-limiting respiratory tract infections in adults and children in primary care. National Institute for Health and Clinical Excellence Clinical Guideline 69. London: National Institute for Health and Clinical Excellence; 2008.
6. Royal College of General Practitioners [Internet]. London: Royal College of General Practitioners; [cited 2015 Dec 15]. Sore Throat Audit. Available from (updated in 2016): [http://www.rcgp.org.uk/clinical-and%20research/~/\\_link.aspx?\\_id=4725F0AA89A349E991425E510F7D6371&\\_z=z](http://www.rcgp.org.uk/clinical-and%20research/~/_link.aspx?_id=4725F0AA89A349E991425E510F7D6371&_z=z)
7. McNulty C. Management of infection guidance for primary care for consultation and local adaptation. London: Public Health England; 2017.