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British Journal of Oral and Maxillofacial Surgery xxx (2017) xxx–xxx

BRITISH  
Journal of  
Oral and  
Maxillofacial  
Surgery[www.bjoms.com](http://www.bjoms.com)

# Management of oral and maxillofacial infections in a regional unit: a seven day service?

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Accepted 18 April 2018

## Abstract

The provision of a seven-day National Health Service (NHS) has been proposed as a means to halt the weekend delay in treatment that has been described in some studies. We tested the emergency services in the Oral and Maxillofacial Surgery Department at Northampton General Hospital to find out whether they provided a seven-day service. Data were collected prospectively and retrospectively for all patients admitted to the Oral and Maxillofacial Department at Northampton General Hospital with infections of the head and neck during a period of 29 months (January 2014–May 2016). Duration of hospital stay and waiting time for operation were compared for weekday and weekend admissions to find out if there were changes in either outcomes or waiting times. The severity of infection between the two periods was also assessed using the serum C reactive protein (CRP) concentration as a marker. A total of 293 patients were admitted with head and neck infections, and the mean (range) duration of stay for those admitted on weekdays was 3 (1–14) days and for patients admitted at a weekend was 3 (1–17) days ( $p=0.14$ ). However, the waiting times for operation were significantly longer during the week (mean (range) 0.6 (0–8) days) than at the weekend (0.5 (0–3) days,  $p=0.04$ ). We know of no other published studies about provision of a seven-day service in oral and maxillofacial surgery. Our results show that we are already working to that standard, and this raises the question of whether any changes are required to current practice in the NHS, with their associated costs and upheaval.

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**Keywords:** Seven Day NHS; Oral and Maxillofacial Surgery; Dentofacial Infections; Sepsis

## Introduction

In 2015, the Secretary of State for Health announced the government's plans for the NHS to provide a seven-day service by 2020, by which a consistent standard of care will be provided for patients for all seven days of the week, and will include access to general practitioners out of hours, and making sure that patients are given the same level of hospital care at weekends as they are on weekdays. This means that enough doctors must be available to assess and review patients, there will be

access to important diagnostic investigations, and consultants will be available to make timely clinical judgements.<sup>1</sup>

The Secretary of State also reported that there is “convincing evidence demonstrating the association between weekend hospital admissions and poorer outcomes, including higher rates of mortality”.<sup>2</sup> The evidence for this has been taken from a summary of 15 studies that has led to claims that patients are 16% more likely to die if they are admitted on a Sunday compared with a Wednesday, and 24% more likely to have to wait longer than two days for an operation at weekends.<sup>3</sup> Although a number of studies have described the “weekend effect”,<sup>4–6</sup> there have also been many that have reported that there are no differences in outcomes for patients admitted on weekdays compared with those admitted at weekends.<sup>7,8</sup> In addition to providing care during the week, the Seven Day

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<https://doi.org/10.1016/j.bjoms.2018.04.009>

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10		CLINICAL STANDARDS
For 7 Day Service		
01		<b>Patient Experience</b> Patients are kept fully informed and actively involved in decision making and consent under senior clinician supervision.
02		<b>Time to First Consultant Review</b> All inpatients are usually seen on a consultant led ward round at least once a day. However, sometimes this is not possible, particularly during periods of leave.
03		<b>Multidisciplinary Team Review</b> All patient are routed in via Emergency Department with appropriate input from other specialties from moment of presentation to hospital.
04		<b>Shift Handovers</b> This is performed twice daily and accurate electronic records are maintained in line with standards.
05		<b>Diagnostics</b> Access to blood tests and x-rays is consistently prompt. However, out of hours there is limited access to specialist imaging.
06		<b>Intervention/Key Services</b> There is consistent access to critical care and general surgery. Interventional endoscopy and radiology may need to be outsourced out of hours.
07		<b>Mental Health</b> Access to mental health services is available throughout the week but out of hours services are limited to severe cases only.
08		<b>Ongoing Review</b> All patients are seen daily by a consultant with additional evening review if deemed necessary. This is consistent throughout the week
09		<b>Transfer to Community</b> All patients are discharged safely with a clear plan regarding further input from primary care or social services.
10		<b>Quality Improvement</b> There is transparency and an active engagement with quality improvement across all levels. Mortality and Morbidity Meetings are a good forum for this.

Fig. 1. Clinical standards set by the NHS Services Seven Days a Week Forum.<sup>9</sup>

Services Forum of NHS England has set 10 standards for ideal urgent and emergency care that patients should expect to receive seven days a week (Fig. 1).<sup>9</sup>

These plans have led to some controversy, and in the light of this conflicting information we have evaluated the pro-

vision of urgent care in the Oral and Maxillofacial Surgery (OMFS) Department at Northampton General Hospital during the seven days of the week.

## Methods

Data were collected from January 2014 to May 2016. Because infections of the head and neck were the most common reason for urgent admission to the Oral and Maxillofacial Surgery Unit, we used this group of patients to assess the provision of a seven-day service.

The data collected included: day of the week; duration of hospital stay; type of infection; site of infection; C-reactive protein (CRP) concentration on admission; whether the patient was treated conservatively or surgically, and date of operation.

The data were taken from: the Northampton General Hospital Emergency Department “Ascribe Symphony™ System” by EMIS Health, UK; the Electronic Discharge Notification System (EDN) by Teleologic, UK; the Sunquest ICE® System by Sunquest, USA; the Nexus Theatre System for Operating Theatres by Newgate Technology Ltd, UK; and departmental handover records.

The results were tabulated as admissions on weekdays and at weekends, which in turn were divided into: surgical intervention required, and conservative management only. The results were analysed to compare number of admissions, duration of hospital stay, and waiting times for surgical interventions on weekdays and on weekends. CRP concentration (mg/L) on admission was used as a measure of the severity of infection.

## Statistical analysis

The data were analysed with the aid of the *t* test to assess the significance of differences between the two groups. Probabilities of less than 0.05 were accepted as significant.

## Results

A total of 293 patients were admitted with infections of the head and neck during the study period, of whom 217 (74%) were admitted on weekdays and 76 (26%) at weekends (Table 1).

## Discussion

We know of no published reports of any other studies that have compared admissions for oral and maxillofacial infections on weekdays and at weekends, and our results show that more patients were admitted during the week. The daily number is also slightly higher on weekdays compared with weekends,

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