

# The spectrum of orthopaedics at Chris Hani Baragwanath Academic Hospital

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## Abstract

Chris Hani Baragwanath Academic Hospital (CHBAH) is the third largest hospital in the world and is the largest in the Southern hemisphere, serving a population of more than 3.5 million people.<sup>1</sup> The purpose of this review is to identify the orthopaedic-related health events that occur within the population being serviced by the hospital, and in doing so provide a tool to be used for improving orthopaedic-related patient care and outcomes in public health services.<sup>2</sup> We also took special interest in the data collected during the 2010 FIFA Soccer World Cup.

## Method:

A retrospective review for the period from 1 January 2010 to 31 December 2010 was conducted. This included all orthopaedic admissions, theatre cases performed and outpatient assessments.<sup>3,4</sup>

## Results:

For the period of the review there were 4 102 orthopaedic admissions from the emergency unit. Theatre records show that 5 832 orthopaedic theatre cases were performed. This comprised more than 75 different types of operative procedures. An average of 780 patients were assessed at the orthopaedic outpatient clinic every week, with a total of 40 516 patients seen in 2010. An evaluation of the statistics over the time period shows no significant differences between 2010 FIFA Soccer World Cup and other months of the year regarding the orthopaedic spectrum.

**Key words:** CHB, orthopaedic audit, Soccer World Cup, emergency admissions, 2010

## Introduction

Chris Hani Baragwanath Academic Hospital (CHBAH) is the third largest hospital in the world and is the largest in the Southern hemisphere, serving a population of more than 3.5 million people.<sup>1</sup> The hospital has a total of 2 888 beds of which 232 are orthopaedic.<sup>1</sup> The Department of Orthopaedics is managed by 48 doctors ranging from interns to consultants.

Late in 2009 the Orthopaedics Department underwent major changes in terms of the revamping of units, staff and programme within its working structure. Following on this, little was known regarding the complete orthopaedic spectrum passing through the hospital regarding the number of patients seen, number of admissions, spectrum of admissions, ranges of surgical cases done, number of cold cases, theatre cases and outpatient data.<sup>5</sup>

This prompted a pilot study in which a number of the medical officers conducted a six-month retrospective audit based on all the aspects around orthopaedics at CHBAH.

This helped to identify and overcome pitfalls in data collection and capturing.<sup>6</sup> The pilot project assisted in providing valuable early information regarding the spectrum of orthopaedics seen at the hospital, allowing the Department to institute changes within.

Following on this we critically examined our results, identified our goals of such an analysis, made the necessary changes in our data capturing mechanisms, and then went on to formulate a complete analysis of the year 2010, the results of which are presented.<sup>6</sup>

This is the first review of its kind done by the Department of Orthopaedics at CHBAH, to date.

*Little was known regarding the complete orthopaedic spectrum passing through the hospital regarding the number of patients seen, number of admissions, spectrum of admissions, ranges of surgical cases done, number of cold cases, theatre cases and outpatient data*

## Aim

The purpose of this audit was to identify the orthopaedic-related health events that occur within the Soweto population being serviced by the Chris Hani Baragwanath Hospital, and in doing so to provide a tool to be used to improve orthopaedic-related patient care and outcomes in public health services.<sup>2</sup> We also took special interest in the data collected during the 2010 FIFA Soccer World Cup.

## Method

A retrospective review for the period of 1 January 2010 to 31 December 2010 was conducted. This included all orthopaedic admissions, theatre cases performed and outpatient assessments.<sup>3,4</sup> Statistics were taken from registers incorporating outpatient departments, wards, Casualty and theatre. These were then correlated with weekly statistics collected by the registrars in the morbidity and mortality meetings. These morbidity and mortality statistics not only included data regarding adverse effects in the department, but also on admissions, theatre cases and outpatient cases assessed in each unit.

## Limitations

The information in these registers was recorded by the nursing staff on duty. Even though the data was correlated against morbidity and mortality statistics, errors in data recording, human errors and non-recording of patients for one or other reason are seen as a limitation to the study.

## Results and discussion

Currently the orthopaedic division at this tertiary level hospital comprises six units, namely the Trauma Orthopaedics Unit, Spine Unit, Paediatric Orthopaedics, Sports and General Orthopaedics, Arthroplasty/Tumour and Sepsis Unit, and the Hands Unit. In order to facilitate the large number of trauma patients passing through the hospital, the Trauma Unit has been subdivided into the Upper Limb and Lower Limb Units. In order to balance out the work load of the Trauma Unit, the Upper Limb Unit also incorporates foot and ankle trauma. The Hand Unit is differentiated from the Upper Limb Unit and focuses specifically on hand and wrist trauma and cold cases.

Each unit has its own respective theatre and outpatient days. At any given day the Department runs on average four elective theatre lists and one 24-hour emergency orthopaedic list. Barring the Spine Unit all of the other respective units have outpatients running twice a week. Taking the above into consideration, the results were tabulated in terms of emergency admissions, theatre cases (for each unit), outpatient data and data during the Soccer World Cup.<sup>6</sup>

### Emergency admissions

In total 15 357 orthopaedic patients were seen in our emergency department in the year 2010, of which 4 102 were admitted with an average of 340 admissions a month (Figure 1). These figures exclude polytrauma patients and it was noted that there was a decline during August (due to the Government strike). January and December were the busiest months with 380 and 424 admissions respectively.

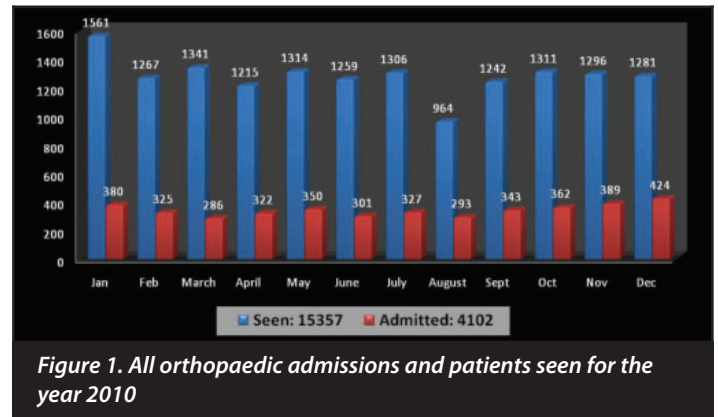


Figure 1. All orthopaedic admissions and patients seen for the year 2010

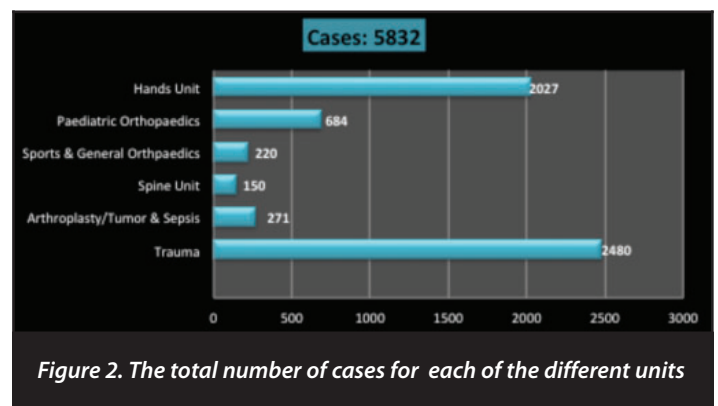


Figure 2. The total number of cases for each of the different units

*In order to facilitate the large number of trauma patients passing through the hospital, the Trauma Unit has been subdivided into the Upper Limb and Lower Limb Units*

### Theatre cases

A total of 5 832 operations (trauma and cold) were performed by the Orthopaedics Department (Figure 2). This amounts to approximately 480 cases a month, with the Trauma Unit being by far the busiest, treating 2 480 patients (the load was shared between the Upper and Lower Limb Units) and the Hands Unit following suit with 2 027 patients.

In terms of the trauma cases the most common procedures performed were open reduction internal fixation of ankles (247 cases) and intramedullary nailing of tibias (198 cases) (Figure 3). The Hands Unit, which is not incorporated into the Trauma Unit, performed surgery for 400 hand fractures in 2010.

The numbers for the cold list are as follows: Total hip replacements (90 cases) as performed by the Arthroplasty Unit, spinal biopsies (33 cases) by the Spine Unit and knee arthroscopies (57 cases) performed by the Sports Unit (Figure 4).

In terms of paediatrics the surgical load was shared between the elective and emergency paediatric trauma, ranging from manipulation under anaesthesia of supracondylar humerus fractures (71 cases) to TA tenotomies (67 cases) (Figure 5).

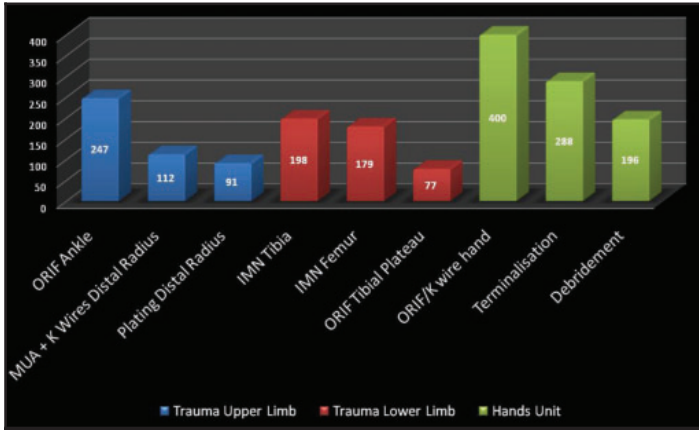


Figure 3. Most common trauma cases performed

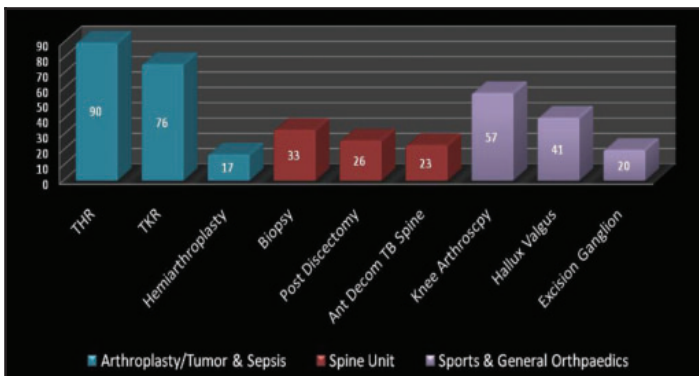


Figure 4. Most common cold cases performed

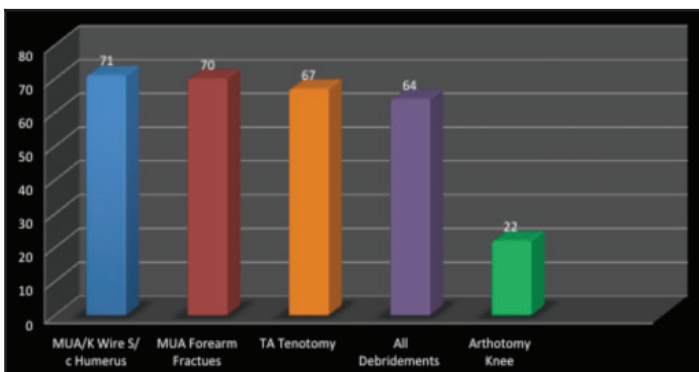


Figure 5. Most common paediatric orthopaedic cases

**Outpatient data**

An average of 780 patients were assessed at the orthopaedic outpatient clinic every week, with a total of 40 516 patients seen in 2010 (Figure 6). Once again the Trauma Unit (Upper and Lower Limb) is the busiest, seeing 11 020 patients, and each of the other units seeing on average 5 000+ patients for the year (including unit-specific trauma, such as spine trauma, which is followed up at the Spine Clinic and not at the Trauma Clinic).

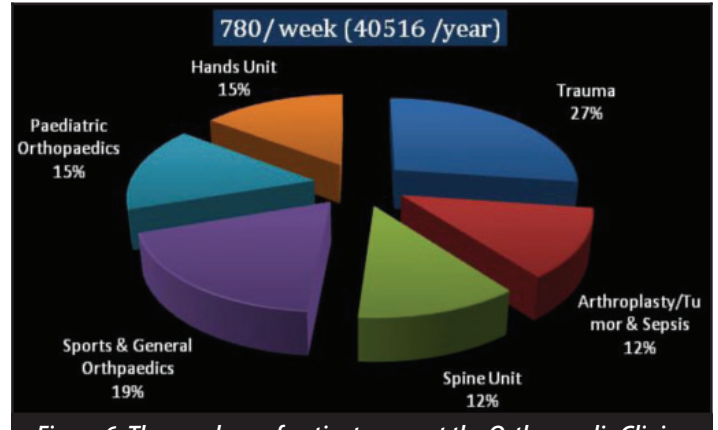


Figure 6. The numbers of patients seen at the Orthopaedic Clinic as a percentage for each unit

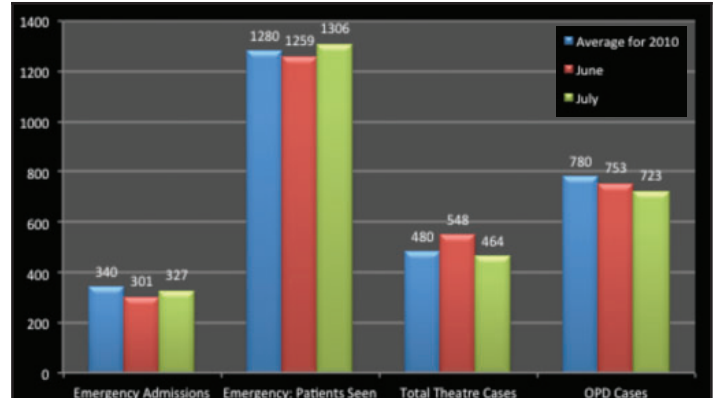


Figure 7. Comparative graph for the months of June/July (World Cup Soccer event) against the average for 2010

**2010 FIFA Soccer World Cup**

Prior to the World Cup there was much speculation and preparation for the event.

There was an anticipated increase in the number of orthopaedic patients and the Department considered relocating resources, such as closing cold units during that period and using elective theatre lists exclusively for trauma. However, due to the backlog in surgery for cold cases, with waiting lists being in some cases as long as two years, the closing of cold units was not possible.<sup>7</sup>

An evaluation of the statistics over the time period shows no significant differences as compared to other months of the year regarding the orthopaedic spectrum in terms of emergency patients seen, emergency admissions, total theatre cases performed and outpatient statistics. The data for June and July were consistent with the average for 2010 for all variables as indicated in (Figure 7).

*An average of 780 patients were assessed at the orthopaedic outpatient clinic every week, with a total of 40 516 patients seen in 2010*



## Conclusion

Thus far the analysis has been invaluable to the Orthopaedics Department at CHBAH. Some valuable outcomes include the following:

- The data have been used to identify priorities with regard to equipment needed and motivation for an additional traction table, fluoroscopy and drills.
- The need for additional staff in the wards and the redistribution of staff to busier units has materialised from the study.
- The study can be used as an instrument to plan for future events, such as sporting events.
- It provides opportunities for future research, helping potential researchers identify areas to explore and investigate.
- It can assist in reducing elective theatre waiting lists.<sup>7</sup>
- The study has identified the need for better and possibly electronic data collection tools.<sup>5</sup>

This analysis presents the complete spectrum of orthopaedics offered at CHBAH. The results aim at improving patient care in and around Soweto.

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