

## **The Staffing of a PACS Administration Team**

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### **Abstract**

This presentation outlines an empirical management research project carried out within the PACS Room of Mater Dei Hospital in Malta. For the purpose of this research all transactions were recorded and timed over a period of 6months. The average times for each transaction were drawn and of these the average time for any transaction was concluded.

Other factors were included in the calculation of how much staff is required; these included personnel working hours, social benefits such as sick leave and vacation leave, patient population throughput and user population supported.

From all this a formula was drawn for a PACS Manager to calculate easily the amount of staff required based on a fixed constant concluded from the accumulated statistics, user population and patient population throughput over a year. This formula will be published for the first time in EMMIT2013 in Morocco.

### **Aim**

To analyse the staff compliment required to meet the demand of services required from the RIS/PACS support team.

### **Objectives**

1. To study how what staffs compliment is required to operate the PACS support services within the public health sector of the Ministry of Health in Malta.
2. To create a formula that can be used to facilitate this calculation in the future without the requirement of delving into laborious analyses of logs.

### **List of tasks taken into account**

#### ***Clinical support task list***

- CD burning
- CD uploading
- Film scanning
- Image deletion
- Exam merging
- Patient merging (PACS)
- Patient merging (RIS)
- PACS profile management:
  - Reset passwords;
  - Reactivate accounts;
  - Creation of new accounts;

- PACS master data file management:
  - Folders
  - Synchronisation of procedures with RIS
- RIS master data file:
  - RIS user profile management;
  - RIS procedures / services;
  - Referring clinics;
  - Referring doctors (consultants);
  - Unlocking episodes;
  - Unlocking profiles / hardware clients;
  - Customisation of searches and layouts.

#### ***Administrative task list***

- Telephone communications
- Administrative meetings
- User training
- User support
- Administrative reports
- Document preparation
- Ad hoc meetings
- Individual hand holding
- Hardware operation and maintenance

#### **Reasoning and calculation**

1. National population: 410000people
2. Radiological exams performed in a year: 259067
3. Population of user profiles utilising RIS PACS or Centricity Web: 1821.
4. Average number of services delivered daily in the PACS room: 120daily

Hence from this data the number of hours of service required to meet the demands of the users was calculated from the numbers of calls logged into the group email call logging address [pacs.mdh@gov.mt](mailto:pacs.mdh@gov.mt) . This totalled up to 28 hours of operation daily. These added up to 7308hours of operation in a year.

From this data the number of operational hours was drawn always taking into account that each employee was entitled to:

- 30 days Vacation Leave;
- 30 days paid Sick Leave;
- 2 days off per week (in a 5day week);
- 1 hour of break daily to (not more than 7hours of operation daily).

The ratio of exams performed to users was 142.3.

The yearly working hours were (7hours x 5days) for a week. These were multiplied with (52weeks – 8 off weeks). This totalled to 1540 working hours per employee per year equivalent to 1 Full Time Equivalent.

Hence working out how many employees were required to man the PACS room Mater Dei Hospital was worked by dividing the total hours of operation (7308) by the number of working hours for each employee (1540). This calculation gave a reading of 4.72 employees required obviously rounded off to 5 FTE.

### Deriving the constant and the formula

It was assumed that the number of users requiring support from the PACS room and to a lesser extent the number of patients that receive services that are complimented by the Digital Systems that are being used during the operational flow of activity are directly related to the staff compliment required to support the service. Users do not use the systems if they do not have patients and if health care professionals do not use the systems there will be no requirement for support.

The ratio of patient episodes to users was of 142.3 episodes per user. Comparing the numbers that were compiled empirically this number needs to be multiplied by 51.16 and divided by the total number of working hours of each employee in a year to achieve the result of number of employees obtained in this project (4.72 which was then rounded off to 5).

Hence the constant 51.16!

**The final formula derived from this project was:**

$$\text{number of employees in PACS Room} = \frac{\text{number of exams per year}}{\text{number of users}} \times \frac{51.16}{\text{working hours for 1FTE}}$$

### Assumptions

- This study is based on the framework of Mater Dei Hospital where employees within the PACS room operate for a 5 day week; hence this may not be directly applicable to a 24x7 service framework or may need some modifications that need to be made after further analyses.
- Some family friendly measures were not accounted for. E.g. “*telework*” possibility and job sharing.
- Development of digital health systems either increasing support tasks or potentially even increasing automation and decreasing the support load were not factored in.
- The skills and skill profiles of support staff will not change radically; i.e. a general decrease in IT skill phenomenon or potentially a general improvement in IT skills may reduce the service times. This was accounted for in part by taking into account 5 current operators within support who vary in skills but the average times map the current skills and competencies.
- There could be other confounding factors that affect performance and some may be related to psychosomatic or psychosocial states of any vulnerable human being.

### Recommendations

- This study could be repeated in a completely different scenario to further qualify the results and perhaps improve on the findings.

- This empirical research could be used to develop a tool that is incorporated in digital health systems that provide administrative interfaces for their professional clients thus assisting in management tasks.
- A similar study could be carried out to investigate and perhaps justify the requirement of a 24x7 shift covering team to meet the clinical needs and requirements of hospital professionals. This furthermore, could be used to study whether the efficiency of service actually increases or remains the same by comparing the numbers of issues that arise with the potential complications of letting these lie until support is available in the PACS room to correct. This would then further impact current portioning costs of wages for shift workers etc.