Project Proposal

Development of an Integrated Gynaecological Patient Information management System for the department Obstetrics & Gynaecology, Kalafong Provincial Tertiary Hospital

1. Project name

Integrated Gynaecology Patient Information Management System.
2. Project vision and objectives

2.1. Problem statement

The Gynaecological Service at Kalafong Provincial Tertiary Hospital forms part of the academic, research and training complex of the Department Obstetrics & Gynaecology, University of Pretoria, and provides gynaecological care to women from the South Western District of Tshwane as well as women referred from outside the region. The services rendered to these women range from primary and secondary healthcare to advanced tertiary care in the fields of gynaecological oncology and advanced laparoscopic surgery.

Kalafong Provincial Tertiary Hospital situated in Atteridgeville has been previously disadvantaged and 21 years into the new democratic dispensation the hospital is still experiencing the legacy of this, as the hospital in this day and age is still not computerized. Clinical records of patients are by way of clinical files which for various reasons make it extremely difficult to get access to accurate data with regards to medical conditions, treatment provided, conditions seen etc. this severely hampers research efforts as well.

The integrated information system required will be designed to need the needs of the academic and research requirements of the department at the hospital.

2.2. Vision

The vision of this project is to create a fully integrated information management system that would provide different levels of clinical and administrative information about the gynaecological service rendered at the hospital.
2.3. Main Objectives

1. To have a web based integrated information management system that will enable access to different levels and kind of information

2. To have a system that allows information to be entered by different users which would include:
   4. Senior medical students
   4. Research assistants
   4. Medical interns
   4. Medical officers
   4. Registrars in Obstetrics & Gynaecology
   4. Consultants of the Department Obstetrics & Gynaecology
   4. Administrative staff of the Department Obstetrics & Gynaecology

3. To have a system that allows information to be entered by using different online web based platforms such as:
   3.1 Smartphones
   3.2 Tablets
   3.3 Laptop computers
   3.4 Personal computers

4. To have a system with secure access to the following administrative information:
   4.1. Demographic data
   4.2. Statistics with regards to the following:
      4.2.1. Diagnostics codes
      4.2.2. Hospitalisation periods
      4.2.3. Theatre procedures
      4.2.4. Surgical complications
      4.2.5. Follow-up data
      4.2.6. Survival data of gynaecological oncology patients
      4.2.7. Admissions per time periods per gynaecology firm
      4.2.8. Surgical procedures per time period per firm
4.2.9. Admissions per time period per firm
4.2.10. Surgical audit data per time period per firm
4.2.11. Critical Incidents Prospective Audit project

5. To have a system allowing secure access to clinical data for research purposes using:
   5.1 Diagnostic parameters
   5.2 Surgical parameters
   5.3 Treatment parameters
   5.4 Survival data for cancer patients

3. Project owner

Department Obstetrics & Gynaecology, University of Pretoria

Contact person

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4. Project scope

Overview of the system

The system should allow data to be entered by medical students, junior doctors and registrars (specialists in training) working in the department. People who enter data should have usernames and passwords (student numbers and HPCSA registration numbers can be used) and they should only be able to enter information and should not have access to data. They should be able to enter data using smartphones, tablets or personal computers in an environment where the hospital is not computerized and computers are not available in the hospital for this purpose.

For purposes of entering data smartphone and tablet applications (apple and android) should be developed to allow smartphone and tablet access to the system

The data should be securely stored on a site on the Website of the University of Pretoria.

The system will consist of different datasets that must be fully integrated. The different data sets will include the following:

- Demographic data of patients admitted to the facility
- Demographic data of patients attended to at the Gynaecological Outpatient Clinic
- Diagnostic data set according to the ICD-10 diagnosis coding system that should have a search facility to allow the codes the be searched by entering the diagnosis
- Surgical data set of all surgical procedures performed based on the Medical Association of SA (MASA codes) procedure codes
- Critical Incidents Audit data set
- Gynaecological Oncology data set used to collect data for the International Federation of Gynecology and Obstetrics (FIGO) staging system
• Data and clinical decisions made at the weekly combined Gynaecological Oncology Clinic

Data will be entered into the system by different employees working in the Department of Obstetrics & Gynaecology at the Kalafong Provincial Tertiary Hospital.

Data of patients entered should include both the patient’s hospital number as well as RSA Identity number.

The possibility of linking this system to that of the National Health Laboratory System (NHLS) should be investigated to make it possible to access laboratory results through this system. The NHLS has an online accessibility.

The administrator of the system should have access to all relevant data. The different levels and specifications of data output will be defined upfront and the ability should exist to add or edit these specifications as required.

Patient information and data are highly confidential and the website and information should be secure. All users will have to use a username and password. Medical students can use University of Pretoria student numbers and medical interns, medical officers and registrars can use their Health Professions Council of South Africa (HPCSA) unique registration numbers. Doctors and students rotate through the department for different time periods and the usernames and passwords should expire depending on the different categories. Students rotate for four weeks, medical interns for four months and medical officers and registrars for up to five years. Administrative staff and consultants are more permanent and for security reasons should perhaps update information yearly.

It must be possible to track entries made by referencing to username and password.
5. Architectural requirements

5.1. Quality requirements

The system must be web based through the University of Pretoria Website and should be sufficiently secured to protect confidential patient information.

5.2. Integration and access requirements

The system needs to integrate with:

- The University of Pretoria Website
- NHLS website
- The existing departmental Microsoft Access database
- The individual datasets that will be part of the system

5.3. Technology preferences

Access should be username and password protected and should be web based using smartphone devices, tablets, laptop and desktop computers.

Users entering data should not have access to the data in the rest of the system and their access should be restricted to what is needed to enter the relevant data.

6. Skills requirements

To be determined by the Department of Computer Sciences, University of Pretoria.
7. Project deliverables

7.1. Documents

Users' manual
Installation manual

8. Intellectual ownership

The intellectual ownership should be jointly that of the Departments Obstetrics & Gynaecology and Computer Sciences at the University of Pretoria.

Once the system has been implemented and functional at the Kalafong Provincial Tertiary Hospital, it can be extended for use in the Steve Biko Academic Hospital, which also forms part of the academic, teaching and research activities of the Department Obstetrics & Gynaecology of the University of Pretoria. The system can be made available for use by other academic departments in South Africa.

9. Client commitments

Resources that are available

• Data sheets currently in use
• Existing Access database

The contact person for this project will be available as needed to the project team and is highly flexible to negotiate time for this project. Regular weekly or bi-weekly meetings can also be scheduled if necessary.

The Department of O&G has limited financial resources available for this project.
If any financial requirements are necessary this would have to be discussed with
the head of the Department. It should be possible to cover costs such as
transport costs, stationary and other administrative costs. Costs for software that
would need to be sourced and other resources required will have to be
negotiated upfront as funding would depend on availability of funds and
sanctioning by the Head of the Department.

10. Supporting Documents

The following existing data collection sheets will accompany this proposal

- Admission and discharge data sheet
- Surgery data sheet
- Critical Incident data sheet
- Gynaecological Oncology data sheets for the following conditions:
  - Cervical cancer
  - Vulva cancer
  - Ovarian cancer
  - Endometrial cancer
  - Uterine cancer
  - Gestational trophoblastic disease
  - Cancer follow-up consultations

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