

AN EVALUATION OF SERVICE QUALITY IN A RESOURCE CONSTRAINED RADIOLOGY DEPARTMENT

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Abstract

The aim of the research was to do a cross sectional survey of the comprehensiveness of the patient care and management system in the X-Ray Department to help in the reduction of patient turnaround time and the timely conveyance of radiological examination results so as to increase patient satisfaction towards services offered by the department. The objectives of the study were to determine the extent of variance of the practical patient management from international standards, assess the effectiveness of the methods of delivery of radiological results towards optimal patient satisfaction, evaluate the extent to which explanation of examination procedures influences the quality of patient care and establish the effects of staff establishment on the levels of quality patient management and care. The data collection tools were self administered English questionnaires. This research instrument was used because it is a cheaper approach (self administered) and less susceptible to interviewer bias. The non-probabilistic convenience sampling technique was applied to the X-ray department staff that included the radiographers (qualified or students) and the radiological support staff based upon the availability for duty during the time of data collection. Data analysis was done using the SPSS v16.0 and Ms Excel (WP) and achieved a 97% (29 out of 30 participants) response rate. The results from this showed that the patient management and care in the department was inconsistent and widely varied from international standards and practices. Inadequate personnel, malfunctional and obsolete equipment, large patient throughput and lack of job satisfaction due to poor working conditions

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and low remuneration packages are some of the factors that influenced the inability to deliver appropriate care. Recommendations were to put in place standard operating procedures by adopting quality assurance in radiology and knowing how to implement and maintain a quality level based on standards set by an external body for example SAZ, ISO and JCI, as well as knowing how to implement continuous quality improvement programs (part of TQM) in the department are also important. Patient centred model like DIGMA, PSMA and LSS are part of continuous quality improvement in the radiology department.

Key Words: Radiology, patient care, service quality, patient management

Introduction

Parirenyatwa Group of Hospitals (PGH) is the largest referral hospital in Zimbabwe. It is situated in the capital city, Harare thus giving it a prime position of accessibility to patients from within Harare and the rest of the country. The hospital has various major departments like the Maternal Clinic, Opportunistic Infections Clinic, Eye Unit, Dental Clinic, Surgical and Medical Wards, Operating Theatres, Casualty and Emergency Department, Radiotherapy Centre and the Diagnostic Imaging (Radiology) Department also commonly referred to as X-Ray Department (XD).

It is the duty of the radiology department to cater for patients referred from within the hospital's general and specialty departments and wards. The XD caters for outpatients in adherence to the zoning system. Casualty and Outpatients Department patients are screened according to the zoning system which prioritizes patients from areas such as the central business district (CBD), the industrial areas and the residential suburbs. The department attends to more than eighty patients per day which include outpatients, casualty and emergency, ward and theatre patients for general X-ray examinations and a variable numbers of between ten to twenty patients per day in CT, USS while less than ten patients a week go for mammography with a sizeable number going for DEXA scans.

There has been a notable increase in inconsistent and inadequate patient management and care in the XD at PGH. There are numerous complaints from patients about the pace of delivery of service and communication of results after the examinations. The department sometimes runs out of accessories and consumables like films both for generals and CT, thermal paper for

ultrasound resulting in cancellations of appointments, the erratic water supply for processing the films and rampant power cuts of which there is no sustainable power back-up for the department as the machinery draws high voltage electricity for which the available generators cannot provide. Equipment breakdown is also frequent. This constellation of factors leads to reduced patient satisfaction and confidence with the services of the department. The current study investigated the effectiveness of the patient care and management system in the XD.

Objectives

The study was informed by the following objectives:

- To determine the extent of variance of the current patient management system from international standards.
- To assess the effectiveness of the methods of delivery of radiological results towards optimal patient satisfaction.
- To evaluate the extent to which explanation of examination procedures influences the quality of patient care.
- To establish the effects of staff establishment on the levels of quality patient management and care.

Research design

A cross sectional survey was conducted. The sample included all the 30 staff members of the radiology department. Each respondent was requested to complete a self administered questionnaire which contained 26 items of which eleven were open-ended questions and fifteen were closed-response questions. A copy of the questionnaire is attached at the bottom of this paper.

Results

Of the thirty questionnaires that were distributed, twenty-nine were completed and returned. This translates to a ninety-seven percent (97%) response rate was achieved. According to Finchman (2008:43) a response rate of 60% for questionnaire based surveys is deemed acceptable. Therefore, based on this criterion the current study meets and surpasses the response rate test. It can be concluded that the response rates recorded in this study are acceptable. Seventeen of the

participants were female while 12 were male. The professional backgrounds of the participants are presented in Table I below. 50% of the participants in the department have at least 2years experience and 23% have 5years or more. Eighty percent of the participants have received training in patient care and management at some point in their professional lives.

Table 1: Professional backgrounds of participants.

Designation	Frequency
Accounts	1
darkroom technician	3
executive assistant	1
Nurse	1
qualified radiographer	11
sister-in-charge (nurse)	1
Sonographer	1
student radiographer	10
Total	29

Physical appearance

Seventy six percent were of the view that appearance and wearing uniforms is important for hospital workers, while 24% disagreed. The same 76% believed that staff appearance has a large influence on patient perceptions of service quality

Complexity of Patient Service by Patient Category

The staffs were asked to rate the complexity of executing patient service on a five point Likert scale with 1 denoting very easy and 5 denoting very difficulty. The total complexity score was obtained by summing up the individual staff scores for each patient category. The results are presented in Table III below.

Table III: Complexity of procedures by Patient categories.

Patient category	Total score
Geriatric	105
Deaf and dumb	113
Ambulant	64
Wheel chair	82
Stretcher	86
Psychiatric	121
Paediatric	84
Ward	80

Psychiatric patients got the highest score of 121 suggesting they are the most difficult patients to deal with, followed by the deaf and dumb who scored 113 and geriatrics with 105. Wheel chair, stretcher, paediatrics and ward patients were the average scorers within the 80-90 score range. Ambulant patients are the lowest scorers, with a score 64 that is even slightly below the half-way demarcation meaning they are the easiest to deal with.

Patient Needs Analysis

The participants were asked an open question to determine which patient categories they believed should receive more emphasis. Wheel chair patients were the most frequently mentioned with 11 responses; paediatrics had 8, whilst 7 respondents had the opinion that all patients should have an equivalent emphasis. Physically impaired, acute patients and intensive care patients had the least frequency of 1 response each.

Prioritization of Patients

The participants were asked to indicate what they would give priority to during times of high patient flux and busy hours. 56.7% (n=17) opted for patient waiting time and proper patient management, 26.7% (n=8) considered patient waiting time, 13.3% (n=4) went for proper patient management and 3.3% (n=1) did not answer the question.

Procedure Explanation

Literature posits that patient knowledge and awareness to the systems of the department helps improve their cooperation, safety concerns and boost their confidence towards the department, the caregiver and all the services rendered upon them. The participants were asked to indicate the extent to which explaining the procedure to the patient was helpful. There were 70.0% (n=21) participants who deemed that explanation of procedures was very helpful in increasing patient cooperation and awareness to the departmental systems, 23.3% (n=7) participants responded helpful, 3.3% (n=1) had the unhelpful response and 3.3% (n=1) missing.

Awareness of Improvement Needs

Ninety percent (90%) believed that there was a need for the standard of patient care to improve within the department. When asked about the average turn-around time for a procedure 41.4% of the participants opined that they did not know while 31% were of the view that the turn-around time was between 11 and 20 minutes. When the participants were asked to pin point the advantages of a high standard of patient care the following responses were given:

Departmental benefits

Increased patient cooperation

Increased patient throughput

Good reputation

Quick address of patient complaints

Better quality of work output

Reduction in medicolegal implications

Increased efficiency

Increased department revenue

Reduction in workload

Improvement in working conditions

Satisfaction for the patients

Diagnostic value

Patient benefits

Therapeutic value increased

Better patient assurance

Increased patient cooperation
Increased patient satisfaction
More confidence towards the radiographers
Reduced TAT and short waiting time
Respect
Increased patient safety, autonomy and disclosure
Improved care quality
Affordability
Increased awareness and understanding of procedure

Service Quality Improvement

A number of suggestions were proffered as possible panaceas to poor quality service. The most common of these were:

Suggestion box for patient opinions
Specialisation in departmental services
Booking system
Continuous education
Digitisation
Adequate functional equipment
Adequate personnel
Security and monitoring
Standard operating procedures/ International regulations
Punctuality
Staff discipline
Management and department structure

Patient Reports

The reporting for examinations done in the department is done by the radiologists and only ultrasound is reported by the sonographer. Thirteen participants (44%) said it took less than 30 minutes for reporting in cases of emergency or in ultrasound, 8 participants (27%) responded that it took 1-24 hours for reportage which lies in the international guidelines for many non-

emergency examinations, there were 2 responses (6%) for the time range of 24-72 hours. 23% (7) of the participants did not attempt to answer this question. Furthermore, the main mode of delivery of the patient examination results or reports according to the study, was through the unsealed envelope addressed to the patient or referring physician which had 25 (86.2%) responses.

Knowledge about universal precautions

Universal precautions were introduced in 1985 as a means of using barriers for all contacts with blood and certain body fluids known to carry blood borne pathogens, the need to use barriers such as gloves and masks depends on the nature of interaction with the patient rather than on the specific diagnosis, Ehrlich and Daly (2008). When asked about universal precautions 11(37.9%) participants correctly identified universal protection as a way of protection against infection in the workplace, 16 (55.1%) respondents had no idea about it, 1 was incorrect to say it is a means of instructing patients, while 2 did not attempt the question and one believed that it was a type of aseptic procedure. Asked whether the universal precautions rule was used in the department 40.0% (n=12) of the participants responded in the affirmative, 33.3% (n=10) did not respond whether they use or not the rule and 26.7% (n=8) responded NO. The reasons for not using the rule ranged from lack of knowledge (37.5%), followed by large patient throughput and staff being always careful (25%) then inadequate facility for implementing the rule (12.5%).

Self Efficacy of Staffs

The participants were asked to indicate the degree of their competence. This was a proxy measure of the staffs' self efficacy. Fourteen (48.2%) participants believed that they were competent and 12(41.3%) were very competent, while 3 (10.3%) responded that they were average. The participants were further probed on the factors that hinder them from rendering appropriate patient care and management. Scores were allocated for the given responses as follows:

YES - 2 MAYBE - 1 NO – 0

The total score was computed as the sum of the scores of the different participants per factor. The results are presented in Table IV below. The most commonly cited factors were job satisfaction, working conditions and personality of staff

Table IV: Factors that influence ability to deliver appropriate care

Factor	Yes	Maybe	No	Total
Working conditions	23	5	1	51
Personality of staff	19	8	2	46
Job satisfaction	25	3	1	53
Level of training	20	7	2	47
Time	22	4	3	48
Condition of patient	20	8	1	48
Interdepartmental relations and communication	21	7	0	49

Perception on overall service quality

The participants were asked to assess the overall quality of patient management and service in the department. There were only two types of responses. Thirteen (44.8%) opined that it was good and 16 (55.2%) opined that it was average.

Discussion

More than 50% of the sample was well experienced with more than 2 years working experience thus making them well versed with the patient management and care issues and 80% of the participants did undergo patient management and care education either in academic studies or professional careers.

There was 76.7% response that uniforms are important and appearance influences the perceptions of patients on the caregiver. Contrary to the ascertainment that uniforms were important, there is no any uniform dress code, with the exception of nurses and students, in the department though most of the personnel will be appearing good. This detracts from the professionalism that the department is supposed to convey. According to Ehrlich and Daly (2008), uniforms are intended to present a simple. They should fit comfortably and be worn with simple, appropriate accessories. The appearance of staff, the department and the examining room is equally important. An untidy, cluttered department or room is difficult to keep clean and it shows a lack of respect for patients. It sends a nonverbal message that personnel may be too pressured or too uncaring to answer questions or provide reassurance to the patients' needs.

Furthermore, the general assessment on the department had 55.8% of the sample putting forward that the department delivered an average performance on patient management and 44.2% said it was good. This situation may be as a result of inadequate personnel. Lack of radiographers and related personnel, leads to an increased workload burden on the few available staff hence occupational burn out which reduces motivation in the employees. This impacts negatively on patient care. Malfunctioning equipment and shortage of resources might be other constraints limiting the full potential delivery of excellent patient care and management in the department.

This study reports a wide variation of the reporting times. There was 44% of the sample said it takes less than 30 minutes to produce a report, 27% said it takes between 1 to 24 hours, and 6.% said it took more than 48 hours. Reports that have a turnaround time of more than a day are considered delayed. These inconsistent reporting times do not favour optimal patient satisfaction and lies out of the expectations of a department operating on standard principles and regulations as it can lead to late diagnosis

According to the Practice Standards for Medical Imaging and Radiation Therapy (USA, 1990), imaging services should aim to provide reporting turn-around times as follows (from examination to report being available to the referrer):

- Urgent cases - Immediate (within 30 minutes)
- Inpatients and Accident and Emergency - Same working day
- All other cases - By next working day

Exceptions will inevitably occur where multidisciplinary team discussions or specialist opinion is required. For this reason a tolerance of 90% achievement is reasonable.

Hoe (2007) concurred to this by illustrating that understanding the customer's needs and expectations regarding quality of services is an essential part of improving service delivery, and in radiology, there are a number of factors that need consideration, that is, the general reception of the patients, positive identification and courteous, correct examination with informed consent and the production of reports.

The patients' radiological examinations results in this study are delivered to the requesting physician. 86.2% responded that unsealed envelopes addressed to the patient or referring physician is the most common mode of delivery and 3.3% is delivered by other modes such open report papers or open patient request forms, sealed in envelope, via internet or telecommunication systems. The main mode of delivery of results is less effective due to compromised security and safety concerns for the contents in the unsealed envelope and limited confidentiality and privacy of patient health information, status and conditions. Ehrlich and Daly (2008) emphasize the importance of privacy and confidentiality in delivery of radiology reports. Furthermore, most countries including Zimbabwe, have well defined laws on patient confidentiality. The right of privacy also includes the expectation of confidentiality.

The findings show that explanation of procedures was regarded very helpful by 70.0% of the sample, helpful by 23.3% therefore highlighting the need for its consistent application by the department. Ehrlich and Daly (2008) illustrated that radiographers and any member of the healthcare should have a great deal of knowledge about health promotion and the treatment and diagnosis of disease. In the best of all worlds, this information would be directly applicable to patient education as well as to competent performance in the radiology department. However, the opportunities for health teaching in a radiology department are limited by the busy schedules of both the patients and the department.

The study findings show that there are inadequate personnel especially radiographers, consultant and specialty radiographers and radiologists, there are 14 radiographers against a requirement of 26 radiographers, no registrars or consultant radiographers and no resident radiologists. There are various consequences that arise due to inadequate personnel in the department. The stressful demands of clinical practice often tend to overshadow humanitarian considerations and this is exacerbated by increased workloads due to staff shortages, poor remuneration and unpleasant working conditions may affect one's ability to cope with stress and workplace pressure. The patient's needs may be overlooked while one tries to cope with highly technical material unless an effort to learn is made from the beginning to handle both at once; therefore this influences the ability of staff to deliver appropriate patient management and care.

Conclusions

The study revealed that the standards of patient care and management systems being practiced in the department are inconsistent and greatly diverge from the international standards and regulations as obtained from literature. There is need for great improvement. The knowledge and principles are known by the employees or are well documented in the employment code and the departmental code of conduct but there is lack of enforcement of the standard of procedures. The issue of uniforms and general departmental hygiene and cleanliness should be explored more to ensure positive patient perception towards the personnel and the care they receive in the department to be in tandem with international standards.

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Questionnaire

RESEARCH STUDY QUESTIONNAIRE

X-Ray Department Personnel Questionnaire

A questionnaire on patient management systems in the X-Ray Department at Parirenyatwa Group of Hospitals

Please tick where appropriate and fill in the necessary information

1. Sex: Male Female

2. Departmental		Designation:
Radiologist	<input type="checkbox"/>	Qualified
Radiographer	<input type="checkbox"/>	Student Radiographer
Nurse	<input type="checkbox"/>	Dar kroom
Technician	<input type="checkbox"/>	
General Hand	<input type="checkbox"/>	

Other, specify.....

3. Work Experience: 5 Years or above

2-4 Years

1 Year or less

Student

4. Did you undergo patient care and management education in your academic studies or in your professional career?

Yes Partly No

5. How important is a uniform when working in the X-Ray Department?

Very important Not important No idea

6. Do you think your appearance affects the patient's perception of you?

Yes Sometimes No

7. Can you please rate nature and level of care in regards to the following patient categories: Please put a **SINGLE** tick against every category in the columns.

Patient Category	Very Easy	Easy	Standard	Difficult	Very Difficult
Geriatric					
Deaf and Dumb					
Ambulant					
Wheel chair					
Stretcher					
Psychiatric					
Paediatric					
Ward					

8. Which categories of patients do you think more emphasis should be placed in the patient care and management module? Give reasons for your choice.

.....

.....

.....

.....

9. In a situation where the department is most busy, what would you prioritise?

Proper patient management Patient waiting time Both

10. Do you think explanation of procedures to patients helps increase patient cooperation and their awareness to the systems of your department?

Very helpful Helpful Unhelpful Very unhelpful

11. Do you think the standards of patient care in your department can be improved?

Yes No

12. What is the general average patient turnaround time in general radiography in your department?

.....

13. What are the benefits of high standards of patient care to the:

Department:.....

.....

Patient:.....

.....

14. In your opinion what are the major strategies, plans and systems that can be put in place to ensure an improvement in patient management in your department?

.....

.....

.....

.....

.....

15. How long does it take to produce reports for the examinations done in your department?.....

16. What is the mode of delivery of the patients' examination results or reports?

a) Sealed in an envelope addressed to the patient or referring physician

b) Unsealed envelope addressed to the patient or referring physician

c) Via internet or any other telecommunication channels

Others, specify.....

17. What do you know about Universal Precautions?

- (a) No idea
- (b) It is a means of instructing patients
- (c) Ways of protection against infection in the work place
- (d) Means of aseptic procedure.

18. Do you follow this rule in your daily patient care?

Yes No

19. If No, why?

- (a) Inadequate facility for it
- (b) Large patients through put
- (c) Not important
- (d) I am always careful

Others, specify.....

20. How often do you clean couch, cassettes or wash hands?

- a) After the days' job
- b) After examining any patient
- c) Only after examining patients with open wounds
- d) Before and after work

Others, specify.....

21. How do you rate yourself as a member of the healthcare team in the X-Ray Department?

- a) Very competent
- b) Competent

- c) Average
- d) Incompetent
- e) Very Incompetent

22. Do the following factors influence the ability of the department's personnel to deliver appropriate patient management?

Factor	Yes	Maybe	No
Working conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personality of staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Job Satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Level of training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patient's condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interdepartmental relations and communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23. What is your overall assessment of the patient management being delivered by your department to patients?

- Excellent Good Average Poor Very Poor

24. Whose responsibility are ward patients in the X-Ray Department?

- Radiographers Support Staff Nurses Everyone

25. What cases of patients are classified as emergencies in the department?

.....

.....

26. Do you have a departmental emergency trolley with drugs? Yes No

If yes, can you name at least any two.....

.....

If no, give a reason for not having the emergency trolley or the drugs

.....

.....

Thank You for Participating in this Research Study!

