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Surgical Hot Clinic – An Effective Pathway of Reducing Emergency Admissions and the Associated Costs

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Abstract: **Emergency services need to be restructured due to increase in volume of patients both in emergency department and in terms of admission. We need to find out an alternate care pathway by which we will not only reduce the pressure of the A & E department, but also reduce the admissions and readmissions and thus save beds for the hospital. With this idea the concept of 'Surgical Hot Clinic' was established. The study was conducted to show the capabilities of 'Hot Clinic' in reducing admissions, readmissions and associated cost. We also conducted patient experience and GP feedback survey.**

Methodology: A prospective study of all patients attending the hot clinic over a period of 6 weeks (Feb-Apr 2013) was undertaken.

Results: There were 346 patient attendances in the hot clinic during the study period. The age range of patients was 16-92 with a mean of 47 years. There were 148 males and 198 females in the study group. 133(38.4%) primary admissions and 36(10.4%) readmissions were avoided through the service of 'Surgical Hot Clinic' over the study period of. The cost per day at 'Barking, Havering and Redbridge Hospital trust' is £300. This translates to a saving of £39,900 over 6 weeks period of the study even if patients were only admitted for one day and the projected savings £345,800 over a 12-month period. There are other cost savings that are not calculated here. 98.5% of the GPs, who were surveyed, recommended this service to be available in the hospitals. >95% of the patients who attended the clinic during the study period had a very good experience and they recommended their family and friends of this service.

Conclusions: 'Surgical Hot Clinic' reduces emergency admissions and readmissions and associated cost.

Keywords: **Hot Clinic, Emergency readmissions, readmission cost, surgical readmission.**

1. INTRODUCTION

The Emergency departments are facing increased pressure leading to high number of patient being admitted. Over the last decade there has been a 47 per cent increase in emergency admissions (1). In addition to this, Accident and Emergency departments in hospitals in England are not reaching the targets of dealing with patients within four hours (2). Due to pressure in the Accident and emergency department, quality of patient care is deteriorating (3). Ambulatory care is an evolving approach by which emergency patients can be diagnosed, treated and discharged from the hospital on the same day without admitting the patient into the hospital (4-7). It has been estimated that around £2.3bn (€2.9bn; $3.7bn) could be saved by reducing unnecessary emergency admissions. (8, 9).

The Department of Health (DH) has introduced a new policy of non-payment for acute hospital readmissions where any readmission within 30 days of discharge from an acute hospital following an initial planned stay will mean a non-payment of charges (10). It is also known that a small reduction in readmission rates could have a substantial financial impact (11). Research has aimed to identify and reduce hospital readmission rates and in turn to improve patient care (12, 13).

To effectively address this challenge we have come up with a new pathway known as 'Surgical Hot Clinic'. The surgical hot clinic is a newly established rapid access clinic that allows quick review of surgical emergency patients by the specialist to facilitate early discharge or prevent unnecessary admissions. It is aimed to safely assess surgical patients referred by GPs and also to see the patients who are discharged from the wards for early follow-up and to arrange the outpatient investigations on the same day where possible without need for admission. It also reduces the pressure in A&E department by allowing emergency patient to get direct access to specialist care.

2. AIMS / OBJECTIVES

The aims/objectives of this project are to study the benefits of the surgical hot clinic in direct access to surgical specialist bypassing the A & E department, reducing the primary surgical admissions and readmissions, the cost benefit associated with it, patient satisfaction on the alternate care pathway in emergency surgery and General practitioners feedback and satisfaction on the new emergency care pathway in surgery.

3. METHODOLOGY

This is a prospective analytic study of patients attending the new 'Surgical hot Clinic'. It was registered with the audit department of a busy NHS trust in London. As it was an evaluation of efficiency and benefits of new pathway and also routine practice evaluation and a service improvement project, ethical clearance was not deemed necessary. All patients attending the hot clinic over a period of 2 months (February 2014 to April 2014) were analyzed. As a part of the study, case notes, electronic discharge summaries and clinical coding records were reviewed.

The exclusion criteria were all patients who were haemodynamically unstable and were not suitable to be seen in a clinic setting and also those patients who came on trollies and bedbound from nursing home. The paediatric patients below 16 years were also excluded from attending this hot clinic.

We surveyed patients experience on 'Surgical Hot Clinic' by a specific questionnaire. We collected systemic data prospectively over 8 weeks from March 2014 –April 2014. The questionnaire was approved by the local Audit department. We handed the questionnaires to patents after the clinic, and asked them to leave it after completion in the designated box located in the Hot Clinic area.

Finally we also surveyed experience of General Practitioners of this region on 'Surgical Hot Clinic' over 8 weeks period from April 2014-May 2014.This questionnaire was also approved by the local Audit department. We collected the telephonic data, by calling the GP surgery in this region. All the responses were recorded on an Excel ™ spreadsheet and analyzed later on. Descriptive statistical analysis was done to evaluate the results.

4. RESULTS

There were 346 patient attendances in the hot clinic during the study period. 182 patients were new referrals (General Practitioners or Emergency department). 150 (44%) of these patients were direct GP referral and 32 (08%) patients were referred to the hot clinic from the emergency department. 100 (29%) attendances were the follow-ups from the hot clinic and 64 (19%) patients were follow-ups discharged from the ward. The mean age of patients was 47 years (range 16-92 years). There were 148 males and 198 females in the study group.

There were 325 (94%) general surgical and 21 (6%) vascular cases.

Among the general surgical cases, abdominal pain (47%) accounted for most common presentation. (Fig-1)

Among the vascular diseases 17 were arterial and 04 were venous disorder cases. Among the abdominal pain group seen in the 'hot clinic', 125 patients were not admitted to the hospital. Among them, 50 patients (40%) were discharged back to the general practitioners. Of the remaining 75 patients, 45 patients (36%) were referred back to hot clinic for further evaluation, 18 patients (14.4%) were referred to routine surgical clinics for specialist management and 12 patients (9.6%) were referred to other specialist.

Out of 164 follow-up patients that were seen in the 'Hot Clinic', 40% (64 patients) were recalled to 'Hot Clinic' as follow-ups from ward discharge and 60% (100 patients) were follow-ups from previous "Hot Clinic" consultation. Among the ward follow-up patients, most were post-operative patients who were discharged safely earlier with a view to review in the 'hot clinic' earlier than the routine follow-up clinic appointment. Among them, 03 patients required admissions for further management and rest of them were discharged from the Hot Clinic.

Of the 100 'Hot Clinic' follow-up patients, 32% were discharged back to their general practitioners, 40% were referred back to 'Hot clinic' for another review, 20% were referred to routine surgical clinic for specialist care and 08 % were referred to other specialist like Gynaecology and urology.

Among the follow-up patients only 7.3% (12 patients) required admissions of which 09 were from "Hot Clinic' follow-up and 03 were ward follow-up patients.

According to the data there were 38 admissions (11%) out of 346 patients that were seen in the 'Surgical Hot Clinic' during the six-week study period. Of 38 admissions, 33 (87%) belonged to General Surgery and 05 (13%) to vascular specialty.

Outcome of the patients attending 'Surgical Hot Clinic':

According to the data, 133 (38.4%) primary admissions were prevented due to the availability of alternate care pathway in the form of 'Surgical Hot Clinic'. This is based on the fact if all patients came via Accident and Emergency A & E) department with no facility for the surgical hot clinic and seen by on-call surgical junior doctors. These patients would be admitted via A & E for further investigations and evaluation.

36 (10.4%) surgical re-admissions were prevented by 'Surgical Hot Clinic' over six week study period. All the admissions within 30 days of discharge were considered as readmissions. With the facility to follow up patients very soon and assessment by a senior clinician in the hot clinic and with urgent access to necessary investigations, 'Surgical hot Clinic' reduces primary admissions and re-admissions.

The study shows that 133 primary admissions and 36 readmissions were avoided through the service of 'Surgical Hot Clinic' over the study period of six weeks. Hence it has avoided admissions for total 169 patients. The cost of 1 (one) night admission at 'Barking, Havering and Redbridge NHS trust is around 300 pounds. It equals to £39,900 pounds saving over the 6 weeks period of the study even if all of these patients were admitted only for one day. It equals to projected savings of £345,800 over a 12 months period. This is the direct cost saving. However, there are indirect savings that are not calculated.

Our local health partners were involved in developing this service. The feedback survey showed, out of 71 GPs, 98.5% (70 GPs) knew about the hot clinic service and 86% (61 GPs) have already utilized this pathway and referred their patients to the 'Surgical Hot Clinic'. 86% GPs strongly agree that they found the 'Hot Clinic' service useful to refer their patients bypassing the accident and Emergency department. Only 14% GPs neither agree nor disagree with the question whether this service was useful to refer patients bypassing the emergency department. 87% of the interviewed GPs had excellent overall experience with the 'Hot Clinic' service. The rest of them remain neutral to comment on that. Based on their experience, 98.5% GPs thought that 'Surgical Hot Clinic' service pathway should be available to other specialties or in other hospitals. (Fig-3)

General Practitioners experience Survey:

We also took feedback from patients about our new service. 115 patients in total completed questionnaires for this survey. In the patient's demographics, there was 60% male and 40% female participants. The age range of the participating patients was 16-85 with mean age 45. 58% of the participating patients stated that it was their first visit and the remaining 42% stated that it was a follow up appointment. 80% of the surveyed stated that they came to the Hot Clinic directly from GP and 20% stated they came via Accident and Emergency department. Regarding standard of waiting area, most (>95%) rated as very good or good with only few patients (<5%) rating as average standard. None of the patients rated the waiting area as poor or very poor. The majority of the patients (61%) saw a nurse within 15 minutes of being booked at the reception of 'Surgical hot Clinic'. 86% of the patients saw the nurse within 0-30 minutes of booking at the reception. Very few patients (5.3%) stated that it took >60 minutes to be seen by a nurse. 91 patients out of 115 (80%) stated that they were seen by a doctor in the 'Hot Clinic' within 60 minutes of waiting time and 70 patients (71%) were seen by a doctor within 30 minutes of their arrival. Only 4 patients (4 %) waited >2 hours to see a doctor (fig-4).

92% of the patient (105/115) stated that they were involved as much as they wanted to be in decisions about their care and treatment in almost all of the time or most of the time. <1% of patients felt they were not involved in the decisions regarding treatment.Patient privacy is a big issue in the overall management of a patient. >95% of patients (105/115) felt they had sufficient privacy during the consultation time in the Hot Clinic. 95 patients out of 115 (>82%) participated in this survey rated the doctors, nurses and the nurse practitioners from very good to good. Only 11 patients rated the doctors as fair.

Regarding cleanliness of the Clinic area, most patients stated that the cleanliness level deserved the top rating. More than 77% of the participant stated that the area was very clean and 22% rated it as a fairly clean. Two-third of the patients rated their overall visit experience 10 out of 10 where 10 considered as excellent and 1 as poor rating. >95 patients rated their experience as 8 and above.

>95% of patients preferred being seen by a Hot Clinic specialist rather than being referred to Accident and Emergency department. Nearly all the patients felt that they had more than sufficient information regarding their diagnosis and future treatment. Most of the patients (>92%) wanted to recommend the 'Surgical Hot Clinic' to their family and friends if they needed similar care or treatment. (Fig-5)

Few patients made additional comments on their overall experience. Most of them were very pleased with the staff and environment stating that the service was very good and the staffs were very helpful.

5. DISCUSSION

This is a pilot study of alternate care pathway in emergency surgery.

Due to change in the number and type of patients requiring emergency surgical care in hospitals across the UK, emergency service provision needs to be restructured and prioritised (20). Hospitals are recognizing this need and trying to restructure the emergency service delivery system to improve patient experience. The 'Surgical Hot Clinic' is a new specialized clinic designed to achieve this goal. Few hospitals in UK have established 'Surgical Hot Clinic'. For example, The Royal Blackburn hospital in East Lancashire has started running this service for few years. According to their published article (20), it has been a great success and has revolutionised the management of emergency surgery in East Lancashire.

The efficacy of the surgical HOT clinic was assessed in terms of admission avoidance and the rate of re-admissions. The patient satisfaction and GP feedbacks are also taken into account in measuring the usefulness of this pathway. Patients referred by General Practitioners, who have acute surgical problems are seen in the 'Hot Clinic' on the same day bypassing the Accident and Emergency department. Also, the patients discharged from the ward requiring early review are brought back to this clinic that runs from 0900 to 1700 hrs. This clinic hopes to reduce the anxiety often felt by the clinicians and patients who benefit from early review, but cannot wait for a formal clinic appointment. Therefore high-risk patients are identified at discharge, with arrangements made for early follow-up in 'Surgical Hot Clinic'.

Only 38 patients (11%) attending the 'Surgical Hot Clinic' required emergency admissions. 133(38.4%) primary admissions were avoided through the service of 'Surgical Hot Clinic' over the study period of six weeks. In a comparative retrospective study (14), Jived et al showed 44.3% of patients in the 'Hot Clinic' group required admissions whereas 82.3% in the 'non hot clinic' group who were seen routinely required admission to the hospital. In that way, they avoided 38% primary admissions. Although our study was not a comparative one, the outcome of our study showed almost similar result of the above mentioned study i.e. we can avoid 38.4% primary admission with service provided by 'Surgical Hot Clinic'.

36(10.4%) readmissions were avoided through the service of 'Surgical Hot Clinic'. If we consider index admissions as well, avoidance of the total number of surgical admissions was 169 (48.8%). In a retrospective study (15) done by Dayo et al, it was shown that 78% of the unplanned surgical re-admission followed an emergency index admissions and nearly half of unplanned re-admissions involved patients with chronic and/or recurrent symptoms, which are predictable and may be preventable. Significant postoperative complications accounted for few re-admissions. We can utilize the 'Surgical Hot Clinic' service to avoid and prevent unnecessary surgical re-admissions by early review by a senior surgeon after discharge from the hospital, especially for those patients who are identified as high risk for readmission to hospital.

In another retrospective study done by V Shatkar et al (16) showed that the majority of the readmissions following initial elective and emergency admissions were related to the index pathology and short term readmissions (overnight) stay was 27% of the readmissions. If we electively address those patients during discharge and review earlier in the 'Surgical Hot Clinic', we can easily prevent unplanned surgical readmissions.

By reducing unnecessary admissions and unplanned readmissions, the 'Surgical hot Clinic' saves beds for the trust. This has significant financial impact on the NHS trusts by saving money. In the DATA briefing from the king's Fund (17), it is stated that by efficiently utilising the hospital beds, NHS can save at least £1 billion a year and deliver benefits for the patients. It has also shown that more than 70 percent of the hospital bed days are occupied by the emergency admissions and readmissions. In a study done by V Shatkar et al (16), the estimated annual readmissions cost was £1.7 million. In another report it was shown that readmissions within a month of discharge cost the NHS £2.2 billion annually, which is nearly 2% of the annual NHS budget (18).

In our study, the results showed that we avoided 133 primary admissions and 36 readmissions (a total of 169 admissions).The cost per day at 'Barking, Havering and Redbridge Hospital trust is £300. This translates to a saving of £39,900 over 6 weeks period of the study even if patients were only admitted for one day and the projected savings £345,800 over a 12-month period. There are other cost savings that are not calculated here and that includes ability to discharge patients early from the ward with a view to see them early in the hot clinic and that saves significant beds and money.

Published data from National Audit Office (19) showed that, while general and acute patient admission has been increasing in one hand, the total number of general and acute hospital beds has fallen on the other hand. Bed shortages disrupt patient care and hospital management. Hence any measure to save bed for the trust will have significant impact on overall patient management. In our study, 169 admissions were avoided over 42days period. Average 4 beds were saved for the trust on each day. This proves that, 'Surgical Hot Clinic' will have positive impact on patient care and hospital management.

Our study also shows that 'Surgical Hot Clinic' plays an important role in the management of emergency surgical patients. It reduces avoidable surgical admissions and re-admissions in general surgery and saves a lot of money for the trust.

Although 'Hot Clinic' is a relatively new service provision in the Surgical speciality, it is an establish concept to reduce hospital admission in other specialities e.g. Respiratory medicine, Paediatric speciality (21).

Any new service needs approval from all stakeholders and patients are at the centre of any new service. The patient satisfaction survey showed, 80% patients were seen by a doctor in the 'Hot Clinic' within 60 minutes of waiting time and only 4 % waited >2 hours to see a doctor. Muhammad Javed et al (14) in their study also found that there was a significant reduction in the waiting time to be seen by a doctor in the 'Surgical Hot Clinic' ($p<0.0001$). Although they compared the waiting time between 'Hot Clinic' and 'Non Hot Clinic' group, there was no comparison in our study. In a national survey of patients who attended the Accident and emergency department (22), published by Care Quality Commission (CQC) in 2012, thirty-three percent of respondents spent more than four hours in A&E (a large increase from 23% in 2004 and 27% in 2008). If we compare those data, 'Surgical Hot Clinic' reduces the waiting time and improves patient satisfaction.

92% of the patient of our survey stated that they were involved as much as they wanted to be in decisions about their care and treatment in almost all of the time or most of the time. In the survey published by CQC, two-thirds of respondents said their condition or treatment was 'definitely' explained in a way they could understand (66% down from 67% in 2004 and 2008). Eight percent said this had not happened (up from 7% in 2004 and 2008). Most patients stated that the cleanliness level deserved the top rating. In the survey done by CQC in 2012, 55% of respondents said the departments they visited were 'very clean' (up from 45% in 2004 and 44% in 2008).

Two-thirds of the patients rated their overall visit experience 10 out of 10 where 10 considered as excellent and 1 as poor rating. >95 patients rated their experience as 8 and above. In the national survey done by CQC in 2012, 63% of respondents scored their experiences as '8' or above. Most of the patients (>92%) in our survey would recommend the 'Surgical Hot Clinic' to their family and friends if they needed similar care or treatment and a high percentage of patient participated in this survey rated the doctors, nurses and the nurse practitioners from very good to fair.

Our partners in health service in this region were very satisfied with this service and they showed positive response about this service. 87% of the interviewed GPs had excellent overall experience with the 'Hot Clinic' service. 86 % GPs strongly agree that they found the 'Hot Clinic' service useful to refer their patients bypassing the accident and Emergency department. Based on their experience, 98.5% GPs thought that 'Surgical Hot Clinic' service pathway should be available to other specialties or in other hospitals. As there were no previous GP surveys towards this service, we could not make any comparison.

Limitations of this study were the small sample size, short study period and also there were no criterion set for the admissions and discharge of the patients. The individual patient co morbidities were also not recorded in the study as these factors would also influence the decision to admit the patients. Details of the supportive care in the community, individual social status and primary care access facilities were not included and analyzed in this study, which have implications on the readmission rates. There are certain additional costs associated with running this service. We need to

have dedicated space that includes reception, patient waiting area, triage room and clinical examination room. The cost of recruitment of the staff in the clinic needs to be taken in to account.

6. CONCLUSIONS

This study provides good evidence for the effectiveness of surgical HOT clinic in avoiding hospital admissions for patients with acute surgical pathology that can be managed by ambulatory care pathway, who do not need urgent surgery and who can be managed with conservative treatment. The Surgical hot clinic also helps in avoiding readmissions and its associated costs. It also showed improved patient satisfaction and GP experience.

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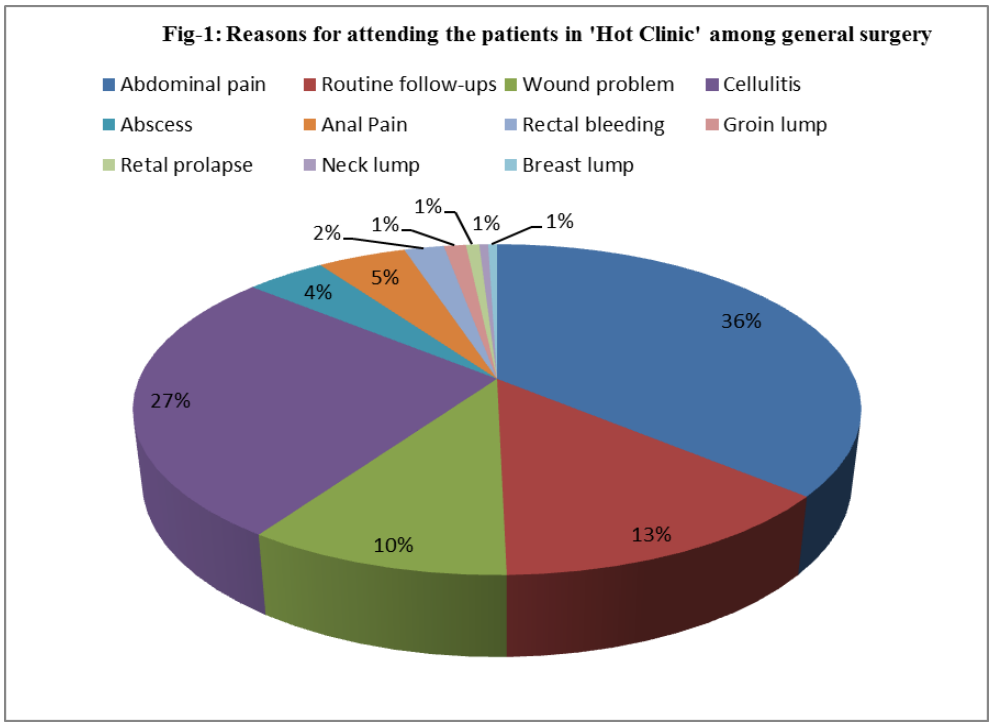
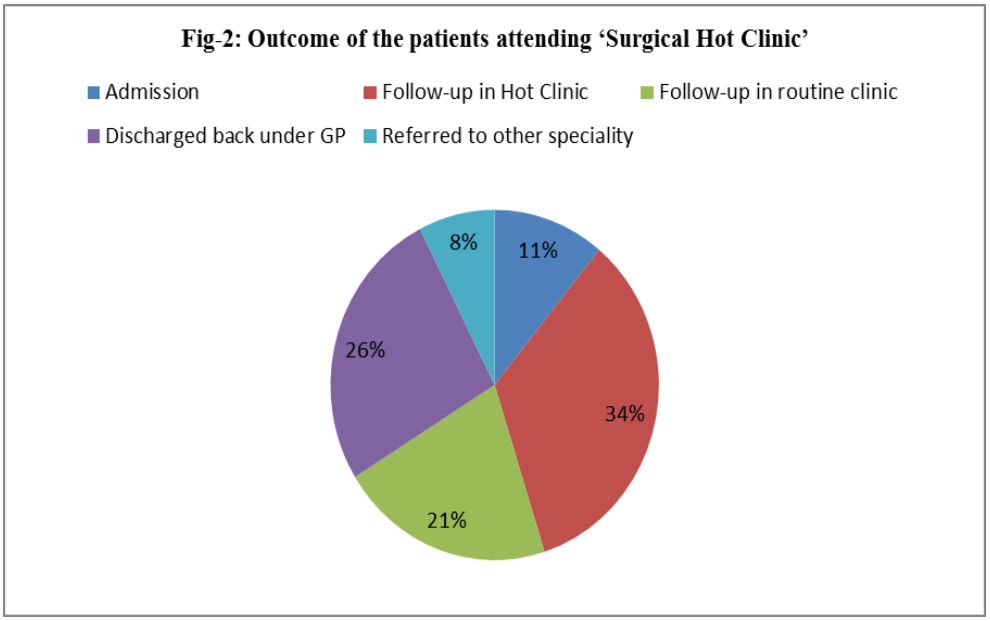
APPENDIX – A

FIGURES:





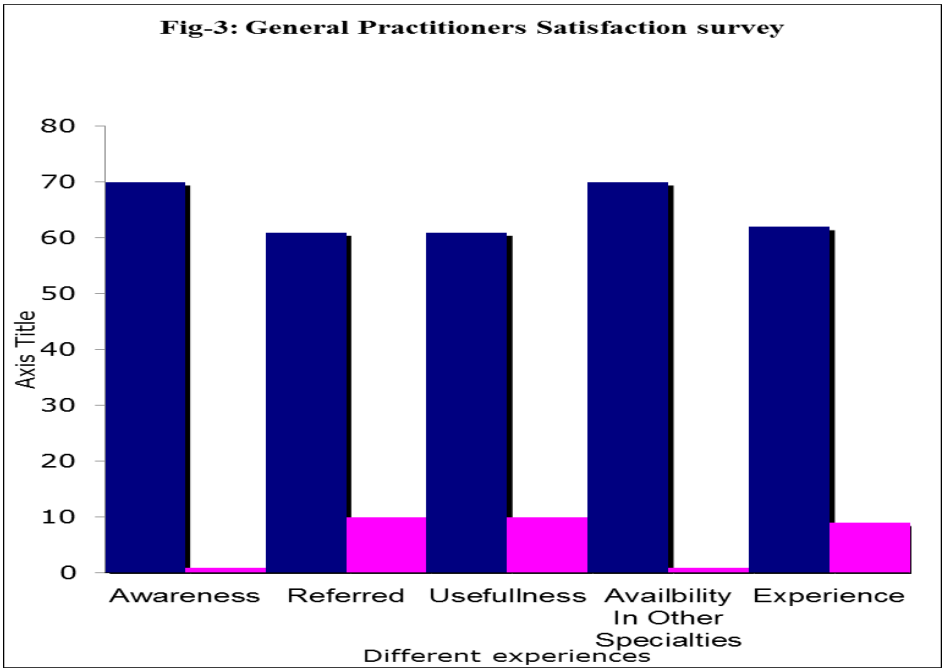


Fig-3: General Practitioners Satisfaction survey
80
70
60
50
40
30
20
10
0
Axis Title
Awareness
Referred
Usefullness
Availbility In Other Specialties
Experience
Different experiences

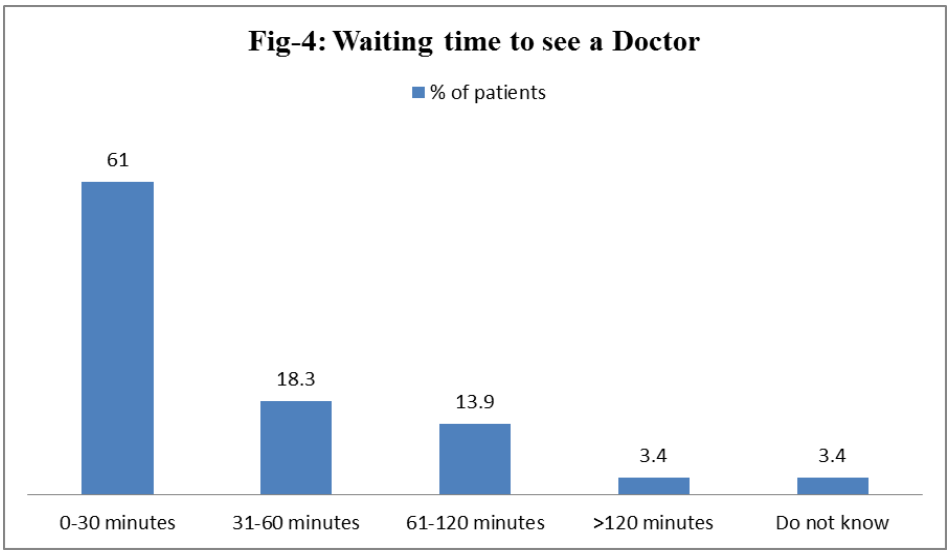


Fig-4: Waiting time to see a Doctor
% of patients
61
18.3
13.9
3.4
3.4
0-30 minutes
31-60 minutes
61-120 minutes
>120 minutes
Do not know

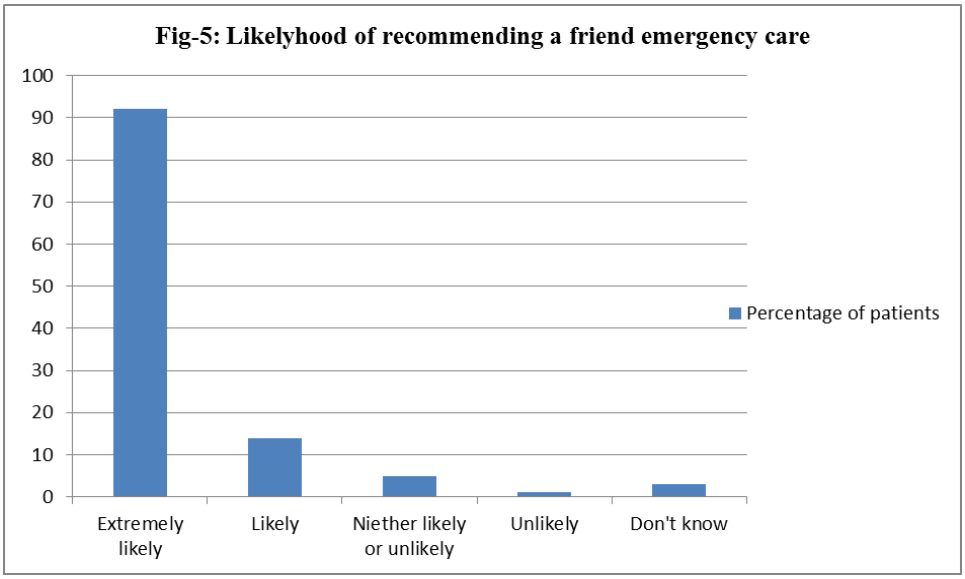


Fig-5: Likelyhood of recommending a friend emergency care
100
90
80
70
60
50
40
30
20
10
0
Percentage of patients
Extremely likely
Likely
Niether likely or unlikely
Unlikely
Don't know