DISSERTATION

ON

Root cause analysis of service restoration in clinical documentation

SUBMITTED BY

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PG/14/013

UNDER THE GUIDANCE OF

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INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT & RESEARCH

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Root Cause Analysis of Service Restoration In Clinical Documentation

By

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PG/14/013

Under the guidance of

Dr. Anandhi Ramachandran

Post Graduate Diploma in Hospital and Health Management

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This is to certify that Ms. **Arnika Sharma** was on a fixed term Internship from **February 8, 2016** to **April 29, 2016**. She has successfully completed her Internship in **Application Management Services**.

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The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.
The Internship is in fulfillment of the course requirements.
I wish her all success in all her future endeavors.

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Certificate of Approval

The following dissertation titled **"Root cause analysis of major issues arising in clinical documentation"** at **"Deloitte Consulting India Pvt. Ltd."** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

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CERTIFICATE BY SCHOLAR

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for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from ...8th FEB 2016. to ....29th APRIL, 2016.

embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Arnika

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Dissertation organization: Deloitte Consulting India Pvt. Ltd.

Area of Dissertation: Problem Management for Clinical Documentation Restorations (Breakfixes)

Attendance: Good. (100%)

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- → Completed her dissertation project in time
- → Understood the life cycle of a application management services (AMS) analyst

Deliverables:
- → Understood process around changes & incident
- → Shadowed processes & acted them well Management.
- → Completed dissertation in time.

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- → Was appreciated for her dissertation presentation.

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ABSTRACT

Clinical documents must be accurate, timely and reflect specific services provided to a patient. Paper or digital documentation is often accompanied by supporting electronic files such as magnetic resonance imaging (MRIs) scans, X-rays, electrocardiograms (EKGs) and monitoring records.

Clinical documentation is used to facilitate inter-provider communication, allow evidence-based healthcare systems to automate decisions, provide evidence for legal records and create patient registry functions so public health agencies can manage and research large patient populations more efficiently. Clinical documentation is also used in the creation of longitudinal patient records (LEPRs), a type of electronic health record (EHR) that includes all healthcare information from all sources for an individual patient.

Billing and coding staffs for health care providers use clinical documentation when evaluating claims. To ensure there are no gaps in a patient's clinical documentation, some healthcare facilities employ clinical document improvement (CDI) specialists to review each patient's clinical documentation and make certain it is comprehensive. In the United States, billing departments are increasingly turning to clinical documentation improvement systems (CDIS) to improve the accuracy of clinical documentation and help ease transition to the ICD-10 diagnosis coding language.

There are many issues which are faced by clinical documentation department while working on EMR applications. This retrospective study was conducted to identify those major issues faced by the end users as well as the analyst working on EMR application. The data for this study was

taken for three months. The major issues include user training issues, device configuration, break fix security related, and other miscellaneous issues.

In depth analysis of these issues was done to find the root cause of these issues. Pareto analysis was done to identify the major issue among all the issues which appeared to be the user training issues. User training accounted for the 80% of the issues and 20% of the issues were due to actual or true break fixes. User training issues were mostly concerned with lack of knowledge about the workflow and how to use the clinical documentation in EMR, logging into the wrong department which is referred to as change context, access issues, flowsheet issues, issues related to patient list, notes documentation. Break fixes involves the build related issues across workflows.

ACKNOWLEDGEMENT

I am using this opportunity to express my gratitude to everyone who supported me throughout the course of this project. I am thankful for their aspiring guidance, invaluably constructive criticism and friendly advice during the project work. I am sincerely grateful to them for sharing their truthful and illuminating views on a number of issues related to the project.

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LIST OF ABBREVIATIONS

1.	CDI	Clinical Document Improvement
2.	IT	Information Technology
3.	EMR	Electronic Medical Record
4.	HER	Electronic Health Record
5.	LEPRs	Longitudinal Patient Records
6.	MRI	Magnetic Imaging Resonance
7.	ICD	International Classification Of Diseases
8.	HIPAA	Health Insurance Portability And Accountability Act
9.	HIM	Health Information Management
10.	PRN	Pro Re Nata

ORGANIZATION PROFILE

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KNOWLEDGE AND LEARNINGS ACQUIRED

During my internship in Deloitte Consulting India Pvt. Ltd, I learned about the following:

- Overview and knowledge about the US health care system
- Brief knowledge about HIPAA
- Learning about the various processes which are followed in the organization.
- Underwent EMR specific trainings
- Underwent learning about the workflow followed in the organization.

INTRODUCTION OF THE STUDY

As the demand for accurate and timely clinical documentation increases, health information management (HIM) professionals are using their skills and expertise to improve documentation. Because clinical documentation is at the core of every patient encounter, in order to be meaningful it must be accurate, timely, and reflect the scope of services provided. Successful CDI programs facilitate the accurate representation of a patient's clinical status that translates into coded data. Coded data is then translated into quality report cards, physician report cards, reimbursement, public health data, and disease tracking and trending. HIM professionals provide two key roles within a CDI program as a clinical documentation improvement specialist and coding professional. By working together, HIM professionals can support their organizations efforts to collect and provide meaningful information throughout the continuum of care.

All practitioners are accountable for maintaining health record as an inherent responsibility within their duty of care. Documentation is an integral part of safe and appropriate clinical practice and is a record of the judgement and critical thinking used in professional practice. The clinical record support quality client care by facilitating communication among care provides serving the client. Objective, contemporaneous ad relevant documentation promotes consistency in client care and effective communication between members of the care team.

The clinical record is an overall indicator of clinical and service quality, and serves as a basis for planning care and for service continuity. Increasingly, the quality and content of health records are being used as an indicator of the standard of care given to an individual client. Clear, comprehensive, and accurate clinical documentation demonstrates that a client's condition was properly assessed, that the problems being treated were clearly identified, that the care plan specifically addressed those problems, and that the client's status was continually evaluated.

The key purposes of clinical documentation are:

- to document clinical care—by recording what was done, by whom, to whom, when, where, why, and with what results;
- to serve as the basis for care planning and continuity of care by an individual practitioner—by recording clinically relevant information about the client's response to treatment/services including any problems experienced during the course of treatment;
- to serve as the basis for continuity of care by the care team—by recording clinically meaningful data regarding the assessment, treatment, and progress in and response to treatment so other members of the care team have sufficient information to provide continuity of care/services to the client;
- to facilitate coordination of clinical care—by communicating with members of the care team thereby facilitating coordinated, rather than fragmented, treatment/service delivery;
- to comply with legal, regulatory, and institutional guidance and standards—by demonstrating through documentation that a practitioner has applied clinical knowledge, skills, and judgment in accordance with professional standards;
- to facilitate quality assurance and utilization review—by serving as a basis for analysis, study, and evaluation of the quality of health care services rendered to clients, and providing data for educational planning, policy development, program planning, and research; and
- to provide risk management and malpractice protection—by providing documentary evidence of a client’s care and treatment that supports the adequacy of clinical assessments, the appropriateness of the treatment/service plans, and the application of professional skills and knowledge in the provision of professional services.

Elements of Good Clinical Documentation

Documentation, whether electronic or paper, must provide a record of the client's needs, care provided, and clinical outcomes.

While there is no single model or template for a record, the key principles that underpin good documentation practices as it relates to style and content are common across all care settings. A client record should:

- be factual, internally consistent, concise, and accurate and not include editorial comments, speculation, or meaningless phrases;
- be written concurrently, or as close as possible, to the time care was given;
- be written from first-hand knowledge except in an emergency where one practitioner may be designated as the recorder;
- be written legibly in ink using correct spelling and grammar and be readable on any photocopies;
- be written such that any necessary corrections or additions are dated, timed, and signed, and the original entry can still be clearly read. Entries should never be corrected by erasing or obliterating (e.g., with correction fluid) the original entry. Annotations should never be made in the margins or between the lines.
- have entries written in chronological order without any blank space between entries;
- be signed with the first initial, last name, and professional designation
- include the date and time for all entries; charting in blocks of time should be avoided as the timing of specific events cannot be determined;
- use only facility-approved abbreviations and symbols;

- adhere to the charting format adopted by the facility; and be written on the appropriate, approved facility forms.

In addition to the above, practitioners have a professional accountability to clients, and their documentation should reflect safe, competent, ethical care that meets the requirements expected of their role in a particular practice setting. Documentation should be able to demonstrate:

- an assessment of the client's health care status and the care that has been planned and provided;
- significant events during a care episode;
- the interventions used to respond to a client's goals/needs;
- the client's response to interventions taken and any subsequent action taken;
- assessments of the client prior to and following the administration of PRN medication;
- any teaching provided to the client and/or family; and
- discharge planning including instructions given to the client and/or family.

REVIEW OF LITERATURE

Study 1: Improving Physician Case Mix Index and Mortality Index through increase in Clinical Documentation

In 2010, a clinical documentation program was initiated at ALGH with a team of 7 nurses. The goal of the program was to improve clinical documentation by the physician within the medical record to accurately reflect the severity of illness of the patient.

Improving documentation is facilitated by a Clinical Documentation Specialist (CDS) completing a thorough review of all the documentation in the patient chart, as well as, all the diagnostic imaging, laboratory data, orders, ED work up, and outside hospital paperwork. If a documentation improvement opportunity is identified, a communication with the physician must occur. This is called a clarification.

The physician reviews the clinical data and the improvement opportunity, and determines if he/she accepts the clarification, or denies the clarification based upon clinical judgment. If the physician agrees to the clarification, he/she documents that specific language recommended by CDS in his/her progress note.

With a new CDS in 2011, educational meetings were set up to improve documentation compliance. Two sessions were conducted between July 2011 and June 2012.

During the 2011 educational session, we shared knowledge about the documentation program, introduced the new Oncology CDS, and restructured the format of the clarification for easier reading by the physician.

During the 2012 educational session, we shared a detailed analysis of Oncology DRG's, Oncology case studies for improvement, and Crimson data.

It is shown that there has been a significant improvement in both CMI and MI as a result of the educational sessions and real-time collaboration between the Oncology Specialists physicians and CDS. Finding an effective mode to communicate clarifications with physicians electronically in Care Connection has been the biggest limitation. For some physician specialties, the clarification can be lost in a sea of information within the Message Center of Care Connection. Additionally, toggling between the progress note and Message Center is inefficient for the physician. ALGH continues to look for other ways to effectively communicate documentation improvement opportunities with physicians, such as Perfect Serve and rounding.

Study 2: Quality improvement in clinical documentation

The quality of nursing documentation is still a challenge in the nursing profession and, thus, in the health care industry. One major quality improvement program is clinical governance, whose mission is to continuously improve the quality of patient care and overcome service quality problems. The aim of this study was to identify whether clinical governance improves the quality of nursing documentation.

A quasi-experimental method was used to show nursing documentation quality improvement after a 2-year clinical governance implementation. Two hundred twenty random nursing documents were assessed structurally and by content using a valid and reliable researcher made checklist. There were no differences between a nurse's demographic data before and after 2 years (P>0.05) and the nursing documentation score did not improve after a 2-year clinical governance program.

Although some efforts were made to improve nursing documentation through clinical governance, these were not sufficient and more attempts are needed.

Study 3: Overcoming barriers to electronic medical record (EMR) implementation in the US healthcare system: A comparative study

An EMR system implementation would significantly reduce clinician workload and medical errors while saving the US healthcare system major expense. Yet, compared to other developed nations, the US lags behind. This article examines EMR system efforts, benefits, and barriers, as well as steps needed to move the US closer to a nationwide EMR system. The analysis includes a blueprint for implementation of EMR, industry comparisons to highlight the differences between successful and non-successful EMR ventures, references to costs and benefit information, and identification of root causes. 'Poka-yokes' (avoid (yokeru) mistakes (poka)) will be inserted to provide insight into how to systematically overcome challenges. Implementation will require upfront costs including patient privacy that must be addressed early in the development process. Government structure, incentives and mandates are required for nationwide EMR system in the US.

Study 4: **Electronic Medical Records, Built For Efficiency, Often Backfire**

Electronic medical records were supposed to usher in the future of medicine.

Prescriptions would be beamed to the pharmacy. A doctor could call up patients' medical histories anywhere, anytime. Nurses and doctors could easily find patients' old lab results or last X-rays to see what how they're doing. The computer system could warn doctors about dangerous drug combinations before it was too late.

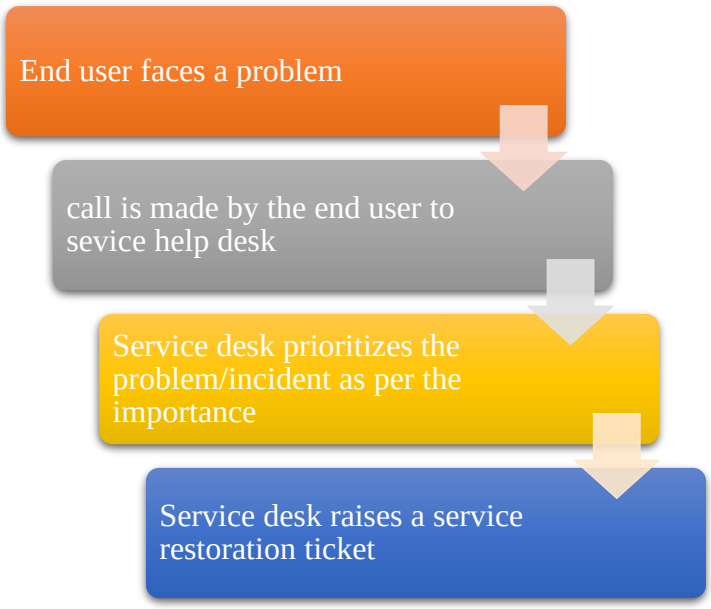
The survey found that attending physicians, the doctors in charge of care, lost an average of 48 minutes a day because of EMRs. Doctors in training lost 18 minutes a day. The record systems are poorly organized and never seem to reflect the needs of doctors and nurses. There is an enormous amount of time-consuming clicking, scrolling and typing.

The benefits from computerized records outweigh the drawbacks, but that does not mean the record systems should not be a lot better.

THEORY

PROCESS OF RESOLVING ISSUE

Figure 1– Incident Intake Process

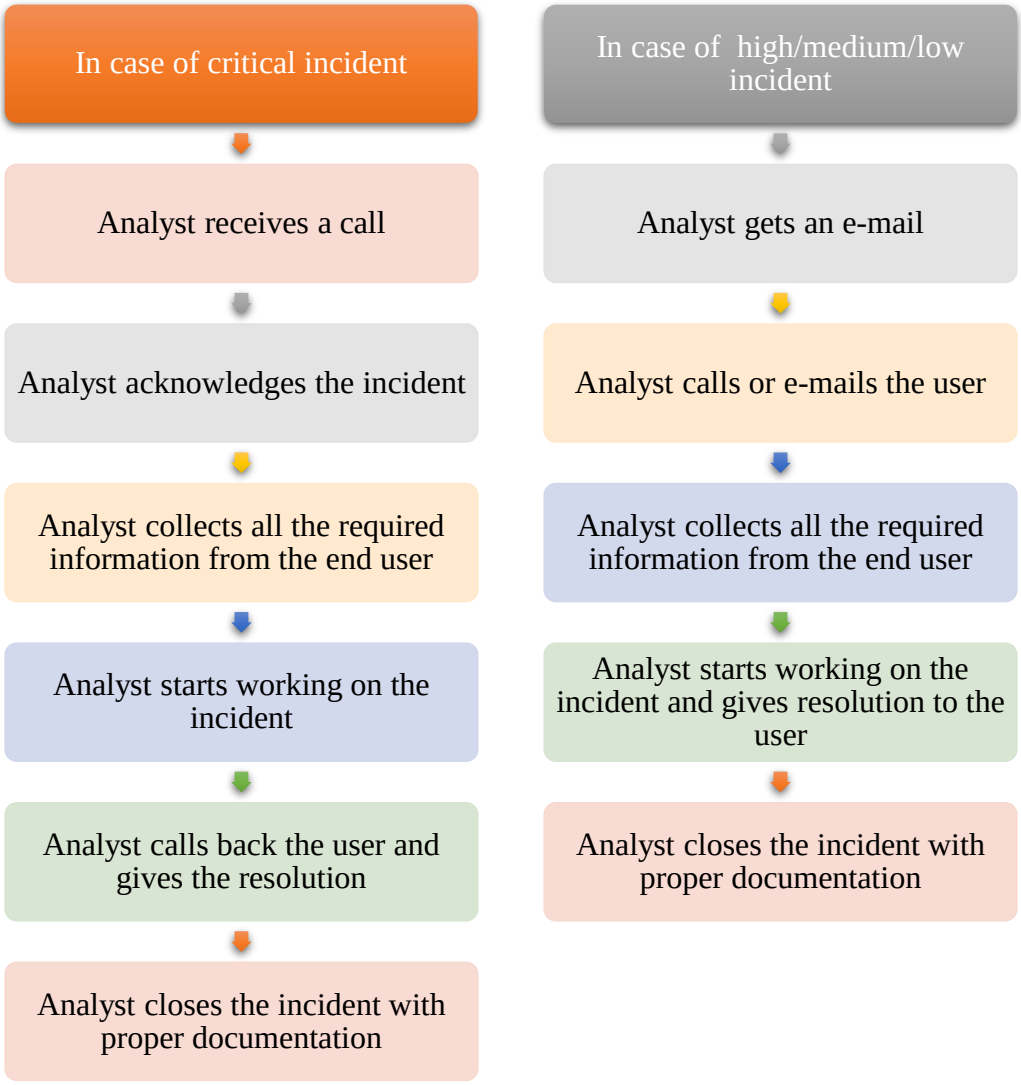


When end user faces an issue, he calls the help desk regarding that issue. Help desk tries to understand the issue and as per the user, prioritizes the issue as to whether theissue is either critical or high or medium or low. Then a service restoration ticket is raised and the incident is received by an analyst.

Critical and High incidents are those which are directly affecting patient care, thus, have to be resolved as soon as possible.

Once the incident has been received by an analyst, the analyst starts resolving the issue.

Figure 2 – Incident Resolution Process



If the incident is critical, the analyst immediately responds to it as it is affecting patient care directly. The analyst gets a phone call for a critical incident. As it is critical, the analyst starts working on it after collecting all the required information from the user. Then the analyst calls back the user and gives the appropriate resolution. After confirmation from the user, the analyst closes the incident with all the required documentation.

If the incident is high or medium or low, the analyst gets an e-mail in which all the details regarding the incident are mentioned. Still if the analyst finds some information missing, the analyst emails the user and asks for the information. After collecting all the information, the analyst starts working on it and gives the user a resolution. After confirmation from the user, the analyst closes the incident with all the required documentation.

There is also a specified time limit within which the analyst is required to respond to the incident and resolve it.

OBJECTIVES

GENERAL: To carry out root cause analysis of major identified issues leading to various service restoration incidents raised by end users.

SPECIFIC:

- To understand the workflow process of incident resolution
- To identify and analyze the problems faced by end users in clinical documentation while working on EMR.
- To carry out root cause analysis of major issues identified using Pareto analysis technique
- To give recommendations for overcoming and resolving the problems.
- To find the count of issue faced by the users.

METHODOLOGY

This retrospective descriptive study was done analyzing an EMR Application related data taken for three months (january2016 to march2016). The data was analyzed using Microsoft Excel. Tables and graphs were generated and inferences were drawn using appropriate software.

- Study area: Deloitte Consulting India Pvt. Ltd, Bengaluru
- Sample size: 200 service restoration incidents
- Source of data: secondary data from system database
- Duration of the study – 20th March, 2016 to 15th April, 2016
- Technique – Pareto analysis technique was used to identify major issues. Root cause analysis was done for the identified major issues.

RESULTS

Table 1: Distribution of incidents based on priority

Priority of incident	Number of incident
critical	46
high	70
medium	32
low	52

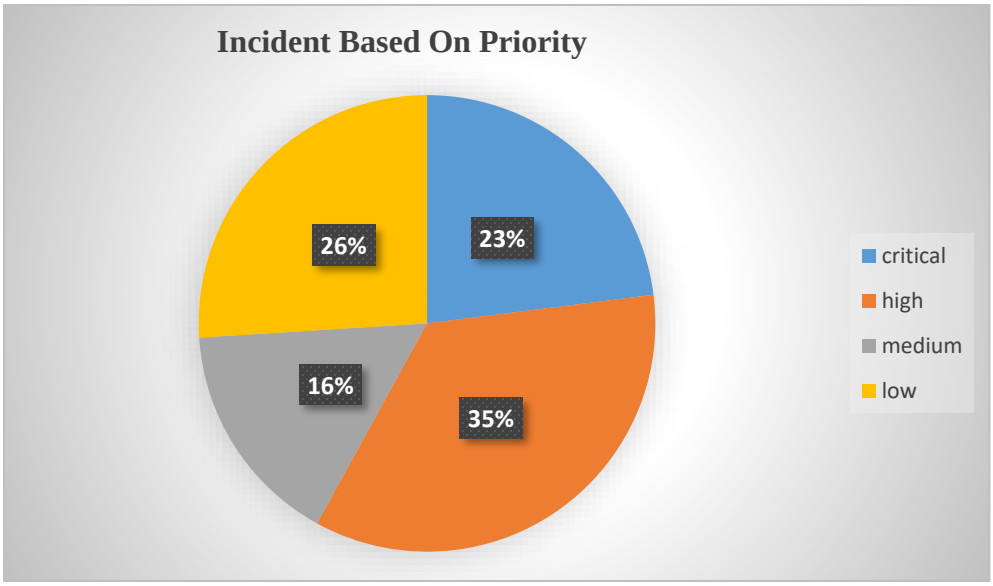


Figure 3: Incident based on priority

Inference – Out of 200 Service restoration incidents, High priority incidents were maximum (35.00 %). Critical priority incidents were 23.00 %. Medium priority incidents were 16.00%. Low priority incidents were minimum (26.00%).

Table 2: Distribution of incidents based on issues

Issue	Number of incident
Miscellaneous	40
Device configuration	9
Break fix	46
User training	105

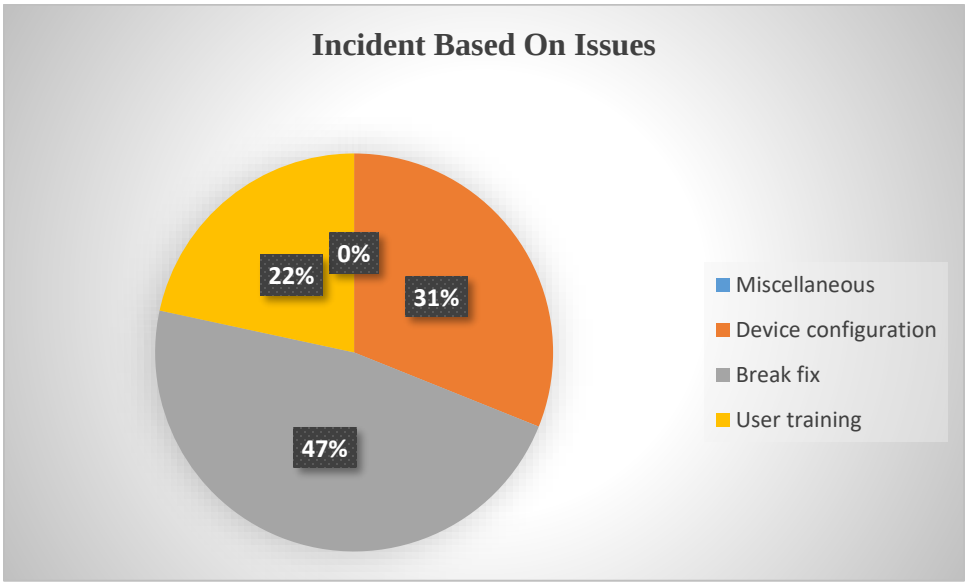


Figure 4: Incident based on issues

Inferences: After analyzing the data of Service restoration incidents taken for three months, it was found that these incidents are occurring because of some main issues. Those issues were user training, device configuration, issues related to required build, and some of the miscellaneous issues which include infrastructure and auto resolution mainly. These were the issues which led to service restoration incidents.

It can be clearly seen that 53.00% of incidents occurred because of user training issue. User training issue contributed a lot towards these incidents. Device configuration issue led to 4.00% of incidents. Build required issues issue led to 23.00% of incidents. Some of the miscellaneous

issues were also there which contributed to 20.00 % of incidents. Thus these were some issues which were found while analyzing the data obtained. To obtain the cause of the major issue further in depth analysis was done using Pareto analysis technique.

User Training: problems that involved end user education and were not true breaks in the system.

Break Fix: true breaks in the system which had to be modified.

Auto resolved: problems resolved by the users themselves.

Device configuration: problemsrelated to improper configuration of the system.

Table 3: Distribution of incidents with critical priority based on issues

Issue	Number of incidents
Miscellaneous	8
Device configuration	3
Break fix	1
User training	34

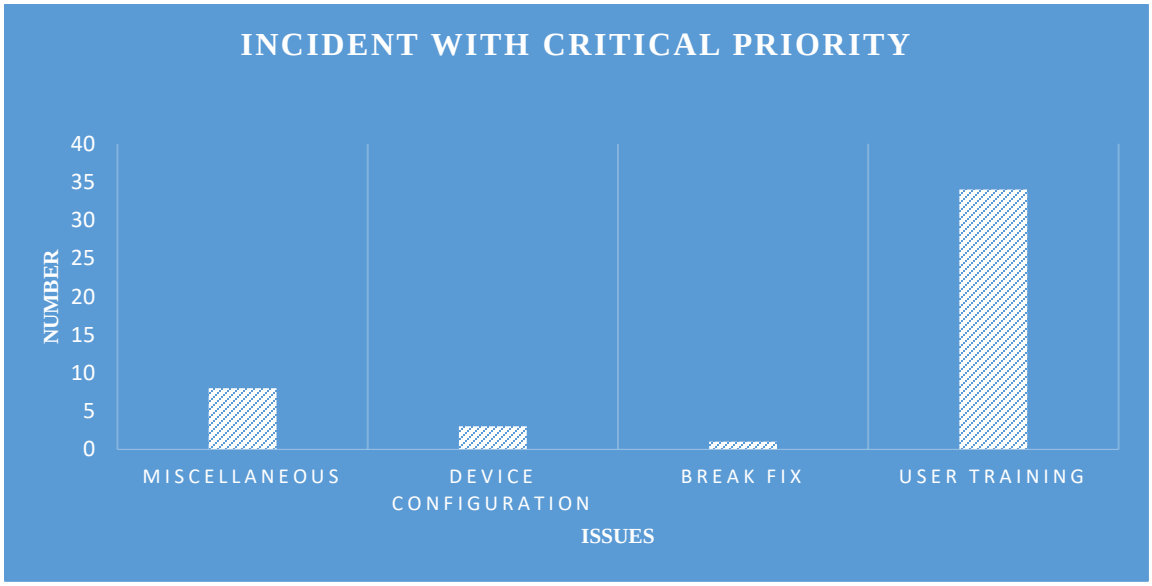


Figure 5: Incident with critical priority

Inference:It is clear by the graph that maximum number of critical incidents are related to user training issues. Out of 46 issues with critical priority 34 issues are related to user training therefore it holds as the most important area to be considered for improvisation

Table 4: Distribution of incidents with high priority based on issues

Issue	Number of incidents
Miscellaneous	17
Device configuration	1
Break fix	23
User training	29

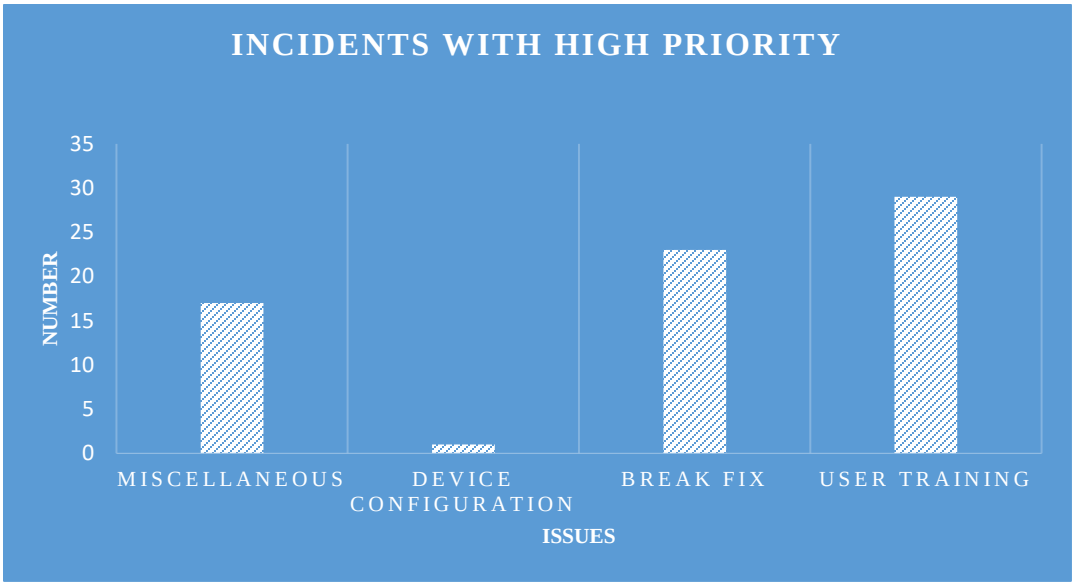


Figure 6: Incidents with high priority

Inference: the incident with high priority are most related to user training issues, break fixes and miscellaneous. Miscellaneous issues usually referred to as issues which are auto resolved or

related to infrastructure. In high priority incidents too user training issues are the maximum. Break fixes issues also needs to be focused on in high priority.

Table 5: Distribution of incidents with medium priority based on issues

Issue	Number of incidents
Miscellaneous	4
Device configuration	4
Break fix	10
User training	14

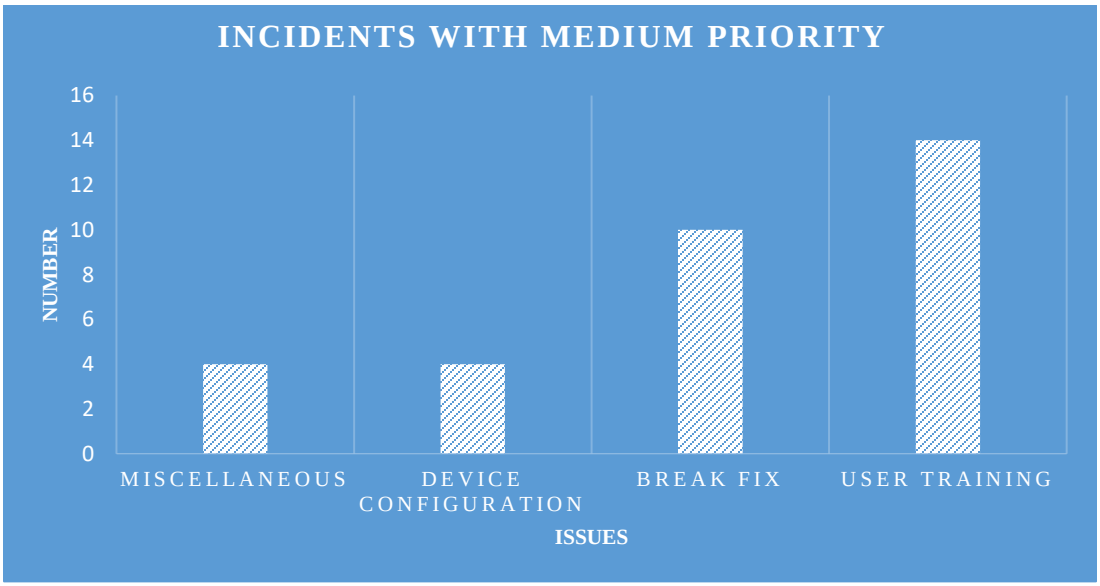


Figure 7: Incidents with medium priority

Inference: Out of the 32 issues in medium priority, 14 are the user training issues. This depicts that in medium priority too user training issues needs to be followed upon. Break fixes also needs attention as they are second to user training issues in number.

Table 6:Distribution of incidents with low priority based on issues

Issue	Number of incidents
Miscellaneous	11
Device configuration	1
Break fix	12
User training	28

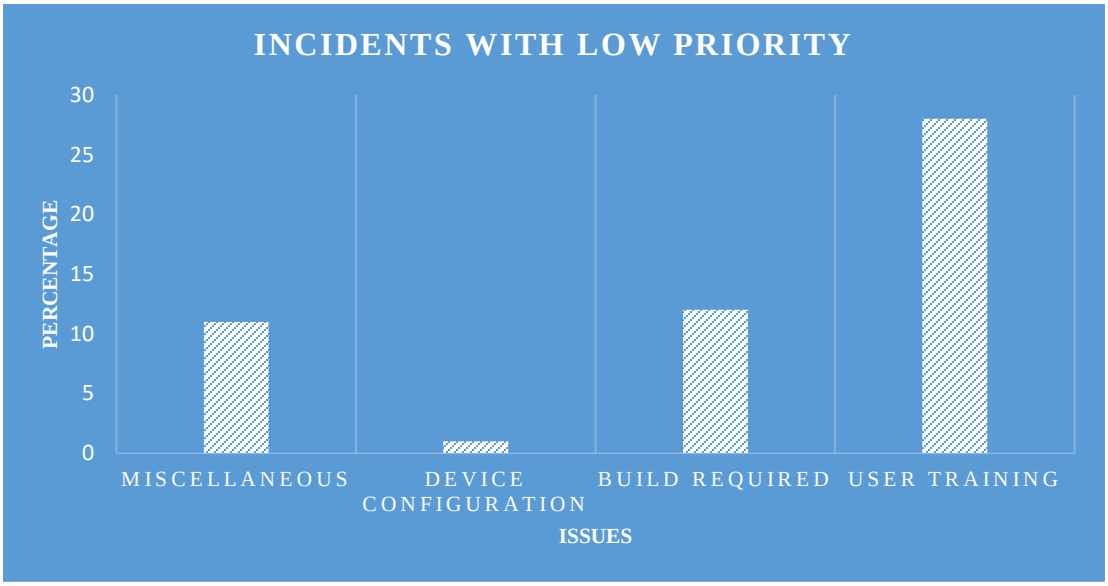


Figure 8: Incidents with low priority

Inference: The total number of low priority incidents are 52 in number. The maximum issues again are the user training issues i.e. 28 in number. Therefore user training issues need attention and should be followed via proper recommendations.

PARETO ANALYSIS

Issue	Number of incidents	Cumulative number	Cumulative percentage
User training	106	106	53
Break fix	45	151	75.5
Miscellaneous	40	191	95.5
Device configuration	9	200	100

Table 7: Cumulative percentage of issues

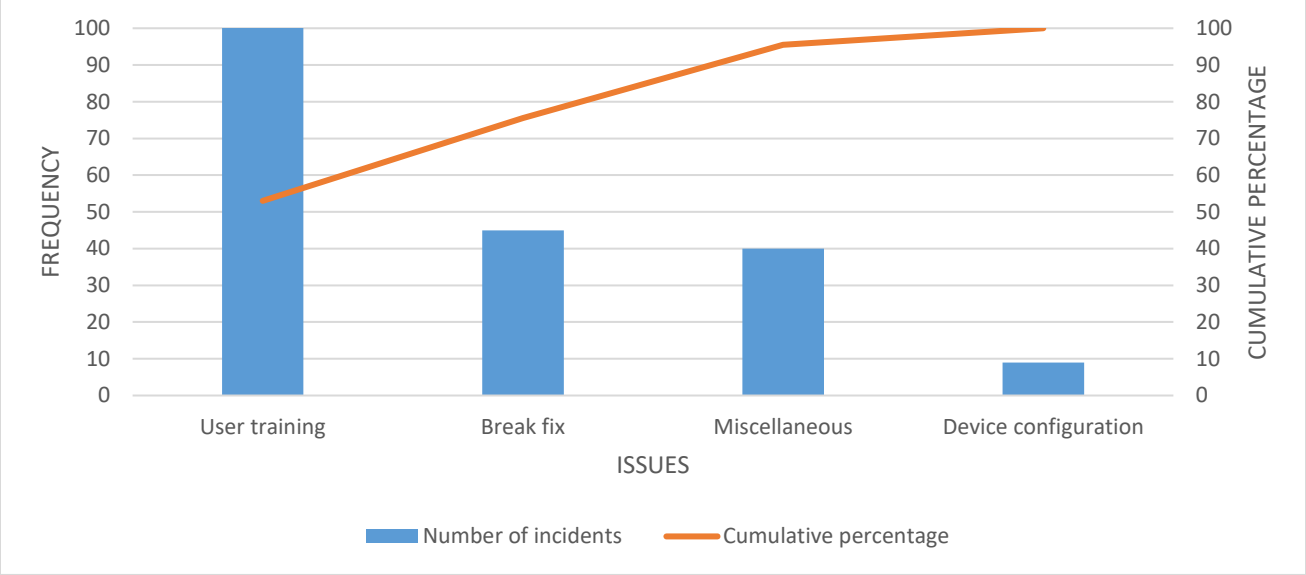


Figure 9: Pareto chart

Inference: This technique helps to identify the top portion of causes that need to be addressed to resolve the majority of problems. While it is common to refer to Pareto as "80/20" rule, under the assumption that, in all situations, 20% of causes determine 80% of problems, this ratio is merely a convenient rule of thumb and is not nor should it be considered immutable law of nature.

The above Pareto Analysis shows that out the 4 major heads (User Training Issues, Break fixes, Device configuration issues and miscellaneous), User Training and Break fixes contribute to

80% of the issues. So according to Pareto Analysis principle, only issues occurring due to User training and Break fixes will be considered for the further analysis.

There could be many areas where user training issue might be found. Major focus was to identify those areas and resolve the issue. Solutions were recommended regarding the same.

Table 8: Distribution of User training related incidents

Issues	Number of incidents
Incorrect login department	22
Flowsheet	14
Navigator	10
Notes	20
Patient list	21
Resize	9
Wrench	8

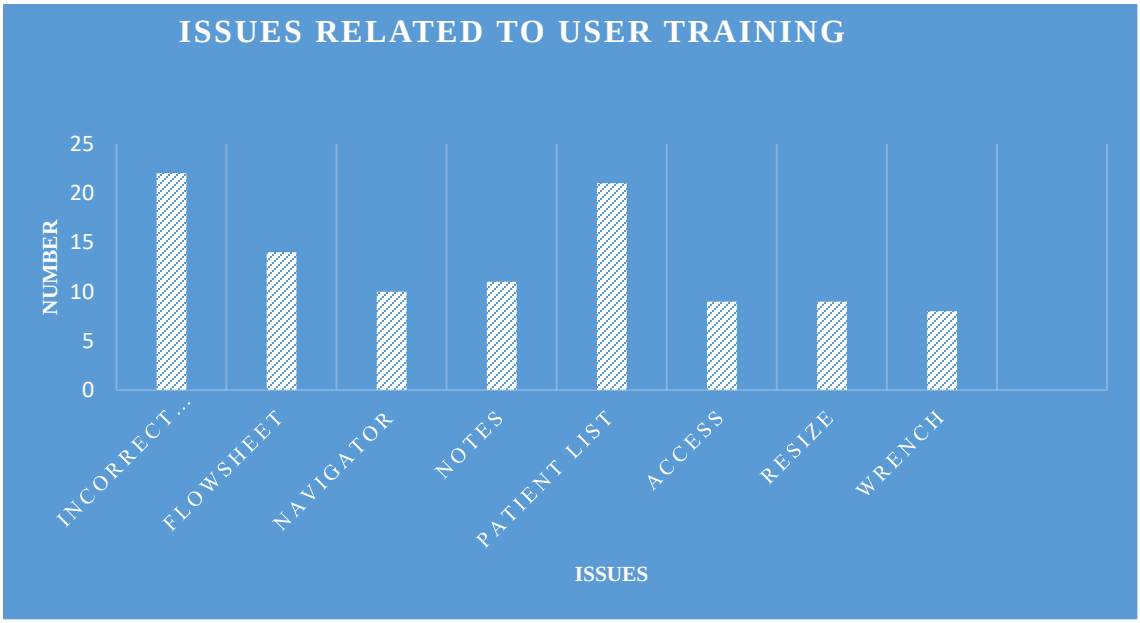


Figure 10: Issues related to user training

Inference: As per the above graph it is clearly seen that most of the user training issues which occur are due to lack of knowledge among the end users. Out of 104 user training related issues 22 issues were related to incorrect login department. After that 21 issues are related to patient list and system list. These two are the major issues with user training and the need to be focused on.

Incorrect login department: when user access the wrong department, user is unable to find certain features.

Flowsheet: when user is unable to access certain features in the flowsheet.

Navigator: when user faces an issue with the different types of navigators, for example admission and discharge navigators.

Notes: when the user could not write a patients note due to access related issue i.e. if the user is not authorized to write or sign a note.

Patient list: when user is unable to add or remove a patient from the patient list, or unable to modify the patient list as per requirement.

Resize: certain features on the EMR appears only when a resize option is selected, about which the end users are usually not aware.

Wrench: when the users had to add any column in the flowsheet data sheet, they require a wrench button.

Table 9: Distribution of break fix related issues

Issues	Number of issues
Movement of build	17
Peer review	21
Another build	7

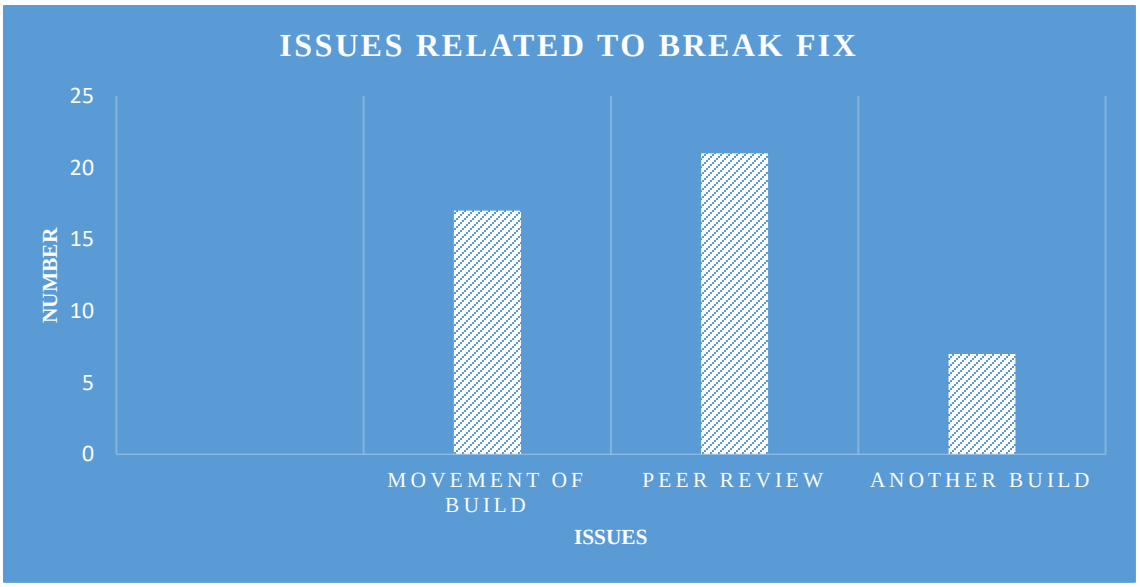


Figure 11: Issues related to break fix

Inference: The other major issue which accounts for 20% of the problem is related to break fix.

The delays in resolving break fixes is the major concern.

CONCLUSION

The analysis of these issues reveals that out of 200 issues analyzed, the root cause of the major issues i.e. User Training and break fix, occurring over the period of time were due to training issues and lack of knowledge among the end users as to how to access the functionalities. The other reason for majority of the issues with user training is incorrect login department which refers to that users usually log in to the wrong department. This affects their workflows to a great extent since they are not able to access right functionalities then. These issues need major considerations to work upon.

Users didn't have required knowledge regarding exact workflows which made them face problems during patient care. Sometimes, delay in resolving break fixes also affects the workflows and patient care. The occurrence of these issues have increased over the period of time and thus requires appropriate action to be taken to reduce the increased User Service Restoration count.

RECOMMENDATIONS

Incorrect login department:

- The department login should come up every time the user logs in
- Default pop up settings could be done if the user logs in the incorrect department

Notes:

- Settings of pop up messages can be designed to tell the users about certain functions which they are not permitted to do

Patient list

- Reference material could be prepared stating the steps to refer while working on patient list and system list

Flowsheet/ navigator /resize

- Hands on training can be provided to users on working on these functionalities

Break Fix

- A peer review checklist can be prepared for the analyst to avoid errors and keep track
- Educate analysts to perform a comprehensive impact analysis
- A check list can be prepared to look diligently to the changes made before they go live

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