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ALIGNING PAPER FORMATS OF IP MEDICAL RECORDS WITH EMR FORMAT INCORPORATING AT DEPARTMENT LEVEL CUSTOMIZATION AND IMPLEMENTATION, IN ONE OF THE LEADING HOSPITAL IN CHENNAI

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Abstract **-** Converting your medical records from paper to electronic may appear to be a difficult undertaking, but there are some advantages to consider. Physical files are unrecoverable after they have been lost. Paper medical records necessitate a manual writing process that is both time intensive and prone to error. If you've ever tried to read a doctor's notes, you know that the writing isn't always readable, making it difficult to understand. The readability issue isn't an issue with an electronic system because records aren't handwritten. You also don't have to look for patient files in a physical cabinet because the software does it for you. This paper explores the hospital's clinical and non-clinical forms and that must be segregated. For Inpatient Services, the EMR process must be completely comprehended.

Index Terms**- Electronic Medical Record, Paper Based Medical Record, Non-Clinical forms, Clinical Forms.**

1. INTRODUCTION

A. Definition:

The definition of EMR is a computer-based electronic (digital) compilation of medical information about a person. Diagnoses, prescriptions, tests, allergies, vaccines, and treatment plans are all part of an electronic medical record.

(a) Problems With Paper based Medical Record / Forms

Physical files are unrecoverable after they have been lost. Electronic records, on the other hand, contain data backup and storage, so there's still a backup option if a malicious entity manages to enter and gain access.

Paper medical records necessitate a manual writing process that is both time intensive and prone to error. If you've ever tried to read a doctor's notes, you know that the writing isn't always readable, making it difficult to understand. An electronic system does not have these issues because records are not handwritten, hence readability is not an issue. Furthermore, you won't have to look for patient files in a real cabinet because the software will do it for you (instantly).

(b) Clinical and administrative need for an EMR

An EMR must be able to handle a variety of clinical and administrative tasks in a hospital or physician's office. The EMR will act as the primary data source for patient registration, billing, quality management

Patient Registration - The EMR must be able to record the entire face-to-face interaction between a doctor and a patient. Doctor's notes, patient history, pharmacy prescriptions, physician orders, laboratory results, x-rays and radiography reports, and other medical procedures are all included in the patient EMR record.

Billing - The patient encounter must be documented accurately by Medicare and other commercial insurance carriers. Medical coding that is done correctly accurately describes the patient's health situation. The patient bill is driven by medical coding. As a result, incorrect coding equals incorrect invoicing. Due to these mistakes, a health-care provider may face compliance issues with insurance companies and Medicare, which could result in fraud fines. EMR technology assists coders and billers in producing correct health-care claims by assisting with proper documentation and having diagnosis databases built in.

Quality Management - Physician orders for lab, x-rays, and other tests are maintained in the EMR, which acts as a central data base. This data can be used to assess if the doctor is ordering the right tests for the patient's condition. It also enables health-care providers to furnish the federal government with excellent data.

B. The Objective of the Study includes,

i. To Study and integrate Inpatient Medical Record Paper formats with EMR formats.
ii. To Identify the forms linked with each department's level customization, along with any changes or modifications & to implement in the I/P EMR.
iii. To Suggest or assess doctors adapting Inpatient Electronic Medical Records (EMR).

II. LITERATURE REVIEW

According to Ayaad, O (2019), to identify the quality of health care services' differences between adopted Electronic Medical Record (EMR) and paper-based record hospitals. Moreover, to identify how the quality of electronic medical records affect the quality of health care services. As results indicate that the quality of health care services (expectation and perception) in EMR adopted hospital is higher than the quality of health care services in the hospital using paper-based record.

According to Kabukye, J. K., (2018), he aimed at analyzing the user requirements for an EMR for a cancer hospital in Uganda. A user-centered approach was taken, through focus group discussion and interviews with target end users to analyze work-flow, challenges and wishes. As a result, the user requirements were derived from understanding the target users' work-flow and tasks they need to accomplish as they described them in the sessions, from the challenges and constraints as well as their wishes and what they envisioned if an EMR had would make their work easier or the adoption and usage of the EMR easier.

According to Mavis Jones, (2017), to present an analysis of progress in EMR use in the province of Ontario based on data from surveys completed by over 4000 EMR users. As a result, Physicians reported continual improvement over years of use, perceiving that the longer they used their EMR, the better patient care they provided. Those with at least two years of experience reported the greatest progress.

III. RESEARCH METHODOLOGY

The descriptive research design was adopted in this study. Descriptive research is a methodology that may be applied to a number of research methodologies used in health-care, psychology, and education, and is not limited to market researchers. Descriptive study is to describe the features or behavior of a group of people. While it isn't based on statistics and normally flavors more qualitative methods, it can use quantitative data. When it comes to a specific group of people, the goal of descriptive research is to describe, explain, or validate some form of hypothesis or objective.

IV. ANALYSIS

a) CLINICAL FORMS

- **Nurses Forms** - From the analysis, 51 Nurses forms are there, out of which 31 Active Forms, 4 Inactive Forms, 1 Additional form, 3 Combined forms are there
- **Consent Forms** - From the analysis, 63 Consents forms are there, out of which 38 Active Forms, 8 Inactive Forms are there
- **Blood Bank Forms** - From the analysis, 17 Blood Bank forms are there, out of which 7 Active Forms, 1 Inactive Forms, 2 Renamed Forms, 1 Register, 4 Combined forms are there

- **Administration Forms** - From the analysis, 11 Administration forms are there, out of which 9 Active Forms, 1 Additional form are there
- **Medical Forms** - From the analysis, 29 Medical forms are there, out of which 9 Active Forms, 3 Combined forms are there
- **Clinical Forms** - From the analysis, 6 Clinical forms are there, out of which 5 Active Forms are there
- **Quality Forms** - From the analysis, 3 Quality forms are there, out of which 3 are Active Forms
- **Requests (Lab Forms)** - From the analysis, 9 Requests - Lab forms are there, out of which 8 Active Forms, 1 Register are there
- **Requests (Radiology Forms)** - From the analysis, 7 Radiology forms are there
- **Pediatrics Forms** - From the analysis, 29 Pediatrics forms are there, out of which 16 Active Forms, 8 Inactive Forms, 3 Combined forms are there
- **OBS Forms** - From the analysis, 2 OBS forms are there and they are active
- **Cardiology Forms** - From the analysis, 10 Cardiology forms are there, out of which 5 Active Forms are there
- **OBG Forms** - From the analysis, 15 OBG forms are there, out of which 7 Active Forms, 5 Inactive Forms, 2 Combined forms are there
- **ER Forms** - From the analysis, 6 ER forms are there, out of which 4 Active Forms, 2 Additional forms are there
- **Dietary Forms** - From the analysis, 12 Dietary forms are there, out of which 8 Active Forms, 2 Inactive Forms, 2 Combined forms are there
- **Nephrology Forms** - From the analysis, 13 Nephrology forms are there, out of which 13 Active Forms are there
- **Pharmacy Forms** - From the analysis, 17 Pharmacy forms are there, out of which 14 Active Forms, 1 Inactive Forms are there
- **Physiotherapy Forms** - From the analysis, 15 Physiotherapy forms are there, out of which 11 Active Forms, Inactive Forms, 1 Register, 2 Combined forms are there
- **Transplant Forms** - From the analysis, 16 Transplant forms are there, out of which 9 Active Forms are there
- **Neuro Critical Care Department Forms** - From the analysis, 2 Neuro Critical Care Department forms are there, out of which 2 Active Forms are there
- **Liver Transplant Forms** - From the analysis, 14 Liver Transplant forms are there, out of which 8 Active Forms, 2 Inactive Forms, 4 Combined forms are there
- **Operation Theater Forms** - From the analysis, 12 Operation Theater forms are there, out of which 7 Active Forms, 2 Additional forms, 2 Register are there
- **CTVS Forms** - From the analysis, 12 CTVS forms are there, out of which 31 Active Forms, 4 Inactive Forms, 1 Additional form, 3 Combined forms are there.

b) NON - CLINICAL FORMS

- **Nurses Forms** - From the analysis, 19 Nurses forms are there, out of which 8 Active Forms, 2 Registers are there
- **Consents Forms** - From the analysis, 10 Consent forms are there, out of which 3 Active Forms, 1 Inactive Forms are there
- **Blood Bank Forms** - From the analysis, 18 Blood Bank forms are there, out of which 10 Active Forms, 7 Combined forms are there
- **Administration Forms** - From the analysis, 13 Administration forms are there, out of which 7 Active Forms are there
- **Medical Forms** - From the analysis, 4 Medical forms are there, out of which 2 Active Forms are there
- **Clinical Forms** - From the analysis, 1 Clinical form are there
- **Quality Forms** - From the analysis, 23 Quality forms are there, out of which 14 Active Forms, 3 Inactive Forms are there
- **Requests Radiology Forms** - From the analysis, 49 Request Radiology forms are there
- **Cardiology Forms** - From the analysis, 10 Cardiology forms are there, out of which 1 Active Forms, 1 Inactive Forms, 7 Registers are there
- **OBG Forms** - From the analysis, 6 OBG forms are there, out of which 4 Registers, 2 Additional forms are there
- **ER Forms** - From the analysis, 27 ER forms are there, out of which 12 Active Forms, 2 Inactive Forms, 10 Registers, 1 Additional form, 2 Combined forms are there
- **Ophthalmology Forms** - From the analysis, 3 Ophthalmology forms are there, out of which 3 are Inactive Forms
- **Dietary Forms** - From the analysis, 8 Dietary forms are there, out of which 2 Active Forms, 5 Inactive Forms, 1 Register are there
- **Food Services Forms** - From the analysis, 15 Food Services forms are there, out of which 15 Active Forms are there

- **Nephrology Forms** - From the analysis, 1 Nephrology forms are there
- **MRD Forms** - From the analysis, 7 MRD forms are there, out of which 2 Active Forms, 3 Additional forms, 2 Combined forms are there
- **MHC Forms** - From the analysis, 2 MHC forms are there, out of which 1 Active Forms, 1 Inactive Forms are there
- **HR Forms** - From the analysis, 27 HR forms are there, out of which 4 Active Forms are there
- **MGM Academics Forms** - From the analysis, 1 MGM Academics forms are there
- **ENT Forms** - From the analysis, 8 ENT forms are there, out of which 5 Inactive Forms, 3 Additional forms are there
- **Bio - medical Forms** - From the analysis, 17 Bio - medical forms are there
- **L & D Forms** - From the analysis, 2 L & D forms are there, out of which 2 Active Forms are there
- **Safety Forms** - From the analysis, 1 Safety forms are there, out of which 1 Active Forms are there
- **Housekeeping Forms** - From the analysis, 64 Housekeeping forms are there, out of which 52 Active Forms, 6 Registers, 6 Combined forms are there
- **Billing Forms** - From the analysis, 1 Billing form are there
- **Engineering Forms** - From the analysis, 22 Engineering forms are there, out of which 18 Active Forms, 2 Inactive Forms, 2 Combined forms are there
- **Purchase Forms** - From the analysis, 6 Purchase forms are there, out of which 4 Active Forms, 1 Additional form are there
- **Mortuary Forms** - From the analysis, 4 Mortuary forms are there, out of which 1 Active Forms, 3 Combined forms are there
- **Chemo Forms** - From the analysis, 7 Chemo forms are there, out of which 3 Active Forms, 3 are Inactive Forms
- **Security Forms** - From the analysis, 23 Security forms are there, out of which 14 Registers, 8 Additional forms, 1 Inactive Form are there
- **IT Forms** - From the analysis, 1 IT forms are there, out of which 1 Active Forms are there
- **Condemnation Committee Forms** - From the analysis, 2 Condemnation Committee forms are there are there
- **Clinical Pathway Forms** - From the analysis, 5 Clinical Pathway forms are there
- **Endoscopy Forms** - From the analysis, 2 Endoscopy forms are there, out of which 2 Registers are there

V. RESULTS AND DISCUSSION

- Totally under Clinical forms

Total Departments - 23

Total Forms - 377

i. Active Forms - 218
ii. Inactive Forms - 35
iii. Combined Forms - 23
iv. Registers - 3
v. Additional Forms - 6
vi. Not Collected - 86

- Totally under Non - Clinical Forms

Total Departments - 34

Total Forms - 409

i. Active Forms - 154
ii. Inactive Forms - 27
iii. Combined Forms - 22
iv. Registers - 56
v. Additional Forms - 18
vi. Not Collected – 132

FORMS	TOTAL
CLINICAL FORMS	377
NON - CLINICAL FORMS	409
	786

The recommendation includes,

- ❖ EMR can make a patient's health information available when and where it's needed - far too often, care is delayed because the chart is in one location and the information is needed in another. EMR give doctors secure access to the data they need to provide high-quality, efficient care.
- ❖ EMR can bring together a patient's whole health record, allowing for better health care decisions and more coordinated care
- ❖ EMR can improve patient and provider convenience patients can have their medications ordered and ready even before they arrive at the doctor's office

VI. CONCLUSION

The project's conclusion is that active and inactive forms, as well as grammatical errors in some of the forms, have been identified. By comparing new and old forms, the renamed forms were found. The clinical and non-clinical departments' registers have been documented, and the processes to generate a form using the form builder application have been figured out. In the live Kranium Software, clinical forms have been designed. Approximately 60% of doctors have utilised the I/P EMR and then forms that were developed in the software

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