Specific Implementation of Electronic Medical Record in Pediatrics Practice

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SUMMARY

The Electronic Medical Record (EMR) is the future of pediatric patient record documentation. Adoption of electronic medical records by pediatricians is increasing slowly (5,6). EMR is a patients’ medical record in an electronic format, accessible by computers on a network for the primary purpose of providing health care and health-related services (7). There are two primary categories of the EMR: the “born digital” record and the scanned/imaged record. Paper Charts of Kid Patient Medical Records are the norm worldwide for recording child patient information. Barriers to adopting an EMR system include training, costs and complexity, as well as the lack of a national standard for interoperability among competing software options. Computerized information systems have not achieved the same degree of penetration in healthcare as that seen in other sectors such as finance, transport and the manufacturing and retail industries. Implementation of electronic medical record systems promises significant advances in pediatric patient care, because such systems enhance readability, availability, and data quality.

Key words: EMR, Children, Pediatrics, Implementation.

1. INTRODUCTION

Electronic Medical Record (EMR) systems lie at the center of any computerised health information system (1,2,3,4). Adoption of electronic medical records by pediatricians is increasing slowly (5,6). EMR is a patients’ medical record in an electronic format, accessible by computers on a network for the primary purpose of providing health care and health-related services (7). There are two primary categories of the EMR: the “born digital” record and the scanned/imaged record. The “born digital” record, which is information captured in a native electronic format originally is information that may be entered into a database, transcribed from an electronic tablet or notebook PC, or in some other manner captured from its inception electronically (8). The information is then transferred to a server or other host environment, where it is stored electronically (9,10). The second category are records originally produced in a paper or other hardcopy form (X-ray film, photographs, etc.) that have been scanned or imaged and converted to a digital form. These records are best described as “digital format records”, as their content is not able to be modified or altered (with the exception of the use of a third party software to make “overlay notations”) as electronic records are. The EMR can be accessed conveniently by appropriate health professionals-pediatricians to ensure ultimate maximum and optimal patient care (11). The purpose of EMR systems is to compile and centralize all pertinent information related to a child’s medical and non-medical care so as to ensure that optimal pediatric care is provided. Privacy issues are very unique in the pediatric population. The EMR should be able respond to the different privacy needs regarding the variability of adolescent medicine from state to state, restriction and protection of sexual and mental health information, and behavior issues. In addition the system should be able to record the different guardianships in cases of foster care, adoption, and emergency treatment.

2. PEDIATRIC SPECIFIC EMR

Quality Pediatric Medical Record vendors have begun to recognize the special needs of the pediatric practice (12). The best EMR companies have recognized that pediatrician’s needs are different. Some pediatric specific features consist Immunization/Health Maintenance Reminders and Tracking, Electronic Growth Charts, Client/Server or ASP based, Point-n-Click SOAP Note Templates, E&M Coding Assistance for Pediatrics, PDR-Based Prescription Writing, Lab Interface (Quest, LabCorp, Unilab, etc.), Decision Support (ADE, Coding), Document/Image Management, Drug Database with Drug Interaction Checking, Health Maintenance Reminders, Online Patient Portal, Pediatric Specific Education, MidMark ECG/EKG device interface, CHDP Forms (California), Welch Allyn Vitals Device Interface, Pediatric Dosage Calculator and many more Pediatric EMR features... From birth special attention is given to the growth of a child (13). All the top ranked EMR systems from EMR. Experts are able to record the child’s growth, chart and calculate growth patterns, and compare each child’s growth and body mass index. All this is done using the normal range of data based on ethnicity and sometimes geography. This is vital to a pediatric practice.

2.1. Objectives for Implementing EMRs

- Improve Quality Care
Avoid Adverse Drug Events
• Improve Quality Measures
• Enhance Resident Safety
• Improve Operational Efficiencies and Re-allocate Staff
• Increase Reimbursements

Implementation of electronic medical record systems promises significant advances in patient kids care, because such systems enhance readability, availability, and data quality (14,15). Implementing Pediatric EMR Software in practice has Facilitates risk management, Improves profits, Improves work processes and Patient-kid-centered office (16).

2.2. Component of EMR
• Capture kids patient data,
• EMR software integrates with other data sources,
• EMR assists in provider decision making,
• Document/Image Management,
• Patient Portal,
• Statistics and Reporting,
• E-prescription,
• Billing

2.3. Document/Image Management
This function provides offices with a way to manage the flow of paper coming into their office, kids patient intake forms, referring physician letters, faxes, lab reports, etc. and provides pediatricians with a way to manage images such as x-rays, MRI's, ultrasound and, in some programs, audio/video clips. CT Scan and X-ray results can be processed, reviewed and entered directly into the child-patient file. The results may be sent to other specialists by the Internet network for consultation (17).

2.4. Statistics and Reporting
This function allows providers to create reports from their database for statistical purposes. This feature becomes especially helpful in the event of drug recalls, health maintenance reminders and disease management. The description of pediatric terms is extremely difficult in EMR systems. The system designers needs to expand standard terminology to include concepts that adequately represent these terms by describing historical findings, psychosocial risk factors, family structural details, social history, physical examination findings, developmental problems, behavioral issue, congenital syndromes and diagnoses particular to pediatrics (18,19,20).

2.5. Data
The quality of data stored is also a problem of paper records (21). Data is a man-made artifact. Each individual has a method for recording relevant patient data within a framework (22). Marked discrepancies may occur between information reported during patient interview and that which is contained in the record. Not all patient facts reported may fit neatly into a structured record. Such “misinformation” may be contained in the EMR due to misunderstanding of definitions and terms used.

2.6. Standardization
Is a definite requirement for widespread use of electronic records. This would include Lab. results units and precise medical terms. On-line dictionaries would help. Standardization of support software to link one system to another would also be necessary (23,24,25,26).

2.7. Structure of pediatric EMR
Information in an EMR includes documents relating to the past, present and/or future physical and mental health and condition of a patient, medical test reports or multimedia images, and financial and demographic information (Picture 1). In addition, ordering of medical tests, treatments, medications, and clinical guidelines used for the kids patient’s care, are accessible within the EMR during the encounter (27). EMR data can be captured or transmitted, received or updated, stored or retrieved, securely and in real-time by users at the point of care or distant locations (28).

2.8. Pediatrics implementation
Immunization has always been a critical activity in the care of children. For this reason, it has been important to the pediatrician that the EMR system provides the ability to record and display data that helps them to comply with the federal authorities. This data consists of the manufacturer’s name, lot numbers, expiration dates, and site of vaccine administration, route, and date. It also contains consent for administration or documentation of vaccine refusal (29) Another activity that requires special consideration is the prescription of medication based on age and weight or body surface area. Tools that allow physician to check current weight against the age, verify doses against accepted pediatric references, express the prescriptions in volume to be administered by caregivers and pharmacy specifications other than instructions for the parents are important functions to assist in selecting medication...
and prevent errors. The ability of the EMR system to provide growth charts is a unique requirement for pediatricians. Clinicians make important decision regarding how their patients have been growing by plotting length or height, weight and head circumference against age. These graphic representations allow the pediatrician to analyze the growth velocity at specific age, by gender and against establish norm, enabling the physician to identify problems at the early stages (30). System designers should also take special consideration when establishing normal ranges for numeric (vital signs, body measurements, scores on standardized assessments, and laboratory results) data in view that these values change with child’s age.

3. CONCLUSIONS

The implementation of advanced information systems is enabling great social and organisational changes (Figure 2). Pediatricians who use electronic health records believe such systems improve the quality of care and are generally satisfied with the systems. Electronic medical record (EMR) systems, which are usually designed for adult care, must perform certain functions to be useful in pediatric care. This statement outlines these functions (eg, immunization tracking and pediatric dosing calculations) to assist vendors and standards organizations with software design for pediatric systems. The description of these functions should also provide pediatricians with a set of requirements or desirable features to use when evaluating EMR systems. Particular attention is paid to special aspects of pediatric clinical care and privacy issues unique to pediatrics. Many elements are functionally important in pediatrics, such as immunization management, growth tracking, medication dosing, and patient identification. The future of health care documentation is found in information technology through use of electronic medical records (EMR) (31,32,33,34,35).

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