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A comparison of mental state examination documentation by junior clinicians in electronic health records before and after the introduction of a semi-structured assessment template (OPCRIT+)

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ABSTRACT

Objectives: The mental state examination (MSE) provides crucial information for healthcare professionals in the assessment and treatment of psychiatric patients as well as potentially providing valuable data for mental health researchers accessing electronic health records (EHRs). We wished to establish if improvements could be achieved in the documenting of MSEs by junior doctors within a large United Kingdom mental health trust following the introduction of an EHR based semi-structured MSE assessment template (OPCRIT+).

Methods: First, three consultant psychiatrists using a modified version of the Physician Documentation Quality Instrument-9 (PDQI-9) blindly rated fifty MSEs written using OPCRIT+ and fifty normal MSEs written with no template. Second, we conducted an audit to compare the frequency with which individual components of the MSE were documented in the normal MSEs compared with the OPCRIT+ MSEs.

Results: PDQI-9 ratings indicated that the OPCRIT+ MSEs were more 'Thorough', 'Organized', 'Useful' and 'Comprehensible' as well as being of an overall higher quality than the normal MSEs. The audit identified that the normal MSEs contained fewer mentions of the individual components of 'Thought content', 'Anxiety' and 'Cognition & Insight'.

Conclusions: These results indicate that a semi-structured assessment template significantly improves the quality of MSE recording by junior doctors within EHRs. Future work should focus on whether such improvements translate into better patient outcomes and have the ability to improve the quality of information available on EHRs to researchers.

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1. Introduction

The primary purpose of medical records is communication amongst the healthcare team, to enable seamless patient care [1–3]. However, they also provide an important source of managerial, financial and statistical information, a source of evidence in the event of litigation and a potentially valuable resource for teaching and research [1,3,4].

Despite their importance, medical record practices have a long history of criticism. Common concerns include: records being untimed or undated, using imprecise language or being illegible, lacking a logical structure, being poorly synthesized, being difficult to retrieve and prone to loss, lacking information relating to the aims of clinical management, or simply erroneous [1,2,4–8].

Considerable hope has been placed on the improvements that electronic health records (EHRs) might bring. Many reports [4,8–17] have proposed numerous ways, in addition to solving the problems detailed above, in which EHRs might benefit health providers: the instant availability of notes, the ability to retrieve data in a variety of ways (e.g. test results for a specific date range), the elimination of storage issues, the ability for more than one user at a time to access a patient's notes, improvements in security and confidentiality, the potential to incorporate automated decision support systems and improving the exchange of clinical information between an institution's clinical systems or between institutions themselves. The use of EHRs has even been associated with a reduction in mortality during hospitalization [14]. Several studies have raised criticisms of EHRs however [9,15,18], suggesting that they can lead to an increase in the length of time it takes physicians to write notes (although see Sola et al. [17]) and an increase in redundancy and poor formatting. Concerns have also been raised about the use of the 'copy and paste' function, which can lead to the propagation of inaccurate or false information [19].

It is also widely acknowledged that EHRs have the potential to significantly benefit medical research via the reuse of patient data gathered during routine clinical care [16,20]. An example would be EHR-based phenotyping for 'pragmatic clinical trials'. Richesson et al. [21] lists some of the potential benefits of clinical trials being embedded directly in the healthcare system: (1) access to larger research populations, allowing the detection of smaller clinical effects (2) the easier identification and study of rare disorders and (3) a reduction in the expense and logistical challenge entailed by current randomized controlled trial methodologies. However, although EHRs clearly hold enormous potential for researchers, concerns do exist about the quality, completeness and accuracy of the available data [21].

A key issue surrounding the quality of EHR data, for both clinical and research use, is the optimal level of structure to be used in the electronic notes deployed. Medical records can be seen as existing on a continuum between 'structured/coded' data and 'unstructured/clinical narrative' data (e.g. a complete blood count vs. a 'presenting complaint'), with each end of the spectrum offering advantages and disadvantages for clinical and research use. For example, in psychiatry, the clinician will frequently record the patient history in a narrative style using

a document that has no defined structure. Whilst this provides the freedom for the clinician to express anything they wish and allows for the relevant facts to be documented in a manner that is understandable to other professionals, there are several disadvantages. First, providing the clinician with no defined structure may increase the likelihood that issues will be under-explored or overlooked entirely. Second, for research use in particular, data that is not coded requires the use of natural language processing (NLP) technologies in order to harvest the relevant information and, as of yet, such tools have shortcomings that limit their use with unstructured, narrative data [20,22,23].

A considerable number of studies, mostly conducted in non-EHR settings and in medical specialties other than psychiatry, have advocated for [15,24], or investigated the consequences of, introducing structured and/or coded templates into medical record practices. Fernando et al. [22] for example, in a review of ten studies, concluded that the main outcome of structuring and/or coding the 'patient history' was an increase in the completeness of information. Several studies have advocated the use specifically, as investigated in this report, of a *semi-structured* approach (i.e. narrative text organized under standardized headings). These reports have demonstrated that physicians prefer reading such documents, that they can improve completeness, accuracy and organization, aid in the retrospective location of data from records and significantly improve the performance of NLP tools (see Johnson et al. [25] for review). However, some studies have commented on controversial, or even negative aspects of more structured documentation practices (See Harrop and Amegavie [2] for review). For example, it is unknown whether improved documentation outcomes, such as an increase in completeness, are correlated with improved quality of care. Furthermore, opposition can arise from clinical staff when faced with the use of more structured forms [2]; clinicians may feel that these documents are overly prescriptive and restrict their clinical freedom.

This study was specifically interested in investigating the potential benefits of introducing a semi-structured template for the documentation of the mental state examination (MSE) in EHRs. MSEs are a vital aspect of clinical assessment in psychiatric practice and are concerned with understanding the patient's current thoughts and mood. In conjunction with comprehensive history taking, it is an important component of accurate professional formulation, diagnosis and consequent treatment in mental health care [26]. The symptomatology data contained within the MSE also makes this part of the clinical record a primary target for research use. In the United Kingdom, there are no specific guidelines at a national level, neither do the majority of psychiatric training schemes insist upon, a definitive structure for MSEs; the nature of MSE documentation thus differs from clinician to clinician [26]. However, commonly utilised components do exist, typically: appearance, behaviour, mood and affect, speech, thought process, thought content, perception, cognition and insight.

Several studies have previously investigated the change in MSE documentation practice following the introduction of more structured formats. However, to the best of our knowledge, this issue has only been addressed in paper-based health records and not within EHRs. Kareem and Ashby [26]

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