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Research report

A pilot study to develop a tool for the assessment of students' clinical record keeping



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ABSTRACT

Background: The ability to develop and maintain contemporaneous and accurate clinical records is a medicolegal requirement. It follows therefore that preregistration health students' skills to write such ought to be assessed.

Objective: The aim of the present study is to develop an audit tool to evaluate student clinical record keeping in university on-campus clinics.

Methods: The project reported on here included a literature review to identify current practice in measuring accuracy in record keeping and to identify a suitable audit tool for educational purposes. We then adapted the tool to more closely align with Australian Health Practitioner Regulatory Agency requirements. We trialled the usability of the subsequent Tool in one university health clinic – in two disciplines. In each discipline, students' clinical records from ten initial consultations and ten subsequent consultations were evaluated using the Piloted Audit Tool (PAT).

Results: The PAT was difficult to use due to the grading criteria. Notwithstanding, we identified important gaps in new patient consultation notes and subsequent consultation notes in each of the two discipline groups with only a few criteria on the PAT found to be satisfactorily recorded. The most significant gaps identified in case notes taken during students' subsequent consultations with patients in each discipline.

Conclusion: A tool for assessing student's case records emerged from the study. The Record Keeping Audit Tool (RKAT) will be trialled in further research, the next phase of which will be to transform the RKAT to an online tool to allow ease of administration so that larger data samples can be collected. This work will concentrate on developing a validity argument for the RKAT.

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Implications for practice

- The formal assessment of record keeping in a pre-professional education program may reduce the number of complaints associated with poor record keeping practices.
- The assessment of clinical records should form part of the suite of assessments employed in the workplace based assessment programme of healthcare students.
- The RKAT is readily adaptable to legislative requirements in other countries.
- The RKAT has the potential to be utilised in the post-professional settings.

Introduction

It is clear health profession educators need to pay attention to students' record keeping practices as they relate to safety in the teaching clinic, and encourage best practice in the clinical communication of record keeping. That said, it is not known if the skills developed in the educational setting persist after graduation [1]. A cursory review of the outcomes of Australian Health Practitioner Regulation Agency, Health Practitioner Tribunal Case Summaries of all disciplines (March 2012–July 2013) showed that of 127 cases, 27 of them mentioned dishonest, false, illegible or incorrect clinical records (CRs). Given this information, at least in the Australian context, it is possible to conclude clinical record keeping practices may become lax over time post-graduation. As educators, our questions are: How effective are our current educational strategies with regard to developing students' skills in CRs? How can we efficiently measure practice? What do we need to do to improve?

Accurate written CRs are a medicolegal requirement and are the most common form of communication regarding the care and treatment provided by a health professional. CRs communicate treatment plans, medical education, medicolegal investigations and reimbursements [2]. CRs support patient safety, interdisciplinary health care, and student education [2–5]. CRs facilitate outcomes research and provide information to support planning and governance in health services [2,6].

Literature about CRs written by professionals is slightly more plentiful than that found in the health and medical education literature. For example, Hanson et al.'s study involving nursing, ancillary staff, patients and administration staff involved in an outpatients clinic identified characteristics of *quality* and *content elements* for case notes [2]. Stetson et al.'s earlier work on the *Physician Documentation Quality Instrument* identified 22 items to measure the *quality* of clinical notes in admission notes and return visits [7]; these studies are informative.

Nevertheless, written communication skills assessment is an area of clinical education research that has to date received comparatively little attention [1]. Research conducted suggests a range of strategies can be used to teach and monitor record keeping practices. For example, Amos et al. [1] identified "... that record-keeping templates, audit-teaching, or a combination of short lecture, student research, peer review, and guidelines on record-keeping expectations..." (p. 1229) are strategies that have evidence to positively influence record keeping practices.

An assessment strategy for review of pre-professional students' CRs has received scant attention in allied health literature and limited attention in medicine. We know that in allied health, current practice in assessment of students CRs in osteopathy and

podiatry teaching clinics for example, consists of the student completing the CRs and then a clinical supervisor countersigns the record as a true and accurate reflection of the consultation. In regard to Australian university health clinics, there is no literature describing students' clinical record keeping habits nor is there literature on whether clinical educators provide optimal education in this regard. Clinical record audits can be time – consuming and provide evidence of clinical encounters, not all of which can be corroborated [8]. CRs cannot be expected to capture the student–patient interaction completely, something consistent with professional practice.

That said, CRs are an access point to the students' diagnostic processes, clinical reasoning, and decision-making with regard to patient care. It is the contention of the authors of this paper that assessment of students' CRs ought to be part of a program of assessment for workplace-based learning in the allied health professions. Therefore the aim of the present study was to develop and pilot a tool for use as a workplace-based assessment to assess students' record keeping against current regulatory requirements in the Australian context. We looked to the Osteopathy Board of Australia (OBA) Guidelines on Clinical Records (2012) [9] and Podiatry Board of Australia (PBA) Guidelines on Clinical Records [10] as those requirements can be expected to be similar to those of other allied health disciplines as well as requirements for allied health in other countries with similar regulatory regimes.

Methods

Ethics approval to access and audit the clinical records was obtained for the present study from the Southern Cross University Human Research Ethics Committee (ECN 15-068). The pilot study consisted of the following stages:

A literature review – to explore current discourse in regard to student education and assessment of their CRs.

A search of *Google Scholar*, *Scopus*, *PubMed*, *Wiley Online* and *ScienceDirect* was undertaken using the key words: student* and record keeping, student* and clinic* notes, assess* and student* and record keeping, assess* and student* and clinic* notes. This search resulted in the discovery of a small number of papers including a 2002 study of interns, physicians and paediatricians record keeping [11] and one audit tool, the QNOTE [12], which provided guides on essential characteristics of *quality* and *content elements* consistent with Hanson et al. [2] and Stetson et al. [7]. The QNOTE tool was designed for the audit of electronic CRs and evaluated 12 elements:

1. Chief complaint
2. History of presenting illness
3. Problem
4. Past medical history
5. Medications
6. Adverse drug reactions and allergies
7. Social and family history
8. Review of systems
9. Physical findings
10. Assessment
11. Plan of care
12. Follow up information

Burke's validity study of professionals' electronic record keeping which appraised the usability of the QNOTE [12] concluded that future studies ought to focus on changes for handwritten notes and that longitudinal studies of case records be implemented to assess quality over time and as well, that the relationship between note quality and clinical outcomes be explored. These are important professional and educational issues.

The QNOTE was designed for medical records and our cohorts of students were from the allied health professions that necessitated a modification of the QNOTE. For our educative purposes it is essential that any case record audit tool meets contemporary legislative requirements, within the regulatory jurisdiction, which in this case is the Australian Health Practitioners Regulation Agency [9,10].

The development of the pilot tool

The OBA and PBA Guidelines on Clinical Records (Australian Health Practitioner Regulation Agency, 2015) were compared by the research team to the QNOTE tool [12] and modifications made. Additional criteria were added for informed consent requirements and to capture if both the clinical supervisor and student had signed the CRs (Appendix 1).

The pilot

A Piloted Audit Tool (PAT) was conducted in one university health clinic where students from two allied health professions consult with patients under the supervision of registered practitioners. To sample practice, we asked the administration staff to randomly select CR's for ten new patients and ten follow-up clinical consultations from each discipline. We did not target any specific year group of students in each discipline, nor did we focus on student learning from any particular clinical supervisor in either discipline.

Data analysis

The research team consisted of one researcher from each discipline and a senior clinical educationalist who acted as moderator. In turn, the researcher from the discipline and the moderator independently reviewed and assessed the ten new and ten subsequent clinical records written by students in the discipline using the PAT. The researcher and moderator then met to determine level of agreement and to discuss any differences until a consensus was reached. The whole research team met via Skype for final deliberations.

We made no attempt at identification from our sample students or supervisors and did not count if the sample included CRs from one student multiple times or how many of the case records had been signed by any one supervisor. We did not evaluate the type of clinical case or assess the case complexity. In regard to subsequent consultations we assessed the most recent.

Descriptive statistics were generated for each discipline and this resulted in four sets of data:

Discipline A

1. Results of analysis of ten CRs from initial consultation.
2. Results of analysis of ten CRs from subsequent consultation.

In Discipline B

3. Results of analysis of ten CRs from initial consultation.
4. Results of analysis of ten CRs from subsequent consultation.

Results and discussion

The PAT was difficult to use due to the grading criteria. For example, if an item was deemed 'missing', then the sub criteria – criteria such as clear, concise, prioritised – became irrelevant. Furthermore, it became clear that, unless the assessors of the CRs were present to witness the consultation between the student and

patient, it was impossible to determine if the presenting complaint had been recorded accurately which has been mentioned by others [8]. In addition, among the research team there were different opinions of the same records with regard to what was *partially completed* and *unacceptable* given it is reasonable to argue that if it was *partially complete* then it is *unacceptable*.

Aside from the fact the PAT was difficult to use, issues with student clinical record keeping practices were identified. There is a wide discrepancy in the recording of new patient consultations and subsequent consultations in each of the two discipline groups (Tables 1 and 2). Only a few criteria on the PAT were found to be *satisfactorily* recorded with significant gaps identified in case records taken during subsequent consultations. It is important to note however that not all information that would be expected in an initial consultation be recorded for a subsequent consultation.

This snapshot of this handful of CRs from student-led consultations in two allied health disciplines at one Australian University Health Clinic eludes to shortfalls in current students CR keeping practice standards which has educational consequences [5] in terms of student behaviours and potentially sub-optimal clinical supervision. There is room for improvement in most domains, which are findings similar to Soto et al.'s. [11] Subsequent larger scale studies will explore the teaching and assessment issues more comprehensively. How these issues effect patient care and clinical outcomes also requires further exploration as previously stated by others [5,12].

The results of this snapshot support the need to have a Tool to audit students' CRs in the university health clinic environment, and, they are consistent with other research [1]. The educational imperative to conduct CR audits is tempered by the small sample size, evaluation of CRs at only one time point, and the subjective opinion of the researcher team members. However, that said, assessment of student CRs over the length of their placement seems sensible and is in keeping with Burke's notion of longitudinal assessment [12]. An audit of student CRs has the potential to be used for formative feedback provided to a student during their clinical placement, and the collection of multiple audits could provide a summative judgement within a programmatic approach to assessment.

With regard to the alignment of the aforementioned Guidelines on Clinical Records and the PAT adapted form the QNOTE [12], the elements of record keeping and their components worked in the main but we felt it had shortcomings in terms of the marking criteria as discussed. Subsequent amendments to the PAT resulted in the development of the **Record Keeping Audit Tool (RKAT)**, see Appendix 2.

Since the completion of this activity, the RKAT has been adapted for use in four disciplines: osteopathy, podiatry, speech pathology and clinical exercise physiology and it appears, on face value, to be an efficient and effective way to assess student CR keeping during workplace-based learning. From this initial work we have identified the need to provide further clinical supervisor and student training in CRs.

More research is required to ensure the efficient use of the RKAT as a formative clinical education assessment and its inclusion in a suite of summative workplace-based assessment tools. The limited literature in the area of student clinical record keeping provides educators with an opportunity to explore an area that could have a significant impact on the health professions beyond what is observed at the educational institutions [1]. Furthermore, there is potential for the RKAT to be used in private practices as part of a quality assurance strategy.

The major limitation of the current study is the narrow exploration of a handful of CRs from student-led consultations in two allied health disciplines at one Australian university by only three raters. Whether the findings of the current study reflect wider

Table 1
Discipline A, results of clinic record audit.

	Initial consultation (n=10)				Subsequent consultation (n=10)			
	In full	In part	Unacceptable	Missing	In full	In part	Unacceptable	Missing
Personal details	10				5		2	3
Date of consult	9	1			8	1		1
Presenting complaint	1	3	6			3	6	1
Prioritisation of problems	1	2	3	4			2	8
Medication list	2	4	2	2			2	8
Social and family history	1	4	4	1			2	8
Review of systems	3	7						10
List of possible causes	1	3	5	1		4	5	1
Physical Findings	1	2	6	1	3	1	1	5
Plan of care	2	2	6		3	3	2	2
Follow up plan of care	1	3	4	2	2	1	3	4
Informed consent	1	7		2	1			9
Student Signature	8	1	1		8	1	1	8
Supervisor signature	8	1		1	6	1	1	2

Table 2
Discipline B, results of clinical record audit.

	Initial consultation (n=10)				Subsequent consultation (n=10)			
	In full	In part	Unacceptable	Missing	In full	In part	Unacceptable	Missing
Personal details	4	4	1	1	6	3		1
Date of consult				10	7	1		2
Presenting complaint	4	5	1		1	2	2	5
Prioritisation of problems	4	5	1		1		2	7
Medication list	6	1	2	1				10
Social and family history	1		1	8				10
Review of systems	2	2	1	5				10
List of possible causes	1	2	2	5				10
Physical findings	4	4	2			1	2	7
Plan of care	3	5	2		1	4		5
Follow up plan of care	4	3	3		1	3	1	5
Informed consent	8	1		1				10
Student signature	9			1	7	2		1
Supervisor signature	9			1	10			

issues with CRs at this or other institutions requires further investigation. The generalisability of these findings to other teaching institutions is also limited unless the RKAT is modified to align with requirements of the relevant regulatory regime.

Conclusion

The current study has developed a tool that has potentially significant usability for the evaluation of CRs in Australian university health clinic settings. Further the tool may be useful in multiple allied health professions and also useful in the post-professional setting.

Focusing on teaching and assessment of pre-professional allied health students' clinical record keeping could be expected to influence their immediate practice and potentially improve patient safety, and intra and interdisciplinary communication. The snapshot of CRs in a single teaching institution identified some gaps in recording keeping in two allied health disciplines, however further work is required to identify if these issues are systematic.

Subsequent to the current study, the RKAT has been implemented in one university health clinic in several disciplines, and regular reviews of student CRs are now undertaken with the results being reported to various stakeholders as part of our quality assurance strategies. Anecdotally, the RKAT is proving useful for student self-assessment, and peer/near-peer assessment of clinical record keeping in all disciplines.

Moving forward, we call on our education partners to consider working with us to develop the RKAT as an online assessment tool

to enable the gathering of larger data samples to investigate aspects of the reliability of the RKAT, with the potential to develop a validity argument [13]: scoring, generalisation, extrapolation and decisions making.

Conflict of interest

None declared.

Ethical statement

This study has been conducted in accordance with *National Statement on Ethical Conduct in Human Research*.

Ethics approval obtained from Southern Cross University Human Research Ethics Committee (ECN 15-068).

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Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.ijosm.2016.07.003>.

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