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Research Article

E-Logbook system of University Residency Program (URP) at Rawalpindi Medical University

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Abstract:

Objectives: To appraise the e-logbook entries done by university residents of Rawalpindi Medical University (RMU) and to review the approval status of those entries by respective supervisors.

Methods: A cross-sectional descriptive study was done to appraise different categories of e-logbook entries done by the university residents and approval status of those entries by their supervisors. The entries in relation to number of trainees enrolled in various training programs were also evaluated. The data analysis was done by means of Microsoft Excel 2019. Descriptive statistics were applied. The number of e-log entries against training programs and trends of their approval status were also displayed.

Results: The data of e-log entries of 435 university residents enrolled in various training programs was depicted. The entries pertaining to general cases, rotational, journal club and publications were reviewed. Around 6197, 4013, 3750 entries were done by trainees of Surgery & Allied, Diagnostic Radiology and Medicine & Allied trainees respectively. Entries of MD Medicine & Allied and MD Pediatrics were not in accordance with their No. of trainees. 89.9% of e-log entries were approved by supervisors.

Conclusion: E-log entries done by trainees and their approval status are illustrative of uncomplicated and feasible attributes of Electronic Logbook system of RMU.

Keywords: e-logbook system; university residency program; surgery & allied; diagnostic radiology; md medicine & allied

Introduction

Electronic Logbook (E-Logbook) is one of the constructive and experiential tools in medical education that not only promotes comprehensive learning but also facilitates formative assessment of postgraduate trainees [1]. A logbook is a notebook that illustrates the minimal requisites for various learning activities predominantly related to the competencies to be achieved in accordance with the specified curriculum. The entries done by trainees are then checked and verified by the respective supervisors [2].

Logbook is of paramount significance in both undergraduate and postgraduate medical education. They of great assistance to the trainees as well as trainers in getting cognizant with the learning tasks during specific year of training [3]. E-logbook has achieved considerable recognition as one of the pertinent and feasible software in medical sciences [4]. In this digitalized era, it has become quite convenient for both the trainees and supervisors to do entry of the examined or managed cases and approve the entries or giving prompt feedback respectively via smartphones [5]. Healthcare professionals across the globe has appreciated e-logbook system due to minimal time and energy spent on it [6]. E-logbook is a compact tool for tracking the progress of training related tasks and academic activities that also paves the way towards quality control [7]. It also enables to trainees to design their comprehensive portfolio by reviewing their e-logged activities [8].

E-logbook not only promotes paper-less record keeping but also ensures exact calculation of assessments that are effortlessly accessible to both trainers and trainees [9]. Logbooks of University Residency Program (URP) [10] were designed along with respective program curriculum following its inauguration in 2017. Initially logbooks were available in hard copies to the trainees that were to be checked, signed and stamped by their supervisors along with scoring of the supervisor appraisal form and provision of constructive feedback. Later in E-logbook system was commenced in 2023 to streamline real time data entry. All supervisors and trainees undergone orientation sessions for revealing their biodata and comprehensive academic profile on e-log portal of RMU (pgt.rmur.edu.pk). Its first interface is illustrative of the entries pertinent

to general and rotational cases along with journal club entries and publications; further efforts to make it comprehensive to procure complete academic record including assessments of the postgraduate residents are in progress to make it state-of the art software [11].

The concerned focal persons are given access to review the approval status of entries by respective supervisors that is presented and discussed in Deans meeting on weekly basis. Although logbooks are periodically reviewed by logbook appraisal committee of the University as well for quality assurance; the policies regarding the recommended number of entries to be done in a specified period are in review process by the concerned stakeholders. The present study is therefore aimed to compactly appraise the e-logbook entries done by university residents of RMU and to review the approval status of those entries by respective supervisors. This survey would reflect a glimpse of e-logging of residency program at RMU that is the 1st public sector medical university [12] to introduce this wide-ranging system.

Methods

A cross-sectional descriptive study was done to appraise different categories of e-logbook entries done by the university residents and approval status of those entries by their supervisors. All the trainees were given orientation about e-logbook during Jan-February 2023 followed by hands-on sessions to facilitate them in creation of their e-log accounts by entering their biodata, academic portfolio and all training-related attributes. Their supervisors also undergone the same procedure to make e-log accounts functional with an objective to authenticate their access for reviewing and approving the entries done by their trainees and providing them with constructive feedback. Total 435 trainees and 67 supervisors are presently active on e-logbook account of Rawalpindi Medical University. Capacity building of the faculty members and supervisors are also carried out periodically under RMU Faculty Development Program (FDP) [13]to ensure their acquisition of all essential academic, clinical ad supervisory skills. Each trainee and supervisor have unique login and password to ensure confidentiality of the record. Only the concerned officials of postgraduate medical education are given access to view the status of e-log account Its interface is as follows:

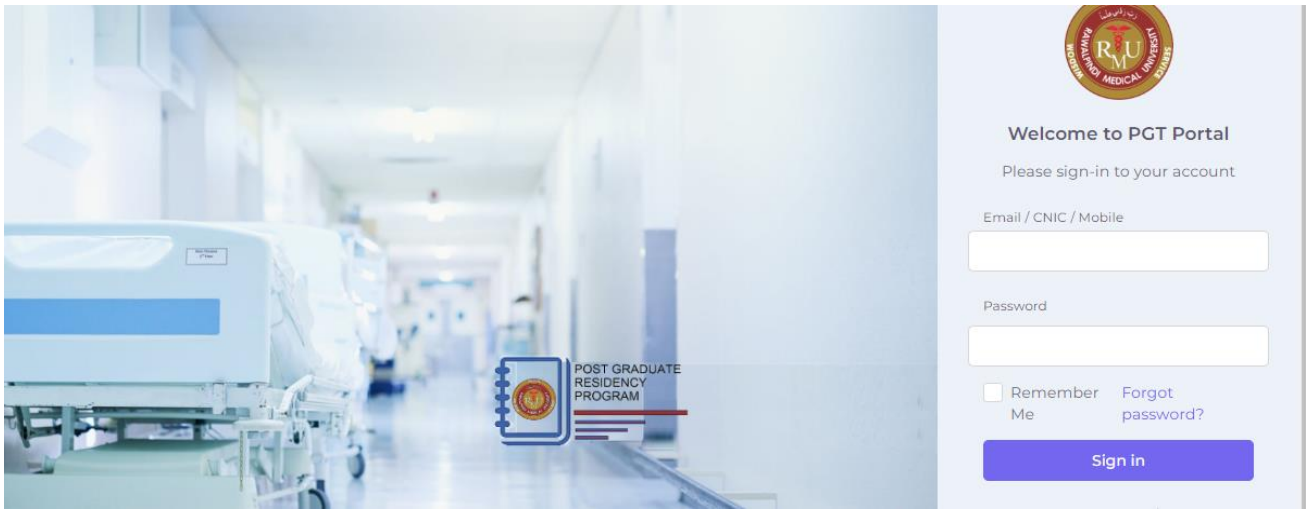

Figure 1: Web Interface of e-logbook of Postgraduate Residency Program

Data was analyzed by MS Excel 2019 software. Descriptive statistics were applied.

Resutls

Medicine & Allied cases and other entries done on e-Logbook by university residents are shown below in Table 1:

MD Medicine & Allied Training programs	Total entries	Cases entered	Rotational entries	Journal club entries	Publications
MD Medicine	1650	1314	324	10	2
MD Psychiatry	865	621	208	29	7
MD Gastroenterology	453	431	22	0	0
MD Nephrology	347	288	59	0	0
MD Cardiology	236	198	36	1	1
MD Emergency Medicine	93	73	20	0	0
MD Dermatology	82	69	13	0	0
MD Pulmonology	24	24	0	0	0
Total	**3750**	**3018**	**682**	**40**	**10**

E-log entries of MS Surgery & Allied trainees are given below in Table 2.

Table 1: E-logbook entries by MD Medicine & Allied trainees till 30th August 2024

MS Surgery & Allied Training programs	Total entries	Cases entered	Rotational entries	Journal club entries	Publications
MS General Surgery	1649	1228	403	14	4
MS Orthopedic Surgery	1411	1062	346	2	1
MS Anesthesiology	1071	1055	16	0	0
MS Neurosurgery	756	445	309	0	2
MS Urology	584	501	83	0	0
MS Pediatric Surgery	397	146	250	1	0
MS Plastic Surgery	329	241	85	0	3
Total	**6197**	**4678**	**1492**	**17**	**10**

Table 2: E-log entries of MS Surgery & Allied residents

The crux of E-log entries done in various sections by the trainees of diverse training programs are shown below in Figure 2 & 3:

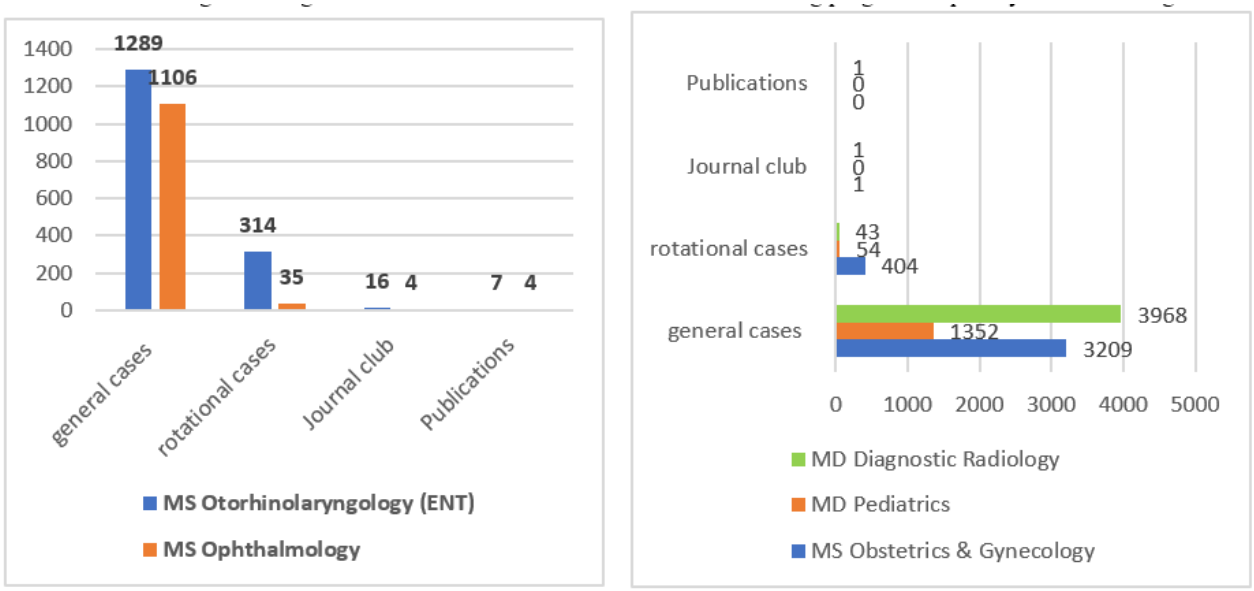

Figure 2 & 3: Section-wise & program-wise e-log entries by trainees

The number of E-log entries against number of trainees enrolled in various training programs is portrayed below in Figure 4.

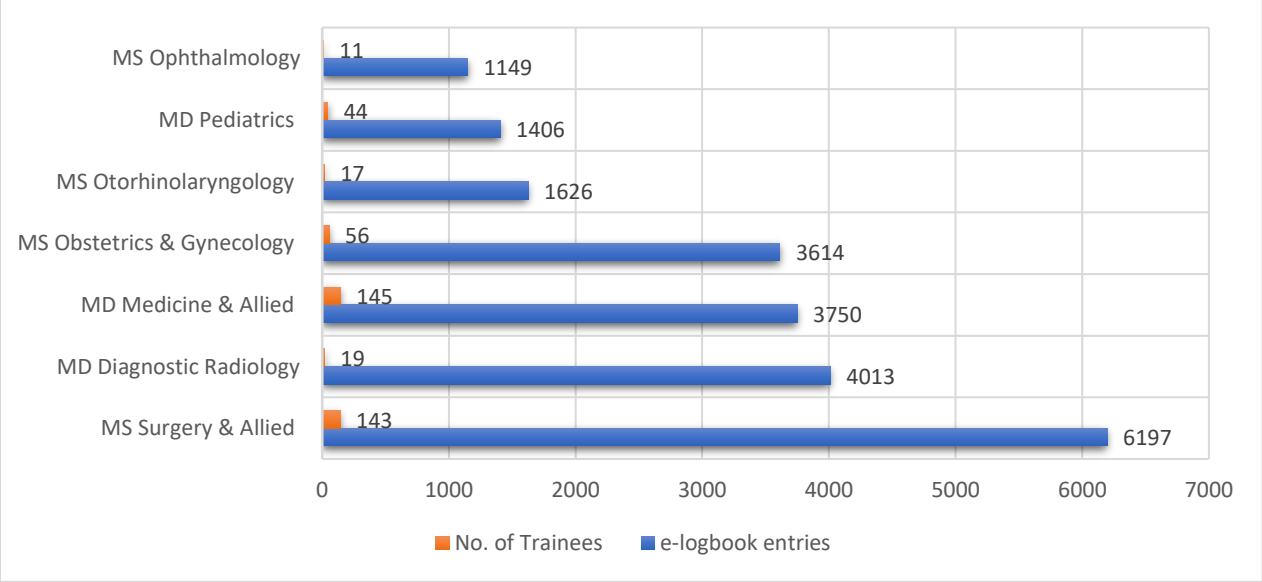

Figure 4: E-log entries against No. of trainees discipline-wise

e-log approval status by the registered supervisors of university residency program at RMU is depicted below in Figure 5.

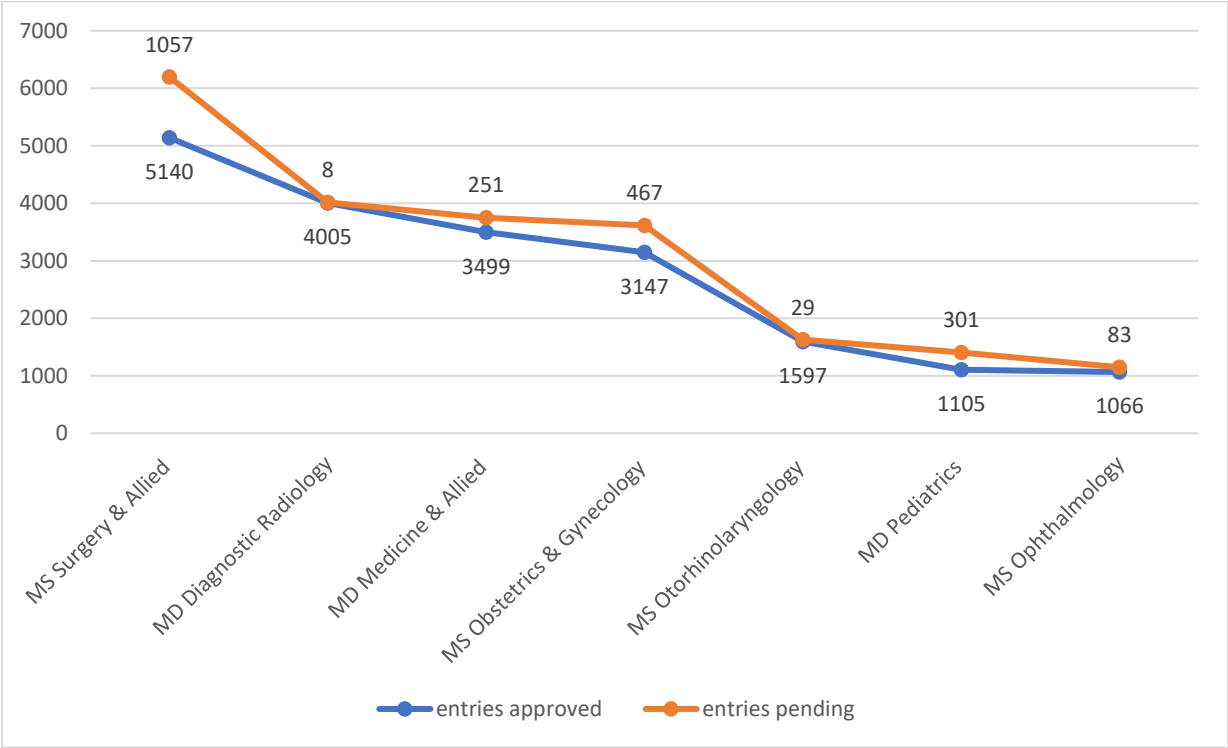

Figure 5: Approval status of e-log entries

Discussion

E-logbook entries done by university residents enrolled in total 20 MS / MD clinical training programs of RMU & allied hospitals are reviewed in the current study. Maximum entries were done by residents of MS Surgery & Allied followed by those who were enrolled in MD Radiology training program. On launching of University Residency Program at RMU in 2017, hard copy of logbook was introduced in all training program that not only included departmental logbook but also encompassed rotational logbook, research elective logbook and portfolio for each program. The intention was to monitor the real time entries of cases by trainees when they go for rotations to their allied departments along with their research activities and academic achievements. Initially in 2023, it was recommended by the institutional authorities to maintain record in hard copy as well along with e-log entries due to fear of crashing down of e-log system because of its novelty and questionable validity. Now rigorous efforts are being inserted in making e-log system of postgraduate trainees holistic that will depict their assessments and workshop attendance as well in addition to the number and approval status of e-log entries. A similar study by Tamblyn R et al revealed that launching of e-logbook for Psychiatry trainees without internet facilitation was followed by upgradation of e-log system with internet connectivity. This step-wise approach might be opted to ensure the feasibility of this system. However; internet-based e-logbook make it possible not only for supervisors to do their entries anywhere and anytime; but also enables supervisors to review the entries and provide feedback at their convenience[14]. Watters DAK et al emphasized the need for e-logbooks due to swift monitoring of the training of residents pertaining to knowledge and skills attained by them within specified time period either in their parent department or at rotation in other hospitals [15]. Apart from real-time data entry and longitudinal tracking, e-logbook also promotes organization of data by streamlining entry in specified sections that also makes possible for both trainees and supervisors to keep check of pending entry.

The number of e-log entries by university residents in current study did not suitably correlate with number of trainees enrolled in postgraduate training programs like those of Medicine & Allied and Pediatrics (Fig 4). Although Entrustable Professional Activities (EPAs) to be accomplished by the trainees during each training year has been mentioned with clarity in hard copies of their logbooks; its implementation in e-logbooks is underway nowadays. A logbook appraisal committee has also been constituted at RMU to ensure the authenticity of data entry in e-logbooks by postgraduate trainees. The committee also recommended that trainees should also attach the snapshots of original clinical, radiological and biochemical profiles of the patients examined, managed or operated in hospitals. Svendsen ØV et al also evaluated the logbook system of Surgical trainees in Sierra Leone due to poor assessment of quality and validity of this document in less developing countries [16]. Likewise, quantitative analysis in resource-constrained regions revealed the dire need to upgrade the e-logbooks of surgical residents to ensure validity of entered cases [17]. There are certain limitations of paper-based logbook like arranging a meeting with residents for logbook appraisal, time management by both trainees and supervisors for this tedious task and illegible writing of trainees etc. Electronic logbook comparatively seems to be quite practical as it overcomes all aforementioned deficits [18]. The successful implementation of e-log system is attributed to the comprehensive usage of all its installed captions for achievement of intended outcomes both by trainees and supervisors [19].

About one and a half year has elapsed since introduction of e-log system at RMU, its various attributes are in process of revision by the concerned stakeholders in collaboration with IT officials. Although trainees of RMU are supposed to do their e-log entries in accordance with various categories specified like those of general cases, rotational and journal club etc. (Fig 2 & 3); all concerned are still putting their efforts to ensure e-log

entries in accordance with relevant EPAs to fulfill the training requirements of the trainees realistically deemed necessary for acquisition of all core competencies mentioned in course curriculum. A cross-sectional study among dermatology residents of Saudi Arabia revealed dissatisfaction among 50% of them due to lack of surgical training in their training program [20]. One of the tips for efficacious implementation of logbooks in clinical training is to make logbook an essential part of the curriculum and to ensure provision of ample time for teaching and training of residents [21]. Wolfgarten et al in his study also highlighted the need for simplicity and relevancy of e-logbook content [22]. A mixed method study by Barteit S et al among medical licentiate students and their mentors concluded that greater time utilization and complicatedness of e-logbook reduced their degree of satisfaction [23]. Even regarding paper-based logbook of clinical residencies, recommendation was to involve the concerned administrators and clerks of respective Deans Being a training monitoring system, e-logbook of postgraduate trainees should be simple and user friendly for both trainees and supervisors for feasibility. However, fulfillment of all training requisites should also be encountered for achievement of intended training outcomes.

Conclusion & Recommendations

E-logbook entries done by university residents and their approval status are descriptive of simple and practicable qualities of Electronic Logbook system launched by Rawalpindi Medical University. The discrepancies in association of entries with No. of trainees undergoing trainees would better be addressed by assessing the entries in compliance with respective EPAs.

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