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Strengthening Medical Record and Health Information Professionals' Competencies for Digital Transformation and Hospital Service Quality Through a National Webinar

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ABSTRACT

Objective: *This community service webinar aimed to scale up PMIK's comprehension in anchoring digital health shifts.* ***Method:*** *The program deployed an online national webinar approach. Participant profiles and program outcomes were analyzed using a quantitative descriptive method tracking registration, engagement, and cognitive leaps via Pre-Test and Post-Test questionnaire tools evaluated by group-mean comparison (N=399).* ***Results:*** *The webinar attracted 399 registered attendees, predominantly female (76.19%) and PMIK specialists (61.90%). A total of 339 participants successfully completed all test components. A noticeable cognitive growth occurred within the PMIK cluster, evidenced by a mean test score rise from 89.12 (Pre-Test) to 94.66 (Post-Test). Overall, the final graduation rate touched 83.46% of total registrants.* ***Novelty:*** *The novelty of this community service activity lies in its cross-regional mass education intervention in Indonesia, with immediate cognitive assessment to identify which target groups need further support in understanding the digital transformation of medical records.*

INTRODUCTION

Indonesia's Ministry of Health Regulation No. 24 of 2022 requires healthcare facilities to use electronic medical records (EMRs) [1]. The national SATUSEHAT platform uses FHIR to exchange health data between systems [2]. These developments increase the importance of the competencies set out in Indonesia's professional standard for Medical Record and Health Information Professionals (PMIK), including clinical coding, information management, and professional practice [3]. National quality indicators provide a separate framework for monitoring service quality [4], while the World Health Organization's digital health strategy places workforce capability alongside technology and governance [5].

Hospital EMR implementation involves work redesign, user engagement, and organizational support [6]. Research on EMR acceptance identifies time constraints, technical problems, and training needs as recurring barriers [7]. A wider review also identified financial and organizational obstacles to adoption [8]. An Indonesian hospital information system study found that individual, technological, and organizational factors help explain user acceptance [9]. These findings support professional education that addresses how staff apply regulation and work with digital systems in practice.

Webinars offer a practical way to reach professionals and students across locations. A meta-analysis of randomized trials assessed the effectiveness of webinars in higher education and professional training [10]. Internet-based learning has also been evaluated across health professions [11]. Evidence from a Cochrane review indicates that outcomes depend on the comparison and context, so attendance and immediate quiz performance should be interpreted within the limits of the evaluation [12].

This community service program used a single national webinar to bring together PMIK professionals, lecturers, students, and other participants. It assessed immediate knowledge before and after the session and summarized changes by professional group to identify where follow-up support might be needed. Its objective was to strengthen conceptual understanding of EMR implementation, digital health transformation, and the role of PMIK in hospital service quality and accreditation.

RESEARCH METHOD

Activity design and participants

This community service program used a pre-experimental, one-group pretest–posttest design. The assessment compared immediate knowledge before and after the webinar using descriptive statistics. This design can describe change, while causal attribution is limited by the absence of a comparison group [13].

The intended audience included PMIK professionals and final-year Medical Record and Health Information (RMIK) students. The registration database contained 399 records, of which 247 belonged to the PMIK group. Eligibility included official registration and attendance at the opening session. Participants with either quiz missing were excluded from the knowledge evaluation. Registration and completion figures are presented separately.

Implementation and data collection

The webinar ran online through Zoom and the training learning management system (LMS). Before instruction, participants completed an objective pretest on EMR regulation and hospital quality indicators. Medical records practitioners and experts then presented material on digital health transformation, technical EMR implementation, and the role of PMIK in quality assurance and accreditation. The session included discussion and questions from participants. After the session, participants completed a posttest described in the source as equivalent to the initial instrument.

Data analysis and program criteria

Pretest and posttest means were summarized by professional group. Program indicators were the direction of change in mean quiz performance in the primary PMIK audience and the proportion of registered participants who satisfied the quiz threshold and participation criteria. The evaluation distinguishes test completion and program qualification from workplace performance, consistent with frameworks for evaluating continuing professional education [14].

Ethical considerations

The activity used participants' educational assessment data and did not access patient records or involve clinical procedures. Participant assessment data were kept confidential and analyzed anonymously for reporting and academic purposes.

RESULTS AND DISCUSSION

Results

Participant characteristics

The webinar registered 399 participants from various areas of Indonesia. Among them, 304 were women (76.19%) and 95 were men (23.81%). The PMIK group comprised 247 registrants (61.90%), including participants listed at different competency levels. Table 1 gives the original category breakdown.

Table 1. Professional background of webinar registrants

Participant group	n	Percentage (%)
Medical Record and Health Information Professionals (PMIK)	132	33.08
PMIK, Level 6	72	18.05
PMIK, Level 5	43	10.77
Non-healthcare participants, academics, or general public	146	36.59
Public health professionals, Level 7 and general	3	0.75
Other health professionals (physicians, nurses, and midwives)	3	0.75
Total	399	100.00

Webinar implementation

The national webinar used Zoom and an LMS to deliver presentations about digital health transformation, EMR implementation, and PMIK responsibilities in hospital quality improvement. Speakers interacted with participants through discussion and a question-and-answer session (Figures 1 and 2).

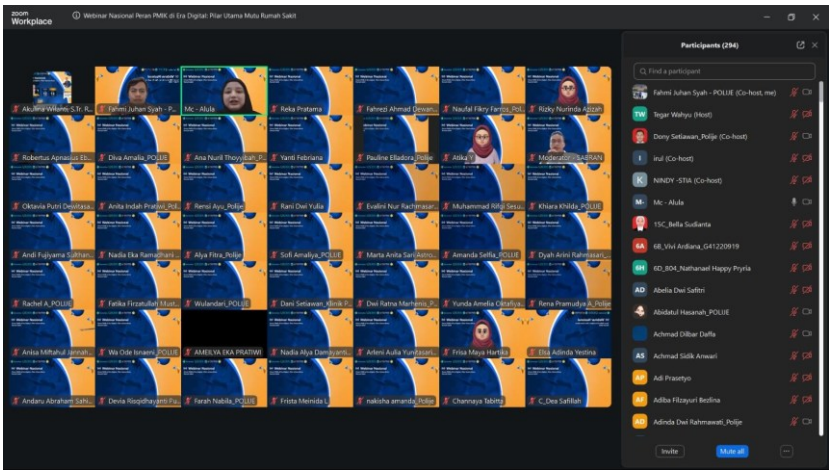

Figure 1. National webinar on PMIK competencies and digital health transformation

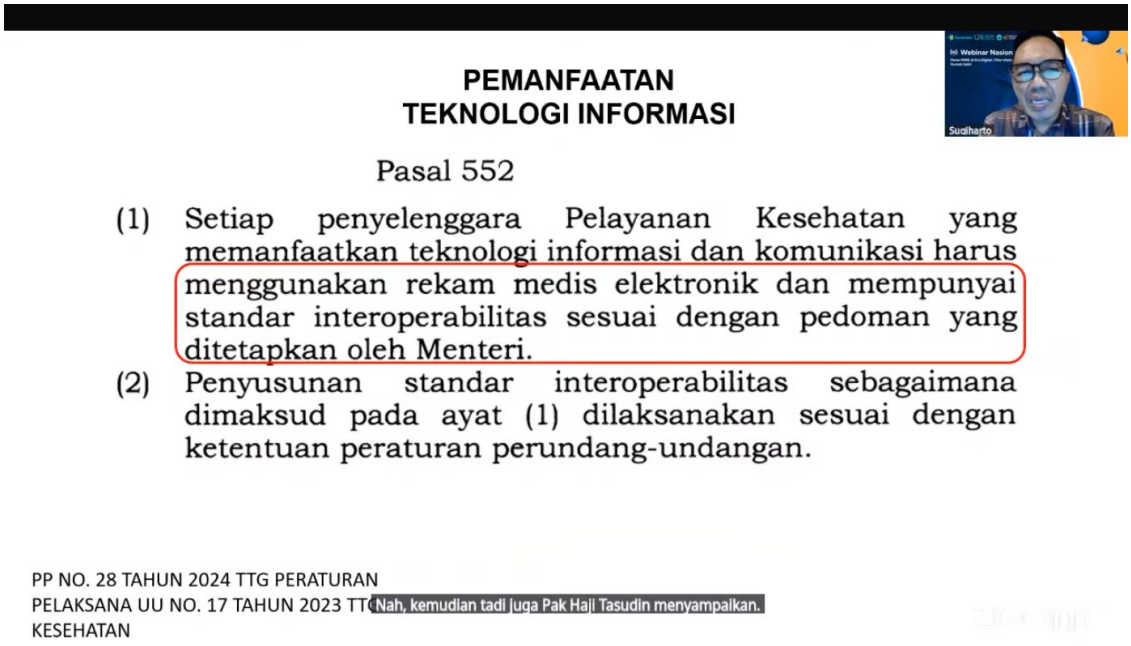

Figure 2. Presentation delivered by a webinar speaker

Immediate knowledge evaluation

A total of 339 participants completed both the pretest and the posttest. Sixty registrants were excluded from this evaluation because at least one test was missing. The mean score reported for PMIK participants rose from 89.12 to 94.66. For other health professionals, it rose from 94.00 to 96.00. The mean for the non-healthcare group remained 93.85. The number of paired completers in each professional group was not supplied, so Table 2 reports group means without assigning registration counts to the paired samples.

Table 2. Mean pretest and posttest scores by professional group

Professional group	Mean pretest	Mean posttest	Change
Medical Record and Health Information Professionals (PMIK)	89.12	94.66	+5.54
Other health professionals	94.00	96.00	+2.00
Non-healthcare participants, general public, or academics	93.85	93.85	0.00

Final program qualification

Of the 399 registrants, 333 (83.46%) satisfied the program qualification criteria and 66 (16.54%) did not qualify or did not complete the required activities. Qualification considered virtual attendance and quiz performance. The 66 who did not qualify and the 60 excluded from the knowledge analysis are different outcome counts.

Table 3. Final webinar qualification status

Qualification status	n	Percentage (%)
Qualified	333	83.46
Did not qualify or did not complete requirements	66	16.54
Total	399	100.00

Discussion

The PMIK group showed the largest descriptive increase in mean score, at 5.54 points. The other health-professional group increased by two points and the non-healthcare group showed no mean change. The focus of the content on medical records may help explain why the largest change appeared in the primary audience. The high initial scores in the comparison groups also leave less room for improvement. With subgroup completion counts, score distributions, and inferential tests unavailable, the observed differences should be interpreted as descriptive.

The national format enabled participants from several areas to join the same session. Presentations, discussion, and live questions offered a common introduction to EMR regulation, digital workflows, and PMIK responsibilities. Prior webinar research shows that learning effects depend on the characteristics of the activity and its participants [10]. Evidence from health-professions education also supports evaluating how the online format and instructional design work for the audience [11]. The program did not include an in-person comparator.

For medical records units, knowledge of regulation, SATUSEHAT data exchange, and clinical coding is relevant to day-to-day EMR workflows [2]. The competency standard gives professional organizations and educational institutions a basis for designing recurring training [3]. The present evaluation measured immediate knowledge. Changes in coding accuracy, claims, workflow efficiency, and accreditation outcomes would require separate assessment in healthcare facilities [14].

The evaluation took place on the day of the webinar, so it did not measure retention or direct EMR skills. The source reports that unstable internet connections affected some participants. Complete attendance and test records would help determine how much this contributed to missing assessments. Blended instruction can combine online preparation with guided practice [15]. Simulation-based training also provides a way to observe performance and deliver feedback on practical tasks [16].

CONCLUSION

Fundamental Finding: The PMIK group recorded a change in its mean cognitive score from 89.12 in the initial session to 94.66 in the final session. **Implication:** This increase in knowledge provides an important foundation for accelerating national digital health transformation and meeting service quality and accreditation standards in healthcare facilities. Based on these results, professional organizations, educational institutions, and relevant ministries are encouraged to offer this interactive education

program regularly. **Limitation:** First, the evaluation measured only short-term knowledge on the day of the activity using pretest and posttest instruments. The study could not assess long-term knowledge retention or changes in participants' practical skills when using EMR modules in their own healthcare facilities. **Future Research:** In addition, future community service programs should develop hybrid technical training or hands-on simulation workshops to assess practitioners' ability to operate EMR systems directly in the workplace.

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