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Analysis of Hospital-Based Cancer Registration Training Readiness Blended Learning Method by The National Cancer Center, Dharmais Cancer Hospital

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Abstract

Background: Cancer registration produces statistical information on cancer that complies with international standards so that it can be used as a baseline for taking cancer policy directions. The quality of the data can be affected by the officers who carry it out. Hospital-Based Cancer Registration Training in Indonesia has been held since 2016 to increase the capacity of cancer registration implementation. Since the pandemic, online methods have been increasingly used in the world, not only in education but also in health sector . In addition, the blended learning method has becomebecome an option because it is more effective for delivering material that requires interaction with the instructor. Cancer registrars have an important role in the process of cancer registration activities in providing valid and accurate information so that to support performance, training is needed to increase the capacity of cancer registrars. Dharmais Cancer Hospital has had a Hospital-Based Cancer Registration Training program with the aim of achieving the competencies needed in cancer registration. This study aims to analyze the readiness of the blended learning method of hospital-based cancer registration training by the National Cancer Center Indonesia, Dharmais Cancer Hospital. **Methods:** The research design was carried out in the form of quantitative descriptive where data collection was in the form of questionnaires to the research subjects according to the inclusion criteria. The inclusion criteria for research subjects were training instructors, training organizers, cancer registration implementers, and leaders who were responsible for cancer registration. The research was conducted at the National Cancer Center Indonesia, Dharmais Cancer Hospital from April to November 2022. Data will be analyzed using SPSS. **Results**: We analysed the 35 respondents with the results were mostly female (80%), bachelor degree (51.4%), 30-39 years old (40%), never been cancer registration trainer (71.4%), and ever heard about about cancer registration training (82,9%). There were three variable that had mean higher than overall mean which technology (3.95), self development (3.86), and training curriculum (3.98). However the innovation (3.61) and training organizer (3.17) were less then overall mean. **Conclusion**: Dharmais Cancer Hospital has been ready but need improvements to have cancer registration training using blended learning. Innovation factor and training organizer should be improved.

Keywords: blended training, cancer registration, online training

1. Introduction

Cancer is a global problem in every country. Globally there are 19.3 million new cases of cancer with a mortality rate of nearly 10 million cases of cancer death. If not controlled, it is believed that in 2040 there will be an increase of around 47% from 2020 (1) . In 2020, there were around 397 thousand new cases with the highest percentage of cancer in women, namely breast cancer (30.8%), and in men, namely lung cancer (14.1%) .

Dharmais Cancer Hospital (RSKD) is the specific hospital that started built based on President Suharto's instruction with experts in the field of cancer in 1991 and was inaugurated in 1993 aims to establish service cancer integrated in Indonesia. In 2017 RSKD was determined by the Indonesian Ministry of Health to become the National Cancer Center Indonesia (PKN) through the Decree of the Minister of Health of the Republic of Indonesia Number HK.01.07/MENKES/531/2017 to optimize its role in service health cancer comprehensive; national education and information center ; and as the National Cancer Data and Research Center accordingly with vision and mission (2) .

Countermeasures Program National Cancer is a health program designed society to reduce incidents and deaths consequence of cancer and to improve the quality of life patient cancer by country or state certain, through systematic and fair implementation based strategy proof for prevention, detection early, treatment, and palliative, with utilize the best source existing power (3) . As the National Cancer Center, RSKD is a responsible answer in implementation of the Control Program National Cancer. Adapted from WHO guidelines, the program in question that is including 1) promotive and preventive; 2) detection early and screening; 3) diagnostics and therapy; 4) cancer registration; 5) research cancer; 6) palliative; 7) therapy support and medical rehabilitation. Cancer Registration is a systematic process in recording case violence at one certain population.

Information generated statistics from the registration process cancer becomes base main in preparation for cancer control programs (4). There are 14 Regional Population Based Cancer Registries appointed through on the Decree of the Minister of Health of the Republic of Indonesia No. HK.02.02/MENKES/410/2016. Recording good cancer information will produce valid cancer statistics. Cancer registry report cancer data that has abstracted in a manner accurate, complete and precise time to various facility service health (5) . Researchers previously explain that the quality of registration data cancer influenced by the experience of the registrar, where the registrar requires training to increase capacity in do his job (6) . In middle-low income countries, the quality of cancer registration data depends on the qualifications and competence of the staff. Cancer registration requires specific training related to cancer registration. Formal training is required for staff to work according to procedures and guidelines (7) .

The COVID19 pandemic since 2020 has made us aware of the benefits of technology in life. Face-to-face meetings, which need to be reduced during a pandemic, can be overcome by utilizing technology. Schools and Higher Education implement learning using the *e-learning method* so that activities continue. The activities in the office were no exception, which were shifted from face-to-face to online. The COVID-19 pandemic has undoubtedly impacted the world of medical education with the shift towards online teaching platforms (8) . The e-learning method is a learning method that is widely used during a pandemic and has been recognized worldwide as an effective tool for learning as a result of a powerful Internet-based delivery system coupled with high-speed data communication (9) . The method of delivering e-learning, defined as educational interventions mediated electronically via the Internet, is currently on the rise among healthcare professionals around the world (10) . The use *of e-learning* needs to be designed carefully because if it is not planned properly it will be a loss for the institution and students (11) . Blended learning is a combined method of face-to-face learning models with *e*-learning and multimedia (12). The purpose of Blended learning is to improve the learning outcomes of the participants (Garner and One, 2-15). *Blended learning* tries to overcome the deficiencies that exist in face-to-face and *e-learning methods*, for example in terms of time and interaction.

Scheduled and predetermined times in the face-to-face method are inflexible compared to *e-learning* where participants can re-access recorded material delivered *online*. The face-to-face method is still considered a more effective method of building interactions with instructors, where this is not the case with *e-learning*. Especially learning materials that require field practice which requires the involvement of participants and trainers.

2. Materials and Methods

The study aims to analyze the readiness factors for hospital-based cancer registration training using the blended learning method by the National Cancer Center, Dharmais Cancer Hospital. The research design was carried out in the form of quantitative descriptive data collection using a questionnaire instrument to research subjects using non-probability techniques with purposive sampling methods in accordance with the inclusion criteria of research subjects. The research was conducted in the Dharmais Cancer Hospital during April – November 2022. The data was analyzed based on the (13) ELR model which will processed with SPSS. The total average value of all assessed questions made four categories namely:

Table 1. Category of ELR model masurement results (13)

Score average value	Category
1 – 2.6	Not ready needs a lot of work
2.61 – 3.4	Not ready needs some work
3.41 – 4.2	Ready but needs a few improvements
>4.2	Ready go ahead

The research has the Ethical Review of the Ethics Commission of the Faculty of Medicine, Gadjah Mada University with Reference Number KE/FK/0923/EC/2022 and the Ethics Review of the Dharmais Cancer Hospital Research and Ethics Committee with Number 218/KEPK/IX/2022, and a research permit from the Cancer Hospital Dharmais with Letter Number LB.02.01/XXII/16148/2022.

3. Result

Characteristics of Respondents

Study this obtained as many as 35 respondents. As many as 80% of respondents manifold sex female, levels education respondent more from half namely Bachelor Degree (51.4%), in the range age 30 – 39 years as much as 40%. Researchers also do data collection about an experience related to cancer registration. As many as 71.4% of respondents have not yet once Becomes a source person training registration cancer, 82.9% ever hear about registration cancer, and as many as 82.9% of respondents has known about training registration cancer (Table 2.).

Table 2. Characteristics of respondents

Characteristics	N	%
Gender		
Male	7	20
Female	28	80
Education		
Diploma	5	14.3
Bachelor	18	51.4
Magister	11	31.4
Specialist / Subspecialist Doctor	1	2.9
Age Group		
20 – 29	13	37.1

30 – 39	14	40.0
40+	8	22.9
Had experience as a trainer for cancer registration training		
Never	25	71.4
Once	10	28.6
Had heard about cancer registration		
Never	6	17.1
Once	29	82.9
Known cancer registration information		
Never	6	17.1
Once	29	82.9

A. Readiness Factors

Based on Table 3 described the mean of measurement factor readiness. The overall mean of this study was 3.82. Technology, self-development and training curriculum were higher than the overall mean. Innovation and training organizer should be improved as marked the mean were less than the overall mean.

Table 3. Mean of general readiness

No	Variables (x)	N	$M_{overall}$	$M_{registrar}$	$M_{management}$	$M_{trainer}$
1	Technology	11	3.95	4.00	3.83	3.92
2	Innovation	4	3.61	3.74	3.56	3.38
3	Organizer	7	3.71	3.83	3.59	3.54
4	Self-development	8	3.86	3.92	3.84	3.72
5	Curriculum	17	3.98	4.04	3.82	3.99
	Overall	**47**	**3.82**	**3.91**	**3.73**	**3.71**

1) Technology

Table 4 illustrates the mean value in each question related technology that consists of 11 questions. As for $M_{tech\text{-}overall}$ (3.95), while M_{tech} for each groups were $M_{registrar}$ (4.00), $M_{management}$ (3.83), dan $M_{trainers}$ (3.92). There were 5 questions that mean higher than 4.00 in registrar groups (T02, T04, T05, T09, and T10). In management, there were 6 questions that mean higher than 3.83 (T01, T0, T03, T05, T09, and T10) while among trainers, 7 questions were higher than 3,92 (T01, T02, T03, T07, T08, T09, and T10).

Table 4. Variable mean of technology

Questions	$M_{registrar}$	$M_{management}$	$M_{trainers}$
$M_{technology}$	**4.00**	**3.83**	**3.92**
T01 Every staff has computer access in Dharmais Cancer Hospital	3.9	4.13	4.13
T02 Staffs of Dharmais Cancer Hospital have internet or intranet access	4.4	4.13	4.00
T03 Staffs of Dharmais Cancer Hospital has internet/intranet outside office (house, café, etc)	3.7	4.00	4.00
T04 Staffs of Dharmais Cancer Hospital has basic computer skill (microsoft word, excel, power point)	4.3	3.63	3.63

T05 Staffs of Dharmais Cancer Hospital have basic internet skill (email, browsing, surfing, streaming, dll)	4.1	3.88	3.75
T06 Staffs of Dharmais Cancer Hospital have to follow the operational computer guideline	4.0	3.75	3.88
T07 Most of Dharmais Cancer Hospital Staffs use computer in their daily	3.6	3.50	4.00
T08 Staffs of Dharmais Cancer Hospital accept technology innovation for example using e-document rather than paper-based	3.7	3.75	4.00
T09 Middle-Top management of Dharmais Cancer Hospital think to use technology for working system	4.1	4.13	4.25
T10 Changes in technology was accepted by middle to top management in Dharmais Cancer Hospital	4.1	4.13	4.00
T11 Dharmais Cancer Hospital has experience in responding to technology innovation	3.9	3.75	3.50

2) Innovation

Table 5 described perceptions of research subjects about innovation. The following means were $M_{registrar}$ (3.74), $M_{management}$ (3.56), dan $M_{trainer}$ (3.38). Among registrars, there were 2 questions that higher than 3.74 (I02 and I03), 2 questions in management groups were higher than its mean (I01, and I03), 2 questions also in trainer groups that higher than its mean (I02 and I03).

Table 5. Variable mean of innovation

Questions	$M_{registrar}$	$M_{management}$	$M_{trainer}$
$M_{innovation}$	**3.74**	**3.56**	**3.38**
I01 Most of staffs accept changes in Dharmais Cancer Hospital	3.58	3.13	3.00
I02 Middle to top management accept changes in Dharmais Cancer Hospital	3.95	3.88	3.75
I03 Division of Education and Training, Dharmais Cancer Hospital can adapt the changes. For example, technology used in pandemic	4.00	4.25	3.88
I04 There is internal and external political issues related to the implementation of innovation in Dharmais Cancer Hospital	3.42	3.00	2.88

3) Organizer

Table 6 described means of organizer, the result was $M_{registrar}$ (3.83), $M_{management}$ (3.59), dan $M_{trainer}$ (3.54). There were 2 questions in registrar group (P03 and P06), 4 questions in management group (P01, P02, P03, and P06), 3 questions in trainer group (P01, P03, and P06).

Table 6. Variable mean of organizer

Questions	$M_{registrar}$	$M_{management}$	$M_{trainer}$
Morganizer	**3.83**	**3.59**	**3.54**
P01 Part of staffs of Dharmais Cancer Hospital have knowledge about blended learning	3.68	3.63	3.63
P02 There are staffs or Education and Training Unit that organized and to evaluate the training	3.74	3.88	3.50
P03 There are some staffs who have capacity to be trainer for cancer registration training using blended learning in Dharmais Cancer Hospital	4.16	4.13	4.25
P04 Most of staffs in Dharmais Cancer hospital have training using technology	3.79	2.88	3.50
P05 Most of education and training unit's staffs have capacity to facilitate training using *blended learning*	3.74	3.38	3.25
P06 There are trainers with competency based on curriculum	4.05	4.13	4.00
P07 There is vendor availability for implementation training	3.68	3.13	2.63

4) Self-development

Five questions have mean value higher than 3.86 (SD04, SD05, SD06, SD07, and SD08).

Table 7. Variable mean value of self- development

Questions	$M_{registrar}$	$M_{management}$	$M_{trainer}$
$M_{self\text{-}development}$	**3.92**	**3.84**	**3.72**
SD01 Staff of Dharmais Cancer Hospital join the training willingly	3.37	3.63	3.38
SD02 Management of Dharmais Cancer Hospital believe self-education can increase the capacity of training participants	3.84	3.88	3.13
SD03 There is budget for implementation training using blended learning method or e-learning	3.95	3.75	3.38

SD04 There is belief that e-learning or training using blended learning can be used to reach Dharmais Cancer Hospital's vision and mission, so it need budget in planning	4.05	3.75	4.13
SD05 Dharmais Cancer Hospital is ready to implement cancer registration training using blended learning in general	4.00	4.00	4.00
SD06 Facilitator, trainer, and organizer are ready to implement cancer registration training using blended learning in general	4.05	4.00	3.88
SD07 Dharmais Cancer Hospital is ready to implement cancer registration training using blended learning	4.16	3.88	4.00
SD08 Do you think the staffs of Dharmais Cancer Hospital is ready to implement cancer registration training using blended learning	3.95	3.88	3.88

5) Training curriculum

10 of 17 questions have mean higher than 3.82. There were KP01, KP02, KP03, KP09, KP11, KP12, KP13, KP14, KP15, and KP16.

Table 8. Variable mean value curriculum

Question	Amount Question	Amount Respondents	$M_{variable}$	$M_{question}$	SD	Cronbach's Alpha
	17	**35**	**3.98**		**0.51**	
KP01 There is curriculum for cancer registration training based on participants' needs	17	35		4.17	0.62	0.913
KP02 Topics on cancer registration curriculum is compatible with the competency needs				4.17	0.45	
KP03 The instructors have competency with curriculum material				4.11	0.47	
KP04 3 days training is enough for duration cancer				3.69	0.80	

registration training by online method		
KP05 2 days training is enough for duration cancer registration training by offline method	3.66	0.80
KP06 the 3 days online and 2 days offline is enough for theory and exercise	3.57	0.78
KP07 Blended learning is accordance with current needs situation	3.91	0.56
KP08 There are sufficient human resources to become trainer	3.80	0.76
KP09 Topic "Principles and Methodology of Cancer Registration" is accordance with the competency requirements of the registrar	4.14	0.49
KP10 Topic "Carcinogenesis" is accordance with the competency requirements of the registrar	3.97	0.62
KP11 Topic "Compilation of Source of Data" is accordance with the competency requirements of the registrar	4.03	0.62
KP12 Topic "ICD-O" is accordance with the competency requirements of the registrar	4.09	0.56
KP13 Topic "SEER Summary Staging" is accordance with the	4.09	0.51

competency requirements of the registrar		
KP14 Topic "Abstraction" is accordance with the competency requirements of the registrar	4.11	0.63
KP15 Topic "Quality Control of Data" is accordance with the competency requirements of the registrar	4.06	0.59
KP16 Topic "CANREG-5" is accordance with the competency requirements of the registrar	4.00	0.69
KP17 Topic "Cancer Registry Report" is accordance with the competency requirements of the registrar	4.06	0.59

4. Discussion

Technology, self-development, and curriculum training had a mean higher than overall mean, described these are the excess factors of Dharmais Cancer Hospital. Referring to the readiness model developed by (13), Dharmais Cancer Hospital is ready with a few improvements.

According to respondent, things that are necessary to be improved are an internet access outside office so they could join the training without an internet connection issue. Skill of computerize, basic skill using internet and utilization of computer also need to be improved. Lack of ability in operating computer as well as the internet can identified obstacles factor (14). Studies in Saudi Arabia described that, for participant nor less instructor ability in control technology influential significant to use technology can result they avoid for use it (15).

Related to innovation factor, reception changes in the environment of the Dharmais Cancer Hospital and also regarding issue related politics and law need to be improved. Online method or *e-learning* could answer challenge in increasing efficiency and effectiveness of intervention education in face challenge social, scientific, and pedagogic (Ruiz JG, Mintzer MJ, Leipzig RM. In (14). Dharmais Cancer Hospital do adaptation to change digitization is taking place. Training for pharmacist and nurses were used in offline, currently, it is using offline-online method.

The knowledge of employee about blended learning needs to be improved. In this study, the experience of managing training based on technology, capacity of Education and Training Unit to facilitate blended learning training, also the availability of external vendor. Systematic review study showed that effectiveness training in traditional method have similar impact with e-

learning however it need to be reviewed further to understand characteristics from participants and organizations organizer as well as content the training (16).

Self-development related in this study among staffs of Dharmais Cancer Hospital to improved are volunteerism employee join the training, management perspective that through training it could increase the capability of participant training and budget allocated for application blended learning. Lack of motivation in follow training could become obstacle or challenge in learning that using technology. Studies that conducted in two groups, showed that not good interaction, lack motivation, flexibility participants, stress level, lack discipline from participant, not enough good interaction with instructor and participants could become obstacles in training based technology (14).

The duration of training implementation between offline and online, a number of human resources for trainer is also necessary improved. Followers learning based technology as *e-learning* hope for could do interaction more in with the instructors for participants could follow training in a manner effective (14). Current situation in Dharmais Cancer Hospital, there are 11 trainers from 2 pathologists, 2 GP, and 7 public health staffs. The instructors are certified international training for cancer registration and 10 years experiences in cancer registration.

5. Conclusion

Dharmais Cancer Hospital has been ready but need improvements to have cancer registration training using blended learning. Innovation factor and training organizer should be improved.

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