LIGHTHOUSE

Analysis of Barriers to the Use of Health Information Systems for Tuberculosis Patients at the Parongpong Community Health Center, West Bandung Regency, Indonesia

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ABSTRACT

Based on the rules from the government contained in the Regulation of the Minister of Health of the Republic of Indonesia Number 31 of 2019, the Public Health Center information system can be implemented electronically so that the data obtained can be stored safely. An electronic health centre information system must have an application, an internet, and a local network (LAN). This can also support Health Promotion activities through electronic media and online reporting to the Minister of Health of the Republic of Indonesia. This research aims to apply innovative health education to the problem of low Tuberculosis patient visits. This is done by analyzing a fishbone diagram and determining priority solutions to problems that have resulted in no real follow-up plans (RTL) so that targets have not been met and there has been no evaluation action at the Parongpong Health Center. This activity is carried out in several stages, namely 1) problem analysis with fishbone, 2) USG (urgency, seriousness, growth), and 3) SWOT analysis. Furthermore, counselling was carried out to all people in the Parongpong sub-district. The results obtained from calculating the score using the SWOT analysis are to make regulations on procedures and standard operating procedures (SOP) for the use of the Tuberculosis Information System (SITB) to optimize health information management at the Parongpong Health Center, West Bandung Regency, Indonesia.

Introduction

The Health Information System provides the basis for decision-making and has four main functions: data generation, data compilation, data analysis and synthesis, and data communication and use (Herawati & Purnomo, 2016). One of the Public Health Center Health Information Systems (SIMPUS) in Indonesia is the Tuberculosis Information System (SITB) which contains the recording and reporting of sensitive tuberculosis cases, resistant tuberculosis and laboratories (Ministry of Health of the Republic of Indonesia, 2004). SITB is an application used by all stakeholders from health service facilities (Public Health Centers, Hospitals, Clinics, and Independent Doctors) to record and report Tuberculosis cases. This reporting system is expected to be able to provide information for both the Community Health Center and higher administrative levels to support health management (Ibrahim, 2020).

The results of interviews with the Field Practice Supervisor regarding the factors that could hinder the finding of manual Tuberculosis patient data collection were that documents were often left behind when visiting the assisted villages. In addition, sometimes data is lost before archiving because it uses paper, so it is often scattered, and it isn't easy to recap data. These factors have resulted in the follow-up plan (RTL) not being carried out for the assisted villages, and the progress of the assisted villages cannot be concluded. Another problem in developing the SIMPUS information system (Management Information System for Public Health Centers) in the Parongpong area, West Bandung Regency, Indonesia, is related to funds for procuring supporting equipment and internet networks. In fact, based on government regulations contained in Minister of Health Regulation Number 31 of 2019, the Public Health Center information system can be operated electronically to store the data obtained safely. The information system for the Public Health Center electronically must have an application, an internet network and a local network (LAN). This can also support Health Promotion activities through electronic media and online reporting to the Minister of Health.

Based on these problems, the researcher intends to explore and analyze information related to 1) the factors that have led to the fact that the Follow-up Plan (RTL) has not been realized; and 2) strategies that can be used for the use of the Tuberculosis Information System (SITB) at the Parongpong Community Health Center, West Bandung Regency, Indonesia, based on the USG method and SWOT analysis (strength, weakness, opportunity, threats).

Method

This activity was carried out in several stages: analyzing the problem with fishbone analysis (Dewi, 2020; Coccia, 2018; Li and Lee, 2011; Slameto, 2016), USG method (Lihawa, Mansur, and S, 2015; Gunawan, Harijanto, and Harijanto, 2015; Apriliani, Muflihatin, and Muna, 2020), and SWOT analysis (Akbar and Arisman, 2021; Leigh, 2009; Teoli, Sanvictores, and An, 2022; Ebrahim, et al., 2017). Furthermore, counselling was carried out to all fields involved in UKM activities at the Parongpong Community Health Center, West Bandung Regency, Indonesia.

Results and Discuss

Studying the problem of the absence of use, especially SITB data at the Parongpong Public Health Center is categorized as using 5M: Man, Method, Material, Mother Nature, and Machine. Based on the fishbone diagram, there is no use of SITB at the Parongpong Health Center due to several factors, namely 1) there are still human resources who are not good at using computers; 2) the capacity of the Puskesmas IT staff is not sufficient; 3) officers often leave files when carrying out UKM activities; 4) there is no special team or Pilot Project to fill in the SITB data collection; 5) there are no regulations on procedures for and flow of use of SITB; 6) training and socialization on the use of SITB are still lacking; 7) have not implemented a real follow-up plan against community stigma; 8) defective hardware; and 9) the existence of the Covid-19 pandemic made management focus devoted to dealing with the pandemic so that the use of the SITB application was delayed.

Based on the identification of the causes of the problem that has been noted, the issue of the absence of SITB from the fishbone analysis, then the priority of the problem is determined using the USG (urgency, seriousness, growth) method. The analysis results of determining the priority of problems with the USG method can be seen in Table 1.

Table 1. Priority Issues with the Ultrasound Method

No	Indicators	U	S	G	UxSxG	Rank
1	There are still human resources who do not master the use of computers	5	4	5	100	2
2	The IT staff capacity of the Public Health Center is not sufficient	4	4	5	80	3
3	Officers often leave marks when carrying out UKM activities	5	5	5	125	1
4	There is no special team or Pilot Project for SITB data collection yet	4	4	4	64	4
5	There are no regulations on procedures and flow of use of SITB	5	5	5	125	1
6	Training and socialization on the use of SITB are still lacking	5	4	5	100	2
7	Has not implemented a follow-up plan against real community stigma regarding preventive efforts so that activity targets are not met, and there is no evaluation of UKM activities	5	5	5	125	1
8	Insufficient hardware	4	4	5	80	3
9	Dealing with the Covid-19 pandemic, the use of the SITB application was delayed.	3	3	4	36	5

From the data in Table 1, the problem that needs to be prioritized for resolution is that there is no usage flow regulation because officials often leave files when carrying out UKM activities, causing no real follow-up plans so that targets are not met. There is no evaluation of UKM activities.

Based on the prioritization of problem-solving above, the intervention plan for this residency is determined by conducting a SWOT (strength, weakness, opportunity, threat) analysis of internal and external factors at the Parongpong Community Health Center, West Bandung Regency, Indonesia. Table 2 and Table 3 present the results of the problem-solving analysis using SWOT analysis.

**Table 2**. Internal Factor Evaluation (IFE) Matrix Calculation

No	Strength Analysis Factors - Strength (S)	Weight	Rating	Score
1	Experienced leadership	0,10	5	0,50
2	The development of the Parongpong Community Health Center as a target area has been good	0,11	5	0,55
3	There is financial support from the Community Health Center	0,12	5	0,60
4	HR support (management, doctors, nurses, etc.)	0,10	5	0,50
5	Good HR competence	0,07	4	0,28
6	Procurement of SITB supporting infrastructure	0,14	5	0,60
Total Strength		0,64		3,03
Weakness - Weakness (W)				
1	The SPK is not yet available, along with the procedures for and flow of SITB usage	0,09	4	0,36
2	HR capacity in Information Technology installations is not sufficient	0,06	3	0,18
3	Training and socialization on the use of SITB are still lacking	0,07	4	0,28
4	Has not implemented a follow-up plan against real community stigma regarding preventive efforts so that activity targets are not met, and there is no evaluation of UKM activities	0,09	4	0,36
Total Weakness		0,36		1,38
Total of IFE		1,00		
S-W (3,03-1,38)				1,65

Then an analysis was carried out on the external factor evaluation (EFE). The results of the EFE calculation can be seen in Table 3.

Table 3. External Factor Evaluation (EFE) Matrix Calculation

No	Opportunity Analysis Factors - Opportunities (O)	Weight	Rating	Score
1	Regulation of the Minister of Health Number 31 of 2019 concerning Electronic Information Systems for Public Health Centers	0,40	5	2,00
2	The Ministry of Health supports efforts to digitize Health 2024	0,25	4	1,00
Total Opportunities		0,64		3,03
Threats (T)				
1	Competition between Community Health Centers in providing the best, fast, quality and safe health services	0,13	4	0,52
2	Changes in regulations from the government and or the Ministry of Health	0,10	4	0,40
3	Changes in public perception in filling out data on UKM activities at electronic-based Public Health Centers	0,12	3	0,36
Total Threats		0,35		1,28
Total of EFE		1,00		
O-T (3,00-1,28)				1,72

From the results of calculating the value of each internal factor which includes strengths and weaknesses, and external factors analysis (Leigh, 2009; Ebrahim, et al., 2017), which include opportunities and threats, the final S-W score is 1.65, and the O-T value is 1.72. The two S-W and O-T values are then depicted on the SWOT diagram to determine the position of the SWOT quadrant. A strategy that might be applied can be determined from the results of the quadrants obtained.
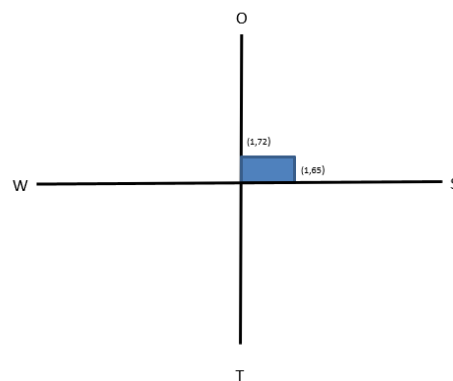
Figure 1. SWOT Analysis SWOT Analysis of SP2TP Development Strategy

Based on the SWOT flysheet in Figure 1 above, the strategy that can be applied is quadrant I or aggressive strategy, namely a strategy to maximize the strengths and opportunities the Public Health Center possesses by attacking or being aggressive analysis (Akbar and Arisman, 2021; Leigh, 2009; Teoli, Sanvictores, and An, 2022; Ebrahim, et al., 2017).

Internal Factor (IFE)	Strength (S)	Weakness (W)
External Factor (EFE)	✓ Experienced leadership ✓ The development of the Parongpong Community Health Center as a target area has been good ✓ Good HR competence ✓ HR support (management, doctors, nurses, etc.) ✓ Procurement of SITB-supporting infrastructure	✓ There is no SPK along with regulations on the procedures and flow of SITB use ✓ HR capacity in information technology installation is not sufficient ✓ Training and socialization of the use of SPK are still lacking ✓ Have not implemented a real follow-up plan against community stigma
Opportunity (O) ✓ Regulation of the Minister of Health Number 31 of 2019 concerning Electronic Information Systems for Public Health Centers ✓ The Ministry of Health supports efforts to digitize Health 2024	**Strategy SO** ➤ Optimization of the SITB development system is supported ➤ SIMPUS for SITB continues to be developed according to user needs and applicable regulations ➤ Preparation of procedures and flow of SIMPUS usage for SITB followed by training and outreach as well as periodic reviews ➤ Setting up a username for each SIMPUS user for SITB with access rights according to regulations ➤ Establishing a special team or Pilot Project for SPK development	**Strategy WO** ➤ Joint motivation and commitment, as well as leadership support for the successful change of the manual SP2TP system to electronic ➤ Integrate patient data on SIMPUS for SITB in every UKM activity ➤ Propose the addition of IT staff at the Public Health Center with programmer analysis capacity

Based on the proposed strategy above, from the results of fishbone, USG, and SWOT analysis, the strategy that can be applied in this residency activity, as well as community service, is to make regulatory procedures and standard operating procedures (SOP) for the use of SIMPUS for SITB to optimize the use of SIMPUS for SITB at Parongpong Community Health Center, West Bandung Regency, Indonesia.

Conclusion

The conclusions that can be drawn from this community service activity on the topic "Electronic SP2TP Development Strategy Counseling at the Parongpong Public Health Center" are:

1. Human resource (HR) and organizational factors play an important role in the success of technology acceptance, in this case, using electronic-based DSS for SITB.
2. The factors that influence the not-yet-optimal use of the SPK for SITB, which is the priority for settlement, are the absence of regulations on the procedure and flow of the SPK.
3. After analyzing the problem with fishbone, USG, and SWOT, it was found that the implementation of a strategy that can be applied is to make regulations/flows for the use of DSS for electronic-based SITB.
4. Evaluation of the strategy that has been made is to coordinate between management and implementers to optimize the use of SPK for electronic-based SITB.
5. The need for regular education about the dangers of Pulmonary Tuberculosis and how to maintain, monitor and other counselling to both network and family networks, patient data collection by name by address, conducting healthy living campaigns involving cadres and community leaders and increasing cross-program partnerships, across sectors, and related stakeholders.

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