# The Implementation of Occupational Health Safety (OHS) Activities Reporting Web-Based System in Community Public Health Centre at Yogyakarta City Health Office

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## ABSTRACT

One of the activities that must be carried out as a part of the Occupational Health Safety (OHS) management system is recording and reporting at health facilities. As information technology is growing rapidly, a system is needed to assist in the recording and reporting of OHS activities process on health facilities. e-SIMKAGA is a web-based information and management system that can assist health facilities (especially public health centers) to record and report OHS activities more effectively and efficiently. This activity aims to implement OHS Activities Reporting Smart System Based to optimize OHS culture's application in realizing zero accident cases at Yogyakarta's public health centers. These activities follow the stages of the System Development Life Cycle (SDLC). The target group is 18 members of *Upaya Kesehatan Kerja Puskesmas* (UKK *Puskesmas*, an Occupational Health Unit's group of Person in Charge (PIC) in the Public Health Center) in Yogyakarta. The activities started in April to October 2022, which concluded system development, socialization, training on the e-SIMKAGA usage, and user acceptance evaluation to determine the ease of use, usefulness, and behavior of the system's continuity. This research resulted in the statement of e-SIMKAGA users that they were satisfied with the ease of use and usefulness and were willing to continue using e-SIMKAGA as a web-based Information System and Reporting Management of OHS activities at health facilities.

Keywords: Information System, Occupational Health Safety, Public Health Centre.

## 1 Introduction

Public Health Center (Puskesmas) is a workplace with risks to occupational health and safety, both for the people working there, the visitors, and the residents around the health facility. In addition, Public Health Center is included in the criteria for workplaces with a risk of accidents and exposures, whether in the form of work-related disease and infectious or non-infectious disease that may impact workers, patients, and visitors, including the risk of Covid-19 virus infection [1].

The Covid-19 pandemic is a lesson for Indonesian people, particularly in the health sector, as health problems are increasingly apparent in the Covid-19 pandemic era. This is considered an occupational disease, as seen in how many health workers died due to Covid-19 exposure during work, including in Public Health Centers, which were the initial reference for symptomatic patients. There are 1.36% of Indonesian health workers died due to Covid-19 of the total confirmed. This is the underlying reason why the attempt to carry out "Medical Safety and Protection" needs to be realized as soon as possible for workers so they can continue providing health services while being guaranteed and protected to minimize the risk of virus infection [2]. Therefore, the Public Health Center, as one of the health facilities, then has double responsibility, which is to maintain patient safety and guarantee occupational health safety for both health workers and visitors.

The OHS Management System (OHSMS) in health facilities guides the implementation of OHS activities at Public Health Centers. One of the OHSMS stages is the requirement for health facilities to carry out the

OHS implementation's recording and reporting activities. These activities consist of all OHS activities carried out for one year by the Public Health Center, which are necessary to maintain the welfare of workers, patients, and visitors. Based on the Indonesian Minister of Health Regulation No. 52, 2018, concerning Occupational Health and Safety, health facilities must report and record OHS activities every six months and once a year [3]. Unfortunately, this is mandatory to conduct activities monitoring, and OHS reports are still not optimal as they use paper-based reports.

As information technology is growing rapidly, it is expected to assist in the monitoring and reporting OHS activities [4]. One of the ways to overcome this problem is to implement smart system-based OHS activity reports optimizing OHS culture practices in health facilities, especially public health centers, which is currently being encouraged to be implemented.

## 2    Research Methodology

Implementation of the OHS activities report called e-SIMKAGA is based on a smart system in the System Development Life Cycle (SDLC) stages, where the system implemented will continue to be evaluated and refined. It is also in collaboration with the Yogyakarta City Health Office. The target group is 18 members of *Upaya Kesehatan Kerja Puskesmas* (UKK *Puskesmas*, an Occupational Health Unit's group of Person in Charge (PIC) in the Public Health Center) in Yogyakarta. The data needed for this research and analysis was collected through Focus Group Discussion (FGD). Afterward, socialization and training on the system usage were held by inviting 18 UKK *Puskesmas* at the University Club Hotel of Universitas Gadjah Mada on August 16, 2022. These activities were started by dr. Rizka Novriana as the Head of the Public Health Division, Yogyakarta City Health Office. The next activity is mentoring the e-SIMKAGA usage to the 18 UKK *Puskesmas* members, held on September 12, 2022. An e-SIMKAGA acceptance evaluation is carried out, which aims to determine the ease of use, usefulness, and behavior towards the system usage continuity.

## 3    Theory and Calculation

This reporting activity uses a smart system-based information system that was developed using Application Programming Interface (API), a way for two or more different devices to communicate in a language that can be understood by all parties [5]. The programming language uses JavaScript, with Node as the back-end server environment and React as the front-end framework. MongoDB is also used as an information system database to save data. This smart system-based reporting system requires an internet network that can only be accessed after confirming the user's identity by logging in, as the system functionality can only be accessed through the user [6] [7]. OHS activities report using this system at public health centers can be operated by several users, including the admin in charge of creating IDs for logins and other tasks related to the system running [8]. The operator, a public health center's OHS team member, enters data for OHS activities record and report every six months or once a year. The leader of the public health center's OHS Team as the Person in Charge (PIC), will evaluate the data, validate the data if it is correct, and forward the report to other users (Yogyakarta City Health Office). In addition, the health office could observe and monitor the OHS activities that have been reported.

The system's design contains obligations of implementation activities following the Indonesian Minister of Health Regulation No. 52, 2018. This system is considered smart and sophisticated as it contains provisions for implementing and facilitating OHS activities monitoring activity in the Public Health Center or Facility.

## 4    Results and Discussion

The Appropriate Technology Community Empowerment Program implementation in the form of smart system-based OHS reporting activity (e-SIMKAGA) at the Public Health Center in the Yogyakarta City Health Office is started from April to October 2022. This program can be explained below.

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### 4.1 e-SIMKAGA System Development Activities

The e-SIMKAGA system development activities began with the implementation of focus group discussions with team representatives from the Public Health Division, Yogyakarta City Health Office. After getting the results of the FGD, the team then coordinated to improve the e-SIMKAGA system according to user input needs. The initial stage is an analysis of user needs. It was carried out from May to July 2022 and resulted in several points, including:

1. The system can facilitate OHS activities records and reports regarding Health Facilities following the Indonesian Minister of Health Regulation No. 52, 2018.
2. The users of e-SIMKAGA are the Admin, Health Office, Head of the OHS Team, and OHS members at the public health center.
3. This smart system-based OHS reporting system is expected to provide convenience for the UKK at the public health center in carrying out OHS activities records and reports quickly and efficiently to the Yogyakarta City Health Office.

The FGD and coordination for the e-SIMKAGA's development and improvement can be seen in Figure 1.
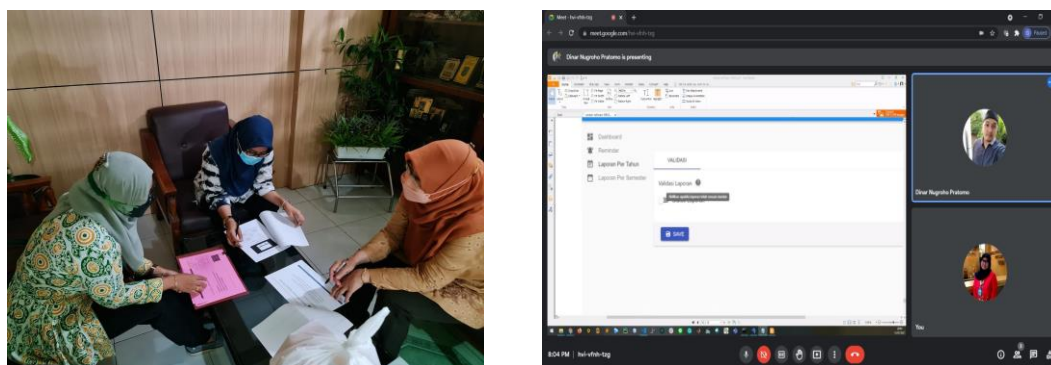


**Figure 1:** *FGD activities and coordination of the e-SIMKAGA's development and improvement*

### 4.2 Socialization of the Implementation of OHS in Health Facilities and Training on the Use of e-SIMKAGA

After the e-SIMKAGA development and improvement meet the requirement of the Focus Group Discussion (FGD) result, the next activity is a Workshop on Optimizing OHS Implementation in Health Facilities and Training on the Use of e-SIMKAGA, which was held on August 16, 2022, at the University Club Hotel UGM. The participants were 18 representatives from the Public Health Centers' Occupational Health Unit (UKK) in Yogyakarta City. The workshop is about optimizing the implementation of OHS activities at health facilities delivered by dr. Riska Novriana as the Head of the Public Health Division, Yogyakarta City Health Office. The event introduced and performed e-SIMKAGA usage training as a smart system-based information system and management of OHS activities report in health facilities, which the Head of Appropriate Technology Community Empowerment Program delivered. The result shows that participants can introduce e-SIMKAGA to the OHS team in public health centers, so the OHS implementation's recording and reporting can be done quickly and efficiently to the Yogyakarta City Health Office. Figure 2 is the workshop activities' documentation.

**Figure 2:** *Workshop on Optimizing OHS Implementation at Health Facilities and Training on using e-SIMKAGA at University Club Hotel UGM on August 16, 2022.*

## 4.3 Activities of Monitoring and Evaluation The successful use of e-SIMKAGA

After the workshop and training were conducted, the next activity was mentoring and evaluating the use of e-SIMKAGA to the 18 Occupational Health Unit (UKK) members at the public health center of the Yogyakarta City Health Office. This activity was held on September 12, 2022, at the Yogyakarta City Health Office. Mentoring activities are carried out to ensure the eloquence of UKK members from each public health center in operating the e-SIMKAGA system. An evaluation of the acceptance of use is carried out at the end of this event, which aims to determine the e-SIMKAGA system's ease of use, usability, and behavior of the system's continuity. The evaluation results can be seen in Figures 3 to 6.
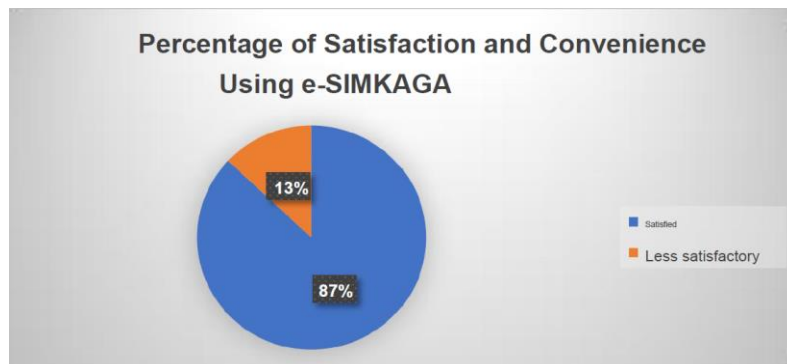


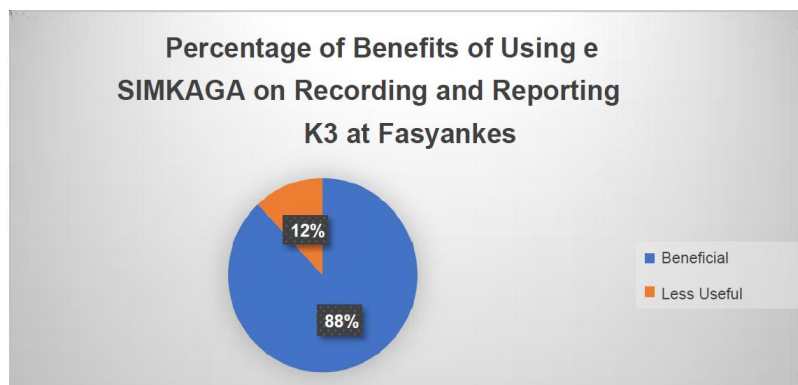**Figure 3:** *Percentage of satisfaction and ease of using e-SIMKAGA*



**Figure 4:** *Percentage of the benefits of using e-SIMKAGA in recording and reporting K3 activities on Health Facilities*
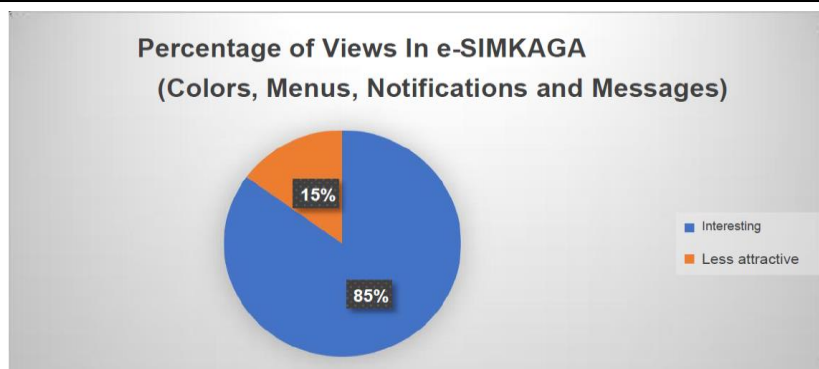
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**Figure 5:** *Percentage of views in e-SIMKAGA (colors, menus, notifications, messages)*
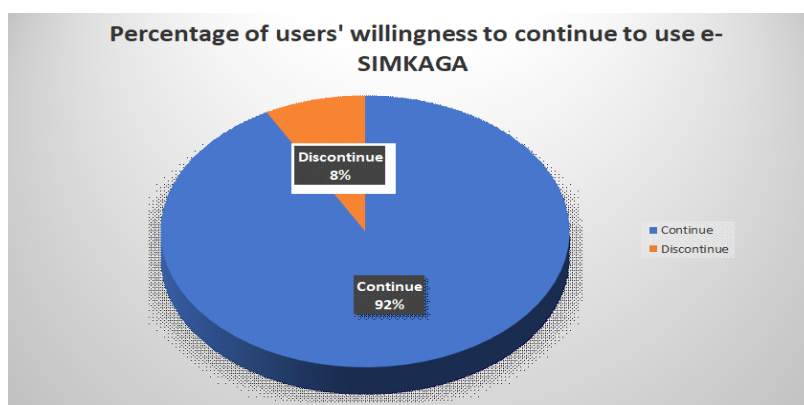


**Figure 6:** *Percentage of users' willingness to continue to use e-SIMKAGA as an  Information and Management System for Web-Based OHS Activity Reporting at Health Facilities*

## 5 Conclusions

Appropriate Technology Community Engagement Program in the form of reporting on OHS activities based on the smart system (e-SIMKAGA) has been carried out correctly and smoothly. The partner, Yogyakarta City Health Office, is accepting and very supportive of the implementation of recording and reporting of OHS activities using e-SIMKAGA. In addition, the system can make monitoring and reporting OHS carried out by each public health center or health facility easier.

## 6 Declarations

### 6.1 Acknowledgments

### 6.2 Funding Source

### 6.3 Publisher's Note

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## How to Cite

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