Vol 9 No 4, Desember 2025
ABDI DOSEN
Jurnal Pengabdian Pada Masyarakat
pISSN: 2614-6509
eISSN: 2620-5156

PROHEALTH DIGITAL TRANSFORMATION: TIME EFFICIENCY IN DAILY CHECK-UPS FOR HIGH-RISK WORKERS AT PT PERTAMINA PATRA NIAGA REGIONAL SUMBAGUT

Syaira Zhieka Ramadhani *, Juhri Panjaitan, Anisa Putri Siregar, Luthfiah Nazwa Simamora, Ahmad Rezeki Ramadhan, Bima Fadhilah BM, Tri Niswati Utami

Universitas Islam Negeri Sumatera Utara
Jl. Lap. Golf, Kap. Tengah, Pancur Batu District, Deli Serdang Regency, North Sumatera 20353, Indonesia
Email: syairazhieka10@gmail.com

Abstract

The digital transformation of occupational health has led to various innovations that enhance efficiency, safety, and medical service quality. One notable breakthrough is ProHealth (Pertamina Robotic Health), developed by the Continuous Improvement Program (CIP) team at PT Pertamina Patra Niaga Region Sumbagut. This study examines the clinical impact and efficiency of using ProHealth as a daily health monitoring system (Daily Check Up/DCU) to strengthen the Fit To Work program in high-risk environments. Using a descriptive qualitative approach, data were collected through interviews, field observations, and document reviews involving medical staff and workers who routinely use the system. Findings reveal that ProHealth reduced average health check durations from 4 minutes 11 seconds to 1 minute 13 seconds per worker, eliminated overtime costs for medical teams, and minimized COVID-19 transmission risks through its fully automated, contactless operation. The system targets seven high-risk groups—security personnel, fuel truck drivers (AMT), heavy equipment operators, height workers, general drivers, confined space workers, and divers who face substantial occupational hazards. ProHealth enables real-time monitoring of physical conditions, increases readiness, and fosters a technology-driven safety culture. Overall, this innovation improves time and cost efficiency while strengthening the company's Health, Safety, Security, and Environment (HSSE) framework through sustainable digital transformation.

Keywords: ProHealth, Daily Check Up, Fit to Work, High-Risk Workers, Occupational Health

INTRODUCTION

The digital revolution in healthcare has created various breakthroughs that accelerate, simplify, and improve the accuracy of medical services. One example of the application of this technology is the use of Pro Health machines, a digital health examination device that can automatically measure vital parameters such as blood pressure, heart rate, blood oxygen levels, weight, and body mass index (BMI). This technology is an innovative solution to strengthen the occupational health examination system, which was previously done manually and took a

Submitted: October-2025 Received: October-2025 Available online: December-2025

relatively long time (Chekwube Martin Obianyo et al., 2024).

The increasingly modern developments of the times have influenced the field of health. The application of information and communication technology can assist health workers in promoting health and helping the community optimize their health. This is in line with the Vision and Mission of Indonesian Health Development in the Health Management Information System (SIM), which is the systematic management of information at all levels of government in order to provide services to the community; consisting of two aspects, namely manual and automated.

In the current era of globalization, technological advances are developing very rapidly. One such technological advancement is information technology (IT), which has penetrated various aspects of human life. Information technology itself is defined as the study or use of electronic equipment to store, analyze, and distribute any information through various media (such as the internet), including words, numbers, and images. One of the advances in information technology has penetrated the field of health, such as medicine.

Advances in the health sector have developed so rapidly that many discoveries have been made with the help of information technology, whether in the field of hospital organization, treatment, or research and development in the health sciences themselves. Information technology-based health services are currently receiving a lot of attention worldwide. This is mainly due to the promise and opportunity that technology can improve the quality of human life (Setiawan et al., 2022).

The rapid development of healthcare services in the current era requires every medical service provider to respond immediately and meet the demands of their customers. Medical records are a key foundation that cannot be ignored in hospitals. Along with advances in medical science, legal regulations, and innovations in health technology, patients and the general public are becoming more aware and critical of their rights. Therefore, the documentation of medical processes must be managed professionally and meticulously.

Health information systems in hospitals are designed and implemented to integrate various processes, such as data collection, task execution, information disclosure, and data utilization. This aims to improve the efficiency and effectiveness of healthcare services through more structured management at all levels of medical services.

The advantages of electronic information systems over conventional paper-based patient records include ease of searching for patient data and documents, simpler and clearer reporting, and faster and more accurate decision-making. In addition, the use of digital medical records can reduce the need for physical storage, so that space for medical record archives does not need to be large due to minimal storage requirements. Paper consumption can also be significantly reduced, given that electronic medical records are paperless. Data confidentiality is better maintained with superior security levels, thanks to password protection that only allows access by authorized medical personnel. The process of copying or printing electronic medical records can also be restricted, so that only selected medical staff are allowed to do so. Digital patient files are also safer from the risk of loss or damage, as they are easy to back up and secure (Carlof Carlof & Dety Mulyanti, 2023). However, hospital operations are not limited to the health sector alone, but also cover other aspects such as marketing management. This includes the automation of marketing, promotion, and customer service processes, all of which are

designed to achieve better optimization and reduce overall operational costs.

Many people around the world are paying attention to information technology-based healthcare services because of the hope that technology can improve the quality of human life. In the field of healthcare, advances in information technology have greatly helped services, especially in the medical field, due to the rapid development of knowledge. In the digital age, information and communication technology is no longer a foreign concept. These developments will have an impact on the development of information technology in various aspects of human life. Health is an important component of human life. In the field of health, the adoption of information and communication technology is seen as an opportunity to improve the quality, efficiency, and effectiveness of health services as well as to increase the transparency of economic activities and the availability of information in real time. The definition of information technology is the study or use of electronic equipment to store, analyze, and disseminate any information through various media (such as the internet), including words, numbers, and images (Putra, 2023).

In the world of work, especially at PT. Pertamina, worker health is a fundamental aspect that is directly related to productivity and work safety. Demanding work conditions, exposure to extreme environments, and high physical demands make routine health checks an integral part of the company's Health, Safety, Security, and Environment (HSSE) system. PT. Pertamina Patra Niaga Region Sumbagut, through its Medical Function, has implemented the Pro Health machine as part of its integrated healthcare digitalization strategy.

Since 2018, Pertamina Patra Niaga Region Sumbagut has implemented a daily health check program or Fit to Work (FTW) based on TKO guideline No. B-001/K00156/2018-S9. However, during the COVID-19 pandemic, its implementation faced significant obstacles, such as the length of the examination time (an average of 4 minutes and 11 seconds per person), the potential for transmission due to direct contact, and high operational costs. Based on the results of Pareto and Fishbone Diagram analyses, the main root of the problem lies in the DCU examination tool, which is still manual and not yet integrated. As a solution, the Continuous Improvement Program (CIP) Team at Pertamina Patra Niaga Sumbagut developed the ProHealth (Pertamina Robotic Health) device as an automated health examination system integrated into the Fit to Work Online system.

Before the implementation of this machine, the examination process was carried out conventionally with separate measuring devices and manual recording by medical personnel. This method took longer, was prone to recording errors, and made data recapitulation difficult. The implementation of the Pro Health machine is considered to address these challenges through a faster inspection process, more accurate data, and an efficient digital storage system. In addition, the inspection results can be accessed online by the medical team, thereby accelerating the analysis and follow-up process for workers' health conditions that require special attention. (Qadrie et al., 2025)

Through this study, the authors seek to comprehensively describe the clinical impact and efficiency of using the Pro Health machine in improving the quality of medical services in the work environment of PT. Pertamina Region Sumbagut. This study is expected to contribute to the development of a technology-based occupational health service model in the industrial sector.

IMPLEMENTATION METHOD

This study uses a qualitative descriptive approach that aims to objectively describe the phenomenon of using Pro Health machines in the context of occupational health services. This approach was chosen because it is able to explore the experiences, perceptions, and meanings felt by medical personnel and workers regarding the application of this health technology. The research was conducted at the Medical Function of PT. Pertamina Patra Niaga Regional Sumbagut from September 22 to October 22. Data collection was carried out through direct observation of the implementation of daily health checks using the Pro Health machine, in-depth interviews with medical personnel, machine operators, and workers who are regular users, as well as a study of documentation from health reports and digital data from the examinations.

In general, the preliminary results of the study show that the use of the Pro Health machine in the PT. Pertamina Sumbagut region provides convenience for medical personnel in monitoring the health condition of workers quickly and accurately. The integrated digital system also simplifies the administrative process, speeds up the examination flow, and improves the operational efficiency of the company's medical function. This research also refers to data and documentation from the implementation of Pertamina Patra Niaga's Continuous Improvement Program (CIP) in 2020, which formed the basis for the development of the ProHealth system. This data was used to strengthen the validity of field findings regarding examination time efficiency, accuracy of results, and their impact on worker satisfaction and morale.

RESULTS AND DISCUSSION

The results of this study were obtained through in-depth interviews with three informants who had direct experience in using the ProHealth machine at PT Pertamina Patra Niaga. The informants consisted of one occupational health nurse and two drivers who routinely conducted daily checks through the Fit To Work Online system. Based on the interview results, it was found that the implementation of the ProHealth machine had a significant impact on the efficiency and accuracy of worker health checks. Key informants explained that this system greatly assists the examination process because the examination results are directly integrated into the Fit To Work Online system. Based on the results of the CIP (Continuous Improvement Program) documentation analysis, ProHealth is a self-administered health examination tool that can measure blood pressure, body temperature, oxygen saturation (SpO_2), pulse rate, and detect alcohol in the breath.

All measurement results are automatically sent to the Fit To Work Online system and integrated with workers in real-time. The examination process only takes an average of 1 minute and 13 seconds per worker, a drastic decrease compared to the previous time of 4 minutes and 11 seconds. With ProHealth, health workers no longer need to perform manual data entry as in the previous method. This directly reduces the administrative burden and working hours of medical personnel. This statement is reinforced by two supporting informants who stated that examinations using ProHealth feel faster, simpler, and more practical than the manual method. They can conduct examinations at any time without having to wait in long queues as in the

previous system.

Time efficiency is one of the main advantages felt by all informants. The use of ProHealth makes the examination process more flexible because the device can be used independently by workers without direct assistance from medical personnel. This condition indirectly increases worker compliance with the daily Fit To Work program. In addition, the ProHealth system helps management monitor the health status of workers because the examination results are automatically stored in a database that can be accessed at any time by the medical team or occupational health supervisors.

In terms of accuracy, all informants assessed the examination results using the ProHealth machine as accurate and easy to understand. The measurements of blood pressure, pulse, oxygen saturation, body temperature, and alcohol were in accordance with the actual physical condition of the user. Supporting informants stated that their level of confidence in the machine's results reached 95%. Key informants also explained that these differences were still within reasonable limits due to differences in measuring devices and the situational conditions of workers during the examination. However, they acknowledged that there were slight differences in the results compared to manual examinations, usually within a range of 5 to 10 points. It can be concluded that the ProHealth machine is capable of providing consistent and sufficiently accurate results as a preliminary examination tool before work for the 7 categories of high-risk workers.

The results of this study are consistent with the 2020 Continuous Improvement Program (CIP) implementation data of PT Pertamina Patra Niaga Region Sumbagut, which shows an increase in DCU examination efficiency of up to 70%, a reduction in medical personnel overtime costs to zero rupiah, and an increase in worker satisfaction from a score of 3.5 to 4.5 on the Likert scale. These achievements reinforce the finding that ProHealth not only has a clinical impact but also significant economic and psychological impacts on the occupational health system in the energy industry.

However, the interview results also revealed several technical obstacles that hindered the optimal use of the ProHealth machine. The most common obstacle was internet connection problems. When the network connection was unstable, the examination process was hampered and even failed to be saved in the system. Supporting informants stated that if the network is problematic, the machine needs to be restarted in order to function again. In addition to network disruptions, key informants added that there were obstacles in the electronic ID card-based registration system. Some workers were unable to undergo screening because the chip on their ID cards could not be read by the machine, so their data could not be accessed. This problem significantly disrupted the screening process as it required further handling by officers.

From a clinical perspective, the use of ProHealth provides significant benefits in monitoring the health of high-risk workers. In the context of the implementation of Daily Check-Up (DCU), there are seven categories of workers classified as high-risk based on the potential occupational hazards they face on a daily basis. The seven categories are security, drivers, tanker crew (AMT), heavy equipment operators, workers at heights, confined space workers, and divers.

Security workers are classified as high-risk because they are responsible for maintaining security in operational areas 24 hours a day and often face emergencies, fatigue, and high work

stress. Regular health checks are important to monitor physical condition, blood pressure, and physical fitness in order to remain in top condition when facing security risks (Saragih et al., 2022). Tanker crew (AMT) and drivers are also at high risk because they are often exposed to traffic accidents, driving fatigue, and exposure to fuel chemicals. DCU helps detect early health problems such as hypertension or fatigue that can affect concentration while driving (Wibisono & Harahap, 2023). Heavy equipment operators who work with large machines are prone to workplace accidents and hearing impairment due to noise, so daily health checks are necessary to ensure vital bodily functions remain stable before using the equipment (Hidayat et al., 2021).

Workers at heights face the risk of falling and balance disorders due to fatigue or low blood pressure. Therefore, blood pressure and oxygen level checks before work are mandatory to avoid fatal incidents in the field (Anwar et al., 2020). Furthermore, workers in confined spaces are at risk of hypoxia, exposure to toxic gases, and respiratory disorders due to inadequate ventilation. DCU plays an important role in detecting early signs of respiratory disorders and maintaining the physical readiness of workers before entering hazardous areas (Fitriani & Mahendra, 2022). The last category is divers who are at risk of decompression sickness, hearing disorders, and high blood pressure due to extreme pressure changes underwater. Routine examinations are essential to ensure that the heart and lungs are in optimal condition before diving activities (Fathurrahman et al., 2021).

Thus, the implementation of the ProHealth machine-based DCU for these seven categories of high-risk workers is a crucial part of the early prevention strategy for occupational health problems. Quick and integrated daily check-ups enable the medical team to monitor workers' conditions in real-time, detect disorders early, and reduce the risk of accidents due to decreased physical function in the workplace. Key informants explained that the check-up results are systematically stored in Fit To Work Online, including data on blood pressure, oxygen saturation, heart rate, body temperature, and alcohol detection. This data is used as a basis for follow-up medical examinations if abnormal results are found. ProHealth has also been proven to increase workers' awareness of their health conditions. Supporting informants admitted to paying more attention to their physical condition before work since using this tool. Sometimes they conduct self-examinations outside of working hours, for example after consuming caffeine or feeling heart palpitations.

This study shows that ProHealth not only functions as a health detection tool, but also as an educational tool that encourages workers to be more concerned about their health. This is in line with the Fit to Work program's goal of emphasizing the importance of workers' physical and mental readiness before starting work activities. In general, the results of the study show that the implementation of ProHealth at PT Pertamina Patra Niaga Regional Sumbagut has a positive impact in terms of efficiency and clinical aspects of health services. The use of this machine speeds up the examination process, reduces the workload of medical personnel, and supports a digital-based health monitoring system. However, the effectiveness of the system is still influenced by external factors such as network stability and user identification systems.

Overall, ProHealth can be categorized as an effective and relevant occupational health technology innovation in line with the needs of high-risk workers at PT Pertamina Patra Niaga Regional Sumbagut. The use of this tool supports a culture of workplace safety and increases workers' awareness of the importance of being physically fit before work. With adequate

infrastructure support and regular evaluation, the ProHealth machine has the potential to become a model for sustainable digital health screening in high-risk industrial work environments such as PT Pertamina Patra Niaga.

CONCLUSION

The results of this study show that the ProHealth machine at PT Pertamina Patra Niaga Region Sumbagut is very effective in improving the efficiency and accuracy of worker health checks. Through interviews with three informants, it was found that the ProHealth machine is capable of automatically measuring various health parameters and sending data in real-time to the Fit To Work Online system. The examination time has decreased dramatically from an average of 4 minutes and 11 seconds to 1 minute and 13 seconds per worker, thereby reducing the administrative burden on medical personnel. In addition, workers feel that the examination process has become faster, easier, and more independent without having to rely on medical personnel.

This machine also demonstrated a high level of accuracy with results that were easy for workers to understand. This efficiency was reinforced by data from the 2020 Continuous Improvement Program (CIP), which showed an increase in efficiency of up to 70%, a reduction in overtime costs, and an increase in worker satisfaction. The main obstacles encountered were network disruptions and problems reading electronic ID cards, which required further handling.

The use of ProHealth is particularly beneficial for seven categories of high-risk workers, such as security personnel, drivers, heavy equipment operators, and divers, as the quick and integrated check-ups enable early detection of health issues and encourage workers to maintain good physical condition. Overall, ProHealth is an effective and relevant technological innovation with the potential to become a model for sustainable digital health check-ups in high-risk work environments.

REFERENCES

Anwar, N., Rahmat, S., & Dewi, E. (2020). Pemeriksaan Fisik Rutin untuk Pencegahan Risiko Jatuh pada Pekerja di Ketinggian. *Jurnal Kesehatan Kerja dan Keselamatan Industri*, 5(2), 101–109.

Carlof Carlof, & Dety Mulyanti. (2023). Inovasi Teknologi dalam Manajemen Kesehatan: Pemanfaatan Sistem Informasi Kesehatan Elektronik di Rumah Sakit. *Journal of Management and Social Sciences*, *2*(2), 50–62. https://doi.org/10.55606/jimas.v2i2.262

Chekwube Martin Obianyo, Victor Chiedozie Ezeamii, Benjamin Idoko, Tomilola Adeyinka, Ejembi Victor Ejembi, Joy Ene Idoko, Lilian Okwuonu Obioma, & Ogochukwu Judith Ugwu. (2024). The future of wearable health technology: From monitoring to preventive healthcare. *World Journal of Biology Pharmacy and Health Sciences*, *20*(1), 036–055. https://doi.org/10.30574/wjbphs.2024.20.1.0709

Fathurrahman, H., Sulastri, & Siregar, R. (2021). Pemeriksaan Kesehatan Pra-penyelaman pada Pekerja Bawah Air. *Jurnal Ilmu Kedokteran dan Kesehatan Kerja*, 13(4), 211–220.

Fitriani, L., & Mahendra, A. (2022). Analisis Risiko Paparan Gas Berbahaya pada Pekerja di Ruang Terbatas. *Jurnal Kesehatan dan Keselamatan Kerja Indonesia*, 14(1), 58–65.

Hidayat, M., Arifin, R., & Mulyono, T. (2021). Dampak Kebisingan dan Getaran terhadap Kesehatan Operator Alat Berat. *Jurnal K3 dan Ergonomi*, 9(1), 33–41.

Putra, R. S. (2023). Kajian Penerapan Teknologi Informatika pada Dunia Kesehatan. *AKADEMIK: Jurnal Mahasiswa Humanis*, *3*(3), 180–187. https://doi.org/10.37481/jmh.v3i3.813

Qadrie, Z., Ashraf, H., Maqbool, M., & Farooq, S. (2025). Wearable Technology in Healthcare: Opportunities, Challenges, and Future Directions. *Smart Wearable Technology*, *00*(May), `-17. https://doi.org/10.47852/bonviewswt52025578

Saragih, D. F., Sihotang, R., & Manalu, P. (2022). Analisis Faktor Risiko Kelelahan Kerja pada Petugas Keamanan di Lingkungan Industri. *Jurnal Kesehatan Lingkungan Indonesia*, 21(3), 145–152.

Setiawan, H. V., Sri Lestari, I., Vidya Putri Wibowo, J., Khafidhotun Nazma, L., & Listyanto, W. (2022). Analisis Trend Issu Perkembangan Dunia Teknologi Informasi. *Journal of Health Technology*, *18*(1), 13–16.

Wibisono, H., & Harahap, D. (2023). Hubungan Antara Kelelahan Kerja dan Tekanan Darah pada Sopir Tangki BBM. *Jurnal Keselamatan dan Kesehatan Kerja Indonesia*, 12(2), 77–86.