IMPLEMENTATION OF TELEMEDICINE SOLUTIONS IN THE FIELD OF GERIATRICS AND GERONTOLOGY: RISK MANAGEMENT AND REMEDIAL ACTIONS

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A – study design, B – data collection, C – statistical analysis, D – interpretation of data, E – manuscript preparation, F – literature review, G – sourcing of funding

ABSTRACT

Background: Pilot projects in healthcare serve as strategic tools for introducing innovations, including new diagnostic methods, therapies, and technologies. Ensuring patient safety and treatment efficacy is paramount, making effective risk management essential. Failure in this area can jeopardize the reputation and trust of the medical community.

Aim of the study: This study presents and discusses the risks and risk management strategies in a pilot project implementing telemedicine solutions in geriatrics.

Material and methods: The key risks and remedial actions in a pilot telemedicine project in geriatrics were analyzed. Systematic analyses covered various areas such as technological, financial, legal, organizational, external, clinical, and competency domains.

Results: The telemedicine project targets geriatric syndromes like frailty, sarcopenia, and malnutrition, aiming to improve care for the elderly. This paper discusses risk management aspects, remedial actions, and potential implications for further research and practices.

Conclusions: Collaboration among medical teams, primary care physicians, geriatric specialists, and assistants, supported by strong administrative coordination, is crucial for effective risk management. This collective effort enables swift deployment of remedial actions and ensures project success.

KEYWORDS: telemedicine, healthcare, geriatrics, older adults, risk management, frailty syndrome, sarcopenia, malnutrition

BACKGROUND

In the current dynamic technological landscape, healthcare enterprises are progressively leveraging pilot projects as a strategic approach to introduce innovative solutions and new products into the national healthcare market [1]. These projects provide medical organizations with the opportunity to test modern concepts, procedures, and technologies aimed at improving the quality of healthcare. However, they simultaneously present unique challenges related to uncertainty and risk, which, in the context of healthcare,

becomes a crucial matter for patients, medical professionals, and the healthcare institution itself [2].

Pilot projects in the healthcare sector serve as a strategic tool for introducing innovations, encompassing new diagnostic methods, therapies, and medical technologies that have the potential for a revolutionary impact on the standards and digitization of the healthcare sector [3]. However, in this specific area of activity, where patient safety and treatment effectiveness are a priority, risk management becomes indispensable to ensure project success and protect the integrity of medical processes [4].

In the context of pilot projects in healthcare, it is essential to appropriately identify potential threats to patients and the medical staff [5]. Whether it is related to the introduction of new procedures, testing of new drugs, or the implementation of innovative medical technologies, each step must be carefully considered and subjected to risk analysis [6].

Monitoring risks during pilot projects in healthcare is a key element to effectively manage uncertainty and minimize potential threats. The monitoring process involves continuously tracking identified risks, assessing their evolution, and adjusting management strategies based on changing situations. In the healthcare sector, where the introduction of new technologies or procedures can have a direct impact on patient's lives, regular risk monitoring becomes an essential tool for maintaining the highest standards of safety and effectiveness [7, 8].

Failure in this area can not only lead to harm to patients but also compromise the reputation and trust of the medical community in the institution. During pilot experiments in healthcare, it is necessary to consider the ethical and legal aspects. Protecting patient privacy, adhering to ethical standards in clinical research, and compliance with applicable laws are essential elements that must be taken into account during the planning stage of the pilot project [9, 10]. Therefore, remedial and corrective actions are key components of the risk management processes in pilot projects within the healthcare sector. Appropriately tailored remedial and corrective strategies are essential elements of effective risk management in pilot projects, especially in the delicate context of the healthcare sector [11, 12].

Remedial actions involve immediate responses to emerging risks to minimize or eliminate them. This approach requires the project team's readiness to quickly adjust plans and implement remedial measures [13]. In cases where a new medical technology poses challenges to patient safety, remedial actions may include promptly adjusting procedures, conducting additional tests, or even temporarily suspending the project for a more thorough analysis [14].

This proactive approach necessitates the readiness of the project team to swiftly adapt plans and implement corrective measures. Particularly in the delicate context of the healthcare sector, where failures can have significant consequences, effective remedial actions are paramount to restoring trust within the medical community and among patients [15, 16]. In both scenarios, whether remedial or corrective, efficient crisis management communication, coordinated team responses, and flexibility in adapting to changing circumstances are essential [17, 18].

On the other hand, corrective actions focus on restoring the normal functioning of the project after a risk occurs. They may involve restructuring project plans, changing suppliers, or introducing additional safeguards. In the healthcare sector, where failures can have serious consequences, effective corrective actions are crucial for restoring trust among the medical community and patients. In both cases, both remedial and corrective actions require efficient crisis management communication, coordinated project team responses, and flexibility in adapting to changing situations [19, 20].

AIM OF THE STUDY

This article aimed to present and discuss the risks, risk management strategies, as well as mitigating and eliminating actions taken during the implementation of the project titled "Implementation and testing of pilot telemedicine solutions in the 'Geriatrics' model in Wroclaw and the Lower Silesian Voivodeship during the years 2022–2023".

MATERIAL AND METHODS

This paper analyzes key risks along with implemented remedial actions taken during the implementation of the pilot telemedicine project in the field of geriatrics. The final analysis is based on the collection and analysis of data regarding the effectiveness of remedial actions and the efficiency of implemented telemedical solutions. Systematic analyses, along with ongoing evaluation, covered technical/technological, financial, legal, managerial/organizational, external, clinical, and competency areas. The research methodology aimed to provide a comprehensive view of the implementation process of telemedicine solutions in geriatrics and gerontology, considering effective risk management and remedial actions. The entire methodology aimed to provide an in-depth perspective on risk management and remedial actions in the context of a telemedicine project in the field of geriatrics and gerontology, contributing significantly to understanding the process of implementing innovations in elderly care.

REVIEW AND DISCUSSION

This paper discusses and summarizes key risk areas related to the care of the geriatric population, as well as the introduction of innovative telemedicine and e-health solutions. The critical analysis of data also included an evaluation of the effectiveness of the implemented remedial actions in eliminating or reducing identified threats. The innovative aspects of the pilot project and its potential impact on improving geriatric care were emphasized. This paper addresses aspects related to risk management and remedial actions and identifies areas where the project may serve as a model for further research and practices in the discussed field.

Project assumptions

The telemedicine care project for patients with geriatric syndromes, focusing on frailty, sarcopenia, and malnutrition, aimed to address the challenges of caring for elderly individuals. This model offers comprehensive home and outpatient care services, focusing on three key geriatric areas. The project aims to reduce waiting times for patients who often end up in the hospital under crisis conditions due to numerous complications. The main goal of the project is to increase access to healthcare services, primarily telemedicine, for 520 individuals, with an emphasis on those aged 60 and above. The project involves conducting screening tests, and, in cases where frailty, sarcopenia, or malnutrition is detected, implementing interventions to improve patient outcomes. Specific objectives include enhancing independence, reducing the risk of hospitalization, and improving patient prognosis. This project aims to eliminate economic and geographic barriers, ensuring equal access to healthcare. Additionally, it strives to efficiently utilize telemedicine, involve primary care physicians, and optimize health services for the 60+-year-old population. Collaboration among various medical facilities and the use of telemedicine is expected to be key to the project's success, which also envisions patient engagement in health management with specialist intervention only in situations requiring advanced support [21].

Risk management

During project implementation, the main risks related to the evaluation of substantive progress were meticulously monitored and reported by the Steering Committee (SC) and then subjected to verification by the Pilot Evaluation and Supervision Team (PEST). Systematic analyses, along with agreements, covered technical/technological, financial, legal, managerial/organizational, external, clinical, and competency areas. Thanks to this approach, the project was able to effectively identify potential threats and adjust action strategies, contributing to minimizing risk and achieving the set goals and project outcomes. Below, we discuss several examples of risks along with assigned actions to reduce and/or eliminate them.

Technological risks

Among the identified risks are a lack of necessary skills to navigate and operate the telemedicine platform effectively; risks associated with the development, implementation, and operation of central system components, including the planning of the patient.gov.pl and gabinet.gov.pl applications; and a ack of digital competencies in a significant portion of the target patient population for this project.

The following remedial actions were implemented: regular meetings with the SC to develop optimal solutions and implement corrective actions to reduce technical/technological risks; obtaining specific information on the demands of tablets and laptops by partners; adjusting/simplifying the platform's functionality, reducing the number of modules, and identifying solutions for smoother navigation by the patient through the system and trouble-free implementation of the project's assumptions; reporting the need to improve the intuitiveness of the platform, initiating work on adapting the platform to the age and technological competencies of the patient; eliminating redundant functionalities of the telemedicine platform unrelated to the project (billing module, prescription visits), while retaining the ability to schedule video or teleconferences; monitoring technological partners ensuring the effective delivery of the platform; establishing integration rules with the platform by transferring the license to an IPA; addressing communication challenges from technological partners; providing the application for testing by users; deciding to proceed with the project based on the current technical state of the platform to minimize delays; and launching a support system (help-desk) that includes both chat/email and phone support, which is particularly important for older individuals.

The identification and mitigation of technological risks are crucial components in the successful implementation of telemedicine projects. Technological risks encompass potential challenges and uncertainties related to the development, deployment, and operation of the central components of the system. In this context, the specific actions taken, such as regular meetings, adjustments to platform functionality, and communication enhancements, demonstrate a proactive approach to minimize and address poten-

tial issues. The focus on adaptability, intuitive design, and user support reflects a commitment to overcoming challenges associated with digital literacy among the target population. Overall, the strategic measures implemented illustrate a comprehensive risk management strategy tailored to the technological aspects of the telemedicine project.

Financial risks

Among the identified risks, two noteworthy concerns have been pinpointed: the potential for an inaccurate valuation of the service by the public payer and financial liquidity challenges stemming from a high volume of service users concurrently accessing the service.

The following remedial actions were implemented: regular meetings of the SC were conducted to develop optimal solutions and implement remedial actions aimed at reducing financial risk. This included improving communication with the technological partner and specifying the division of financing related to the costs of organizing the conference, along with justifying the expenditure of funds; calculating and securing funds for the informational-promotional campaign for the project, shifting the costs allocated for printing posters, leaflets, and brochures to the implementation of TV and radio spots – elements of the project's visual identification; and ensuring that the Leaders and Partners have a secured amount on their accounts to facilitate the project's implementation in case of delays or difficulties with payments from the Ministry of Health, thus ensuring financial liquidity for project execution.

The implemented remedial actions demonstrate a proactive approach to addressing financial risks associated with the project. Regular meetings with the SC and improved communication with the technological partner reflect a commitment to monitoring and mitigating financial challenges. The strategic shift in allocating funds for promotional activities and securing resources for potential delays underscores a prudent financial management strategy. These actions showcase a comprehensive effort to enhance financial stability and ensure the smooth execution of the project in the face of uncertainties related to public payer valuation and financial liquidity.

Legal risks

Among the identified risks are the problematic manner and form of obtaining the patient's consent for conducting examinations and providing healthcare services, obtaining patient consent for the processing of personal data, verification of patient identity, confidentiality, and securing personal data.

The following remedial actions have been implemented: regular meetings of the SC to develop optimal solutions and implement remedial actions to reduce legal risks. Establishment of the appropriate form and method for verifying the patient's identity, and obtaining patient consent to participate in the pilot project ("visit 0" – gathering an informed consent document to participate in the project and a document protecting the personal data of the project participant, followed by the initiation of a visit incorporating the patient into the project/study), consent for conducting survey research, and any laboratory blood tests if necessary. Training one person in the managing team at each of the participating Partners with the project on the legal aspects of participation in the project, assigning responsibility for clarifying legal doubts, assisting in the explanations from medical professionals, and supplementing written information that is provided through the teleinformatics systems (by phone and video calls).

Addressing legal risks is a crucial aspect of the project to ensure compliance with data protection regulations, informed consent procedures, and overall legal requirements. The implemented remedial actions focus on establishing clear and effective processes for obtaining consent, verifying patient identity, and addressing legal concerns promptly. Regular meetings and training sessions contribute to maintaining a proactive approach in managing legal aspects, fostering a legally sound environment for the implementation of the telemedicine project.

Managerial risks

Among the identified risks are a lack of appropriate communication regarding participation and project implementation, the limited reach of information about the project model to the elderly population, and technical issues in the project's launch phase, such as gaps in information, unclear interpretation, difficulties in collaboration with Primary Health Care (PHC) Partners, and threats associated with testing solutions on a pilot basis.

The following remedial actions were implemented: regular meetings of the SC were conducted to develop and implement remedial actions to reduce organizational/management risks. The plan for organizing the inaugural conference was established (representatives of senior organizations, primary healthcare partners, and the administration; connection with the technological and Norwegian partners through teleconferencing; and discussion of analogous telemedical projects based on the Norwegian partner's experiences and platform presentation). The spokes-

person for the Leader facilitated the involvement of representatives and the media. Collaboration was initiated, leveraging the promotional potential of the City of Wrocław (displaying information on public transportation). Attempts were made to collaborate with additional primary healthcare partners to support patient recruitment. Geriatric doctors were trained in the operation of the platform, and a medical/consultation office was equipped with personal protective equipment. The work hours of the Leader's medical staff were secured for project implementation (availability scheduled for the primary healthcare visits). The potential number of patients qualifying for recruitment, according to the project's assumptions, was determined. A decision was made due to the limited project implementation time not to conduct follow-up visits. An initial patient database was created, and a smaller number of patients were recruited to ensure the completion of the entire pathway (total of 3 visits) according to project agreements. Communication with the technological partner was improved to ensure smooth project implementation according to the adopted schedule. Significant organizational risks included the extension of the contract signing deadline and the delay in patient recruitment commencement.

Managerial risks refer to the potential challenges and uncertainties related to the management and organization of the project. These risks can arise from various factors, including decision-making processes, coordination among stakeholders, and the overall administration of project activities. The implemented remedial actions focused on addressing these risks by establishing clear plans, facilitating communication, and ensuring proper training and resources for the project team. The efforts were directed at minimizing the impact of managerial risks on the successful execution of the project, particularly in the areas of scheduling, recruitment, and collaboration with partners.

Clinical risks

Among the risks identified were the unexpected changes in the health status of potential project participants, threats arising from improper treatment of the patient due to providing incorrect information, and doubts of the doctor about the proper course of action with the patient.

The following remedial actions were implemented: regular meetings of the SC to develop optimal solutions and implement remedial actions to reduce the clinical risk. Inclusion of complete FRA-MNA-SARC questionnaires on the platform to assess project health indicators related to the assessment of frailty, sarcopenia, and malnutrition during the recruiting

visit ("visit 0") with the primary care physician. Implementation of three telemedicine models for the "Geriatrics" project defining patient pathway: (1) without alarming results of examined parameters; (2) with survey results requiring teleconsultation with a geriatrician; and (3) with self-assessment survey results and laboratory blood tests requiring teleconsultation/patient visit with a geriatrician. Supervision and support were provided for the caregiver during the completion of the questionnaires, thereby avoiding errors and unintended distortions. To prevent deterioration in the patient's condition, participation in the program reduces the risk through implementing appropriate dietary-rehabilitation prophylaxis to improve the patient's condition, as well as providing appropriate treatment and referring the patient to specialized care (geriatrician) with the potential for improvement in their health.

Clinical risks pertain to potential challenges and hazards associated with the medical aspect of a project, especially in the context of healthcare and patient well-being. These risks may include uncertainties related to patient health conditions, complications in the implementation of medical procedures, or issues arising from the introduction of new clinical practices or technologies. Identifying and addressing clinical risks is crucial for ensuring the safety and effectiveness of medical projects, as they directly impact the health and outcomes of patients involved. It involves a careful assessment of medical procedures, treatments, and technologies, considering factors such as patient safety, treatment efficacy, and adherence to medical standards and ethics.

Competency risks

Among the identified risks are insufficient incentives for implementing the model, patients' reluctance to use new technological solutions, distrust of elderly individuals towards information obtained over the phone, insufficient competencies for easy access to online resources and the FRA-MNA-SARC platform, and lack of trust in telemedicine.

The following remedial actions have been implemented: regular meetings of the SC to develop optimal solutions and implement remedial actions to reduce competency-related risks. Addressing potential participants' mistrust of telemedical advice/treatment; educating patients about the benefits of regular and free telemedical consultations with a primary care physician and a geriatrics specialist; presenting the benefits in the form of increased access to medical services, ongoing and remote monitoring of the patient's health status, and providing health education; developing and disseminating informational brochures outlining the benefits of participat-

ing in the project, as well as educating patients about malnutrition, sarcopenia, and frailty syndrome; and conducting detailed training for patients on using the platform during telemedicine consultations.

Competency risks refer to the potential challenges and uncertainties associated with the knowledge, skills, and capabilities of individuals involved in a project. In the context of the described project, competency risks may include issues related to the understanding and utilization of telemedical technologies, as well as the proficiency of healthcare professionals and participants in managing the project effectively. The implemented actions aim to mitigate these risks by providing education, clear communication, and training to enhance the competencies of both healthcare professionals and patients in navigating the telemedical aspects of the project.

Conclusions

The success of our risk management efforts owes much to the concerted collaboration of our SC and the diligent work of the PEST. Through regular meetings, the SC, including the invaluable input of the evaluation specialist, meticulously monitored and addressed potential risks. The PEST played a crucial role in ensuring that the concerns and needs of patients were thoroughly considered. The collaborative efforts extended to the medical teams, primary care physicians, geriatrics specialists, and patient assistants, all supported by a robust administrative framework. This collective approach allowed for not only

the identification but also the swift implementation of remedial actions. The coordination was pivotal in counteracting any unforeseen challenges, ensuring that corrective measures were efficiently deployed, and the overall risk management strategy remained adaptive and effective.

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