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Development of a model of integration for complex chronic conditions across levels of healthcare and the community in Novo mesto, Slovenia

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Abstract

Background. People with complex chronic conditions have multidimensional needs and often experience fragmentation in care. A model of integration was developed based on a case study of chronic wound management in Novo mesto, Slovenia.

Methods. JA CHRODIS Recommendations and Criteria were used as a framework for developing the practice. A baseline analysis, patient needs assessments and analysis of clinical pathways were performed using qualitative methodology.

Results. Baseline analysis identified facilitators and barriers to care. Patient needs assessment led to organizational solutions in health and social care. Analysis of clinical pathways proved high variability in treatment process. Using these results a model of integration was developed introducing protocol of care and care coordinator at the secondary (hospital) level.

Conclusions. The proposed model would significantly reduce fragmentation in care for people with complex chronic conditions. The model was discussed at the policy dialogue and action plan defined for potential sustainability and scalability of the practice.

Key words
- complex chronic conditions
- chronic wound
- integrated care
- JA CHRODIS Recommendations and Criteria
- qualitative methodology

INTRODUCTION

Despite the fact that initiatives for integrated care exist [1], health care system in Slovenia is not organised in a way to easily foster vertical and horizontal integration of care, especially for people who face complex chronic conditions. Such patients have many underlying needs that are being addressed by a number of health and social care experts as well as family members, carers and volunteers within community. Evidently, they may find it hard and overwhelming to navigate across different services. A patient usually receives treatment primarily at community health centre (primary level of health care) by a family medicine team and further on at a regional hospital (secondary level of health care) by experts who provide specialist care and conduct advanced diagnostic procedures. This process can be complicated. For example, a patient suffering from a chronic wound will likely to receive treatment from numerous health professionals such as specialists of family medicine, internal medicine, endocrinology, angiology, dermato-venerology and diagnostic radiology, vascular and plastic surgeons, community nurses, registered nurses educators and registered nurses with special competencies in chronic wound management. In cases of social deprivation and adverse health conditions, social work centre and other (non)governmental institutions, such as humanitarian and patient organisations, might get involved. Patients with chronic wounds require coordinated and holistic approach to care as they are deeply affected by their condition while their quality of life is significantly decreased. Systematic literature review [2] suggests that chronic wound affects physical, psychological and socioeconomic wellbeing of a patient. Pain is an important accompanying factor which can lead to depression, anxiety and social isolation. Therefore, chronic wound management demands an interdisciplinary, emphatic and holistic approach to care by all relevant health professionals. It needs to be patient-centred and not managed solely from the perspective of their underlying condition.

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Because organisation of care is silo-based, intra- and cross-institutional communication, coordination and information exchange is hard to achieve. This leads to fragmented care. Patient perspective is often neglected which increases the gap between the healthcare providers and patients and reinforces disease-centred approach to care. Considering that chronic wound management reflects issues related to fragmentation of care, chronic wound was considered a suitable 'model condition' for conducting a case study in pilot action of Novo mesto based on which a model of integration could be developed.

There are many definitions of integrated care, but for the purposes of this study we use a combination of the user-led and health system-based definition proposed by the World Health Organisation [3]. According to the latter, integrated care is conceptualised as an "approach to strengthen people-centred health systems through the promotion of the comprehensive delivery of quality services across the life-course, designed according to the multidimensional needs of the population and the individual and delivered by a coordinated multidisciplinary team of providers working across settings and levels of care". A user-led definition shifts the focus directly to the patient as a subject – and not only object – of care: "my care is planned with people who work together to understand me and my carer(s), put me in control, coordinate and deliver services to achieve my best outcomes". The development of the respective model of integration was informed by these definitions bringing into focus patient perspective and patient oriented care while strengthening the horizontal and vertical links between different healthcare providers. In literature other similar concepts may be used interchangeably, such as coordinated care, seamless care, transmural care, care management, case management and networking [4].

The pilot action was grounded in Social perspective on health approach as disease model is insufficient in addressing all of the multidimensional needs of patients with complex chronic conditions [5]. The practice was also strongly influenced by the principles of patient empowerment [6-8] and patient-centred integrated care [3, 9]. These approaches indicate epistemological shifts in medicine, where patients as subjects become a focal point in care instead of focusing on disease as an abstract entity, alienated from personal lived experience. In line with this perspective, a patient's role in care is based on partnership with health professionals and treatment plans developed together according to patient's needs and expectations which inform personal responsibility in self-care [8]. This should overcome the limits of paternalistic and disease-centred model in healthcare [10] and foster a more integrated approach to care.

It has been recognised that integrated care improves patients' experience, quality of care and health outcomes for patients with complex chronic conditions [3]. Still, there has been little to none Europe-wide or national policies in place that would address the need for more integrated care for people with complex and multimorbid chronic conditions despite the fact that "lack of integration between care providers often leads to fragmented, incomplete, and ineffective care, leaving many patients overwhelmed and unable to navigate their way towards better health outcomes" [11].

Similarly, in Slovenia the results of the Analysis of health system in Slovenia [12], Resolution on National healthcare plan 2016-2025 [1] and other important strategic documents and research reports [13-16] as well as professional guidelines [17, 18] strongly recognize the need for integration of care within and between levels of healthcare and with social care system, and suggest implementation of tools and approaches, such as guidelines, protocols of care and protocols of collaborations among others [1].

Based on these approaches, needs and contextual elements the General Hospital Novo mesto and Community Health Centre Novo mesto collaborated in developing a model of integration across levels of healthcare and community for complex chronic conditions using JA CHRODIS Recommendations and Criteria (QCR) [19]. The paper presents the results of the study of chronic wound management from pilot action in Novo mesto and the proposed model of integration which introduces the care coordinator at the secondary level of healthcare and a protocol of collaboration.

MATERIALS AND METHODS

The pilot action adopted the JA CHRODIS Recommendations and Criteria [19] as a framework for developing, implementing, monitoring and evaluating the practice. It is presented in detail within the *Guide for the implementation of JA CHRODIS Recommendations and Criteria (QCR) to improve the quality of care for people with chronic diseases* [20], which describes implementation process and experiences with using the framework by pilot actions from eight European countries that implemented practices under the Work Package 7 of the Joint action CHRODIS Plus (2017-2020). In our practice, all criteria were considered to structure the practice, but special attention was given to Practice design, Target population empowerment, Governance, Interaction with regular and relevant systems, and Sustainability and scalability criteria.

We established a local implementation working group (LIWG) to lead, design, implement and monitor the practice. In total, 20 members were included in the group representing management, health or social care from the hospital and community health centre. A patient representative, the president of a local patient association was also involved in the entire intervention process. To improve the functionality of the implementation working group, we organised the leadership and management core group (5 members) and a subgroup of medical specialists (4 members) with specific clinical expertise to analyse clinical pathways for patients with a potential highest health needs and to define protocol of care.

Baseline (situation and context) analysis

At the pre-implementation stage, we performed a comprehensive baseline (context and situation) analysis to identify key elements that are characteristic to the context and current situation of chronic wound management across primary and secondary levels of healthcare. Qualitative methodology was used, namely SWOT analysis [21] and semi-structured interviews [22, 23] with the members of the LIWG, to analyse the main barriers and facilitators to integrated care as seen by frontline professionals and implementers at the local level. Individual interviews followed a preset of semi-structured questions to bring in perspective how care is being fragmented/integrated in practice, which regional disparities exist and which are the specific vulnerable groups with chronic wound within the wider community. This phase was followed by a SWOT interactive session to discuss and analyse main internal and external factors that influence care as perceived by the group. Both methods were aligned with the QCR framework [19]. Data gathering and analysis were performed by a cultural anthropologist, member of the implementation working group, who is an expert in the field of qualitative research.

Patient needs assessments

During the implementation phase we selected chronic wound patients with which we conducted in-depth semi-structured interviews [23] – patient needs assessments – to identify their health and social needs, to develop more general organisational solutions to fragmentation in care and to gain inputs for the development of the proposed model of integration. In collaboration with four physicians from Community Health Centre Novo mesto the LIWG selected 11 patient participants with chronic wound that were followed during the practice implementation. Patient participants were selected based on their chronic condition (diabetic foot, venus ulcer or ischemic ulcer) and QCR [19] (considering dimensions of gender, geography and socioeconomic status) to support the inclusion of patients considered as vulnerable. Patient participants were informed about the aims and purpose of the practice by their physicians and requested to join the study. Those who were willing to participate signed an informed consent form which is archived in the patient file. The implementation working group decided to include a smaller number of patient participants in order to gather qualitative information about each patient's needs upon which future activities were organised. The intervention did not study clinical outcomes of chronic wound management but instead focused on integrating care within and outside health based on patient needs assessment. Interviews with the patient participants were conducted individually by a cultural anthropologist and a hospital's social worker at Community health centre Novo mesto, General hospital Novo mesto or at the patient's residence. Locations were determined based on the preferences of each patient participant and interviews were conducted discretely to ensure confidentiality. No additional examinations or hospital visits were required from the participants. Local ethical committee at the General hospital Novo mesto approved the practice.

Analysis of clinical pathways for patients with highest health needs

Expert group of four medical specialists from the General Hospital Novo mesto was established to analyse current clinical pathways with in-depth study of the journey of patients with potential need for percutaneous transluminal angioplasty as the subgroup of patients at highest health risk. Members of the group included a medical director of the hospital, a cardiologist, a radiologist and a vascular surgeon. The group selected 15 patient cases and analysed the variability of access points at the secondary level of health care and duration of the treatment process. Based on the analysed data they developed an improved clinical pathway for patients with potential need for percutaneous transluminal angioplasty (PTA).

Data analysis methods

For Baseline (situation and context) analysis qualitative content analysis [24] was used. Qualitative data from semi-structured interviews was analysed according to themes of the discussion that included (professional) background of the respondent, barriers to care, regional disparities in provision of care, vulnerable groups and local practices in care. Interviews were recorded and transcribed. Data from SWOT interactive session was synthesized using a SWOT diagram adjusted with JA CHRODIS Recommendations and Criteria [19]. Qualitative data acquired through patient needs assessments was analysed using a hermeneutic interpretative method which emphasizes a more holistic and contextual instead of strictly categorical approach towards interpreting the data in the form of patient narratives [24, 25]. These were analysed so to understand complex history of various interactions with health professionals, health and social institutions as well as barriers and facilitators to various forms of care. Specific issues that were identified with patient participants were discussed and further analysed by LIWG at meetings. If appropriate, additional (health and community based) activities were planned. From a methodological standpoint this form of data gathering, analysis and use entails the features of *Action research* [26] where research results are inextricably linked to social action. A descriptive method [24] with numerical and qualitative data was used by expert clinical group for analysis of current clinical pathways for patients with chronic wound with in-depth study of the journey of patients with potential need for percutaneous transluminal angioplasty as the subgroup of patients at highest health risk.

RESULTS

Facilitators and barriers to care identified during baseline analysis

Baseline (situation and context) analysis from focus group (SWOT analysis) identified a number of facilitators and barriers to care. The responses were analysed and classified in four groups which include facilitators and barriers to care, each related to both national systemic level and to the local level from perspective of the case study of chronic wound management.

Facilitators at national systemic level: Strategic and professional documents and policies are implemented that enable high quality of care and support integrated care interventions [1, 13, 18]. Relevant structures for management of complex chronic conditions and preventive healthcare exist such as health promotion centres, model practices of family medicine with registered nurses as care coordinators for chronic patients and people at risk, community nursing services, specialist clinics and education programmes. Integrated information system is implemented across all levels of healthcare but some challenges exist.

Facilitators at local level from the perspective of the case study: Chronic wound management is well structured and includes model practices in family medicine teams and community nursing services (at primary level), clinic for diabetic foot, clinic for chronic wound, specialist and social services (at secondary level). Diagnostic procedures and education activities for patients are provided at both levels. There is a relatively good access to healthcare professionals and services for patients with complex chronic conditions (e.g., physicians, community nurses, clinic for diabetic foot, clinic for wounds, emergency services). Clinic for wounds at secondary level is recognised by health experts as having an important coordinative function in chronic wound management at secondary level. Patient registry, specifically for chronic wound patients in the hospital exists and reportedly there is a continuous follow up and check-ups of patients by the same health experts, but alternative experiences were also expressed. Patients are continuously monitored at the clinic for chronic wound from first medical examination until the treatment continues at primary level by physicians and registered nurses in model practices of family medicine. There is a strong connection and collaboration between health institutions and the local community. Hospital's social worker and community nurses from the community health centre continuously coordinate activities with social institutions to address the needs of vulnerable individuals and populations.

Barriers at national systemic level: Silo-based and disease-oriented organisation of care causes fragmentation in health care service delivery and does not address the multidimensional needs of patients sufficiently. Funding is based on payment of individual health care services (e.g., examinations by medical specialists, x-ray, magnetic resonance imaging etc.) instead of integrated care. This means that patients wait in line for each health care service separately and that the services are carried out based on waiting periods, not on a procedure that would be optimal from a medical standpoint. In general, there are long waiting periods for patients to receive specialist treatment at the secondary level and information system solutions are to some extent insufficient for effective communication and information exchange across levels of healthcare. Unequal access to some health and social care services for vulnerable populations is viewed as another important barrier.

Barriers at local level from the perspective of the case study: There is an insufficient information exchange and follow up of patients across levels of healthcare due to limited possibilities for exchanging clinical information using existent information system solutions (e.g., photographs of wounds, direct communication between community nurses and clinical specialists from the hospital). Competencies in healthcare in terms of coordinating care at the secondary level are insufficiently defined. Disparities in provision of care exist at the regional level.

The semi-structured interviews were conducted with 10 members of the implementation working group who represent frontline professionals or users of healthcare services. The respondents discussed their (professional) background and the extent of their work, barriers to care and existent local practices to overcome barriers. In-depth interviews with members of implementation working group in general identified the same facilitators and barriers to care as in SWOT analysis, but more elaborate and specific answers were provided by the respondents depending on their background. Several respondents reported about the existence of vulnerable groups in the region, such as the elderly, people with low socioeconomic status, Roma people and migrant populations. The respondents emphasized that patients with complex chronic conditions in many instances have an underlying chronic disease (such as diabetes) and face adverse social conditions which increase their vulnerability. Health professionals from the chronic wound clinic reported about significant differences in care provision within the region. Quality of care is supposedly poorer in distant communities (in relation to Novo mesto). The perceived reasons as understood by the respondents include the usage of lower quality sanitation materials and low adherence to training on chronic wound management by health professionals, especially community nurses. From a social perspective, an underlying reason for poorer quality of care is that people from rural communities face more barriers in accessing health care services. These barriers can be categorised as subjective (refusing to seek help due to fear of costs, diagnosis or causing burden to relatives, lack of trust in healthcare providers, underestimation of the severity of one's health condition) or objective (poverty, lack of transport options and poor infrastructure, social exclusion and marginalisation, absence of health insurance due to variety of reasons).

Respondents described how fragmentation in care is present in their daily work when trying to communicate across levels of healthcare with different health professionals, navigate through administrative procedures or use existent information system solutions (*Interoperabilna hrbtenica*, *ePosvet* and *eNapotnica*). The experiences presented were very profession-specific and detailed, but what was commonly regarded as one of the most pressing issues was the fact that the patient journey across levels and services becomes very complicated due to insufficient communication between health professionals, especially physicians at primary level and relevant medical specialists at the secondary level of health care. Specialists between themselves primarily communicate via referrals (e-referrals), but there is in general a possibility to consult a specific health professional by telephone or e-consultation. Despite, they are mostly unavailable for consultation in real time. A patient 'travels' across levels and is put in waiting lines to access different diagnostic procedures and medical specialists, because organisation of care is not process-based and linear.

Several respondents presented issues related to organisation of care from a broader perspective. A hospital's social worker identified overall lack of focus on patients' social and individual conditions which ultimately affect the course of their treatment. During a conversation she states: "We have a number of different health experts, for eyes, legs, etc., which of course is important, but often we forget that a person is a whole". In a similar vein, patient representative was very vocal about how some people with chronic illnesses might conceive their condition quite differently than medical professionals: "Most of the time I feel healthy and my environment also perceives me as such, but in the eyes of medicine I am being considered as sick. I think a different view is needed". The comment about the perception of the environment is especially meaningful here as people with chronic diseases (e.g., diabetes) often need to clarify to the people around them why they are restricted to engage in certain activities and behaviours or may even need to utter justifications for their absence to daily obligations. These experiences can prevent patients to be more observant about their health condition and to actively seek help. This ultimately can lead to deterioration of health and chronic complications, such as chronic wound, might emerge over time. The patient representative was also very reflective about how to think of patient participation in a professionalised environment, where terminology can be an important barrier to effective communication: "Language is of the utmost importance. It is crucial how you use your words and different expressions in this [CHRODIS Plus] project and within medicine in general. They must be understandable to us, patients, so we can relate to the message, actively participate and contribute meaningfully". Indeed, having a vocal, honest and self-reflective patient representative in the LIWG, by itself changed the dynamics of conversing about the issues at hand. The importance of patient centeredness was also recognised by health professionals. As expressed by a medical specialist: "The important thing is that we [health professionals] come to the patient and not the other way around. This is how fragmentation of care can be addressed". These and similar ideas raised by the respondents were also discussed at the LIWG meetings. Articulating ideas about concepts such as integrated care and patient-centeredness seemed just as important as implementing 'clear-cut' activities of the intervention.

In general, data provided by semi-structured interviews and SWOT analysis was discussed throughout the project at the group meetings and helped to shape the proposed model of integration significantly.

Patient needs assessment – results and use

By conducting in-depth semi-structured interviews with patients, we identified specific experiences, conditions and barriers to care from the patients' perspective. The results were reported to the LIWG. The data was used to develop more general organisational solutions such as establishment of systematic collaboration between community nurses from the community health centre and social work centre to address health and social needs of patients with complex chronic conditions.

At first, eleven patient participants were selected for patient needs assessments in collaboration with four physicians from the community health centre who participated in the project as frontline professionals. Nine patient needs assessments were successfully completed from November 2018 to November 2019. One patient participant died before the interview could be conducted. One participant changed his personal physician and was no longer able to collaborate. Six men and three women participated in the study. Three patient participants came from rural areas of the municipality and four from the urban area. Two participants lived in the retirement home due to adverse health conditions. Six participants were designated as socially deprived by their physicians (living in poverty), three of them were women. All female participants were also living by themselves and had little to no support by their relatives or informal carers. Similarly, two male participants were living alone with no support from their family members. The data suggests that patients who were living or had continuous contact with family members had a better understanding of their treatment process, had less problems with scheduling appointments with health professionals and were more systematic in handling/archiving patient documentation (e.g., check-ups results).

The narratives and specific issues identified by the patient needs assessments were discussed at the implementation working group meetings which enabled the identification of barriers or facilitators to successful care. This was the basis for the implementation of activities in relation to other specific objectives. Illustrated below, is an example of patient needs assessment that best describes a multidimensional character of an illness experience and the importance of coordinating and integrating services within and beyond healthcare.

Mister M., a person with ischemic ulcer, was disentitled to all forms of support from the local social work centre due to administrative barriers, even though he lives in profound poverty. Being a stonemason was no longer possible for him as the condition deteriorated over the years. Still, too young for retirement, he was only entitled to a small financial subsidy for disability that could hardly cover any costs of living. He sporadically received community nursing services but was ultimately disentitled to these as well. Being classified as sufficiently mobile he did not meet the necessary requirements to be granted access to their services in accordance to the *Rules of compulsory health insurance* [27]. Living alone in a rural and remote area, outside the city, this person had to walk limpingly for two hours each time he was scheduled in community health centre for treatment of his chronic wound condition. This case illustrates the intersectionality [28, 29] of health and social challenges that many patients with such complex conditions often face. This was recognised by the LIWG, particularly community nurses from the community healthcare centre. They established meetings with social work centre to address his case. Upon revision of his case, the patient was later entitled to social support by the social work centre. Patient is still not entitled to treatment at home by a community nurse but is being provided with public volunteering transport Rudi funded by the Municipality of Novo mesto. Community nurses and social work centre now collaborate systematically (in the form of periodic joint meetings) to resolve similar issues for patients with complex chronic conditions that cannot be addressed simply within one domain. This collaboration is thus a direct 'by-product' of the patient needs assessment translated into action. Presented in the example is a combination of structural and administrative barriers that are cross-sectoral in nature and profoundly affected the quality of life of an individual. On the other hand, there may be subjective reasons why an individual is rejecting care or ignoring possible solutions that would supposedly improve the quality of his or her life. This particular person was used to harsh life conditions and hard work as was seen from his utterances, gestures and appearance. He did not and could not be asked to actively seek help for his problems. The responsible thing to do from his own perspective was to carry these burdens alone and not humiliate himself by asking for help or seek solutions that the social state could provide. The experiences from this and several other patients needs assessment suggest that there are different views about what constitutes self-responsible behaviour and that there is a need for integrated services that take into consideration complex situations and perceptions of individuals in need of help.

Analysis of clinical pathways and development of the protocol of care

Analysis of clinical pathways for chronic wound patients with a potential need for percutaneous transluminal angioplasty (as the subgroup of patients at highest health risk) proved high variability in access points and duration of the treatment process. Based on the analysis of 15 patient cases, 5 different clinical pathways were identified. The treatment process varied from 3 days to 6 months. High variability was dependent on the access point, the way in which the referral was being processed and the treatment/examination procedure. The analysed data suggested that variability in clinical pathways could be reduced through unification of access points. Thus, the care coordinator (registered nurse at the chronic wound clinic at the hospital) is introduced at the clinic for chronic wounds as a point of entry for patients in need of specialist treatment at the hospital (secondary) level.

During this stage of the intervention existing information system platforms (*e-Posvet* and *Interoperabilna hrbtenica*) were tested to evaluate the possibilities of vertical information exchange (namely photographs of chronic wounds) between community nurses, physicians (community health centre) and medical specialists at the hospital. The activity was implemented to address the problem of communication barriers and information exchange between levels of care. The testing proved the platforms were not suitable for the use of the pilot. They do not enable the exchange of photographs without technical adjustments that would be made by private IT service providers. This would require additional financial resources on behalf of the implementers. Besides, the practice has proven that there is a great need for direct information exchange between vascular surgeon and community nurses but there are policy constraints that do not enable community nurses to access patient information by themselves and directly exchange information with medical specialists at the secondary level.

To address these limitations and overcome high variability of clinical pathways the proposed protocol of care was developed which reorganizes care through the unified clinical pathway and establishment of the care coordinator at the clinic for chronic wound. In this way patients receive and conclude the needed treatment process in 7-14 days. Protocol is to be adopted by the primary and secondary level of healthcare and follows several steps: 1. Specialists of family medicine appoint patients in clusters on predefined days of the week to the secondary level with e-referrals which undergo administrative processing; 2. Patients are scheduled at the clinic for chronic wound at the secondary level for appointment; 3. Questionnaire measurements are conducted by the care coordinator; 4. Care coordinator and medical specialist develop a treatment plan; 5. The treatment plan follows the procedure as defined in *Figure 1*.

Reorganization of clinical pathway and protocol of care should overcome high variability and reduce burden for health professionals and especially for patients who will receive timely and less resource consuming treatment. There is a broad support for the implementation of the protocol of collaboration by both partner institutions. This algorithm applies to patients with a potential need for percutaneous transluminal angioplasty (as the subgroup of patients at highest health risk) and there is some variability when it comes to other complex chronic conditions, such as diabetic foot. Thus, adjustments would be needed to implement protocol of care to other complex chronic conditions. Nevertheless, both partner institutions recognized the need to organize care for other complex chronic conditions according to protocols of care in a similar way.

Using the results to design the model of integration and plan for sustainability

Based on the implementation experience and results, the LIWG developed a model for integration of care across levels of healthcare and the community for people with complex chronic conditions *(Figure 2)*. The model considers two essential elements in the organisation of care: a. Family medicine teams manage care at the primary and community level. They provide health services in preventive healthcare, health promotion and treatment, by utilising existing healthcare services and structures at the local community health care centre, including health promotion centres [30], community nursing and model practices of family medicine with registered nurses. They foster links with relevant community stakeholders to address the social needs of the target population and engage in local community-health groups [31] that are being established by Health promotion centres [30] nationwide. Family medicine teams communicate/appoint patients to the secondary

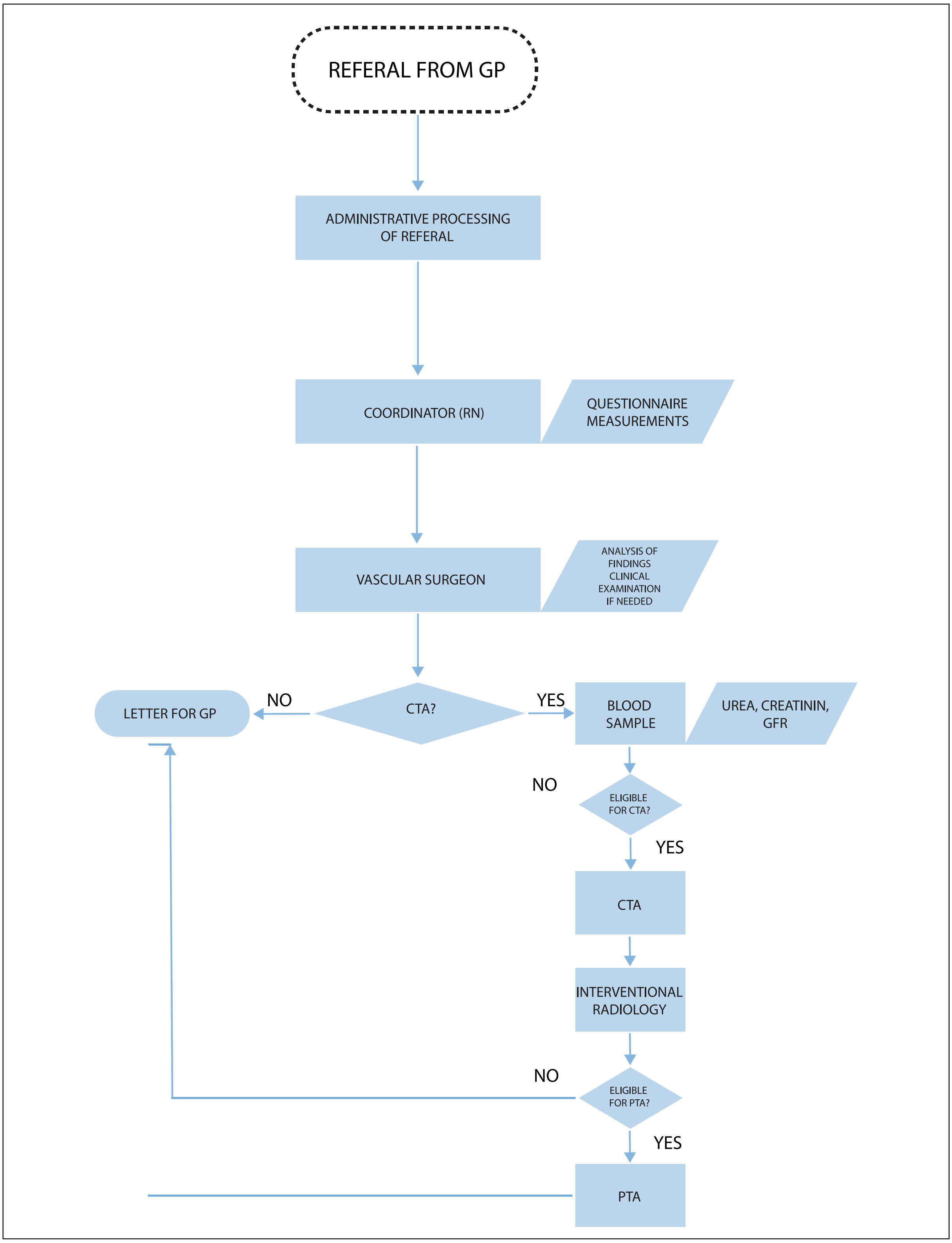

Figure 1
Protocol of care with reorganized clinical pathway for Percutaneous transluminal angioplasty at the hospital level.

level through a unified access point based on protocol of care adopted by both levels; b. A care coordinator is introduced at the secondary level of health care as a single access point for patients at highest health risk (such as patients at potential need for percutaneous transluminal angioplasty). The care coordinator is a registered nurse from the respective clinic and is responsible for integrating relevant health care services and structures

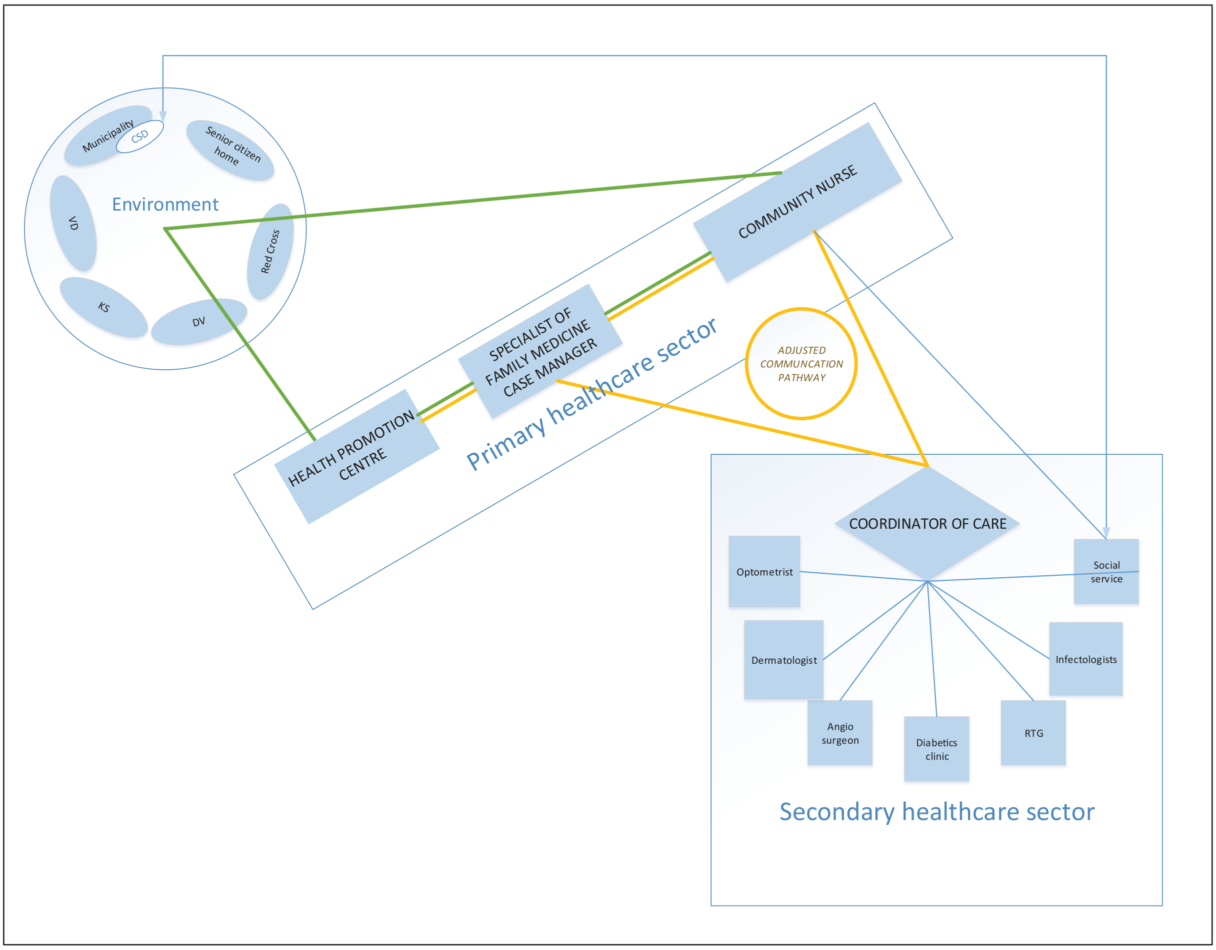

Figure 2
A visual representation of the model for integration of care for complex chronic conditions.

at the secondary level. Together with a medical specialist they develop, implement and follow a treatment plan which is based on providing a bundle of health care services and is in line with the protocol of care. Care coordinator fosters communication with practices of family medicine including community nurses that organize care at the primary and community level.

In order to assure the sustainability of the practice and foster future development and implementation of the model of integration, we organised a policy dialogue in January 2020 with the national policy makers and professionals, representatives of Ministry of Health, National Institute of Public Health and Health Insurance Institute of Slovenia. A national group for integration and action plan was established. The group will identify other complex chronic conditions to which similar principles of integration could be applied and resolve potential policy constraints to implement the model.

CONCLUSIONS

As suggested by the important strategic, professional and research documents in Slovenia [1; 12-18], there is a need to foster integration of care within and between levels of healthcare and with social care system, particularly in the field of complex chronic conditions. Patients who face such conditions often experience fragmentation in care and long waiting periods for specialist treatment while their multidimensional needs are not sufficiently addressed.

In this paper we presented the process of developing a model of integration for complex chronic conditions across levels of healthcare and community based on a case study of chronic wound management as a “model condition” in Novo mesto, Slovenia. We established a LIWG with representatives of the Community Health Centre Novo mesto and the General Hospital Novo mesto and a vocal patient representative. The group used the JA CHRODIS Recommendations and Criteria [19] as a framework for development, implementation, monitoring and evaluation of the practice. The framework was particularly useful to help plan for sustainability of the practice from the beginning and enhance patient participation. The practice was developed within Joint Action CHRODIS Plus and supported by the project leaders and experts.

Using qualitative methodology, we conducted several interventions – baseline (situation and context) analysis, patient needs assessments, analysis of clinical pathways for patients with potential highest health needs – based on which the proposed protocol of care and the model of integration were developed. The model was designed to foster links between relevant structures in health care – at primary level (family medicine teams, health promotion centres), secondary level (specialist treatment at relevant clinics in the hospital, education activities) and community (municipalities, social work centres, NGOs and other) – while grounding common interventions in close collaboration with the patients. For the secondary level the importance of introducing a care coordinator and implementing a protocol of care has been recognized. The latter represents a major innovation in the proposed model for integration of care by implementing a bundle of services based on patient needs. To test and implement this model in practice, adjustments are needed at the policy level, namely to determine the payment procedure for provision of a bundle of health care services to patients and adjust the rules of Health Insurance Institute Slovenia in accessing these services at the secondary level (in the case of chronic wound management these services might include check-ups with the angiologist, doppler, angiography, CT, PTA).

The implementation of the model of integration should increase the quality of care for people with complex chronic conditions, reduce waiting time for patients in accessing health care services and make the entire treatment process more oriented towards patient needs. The model is aligned with national strategic documents, namely *Resolution on National healthcare plan 2016-2025* [1], professional guidelines [17, 18] and relevant study results (e.g., *Analysis of health system in Slovenia*) [12] which all support the need for integration of care.

The practice has been particularly strong in enabling patients with chronic conditions to be vocal about their illness experiences. When asked how they felt about telling their stories, many of them expressed gratitude to be able to converse with us as and to be able to present their views in respect to their care. Approaching patients as people and listening to what they had to say seemed to be an important steppingstone in fostering integration in care. Patients were actively involved in the practice development and implementation in various forms and levels of engagement – from being vocal through patient needs assessments and community stakeholders' event to being an indispensable member of the LIWG.

Throughout the pilot, links with community stakeholders and policy-makers (Ministry of Health, National Institute of Public Health and Health Insurance Institute Slovenia) were fostered to facilitate implementation of the practice at the local level, its sustainability and potential scalability. The model for integration that was developed was discussed at the policy dialogue with national policy-makers, national and local health and social care experts in January 2020. The policy dialogue resulted in an action plan for integration of care for complex chronic conditions to identify other similar conditions to which this model could apply and to make the necessary adjustments for testing and implementing the model in the future.

Author contributions

DO participated in the development and implementation of the practice, designed and implemented the qualitative research and analysis, and drafted the manuscript; MP lead the pilot action development and implementation, lead the analysis of clinical pathways, and helped to draft the manuscript; MM participated in the development and implementation of the practice, coordinated physicians during patient participants selection, and helped to draft the manuscript; SK participated in the design of the practice, participated in the patient needs assessment research, and helped to draft the manuscript; LP co-lead the pilot action on behalf of the General hospital Novo mesto and helped to draft the manuscript. All authors read and approved the final manuscript.

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Conflicts of interest statements

The Authors declare no conflict of interest.

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