A novel approach towards acute care integration

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Chapter 7

General discussion

The main objective of this thesis is to find clues how and where acute care in the Netherlands can be improved at all integration levels. Insight into the various mechanisms should enable us to maintain accessibility of acute care for all citizens in the future. The urgency to improve acute care in the Netherlands and keep it sustainable for the future is an ongoing subject for debate. The Minister of Health, Welfare and Sports presented the 'Charcoal sketch Acute Care' to the House of Representatives in July 2020. This is a discussion document aiming to ensure that acute care of the best quality is, and remains, available for all Dutch inhabitants. The main question in this charcoal sketch is how urgent problems in acute care can be solved, while at the same time keeping confidence in the ability to organise acute care for everyone. [1] In this chapter, we describe and discuss the main findings presented in this thesis, as well as roadmaps towards areas for future exploration.

Main findings

While the accessibility of acute care organisations is currently under pressure, and one way to improve services potentially, is better integration, an adequate methodology to provide a clear and accessible evaluation of various intervention initiatives was missing. We therefore developed a methodological framework for evaluating transitions in acute care services in the Netherlands to achieve Triple Aim, which we presented in **Chapter 2**. This methodological framework facilitates the evaluation of various intervention initiatives in acute care organisations in the Netherlands. Previous literature showed several general conceptual evaluation frameworks that focus on the integration of care services [2, 3], but these do not explicitly emphasise acute care organisations. One of the more interesting approaches that uses a multi-stakeholder perspective and focuses on more than just clinical or organisational outcomes is the Triple Aim approach, first described by Berwick, Nolan, and Whittington in 2008, which we decided to develop the framework. [4] These authors state that a data-driven population approach with multi-stakeholder collaboration at all levels of care is necessary to create value in healthcare, replacing volume as the primary driving issue. Unfortunately, a systematic review of literature on the Triple Aim framework in the context of healthcare concluded that providers generally struggled due to a lack of guidance and an absence of composite sets of measurements that allow performance assessment. [5] We filled this gap for acute care organisations by developing the in Chapter 2 proposed methodological framework. This framework include five steps and came out of merging the key elements of three concepts: 1) Triple Aim and learning System, 2) Integrated care and 3) Population Health Management (PHM). To help achieve the Triple Aim, these concepts can be helpful as a strategy to guide systems change.

In a region of the Netherlands, the general practice cooperative (GPC) and ambulance service have begun to integrate their care, and the rapid and complete transfer of information between these two care organisations is now the basis for delivering appropriate care. Now when a patient with an acute care need calls the GPC and the triage outcome indicates that an ambulance ride is required, a digital merger ensures that a report of findings and previous history is sent to the ambulance service via a secure e-mail service. With the help of our methodological framework, we evaluated this digital merger project to improve functional integration. The result of this evaluation we present in **Chapter 3**. The purpose was to determine the added value of merging medical data from ambulance services and GPCs, especially focusing on acute care users with the highest risk for adverse outcomes. Regarding the population health aspects of the Triple Aim, which in this context is healthcare use in a specialist setting, we noticed that the digital merger was potentially beneficial with a reduction in admission to nursing homes and fewer Emergency Department (ED) costs per patient calculated, based on reference prices in the 30 days following the acute care request compared with patients in the control period. Patients in the intervention period were responsible for generating more costs at the GPC. A shift from intramural to extramural, or from hospital care to care in the community, institutions, and general practices, may be underway and deserves further investigation. Earlier studies have reported conflicting results regarding the effectiveness of care coordination services, with variation probably attributable to differences in the intensity and duration of services. [6] An evaluation of participation in an ED-initiated community-based program reported significantly fewer ED visits and significantly more primary care visits.[7] Since ED care is more expensive then primary care, it appears that the potential cost benefits of the program are significant. [7, 8] Besides population health and costs, overall satisfaction of patients with the acute care organisations was very high. The experience of care professionals also plays an important role and addressing the needs of this group adds a fourth policy aspect, which increasingly often leads towards the 'Quadruple Aim' to be reached in healthcare reform initiatives. [9] Regarding current satisfaction we measured, the care professionals were generally fairly satisfied with cooperation to date. However, we noted major differences between the various professions, with the most satisfied group being the GPC call handlers. Focus group comments cast some light on differences in satisfaction, which seemed to be often linked to issues such as a lack of understanding of the logistical details of digital transfer. Joint trainers and courses were suggested to improve collaboration, as well as more frequent meetings to gain a better understanding of each other's work. Other studies have reported fewer positive results concerning collaboration, but arrived at similar conclusions. Our results are in line with a Norwegian study reporting that smooth cooperation between

GPs and ambulance personnel requires that both parties better understand each other's procedures and roles. [10] Our results provide an early indication of the considerable promise of medical data merging.

Patients, or citizens in total, should not be skipped when studying the subject of future-proofing acute care. The users of acute care, always are the reason why further quality improvement is pursued in the first place. Therefore, we did a qualitative interview study among patients in the acute care in an urban region in the Netherlands, which we present in **Chapter 4**. Our study provides insight into the motives for hospital self-referral during office hours and into the barriers deterring GP consultation with a presumably clear primary care oriented request. In the Netherlands, patients with an acute care request during office hours can consult a GP or, when a request is very urgent, they can call an emergency telephone number (112). Nevertheless, some patients, so called self-referrers, go directly to the ED without first consulting a GP. [11] Self-referral often results in the improper use of an ED due to a care request that in retrospect could be better treated in a primary care setting. [12, 13] A total of 44 people who self-referred were interviewed in two hospitals. People who self-referred generally reported several motives for going to the hospital directly. Information and awareness factors played an important role, often related to a lack of information regarding where to go with a medical complaint. Suggestions regarding a hospital visit are often due to a lack of familiarity with the transition of EDs over the past decennia from a 'first aid post for accidents' to specialized hospital departments. [14] In the past many patients, especially in the context of bigger cities, grew accustomed to 'accident departments' in the hospitals they live close to and this popular concept is still noticeable in many interviews. Previous questionnaire or interview studies of people who self-referred at an ED focused only on motives, ignoring information factors. [15-17] Furthermore, many people who self-referred, mentioned hospital facilities, convenience and perceived medical necessity as motivational factors. Barriers deterring a visit to the own GP were mainly logistical, including not being registered with a GP, the GP was too far away, poor GP telephone accessibility or a waiting list for an appointment. A relationship between GP accessibility and the number of people who self-referred has been described in earlier literature.[12, 18] The wide variety of motives and barriers among people who self-referred attending hospital indicates that there is no straightforward solution. However, better provision of information could be a first step in increasing health literacy and reducing misconceptions. By setting up interventions for specific target groups such as migrants, expats and young males, we will eventually approach our goal of providing 'the right care to the right patient in the right setting'.

Until now, the ED, ambulance service and GPC have come to the fore in the discussion of our findings, but acute care organisations in the Netherlands use to encompass more than these. After a patient receiving assistance at an ED or GPC, a patient can be hospitalized, referred to a nursing home, referred to an acute mental health service, receive care at home if necessary, or be referred back home without home-care. [19] What happens with a patient after treatment, depends on age, medical conditions, social context and the quality of their home. [20, 21] Dutch citizens are required to have a basic health insurance package to guarantee the quality of care, leading to insurance companies having substantial influence on the network's organisation and function as well. [22] Due to the large number of organisations involved, there are multiple entrance and exit routes for patients in the acute care network. In order to be able to continue providing high-quality healthcare, it is important that organisations are well integrated and effective communication and coordination between all stakeholders at different levels of an organisational structure is crucial. [23, 24] The objective of our study presented in **Chapter 5** was to gain an understanding in to which extent cooperation within an urban acute care network in the Netherlands improved, during and/or due to the COVID-19 crisis. In this study we identified themes that may act as barriers or facilitators to cooperation: communication, interaction, trust, leadership, interests, distribution of care, and funding. During the crisis many facilitators were identified at clinical, professional and system level such as clear agreements about work processes, trust in each other's work, and different stakeholders growing closer together due to the pandemic circumstances. However, at an organisational and communicative level there were many barriers such as interference in each other's work and a lack of clear policies. Previous studies like Suter *et al.* determined principles of integration, such as the need for a population health focus in which an integrated healthcare system should be easy for patients to navigate, the importance of an integrated Electronical Health Record (HER), and the need for good financial management which allows pooling of funds across services. [25] Breton *et al.* concluded that the funding model is "inadequate for centering care around the needs of patients" [26] Lindner *et al.* observed the COVID-19 pandemic from a broader, European perspective and came to the conclusion that the pandemic has acted as an accelerator for redesigning and integrating care pathways. [27] Our research adds a new aspect: a shared sense of urgency is essential if better integration is to be achieved. The driving force behind all changes in integration of acute care organisations in an urban context during the COVID-19 crisis, seemed to be a great sense of urgency to cooperate in the shared interest of providing the best patient care.

To future-proof acute care in the Netherlands, we believe that we have to look into the entire system. Population age structure has been changing since the

1960s and as the population continues to age, the burden on a shrinking working force increases, a group which plays a significant role in supporting the well-being of an aging population. [28, 29] The complexity of these challenges is further increased by the need to offer high-quality care to a demanding population while keeping healthcare systems accessible and affordable. [30, 31] To ensure people remain in good health in the decades to come, new vision is needed regarding how the current healthcare system is organised and incentivised, and how people are directed through the system. To improve outcomes across the entire healthcare system, a transformation is needed from a reactive, curative 'Disease and Cure' approach to a more proactive, preventive societal 'Health and Wellbeing' perspective. [9, 30-32] A comprehensive international population health-value perspective has previously been summarised in the Triple Aim. To help achieve the Triple Aim, PHM is one strategy that providers-financiers of healthcare can use to guide systems change. We describe in **Chapter 6** a description of the willingness and readiness of six prospective regions in the Netherlands to implement PHM using the Plot model and guided by the Five Lenses Model. The study uncovered the potential for realisation of model aims, as assessed by an expert team, regarding shared ambition, mutual gains, relationship dynamics, organisational dynamics and process management. The exploratory questionnaire suggested that organisational dynamics is the least integrated topic in all prospective regions, followed by process management, a finding confirmed in focus groups. Many prospective regions had indeed already drawn up a regional vision. The topic of mutual gain revealed that it is still difficult to coalesce the entire group of stakeholders, as stakeholders from the various organisations did not feel a common responsibility. In terms of relational dynamics, many connections were very good, but with an ongoing need to focus on cultural change, boundary spanners and mutual trust. It was felt that competence to undertake action right away was lacking, and better organisational strength and knowledge concerning process management would be needed to really do things differently. Previous studies nevertheless show that there is a drive to roll out innovative models of healthcare globally, and the importance of being ready and willing to develop and progress new integrated models of care is reinforced by experience. [33-42]

Methodological considerations and recommendations for future research

In the following sections, methodological considerations and strengths and limitations of the study designs and assessment methods applied in this thesis are discussed, as well as opportunities for future research.

Our methodological framework as presented in **Chapter 2**, shows the necessity of a mixed-methods approach in which we combine the epidemiological rigor of a pragmatic cohort study with specific outcomes, follow up period and control

situations and a more action research-oriented approach of a learning system to assess the improvement of integration of organisations as a determinant of the Triple Aim outcomes. This method of evaluation differs from a more managerial blueprint implementation in which everything is recorded in advance. Instruments used in evaluation must provide insight into practical issues, validity is certainly important but adjustments are sometimes necessary to make it work in practice. The outcome is a more or less circular process that facilitates the continuous improvement the researchers call population health management. [15] Clearly, as there is a diversity in the acute care settings in the industrialized world, any framework should be adapted to country and region-specific factors. We recommended that the framework still needs to be applied in practice and may require modification to demonstrate validity. One challenge is maintaining a balance between the components of the Triple Aim. As these components are interdependent, changes pursued in any one goal might influence the remaining goals.[4] Another problem confronting larger projects is that the identification of a comparable group is difficult and may not be available. An additional major issue that must be considered during a project is the considerable effort required to measure the dimensions of the Triple Aim. During a project in the Netherlands presented in **Chapter 3** it emerged that data collection in acute care services was very demanding in the view of the multiple organisations that needed to cooperate within the multi-stakeholder network. As an example, a first report is received by the GPC, subsequently forwarded to the ambulance service, and all subsequent treatment by different care providers must eventually be retrieved from the GP's patient file once completed. As a result, projects of this type have often 'just' started, without scientific evaluation. To improve chances of success, the researchers suggest that a plan for data collection should be carefully thought-out before starting a project, as has been demanded by many authors before. [43, 44]

For most studies presented in this thesis, we used a mixed-methods design including questionnaire surveys, interviews, and/or focus groups (**Chapter 3, 5, 6**). There are several limitations in our questionnaire surveys that should be addressed to be able to put the results presented in this thesis into perspective. As no validated questionnaire already existed, able to measure experiences across the entire acute care network, we developed our own questionnaires based on other validated questionnaires. For example, in **Chapter 3** we developed a questionnaire based on three validated Dutch Consumer Quality Index (CQI) questionnaires (CQI ED, CQI ambulance care and CQI GPC). [45, 46] The questionnaire to measure care professionals' experiences consisted of the validated 'Leiden Quality of Work Life Questionnaire', further supplemented with project-specific questions. [47] A focus group was organised to allow in depth discussion and exploration of the cooperation topics and to give professionals

the opportunity to provide advice for further improvement. The relatively high drop-out rate in the retrieval of questionnaires among patients during the intervention, made interpretation of qualitative data difficult. However, the results offer a glimpse into experiences with acute care in the region. In **Chapter 5**, 22 stakeholders received a digital questionnaire based on topics of the validated Rainbow Model of Integrated Care (RMIC) Measurement Tool [48] to provide a baseline overview of which changes in integration took place during the COVID-19 crisis, secondary to the qualitative research. The loss of eight out of 22 requested surveys could potentially bias the results. There are threats to the validity of the questionnaire because of the low number of responses, the lack of evidence of validity and the lack of significant differences between the three time frames. As such, the questionnaire is intended to provide a baseline overview of the changes seen in integration during the crisis and is therefore secondary to the qualitative results. Strengths of this study include that we have explored integration at all levels of organisation using the RMIC as a framework for evaluating the acute care network as a whole, across more than ten different organisations. The methods and analyses are built upon strong theoretical frameworks concerning cooperation and integration. The mixed-methods approach, in which the questionnaire is used as a visual baseline, further strengthens the qualitative results together with the organized member check event on 16 September 2020 at which all participants were able to discuss preliminary results of the study. In **Chapter 6**, the key stakeholders of the six prospective regions received an online questionnaire designed to provide an exploratory baseline overview on the five building blocks of "Five lenses on cooperation model". [49] The questions were further developed with the help of the Plot model team. There was a low response rate for the questionnaire, which means the results may not be representative. However, again the questionnaire is intended to provide a baseline overview of the integration level of the prospective regions and is therefore secondary to the qualitative results. Another limitation is the fact that the researchers only interviewed a group of stakeholders who were selected by the key stakeholder depending on the burning platform (a specific population segment with a high risk of adverse outcomes) [50, 51] of that region and included only one or two stakeholders per organisation. Therefore, we advise further studies, for example a due diligence research.

Both studies presented in **Chapter 4 and 5** were conducted in an urban region of the Netherlands, and therefore some recommendations will not fully be applicable in other regions. For example, interviewees mentioned barriers deterring a visit to the own GP were mainly logistical, including not being registered with a GP, the GP was too far away, poor GP telephone accessibility or a waiting list for an appointment (**Chapter 4**). Another example is that interviews would like to see Primary Care Plus (PC+), a type of integrated care in

which GPs treating patients in primary care can consult medical specialists for advice, continued in the acute care setting beyond the COVID-19 crisis (**Chapter 5**). These issues varies regionally, and therefore we recommend further studies to propose region specific advices.

Future directions

We started the general introduction with the question: Is an ''acute care supermarket", as we use as a metaphor for full integration of acute care organisations, the path to increased efficiency? This thesis shows there are opportunities at all levels of integration and that we are obliged to seize these opportunities:

Opportunities for administrators and managers
The Triple Aim for acute care can be met using relatively simple interventions, but only if hospital administrators, managers, and colleagues first investigate what employees encounter before beginning a project. A ''top-down" approach can be successful, but collaboration between all levels is necessary for it to succeed. Keeping the story of Sam in mind, investigation into communication and Information Technology (IT) between the different acute care organisations is very important for improvement of coordination. During our evaluation to determine the added value of merging medical data from ambulance services and GPCs for acute care users, differences in satisfaction with the collaboration between different acute care professionals were often linked to issues such as a lack of understanding of the logistical details. Apparently, the project was not tested at a micro-level. At a meso-level, managers would do well to provide joint trainers and courses to improve collaboration, as well as more frequent meetings to gain a better understanding of each other's work. Before starting any project, merging of medical data is critical for proper monitoring of the implementation of these policies. Afterwards, a project can be sustainably implemented at the macro-level. Furthermore, a shared sense of urgency is essential for better integration. Our study during the COVID-19 pandemic identified both facilitators and barriers to the organizational dimension, such as lack of clear policies and communication between hospitals and the various nursing homes, unresolved issues leading to mistrust, and a misaligning of priorities between the different organisations. There are many opportunities for improvement of these issues. Functional aspects such as shared Electronic Health Record (EHR) and adequate funding were lacking and not successfully addressed during the pandemic, leading to the questioning whether the achieved extra integration for acute services would survive long-term in absence of a health crisis. We recommend shifting the post-crisis focus from overcoming the crisis to overcoming cooperative challenges.

Opportunities for acute care professionals

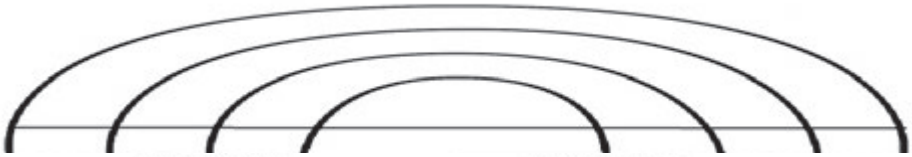
Stakeholders from all acute care organisations experience enormous pressure due to the shortage of personnel and growing influx of patients. The number of patients visiting acute care organisations inappropriately shows the need for improvement along these lines. Our study about self-referred patients to the ED shows a wide variety of motives and barriers leading to patients who are in fact in need for primary care going instead directly to an ED during daytime. This indicates that there is no straightforward solution to the high level of self-referral. Additionally, as patients reported that a variety of factors contributed to their decision, the same patients may require several different interventions. Providing clearer information about the Dutch healthcare system through a variety of channels may influence the factors contributing to patient self-referral to an ED. Interviewees had suggestions for the dissemination of information, such as a letter with information, a poster hanging in their GP's office, a television advertising campaign, or advertisements on YouTube, thereby improving patient knowledge and avoiding misconceptions regarding their personal complaints and their knowledge of GP competencies. Better information about a GP's emergency telephone accessibility and providing examples of the types of emergencies that can be handled by a GP may help improve the image of GP accessibility. Furthermore, our study during the COVID-19 pandemic shows some other opportunities for acute care professionals as well. Eventual future goals for the GPC include a partly fixed group of GPs at the GPCs, clear agreements about task allocation between GPs, Nurse Practitioners (NPs) and medical assistants to facilitate better cooperation. Furthermore, many stakeholders would like to see Primary Care Plus (PC+), continued in the acute care setting beyond the COVID-19 crisis. They added that it would be very helpful to include elderly care physicians and psychiatrists in that structure as well. Stakeholders expressed a desire for better integration of different EHRs. A desire for an investment into more digital solutions such as digital triage and consultations was also mentioned. Several participants mentioned that it would be good to invest in more interprofessional education, to discuss calamities together with all involved organizations, and to continue structural meetings between professionals after the crisis.

Opportunities for my future colleagues: GPs trainees

The healthcare landscape is changing and our work will change with it. The mismatch in care supply and demand which already exists will only increase in the years to come. One of our studies shows that pressure on acute care also arises from organisational issues in – and misapprehensions concerning daytime regular general practice. Interviewees named barriers leading to their deterring a visit to the own GP as mainly logistical, including not being registered with a GP, the GP being too far away, poor GP telephone accessibility,

or needing to join a waiting list for an appointment. There is an association between GP accessibility and the number of people who self-referred to the hospital, along with a shortage of all employees working in General Practice. In order to further improve acute care, these problems too must be solved, demanding our best creativity, flexibility and calls for further research.

Recommendations for future research: the supermarket model



	Normative integration	Functional integration
Clinical	The patient as most important common interest Clear agreements about work processes Structural moments for feedback The feeling of a common responsibility Communication managerial levels and workplace Trust in each other's work Understanding of each other's challenges Positive work environment Learning curve Shared trainings and activities	Central triage Insert in the right healthcare professional Coordination patient outflow A common registration point Digital solutions: electronic health records and consultations Availability and telephone accessibility General practice during daytime Primary Care Plus in acute care
Professional	The patient as most important common interest Interprofessional education Discuss calamities across organisations Structural meetings Trust	Shared protocols Interprofessional governance
Organizational	The patient as most important common interest Providing clear information about the Dutch healthcare system Shared vision Clear policies and communication Existing problems need to be solved A good platform for discussion (e.g. ROAZ) Frequent contact Transparency (e.g. in capacity) Trust Urgency and dependency Mutual gain	Sharing of personnel Shared service-management Structural evaluation of function of the network A good distribution of care One representative for all various organisations in a region: "Too many cooks spoil the broth"
System	The patient as most important common interest Cooperation patient association Communication managerial levels and insurers Insurers close to the acute care network	A regional market leader for all different insurance companies with a facilitator role Funding system that facilitate integration (not competition)

Figure 1. Elements of an '' acute care supermarket''

''An acute care supermarket'', as a metaphor for full integration of acute care organisations, is still years off. Our study during the COVID-19 pandemic shows that the integration level between the participating organisations was lower at the time of the study (between aligned and coordinated) along all six integration levels, than the preferred situation (between coordinated and completely integrated). Future research has to establish whether such a full integration is truly desirable and reachable. Our studies found important elements that would argue for this supermarket model at all levels of the RMIC, shown in figure 1. Some elements are already fully embedded in the collaboration in some regions, while others are already partially applied but still require further expansion, and still many other issues are stakeholders' dreams for the future, mentioned during our studies. Future research is needed to further explore these elements, to add other important elements, and to evaluate new interventions. To date, acute care initiatives applied only one or a few elements from the model at the same time, but all elements from the model have never been used simultaneously. One of our studies showed that the participating stakeholders preferred combining and coordinating acute care as much as possible to realise this integrated vision of acute care. To make this dream come true, we recommend new intervention initiatives that include all the elements simultaneously. Our methodological framework for evaluating transitions in acute care services in the Netherlands can be used as guidance to provide a clear and accessible evaluation of various new intervention initiatives. To provide insight into the integration level between acute care organisations, our practically developed applicable tool named the 'Integration monitor Care coordination' will be useful once validated.

Overall conclusion

The future directions explored in this thesis may contribute to further improvement of acute care at all integration levels to maintain accessibility in the future. Findings from this thesis can also be used to set up larger studies concerning integration of the acute care on larger-scale with more involved stakeholders and patients to confirm and further explore our results.

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