Quality and organisation of acute care in internal medicine

IMPACT

This chapter reflects on the primary objective of this dissertation, the societal and scientific relevance, the dissemination of the findings and the future use of the results.

Objective and Main Findings

The primary objective of this dissertation is to identify the organizational structure of acute care in the Netherlands, particularly regarding internal medicine patients; to evaluate the perceived quality of care by patients and to systematically assess outcomes of acute care for internal medicine patients in order to optimise the organisation and quality of acute care.

The main findings can be divided in three categories:

1. Organisation
   This dissertation shows that the organisation of acute care for internal medicine patients in the Netherlands is heterogeneous. Physical presence of internists in the ED differs as well as their roles and working agreements with Emergency Physicians. Lessons can be learned from comparing the Dutch organization of acute care to the British model. For instance, ambulatory emergency care is barely implemented in the Netherlands, but may help to diverge patients to outpatient departments and relieve pressure on EDs.

2. Perceived quality
   We describe the process of development of the Patient Reported Measure-acute care for internal medicine patient. This PRM is established based on five relevant domains, namely relief of symptoms, understanding the diagnosis, having and understanding the treatment plan, reassurance and experiences. All domains were graded equally important. Additionally, the PRM-acute care was validated in Dutch internal medicine patients presenting in two Dutch EDs. Furthermore, we demonstrated that asking patients "what matters most and why?" is feasible in acute settings and this provide information about the person behind the patient, which can be used in shared decision making.

3. Quality registry
   We created a quality registry on internal medicine patients presenting in Dutch EDs. The initial data were collected in one hospital and the completeness of data was deemed adequate. In addition, the real-time performance of the ED was insightful via an online dashboard.

Scientific Impact

Acute internal medicine is a relatively new speciality in the Netherlands. As a consequence, to date, research in this area is rather comprehensive. The studies in this dissertation have added to the scientific knowledge about acute care for internal medicine patients in several ways. First, we provided a detailed overview of the organisation of care for these patients, which has never been assessed before. This knowledge is important in the light of evaluating the quality of care and more specifically, the impact of the various organisational models on quality or ED-performance. We showed that the organisational structure in acute care for internal medicine patients in The Netherlands is heterogeneous. When assessing the quality of acute care or the impact of quality improvement projects, our work can be used as a reference.

Second, we are the first research group developing Patient Reported Measures for internal medicine patients in acute care and thereby providing a basis to evaluate patients' values in acute care and the perceived quality of the care delivered. As Value Based Health Care is becoming more and more important in the Netherlands, the PRM-acute care can serve as a measurement instrument to improve the value of acute care for patients. Moreover, we provided the basis to start more profound research on outcomes incorporating the patient's perspective in acute care. Additionally, we evaluated internationally what matters most to acutely admitted patients, resulting in a broad insight in patients' values during an acute admission such as getting home or getting better. More importantly a deeper understanding was achieved by questioning "why" these categories mattered. Therefore, we recommend to ask every single admitted patient the question *what matters to you and why*, aiming to get to know the person behind the patient and deliver patient-centered care. This type of qualitative research added another perspective on quality in acute care and contributes to a more divers palette of research subjects in acute care.

Third, we created a quality registry on internal medicine patients presenting in Dutch EDs which was the first attempt to assess the quality of care for acute internal medicine patients on a regular basis in the Netherlands. The first results provided insight in the ability to use Electronic Health Record data for quality assessment as well as its restrictions. Furthermore, the ED performance was made insightful via an online dashboard, which could be used to identify the impact of quality improvement projects. For instance, the number of revisits to the ED in recently discharged patients was identified as a possible subject for quality improvement. Near upon, when several hospitals participate, this registry will primarily be used to compare ED performance. Furthermore, scientific questions may also be answered using the collected data of all participating hospitals.

Societal Impact

This dissertation has provided an overview of the organisational structure of acute care for internal medicine patients. This overview can be used in nationwide discussions about organizing acute care. In our opinion it highlights that regional differences exists, plausibly for a reason, and therefore striving for 'one size fits all' model in the organization of acute care may not be optimal. Given that some policymakers in the Netherlands call for centralisation and uniformation of the EDs, this dissertation shows another perspective which can contribute to a discussion incorporating local and regional differences regarding the organization of acute care.

Furthermore, we introduced a new method to evaluate and improve the patient's value in acute care, namely the PRM-acute care. When implementing this measurement instrument on a structural basis in acute care, the patient's perspective will play a central role in evaluating and improving acute care for internal medicine patients. Additionally, the PRM-acute care provides physicians the opportunity to directly intervene and optimize care for patients who are unsatisfied with the care received. For instance, explaining the diagnosis in another way or using the teach-back method when the understanding of the diagnosis was scored as inadequate.[1] Therefore, the PRM-acute care may lead to improvement of the quality of care on an organizational level, but also on a personal level.

Our international study on "what matters most" in acutely admitted patients, emphasized the need to get to know the person behind the patients instead of treating the disease alone. It made doctors aware that solely diagnosing and treating the disease is not sufficient to achieve patient-centred care. This study showed that two simple questions can help to start a conversation about the patient's values and wishes. We believe that the use of these questions in acute care can help to provide the care tailored to the unique patient in front of you, guiding the shared decision making process and therewith ultimately serving as a cornerstone to provide care and treatment meaningful to patients.

Finally, the creation of a quality registry will contribute to a structural evaluation of the quality of acute care for internal medicine patients. Using the data and outcomes in this registry will lead to optimalisation of the delivery of acute care for this growing number of patients. For instance, identifying patients who revisit the ED may lead to an increased attention for this patient group, leading to the start of quality improvement projects aiming to decrease of the number of revisits, which will be beneficial to all patients. Moreover, our registry can create insight which patients benefit the most from an ED-visit, or identify those who are most at risk of adverse outcomes and improve the care for these patients.

Dissemination of Findings

Several channels have been used to share the findings of this research with researchers, (acute) internists, scientific associations, policy makers and other relevant stakeholders. Of the seven articles in this dissertation, six have been published in international, peer-reviewed journals and the seventh article has been submitted for publication as well. Five articles have been published open-access, which means that they are accessible free-of-charge. Furthermore, the main findings of the performed studies have been presented at various national and international conferences, amongst others twice at the international conference of the Society of Acute Medicine (SAM), the national conference of the Netherlands Association of Internal Medicine (NIV) and Dutch Association of Internists Acute Medicine (NVIAG).

Also, the main findings and some study protocols have been discussed within the Dutch Acute Medicine Research Consortium (ORCA). All of the above mentioned channels are used to reach researchers and internists (acute medicine) in particular.

Aiming to reach policymakers, the majority of findings regarding the organizational structure of acute care were spread amongst acute care committees within the Netherlands Association of Internal Medicine, Dutch Association of Internists Acute Medicine and the Dutch Federation of Medical Specialists. Additionally, this input has served as a basis for the implementation of the strategic vision regarding acute care within the Netherlands Association of Internal Medicine and was taken into account in the discussion regarding the quality standard of the Dutch acute care chain.

The dissemination of findings concerning the PRM-acute care took place internationally by conferences and in online meetings with interested researchers, including members of the Quality Improvement committee of SAM. Nationally, implementation of the PRM-acute care is being established, aiming to connect with the Value Based Health Care project of the Dutch Foundation of University Medical Centres (NFU). Also, the PRM-acute care has been shared with the Netherlands Patients Federation.

Additionally, the results of the quality registry project will be shared via several routes. First, this project is coordinated by a project group and supervised by a steering committee. The steering committee consists of internists acute medicine, an internist elderly care, a consultant of the Netherlands Patients Federation, consultants of the Netherlands Association of Internal Medicine and delegates of MRDM. This composition serves a broad supported decision making process and a wide dissemination of findings. Furthermore, the participating hospitals gain insight in their ED-performance via an online dashboard and are able to compare these results to a benchmark, based on data from all participating hospitals. Also, we are

aiming to organise meetings with health care professionals and/or quality officers from all participating hospitals to evaluate and interpret the results, discuss possible quality improvement projects and learn from each other. Potentially, these meetings can also be organised for board members of the Netherland Association of Internal Medicine and the Dutch Association of Internists Acute Medicine, with the aim of using the results of ED-performance in their policy regarding acute care. Lastly, meetings with Emergency Physicians representing the "Netherlands Emergency department Evaluating Database" are still taking place, in order to combine forces by connecting databases and working together in the evaluation and optimisation of acute care in the Netherlands.

The organisation and the quality of acute care in the future

The results of the studies in this dissertation have provided a foundation for future research in acute care for internal medicine patients, specifically regarding the organization and quality of this care. We highlighted that the organization of acute care for internal medicine patients is heterogeneous, the incorporation of the patient's perspective evaluating quality is possible and we started a structural evaluation of the quality of care for internal medicine patients.

At this point, several plans are made to ensure continuation within this specific field of research. First, it would be of interest to evaluate the interprofessional collaboration between EPs and internists as we showed that working agreements and the evaluation of Emergency Physicians (EPs) by internists differ between hospitals. It is known that interprofessional collaboration affects the delivery of health services, patient care and safety and therewith the quality of care.[2-4] Additionally, it is worthy to evaluate the influence of the presence of an internist acute medicine on this interprofessional collaboration.

Second, aiming to incorporate the patient's voice in acute care and its daily practice, we plan to continue with the PRM-acute care research, starting with a feasibility study. During the validation study, students and researchers were needed to introduce the questionnaire. However, for implementation of the PRM-acute care in daily practice, it is necessary that the healthcare staff is able to provide the questionnaire to the patient at the ED. Thereafter, validation of the PRM-acute care in a bigger cohort is planned given the relatively small cohort in our first study, which was due to the Covid-19 pandemic. Finally, we plan to validate the PRM-acute care cross-cultural, which creates possibilities for international use of the PRM-acute care and therewith evaluate and compare the perceived quality of acute care on an international level. Additionally, we think about validating the PRM-acute care in other patient groups, for instance all patients at the ED or AMU, after potential adjustments of the questionnaire.

Lastly, the quality registry for acute and internal medicine, will be continued and data of several hospitals will be collected. We aim to compare ED-performance between these hospitals, incorporating patient characteristics and organisational characteristics. This information will be used to optimise acute care for internal medicine patients in general, but also for specific patient groups within this cohort. For instance, it would be possible to identify patients most at risk for adverse outcomes or revisits. Furthermore, we hope to connect medical outcomes and patient reported outcomes in our registry, so that it will be possible to evaluate the quality of care from multiple perspectives.

We believe that this thesis is a solid foundation for future research in acute care for internal medicine patients, and can inspire researchers to expand knowledge in this specific patient group. Collaborating with other specialties present in the acute care is highly recommended, as acute care is delivered in a chain and most optimal when working together.

REFERENCES

1. Mahajan, M., Hogewoning, J.A., Zewald, J.J.A. *et al.* The impact of teach-back on patient recall and understanding of discharge information in the emergency department: the Emergency Teach-Back (EM-TeBa) study. Int J Emerg Med 2020;13**,**49
2. Reeves S, Pelone F, Harrison R, Goldman J, Zwarenstein M. Interprofessional collaboration to improve professional practice and healthcare outcomes. Cochrane Database Syst Rev 2017 Jun 22;6:CD000072.
3. van Leijen-Zeelenberg JE, van Raak AJ, Duimel-Peeters IG, Kroese ME, Brink PR, Vrijhoef HJ. Interprofessional communication failures in acute care chains: How can we identify the causes? J Interprof Care 2015;29(4):320-330.
4. Lillebo B, Faxvaag A. Continuous interprofessional coordination in perioperative work: an exploratory study. Journal of Interprofessional Care 2015;29(2):125-130.