

The Impact of COVID-19 on Chronic Care: A Qualitative Study Among Primary Care Practices in Belgium

Katrien Danhieux (✉ katrien.danhieux@uantwerpen.be)

Universiteit Antwerpen <https://orcid.org/0000-0001-6064-5335>

Veerle Buffel

Universiteit Antwerpen

Anthony Pairon

Universiteit Antwerpen

Asma Benkheil

Universiteit Antwerpen

Roy Remmen

Universiteit Antwerpen

Edwin Wouters

Universiteit Antwerpen

Josefien Van Olmen

Universiteit Antwerpen

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Abstract

Background. The COVID-19 pandemic affects the processes of routine care for chronic patients. A better understanding helps to increase resilience of the health system and prepare adequately for a second wave or flare-ups of the pandemic.

Methods. A qualitative study was conducted in 16 primary care practices: 6 solo working, 4 monodisciplinary and 7 multidisciplinary. 21 people (doctors, nurses, dieticians) were interviewed, using semi-structured video interviews. A thematic analysis was done using the domains of the Chronic Care Model (CCM).

Results. Three themes emerged: changes in health care organization, risk stratification and self-management support. All participating practices reported drastic changes in organization with a collective shift towards COVID-19 care, and reduction of chronic care activities, less consultations, and staff responsible for self-management support put on hold. A transition to digital support did not occur. Few practitioners had a systematic approach to identify and contact high-risk patients for early follow-up. A practice with a pre-established structured team collaboration managed to continue most chronic care elements. Generally, practitioners expected no effects of the temporary disruption for patients, although they expressed concern about patients already poorly regulated.

Conclusion: Our findings show the delivery of chronic care as disrupted. It indicates that the establishment of the CCM can facilitate continuity of care in crisis times. Short term actions should be directed to facilitate identifying high-risk patients and to develop a practice organization plan to organize chronic care and use digital channels for support, especially to vulnerable patients, during a second wave or in flare-ups.

Background

Resources at all levels have shifted away from chronic disease management and prevention during the outbreak, and the lock-down of many services has translated into reduced access, a decrease in referrals and reduced hospitalisations of patients with non-COVID-19 pathology⁶. Scattered reports suggest chronic patients have used alternate pathways or have postponed health care seeking⁷. In addition, patients have less options for community-based support and care. This leads to a serious concern about the indirect health footprint of COVID-19, especially on chronic diseases with increased complications and accelerated progression due to delayed and diminished access to secondary care and to a disruption in follow-up at primary care level.

These concerns indicate the need for an analysis of chronic care adaptation during the COVID-19 pandemic. Primary care providers have been struggling how to organise chronic care amidst the peak of the outbreak, when infection risk was high and resources extremely tight⁸. Pressure of COVID-19 on primary care is well documented, but the associated adaptation for chronic care is less so⁹. Chronic care models are based upon productive and active interactions between a patient, their informal care givers and the health care team, facilitated by a strong health care organisation and community embedding. How is such a model adapted in a context of a pandemic, in which the danger for serious and widespread infections absorbs most resources, and drastically changes the physical and social context in which to deliver care and support? How do primary care providers adapt their chronic care models to emerging crisis situations? How is the workforce adapted and what is prioritized? And what can we learn from these responses for the resilience of chronic care models?

This paper addresses this gap by examining the primary health care response among primary care providers in Belgium. The study aims to examine how both content and delivery of chronic care is being affected by the

pandemic. Better understanding can enable us to identify ways to increase the resilience of the health system and be better prepared for flare-ups of the COVID-19 epidemic and other emergency situations.

Methods

Context and study population

This study was performed among primary care practices in Belgium. Belgium has registered an estimated 842,2 deaths per million inhabitants in the beginning of June¹⁰, and the all-causes excess mortality is the highest in Europe after Spain and England, almost double that of the USA. 5 weeks after the first confirmed case in Belgium, the federal government in collaboration with the National institute of Public Health Sciensano issued an emergency plan for general practice with guidelines that stated to postpone all non-urgent care and to start triage centers¹¹ for COVID-19-suspected complaints. After emergent signals of an increasing burden on emergency units of non-COVID-19 patients with urgent problems having postponed needed care, the guidelines explicitly allowed the provision of chronic and psychiatric care¹² if urgent and to prevent worsening. 6 weeks thereafter, general practices were allowed to re-open for non-urgent care, provided they maintained strict COVID-19-prevention and hygiene measures. With the introduction of the emergency plan, teleconsultations became permitted and remunerable, a novelty that had been postponed since many years. Suddenly, physicians were now expected to triage patients with complaints by phone. But teleconsultations were also explicitly allowed to guarantee the continuity of care for patients with chronic diseases.

The study was an additional study embedded in a larger study on the scale-up of integrated care for diabetes and hypertension, SCUBY¹³. For the current study General practitioners (GPs) were recruited in a semi-rural area in the northern part of Belgium (Flanders). General practitioners work traditionally as self-employed providers in small practices, but over recent eras more practices are being transformed into small multidisciplinary group practices. Data collection occurred until data saturation, which was reached after twelve interviews. Purposive selection was done to recruit an equal number of GPs from different types of practices: solo working, monodisciplinary group practices and multidisciplinary group practices (with at least one nurse or a dietician).

Data collection and analysis

Because of the COVID-19 related restrictions, interviews were held via a secured online video connection by 2 researchers. The interviews took place from over a 6 week period, starting in week 12 of the epidemic, three weeks after the initial peak. All interviews were recorded, transcribed verbatim and independently analyzed by the two first authors. The interview guide contained questions about chronic care for diabetes and hypertension and an additional part with 12 questions about changes in care organization as a result from the COVID-19 (appendix 1).

A thematic analysis was done using the elements of the Chronic Care Model (CCM)¹⁴: processes and incentives to improve the care delivery system; self-management support; team function and practice systems; evidence-based guidelines and implementation support; and information systems to facilitate the development of disease registries, tracking systems, and reminders and to give feedback on performance. The COREQ checklist was filled to assure complete reporting (appendix 2)

Results

16 primary care practices were selected: 5 solo working, 4 monodisciplinary and 7 multidisciplinary. Within these practices, 21 people were interviewed: 3 dieticians (all female), 2 nurses (all female) and 16 GPs (mixed female and male). An overview of the participants is provided in appendix 3. Three major themes emerged: a) changes in health care organization; b) risk stratification; and c) self-management support.

Changes in the health care delivery system and team approach

As consequence of the emergency plan and because of fear among patients, there was a general drop in consultations for chronic care. In all primary care practices, the initial response was a re-organization with a focus on securing access to and safety of acute care with much attention to COVID-19 suspects. This entailed telephonic consultation and collaboration with triage posts for patients with COVID-19 suspected symptoms and the re-organization of the practice in line with the hygienic guidelines to enable access for patients with acute non-COVID-19 related health problems. This absorbed most time and energy, leaving little room to consider anything else.

'In the beginning it was also very busy, so we just tried to do the most urgent.' (IV 7)

The majority of primary care practices did not plan the (re-)organization of chronic care.

Nurses and dieticians were frequently put on temporary unemployment by the practice owner due to a loss of revenues following the drop in consultations and their services considered 'not essential'. However, practices with an established culture of dialogue took a more systemic approach with team meetings about organization and patients.

'Throughout the corona pandemic, so for seven weeks now, we have been meeting every afternoon for an hour about our patients, about the care, about the triage center, about having enough material, about cases, about yes, suicidal patients, about everything and more. Every day for an hour, so I think we are very alert for that and are fiercely engaged in doing the best possible care in this difficult period.' (IV10)

Collaboration and concertation with medical specialists was more difficult for non-acute matters, also because not all referral centers communicated clearly about their changes in schedule and way of working. Access for acute care was no problem.

Risk stratification

Few GPs had made a selection of high-risk patients to proactively contact for early follow-up once possible. Most respondents recognized the value of such approach, but they mentioned barriers such as a lack of time and staff, ethical objections, and a limited capacity to use the Electronic Medical Record (EMR) system.

'I have a problem with people calling patients myself. There are colleagues who do that, but I have a bit of a problem with that. I have a regular audience, they will come.' (IV8)

An important reported facilitator for pro-actively contacting patients was the availability of a list of the high-risk chronic patients extracted from the EMR, which was present in some larger group practices. GPs in solo practices indicated that they know their patients personally and that they would be able to identify high-risk patients by heart. When asked for examples of such patients, they mentioned those receiving home visits, of very old age, those not

well-controlled, with recent change of medication, or patients reporting difficulties. GPs would approach such high-risk patients for a face-to-face consultation at their home or at the practice.

'Firstly, we have coded everyone in our practice with chronic pathology: hypertension, diabetes, COPD, asthma. It has been very easy for us to draw lists. We also exported lists of patients with depression and oncological disorders. We started by calling the diabetes lists: if you get sick or if you feel anything contact us.' (IV13)

In contrast to GPs, the dieticians interviewed stated the intention to contact all their clients for renewed appointments as soon as possible. This would also compensate for their unemployment during COVID-19.

Self-management support

The new option of teleconsultation provided primary care practices with a potential tool to monitor and support patients with chronic diseases from a distance. However, most respondents said to mainly use these teleconsultations to prescribe medications and to get a quick overall impression of the patient.

'[...] actually, just verify how it's going. Are there any special complaints? Are they more tired? Can they still do their normal daily routine? Aren't they anxious with this corona virus?' (IV3)

They had various reasons to resist to real phone or video consultations. A frequently given answer related to unfamiliarity with this way of doing consultations and the perceived inability to assess patients well. Other arguments were the preference of patients, the lack of perceived need and the lack of time because of long-lasting COVID-19-related consultations.

'I cannot follow diabetes from a distance. I need to take lab tests, measure blood pressure.' (IV8)

'I did ask if they wanted it by phone or skype. But there are actually very few who have responded to that.' (IV9)

In addition, self-management support was usually provided by the nurse or dietician, but due to the lower revenues, these staff members were put on temporary unemployment.

'A nurse has not been able to work all the time, because everything a nurse does is not urgent or not essential or not life-threatening, or how should I put it.' (IV10)

Perceptions on the changes and effects on chronic patients

Respondents indicated that for the large majority of previously well-managed chronic patients the consequences of the COVID-19 outbreak and the associated re-organization of primary care would be limited. They argued that missing only one consultation is not problematic.

'Most of those who follow the quarterly check-ups and are stable, are not going to suddenly get worse.' (IV21)

However, there were worries about the effects on some patients, specifically those with socio-economic problems, whom they expected to experience more distress from COVID-19 and the lockdown. GPs mentioned that for these people, more unhealthy food and especially less physical exercise would probably be important causes of diabetes getting out of control.

'Because you know a lot of patients have had a lot less exercise than normal. They've only been able to find their salvation in the fridge. So in terms of pounds and exercise, that's been dramatic for a lot of patients in the last few weeks.' (IV12)

Most primary care practices were quite satisfied with the way their practice was organised and were proud of all the work they had done. Therefore, they did not plan on taking other measures next time, besides increasing their stock of protection material.

'I think that we as general practitioners and certainly we as a practice do that super well, and I think that from the side of the government some other things might have happened there.' (IV10)

Discussion

This study examined how primary care practices in a highly affected area in Belgium organized services for chronic conditions like diabetes and hypertension during the COVID-19 pandemic. Our findings show that the delivery of chronic care was severely disrupted.

We learned that most examined practices were not able to adjust quickly to changing circumstances. To reach the most vulnerable and frail chronic patients and to keep them as healthy as possible, risk stratification within a practice population is essential. The Kaiser Permanente's 'triangle' disease management model, focusing on intensive care and support of people with complex chronic conditions¹⁴, may be used as an example. In the case of a new emergency, good record keeping and listing the patients in strata could help to keep in contact with these chronic patients. Pro-active measures may then be taken, using innovative techniques like telemedicine as a mitigation strategy as proposed by the World Health Organization. The potential of mobile and digital self-management support channels for patients can be further promoted especially among the pre-identified vulnerable patients¹⁹.

The limitations of our study encompass the selection of our sample population and the lack of quantitative data of the care process and follow-up parameters. We sampled practices in one region in Belgium (Flanders), but a large variance of infection rates across the various regions exists as in the neighboring countries like the Netherlands²⁰. The experiences of the chronic patients were also beyond the scope of the present study. The strength of our study is that we interviewed different members of a range of primary care practices.

Primary care should prepare for new flare-ups or even a second wave in the medium term. Our qualitative study deepens the knowledge of how primary care practices vary in their organization of care in times of a pandemic. We suggest primary care practitioners to better identify the chronic patients in their patient population, and to proactively plan the steps to be taken in order to keep track of them, using a team-based approach. The study results generated two important pathways to achieve this: (1) a more systematic implementation of the CCM and (2) the establishment of a stable financing structure supporting staff (nurses and dieticians) so that they can play a role in managing chronic patients in times of a crisis. This will help to quickly switch between acute and chronic services and will improve continuity of care.

Conclusions

This study shows that the COVID pandemic affected the continuity of chronic care drastically. Face-to-face consultations had to be ceased and focus shifted towards COVID care. In most practices there was no proactive

reach out to patients with chronic diseases and multidisciplinary teamwork was pushed to the back burner. Otherwise, some good hope is present, as practices with reliable pre-existing structures did notably better. Important ways to improve are implementing the CCM through stratification of the patients according to their needs and planning ahead in anticipation of flare-ups or a second wave.

Abbreviations

CCM	Chronic care model
GP	General practitioner
EMR	Electronic medical record
COPD	Chronic obstructive pulmonary disease
GDP	Gross Domestic Product

Declarations

Ethics approval and consent to participate

Ethics approval was received for the larger study by the Ethical committee of the University Hospital Antwerp with number B300201941020. Due to the COVID pandemic the interviews were switched to on line video interviews. The consent to participate was given verbally, due to feasibility reasons in an on line interview. The ethical committee approved the change of the procedures.

Consent to publish

The information about participants and the used quotes cannot be used to identify the participants and therefore do not compromise anonymity.

Availability of data and materials

The data that support the findings of this study are available on request from the corresponding author KD. The data are not publicly available due to them containing information that could compromise participant privacy.

Conflicting and Competing Interests

The authors declare that they have no competing interests.

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Authors' information

KD (MD, female) is general practitioner and PhD candidate.

VB (PhD, female) is medical sociologist

AB (female) is Master's student in Medicine.

AP (MD, male) is resident in general practice.

RR (MD, PhD, male) is professor in general practice and general practitioner

EW (PhD, male) is professor in sociology

JVO (MD, PhD, female) is professor in general practice and general practitioner

Author's contributions

KD, VB, RR, EW and JVO designed the study together. KD, VB and JVO compiled the interview guide. KD and VB piloted the interviews and collected the data. AP and AB transcribed the interviews. KD, VB, AP and AB performed the background literature research. KD and VB analyzed the interviews and drafted the results section. KD drafted the methods section. JVO, RR and EW drafted the discussion and introduction section. All authors contributed in the final manuscript and approved it.

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References

1. Tracking covid-19 excess deaths across countries. *The Economist*. <https://www.economist.com/graphic-detail/2020/04/16/tracking-covid-19-excess-deaths-across-countries>. Accessed June 21, 2020.
2. Centers for Disease Control and Prevention. Excess Deaths Associated with COVID-19. https://www.cdc.gov/nchs/nvss/vsrr/covid19/excess_deaths.htm. Accessed June 23, 2020.
3. Wang B, Li R, Lu Z, Huang Y. Does comorbidity increase the risk of patients with COVID-19: evidence from meta-analysis. *Aging*. 2020;12(7):6049-6057.
4. Shahid Z, Kalayanamitra R, McClafferty B, et al. COVID-19 and Older Adults: What We Know. *Journal of the American Geriatrics Society*. 2020;68(5):926-929.
5. World Health Organization. Information note on COVID-19 and noncommunicable diseases. <https://www.who.int/publications/m/item/covid-19-and-ncds>. Accessed June 21, 2020.
6. Fagan M. 'Huge fall' in non-Covid hospital admissions and attendances. *Irish Examiner*. May 01, 2020.
7. Verhoeven V, Tsakitzidis G, Philips H, Van Royen P. Impact of the COVID-19 pandemic on the core functions of primary care: will the cure be worse than the disease? A qualitative interview study in Flemish GPs. *BMJ Open*. 2020;10(6):e039674.
8. Baird B. How has general practice responded to the Covid-19 (coronavirus) outbreak? *The Kings Fund*. <https://www.kingsfund.org.uk/blog/2020/04/covid-19-general-practice>. Accessed June 21, 2020.

9. COVID-19 Eerste Lijn Barometer. *Vlaams Instituut voor de Eerste Lijn*. [COVID-19 Primary Care Barometer. *Flemish Institute for primary care*.] <https://www.vivel.be/covid19monitoring/project/>. Accessed June 21, 2020.
10. Coronavirus tracked: has the epidemic peaked near you? *The Financial Times*. <https://ig.ft.com/coronavirus-chart/?areas=bel&areasRegional=usny&areasRegional=usnj&cumulative=1&logScale=1&perMillion=1&values=deaths>. Accessed June 10, 2020.
11. van Olmen J, Remmen R, Van Royen P, Philips H, Verhoeven V, Anthierens S. Regional coordination and bottom-up response of general practitioners in Belgium and the Netherlands. *BMJ*. 2020;369:m1377.
12. Sciensano. COVID-19 procedures. <https://covid-19.sciensano.be/nl/covid-19-procedures>. Accessed April 01, 2020.
13. Scaling up an integrated care package for diabetes and hypertension for vulnerable people in Cambodia, Slovenia and Belgium. *SCUBY*. <https://www.scuby.eu/>. Accessed June 21, 2020.
14. Bodenheimer T, Wagner EH, Grumbach K. Improving Primary Care for Patients With Chronic Illness. *Jama*. 2002;288(14):1775-1779.
15. Sunaert P, Bastiaens H, Feyen L, et al. Implementation of a program for type 2 diabetes based on the Chronic Care Model in a hospital-centered health care system: "the Belgian experience". *BMC health services research*. 2009;9:152.
16. Van Durme T, Macq J, Anthierens S, et al. Stakeholders' perception on the organization of chronic care: a SWOT analysis to draft avenues for health care reforms. *BMC health services research*. 2014;14(1):179.
17. Paulus D, Van den Heede K, Gerkens S, Desomer A, Mertens R. Development of a national position paper for chronic care: Example of Belgium. *Health Policy*. 2013;111(2):105-109.
18. Paulus D VdHK, Mertens R. *Organisatie van zorg voor chronisch zieken in België: ontwikkeling van een position paper*. Brussel: Federaal Kenniscentrum voor de Gezondheidszorg (KCE).2012. [*Organization of chronic care in Belgium: development of a position paper*. Brussels: Federal Knowledge Center for Healthcare (KCE). 2012]
19. World Health Organization. COVID-19 strategy update. https://www.who.int/docs/default-source/coronaviruse/covid-strategy-update-14april2020.pdf?sfvrsn=29da3ba0_19&download=true. Accessed June 22, 2020.
20. Schers HvW, Chris; Van Boven, Kees; Bischoff, Erik; olde Hartman, Tim. The COVID-19 pandemic in the Netherlands: Impact on primary care. *Annals of Family Medicine, COVID-19 Collection*2020.

Supplementary Files

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- [TheimpactofCOVID19onchroniccareappendix2.docx](#)
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