Transforming Integrated Care in the Community (TICC)

EVALUATION REPORT 2017-2022

Interreg

EUROPEAN UNION

2 Seas Mers Zeeën

TICC

European Regional Development Fund

The Health and Europe Centre is the Lead Partner working with thirteen project partners:

The Health and Europe Centre

BUURTZORG

Kent County Council
kent.gov.uk

NHS
Kent Community Health
NHS Foundation Trust

MCH
medway community healthcare

Association Loi 1901
SOIGNONS HUMAIN

public world
democracy at work

Zorgbedrijf Antwerpen

Ten Kerselaere
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emmaüs

eurasanté
Invest for Success

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Summary

The Interreg 2 Seas funded project Transforming Integrated Care in the Community (TICC) focused on the implementation of an integrated nurse-led community-based care model based on the Buurtzorg model. TICC aimed to enable health and social care organisations to implement nurse-led community care, increase staff productivity, recruitment and retention as well as improvement of patient satisfaction and autonomy. On the other hand, the project also aimed to decrease costs, emergency admissions and staff absences. The evaluation described in this report focused on care staff, patients, and informal caregivers during the implementation of the TICC model in the United Kingdom, France, and Belgium.

Various research methods were used to gain a better understanding of the effect working according to the TICC model. First, a literature review was conducted to identify facilitators and barriers for professional-led community care, that included policies, law, financial modelling, educational aspects and nurse-based knowledge and methods. The results formed the basis for the evaluation strategy and gap analyses. To measure the implementation readiness of participating organisations at the start of the project, three gap analyses were performed. Seventeen focus group discussions were conducted with care staff to gain insight into the experiences of implementing the TICC model and to demonstrate cultural differences between participating countries. Quantitative surveys were held among patients, care staff and informal caregivers. For patients, to measure satisfaction, autonomy, quality of life and length of care. For care staff, to measure psychosocial risk factors, empowerment and staff retention. For informal caregivers, to measure burden of providing informal care.

Findings based on the TICC project showed some clue that the model could have benefits for both care staff and patients. For care staff, there are indications that TICC contributes to a lower number of sick leave days and a high degree of job satisfaction, but at a higher cost. However, no contributions were found on empowerment, exposure to psychosocial risk factors, or staff retention. For patients, benefits of TICC are a reduced length of care, increased health-related quality of life and patient satisfaction. No effects were found on patients' autonomy and social participation. The burden of informal caregivers does not seem to be alleviated.

This study provides useful knowledge that can be used for the further evaluation of the implementation of the TICC model in other areas. There are some principles from the Buurtzorg model that can be adapted in the Interreg area within community nursing. For instance, promoting greater independence among patients, improving access and continuity of care, more flexible work for community nurses, forming effective inter-professional partnerships and empowering frontline staff. To conclude, the findings of this study indicate that a person-centred approach contributes to an improvement in the provision of individualized and coordinated patient care.

Content

1 Introduction

Background

The 2Seas region faces clinical, social and financial health and social care challenges as the population ages and government funding declines (1). As a result, recruiting and retaining health and social care workers is challenging as the situation will worsen due to the existing workforce ages (2). The number of elderly people living at home significantly increased and poses a major challenge for healthcare workers to meet patients' care needs (3). This creates high work pressure among healthcare workers and a decrease in the provided quality of care. The community-based care models developed in the 2Seas region over the last 20 years have led to the fragmentation and disintegration of care and a task-driven, activity-based approach and remuneration leading toward adverse outcomes. Several studies pinpoint similar issues such as quality- and costs of care, poor health-related outcomes, lack of access to care, lack of transparency of information, and a growing dissatisfaction among both patients and care staff in countries all over the world (4). The quality of care provided to patients at home is important and decisive for patients' quality of life and long-term health (5). Therefore, the process of social innovation to transform health and social care models has high attention in global and national policies, especially focusing on the self-management of people and strengthening community-based care delivery (6).

An example of social innovation in home care is the Buurtzorg model with the mission: humanity over bureaucracy. The Buurtzorg model focuses on providing holistic, patient-oriented, and personal care provided through small, self-managing care teams (7). Central to this model is the strengthening of patient autonomy and empowerment through continuity of care, building trusting relationships, building networks in the neighbourhood, and linking patients to community resources (4). The implementation of the Buurtzorg model has yielded benefits for both patients and employees, mainly in the Netherlands, and has been shown to be also cost-effective compared to traditional approaches (8). However, the implementation of the Buurtzorg model in an existing organisation seems to be complex, where tailor-made preparation and support within the organization are crucial for success. In particular, further training of staff competences, leadership in self-managing teams, Information Technology requirements and policy changes in the healthcare system proved to be decisive (9).

The TICC project

The Interreg 2 Seas funded project Transforming Integrated Care in the Community (TICC) focused on the implementation of an integrated nurse-led community-based care model based on the Buurtzorg model. In this report, we refer to the TICC model, as important elements of Buurtzorg were implemented depending on context and therefore differed per pilot. The implementation of the TICC model was conducted among six pilot sites: self-managing teams of twelve staff members working at neighbourhood level handling every aspect of care & business, significantly reduced back office, simple IT & coaches rather than managers, providing better outcomes for people, lower costs, unplanned hospital admissions and consistent care) into new geographic cultural contexts. TICC aimed to enable health and social care organisations to implement nurse-led community care, increase staff productivity, recruitment and retention as well as improve patient satisfaction and autonomy while decreasing costs, emergency admissions and staff absences. A total of 14 partners contributed to the project and the TICC model was implemented by two English partners, three French partners and one Belgian partner.

Reading guide

This report provides an extensive description of the evaluation of TICC during the period 2017 to 2022. The order is based on the expected results stated at the start of the project, divided into four overarching project themes: implementation experiences of the TICC model, care staff in self-managing TICC teams, better care for people and cost savings. Various evaluation strategies have been applied to assess TICC's goals and deliverables. The following chapter, methods, explains in detail how the project was evaluated. This is followed by the results chapter, in which both quantitative and qualitative data are explained at organisational and national level. Here too, the sequence is used as described in the outputs below. The report concludes with a discussion, in which the findings of the evaluation are stated and interpreted.

2 Methods

The TICC project used various evaluation methods that were carried out during the period of 2017 to 2022 (Figure 1). The evaluation focused on care staff, patients, and informal caregivers during the implementation of the TICC model. It consisted of two phases: phase 1, pre-implementation and phase 2: clinical study during implementation.

Phase one or 'pre-implementation' consisted of preparing the clinical study and the associated evaluation strategy. A study protocol was drawn up and project objectives were operationalized into measurable units. Important implementation conditions were drawn up based on a literature search and expert interviews. Subsequently, these implementation conditions were measured with a gap analysis. Chief Executive Officers (CEO)s of the participating organizations assessed their own organization for implementation readiness.

Phase two or 'post-implementation' consisted of evaluating the pilot studies that were carried out in the United Kingdom, France, and Belgium. Various research methods were applied during this phase. The implementation readiness gap analysis continued with two more measurements to gain insight into implementation progress. In this phase, in addition to the CEO perspective, the employees' perspective was also included.

In addition, surveys were conducted among patients, care staff and informal caregivers, looking at the effect of implementing the TICC model. For comparison purposes, control groups were searched and found in the United Kingdom (for care staff and patients) and in Belgium (for care staff). Unfortunately, the delivery partners in France did not manage to find other organizations that accept to participate to the study and to serve as control groups. We also looked at general data from the organization's system, such as absenteeism and healthcare costs. And on a qualitative level, several rounds of focus group discussions were held with care staff teams that implemented the TICC model.

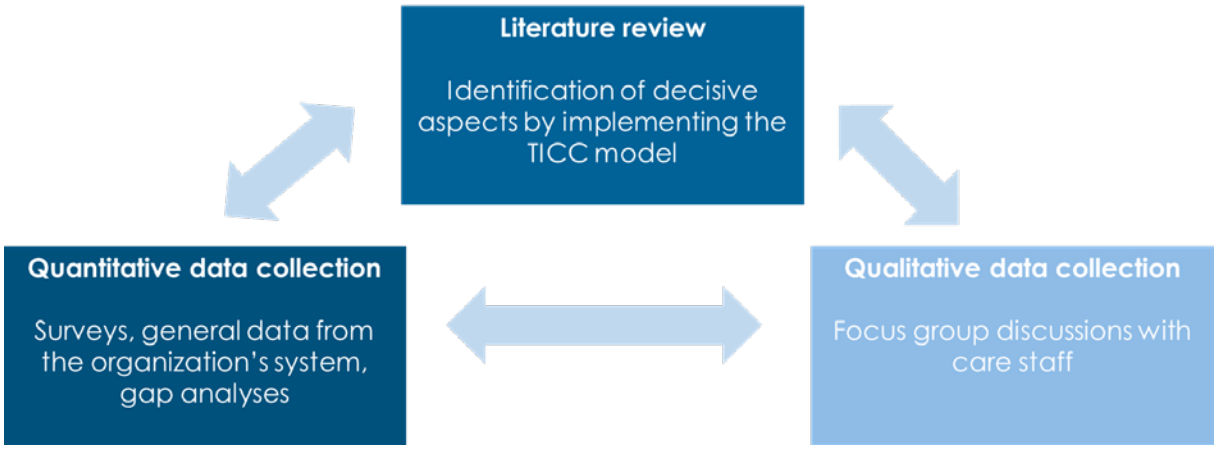


Figure 1 Evaluation strategies of TICC

Participating organisations

In total, fourteen organisations were involved in the TICC project. Of which six healthcare organizations participated in the clinical study, each with their own characteristics and expertise. Including three French partners, two English partners and one Belgian partner. Table 1 provides insight into the characteristics per participating organisation.

Table 1 Healthcare organisations that implemented the TICC model.

Implementation Partners	Description	Country
Kent Community Health Foundation Trust (PP4)	Kent Community Health Foundation Trust (PP4) is an NHS provider of community nursing and intermediate care services to people in Kent, East Sussex, and London.	UK
Medway Community Healthcare (PP5)	Medway Community Healthcare (PP5) is a non-profit organisation which provides NHS-funded health and social care to people primarily in the unitary authority district Medway.	UK
Soignons Humain (PP6)	Soignons Humain (PP6) is a non-profit organisation which promotes new organization models in the field of home care and health services to improve patient and employee satisfaction.	France
Emmaüs (PP9)	The Emmaüs (PP9) Group is a network of 24 member organisations which provide welfare and health services in Mechelen, Belgium.	Belgium
VIVAT Service à la personne (PP11)	VIVAT Service à la personne (PP11) is an organisation which strives to promote and improve social welfare in the 'Nord' and 'Pas de Calais' departments (North of France).	France
La Vie Active (PP14)	La Vie Active (PP14) is an organisation which operates over 60 nursing homes and guardianship services in the North of France.	France

2.1 Phase one: pre-implementation

A literature review was performed in the first four months of 2018, as a first step in identifying potential facilitators and barriers for implementing nurse-led care provision systems, the TICC model in specific. The research question that guided the literature search was: 'What are the facilitators and barriers of nurse-led community care with respect to policies, law, financial modelling, educational aspects and nurse-based knowledge and methods?'

A six-stage methodological framework was used for the review of literature; 1) identifying the aim of the research and the research question, 2) searching for relevant studies, 3) selecting studies on quality and content, 4) charting the data, 5) collating, summarizing and reporting the results, and 6) consulting with an expert panel and stakeholders to inform and validate findings (10, 11).

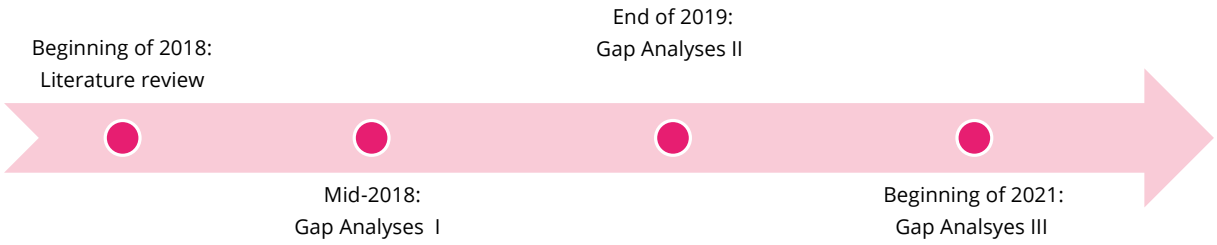


Figure 2 Timeline of phase 1 literature review and gap analyses

To measure the implementation readiness of participating organisations at the start of the project, gap analyses were performed based on the aspects that emerged from the literature review and expert discussion. To assess the implementation progress that has been made, the gap analyses were repeated at the end of 2019 and 2021 (Figure 2). Respondents consisted of CEOs, managing directors (or similar) and team coaches from the seven partner organizations participating in the TICC project as delivery partners. Quantitative measurements were used for gap analyses I, II and III. Participants were asked to rate a list of statements using a 10-point Likert scale ranging from 1 'Not applicable to my organization at all' to 10 'Very applicable to my organization'. Both questionnaires used for gap analysis III (Appendix 1 and 2) were largely the same questionnaires as those used for the first and second gap analyses. This way, implementation progress between all three gaps can be measured. For the third gap analysis, three additional questionnaires were added to gain insight into the impact that Covid-19 had on the implementation process (12). These questions were formulated through peer review of researchers from the evaluation partners. Questionnaires were sent through email and filled out on paper or directly in the Word-file. The questionnaire for team coaches was translated into Dutch for Belgian team coaches and into French for French team coaches. The topics used in both questionnaires and the number of questions within each questionnaire are presented in Table 2.

Table 2 Gap analyses topics and number of questions

Topics	CEO (items)	Team coach's (items)
Policy and Organization	10	16
Educational aspects and nurse-based knowledge	10	11
Financial modelling	4	6
Methods	4	5
Law	2	2
COVID-19	3	3

2.2 Phase two: the clinical study

The clinical study was undertaken between 2018 and 2022 with both qualitative and quantitative data collection. Figure 3 shows the timeline of research methods used and the order of deployment. A distinction is made between three data collection methods: quantitative surveys, focus group discussions and data extraction from existing systems of the healthcare organisation. The overall study consisted of the assessment of intervention groups, TICC teams, and patients they cared for. In addition, we also looked at comparison groups with similar characteristics within the healthcare organization and patient population. For patients, informal caregivers and care staff, comparison groups were included from the United Kingdom. For care staff only, also Belgium comparison groups were included.

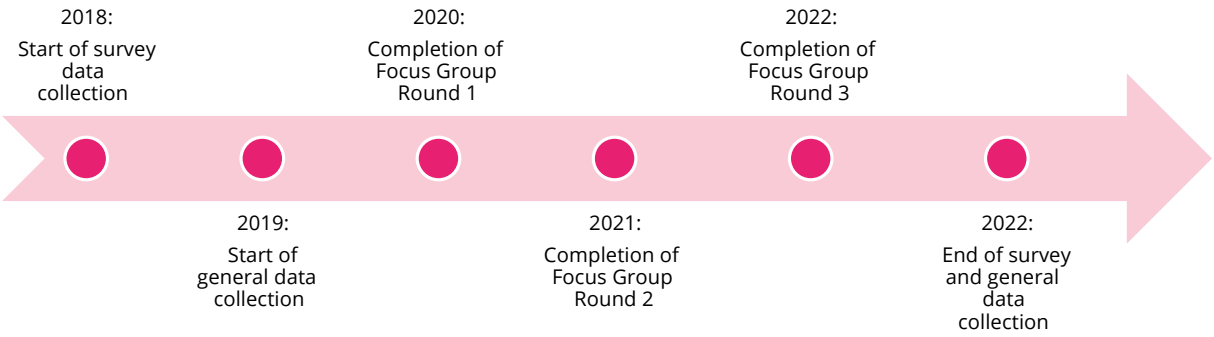


Figure 3 Timeline of the clinical study

Population and procedure

There were three target groups within the clinical study: care staff, patients, and informal caregivers (of the patients). Inclusion- and exclusion criteria for the different target groups were:

1 **Care staff**: 18 years or older, expected to be in service for at least 12 months, agreeing to participate.
2 **Patients**: 18 years or older, expected to receive community care at least twice a week for a minimum period of at least three months; able to read and write sufficiently to understand and complete questionnaires without the help of caregivers, agreeing to participate.
3 **Informal caregivers**: eighteen years or older, able to read and write sufficiently to understand and complete questionnaires, agreeing to participate.

For care staff, there was a quantitative evaluation, i.e., a pre-, intermediate and post-test using several measuring instruments to gather data on autonomy, job satisfaction and intention to leave. Also, a qualitative evaluation was performed, using focus group discussions to gather data on the impact of transition to the TICC model.

For patients, there was a quantitative evaluation, i.e., a pre-, (multiple) intermediate and post-test using several measuring instruments to gather data on quality of care, patient independence and patient satisfaction. To ensure validity and reliability of the responses, patients were measured when entering care, three-six weeks after entering care (to capture short term impact and the impact on short care patients) and then every six months while still receiving care.

For the informal caregivers, there was a quantitative evaluation at the same moments as the patients, i.e., a pre-, intermediate and post-test using several measuring instruments to gather data on experienced burden of care.

Table 3 Measured concepts and instruments

Overarching project Themes	What?	Instrument	Methodology	Who?
1. Better care for people	• Quality of care and patient satisfaction (CQI) • Independence, self-management, and empowerment (IPA) • Quality of life (SF-36 and SF12) • Average age of patient, reason for leaving care, (General Data)	• Consumer Quality Index (CQI) • Impact on Participation and Autonomy (IPA) • Quality-of-life questionnaires (SF-36 and SF12 • General data	Quantitative	Patients
	• Experienced care burden of informal carers	• Zarit Burden Interview	Quantitative	Informal caregivers
	• Average hours of homecare, average care length of care in days, average number of visit, number of unplanned hospital admissions (General Data) • Facilitators and barriers to better care for people (Gap analysis)	• General data • Gap analysis	Quantitative	Staff
	• Quality of patient care	• Focus Group interviews	Qualitative	Staff
2. Better staff retention	• Intention to leave the organisation (In-house survey) • Psychological risk factors (COPSOQ) • Staff empowerment (PEI) • Facilitators and barriers to better staff retention (Gap analysis) • verage age of care staff, average sick leave in days, workhours (General Data)	• 'in-house' intention to leave questionnaire • Copenhagen Psychosocial Questionnaire (COPSOQ) • Psychological Empowerment Instrument (PEI) • Gap analyses • General data	Quantitative	Staff
	• Implementation of care model, working in a TICC team, quality of patient care, workload, communication and collaboration, staff retention and recruitment, accountability and responsibility, covid-19, transtheoretical stages of change model	• Focus Group interviews	Qualitative	Staff

Overarching project Themes	What?	Instrument	Methodology	Who?
3. Cost savings	• Average homecare costs, average hours of home care, average length of care in days (General Data)	• General data	Quantitative	Staff
4. Implementation/ transition phase	• Comprehensive overview of the elements from better care for people, better staff retention and cost savings. Enables transfer and take up of the TICC model in different country contexts.	• Blueprint: Summary of data from Themes 1, 2 and 3.	Quantitative/ Qualitative	Patients, Staff, Informal caregivers

Quantitative surveys

The quantitative surveys were a large part of the evaluation of TICC and measured central concepts that were important in implementing the model. Table 3 presents the operationalised variables and shows how the concepts were measured. Care staff received a questionnaire when they entered a TICC team (V1), or when entering the study for control teams. Subsequently, a questionnaire was administered every twelve months to monitor progress (V2, V3 etc). When leaving the organisation, a questionnaire was also completed, if possible.

Patients who received care from a TICC or a control team received a questionnaire at admission to care (V1), an intermediate test after three-six weeks (V2) and then every six months (V3, V4...) until the end of care. The same structure was maintained for informal caregivers. Table 4 presents the questionnaires used in detail and describes the application per target group. Questionnaires were administered via a digital survey program. However, respondents who had difficulty with the digital environment were considered and a physical copy of the questionnaire was offered.

Table 4 Quantitative questionnaires used per target group in the clinical study.

Patients	Informal caregivers	Care staff
The standardised Consumer Quality Index (CQI). The questionnaire gave insight into the demographic variables of patients, quality of care and patient satisfaction.	The Zarit Burden Interview ZBI-22 or ZBI-12. The questionnaire gave insight into the experienced burden of informal caregivers.	Copenhagen Psychosocial Questionnaire (COPSOQ). The questionnaire assessed psychosocial risk factors in staff members.
The Impact on Participation and Autonomy (IPA) questionnaire. The questionnaire measured the variables of patients' independence, self-management, and empowerment.		Psychological Empowerment Instrument (PEI). The questionnaire evaluated staff empowerment.
The MOS-SF-36 or SF-12. The questionnaire assessed health-related quality of life from the patient's perspective. Due to higher feasibility, most partners chose to use the SF-12.		An 'In-house' questionnaire measured the intention of the employees to leave.

To compensate the lack of control groups in France, an additional evaluation protocol was designed for two French partners, PP6 and PP14. This study, called IMPACT-TICC, aimed at using the medico-administrative public health database from the French regulatory authority (CNIL). The principal objectives of this study were to evaluate the impact of TICC teams on unplanned hospitalisation, admissions in care homes, care costs or death rate. The approval process began in June 2020 and the first agreement was obtained April 2021. However, although the access to the TICC patients' data was granted in September 2022, the access to French

control patients was not yet available at the time of writing this report. Moreover, the number of patients was lower than expected (129 available patients instead of an initial estimation from the delivery partners that was around 300-400 patients). For these reasons, we were not able to incorporate IMPACT-TICC in this evaluation report.

General data extraction

In this project, general data collection refers to data that is stored in the systems of the organizations about patients and care staff. TICC teams and control groups were included over the period from 2018 to 2022. Data extraction took place twice a year over a six-month period. Data that was extracted included: age of care staff, staff sick leave, staff workhours per week, age of patients, hours of homecare to provide a service, average length of care, average number of visits, number of unplanned hospital admissions and average home care cost. However, not all data was available for each partner.

Data analysis

For the quantitative surveys, the following statistical analysis plan was followed: data from all the partners was analysed together using linear mixed regression models, allowing the estimation of the group effect on the evolution of the scores since the first visit (V1).

For patients, the first five visits (V1 to V5) were considered, the numbers of answers were too low in the following visits to be used. The regression model allowed estimating the group effect (TICC vs control teams) on the scores, the time effect (evolution of the scores with the number of visits), the interaction between time and group, i.e., a group effect on the evolution with the number of visits, and a country effect. By introducing random effect, the model also took into account the repetition of measures within patients (random intercept) and specific partners effect (random slope).

For staff and informal caregivers, the number of answers was too low after the second visit, thus the mixed model was used to explain the evolution between the two first visits (V1 and V2). A group and country effects were estimated, and a specific partner effect was also considered (random slope).

The marginal means were calculated and represented in each group. The marginal means are the mean evolution of the scores at the population level since V1, computing from the mixed models. It is an average across all partners and countries. For the patients, the moment we found a significant visit effect (which mean an evolution of the scores with time), the marginal means are computed per visit. All confidence intervals and p-values are computed by bootstrap, and a significant level of 5% is used. An analysis was performed using R (R Core Teams). For the general data, simple graphical representation was used.

Focus group discussions

Focus groups (FGs) were used to gain insight into the experiences of implementing the TICC model and to demonstrate cultural differences between participating countries. FGs are an effective and flexible way to conduct a group dialogue. FGs can be customised to meet a wide variety of needs (13).

Participants consisted of care staff who had worked with the TICC model for at least six months. For each participating healthcare organization, a mix of a maximum of twelve participants from different healthcare teams was made to conduct the focus group. The first set of FGs took place one year after the implementation of the TICC model, the exact time differed by partners and took place between November 2019 and March 2020. The second set of FGs took place a year later, between July 2020 and April 2021. Finally, the third set of FGs took place between November 2021 and April 2022.

Organisations were provided with an evidence-based study guide which included a topic list, explaining how they should organise the FGs. The original topic list was used for every round of FGs. The topic list was updated after the first round to include questions which highlighted the impact of the global COVID-19 pandemic. A further amendment was made for the third round to include the degree of implementation at the end of the project through the use of the Transtheoretical Stages of Change model (14). This model was applied to indicate the stage of change visually and clearly in working with the TICC model.

Analysis of individual focus groups was done by coding and grouping responses by theme, per partner and per country. The first focus group round was evaluated by a single researcher, cross-validated, and refined by two other researchers. The second round of focus groups was coded following the first round of focus groups by a researcher who was also involved in the initial coding. The third focus group round was analysed by two new researchers who were not previously engaged with the project. They compared the third round of focus groups to create a comprehensive summary of all rounds.

Ethical aspects

For the clinical study, an ethical request was submitted to the University of Antwerp in collaboration with care organization Emmaus. A positive recommendation was issued in 2018 and the study was started based on a study protocol drawn up in advance. For the UK partners, HRA and REC approval was granted in September 2018 for the study to take place in NHS organisations (IRAS:247923, REC 18/LO/1458). All amendments to the study were approved in line with HRA and REC requirements. The study used anonymised questionnaires and tracked respondents using study codes. Researchers were not involved in assigning study codes to ensure anonymity. This process was done carefully. During the research, the burden of completing questionnaires was evaluated several times. At times, when the burden has led to negative outcomes, adjustments have been made to the research protocol. Independent researchers from the UK offered time and support to care teams to complete the questionnaires. Respondents were voluntarily involved in the study and could withdraw from the study at any time without consequences.

3 Results

3.1 Phase one: pre-implementation

3.2 Phase two: post-implementation

The results are presented with a distinction between phase one (pre-implementation) and phase two (post-implementation). Phase one consists of findings of the literature review and the implementation readiness measured by the gap analysis.

- Section 3.1.1 discusses the literature review and expert vision arriving at important aspects of implementing the TICC model.
- Section 3.1.2 discusses the gap analyses performed in phase one. Additionally presents two more gap analyses showing the progress of implementation over time.

Phase two contains the results of the clinical study divided into overarching themes:

- Section 3.2.1 discusses the number of respondents in the clinical study.
- Section 3.2.2 discusses general findings of focus group discussions I, II and III
- Section 3.2.3 discusses the implementation progress of the TICC model and illuminate progression and experiences.
- Section 3.2.4 discusses care staff working with the TICC model focusing on their autonomy, satisfaction, intention to leave, and sick leave.
- Section 3.2.5 discusses better care for people by implementation of the TICC model and focus on patient autonomy, -satisfaction, care efficiency and burden of the informal caregiver.
- Section 3.2.6 discusses the cost savings by implementation of the TICC model.

3.1 Phase one: pre-implementation

3.1.1 Literature review and expert interpretation

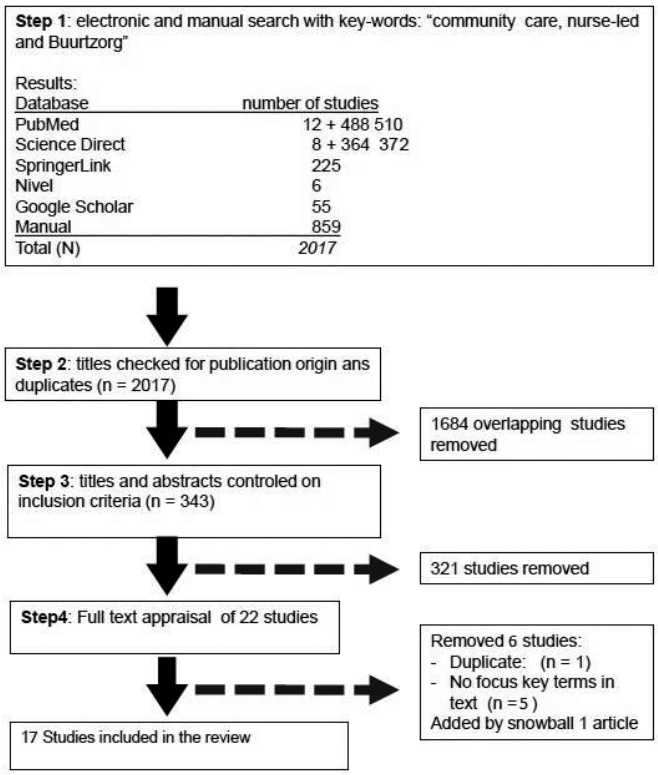
The aim of the literature review was to identify facilitators and barriers for professional-led community care, that included policies, law, financial modelling, educational aspects and nurse-based knowledge and methods. The results formed the basis for the evaluation strategy and gap analyses (See paragraph 3.1.2).

The initial search located 2017 articles. After a first check for duplicates 1684 articles were removed. Of the other 343 articles, 321 did not meet inclusion criteria and were discarded after examining the title and/ or abstract. The remaining 22 articles were read in full text. A charting process was completed and data relating to policies, law, financial modelling, educational aspects, nurse-based knowledge, and methods were abstracted. Six articles were discarded, because of duplication (n = 1) and no focus on key terms (n = 5), leaving sixteen articles for review. One article was added using the snowball method, this resulted in a total of seventeen articles (Figure 4).

The results of peer reviewed, and grey literature were synthesized and reported. The sixth stage of a scoping review was a consultation process, which was done at a study visit on the 8th of February 2018 in Hooglanderveen. During this visit the World Café Method was used to collect information from all partners. In the first round, the views of the participants about the facilitators and barriers on the different themes were captured. In the second round these views were compared with the results from the literature review. Similarities and differences were identified. Based hereupon some topics were added.

In the end, we identified eighteen facilitators and eight barriers to nurse-led community care. These different topics were categorised under five themes: **policy and organisation, educational aspects and nurse-based knowledge, financial modelling, methods**, and **law**. The articles represented the viewpoint of nurses and other care professionals (fourteen articles), clients (five articles) and family members (one article).

Figure 4 Search and inclusion process of literature review with a flowchart



Policy and organisation

Five facilitators and one barrier were identified. Facilitators were: 1) continuity of care, 2) the strong focus on facilitating frontline workers, 3) the use of small self-managing teams, 4) integrated care, and 5) a holistic approach. The barrier identified in the literature was the challenge of the efficient and effective organisation of the 24/7 provision of care. Continuity of care was identified in twelve articles as a facilitator. A characteristic of the care provided by Buurtzorg is that nurses offer the whole care process (15-18), there is less change in care professionals (16-20), there is good information transfer between care professionals (17, 18, 20-22), which results in good quality of care and high customer satisfaction (15, 17, 20, 23). The next facilitator, the strong focus on facilitating frontline workers, was mentioned in ten articles. By limiting administrative duties and creating autonomy for the care professional there is opportunity for more contact and time with the client (15, 16, 18, 20, 23-26). The use of small self-managing teams, also mentioned in ten articles is typical for the Buurtzorg model resulting in a strong team spirit (4, 16, 17, 20, 27). Furthermore, Buurtzorg offers integrated care (n = 3), meaning Buurtzorg focusses on improving patient care through better coordination, by making links across services, coordinating teams and pooling resources (18, 20). The final facilitator, the holistic approach, was mentioned in three articles (15, 26, 27).

Three studies reported a barrier related to policy of nurse-led community care, namely the challenge of the efficient and effective organisation of 24/7 provision of care (20, 22, 24). To illustrate, two studies reported a higher work load and the difficulty to provide unplanned care (20, 24). One study reported that the continuity of care over the weekend can be a challenge, where a shortage of professionals available in the weekend can result in increased work pressure on the one hand, resulting in a less positive care experience by clients on the other hand (22). One study also pointed out the difficulty of having structured meetings between different care professionals working on a part-time basis. Part-time contracts can also jeopardise the continuity of care, requiring carefully monitoring. Finally, all needed facilities should be present in the district office (20).

Educational aspects and nurse-based knowledge,

Five facilitators and two barriers were identified in the source materials. Facilitators were 1) high levels of autonomy and independence, 2) client focussed care, 3) cultivation of empowerment and self-confidence in their clients, 4) good transfer of client information, and 5) the availability of all-round professionals. Two barriers were identified related to educational aspects and nurse-based knowledge in three different studies: 1) higher work pressure, and 2) a higher need for educational support.

Seven studies reported that nurses working in nurse-led community care teams show a high level of autonomy and independence, making their work more enjoyable and challenging (19), and giving them more freedom and flexibility (15, 16, 18-21, 26). Another seven studies reported the success of client-centeredness: nurses in nurse-led community care teams spend more time with their client, listen to the client and their family (20, 23, 25, 26) and are easy accessible resulting in high quality of care and high customer satisfaction (4, 17, 20, 23, 28). A third facilitator identified in four studies was that nurses in nurse-led community care teams actively cultivate empowerment and self-confidence in their clients by investing extra time at the start of the care process, resulting in a quicker return to autonomy and fewer readmissions (22, 24, 25, 27). The fourth facilitator identified in three studies was that the care professionals in nurse-led community care teams ensure a good transfer of client information to ensure continuity of care (17, 20, 22). Finally, the fifth facilitator identified by three articles was that nurses in nurse-led community care teams are all-rounders: they are creative, flexible, competent people, nurses and entrepreneurs who act outside known professionals' domains (4, 16, 20).

When looking at the barriers in self-managing teams, nurses report the experience of a higher work pressure (24, 26). Furthermore, they express a need for educational support around self-managing teams, financial aspects and computer skills (20, 26).

Financial modelling

Four facilitators and one barrier were identified. The facilitators are 1) the flat hierarchical structure, 2) the effect of health promotion and maximising client independence, 3) being a non-profit organisation, and 4) the use of standardized classification. The barrier is the lack of knowledge of the care professionals on the financial aspects.

The first facilitator (n = 7) is that nurse-led community care teams benefit from the flat organisational structure: there is no hierarchy, and the overhead is only there to facilitate the front line workers (4, 15-18, 27, 29). A second facilitator (n = 7) is the effect of health promotion and maximising client independence through training in self-care and creating networks or tools by the care professionals. Although initially the number of care hours are higher, the overall number of hours is lower (4, 17, 19, 22, 27, 30). The fact that nurse-led community care teams are based in a non-profit-organisation is identified as a third facilitator (n = 3). Profits and cost savings are reinvested in nurses, innovations, projects, and resources to provide care, resulting in high quality care (16, 18, 22). The fourth facilitator (n =1) is the use of a standardised classification system (e.g. Omaha) as a basis for the administrative processes of the community care, reducing administrative costs (18).

The financial model of Buurtzorg creates one barrier (n=1), namely that there is the lack of knowledge of the care professionals on financial aspects (20).

Methods

Three facilitators were identified, and no barriers. The facilitators are 1) the training of clients in self-care and independence, 2) the use of IT-systems, and 3) the focus on preventive activities.

The first facilitator (n = 6) is that the nurses train their clients in self-care and independence, resulting in a quicker return to autonomy and less readmissions (18, 22, 24, 25, 27, 30). The second facilitator (n = 5) is the use of IT-systems (Electronic Patient File, incl. the Omaha system), which facilitates communication with the back office, colleagues and results in more transparency in financial matters and team productivity (4, 17, 18, 21, 29). The last facilitator (n = 2) relating to methods is that nurses in nurse-led community care teams focus on preventive activities from day one (4, 22).

Law

One facilitator and no barriers are mentioned. The facilitator is legislation. This facilitator (n = 1) concerns the possibility for legislation to facilitate the set-up of nurse-led community care teams to provide care and provide the right authorisations for the frontline workers (20).

Interpretation of important aspects by experts

Following the World Café Method, five discussion tables were created to discuss the facilitators and barriers of each of the themes. In the second-round similarities and differences between each theme were identified. As a result, some topics were added.

Under **policy and organisation** some similarities and differences, both in facilitators and barriers were found. Similar facilitators mentioned were: 1) the focus on facilitating frontline workers, 2) working in small, self-managing teams, and 3) the holistic approach. Because of the focus on facilitating frontline workers, nurses report being drawn back into the profession because the policy of Buurtzorg allows them to focus

on nursing only. Buurtzorg nurses appreciate having flexible control over how time is spent. Furthermore, operating in small, self-managing teams, with coaches facilitating decision making without taking charge, is confirmed by the participants of the study visit as one of the facilitators of nurse-led care. Finally, the advantage of Buurtzorg using a holistic approach, not only a somatic focus, and works multidisciplinary, is repeated during the study visit. One barrier mentioned in literature and during this study visit is the lack of facilities in the district office.

Differences concerned both a facilitator and a barrier. The barrier mentioned in the reviewed studies saying that there is a lack of structured meetings, is not supported. The partners mention that there is a clear structure for conducting team meetings. Finally, in contrast to the literature, partners report that working in small, self-managing teams can also be a potential barrier, resulting in professional isolation and a lack of support.

As a result of the study visit, three items were added under policy and organisation to the topics from the literature review: 1) committed leadership, 2) organizational readiness, and 3) a shared vision. The commitment of the management level is vital to execute radical change towards integrated care in the community, not only to enable restructuring of the existing care system into self-managing teams, but also to guarantee the focus of management to support and execute this change. Organizational readiness for radical change is another facilitator. How 'ready' is the organisation to change towards working with nurse-led care? Finally, is a shared vision on integrated care vital to successful implementation?

All topics under **educational aspects and nurse-based knowledge**, both the facilitators and the barriers, were confirmed by the partners. In line with the results from literature, the participants expressed the need for the right kind of education to support professionals working in self-managing teams.

Under **financial modelling**, the benefits of having a flat organisational structure and a lack of hierarchy were also expressed by the participants. The fact that Buurtzorg can provide cheaper care was also agreed on. One difference between the literature and the study visit concerned the Omaha system. Although being labelled a facilitator in literature, one of the partners mentioned that the Omaha system is not suited for the community care of clients with psychiatric care needs. Although Omaha meets many of the needs, the ideal supporting classification system would be useable in every aspect of community care.

Under **methods**, the three facilitators that were mentioned in the literature (the training of clients in self-care and independence, the use of IT-systems, and the focus on preventive activities) were confirmed by the participants. The importance of having a secure IT-system wherein the different sub-systems can communicate with each other was expressed. As a result of the study visit, use of demotic systems was added to the facilitators as nurses in nurse-led community care teams use Skype to check if clients take their medication, for example

The topic found under law, the need for supportive legislation, was confirmed during the study visit. In addition, the topic of General Data Protection Regulation (GDPR) was added under law. Because of the elaborate use of IT-systems and digital tools, the safety of patient data needs to be carefully monitored.

In general, it can be stated that the participants of the study visit mostly confirmed the findings from the literature review, with some nuances and additions. An overview of the final list, based on the six steps of the scoping review is shown in Table 5.

Table 5 Facilitators and barriers of the TICC model according to literature and expert vision

Topics	Indicators (structure, process and outcome)
Policy & organisation	
Focus on continuity of care	Buurtzorg nurses offer the whole care process, there is less change in care professionals and good information transfer between care professionals. This results in a high quality of care and high customer satisfaction.
Focus on facilitating frontline workers	Nurses are free from administrative burden, have more autonomy, enabling more contact/time between professionals and clients and their family
Small, self-managing teams	Strong team spirit, less bureaucracy
Integrated care	Improving patient care through better coordination, by linking services, coordinating teams, and pooling resources.
Holistic approach	Not solely focussing on somatic issues. Working multidisciplinary.
Committed leadership	The commitment of C-level management is vital to execute radical change towards integrated care in the community, not only to enable restructuring of the existing care system into self-managing teams, but also to guarantee the focus of M-management to support and execute this change.
Organizational readiness	Organizational readiness for radical change is another facilitator. How 'ready' is the organisation to change towards working with nurse-led care?
Shared vision	A shared vision on integrated care is vital to successful implementation.
The challenge of the efficient and effective organisation of the 24/7 provision of care	Potentially leading to higher workload and the difficulty to provide unplanned care. Threat to continuity of care over the weekend. The difficulty of having structured meetings between different care professionals working on a part-time basis. Part-time contracts jeopardising the continuity of care, requiring carefully monitoring. Presence of facilities in the district office.
Small, self-managing teams	Potentially leading to higher work pressure, professional isolation, and an experienced lack of support
Educational aspects and nurse-based knowledge	
High level of autonomy and independence	More enjoyable work, more challenging work and more freedom and flexibility for care professionals
Client-centeredness	More time with client, listen to the client and their family, nurses are accessible. High quality of care and customer satisfaction
Cultivation of empowerment and self-confidence	Quick return to autonomy and less readmissions of clients
Good information transfer between care professionals	Continuity of care
Generalist nursing	Buurtzorg nurses are creative, flexible competent and all-round
Workload	Working in small, self-managing teams can result in a higher (experienced) workload.
Higher educational needs	Educational support around self-managing teams, financial aspects and computer skills is needed.

Topics	Indicators (structure, process and outcome)
Financial modelling	
Flat organisation structure, no hierarchy	Low overhead costs
Effect of health promotion and maximising client independence	Higher hourly rates, but lower number of care hours leading to cheaper care
Non-profit organisation: cost savings are reinvested in nurses, innovations, projects, and resources to provide care	High quality of care
Use of a supporting classification system (e.g., Omaha)	Replace administrative layer of home care. Eliminates administrative costs.
Need for knowledge on financial aspects	
The supporting classification system (Omaha) not useable in every home care setting	Less continuity of care
Methods	
Training in self-care and client independence	Quick return to autonomy and less readmissions of clients
Use of IT-system (EPF incl. Omaha)	Easy contact with the back office and colleagues and transparency
Focus on preventive activities from day one	Improve health and well-being
Use of home automation	Less care hours
Law	
Legislation supports nurse-led community care	
Use of GDPR	Continuity of care, safety of patient data
Elaborate use of IT-systems and digital tools	Safety of patient data needs to be carefully monitored (GDPR)

3.1.2 Organisational readiness for implementation

The organisational readiness to implement the TICC model was measured with a gap analysis looking at three measurement timepoints (see chapter 2.2). A distinction has been made between total scores and scale scores based on the five different themes included in the questionnaire. The perspective of CEOs and team coaches is also compared. Tables and graphs presented are based on a scale score from 1 to 10. The higher the score, the better the implementation of this element is assessed by the organization.

Total gap-scores

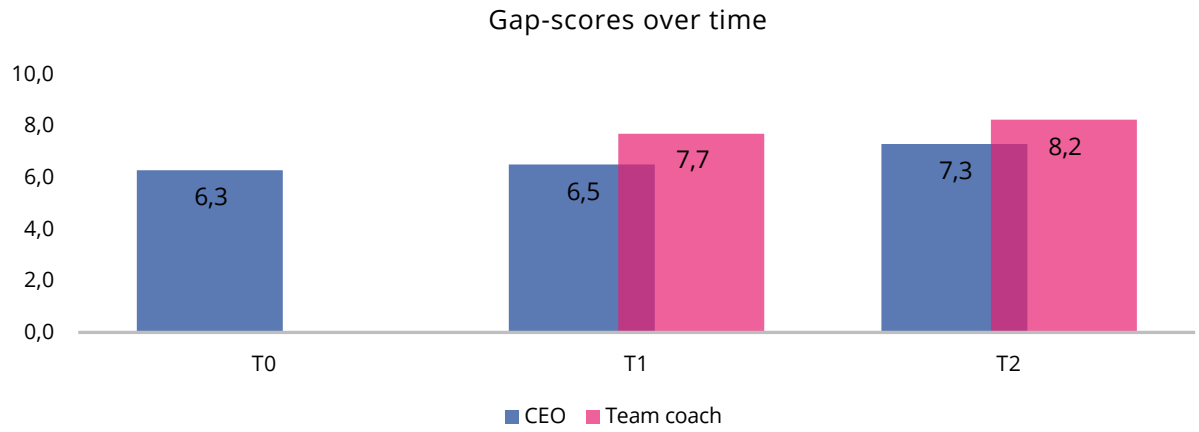


Figure 5 Gap-scores over time with comparison between CEO and Team coach

Figure 5 shows the gap scores from a CEO and team coach perspective. A gradual increase in score can be seen from T0 to T1 and from T1 to T2. Where CEO's rate the implementation of Buurtzorg-related elements at T1 with a 6.5, team coaches see this more positively with a 7.7. Also, at T2, the final measurement, team coaches rate the implementation more positively than the CEO's. Both the CEO's and team coaches rated the implementation process most positively in the last measurement in comparison with T0 and T1. In-depth information about the CEO perspective per organization is shown in Figure 6. The first column shows the average scores, the other columns the scores per organization. In general, an increasing trend in score can be seen from T0 to T1 and from T1 to T2. Only a single organization (PP5) deviates from this, where the baseline measurement has been assessed more positively.

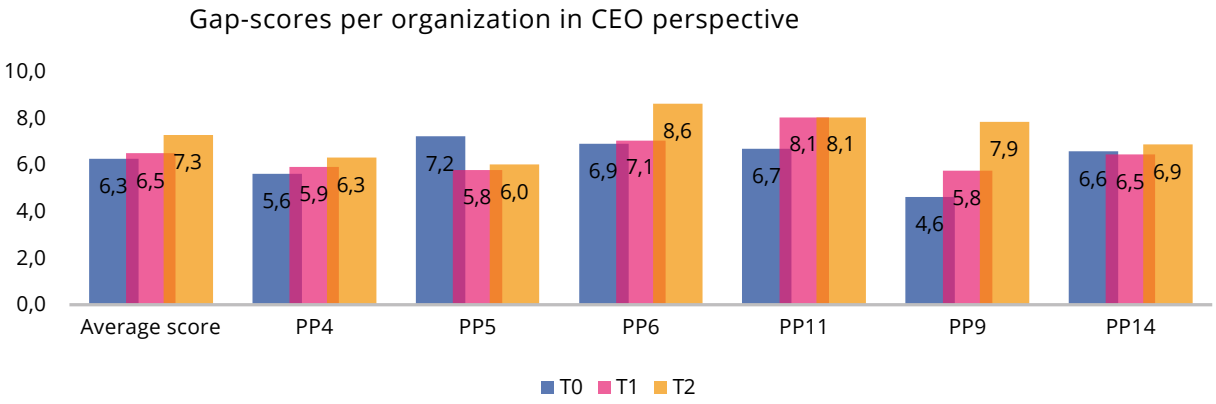


Figure 6 CEO perspective gap-scores over time presented per organization.

Looking at the team coach perspective, in-depth information is shown in Figure 7. Here too, the average score is presented in the first column, showing that for team coaches two measurements (T1 and T2) were taken instead of three. On average, the score has increased from T1 to T2, with a single organization (PP5) deviating. The average team coach score at T1 is 7.7 and at T2 8.2.

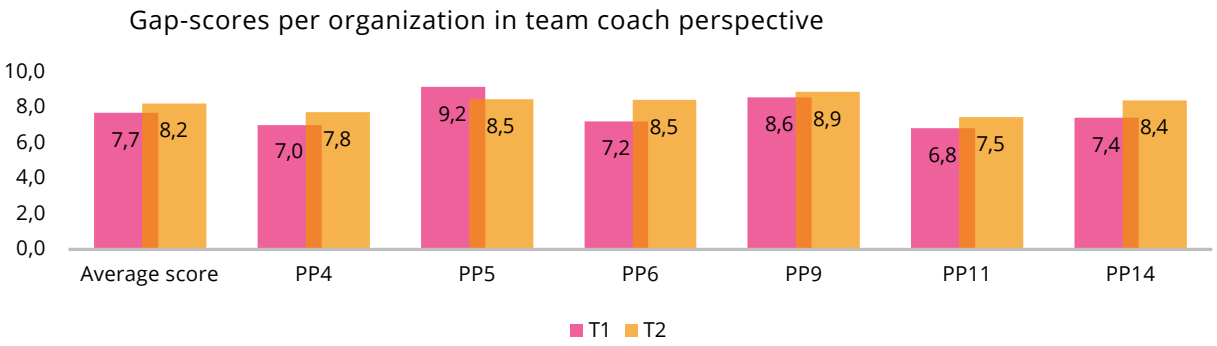


Figure 7 Team coach perspective gap-scores over time presented per organization

Looking at the differences in perspective between the CEO and the team coach per organization (Figure 8, Figure 9), in T1 there is a big deviation for PP9 and PP5 (Figure 8). The team coach evaluates the implementation more positively. There is a difference of 2.8 points for PP9 and 3.4 points for PP5. Figure 9 presents the differences in perspective between CEO and team coach per organization for T2. Here too, team coaches rate implementation elements more positively than the CEO; 8.2 compared to 7.3. Measurement T2, like T1, also showed a difference at PP5, namely 2.5 points in favour of the team coach. Differences can also be seen at PP14 and PP4. PP11 is the only organization where the CEO evaluates more positively than the team coach.

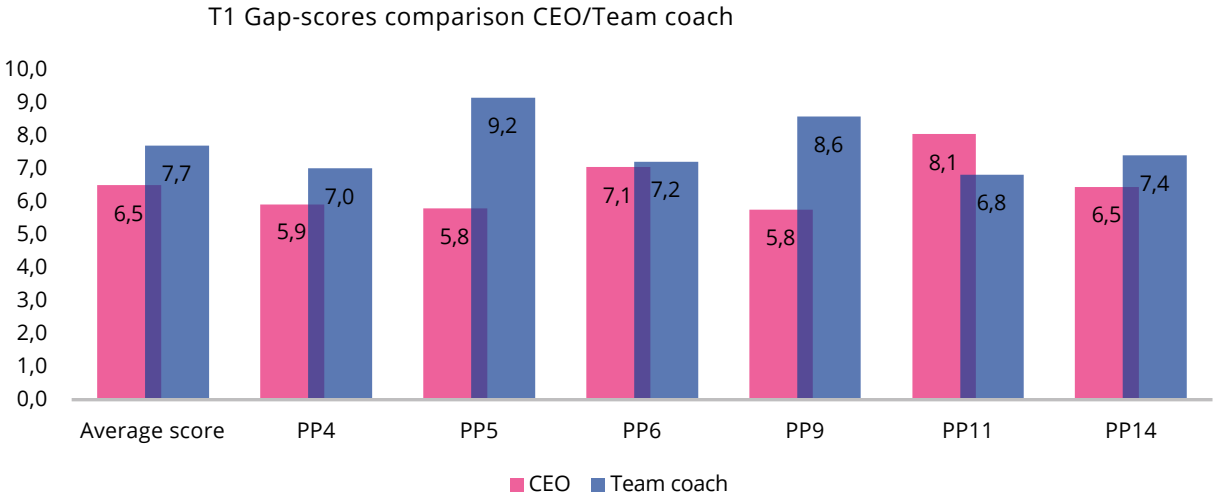


Figure 8 Comparison gap-scores perspective of CEO and team coach at T1

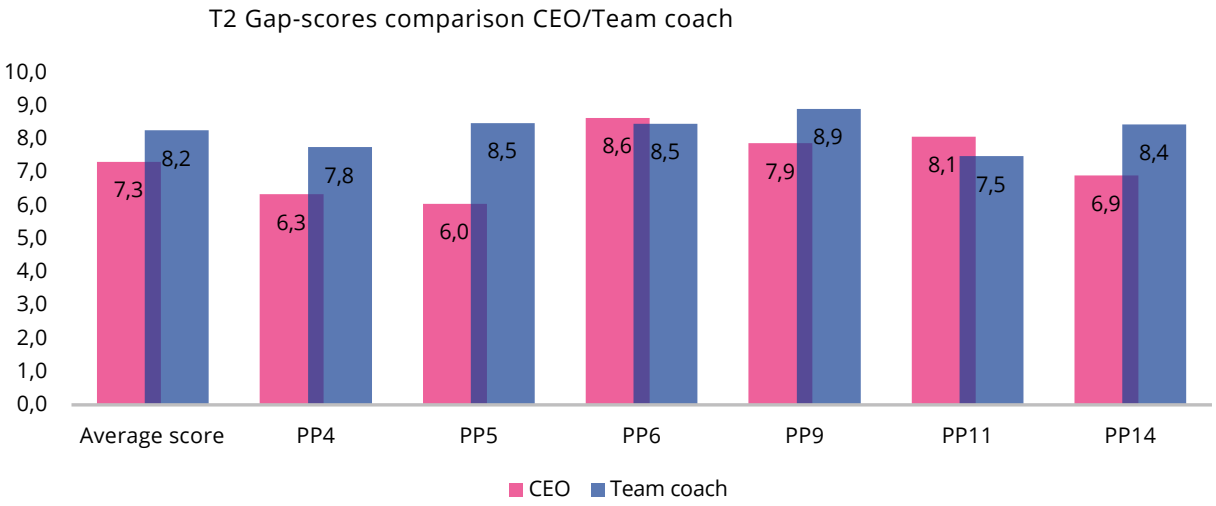


Figure 9 Comparison gap-scores perspective of CEO and team coach at T2

Figure 10 provides an overview per theme in both CEO and team coach perspective. Policy and organization and educational aspects and nurse-based knowledge score higher than the other three themes. It is noticeable that CEOs in particular rate very low on the items of the legislation theme, while this is much higher for team coaches. Analysis by theme is presented in the following pages.

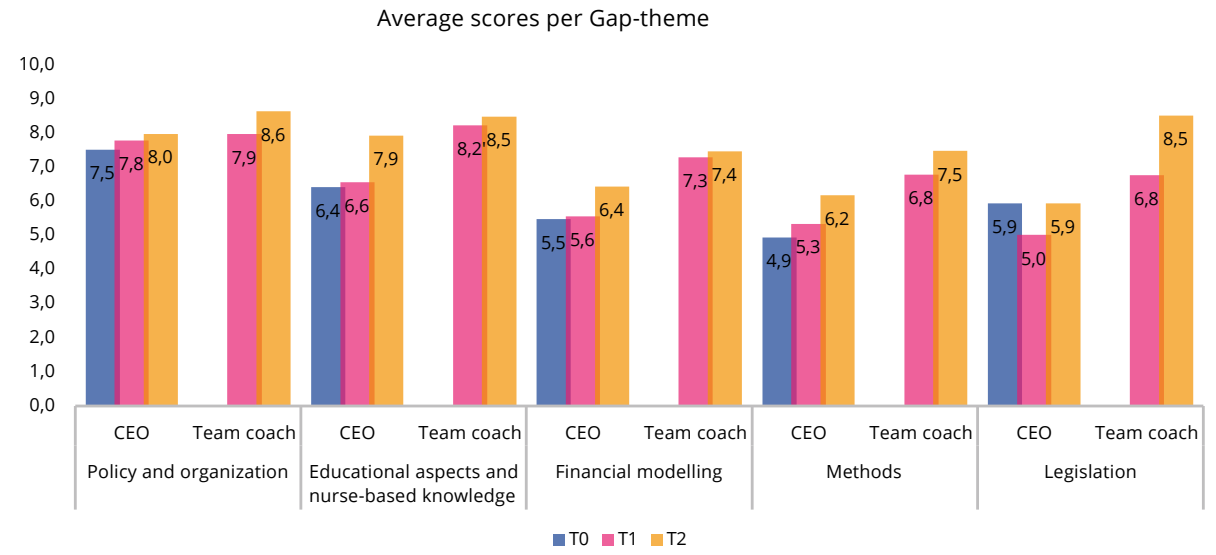


Figure 10 Scores presented per gap-theme in CEO and team coach perspective.

3.2 Phase two: the clinical study

3.2.1 Respondents in the clinical study

Quantitative study

Patients

The number of patients at each visit is summarized in Table 6. However, not all patients completed all the questionnaires, and there are some differences in the questionnaires depending on which versions the pilot partners used, e.g., the quality of life was measured with the questionnaire MOS-SF-36 for UK partners, and with the shorter version MOS-SF-12 for the other partners. A total of 197 patients were included in the TICC group, and 26 in the control group. At the second visit, 135 patients were available in the TICC group and 21 in the control group.

Table 6 Number of patients that respond per PP, visit and group.

			Visits				
PP	**Country**	**Group**	**1**	**2**	**3**	**4**	**5**
PP4	UK	Target	15	11	9	8	5
PP4	UK	Control	24	20	9	8	8
PP5	UK	Target	12	5	6	2	
PP5	UK	Control	2	1	1	1	
PP6	FR	Target	83	71	36	19	8
PP9	BE	Target	63	29	10	3	1
PP11	FR	Target	15	12			
PP14	FR	Target	9	7	5	3	2

For the UK and Belgium partners, patients completed the Consumer Quality Index, which contains some information about the patient's situation. The description of the information is available in Table 7. Depending on the items, the number of respondents is variable.

Table 7 Description of the patients in charge by UK and Belgium partners (PP4, PP5 and PP9).

Variable	Stat/Modalities*	Target N (%)	Control N (%)
Length of care from this organization	Less than half a year	46 (35.4%)	17 (30.9%)
	6 months to less than a year	24 (18.5%)	16 (29.1%)
	1 to 2 years	28 (21.5%)	8 (14.5%)
	2 to 5 years	27 (20.8%)	9 (16.4%)
	More than 5 years	5 (3.8%)	5 (9.1%)
		n=130	**n=55**
Age	M +/- SD	76.7 +/- 16.5	73.1 +/- 13.8
		n=49	n=24
Level of education	No education	7 (7.6%)	0 (0%)
	Primary education	10 (10.9%)	3 (13%)
	Secondary education	13 (14.1%)	13 (56.5%)
	Post-secondary education	13 (14.1%)	1 (4.3%)
	Vocational education	8 (8.7%)	3 (13%)
	Undergraduate Degree	10 (10.9%)	0 (0%)
	Post-graduate Degree	6 (6.5%)	1 (4.3%)
	Doctorate	1 (1.1%)	0 (0%)
	Other	24 (26.1%)	2 (8.7%)
		n=92	**n=23**
Living situation	Own housing	39 (92.9%)	28 (59.6%)
	Live with parent	0 (0%)	0 (0%)
	Live with brother or sister	1 (2.4%)	1 (2.1%)
	Live with another family member	0 (0%)	1 (2.1%)
	Live with a friend	0 (0%)	7 (14.9%)
	Live in a different setting	2 (4.8%)	10 (21.3%)
		n=42	**n=47**
Friend or family member who helps look after you	No	11 (34.4%)	7 (22.6%)
	Yes, my husband, wife, or partner	11 (34.4%)	15 (48.4%)
	Yes, my parents	1 (3.1%)	0 (0%)
	Yes, other family member	7 (21.9%)	8 (25.8%)
	Yes, from a friend	1 (3.1%)	1 (3.2%)
	Other	1 (3.1%)	0 (0%)
		n=32	**n=31**
Employment status	Employed full time	1 (2%)	1 (2.2%)
	Employed part time	1 (2%)	1 (2.2%)
	Currently unemployed	3 (6.1%)	5 (11.1%)
	Retired	44 (89.8%)	38 (84.4%)
		n=49	**n=45**
Health indication?	Bad	19 (38.8%)	25 (43.1%)
	Average	11 (22.4%)	15 (25.9%)
	Good	15 (30.6%)	12 (20.7%)
	Very good	3 (6.1%)	6 (10.3%)
	Excellent	1 (2%)	0 (0%)
		n=49	**n=58**

* *Results are displayed either in numbers (%) for each possible answer or in mean +/- standard deviation for the age.*

Informal caregivers

The informal caregivers were asked to answer the Zarit Burden Interview (ZBI). However, due to the fact that some questions were perceived as emotionally burdensome, the majority were reluctant to answer. As can be seen in Table 8, data were obtained for 56 and 31 respondents for visits 1 and 2, respectively, in the TICC group, and in the control group for 22 and 14 respondents respectively

Table 8 Number of ZBI questionnaires completed by country in each visit

			Visits					
PP	**Country**	**Group**	**1**	**2**	**3**	**4**	**5**	**6**
PP4	UK	Target	22	13	10	4	2	
PP4	UK	Control	20	12	7	6	3	1
PP5	UK	Target	5	4	2	1		
PP5	UK	Control	2	2	1	1		
PP6	FR	Target	1					
PP9	BE	Target	24	10	5			
PP14	FR	Target	4	4	4	3	2	1

Care staff

The number of respondents at each visit is summarized in the Table 9. Four hundred and forty-one employees completed the questionnaires at the first visit in the TICC group and 37 in the control group. For the second visit, the numbers are respectively 179 and 10 employees.

Table 9 Number of employees with at least one questionnaire completed by country in each visit.

			Visits	
PP	**Country**	**Group**	**1**	**2**
PP4	UK	Target	208	115
PP4	UK	Control	18	8
PP5	UK	Target	50	
PP5	UK	Control	5	
PP6	FR	Target	36	13
PP9	BE	Target	41	13
PP9	BE	Control	14	2
PP11	FR	Target	91	31
PP14	FR	Target	15	7

Some demographic information about the employees was also gathered and described in Table 10. The age and the gender of the respondents, and their experience are shown.

Table 10 Description of the respondents for the overall staff population.

Variable	Stat/Mod*	Target	Control
Age	M +/- SD	42.1 +/- 11.8	47 +/- 12.6
		n=507	n=45
Years of experience	M +/- SD	15 +/- 11	22 +/- 13
		n=308	n=48
Length of service in the organisation	M +/- SD	6 +/- 7.5	13.8 +/- 12.2
		n=511	n=48
Gender	Male	30 (6.2%)	0 (0%)
	Female	452 (93.8%)	46 (100%)
		n=482	n=46

* *Results are displayed either in numbers (%) for each possible answer or in mean +/- standard deviation for the numeric variables.*

Focus group discussions

In total, three separate sets of FGs were planned to be conducted by healthcare organisations from different countries: one Belgian partner (BE1), three French partners (FR1, FR2, FR3) and two partners from the United Kingdom (UK1, UK2). The Belgian partner was excluded after the second round because of leaving the research project. Resulting in a total of 17 FG discussions spread over the participating organizations. Inclusion criteria for participants were: to have at least six months of work experience with the TICC-model in the organisation concerned, to be part of the TICC-team in the participating organization and to participate independently and voluntarily in the study. The number of participants in FGs was aimed at a minimum of four and a maximum of ten participants.

3.2.2 Focus group discussions

This sub-chapter provides insight into the general findings across all three focus group rounds which were undertaken at the TICC pilot sites. Findings between all partners were similar across all three focus group rounds (Table 11). However, minor differences between countries based on the focus group results were highlighted.

In all three focus group rounds, there is an indication that the implementation of the TICC model had a positive impact on staff. Staff experienced that collaboration between team members had improved. Part of this was because teams were more engaged, felt closer together, and, as a result, were happier with their job. The findings also indicate that the new way of working, according to the TICC model, gives employees more empowerment, leading to more job satisfaction. Additionally, with the TICC approach, staff were able to manage their workload more accurately, giving them more autonomy.

Patients' experiences with the TICC model indicated in the first and second rounds of focus group discussions that the new approach was more person centred. This manifested as teams interacted more holistically with patients, which led to better communication and relationships between staff and patients.

Beside these findings, the TICC approach was also experienced as non-hierarchical and that within some teams this collapsed, i.e., concerning staff members' responsibilities such as for budgeting and procurement and decision-making. Also, some patients felt reluctant to the idea of self-care tasks.

Finally, based on the responses, the TICC approach might be easier to implement in a small team or with new staff members. How the approach affects staff retention is yet unclear. What seems to be helpful to support organisation efforts is a viable administrative system. However, limited information on the user experience regarding OMAHA is reported.

Table 11 Findings of all focus group rounds

	First round of FGs	Second round of FGs	Third round of FGs
Positive perceptions	**Impact on staff** • Better communication and collaboration • The teams felt closer, and there was more unity, including outside working hours. • Staff acknowledged more satisfying working conditions. • Staff were more engaged, motivated, and felt happier • Every staff member could use their own skills and talents, which resulted in the staff growing as professionals and feeling more confident to make decisions and address patients' needs. • All teams experienced that self-managing allowed them to spread the workload more evenly across the day and/or across the staff.	**Impact on staff** • Team members need to make decisions and look for solutions together. The TICC model is seen as a rewarding way of working. It gives a sense of empowerment and contributes to staff satisfaction. • Planning is one of the elements teams managed themselves. The opportunity to consider personal preferences within the schedule is evaluated positively. • Smaller caseload. • Experiencing more meaning in work by providing care in a holistic and person-centred way. • Improved relations within the team. • Better engagement, collegiality, and cohesion within the team.	**Impact on staff** • Autonomous decision making and personal responsibility. • Openly communicating with team members. • Job satisfaction increased due to the pre-determined workload of the TICC-model. • Better work-life balance. • Individualised care delivery added to staff satisfaction.
	Impact on patients • All partners provided more person-centred and holistic care to patients. • Previous experience in delivering community care through a self-managing model is mentioned as an advantage.	**Impact on patients** • Patients received a higher quality of care because of better communication (e.g., handovers of patients and exchanging ideas) between staff members. • Care is more person-centred and holistic. • More consistency of care under the TICC model. Both in terms of continuity of treatment and in the staff members' providing the care. • Better relationships with the patients and their informal caregivers.	**Impact on patients** • No specific indications
Negative perceptions	**Impact on staff** • Working in a non-hierarchical way within a structured organisation • Difficulties in working: – being autonomous, responsible for your team and working in a non-hierarchical way – financial responsibilities such as budgets and procurement – IT infrastructure.	**Impact on staff** • Making decisions and looking for solutions together. This additional responsibility is challenging and can cause stress among staff members. • Increased engagement made it • difficult for some staff to fully disconnect on their days off.	**Impact on staff** • No specific indications
	Impact on patients • No specific indications	**Impact on patients** • No specific indications	**Impact on patients** • Patients' reluctance on self-care and scepticism towards nurses delegating self-care tasks to patients.
Question marks	**Impact on staff** • No concrete effects on staff retention. • The transition might be easier for smaller teams or new employees joining a self-managing team.	**Impact on staff** • Personal and professional growth boosted by a wider variety of roles and tasks depending on responsibility. **Other** • Patient information needs to be complete, especially between team members.	**Impact on staff** • No specific indications **Other** • The use of the OMAHA system is based on the assessment by one of the five focus group participants.

3.2.3 Implementation experience by care staff

Focus group findings[1]

In general, the implementation of the TICC model was experienced positively by the staff participants of the focus group discussions. Working in self-managing teams, having various tasks, and giving personal attention to patients increased job satisfaction among staff. TICC team participants from France, Belgium and the United Kingdom preferred the working conditions of the TICC model to standard community care. In the UK and France, job satisfaction increased with the new workload and responsibilities. Belgian staff felt their new responsibilities led to a fairer workload division among all team members. As stated by one of the participants from France:

> ***'I have been working for this organisation for three years. Before [TICC], working was like going to the slaughterhouse! And then I started with this new way of working, and that changed a lot of things for me.'***
>
> ***FR***

In all three countries, team members indicated that communication and collaboration with team members and patients improved. The French staff described:

> ***'The team spirit! I don't feel lonely anymore; I know that other team members are there if needed; we can count on each other, discuss complicated situations, laugh together and sometimes cry together!'***
>
> ***FR***

France and Belgium thought implementation of the TICC model in small teams might be easier. The French and UK teams experienced major benefits due to a being smaller team. A small group was able to discuss essential topics together, divide the work into districts and plan holidays more easily. As a result, smaller teams had more time available due to shorter meetings and handovers.

UK, Belgium, and France teams thought the current load of administrative tasks were a point of improvement. They experienced the administrative tasks as time-consuming. As illustrated by this quote from a French team:

> ***'One big impact of this way of working is to learn how to manage our time with patients and also the administrative duties of our job, in the team and individually. These tasks happen during the break time between two home visits (one in the morning and one in the evening). Before, this time was a time to rest, but now we use the time to do the administrative tasks. Consequently, it's more difficult to have a break during the day, but we try to make the most of our days off to disconnect'*** ***FR***

The team members of one French team felt like they were covering fewer patients since the implementation of the TICC model. The French team saw the administrative tasks as a burden that would continue to consume their time that should be dedicated to the patients. In regard to OMAHA, there is inconclusive evidence on its effectiveness. The UK partners did not implement the system. From the other partners only two partners gave feedback on the performance of OMAHA. Belgium found the OMAHA not in line with their needs. The team wanted to enter patient data day by day, which was not possible. One French team said that OMAHA helped them to simplify administrative tasks and procedures which saved time. The UK teams mentioned that the

1 The detailed focus group findings after the sub-chapter: '3.2.2 General findings focus group discussion I, II and III' are based on the most recent focus group rounds the implementation organisations partook in. Significant differences between the focus groups I, II and III were highlighted in the footnotes.

implementation process had been affected by operational changes of the host organisation and (external) factors (see: 3.2.41. autonomy, productivity and care costs, qualitative findings).

In Belgium, communication and decision-making with standard nursing teams became more difficult after implementing the TICC model because of the different cultures. When disagreements between the TICC team and the standard community nursing team occurred, it could take several days to solve the problems. Lastly, the Belgian legislation regarding billing for minor care activities made it difficult to get the project off the ground financially. In addition to the difficulties in getting the project off the ground financially, the management of the implementation organisation highlighted that some procedures did not bring in money, especially when the workload was high.

Table 12 provides a summary of staff impressions on implementation of the TICC model from each implementation country.

Table 12 Staff impressions on implementation of the TICC model

Implementation of the TICC model		UK	France	Belgium
Positive experiences	Efficient implementation of the TICC model	x	x	x
	Job satisfaction	x	x	x
	Communication, collaboration, and relationships with team members (and patients) improved.	x	x	x
	Healthcare delivery and cost-effectiveness	x		
Points of improvement	Administrative duties	x	x	x
	Interference from the host organisation or (external) factors	x		
	Communication with standard community care teams			x
	Financial basis in the country context			x

*Note: Items with a checkmark are the items which were **explicitly** mentioned in the focus groups.*

3.2.4 Care staff working with the TICC model

3.2.4.1 Autonomy and productivity

Quantitative findings

Autonomy and productivity were measured by the Psychological Empowerment Instrument (PEI). This questionnaire consists of 4 subdimensions of empowerment: meaning of the job, competence feeling, level of self-determination and the impact on the job. Each dimension leads to a score between 0 and 6, 6 being the best score. The mean of these 4 dimensions also gives a global empowerment score.

Psychological Empowerment (PEI)

The evolution of the PEI scores between the first (V1) and the second (V2) visits was modelled using mixed models, a positive evolution corresponding to an increased empowerment. The Table 13 describes the effects of group and country estimated with the mixed models. **There is no significant differences between TICC and control teams, nor between countries.**

The confidence intervals associated with the mean effect, corresponding to the mean evolution since the first visit, all contain the value 0. Thus, the mean evolution is not significantly different from 0, or differently said, the empowerment feeling of the care staff is relatively stable at the 1-year follow-up and does not seem to be impact by working in a TICC team.

The mean score evolution, estimated from the mixed models, are represented in Figure 11. As it can be seen, the evolution of the scores is relatively low, under -0.6 points.

Table 13 Coefficients and 95% confidence interval of the mixed models for each dimension of the PEI.

Score	Mean effect (intercept)	Control group[1]	Group p-values	France[2]	UK[2]	Country p-value
Meaning	-0.2 [-0.9; 0.4]	0 [-0.9; 0.8]	0.977	0.2 [-0.6; 1]	0.4 [-0.2; 1.2]	0.411
Competence	-0.1 [-0.8; 0.5]	-0.3 [-1.1; 0.4]	0.441	0.1 [-0.6; 0.9]	0.5 [-0.2; 1.2]	0.158
Self-Determination	-0.3 [-1; 0.4]	-0.3 [-1.1; 0.6]	0.531	0.4 [-0.5; 1.2]	0.7 [0; 1.4]	0.116
Impact	-0.1 [-1; 0.9]	0.2 [-0.8; 1.1]	0.711	0.3 [-0.8; 1.4]	0.3 [-0.9; 1.5]	1
Total empowerment	**-0.2 [-0.7; 0.5]**	**-0.1 [-0.8; 0.6]**	**0.76**	**0.2 [-0.5; 0.9]**	**0.5 [-0.2; 1.1]**	**0.149**

1 Difference with target group
2 Difference with Belgium

The coefficients interpret as followed: mean effect is the mean effect for TICC teams in Belgium. Control group is the supplementary effect for control teams. France and UK correspond to the change when in these countries. An effect is said significant when p-value<0.05. For example, the total empowerment score decreases by 0.2 for TICC teams in Belgium; and it increases by -0.2+0.5 = 0.3 for TICC teams in UK.

A confidence interval is the range in which the real value has 95% of chance to be.

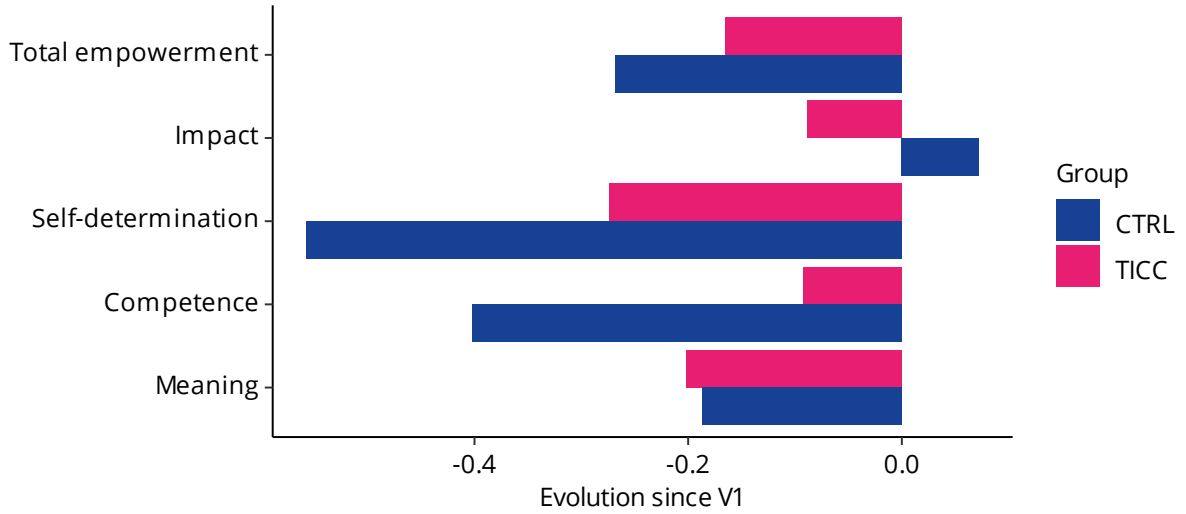


Figure 11 Mean evolution between V1 and V2 of the PEI scores. Controls are represented in blue and TICC teams in red.

Focus group findings

In general, the new autonomy in most teams led to higher job satisfaction. Tasks and activities were no longer distributed based on hierarchy and seniority but on skill and competency. The factor that reduced productivity the most was the administrative duties of the TICC teams.

In the three participating countries, autonomous decision-making led to staff members allocating clinical tasks based on the person's skill and competency instead of seniority. One UK team member stated:

> *'We've all got that responsibility and accountability for our own actions … even the untrained members of staff take accountability for whatever they've done … we don't mention banding or anything like that … In other community nursing teams, it's, go and ask a Band 6, that's what it's like.'* *UK*

France and the UK found that job satisfaction had increased with the workload and responsibilities. In the UK, especially junior staff benefitted from these increased responsibilities. The success of junior staff, having managed the new demands, was highlighted to have aided the entire team in its functioning and service delivery. An example that highlighted this aspect was the following statement by the UK:

> *'I would say it's definitely different [accountability/responsibility]; I mean I'm comparing it to ward work or other Healthcare environments that I've been in. I think [unqualified/junior colleagues] are very accountable for their patients; they face their responsibilities, they follow through, they don't delegate stuff or hand much stuff over, they do the whole care for the patient. If they can, they'll order the drugs; they'll order equipment, um, they'll discharge patients. They'll run it past us [qualified staff], but much greater autonomy.'* *UK*

The increased autonomy through self-management allowed France to make collective and individual decisions without an intermediary. As a result, they felt like the decisions were more logical and coherent over time. A French member of staff described:

> *'We receive the calls from our patients; we deal with the issues with them. It is more logical and coherent! Before I worked in a home care centre with a director and a nurse coordinator, we had much less choice … .'* *FR*

One French team experienced the extra responsibility as enriching because the diversity of tasks they had to perform increased. They learned things not taught at nursing school, such as working together, managing differences of opinion, and mastering software and administrative skills. Everyone in the UK team accepted responsibilities and accountability irrespective of pay grade.

Regarding productivity, the number of daily visits in the UK had increased, and overtime hours had decreased. Belgium noticed that more autonomy over the roster enabled the TICC team to spread the workload across the day evenly, considering team members' capacity and skills. Moreover, more autonomy led to team members looking for solutions and overcoming conflict together instead of redirecting to a manager. Belgium found that self-management resolved problems directly and more effectively.

France, the UK, and Belgium observed an increase in administrative responsibility. The Belgium TICC team flagged that taking responsibility for the administrative work came at the cost of the quality of patient care. A French TICC team experienced an increase in mental workload after gaining autonomy over administrative tasks. France stated:

'This autonomy represents more mental load for me. Before I used to be in hospital when I finished my day, I went home, and it was over. Today, the workload is greater: there is the travel time, the administration tasks, the hours… At the same time, I will never go back because my days are of better quality, and I take better care of my patients. I think I need to find my cruising speed!' *FR*

Among the French team, self-management was found to remain as a constant challenge to implement. The team found the increased autonomy and responsibility of the TICC model challenging to deal with, as they did not have the security of a superior stepping in if something went wrong. In France, the workload would increase when clients called outside working hours. Autonomous work meant TICC teams had to learn to set boundaries with patients, which was challenging for team members. Also, the increased administrative workload led to less time with patients. Regarding task division, France warned that the TICC model might increase the risk of forming a two-tier model where older staff received all the challenging tasks, and new members received less desirable duties.

UK teams had experienced increased responsibilities and workload through changes such as twilight shifts, covering patients from other standard community care teams and assigning leadership roles to senior TICC team members. Furthermore, it put self-management at risk. The other UK team also faced an increased workload and responsibility, negatively impacting patient care. The reason for the increased workload and responsibility in the other UK team was threefold. Firstly, 20%-30% of all referrals received were assessed as inappropriate given the team's eligibility criteria i.e., housebound patients. Secondly, the lack of understanding of the pre-defined, smaller caseload within the TICC model led to regular requests to support standard community nursing teams. The UK team elaborated on this in the following quote:

'Other teams are struggling because of staffing numbers or illness or what have you, so we're finding that we're kind of being pulled in directions to help them out, so we are not really a self-managing team in that respect. We're almost, you know, being instructed from above that this is what needs to happen, which is fair enough, you know, needs of the service, patients. need looking after … yes, we're linked to one doctor's surgery, and our caseload is smaller, but we're not all just sitting about twiddling our thumbs and not doing visits, so I think there's a lot of resentment from other areas … it is how other teams perceive us isn't it.' *UK*

Lastly, communication with patients was difficult because patients still held traditional expectations of receiving care. They expected the nurses to do everything and refused to self-care or be discharged. A team member illustrated this with an anecdote:

'One of our girls (colleague within the new care model team) went into an insulin (patient) … she said to the gentleman, why can't you do this yourself, and he turned around and said, well, I can do it myself, I used to do it myself, but I've got nurses coming in now, so they do it for me … she said, what if somebody actually taught you, would you be willing to do it yourself, and he goes, no I wouldn't because I've got nurses for that, and he's not understanding.' *UK*

Regarding autonomy and productivity in the UK TICC team, staff members said that some of their TICC colleagues still refused to proactively take responsibility for specific tasks, such as team phone duty and patient visit allocation. The lack of responsibility-taking by these team members increased their colleagues' workload.

Table 14 provides a summary of staff impressions on autonomy and productivity from each implementation country.

Table 14 Staff impressions on autonomy and productivity

Autonomy and Productivity		UK	France	Belgium
Positive experience	Division of tasks based on competency.	x	x	x
	Increased job satisfaction	x	x	
	More learning opportunities	x		
	More autonomy in junior staff supported senior staff.	x		
	Taking responsibility irrespective of pay grade	x		
	More time for daily visits	x		
	Fewer overtime hours	x		
	Increase in the diversity of tasks.		x	
	More coherent decisions over time.		x	
	Fair workload for everyone.			x
	Quicker conflict resolution			x
Points of improvement	Administrative support	x	x	x
	Pro-active responsibility-taking	x		
	Interference from the host organisation and external factors	x		
	Coping with autonomy		x	
	Setting boundaries with patients		x	
	Higher mental workload		x	

*Note: Items with a checkmark are the items which were **explicitly** mentioned in the focus groups.*

3.2.4.2 Retention and recruitment

Quantitative findings

The impact of TICC teams on retention was investigated by 2 aspects in the questionnaires completed by employees.

First, employees were directly asked if they were planning to leave, actively job seeking or leaving for another care provider. If any of those questions get a positive answer, employee was considered as intended to leave.

The second aspect investigated is the exposition to psychosocial risks at work, measured by the Copenhagen Psychosocial Questionnaire (COPSOQ). It evaluates 18 dimensions of various psychosocial aspects.

Intention to leave

The employees were asked if there were planning to leave, actively job seeking or leaving for another care provider. At the first visit, 34 on 428 employees (7.9%) in the TICC group had the intention to leave, vs 2 on 35 (5.7%) in the control group. The proportion rise to 21 on 175 (12%) vs 1 on 9 (11%) at the 1-year follow-up questionnaire (V2). **For both visits, the intention to leave was not significantly different between the groups (p=1).**

COPSOQ

Exposition to psychosocial risks is linked to quality of life at work. These risks were assessed by the COPSOQ. For most of the dimensions, a higher score corresponds to a better situation e.g., higher stress score implies less stress, higher work/family conflict score implies better equilibrium and less conflict. However, the three following dimensions are constructed inversely: quantitative demands, work pace and emotional demands. A higher score on those dimensions implies higher constraints, for example a higher workload.

Most of the dimension's scores range from 0 to 8, with some exceptions:

- Self-rated health ranges from 0 to 4,
- Work-family conflicts ranges from 0 to 6,
- Job satisfaction ranges from 0 to 3.

The evolution between V1 and V2, for each dimension, was analysed with a mixed model which tested the impact of the group and the country. Results of the models are available in Table 15, and the means scores estimated from the mixed models are represented in Figure 12. **We did not find impact of TICC organisation on the different dimensions. There is also no significant evolution between the two visits, and no significant differences between the countries.**

Table 15 **Coefficients and 95% confidence interval of the mixed models for each dimension of the COPSOQ questionnaire.**

Score	Mean effect (intercept)	Control group[1]	Group p-value	France[2]	UK[2]	Country p-value
Quantitative demands	0.2 [-0.6; 1]	-0.3 [-1.2; 0.7]	0.506	-0.1 [-0.9; 1]	-0.2 [-0.9; 0.7]	1
Work pace	0.7 [-0.1; 1.5]	-0.2 [-1.2; 1]	0.76	-0.4 [-1.3; 0.6]	-0.8 [-1.7; 0]	0.12
Emotional demands	0.1 [-1.2; 1.2]	0.2 [-1.1; 1.4]	0.712	0.2 [-1.2; 1.8]	-0.1 [-1.5; 1.3]	1
Influence	-0.4 [-1.6; 0.5]	0.7 [-0.4; 1.9]	0.249	0.7 [-0.5; 2]	0.1 [-1; 1.4]	0.502
Possibilities for development	0 [-1.1; 0.9]	-0.1 [-1.4; 1]	0.775	0.2 [-0.9; 1.5]	-0.2 [-1.4; 1]	1
Meaning of work	0 [-0.8; 0.8]	-0.1 [-0.9; 1]	0.902	0.1 [-0.8; 1]	-0.2 [-1; 0.7]	0.517
Commitment to the workplace	0.3 [-0.7; 1.2]	0 [-1; 1.1]	0.881	-0.3 [-1.5; 0.8]	-0.5 [-1.6; 0.7]	1
Predictability	-0.5 [-1.8; 1]	0.4 [-0.6; 1.5]	0.475	0.1 [-1.8; 1.7]	0.2 [-1.7; 2]	1
Rewards (recognition)	-0.1 [-1.2; 1.1]	0.2 [-0.8; 1.4]	0.766	-0.2 [-1.4; 1.1]	-0.2 [-1.5; 0.9]	1
Role clarity	0.3 [-0.4; 0.9]	0.1 [-0.9; 1.1]	0.879	-0.1 [-0.8; 0.7]	-0.4 [-1.1; 0.3]	0.191
Quality of leadership	-0.5 [-1.5; 0.5]	0 [-1.2; 1.3]	0.995	0.2 [-1.1; 1.3]	0.2 [-1; 1.2]	0.95
Social support from supervisor	0.5 [-1.2; 2.3]	-0.2 [-1.5; 1.1]	0.794	-0.7 [-3.1; 1.1]	-1 [-3.5; 1.3]	0.959
Job satisfaction	-0.1 [-0.5; 0.2]	0 [-0.4; 0.5]	0.861	0.1 [-0.4; 0.5]	0.1 [-0.2; 0.5]	0.793
Work-family conflict	0.5 [-0.7; 1.8]	0 [-1.1; 1]	0.866	0.2 [-1.3; 1.5]	-0.4 [-2.1; 1]	0.675
Trust regarding management	0.2 [-0.6; 1.1]	0.5 [-0.4; 1.4]	0.312	-0.1 [-0.9; 0.8]	-0.3 [-1.1; 0.6]	0.714
Justice and respect	0.1 [-0.9; 1]	0 [-1.2; 1.3]	0.976	-0.2 [-1.3; 0.9]	-0.4 [-1.5; 0.6]	0.648
Self-rated health	-0.1 [-1.1; 0.9]	-0.5 [-1.1; 0.1]	0.091.	0 [-1.3; 1.2]	-0.1 [-1.3; 1.3]	1
Stress	0.3 [-0.5; 1]	0 [-1.1; 1]	0.941	0.3 [-0.6; 1.2]	-0.2 [-1; 0.7]	0.254

1 Difference with target group
2 Difference with Belgium

The coefficients interpret as followed: mean effect is the mean effect for TICC teams in Belgium. Control group is the supplementary effect for control teams. France and UK correspond to the supplementary effect for teams in these countries. An effect is said significant when p-value<0.05.

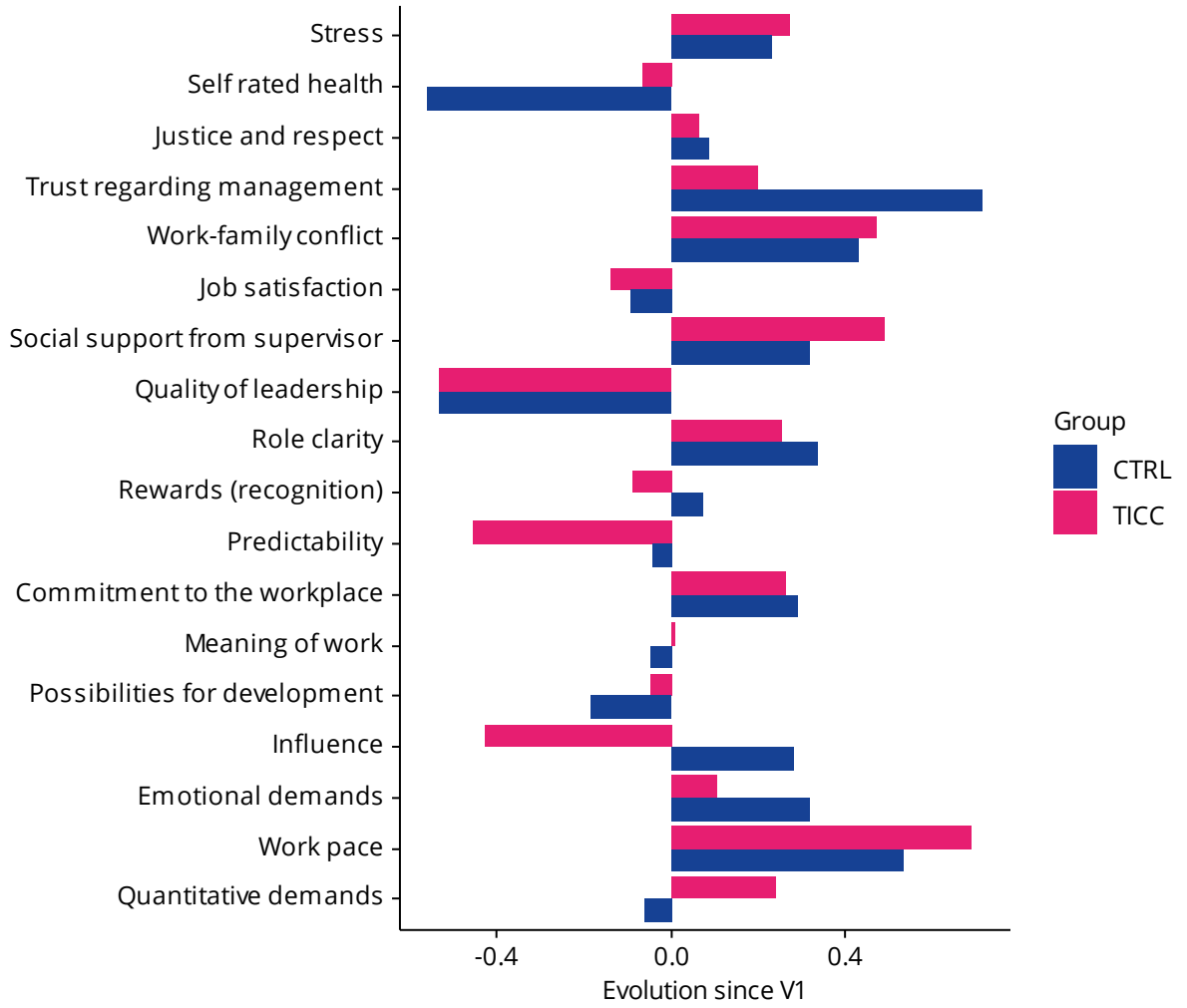


Figure 12 **Mean evolution between inclusion and first year of follow-up for the 18 dimensions of the COPSOQ scores. Controls are represented in blue and TICC teams in red.**

Focus group findings

In general, the TICC model led to staff retention in all three countries. Staff experienced greater job satisfaction because they had better relationships and communication with their team members and patients.

On the interpersonal level, TICC team members in all three implementation countries communicated better, were more engaged, and had better relationships with team members/patients/ informal caregivers. In the words from a French TICC team member:

> *'I've been working at Soignons Humain for two years now. I saw the job offer as a great adventure, and I went for it! The more I'm here, the more I learn and the happier I am. This new way of taking care is to take care of everyone, not only our patients but also each other as nurses: first of all, it means listening to everyone, to the different opinions. It's also about having the freedom to act when needed. For example, we can intervene together if we feel the need; it is very reassuring to feel that we can count on our colleagues!'* *FR*

The TICC model facilitated retention in all three countries because TICC team members felt more fulfilled at work. Belgium and UK pinpointed the greater focus on individualised care as the main factor which increased job satisfaction. A UK staff member simply stated:

> ***'I have job satisfaction within this job.'*** ***UK.***

One UK team and one French team were positive about gaining responsibility for the recruitment process to pick suitable team members. One UK team was involved in recruitment and created a process that enabled staff to find new members compatible with the TICC model. The TICC team found that not following this recruitment procedure could decrease their performance and result in the premature departure of new staff members. France explained their recruitment process in the following quote:

> ***'For recruitment, we call candidates who seem consistent with our job offer. And we attend job interviews! We can do them together or with the [implementation] coach who gives us the CVs. Of course, there is a training on this. But in any case, it is really good for us, the team, to meet the candidate before. We get to know each other, and we assess their profile before they enter our crew.'*** ***FR***

In France, staff could make autonomous decisions, leading to improved problem-solving skills and more cohesive work results. However, the TICC model was only the right fit for some. France emphasised that the TICC model was mainly suitable for good team players, who are proficient with digital tools, work well independently and solve problems alone. France cut to the heart of suitability in two sentences:

> ***'No. It [The TICC model] may not suit everyone. Above all, you have to listen and to have a team spirit, and not everyone has these qualities or ambitions.'*** ***FR***

In the UK, staff felt that the team's adoption of a system called 'named nurses' in which nurses were directly and permanently assigned to individual patients positively impacted staff retention. The UK explained:

> ***'Because we know their (patients) personalities so well, you can pick up infections from just talking to them, oh, you're a bit confused, you're a bit muddled, what's going on here, and you can pick that up whereas someone else might go in and think, she's just got dementia… they don't actually know what they're like day to day. I do think named nurses work really well… and you haven't got a new nurse going in every time changing the care plan.'*** ***UK***

Overall, staff emphasised that the TICC model could support the recruitment and retention of staff and the progression of junior team members by offering unique working conditions that promote non-hierarchy, responsibility to self-manage and a strong bond between staff members.

Belgium experienced better cohesion and engagement. For example, they were more open to supporting their fellows when it came to taking over holidays or shifts. The Belgian TICC team also saw an improvement in communications after implementing the TICC model. They indicated that gossiping was reduced, and relationships of TICC team members with each other and patients improved, resulting in patient benefits. The increased relationship quality, as well as a smaller caseload, increased retention.

Not all team members favoured the TICC model in the UK and Belgium. In Belgium, one team member left because they disagreed with the TICC model. The UK reported that the TICC model could become a potential barrier to retaining team members who preferred a more hierarchical approach to nursing, as deftly put in the following quote:

'Some people want to be directed and, like a lot of the nurses I have spoken to, and the HCAs (Healthcare Assistants) they wouldn't want to do it [TICC model].' *UK*

One French team experienced their power over the recruitment process as a burden. The team found it time-consuming because new staff often left soon after recruitment, and the recruitment process had to be repeated.

In one UK team, the operational changes had affected staff members' feelings and performance so much that they decided to leave the team. A team member said:

'Quite a few people (staff from other teams) have left because they didn't want to do twilights … they are leaving left, right and centre you wouldn't believe it … I'm not sure what's going on, I'm not sure if many exit interviews are going on, but there's a lot of people, particularly a lot of Band 6's leaving. Quite worrying really, to be honest.' *UK.*

The other UK team had to deal with a decrease in favourable TICC model conditions due to external factors such as increased pressure from the community and staff shortages. A member of staff illustrated:

'I've said that for probably the last year and a half, even to the Coach … I worked in [a standard care community nursing team] … I've had the amount of visits there, maybe sixteen, seventeen on an 8.30 to 16.30 hrs shift … when we first started this we probably had three or four visits a day each … I think it was two weeks ago on a late shift, I had twelve visits, so it's looking like community [a standard care community nursing team] … so for me, it's like it's going back to community with the amount of visits … there's no staff, every team has got no staff … when the project started, there would be no overtime … you'll finish on time, get your lunch and it's gradually going back to how it was in the community.' *UK*

However, no one saw themselves leaving the team because the TICC conditions were still preferable to standard care. In the words of a staff member:

'I feel fed-up, but I can't see myself anywhere else.' *UK*

Recruitment was seen as essential to communicate expectations surrounding the model and maintain a harmonious balance of personalities within the TICC team. However, one UK team had not been involved in the recruitment process by their host organisation. The team thought the host organisation should rectify this. The staff sketched the lay of the situation as follows:

'There's a lot of issues when no one recruits their own staff. It's all done at some kind of other level, and I think it is important you recruit your own staff, and you employ people who fit into your team, and we've been very lucky … I think you have to be careful whom you get into your team … we've got new staff starting, and I have no idea who they are; I mean, just hope they're alright, but I haven't met them.' *UK*

The increased work engagement in Belgium sometimes led to team members not taking sick days even though they needed to rest and heal. Table 16 provides a summary of staff impressions on retention and recruitment from each implementation country.

Table 16 Staff impressions on retention and recruitment

Retention and Recruitment		UK	France	Belgium
Positive experience	Increased job satisfaction	X	X	X
	Improved relationships and better communication between TICC team members (and patients)	X	X	X
	Involvement in the recruitment process	X	X	
	Providing individualised care	X		X
	Smaller caseload			X
	Permanent patients	X		
	Unique career and training opportunities	X		
	Improved problem-solving skills and more cohesive work results		X	
	Suitable for people who work well in a team and independently.		X	
Points of improvement	Not suitable for people who like hierarchy	X		X
	Overworking			X
	The recruitment process is time-consuming		X	
	Operational changes	X		
	No involvement in recruitment	X		

*Note: Items with a checkmark are the items which were **explicitly** mentioned in the focus groups.*

3.2.4.3 Sick leave

Quantitative findings

The general data provided by the partners contained the number of sick leave days. The average number of sick leave days per employee is given for each team and per periods. The results are displayed in Figure 13, and an average for all partners is available in Table 17.

Some partners were able to collect control data, and the estimations of the average number of sick days per employee are as follows:

- For PP4, it is of 3.1 days for TICC teams, and of 4.4 days for control teams
- For PP5, it is of 10.6 days for TICC teams, and of 11.6 for control teams

The statistical analysis on this two partners shows that there is a significant difference of 1.4 days less in TICC teams (p=0.003) – thus a benefit for TICC teams.

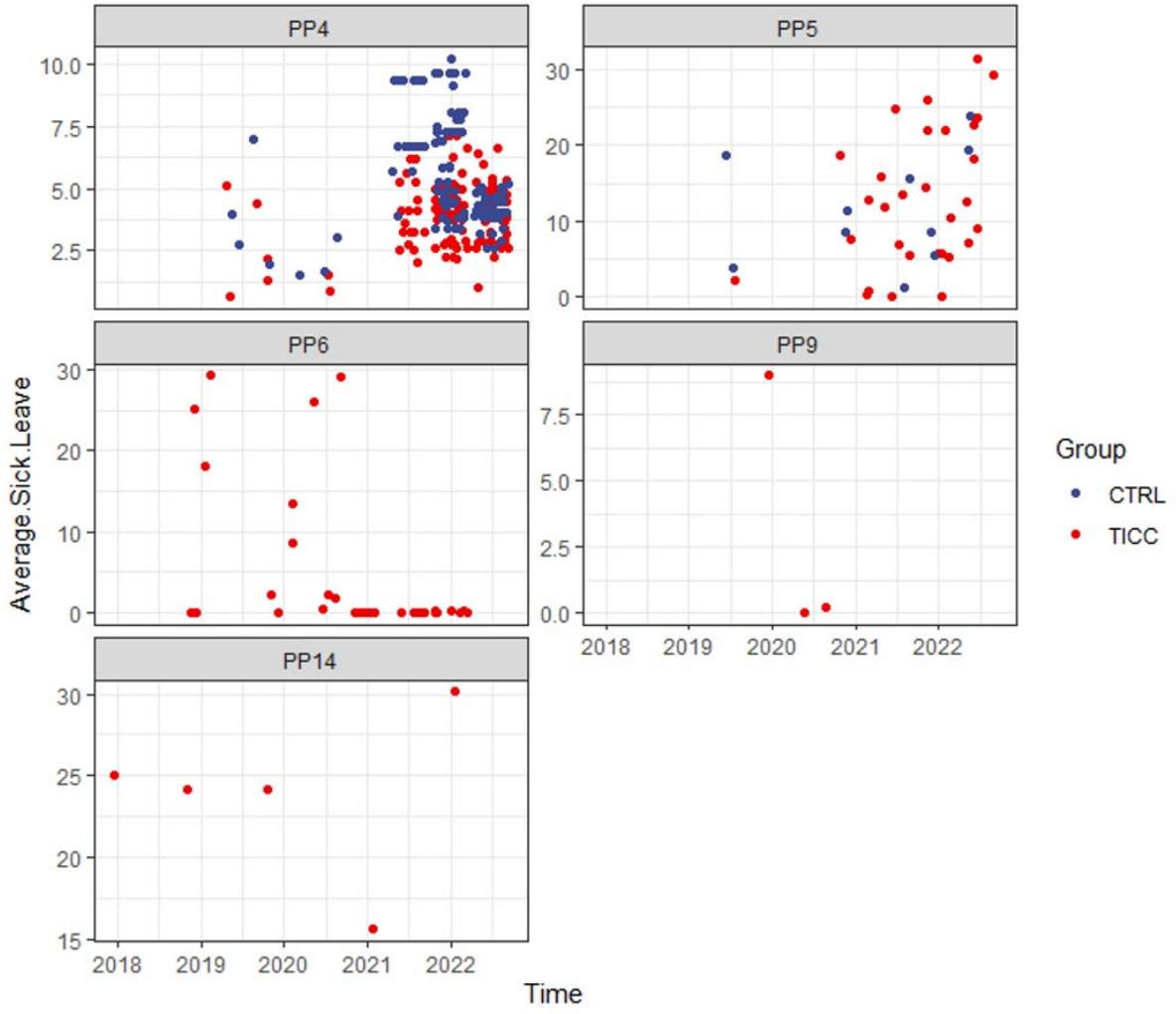


Figure 13 Number of sick leave days. Controls are represented in blue and TICC teams in red.

Table 17 Average number of sick leave days.

Partners	Control teams	TICC teams
PP4	4.4	3.1
PP5	11.6	10.6
PP6		5.4
PP9		4.6
PP14		23.8

Focus group findings

The UK and France had significant staff shortages due to sick leave.[2] The focus groups were unclear on the origin of people needing to take sick leave. Belgium described that higher engagement led to staff taking less sick leave even if sick leave might have been necessary.

2 In the earlier rounds of the focus groups, the UK noticed that staff took less sick leave because they were happier in the TICC model. Staff happiness in the TICC model translated to less sick leave. Staff shortages due to sickness increased at least partly due to the onset of the Covid-19 pandemic.

3.2.5 Better care for people

3.2.5.1 Patient autonomy

Quantitative findings

The impact of health on the autonomy of the patients, and its social participation, was measured by the IPA scale (Impact on Participation and Autonomy). It evaluates 4 dimensions, on a scale ranging from 0 to 4:

- the social life and relationships of the patient
- Its autonomy outdoor
- Its family role
- Its autonomy indoor

A fifth dimension about work and education is not considered, as most of the patients in charge are not concerned (e.g., elderly patients). The estimation of the mean, visit, group, countries and interaction between visit and group effects of the mixed models are presented in Table 18. The mean evolution since V1, computed as marginal means from the model, is displayed in Figure 14. In this analysis, data until Visit 5 are used, thus the evolution along time was estimated. **We did not find any statistical differences between patients in care with TICC teams and with traditional teams, nor a significant country effect.**

To note: due to the overload of work it presented for the staff, PP6 and PP11 did not delivered the IPA questionnaires, thus are not included in these results.

Table 18 Coefficients and 95% confidence interval (range where the real value has 95% of chance to be) of the mixed models for each dimension of the IPA questionnaire.

Score	Mean effect (intercept)	Visit[1]	Control group[2]	France[3]	UK[3]	Country p-value	Visit * Control[4]	Group p-value
Autonomy indoor	-0.5 [-1; 0.1]	0.1 [0; 0.2]	0.4 [-0.5; 1.3]	-0.4 [-1.4; 0.6]	-0.1 [-0.9; 0.8]	0.669	-0.1 [-0.3; 0]	0.456
Family role	-0.8 [-1.6; 0]	0.1 [-0.2; 0.3]	-0.3 [-1.8; 1.2]	0 [-1.2; 1.3]	0.7 [-0.2; 1.7]	0.27	-0.1 [-0.5; 0.3]	0.151
Autonomy outdoor	-0.6 [-1.8; 0.7]	0.3 [-0.1; 0.8]	-0.4 [-1.8; 0.8]	-1.2 [-2.3; 0.3]	-0.1 [-1.4; 1]	0.0529.	0 [-0.3; 0.4]	0.504
Social life and relationship	-0.1 [-0.7; 0.4]	0.1 [0; 0.3]	0.2 [-0.6; 1.1]	0 [-0.8; 0.6]	0 [-0.6; 0.5]	0.995	0 [-0.3; 0.2]	0.822

1 Effect for each additional visit
2 Difference with target group
3 Difference with Belgium
4 Group effect on the evolution in time

The coefficients interpret as followed: mean effect is the mean evolution of the scores for TICC teams in Belgium, at V2. Visit is the evolution for each supplemental visit. Control group is the supplementary effect for control teams. France and UK correspond to the supplementary change for the patients in these countries.

Visit*control is the supplementary visit effect when in the control group.

The Group p-value consider both a main group effect and a significant interaction, which mean we can have either a different level or a different evolution in time in each group. An effect is said significant when p-value<0.05.

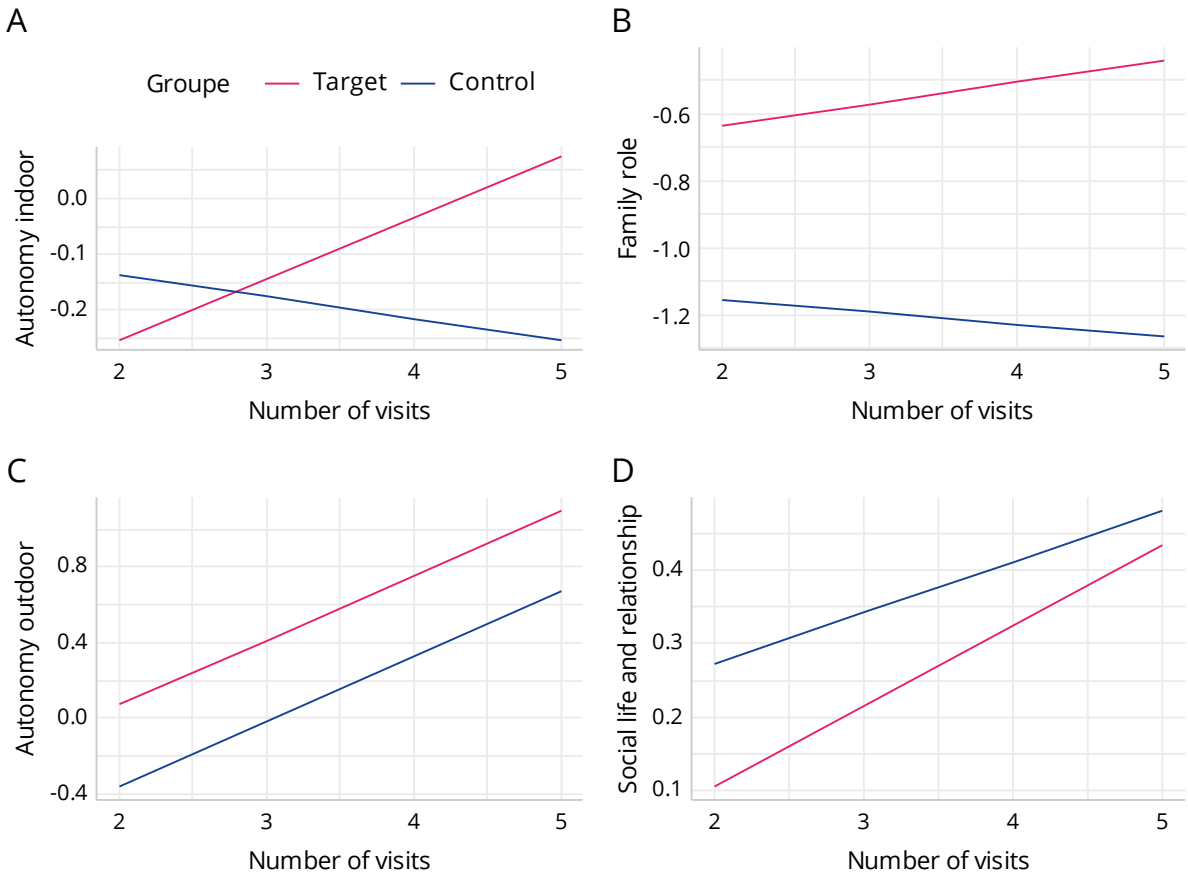


Figure 14 **Evolution of the IPA scores since first visit (V1) along time for the different dimensions: A – Autonomy indoor; B – Family role; C- Autonomy outdoor; D – Social life and relationship. Controls are represented in blue and TICC teams in red.**

Focus group findings

In general, there was a clear divide between patients (and informal carers) who relished in the autonomy the TICC model allowed them and patients (and informal carers) who did not like it.

France noted that patients and their informal caregivers enjoyed the autonomy they gained under the TICC model. The patients and informal caregivers appreciated that the TICC team collaborated with them instead of imposing a treatment plan on them, giving them more autonomy. France shared the following observation:

> ***'In the positive feedback, I also see the impact on the carers, who are relieved of their role, and at the same time, they realise that they are not alone. They feel valued that we integrate them into the treatment plan and that we are working with them. They are surprised and satisfied at the same time. This is the difference I feel compared to working in a private practice. With this way of working, we try not to be needed as quickly as possible as we want to give people back their autonomy! It surprises them; here we differentiate taking care and assisting as both missions are often mixed up!'*** ***FR***

The French staff also experienced that informal carers reacted critically towards nurses delegating caring tasks to patients to encourage self-care. As a result, the nurses needed to explain and show the approach and its benefits to all new patients and family members. France explained:

'With the families, this can also generate misunderstandings: Why aren't you doing this? Why don't you do that? Like brushing the teeth of someone who has lost their independence. We have to explain that we encourage support and the development of the patient's autonomy. I'm holding your mum's arm, and she's able to brush her teeth by herself. Then they are surprised to see the reappearance of certain gestures, greater mobility, or abilities that seemed to have diminished and which they are now regaining.' *FR*

According to the UK, sustaining patients' autonomy was an ongoing effort to facilitate. The staff regularly gave educational interventions to help patients manage their healthcare needs and adopt healthier living. The UK dwelled mainly on the difficulties of promoting patient autonomy and independence.[3] One difficulty was that people refused to self-care even though they were capable of it. They felt it was part of the nurses' responsibility to care for them, as illustrated in the following quote:

'… Because you're the Healthcare Professional, they think you should be doing everything for them. When a new patient comes in, there's a lot of effort that goes into that person to get them to think in a new way to think actually I can self-care for myself … it's very hard to educate someone … ' *UK*

The UK TICC nurses felt duty-bound by their profession not to discharge patients who would not take the appropriate care measures. Staff concluded:

'It comes back to us because we've got a duty of care; that's what it comes down to.' *UK*

Some patients and professionals had developed a dependency on the TICC team via increased engagement. These patients and health professionals kept engaging with the TICC team because they had become over-reliant on their support and company. In the words of the UK team:

'They can become over reliant, and I think that's the danger of this is that actually we get closer to our patients, and they kind of get used to us, and then they kind of don't want to, they sort of cling on to that and they don't want to let go, and it's actually, you know, we've been coming in for a while now, and we can get you to do this, but they don't want to.' *UK*

Furthermore, several patients did not display the capacity to care for themselves. Their hygiene standards were so poor that implementing self-care would have been a potential risk to their recovery. The UK Staff explained:

'We try to educate them, we try and get people to self-care, and some of these patients you wouldn't want them to, like with hygiene and stuff, it would be more of a risk to let them self-care than you just to nip in and do it…as long as they're able, physically able, but then as much you say you need to wash your hands, you need to put your gloves on, and they say, no, it's alright … it doesn't work for everyone, it really doesn't and as nice as they are and they're willing, you know you're going to be sending them to A&E with sepsis.' *UK*

3 In the earlier focus group rounds, the UK discussed the positive effects of promoting autonomy among patients and informal carers. UK partners specifically mentioned beneficial outcomes regarding improved capacity for self-management and quicker discharges.

Table 19 provides a summary of staff impressions on patient autonomy from each implementation country.

Table 19 Staff impressions on patient autonomy

Patient autonomy		UK	France	Belgium
Positive experiences	Collaboration between patient and staff		x	
Points of improvement	Autonomy was hard to implement, e.g., due to conventional nursing expectations, overreliance on care and poor standards of self-care in patients	x	x	

*Note: Items with a checkmark are the items which were **explicitly** mentioned in the focus groups.*

3.2.5.2 Patient satisfaction

Quantitative findings

The satisfaction of the patients about their care was studied with 2 criteria. The first one is a direct measure of satisfaction, with the Net Promotor Score. The second one is the health-related quality of life, measured by the MOS-SF-36 and MOS-SF-12 questionnaires.

Net promotor Score

Patients answer the question 'to which extent would you recommend our organisation to one of your friends?', on a scale ranging from 1 (worse) to 10 (best). The NPS is then computed as the percentage of patients scoring 9 or 10 (the promotors) minus the percentage of patients scoring 6 or below (the detractors).

As can be seen in Table 20, NPS seem to be higher in TICC teams.

Table 20 Net Promotor Score computed at each visit, for each partner.

			Visits				
PP	**Country**	**Group**	**1**	**2**	**3**	**4**	**5**
PP4	UK	Target	64	82	83	67	100
PP4	UK	Control	59	68	50	-33	-33
PP5	UK	Target	89	50	67		
PP5	UK	Control	-50	0			
PP9	BE	Target	51	74	62	0	

For PP11, the NPS wasn't collected during patients' follow-up. However, the partner provides an estimation of the NPS from evaluations performed regularly, reported in Table 21.

It seems that the NPS is higher at the end of the project than it was at the beginning.

Table 21 Yearly NPS computed for PP11.

Year	2017	2018	2019	2020	2021	2022
NPS	29	35	35	51	38	44

Health-related Quality of Life

Another dimension we investigated was the health-related quality of life, measured by the MOS-SF-12 and MOS-SF-36 questionnaires. The SF-36 is a 36 items questionnaire. It was used by UK partners (PP4 and PP5). The French and Belgium partners used a shorter 12-items versions. This shorter version was used due to difficulties of patients completing the 36 items, and because of the time it took to the teams. Regardless of the version used, the questionnaires lead to 2 scores globally: a mental health-related and a physical health-related quality of life s. Results of the mixed model analysis are provided in Table 22.

There is a significant positive impact of TICC teams on the quality of life. The impact on mental health related score is statistically significant and nearly significant for the physical heath related score. In fact, the evolution of the scores is impacted, with scores that increase or are stable in TICC teams, where the scores are decreasing in control teams. The Figure 15 shows the mean scores evolution since V1 at each visit.

Table 22 Coefficients and 95% confidence interval of the mixed models for each dimension of the MOS-SF12/36 questionnaires.

Score	Mean effect (intercept)	Visit[1]	Control group[2]	France[3]	UK[3]	Country p-value	Visit * Control[4]	Group p-value
Mental	-4.7 [-15.7; 6.3]	1.2 [-1.1; 3.3]	8.4 [-5.9; 22.8]	4.3 [-6.6; 14.6]	7.5 [-3.7; 21.3]	0.588	-4.7 [-8.7; -0.7]	0.0258*
Physical	0.2 [-11.4; 11.3]	0.3 [-3.3; 3.4]	14.7 [-1; 30.2]	0.1 [-10.4; 9.9]	1.8 [-10.7; 13.3]	0.87	-5.3 [-9.8; -1.2]	0.0538.

1 Effect for each additional visit
2 Difference with target group
3 Difference with Belgium
4 Group effect on the evolution with time

The coefficients interpret as followed: mean effect is the mean evolution of the scores for TICC teams in Belgium, at V2. Visit is the evolution for each supplemental visit. Control group is the supplementary effect for control teams. France and UK correspond to the supplementary change for the patients in these countries.

Visit*control is the supplementary visit effect when in the control group.

The Group p-value take into account both a main group effect and a significant interaction, which mean we can have either a different level or a different evolution in time in each group. An effect is said significant when p-value<0.05.

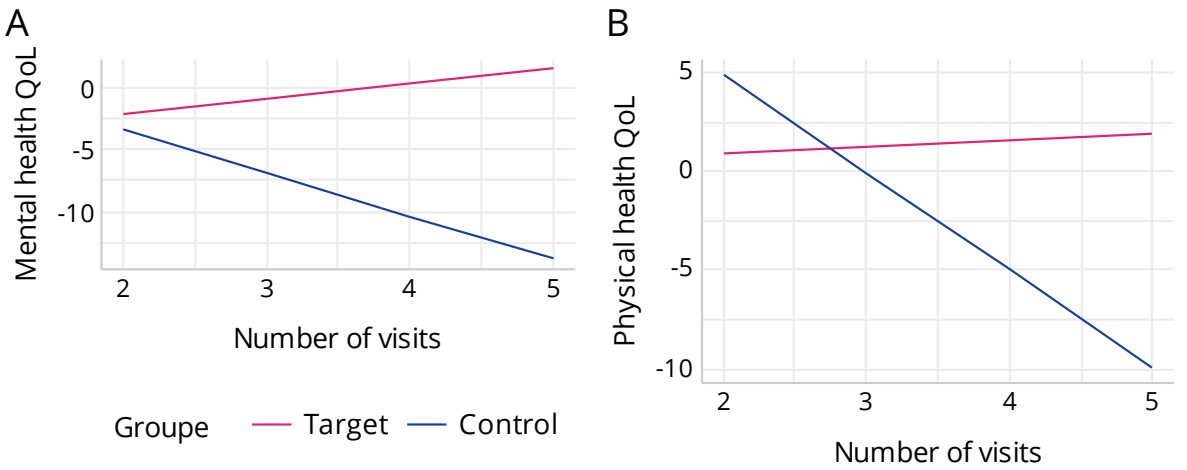


Figure 15 Evolution of the SF12/36 scores since baseline along time for the two main dimensions: A – mental health related quality of life; B – physical health related quality of life. Controls are represented in blue and TICC teams in red.

Focus group findings

In general, there was a clear divide between patients who enjoyed the new care model for its more global approach, whereas others found it too intrusive or disagreed with the emphasis on self-care. There are clear differences in the view of patients between countries. For example, patients expressed more positive feedback in France compared to the UK.

In France, patients enjoyed directly contacting their designated nurse if changes occurred. French patients enjoyed the more collaborative approach and active involvement in care under the TICC model.

> ***'We are the ones who manage the care from A to Z. We take care of the meals, the food, we make appointments, we take care of special requests if the needs change. No need to go through the office. It's much faster and more reliable.'*** ***FR***

Patients and informal carers in France formed quality bonds with their nurses due to the TICC model. They experienced more trust towards the TICC team members and were more understanding when difficulties and changes arose in the caring process. Some French patients reacted to the new approach with trepidation. Specific patients experienced the new holistic approach to caring as intrusive as described in the following quote:

> ***'Some patients can be destabilised by the number of questions we ask them in order to get to know them well. Some find this intrusive. They are not always aware of why we are trying to get to know them so well, so we have to explain our approach.'*** ***FR***

In the UK, patients had trouble adjusting to the new care model[4]. Some patients still had more traditional expectations of the role of a nurse toward a patient. Patients voiced unhappiness with the quality of care if their conventional expectations were not fulfilled. The UK shared the following anecdote:

> ***'We seem to be the horrible people refusing to go out to people when actually we're not at all … you end up getting families ringing up complaining, oh why aren't you coming out to see Dad? You came to see him yesterday…we've got a patient at the minute that's not housebound, and we're going in to do medication, and he says, well, I've paid my taxes, so why isn't a nurse coming to do my injection? He's more than capable. He goes out on his mobility scooter, he goes driving shopping, but because we're nurses, he expects us to go out to him because that's apparently what he deserves, and that's what our job is when actually our job isn't to do that, our job is to go and see vulnerable people who can't clinically leave the house.'*** ***UK***

4 In the earlier rounds of focus groups, the UK staff received feedback from patients that they experienced the TICC model care as higher quality, more person-centred and holistic.

Table 23 provides a summary of staff impressions on patient satisfaction from each implementation country.

Table 23 Staff impressions on patient satisfaction

Patient Satisfaction		UK	France	Belgium
Positive experiences	Active involvement in care		X	
	Direct contact with the nurse		X	
Points of improvements	Experiencing holistic care as intrusive		X	
	Self-care promotion	X		

*Note: Items with a checkmark are the items which were **explicitly** mentioned in the focus groups.*

3.2.5.3 Care efficiency

Quantitative findings

Three indicators are related to the care efficiency, both gathered through the general data: the length of care of the patients, the number of unplanned hospitalisations, and the number of admissions in care home. For these later criteria, we hypothesised that a better care at home, with a better support given to the informal caregivers, can increase the possibility for the patients to stay at home.

Length of care

Average length of care was estimated by the partners, within each team. Data are represented in Figure 16,. A summary is given in Table 24.

For partners with control data (PP4 and PP5), the length of care seems to be shorter in TICC teams, the mean difference being of 187 days (p=0.001). In this case, it would imply that the same number of care staff would be able to take in care more patients during a year. However, the length of care is highly variable depending on the team and the kind of patients in charge, so this result is to consider with great caution.

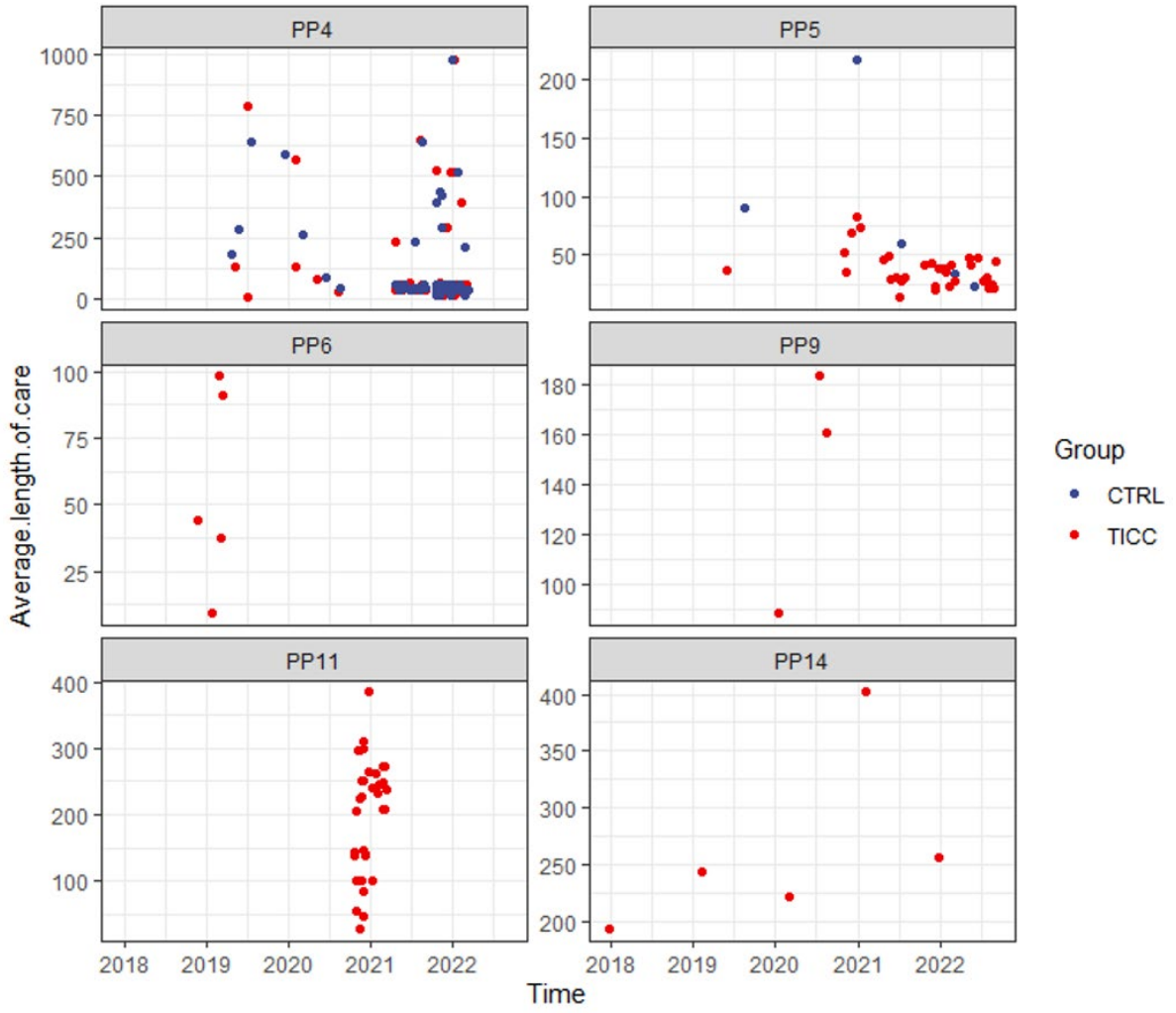


Figure 16 Length of care in days. Each dot corresponds to a team. X-axis corresponds to the time, and y-axis to the estimated length of care. Controls are represented in blue and TICC teams in red

Table 24 Average length of care in days.

Partners	Control teams	TICC teams
PP4	208.0	178.7
PP5	84.4	39.3
PP6		56.0
PP9		130.2
PP11		202.1
PP14		263.6
Total	146.2	145

Unplanned hospitalisation and home care admissions

The number of unplanned hospitalizations and the rate of home care admissions are hard to interpret. Indeed, the information was hard to gather and have only been partially collected. No control group data are available for unplanned hospitalizations. The available data are represented in Figure 17 and summarized in Table 25 for the unplanned hospitalizations, and in Figure 18 and Table 26 for the admissions in care home.

Figure 17 Number of unplanned hospitalizations.

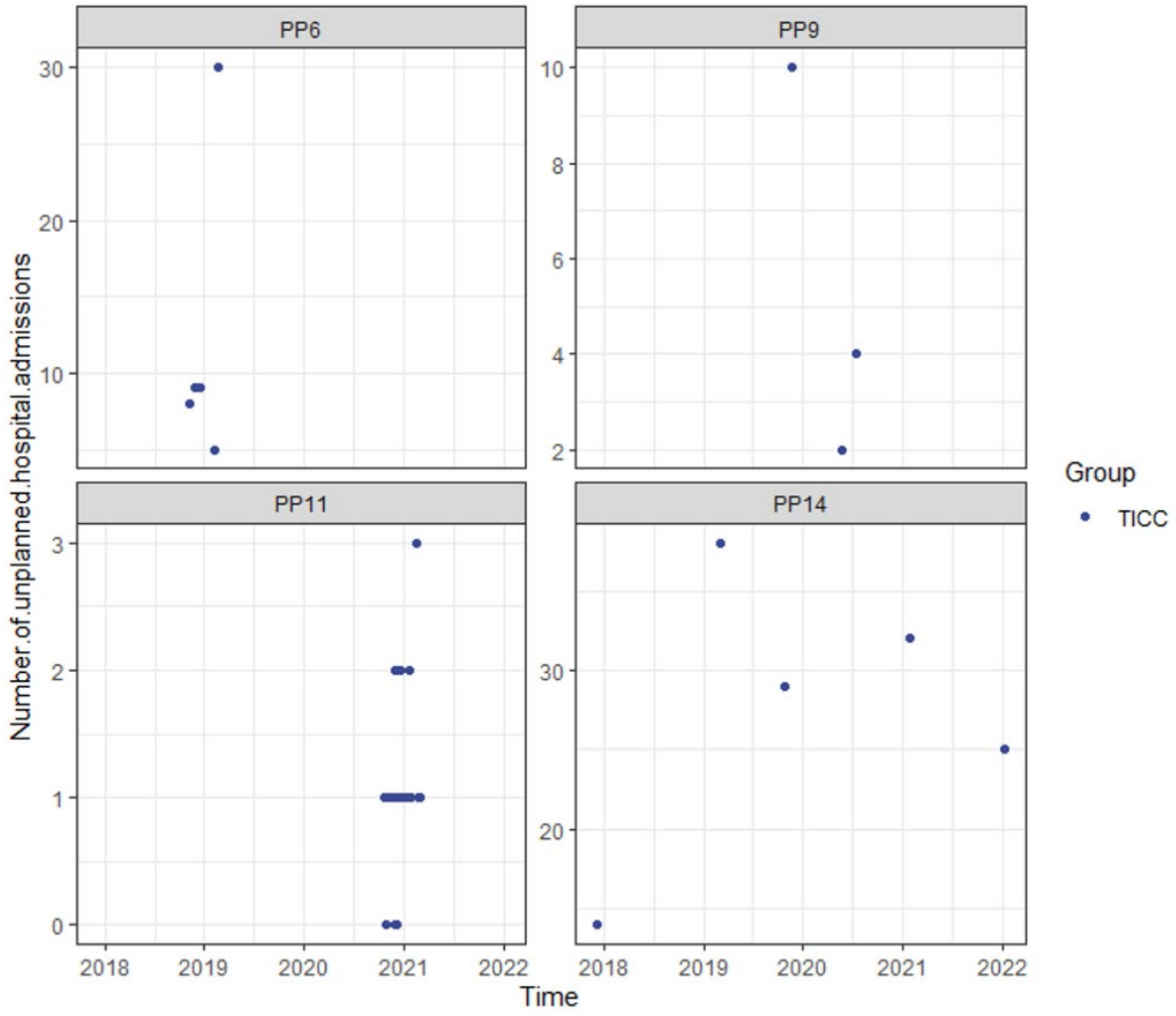


Table 25 Average number of unplanned hospitalization admissions.

PP	TICC teams
PP6	12.2
PP9	5.3
PP11	1.1
PP14	38.0
Overall mean	14.2

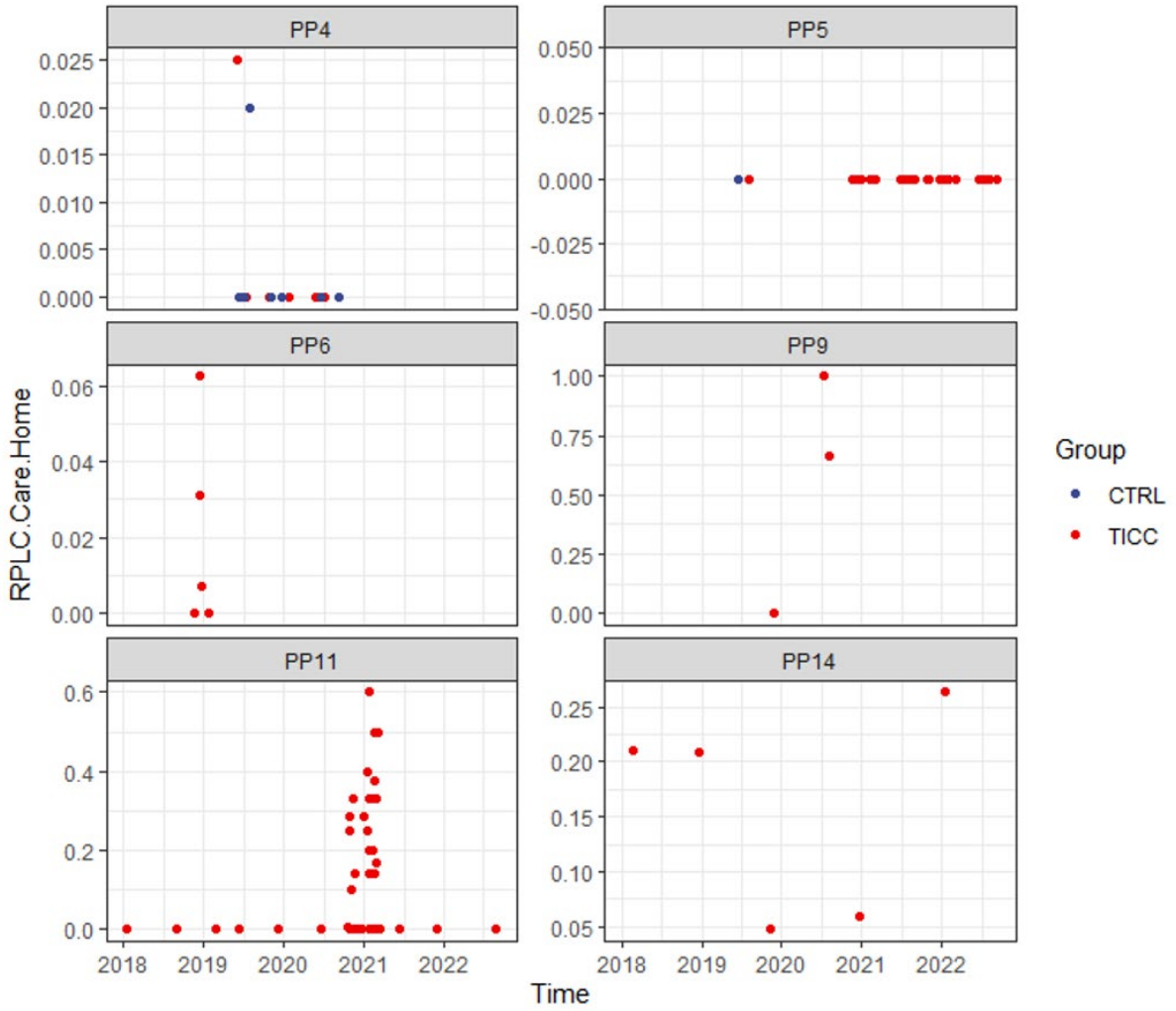


Figure 18 Rate of home care admissions. Controls are represented in blue and TICC teams in red.

Table 26 Average rate of home care admissions.

Partners-	Control teams	TICC teams
PP4	0	0.0
PP5	0	0.0
PP6		0.0
PP9		0.6
PP11		0.2
PP14		0.3
Total	0	0.2

Focus group findings

In general, the countries identified that the continuity of care had improved, and the care had become more holistic. Belgium and the UK even saw a trend towards fewer clinical accidents. However, the administrative burden had an adverse effect on the delivery of care activities.

Belgium, France, and the UK staff felt they delivered more holistic care. In Belgium, this holistic care approach led to a better quality of care.

France and the UK also found that they could provide better continuity of care. For example, the TICC model gave the care experience of French patients' continuity and stability by establishing fixed hours and staff members as well as making individual decisions regarding patient care and scheduling of care without a middleman. Staff summarised it aptly in the following quote:

> ***'We take care of the meals, the food, we make appointments, we take care of special requests if the needs change. No need to go through the office. It's much faster and more reliable.'*** ***FR***

The Belgian and UK teams found that the TICC model had a positive effect on clinical accidents.[5] Belgium stated that fewer medication errors were made because the nursing team had the time to distribute the medication themselves or pass on the correct instructions to another nurse. In the UK, mainly sustaining the patient empowerment ethos aided them to maintain standards for delivering safe, flexible, and timely holistic care. One UK TICC team noted that no avoidable clinical incidents had taken place. The care delivery in the UK was safer because patient information was handed over quicker, more completely, and with less room for mistakes. UK staff gave an example:

> ***'[During COVID-19] the ones [TICC team colleagues] that were vulnerable, they worked from home, but we still had handovers, and we'd have Facetimes, or phone them so they could still hear the handovers.' UK***

Care efficiency in the UK increased because the junior staff took over more complex responsibilities. Junior staff taking over these responsibilities benefitted the entire team's functioning and service delivery.

France and Belgium felt that the administrative burden affected their care efficiency. One French team felt they spent less time with patients after implementing the TICC model. Due to the caseload restriction and the number of administrative tasks, they said they could attend to fewer patients in a day. Belgium mentioned that the administrative burden was so high that it reduced the quality of care because nurses had to skip care meetings.

In the UK, operational changes and external factors affected healthcare delivery performance. For example, it led to fewer daily visits and more overtime hours because the workload and travel time increased. The UK highlighted the amount of time lost due to travel time:

> ***'If we're on a twilight, we're expected to cover, well certainly … half an hour to forty minutes [travel time to visit], that's on a bad day … but it's a good half an hour if not longer.'*** ***UK***

5 In the earlier focus groups, staff identified a trend towards fewer adverse clinical accidents. One of the UK partners attributed this to the TICC teams having accepted greater responsibility and accountability for the care they provided. The opportunity to build stronger therapeutic relationships with patients/informal caregivers positively impacted the staff's capacity to identify and address safety issues.

Table 27 provides a summary of staff impressions on care efficiency from each implementation country.

Table 27 Staff impressions on care efficiency

Care efficiency		UK	France	Belgium
Positive	Holistic care	x	x	x
	Better continuity of care	x	x	
	Fewer clinical accidents and errors	x		x
	Better service delivery because of responsibility taking in junior staff	x		
	Better quality of care			x
Negative	Administrative support		x	x
	Interference from the host organisation and external factors	x		

*Note: Items with a checkmark are the items which were **explicitly** mentioned in the focus groups.*

3.2.5.4 Burden informal caregiver

Quantitative findings

The burden of the informal caregivers was measured by the Zarit Burden Interview as already explained above. A higher score corresponds to a higher burden. The evolution of the burden score at V2 was analysed with a mixed model. The results of the mixed model are given in Table 28, and the estimation of the average evolution are represented in Figure 19. **We did not find significant differences between the two groups**. Due to the nature of the questions, perceived as intrusive by the informal caregivers, the questionnaires were hard to complete. The French partners (PP6, PP11 and PP14) were not able to gather data on this subject, or too few to be used. Thus, results from these partners are not included in this analysis. The mean difference between the groups is 2 points but is not statistically significant.

Table 28 Coefficients and 95% confidence interval of the mixed models for the ZBI score.

Score	Mean effect (intercept)	Control group[1]	Group p-value	UK[2]	Country p-value
ZBI	0.5 [-3.4; 4.5]	-2 [-6.3; 3.3]	0.325	1 [-4.3; 5.9]	0.676

1 Difference with target group
2 Difference with Belgium

The coefficients interpret as followed: mean effect is the mean effect for TICC teams in Belgium. Control group is the supplementary effect for control teams. UK corresponds to the change for UK teams. An effect is said significant when p-value<0.05.

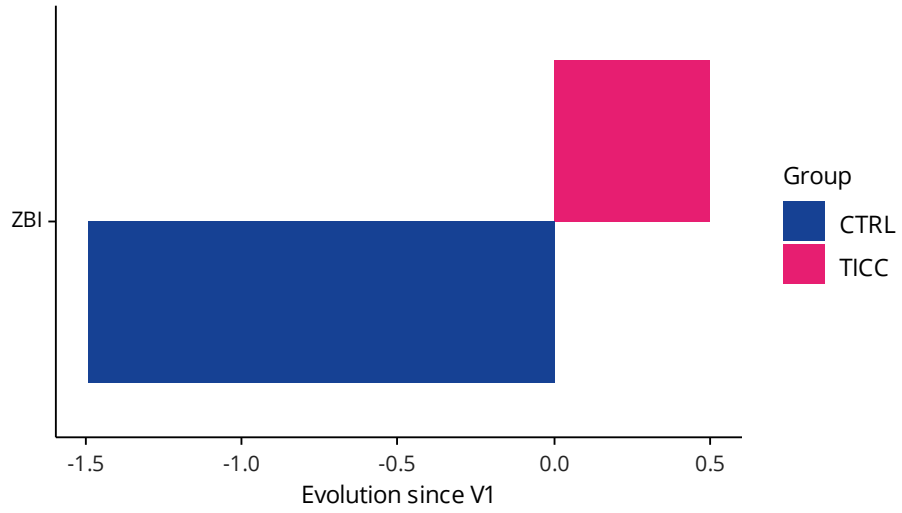


Figure 19 - Mean evolution of the ZBI score between V1 and V2. Controls are represented in blue and TICC teams in red.

3.2.6 Cost savings

Quantitative findings

Two indicators were extracted from organisational systems, named general data in this study: the average home care costs and the average number of care hours per patient.

Average home care costs

Average home care costs were estimated by the partners (Table 29). The costs are estimated per teams at various time points. Data are represented in Figure 20, where each dot corresponds to a team. X-axis corresponds to the time, and y-axis to the estimated costs. The colours are different for control and TICC teams. Home care costs are quite heterogeneous, ranging from 224€ to 5461€.

For the only partner with available control data (PP4), the costs were significantly higher for TICC teams, with a mean increase of 811€ (p<0.001).

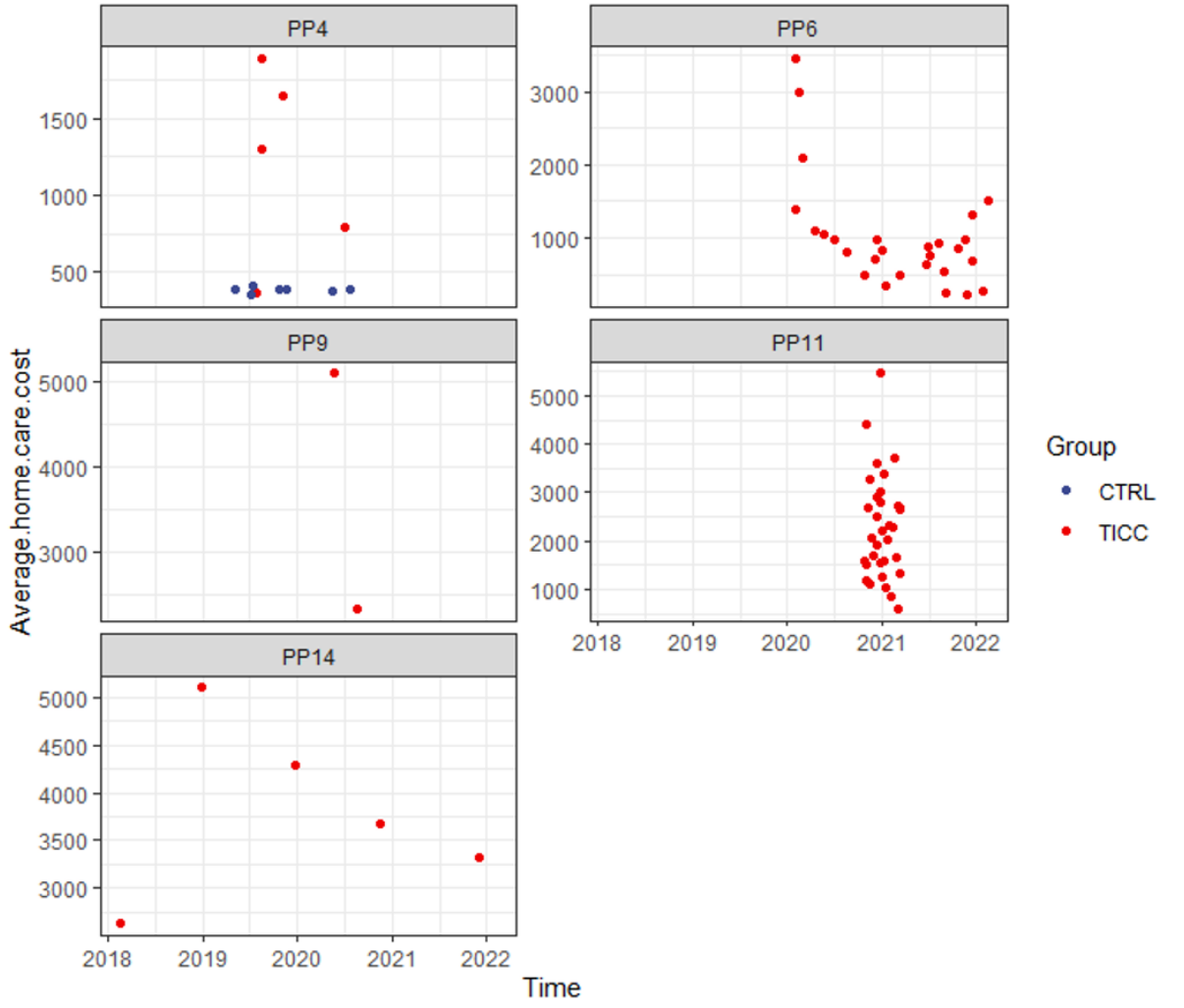


Figure 20 Average home care costs in €.

Table 29 Average home care costs.

Partners-	Control teams	TICC teams
PP4	398.1	1,762.7
PP6		1,885.2
PP9		3,712.4
PP11		2,291.6
PP14		5,099.4
Total	355.5	2,912.5

Number of homecare hours per patient and length of care

The average number of hours of homecare per patient (Figure 21 and Table 30) and the length of care (Figure 22 and Table 31) are quite variable, depending on the partner. Therefore, it is highly possible that the regulatory environment and the specialties of each partner have a great impact on the time with the patients.

For PP4 and PP5, for whom control data were available, no statistical differences were found for the number of care hours (p=0.32), but **the length of care was significantly lower in TICC teams, with a mean difference of 187 days (p=0.001).**

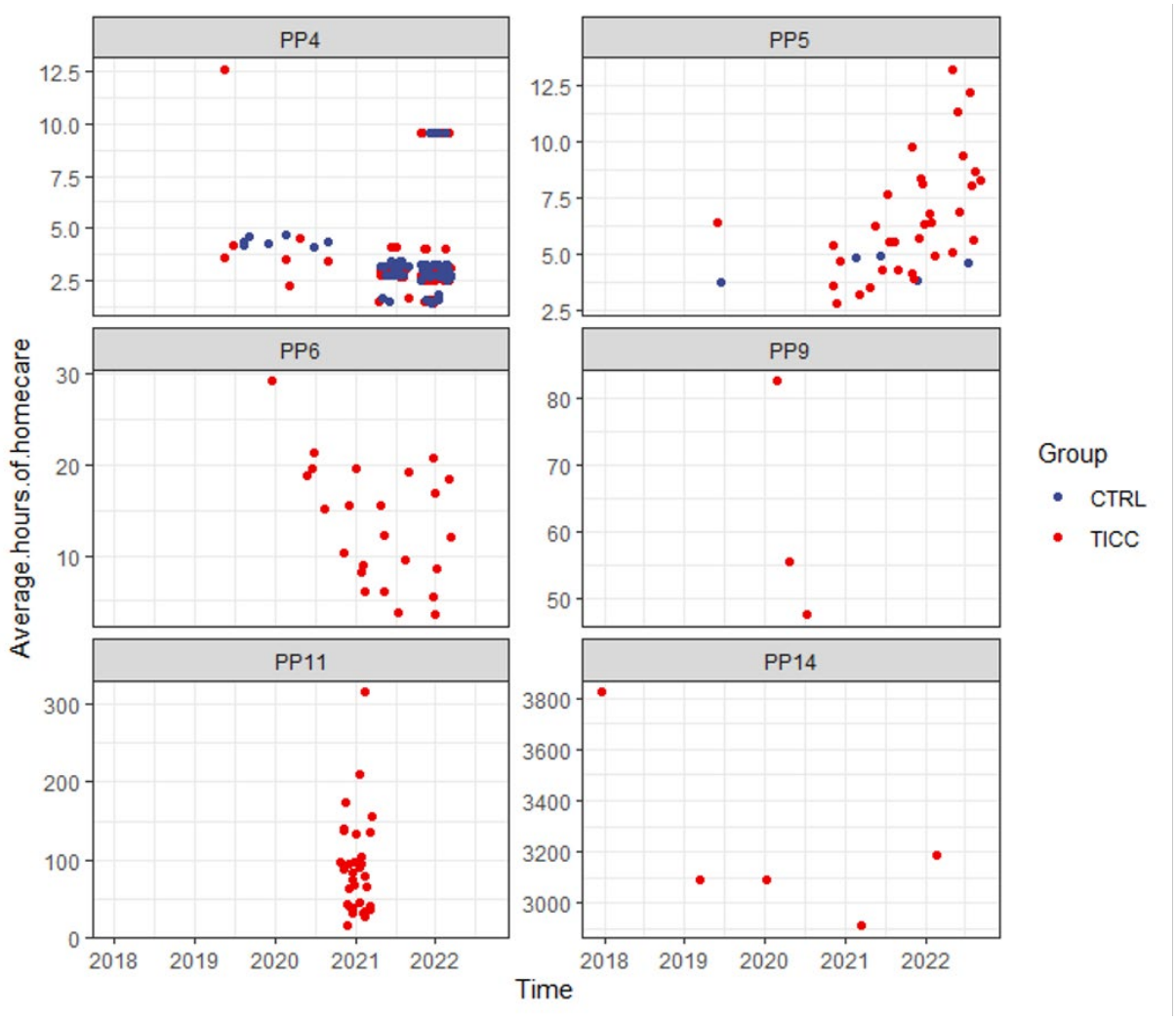


Figure 21 Number of care hours per patient. Each dot corresponds to a team. X-axis corresponds to the time, and y-axis to the estimated costs. Controls are represented in blue and TICC teams in red.

Table 30 Average numbers of care hours per patient.

Partners-	Control teams	TICC teams
PP4	3.9	4.0
PP5	4.4	6.2
PP6		16.5
PP9		67.0
PP11		88.3

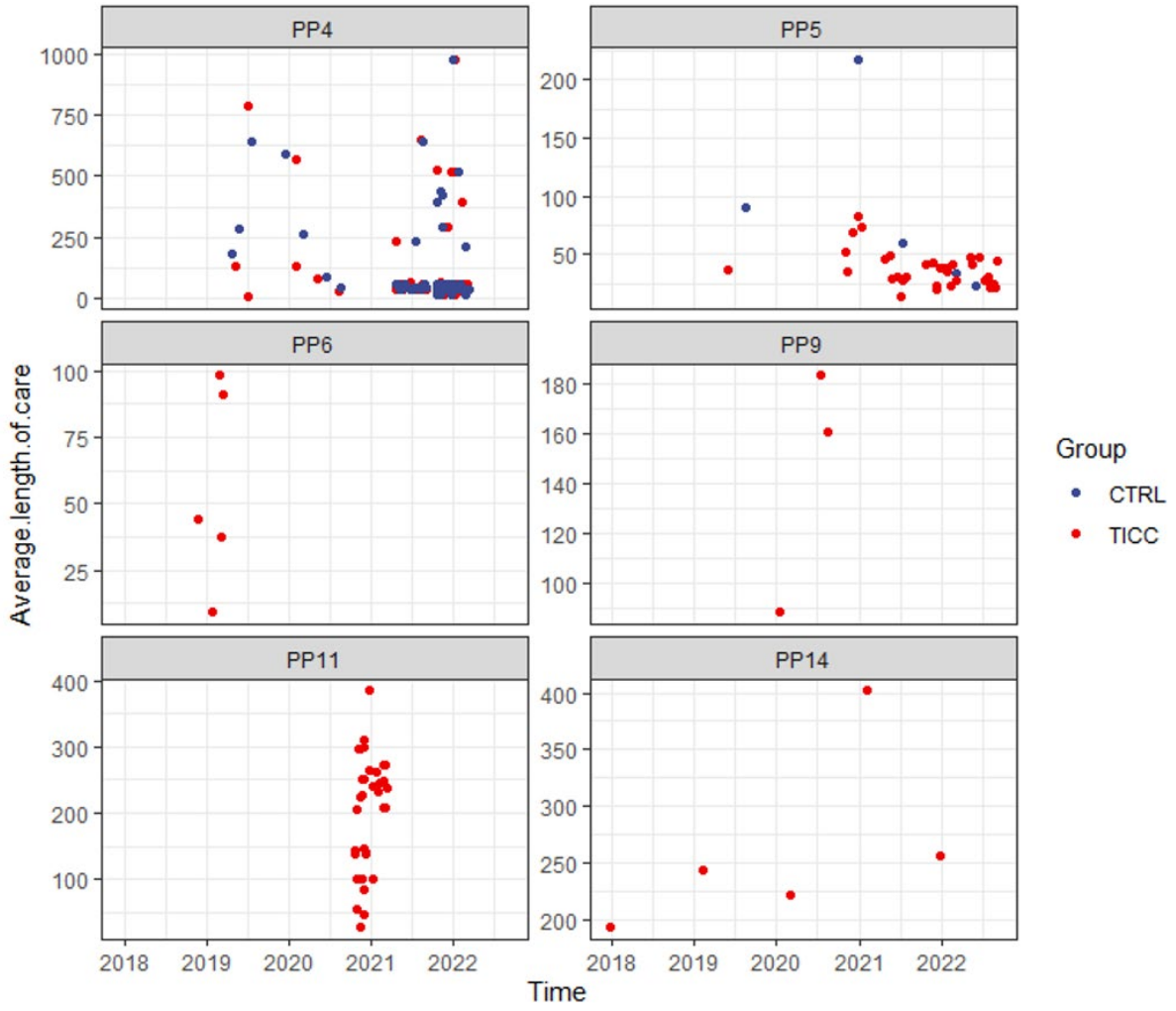


Figure 22 Average length of care. Each dot corresponds to a team. X-axis corresponds to the time, and y-axis to the average length of care. Controls are represented in blue and TICC teams in red.

Table 31 Mean length of care across all periods.

Partners	Control teams	TICC teams
PP4	208.0	178.7
PP5	84.4	39.3
PP6		56.0
PP9		130.2
PP11		202.1
PP14		263.6

Focus group findings

In general, cost savings were not extensively discussed in the focus groups in the discussions among countries. In Belgium, legislation concerning billing for smaller care activities made it difficult to get the project off the ground financially. Management also highlighted that some procedures did not bring in money, especially when the workload was high. Only the UK mentioned cost savings explicitly. According to one UK team, the TICC model's greater time availability enabled better delivery of health care, including cost-effectiveness.

> ***'The greater time availability enabled the development and maintenance of relationships, the provision of support between colleagues and overall better delivery of health care, including cost-effectiveness. (UK)"***

4 Discussion

The discussion consists of the interpretation of results written in the previous chapter. The meaning of the results is discussed for each overarching theme, and a comparison of research methods is applied. Striking results have been highlighted and similarities/differences at national level have been looked at. We first looked at implementation experiences, then at the autonomy and job satisfaction of care staff, better care for people and cost savings. The chapter ends with a conclusion, in which an answer to the main research question is formulated. TICC aimed to enable health and social care organisations to implement nurse-led community care, **increase staff productivity, recruitment, and retention, as well as improve patient satisfaction and autonomy while decreasing costs, emergency admissions and staff absences.**

4.1 Implementation of the TICC model

The gap analyses were performed to gain insight into the level of implementation readiness of the participating organizations. In general, implementation readiness seemed to increase between the baseline measurement and the final measurement. This means that the CEOs and team coaches considered the important aspects of the TICC model to be more and more present over time. Looking critically at the baseline measurement, several organizations scored extremely high on almost all components. Given the timeline, assuming the organizations have just started implementation here, this high score can be questioned. However, it seems that in general the implementation of the TICC model improved. Possible contributions were the coaching of implementation professionals and experts in the field of nurse led care models from the inspiring organization, Buurtzorg.

A striking finding was the large difference in the assessment of the CEO and team coach. In almost all organizations, the team coach assessed the implementation of the TICC model more positively than the CEO. Even though the five themes were different, each theme was judged more positively by the team coach. A possible explanation is the structure used in the TICC model. The teams that have been evaluated are self-managing, with the management layer not being closely involved in the work process. This may have led to different expectations and experiences, resulting in different scores in the gap analyses.

It is noticeable that policy and organization and educational aspects and nurse-based knowledge scored higher than the other themes among both CEOs and team coaches. Implementing elements under the themes of financial modelling, methods and legislation appeared to be the greatest challenges. Legislation appeared to be a difficult topic, especially from the CEO's point of view. Local laws and regulations were not aligned with the new working methods of the TICC model, making barriers visible. The expectation was that working with a very hierarchical structure will cause difficulties with the implementation of the TICC model. Within the theme of financial modelling, questions were related to the organizational structure. As this theme scored lower at almost all organisations, it might have been challenging implementing self-managing teams with own responsibilities.

4.2 Care staff in self-managing TICC teams

On the dimensions studied, no differences appeared between control and TICC teams: the number of care hours seemed similar, the empowerment did not evolve differently, and neither did the psychosocial aspects. Finally, no impact on staff retention appeared, with a similar rate of employees that intended to leave. Significant differences were found for TICC teams. However, based on the analyses, no statistically significant relations were found for some dimensions. Several explanations could be advanced. The lack of control groups for all partners and the relatively low number of respondents, particularly during follow-up, may have

impaired the capacity to detect relatively small differences. The regulatory environment may also have had an impact, with imposed constraints on the number of patients, the number of hours to be delivered per patient, or the care costs. In addition, the learning curve of some the TICC teams may not have been achieved, with care staff still in training on some aspects of the TICC care model.

The qualitative findings showed that most of the points of improvement did not focus on refining the model. Points of improvement were aspects of self-management, lack of administrative support in the teams and the interference from the host organisation and external factors e.g., the increased administration workload. Increased administrative workload could potentially be reduced with a suitable administrative system. However, throughout the project, insufficient data were gathered on using and implementing the standard OMAHA system.

Regarding autonomy and productivity, the qualitative findings seemed to stand in contrast to the quantitative findings. Whereas the focus groups showed a clear skew towards positive experiences with autonomous decision-making and empowerment, the qualitative empowerment analysis showed no statistically significant differences between TICC and standard community care teams.

Regarding retention and recruitment, improved relationships, and better communication in TICC teams were the main reasons for staff wanting to stay. The qualitative findings seemed to stand in contrast to the quantitative findings concerning psychosocial aspects. The TICC team members with previous experience in standard community care seemed to rate the relationships and communication within the TICC model more positively. However, the quantitative data showed no significant difference in the psychosocial experience between the TICC model and standard community care. Reasons for people wanting to leave the organisation were attributed to people not wanting to work in a non-hierarchical team or factors outside the scope of the TICC model, e.g., interference by the host organisation or external factors or general issues in the nursing sector. The qualitative findings seemed to stand in contrast to the quantitative findings concerning the intention to leave because no difference between standard community care and TICC teams emerged. Explanations could be that the focus groups consisted of non-representative samples or that the intention to leave depended on general issues rather than the working approach i.e., host organisation's operational changes significantly influenced people's intention to leave.

Lastly, regarding sick leave, the quantitative research indicated that sick leave was diminished by 1.4 days within the TICC teams. These findings were in line with focus group rounds one and two, where Belgium and the UK indicated that staff members took less sick leave. Still, in the focus group three rounds, France and the UK emphasised that they experienced staff shortages like standard community care teams. Again, these shortages could potentially be problems of the nursing sector rather than results of the working approach.

4.3 Better care for people

Based on the quantitative and qualitative findings, statistical differences between patients of in care with TICC teams compared to traditional teams were examined. Although no statistical differences were found between patients in care with TICC teams and with traditional teams, using the Net Promotor Score (NPS), indications seem to be higher among TICC Teams. This is coherent with a strong aspect of the TICC teams: building a better relationship with the patient, relying on the patient's strength and help provided to educate for one's own care. These findings are in line with the study by Bradford, Sarnak & Burgers, 2015 (27). In addition, based on our findings, the educational aspects of the patients' experience with the TICC approach might give a key to independence concerning its person's health care.

Furthermore, patients' satisfaction also seems to be higher when they are cared for by TICC teams. However, the impact on the patients' social participation and autonomy could not be explicitly stated as they are determined by various parameters, e.g., the financial difficulties and the importance of a handicap. Apparently, the impact of better care seems to be complex. Furthermore, the impact on informal caregivers' burden was difficult to find based on the data by informal caregivers' responses.

Although no significant effect was found between countries for the implementation of TICC teams, a significant positive impact of TICC teams was found on quality of life. The impact on mental score is statistically significant and nearly significant for the physical score. In fact, the evolution of the scores is impacted, with scores that increase or are stable in TICC teams, where the scores decreasing in control teams.

For partners with control data (PP4 and PP5), the length of care seems to be shorter in TICC teams, the mean difference being of 187 days ($p=0.001$). However, no significant differences were found between the two groups on ZBI.

4.4 Cost savings

The expectation and hypothesis when implementing the TICC model was an increased cost-effectiveness, due to self-managing teams and less back-office costs. The TICC study showed that there are some differences in the TICC teams compared to the control groups. For PP4 and PP5, the length of care seems to be shorter in TICC teams, with an average reduction of 187 days, and the number of sick leave days has also decreased significantly by an average of 1.4 days. However, healthcare costs appear to be increasing in this study. For PP4, the only partner with sufficient data on this point, costs are increased by £724 on average.

The increase in costs could be explained by a model that is not yet mature and that still needs some adjustments to be fully flexible and fit with the regulations. In addition, there is a different registration of healthcare costs per PP, these are registered in different ways and this may have influenced the results of this study.

It was striking that the length of care is reduced in TICC teams by an average of 187 days (results for PP4 and PP5). A shortening of the care length would be beneficial, as this could indicate that patients leave earlier due to increased autonomy from the use of the TICC model. This finding is fully in line with existing research into the benefits of the Buurtzorg model, in which the patient is central, and a lot is invested at the beginning of the care process (4, 17, 19, 22, 27, 30). The focus on person-centred care contributes to patient autonomy and reduces dependence on care (8).

4.5 Strengths and Limitations

Based on this report, it is apparent that the degree of implementation of TICC has increased positively over time. One of the strengths was that to evaluate the impact of the TICC model, the study was conducted among six pilot sites and over several years. In addition, we could evaluate using quantitative and qualitative dimensions, and multiple sources of data were collected from patients, informal care givers and staff. In discussion with all the TICC delivery partners the evaluation protocol evolved and adapted to their needs. However, these findings are based on a few respondents, making it difficult to draw conclusions.

A further limitation of the study was that some measurement tools were based on questionnaires that in some cases were not answered due to time constraints. In addition, it was not always possible to have

control groups to enable a more rigorous evaluation and patients were lost to follow up along the different visits. Part of the data focused on existing data from the health organization systems. Large administrative differences were found between the participating partners, making a cost-effectiveness analysis very complex and imprecise. A lot of data was incomplete or came from teams with different disciplines, such as nurse to social worker to carer. The research was conducted in an international context, in which cultural differences influenced the results. Local laws and regulations can deviate considerably, as can the organizational culture and the way of working. Particular attention should be paid to the implementation of the themes of financial modelling, methods, and legislation. The study was also conducted in part during the COVID-19 pandemic. The context of global health crisis impacted and slowed down the activities of the project. During the outbreak in the 2 Seas area, many of the partner organizations witnessed the challenges faced by their health system, and to ensure everyone's safety, some of the TICC activities had to be put on hold. In particular, recruitments for the evaluation were stopped by some of the teams in the field, the data gathering was also slowed down. However, TICC partners were committed to successfully carry out the project and overcome the challenges related to the crisis. In that respect, it was decided collectively, and authorized by the Interreg committee, to extend the deadline.

4.6 Future research and development

The TICC project has provided insight into the evaluation of an implementation process in the home care sector. It is crucial to harmonize a research protocol with the practical situation of care staff, patients and informal caregivers. This allows you to tune in better in terms of burdensome, practical relevance and feasibility. Choosing validated questionnaires is, and remains, very important in conducting research. Due to the limited time available for data collection, it is recommended to choose short validated questionnaires that have been used in healthcare before. Focusing the study on a few outcome measures and properly demarcating them to increase feasibility. To avoid missing data, procedures should be in place to maximize the likelihood that outcome data will be obtained at scheduled times of evaluation for all participants. For instance, the burden on participants should be minimized by reducing the number of visits and assessments conducted, reducing the number of variables collected, formulating user-friendly case report forms, and enlarging the visit window. If possible, difficult, and time-consuming tests should be avoided.

Measuring cost-effectiveness is worth a follow-up study when implementing a nurse-led care model. This study shows that the duration of care is decreasing, but the costs appear to be higher. A follow-up study should focus on the causes of the increased costs taking into account the system administration of participating organisations. The patient's relapse after outflow of care must also be taken into account, so that the cost investment can be spread over a longer period of time.

The way in which TICC is implemented is important for the success of the model on both patients and care staff. A blueprint has been developed in TICC to support implementation. This lists barriers and challenges that occurred during the implementation in TICC and provides possible solutions. The TICC blueprint can help with the transformation to a nurse led care model.

4.7 Conclusion

TICC aimed to enable health and social care organisations to implement nurse-led community care. This study provides **new insights** into the extent to which some of the Buurtzorg principles can be adapted for community nursing in the UK, France, and Belgium.

Findings based on the TICC project showed that the model could have benefits for both care staff and patients. For care staff, there are indications that TICC contributes to a **lower number of sick leave days** and a high degree of **job satisfaction**, but at a higher cost. However, no contributions were found on empowerment, exposure to psychosocial risk factors, or staff retention.

For patients, benefits of TICC are a **reduced length of care, increased health-related quality of life** and **patient satisfaction**. No effects were found on patients' autonomy and social participation. The burden of informal caregivers does not seem to be alleviated.

Our findings are **consistent with previous studies** which have found that factors such as **relationships, communication between staff**, and organizational culture are very important during implementation of health care programs.

This study provides useful knowledge that can be used for the **further evaluation** of the implementation of the TICC model in other areas. There are some principles from the Buurtzorg model that can be adapted in the Interreg area within community nursing. For instance, **promoting greater independence** among patients, **improving access** and **continuity of care**, more **flexible work** for community nurses, forming **effective inter-professional partnerships** and **empowering frontline staff**. To conclude, the findings of this study indicate that a person-centred approach contributes to an improvement in the provision of individualized and coordinated patient care.

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