

Association for Information Systems
AIS Electronic Library (AISeL)

ACIS 2013 Proceedings

Australasian (ACIS)

2013

**Establishing new consulting services in health care organizations:
an ANT analysis of patient-centred care**

Linda Askenäs

Linnaeus University, linda.askenas@lnu.se

Jan Aidemark

Linnaeus University, jan.aidemark@lnu.se

Klas Gäre

Jönköping University, klas.gare@jibs.hj.se

Follow this and additional works at: <https://aisel.aisnet.org/acis2013>

Recommended Citation

Askenäs, Linda; Aidemark, Jan; and Gäre, Klas, "Establishing new consulting services in health care organizations: an ANT analysis of patient-centred care" (2013). *ACIS 2013 Proceedings*. 24.

<https://aisel.aisnet.org/acis2013/24>

This material is brought to you by the Australasian (ACIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ACIS 2013 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.



ACIS 2013
RMIT MELBOURNE

Information Systems: Transforming the Future

**24th Australasian Conference on Information
Systems, 4-6 December 2013, Melbourne**

Proudly sponsored by



ACIS 2013 Principal Sponsor



Advancing ICT through Education and Research



Establishing new consulting services in health care organizations: an ANT analysis of patient-centred care

Linda Askenäs
School of Informatics
Linnaeus University
Växjö, Sweden
Email: linda.askenas@lnu.se

Jan Aidemark
School of Informatics
Linnaeus University
Växjö, Sweden
Email: jan.aidemark@lnu.se

Klas Gäre
Jönköping International Business School
Jönköping University
Jönköping, Sweden
Email: klas.gare@jibs.hj.se

Abstract

A recent trend in health care is patient-centred health, but are health care organizations ready to cope with that change? Changes at the patient level are one aspect but there is a need for reshaping the organization of health care. There is a need to focus much more on prevention care, helping patients to cope and become better self-managers, focusing on the patient process, working together and empowering patients. The aim of this paper is to gain a better understanding of the lack of sustainability over time in two patient-centred care (PCC) projects by using actor network theory (ANT) as an analytical framework. We use case studies from heart fibrillation and heart failure care organizations in a Swedish county council. The cases concern initiatives to achieve better interactions for these patients and organize care to become more patient-centred. Both initiatives have now been partly abandoned in the organization, although research and guidelines recommend such care organizations. The analysis of the different actors dominating the translation process towards a PCC network and of the way they get together in networks reveals that this is a time-consuming process, taking place long after the initial training and PCC implementation activities. We discuss the temporality of stability, the reversible process with chimerical enrolments, and how a complex and changing environment demands constant re-problematization of PCC. We also include how the understanding of the translation and negotiation process can influence decisions on allocating sufficient time and resources to the process. We shed light on the importance of understanding and managing the organizational change in a PCC project and thus also of when to implement patient-centred e-health solutions.

Keywords

Patient-centred care, Change management, Heart failure, Cardiac fibrillation, Actor-network theory, Information management, Case studies.

INTRODUCTION

This paper investigates the conditions for introducing organization changes and new ways of working in a health care organizational setting. Recent developments such as patient-centred care (PCC) initiatives, often connected with e-health solutions, present challenges to health care providers. There is clear evidence that there are potentials for great benefits from such efforts, but getting them to work in practice and remain sustainable outside research projects or within special initiatives has proved harder. Our interest in this matter was the observation of two PCC change initiatives within a county council in Sweden that were considered success stories within and outside the organization, but that had later to some degree reversed into a more traditional care organization. In both cases, all the factors for PCC delivery to the patients were fulfilled, but the organization did not succeed in making it sustainable over time. In this paper we would like to shed light on the organizational issues to gain a better understanding of the lack of sustainability over time in the two PCC projects by using actor network theory (ANT) as an analytical framework.

Organizational issues of patient-centred care

To better understand the conditions for PCC initiatives (see Holmström and Röing, 2011, for a review of the content of PCC) we review some organizational perspectives on the concept. Sherer et al. (1993) defined PCC as: “design of patient care wherein institutional resources and personnel are organized around patients rather than around specialized departments”. Wagner et al. (1996) also mention the importance of explicitly planning the care and, rather than focusing on patient events by using evidence-based guidelines, reorganizing care with the focus on primary care as the continuing contact (planned follow-up), by helping patients to become self-managers of care and clinical expertise by increasing the expertise of the generalist provider as well as supporting patient management information systems like building up a registry of the patient population. The main barriers they found were the existence of a traditional care organization surrounding the visit, not using non-physician personnel, having a poor knowledge about supporting patients in learning, and lacking organizational and information management skills as well as incentives. From another perspective, Charmel and Frampton (2008) argue that a there must be a solid business case behind PCC. To make a PCC project work there has to be plan for how to lower costs and increase market shares. To succeed with PCC initiatives, Luxford et al. (2011) argue that it is necessary to have an organizational-wide approach to change, rather than a clinical perspective. PCC takes long to assimilate in the organization and needs strong long-term leadership, sustained communication, a focus on staff incentives and active patients, regular measurements, adequate resources and a culture of change and learning (Luxford et al. 2011). All these perspectives on PCC indicate a complex situation in a complex context.

An actor-network theory approach

The complex situation of PCC is quite similar to that of evaluating the impact of IS in health care quality (Lau et al., 2007, 2012, Greenhalgh and Stones, 2010). What remains to be better understood are organizational issues surrounding implementations in health care settings, but these have as yet not received adequate research attention (Cresswell & Sheikh, 2012). Organizational issues concern what actors (from an ANT perspective) in the organization do, like performing tasks in business processes, and changing them means changing the actors' activities, interaction, communication and information systems.

Increasing PCC means that actors in clinical processes will have to change their activities to some extent, but actors are not only individuals acting in their professions, because there are also organizational contexts (networks) acting and influencing activities and the process of change (Latour, 2011). The process takes place where the practices are maintained as well as where they are changed by actors enacting this context. So what makes things change in an organization? Actor-Network Theory (ANT) provides the analytical tools for better understanding how and why this happens (Montgomery and Little, 2011, Greenhalgh and Stones, 2010, and Orlikowski and Scott, 2008), and is especially valid in the context of health care (Wickramasinghe et al., 2007). An ANT perspective on PCC and its operating properties is like an actor in interaction with other networking actors. Such actors may be colleagues or supervisors but also “non-human” actors, such as infrastructure, operational procedures and information systems (Latour, 2005, Walsham, 2001 and Hanseth and Braa, 1998).

From an ANT perspective, Sherer et al. (1993) provide concepts for intersement implying that PCC is where resources are organized around the patients instead of in specialized departments. But, as Charmel and Frampton (2008) argue, PCC requires a solid business model to lower cost and increase market shares. All these perspectives on PCC indicate a complex situation in a complex context. The situation is quite similar to that of evaluating the impact of IS in healthcare quality (Car et al., 2008, Lau et al., 2007, 2012, Greenhalgh & Stones, 2010, Cresswell & Sheik, 2012). What remains to be better understood is that “[o]rganizational issues surrounding implementations in healthcare settings are crucially important, but have as yet not received adequate research attention.”(Cresswell & Sheikh, 2012). Organizational issues concern what actors in the organization do, like performing tasks in business processes, and changing those means changing the actors' activities. Actor-network theory gives us analytical tools for better understanding how and why this happens. Increasing PCC means that actors in clinical processes will have to change their activities to some extent, but since they are not only individuals acting in their professions, there are organizational contexts acting and influencing activities and the process of change. The process is where the practices are maintained as well as changed by actors enacting this context. So what makes things change in an organization? In this paper, the argument is that it is the process of establishing or re-establishing interpretative frames, and that they are constantly moving.

From the perspective of the individual, PCC is about ascertaining how patient-centred care can be integrated into the actors' specific organizational processes, so as to be included in their mental models. Less apparent are questions of how social environments influence translation, and what environmental conditions constrain or support change initiatives (cf. Chang, 2010, and Seligman, 2006). The image of the network is central and what it means to society, organizations, operators and machines are all effects generated in the networks and patterns of

various, not always human, material (Law, 1992, and Latour, 2011). Actors in networks are not merely the sum of several relationships, but every relationship also takes place in the context of other relationships. The result of a relationship does not only depend on its own content, but also of other relationships in the network. Relationships are not static but evolve over time in repeated interactions. Any technological artefact is dependent on a network that supports its use. The study of actor networks concerns how social consequences are built into the innovation and how “truths” about the impact of PCC, for instance, are negotiated and socially constructed (cf. Latour, 1991).

In Actor-Network Theory (ANT) central concepts include actor, network, problematization allies, translation and enrolment. An actor-network framework was used to understand the encounters between key actors and the networks involved in the two projects (cf. Cho et al., 2006). The key episodes of change were analyzed in order to understand the process of translation. The main concepts we used for illustrating the translation process were problematization, interessement, enrolment and mobilization (Callon, 1986). Problematization is the initial process whereby some actors or networks identify a problem and initiate a new network. Interessement is where the actors identify allies, i.e. other important actors/networks that have to be enrolled in order to proceed to establish the network. With the allies mobilized the network gains stability and is no longer questioned by the actors in the network.

Method

We conducted interpretive qualitative case studies (Orlikowski and Baroudi, 1991, and Walsham, 1993) that are based on retrospective interviews and documentation of the process of change within these two cases of PCC initiatives. To understand the lack of sustainability we used the following questions: *How is the new PCC network established in the existing networks of care? What are the networks in which the dominating actors in the two PCC projects exist? Why is the new PCC network not sustainable?* To direct our attention we used PCC together with its organizational factors reviewed above when gathering our empirical material and as a starting point for discussing the outcome in terms of key networks for understanding PCC project implementations. A number of data sources, collected in the spring of 2013, were used as empirical material:

* *Retrospective interviews with five key people in spring 2013.* On the Heart Failure project the project leader, a professor in nursing, was interviewed for two hours on the background, goals and activities of the project. A two-hour interview was made with a primary care doctor and developer of primary care on the perspective of organizational development, on initiating the project in heart failure care and measurements. The leader of the Cardiac Failure project, a professor in nursing and a practitioner nurse at the clinic was interviewed for one hour basic premises of the project and with another participating doctor and associate professor on the project in general. A one-hour interview was conducted with a participating nurse about activities and experience with patients. On all occasions notes were taken and recordings were made. In addition, e-mail interviews were made with four primary care unit leaders on the current status of heart failure nurses in primary care units.

* *Documents and written sources.* These include the reviewing of reports, research articles, master thesis, general care plan, documentations and written material produced during the project.

* *Participant observation 2008-2010.* During the CF project the authors were able to observe and interact with the research team and make their own observations of major events that play a role in the interpretations and analysis of the development of an understanding of its processes and outcomes. Experiences and results of the currently successful HF case have also been presented and discussed among the research team during that period.

EMPIRICAL MATERIAL: TWO CASE STUDIES

The two case studies selected took place in the care of heart failure and cardiac fibrillation within a local region in Sweden, which consists of one public hospital and both public and private primary care units. The public county council is tax-funded and responsible for providing high quality and cost-effective care to the citizens. The public and the private units act under the same regulation policy and are similarly influenced by the political and top management financial control of the county council, whereas the private ones have the freedom to choose how they conduct care as long as they meet the minimum criteria set up by the county council.

Developing a specialist heart failure reception in primary care

This heart failure reception project began at the end of 1999 as a result of an initiative that aimed to give suggestions for improving heart failure care. The group observed that many patients were diagnosed at the hospitals when coming in with acute symptoms, but that many of them (fewer than half of the diagnosed patients)

did not receive satisfactory care compared to evidence-based medicine recommendations in diagnosing with UKG and giving ACE/ARB medicine to heart failure patients (Table 1, 1999). A new initiative was started in 2000, aiming at improving care for this group of patients. An expert group produced new local guidelines for both physicians' medical treatment, nursing care and self-care. At the time fairly new medicines and new strategies for diagnoses had been recommended. Studies had also shown that nurse-led receptions improved survival and self-care behaviour in the patient and caused fewer re-admissions to hospitals (Strömberg et al. 2003). The local health care management allocated specific funds to establish HF receptions in each primary health care unit. Special nurses with competence in the HF area were to have a certain number of hours per week dedicated to working with HF patients. The focus was on creating a structured process of contacts with the patient, organizing a number of revisits to strengthen the understanding and determination of patients for self-care and proper daily routines. The purpose was to move care from hospital to primary units and to reduce the number of emergency re-admissions to hospital in the long run. The project was headed by a special HF nurse with a strong commitment to and research experience in this particular aspect of HF care. His main focus was to create a higher level of well-being among the patients and decrease their tendency to worry. This research showed how patients and relatives could gain a better life quality by improving their self-treatment and understanding (Mårtensson, 2002).

Table 1. Improvement in heart failure treatment

Treatment	1999	2006	2009	2012	Target
UKG	45%	65%	81%	76%	80%
ACE/ARB	53%	71%	83%	81%	80%

The project started with the recruitment of primary care units. All 13 units were approached, and two persons, one nurse and one doctor, were invited to a number of educational meetings. The meetings, which were held over a period from 2000 to 2006, were intended to disseminate knowledge on treatments and methods and to create a greater interest in the subject in general. It largely proved very important to keep up an active discussion among the participating nurses to ensure that they stayed active. The nurses in the primary care unit were able to work closer with "their" patients, get to know them and provide personalized support. Their personal commitment created a natural contact point, which could be used by patients or their family. Initial problems were experienced when the nurses were just set up as possible resources who doctors could advise their patients to visit. Some doctors did and some did not. Those who did start to use this service found that the nurses could relieve them in following up the titration of drugs, something that was fairly time-consuming for the doctors. The issue of work planning at the units was important for the degree of activity, because if the nurses were just given hours when needed, less tended to be achieved. One solution to achieve stability was to create time in the weekly schedule where the nurses were given free hands to work directly with the patients they knew and to take more personal responsibility for the planning generally. The outcomes of the efforts were positive. About 50 % of the primary units handled more patients in comparison with the previous situation. More of the patients received the right medication, which was a clear improvement. A higher number of patients also received the proper method of diagnosis, UKG (see Table 1). This was also due to increased competence among primary care physicians when it came to titrating the medicine. An improved diagnosis procedure also contributed with a fast-track ultrasound of the heart to shortening the time from sometimes 4 months to a maximum of 2 weeks.

The earmarked funding was later on incorporated into the general budget of the primary care units. Without this incentive, the activity dropped at some units, and the HF reception was less active in all of them. As of today, in 2013, 8 out of the present 22 units have a part-time HF nurse, a service which they communicate to patients. The number of units has increased in this region as the result of a privatization campaign conducted in 2010. Nurse-led heart failure receptions are not included in the list of minimum requirements. Today a new project has been initiated focusing on lowering readmission after hospitalization, giving extra funding to nurses for almost a year in both primary and hospital care to ensure patients a better care including structured follow-up calls. This project is not connected with the former one but gives nurse-led receptions a new focus.

Establishing a structured process for patients with cardiac fibrillation

This project aims to create a better situation for patients with cardiac fibrillation (CF). It was funded within a research project and was active during 2008-2012 but did not continue when the research period ended. A senior nurse/researcher and a senior physician/researcher in the CF area headed the CF project. They had observed that the situation for this type of patient is generally rather stressful (cf. Daltog et al., 2011). It often starts in the emergency room, where conditions are not top priority, and from there the patient is later on directed to the CF care unit. After the treatment has been performed, the patient is dismissed together with a certain amount of

information material. Only 25% of the cases are successful, and readmissions are common. Although the patient often experiences great anxiety during this process, there were no real follow-up activities after the hospital visit. The project aimed at both creating a reception for the CF patient that handled the whole hospital process and at providing care for patients after hospitalization. Two CF specialist nurses and two specialist doctors created a CF reception organization. What the process involved was that, as soon as the emergency staff diagnosed patients as having CF, they should be transferred to the reception. At the reception the CF patients were able to go through a fast-track care, which possibly reduced the time at hospital by half. The team-based nurses and the doctors then handled the patient throughout the process in hospital and afterwards. The post-hospital support consisted of meetings offered to the patient, the first taking place after 4-5 weeks, when they were given time with both nurses and doctors. After this, opportunities to attend follow-up meetings were offered, first 3 months later and then after 12 months.

There was extensive research associated with this project. One physician and two nurses completed their PhDs in connection with it, focusing on understanding the patients' situation at home, their meetings with physicians and the intervention project. During this period nurses at the clinic also completed a bachelor and a master thesis in nursing, using the data they had collected. As they felt this was necessary in order to understand the research language they took advantage of using all the data they themselves had gathered. Other disciplines, such as social science and informatics, were also associated, but no co-authorships across the disciplines were produced. The outcome of these efforts was measured, showing positive effects in patients' life quality. The nurses also developed their own learning, using a critical incident technique to gain a better understanding of factors for starting CF.

The main driving force of this project was to create a working conversation and dialog with the patient. In this respect, the project was very much patient-centred. A key goal was to give the patient the time and the opportunity to work together with a nurse on the diagnosis to create a personal understanding. The idea behind was that the better the patient understands the CF condition, the easier it is to cope with the situation, which in turn leads to less anxiety and possibly to feeling better (despite the CF condition). Possibilities were also given to continue the treatment in this direction using cognitive behaviour treatment, where the patient learns to deal with upcoming problems. The project was not continued as a regular part of the hospital's activities. The reason for breaking off the project was that no funding could be directly tied to treatments of this type. This could be seen as a general problem in nursing and patient-centred care activities, as these involve softer measures and the effects take longer to prove. There is a clear need to create a better process and structure for how to build a solid business case for these types of efforts, including methods for making evaluations.

ANALYSIS: ACTORS, NETWORKS AND TRANSLATIONS

Both initiatives, although slightly different in nature, were successful in their own right. Still, at the same time they did not manage to become sustainable in the long run. The care was organized around the patients (Sherer et al., 1993, Robinson et al., 2008), including the use of evidence-based guidelines, plans for visits and educational programmes with the focus on non-physicians and primary care and access to clinical registry and organization-wide information systems (cf. Wagner et al., 1996). It seems, however, to have missed the long-term organization-wide approach involving continuous top management engagement (cf. Luxford et al., 2011). Even if the fates of these projects seem to be sealed by a financial decision, there is a complex web of interacting networks behind the outcomes. One way to understand this, we argue, is to explore the different networks that exist in the health care organization and are active in the translation process. We therefore wish to give an account of the key actors and networks that are identified as important in different episodes that lead to this outcome. "To be self-contained – that is, to be an actor – and to be thoroughly dependent – that is, to be a network – is to say twice the same thing" (Latour, 2011, p. 801). The actor is the person who is able to transform a network or the relationships between actors and networks (Callon, 1986). To find the network is to look for its intermediaries, classified by Callon (1986) into four main types: texts, artefacts, humans and money.

- **Medical evidence and research network.** Evidence-based research uses a text-based intermediary and is a driver for initiating change and receiving funding (money). It uses digital artefacts to produce and distribute the text, with the researchers functioning in both cases as key actors. However, in the CF case it can also attract too much attention and isolate the practice where it is conducted. It seems as if medical research has more power to sustain a change than nursing research, as in the HF case. The key to understanding the reason behind might lie in the difference between the medical and the nursing disciplines, which are both connected with how money is allotted and how easily success can be measured.

- **Professional team network.** In the HF project, humans played an important role, i.e. physicians, because they were the ones who were to recruit patients to the nurse-led reception. In primary care units where the nurse-led reception functioned well the specialist nurse and the doctor worked as a team. That seemed to inspire the other physicians and also involved more patients in the reception. At the units that did not work well, the nurses did not experience that they were receiving any patients from the doctors, and it was therefore hard to argue for the time and money needed to be spent on the reception. In the IT system, the doctors received the epicrisis from the hospital, and the hospital reception had a phone list for direct access to the nurses at the beginning of the project. In the CF project, the nurses claimed that they experienced the team spirit between them and the physicians that surrounded this project as unique. They built up trust and a “give-and-take” relationship that helped them to develop their understanding of the patient situation and to manage the care process.
- **The management and health economic network.** The additional funding from the top management initiated activities and made it possible to uphold the receptions as long as the funding existed or the use of it was followed up. The problems with external funding, especially with research money, concern the inherent time limits and the difficulty of finding good ideas and developing good practices, as well as continuing so as to become part of regular operations. This was the case in both projects. Other problems indicated are those of creating organizational changes if there are no in-house resources for research and development. The project did not achieve the sustainability that was hoped for; the main reason, as claimed particularly in the CF project, being the lack of local management support.
- **Key human actors.** Like many new ideas, these projects were driven by committed people with personal interests and experiences that compelled them to act. These are the ones who create projects (text-based project plans, guidelines), acquire funding, recruit more interested people, and generally move the issue forward. When they change positions or leave the organization and new people come in, the focus shifts to new areas. This was the case with the HF project leader, the original founder of the project, but also with the specialist HF nurses in the primary care, when they moved on or retired and the skills required to conduct the services were cut off from the team network, which caused the reception to cease.
- **Care organization networks.** PCC initiatives focus on the patients and their care, and there is often, as in both our cases, a need for collaboration between different organizational units. In the HF project, the collaboration with the hospital unit and the primary care units was initially close. The hospital unit is today unaware of which treatment the patients receive when they are sent home and the primary care units take over the responsibility. In the CF project they depended on the emergency unit to identify CF patients coming in and send the patients direct to them. Although the organization was implemented in 2008-2010, no hospital-wide information system (patient administration like PHR or COPE) that could have been a strong actor to enhance collaboration was mentioned as an important actor, or the system was already “blackboxed”.
- **Quality measurement systems network.** There is a national level of quality measurement registers (a technical artefact) where all hospitals report their care and its effects on each patient. Today the focus on this system is on proper diagnosis setting and drug treatments, with which few primary care units are associated. For the primary care, HF treatment is followed up every third year, and all the results are available and communicated openly to all units so that they can compare their results with those of others. The treatment has been greatly improved during this period and reaches the goals for almost every unit. Not even here is there, however, any focus on non-medical treatment.
- **The drug industry and IT networks.** Commercial organizations of various kinds are always important players for health care providers. However, when it comes to nursing and patient centricity, it is less so. The common reason is that the main interest of these organizations, i.e. selling various types of prescription drugs, is not directly involved. From an information management perspective, the use of IT tools to enhance communication with patients and decrease the quality time spent on each patient is almost non-existent in both projects. There were individuals (without a strong network behind them) who showed some initial interest, but these tools were not able to attract attention from the other networks.
- **Patient networks,** Individual patients, patient associations and the general public are to some extent non-actors in these projects, in the sense that did not introduce any change (cf. Latour, 2011). They could have been a force in these projects but seem not to have been playing any real role there. Patient

associations might have been thought to exercise some influence on decisions, just as a public opinion. The apparent lack of involvement makes it hard to tell much about these possible important stakeholders. They are not aware of the projects or of their results, except for those who have been actively involved in the projects as patients. The individual patient has no network to demand any change or ways to compare different care possibilities if this is not offered to them.

All these networks have been mentioned as important for understanding the PCC initiatives. Having identified the main actors, how can we then understand the translational and negotiation processes (Callon, 1986), the once successful receptions applying a PCC approach but lacking sustainability? To understand the process of change and its outcome it is necessary to understand how the actors translate the new network into the existing ones. Callon (1986) has analyzed the translation process as consisting of four stages: problematization, interesement, enrolment and mobilization. The stages should not be seen as individual steps but as a rather fluid process where the change could go back and forward between the stages.

Endurable inscriptions mean temporal mobilization

The HF project's goal and missions may not be fully reached in the long term, but there are some lasting actors and networks stemming from the original project. In the HF case, there are still active receptions, even if some claim having difficulty in keeping it going as much as they are able to. There is a guideline/manuscript (Latour, 1991) for the recommended care, but it is too weak to enforce action in all practice. The medical treatment has been greatly improved, which was one of the initial goals. As for the CF case, there is today no working reception, even if some individuals are active in trying to get it restarted. For those who have been involved it has been a learning process from which they have gained a deep understanding of the situation of the CF patients and published theses and research articles. Both projects have largely focused on gaining and transferring knowledge about the conditions and the care of the patients, which is an irreversible, but still very limited, effect in the sense that it will not be inscribed in the practice network, nor is it spread to other units. Both these projects have a PCC solution that involves a new network (a reception) to be established which is constantly in need of resources and is highly dependent on other networks to work properly.

Viewing both cases over time reveals a highly reversible process. It existed for a time with many networks and actors enrolled and it became mobilized, but as soon as the attention of some actors or networks was drawn somewhere else, it reversed to a limited activity, and in the HF case it has experienced refocusing. There is a high level of temporality in the mobilization, and the actors lack durability in the network. The main actors are humans and they do not inscribe actions through time and space as a more materiality-based actor (e.g. an IT system) does, but the humans rather seem to encapsulate the network of activation and to take it with them when they leave. The patients, on their part, are newcomers and unaware of the different service options available to them. There have not been any real translations of the network receptions to the ongoing practice of care, and, as a network, it was just temporarily mobilized because it is always being questioned (Callon, 1991).

Unconvinced allies lead to chimerical enrolments

Both cases have proved that there have existed established reception networks. In the HF case, all of the primary units were enrolled, since they stated having an reception led by a heart failure nurse. Today there are not so many left, one has restarted and new units have been enrolled. In the CF case, the reception has in practice gone on for many years, but it is currently closed.

In the negotiation part, the physicians in the HF case were persuaded, in the sense that they did not need to be convinced to be involved and by doing so gained a release in the workload of titrating and monitoring drugs. Gradually the need for or interest in release decreased, as other networks were established to ensure better care, and there were fewer efforts to uphold the nurse-led reception. In that sense, the physicians' enrolment in the reception network was quite chimerical (in the sense that they seemed to be enrolled as actors or networks to the case, but that there were in fact other issues outside PCC that lay behind their enrolment), as they had not been convinced originally of its ability to produce better care, so their engagement was of a temporal character. This is to say that if enrolment takes place for other reasons than the main one, there is a great risk that conditions will subsequently change, and that those once enrolled were so on a chimerical basis only.

Other allies that are also of a chimerical character are related to the additional money needed for projects. It will enable starting and recruiting other allies, but if there is no durability apart from what is provided by the money, these allies will disappear as soon as it has been spent. Hence, the network becomes nothing but chimerical, as with the CF case. A project that had a network of its own in research but not in management was not strong

enough to make the reception durable, even if the result of the research showed that the patients received better care. Unconvinced allies can work (cf. Callon, 1986) in the short run, but for changing programmes that rely on less durable actors, the chimerical enrolment will drop as soon as conditions change. Care plan recommendations, guidelines and research results will also constitute a chimerical enrolment because they are believed to have greater power to change things than what is the actual case. It is important to the problematization but does not have the power to make enrolments of its own.

Narrow and chimerical enrolment means constant re-problematization

The previous research studies and pre-studies in the HF case reveal a rigidity of problematization. The key actors involved used research results to problematize what needed to be done and were able to change care plan recommendations for the organization. The solution they were striving for was to set up a reception led by nurses, as research had confirmed that this improved patient care. It was a rigorous problematization within the network of nursing and medicine, but there has been a rather limited problematization of other solutions/alternatives from other networks. As in the CF case, the problematization concerned the experience of care and the lack of attention and research within this group of patients. The solution was that nurses were less expensive and that receptions had proved valuable with other patient groups (like HF). This needed to be tested and it turned out to be possible to receive research funding for the reception practice. The enrolment was rather narrow in the sense that for the HF receptions it seems to be focused on the individuals involved in the actual reception, whereas enrolments from the physicians was fairly limited. In the CF case, the focus was on the research project, which did not really enrol any other networks (management, development, IT personnel or emergency networks) or actors. Thus, when the research funding is consumed, as in the CF case and additional funding in the HF case, important actors move from the network, so re-problematization is required for new actors to enrol. This was the case with one of the primary care units that “re-started” the reception while the managers were totally unaware of the previous history of having a reception. Those enrolled claimed that problematization had already taken place, and that they had invested in finding allies and making the network work, and thus there was little understanding of the need to constantly re-problematize for all new actors or changes in the interest deriving from other networks. Instead of viewing the stages of translation (Callon, 1986) as a process with a beginning and an end, these cases illustrate the constant re-problematization that needs to take place. It rather becomes a dynamic process where all the stages of translation are involved constantly and which needs to be managed for a network to gain durability in the constant changing web of interacting networks, as “*all translations, however apparently secure, are in principle reversible*” (Callon, 1991, p. 150).

CONCLUDING DISCUSSION: ACTORS’ ACTIVITY – TRANSLATION AND NEGOTIATION

Translation and negotiation form a time-consuming process, taking place long after the initial training and PCC implementation activities. This is of importance for understanding which effects and outcomes could be expected and when. An understanding of the translation and negotiation process can influence decisions on allocating sufficient time and resources to the process, and for a short initial starting period of PCC. This is in line with the finding that detailed competence about the health care process is of vital importance, as it indicates what resources are needed. The relationship between PCC and its reflection in translation and negotiation forms the core of this process.

This paper has drawn on ANT theory for a better understanding of actors and their activities in PCC. Dominating actors and networks are found to be professional networks, management and health economic networks, individual champions, Q-register networks, care organization networks, drug and IT industry networks, patient organization networks, and evidence-based medicine networks. Through the process of negotiation and translation we have found that enduring inscriptions like in guidelines (text), knowledge (humans) or money are not strong enough to be actors in transforming a network and making it durable (cf. Callon, 1986). The technical artefacts were seen as a “black box” hardly mentioned in the interviews, but the interpretation is that it has worked as an intermediary for the traditional care process rather than for supporting the PCC. That a compromise focusing on the outcome, not the cause, in the negotiation may just lead to chimerical enrolment that reverses as soon as conditions change in one network. A network that has not been punctualized or “black-boxed”, as it is no longer being questioned, undergoes a constant translation process (Callon 1986), which means in practice that the knowledge and sense-making about patient-centredness in the care process always need to be problematized and reflected on.

The application of PCC involves negotiations around sorting relevant from irrelevant meanings in order to reach shared understanding. Into this process comes knowledge for applying PCC as triggers for translation. The concept of networking (Greenhalgh and Stones 2010, Orlikowski, 2010, and Orlikowski and Scott, 2008) adds a more comprehensive understanding of the impact of reflection and translation. The negotiations and translations in and among actors take place in a context that is formative (Ciborra & Lanzara, 1994, Henfridsson, 2001) in

the sense of giving restrictions, as a formative context is constantly moving (Hanseth and Lyytinen, 2004). The empirical data indicate networking where actors and interaction are more visible (explicit), and thus making it into a verb, 'networking', rather than a noun, 'network'. As stated by Hanseth and Lyytinen (2004), networks do not develop due to planned and controlled actions by some designers or developers, but rather in a process imbued with surprises, blockages, diversions, side effects and vicious circles, as well as inherent tensions between the need for PCC and locally situated practices. Situations where stabilization is believed to occur (and translation efforts decrease) can be just a temporal mobilization, and thus lacks long-term sustainability for the PCC network.

An ANT perspective gives some guidance as to what conditions are important. A PCC framework acts in the networking, which shapes the routine behaviour of other networks (Greenhalgh and Stones, 2010, Orlikowski, 2010, Hanseth and Bra, 1998, Leonardi and Barley, 2010 and Latour, 1992), and thus accomplishes sustainable changes. The ANT perspective supports the empirical findings, so that to be able to describe and analyze PCC requires extensive detailed insights into the healthcare processes concerned (Winman & Rystedt, 2011). Thus, one necessary but not sufficient condition in itself is that of deep insights into the domain area, so as to reveal or avoid chimerical enrolment from various actors. This seems to be most valid in complex situations like health care processes and PCC. The result illustrates the process of actors and actions for reflective translations and negotiations in PCC and health care quality improvement. An ANT perspective on the process gives some guidance to what conditions are important. PCC can also be seen as an actor in the networking that shapes the routine behaviour of actors (Orlikowski, 2010, Hanseth and Bra, 1998, Leonardi and Barley, 2010 and Latour, 1992). In some cases, PCC is not a prominent actor and has no well-accepted arguments, nor is it very successful in negotiations. In other cases, PCC has been more fortunate (cf. Luxford, 2011). The PCC implementation process is where the practices are maintained as well as translated and negotiated by actors in this context. What then makes things change sustainably in healthcare processes? The argument here is that it is the process of establishing or re-establishing local theories and norms in the organization, which is constantly moving in reflective translation, rather than persuading negotiation among actors (Orlikowski, 2010, Orlikowski and Scott, 2008 and Weick, 1995, 1957). This process may be more or less sustainable from a PCC perspective, in terms of argument strength, actors' interestment, and arenas for convincing negotiations.

This study identifies a set of implications for networking in PCC implementation processes and for sustainable changes. Conditions for this are to be found in the networking, in terms of translation, competence and interpretative frames (Seligman, 2006 and Ciborra et al., 2000). PCC implementation is like a re-translation of earlier experiences and, deepening the understanding, reflected in a new way of understanding and using new concepts for doing this (Orlikowski, 2008, Weick, 1995, and Schon 1984).

REFERENCES

- Callon M. 1986, Some elements of a sociology of translation: Domestication of the scallops and the fishermen of St Brieuc Bay, in Law, J. (Ed.), *Power, Action and Belief*, Routledge & Kegan Paul, London.
- Callon, M. 1991, Techno-economic networks and irreversibility, in Law, J. (Ed.), *A Sociology of Monsters: Essays on Power, Technology and Domination*, Routledge, London.
- Ciborra C.U, Braa K, Cordella A, Dahlbom B, Failla A, Hanseth O, et al. 2000, *From Control to Drift: The Dynamics of Corporate Information Infrastructures*, Oxford University Press, USA.
- Ciborra C.U. 1994, Lanzara GF. Formative contexts and information technology: Understanding the dynamics of innovation in organizations. *Accounting, Management and Information Technologies*, Vol. 4, No. 2, pp. 61-86.
- Chang H.L. 2010, A roadmap to adopting emerging technology in e-business: An empirical study. *Information Systems and E-Business Management*, Vol. 8, No. 2, pp.103-30.
- Charmel P. A. and Frampton S. B. (2008) Building the business case for patient-centered care, *Health Care Financial Management*, Vol. 62, No. 3, pp. 80-5.
- Cho S., Mathiassen L., and Nilsson A. 2008, Contextual dynamics during health information systems implementation: An event-based actor-network approach, *European Journal of Information Systems* (2008) Vol. 17, pp. 614–30.
- Cresswell K, Sheikh A. 2012, Organizational issues in the implementation and adoption of health information technology innovations: An interpretative review. *International Journal of Medical Informatics*, Vol. 82, No. 5, pp. 73-86.
- Dalteg T., Benzein E., Fridlund B., and Malm D. 2011, Cardiac disease and its consequences on the partner relationship: A systematic review, *European Journal of Cardiovascular Nursing*, Vol. 10 pp. 140-9.

- Greenhalgh T., Stones R. 2010, Theorising big IT programmes in healthcare: Strong structuration theory meets actor-network theory, *Social Science & Medicine* Vol. 70, pp. 1285–94.
- Hanseth O, Braa K. 1998, Technology as traitor: Emergent SAP infrastructure in a global organization. *Proceedings of the International Conference on Information Systems: Association for Information Systems*, pp. 188-196.
- Hanseth O., Lyytinen K. 2004, *Theorizing about the Design of Information Infrastructures: Design Kernel Theories and Principles*, Case Western Reserve University, USA. Sprouts: Working Papers on Information Systems, 4(12). <http://sprouts.aisnet.org/4-12>.
- Henfridsson O. 2001, Ambiguity in IT adaptation: Making sense of First Class in a social work setting. *Information Systems Journal*, Vol. 10, No. 2 pp. 87-104.
- Holmström, I., Röing, M. 2010, The relation between patient-centeredness and patient empowerment: A discussion on concepts, *Patient Education and Counseling*, Vol. 79, No. 2, pp.167-72.
- Latour B. 1991, Technology is society made durable, In J. Law (Ed.), *A Sociology of Monsters Essays on Power, Technology and Domination*, *Sociological Review Monograph*, No. 38, pp. 103-32.
- Latour B. 1992, Where are the missing masses? The sociology of a few mundane artifacts, In Bijker W. E. and Law J. (Ed.), *Shaping Technology / Building Society: Studies in Sociotechnical Change*, pp. 225-58.
- Latour, B. 2005, Reassembling the social - An introduction to actor-network-theory, *Reassembling the Social - An Introduction to Actor-Network-Theory*, Oxford University Press.
- Latour, B. 2011, Networks, societies, spheres: Reflections of an actor-network theorist. *International Journal of Communication* [Online] 5:0. Available: <http://ijoc.org/ojs/index.php/ijoc/article/view/1094/558>
- Lau F., Hagens S., Muttitt S. 2007, A proposed benefits evaluation framework for health information systems in Canada, *Healthcare Quarterly* (Toronto, Ont), Vol. 10, No. 1 pp. 112-6.
- Lau F, Kuziemsky C., Price M., Gardner J. 2010, A review on systematic reviews of health information system studies, *Journal of the American Medical Informatics Association*, Vol. 17, No. 6, pp. 637-45.
- Law J. 1992, Notes on the theory of the actor-network: ordering, strategy, and heterogeneity, *Systemic Practice and Action Research*, Vol. 5, No. 4, pp. 379-93.
- Leonardi PM, Barley S.R. 2010, What is under construction here? Social action, materiality, and power in constructivist studies of technology and organizing, *The Academy of Management Annals*, Vol. 4, No. 1, pp. 1-51.
- Luxford K., Safran G.B., Delbanco T. 2011, Promoting patient-centered care: a qualitative study of facilitators and barriers in healthcare organizations with a reputation for improving the patient experience, *International Journal for Quality in Health Care*, Vol. 23, No 5, pp. 510–5.
- Mårtensson, J. 2002, *The life situation of patients with heart failure in primary health care. An explorative and interventional study*. Doctoral thesis, University of Gothenburg.
- Orlikowski W.J. 2008, Using technology and constituting structures: A practice lens for studying technology in organizations, *Resources, Co-evolution and Artefacts*, pp. 255-305.
- Orlikowski W.J. 2010, The sociomateriality of organizational life: Considering technology in management research, *Cambridge Journal of Economics*, Vol. 34, No. 1, pp. 125-41.
- Orlikowski W. J., Baroudi J. J. 1999, Studying information technology in organization: Research approaches and assumptions. *Information Systems Research*, No. 2, pp. 1-28.
- Orlikowski W.J., Scott S.V. 2008, Sociomateriality: Challenging the separation of technology, work and organization, *The Academy of Management Annals*. Vol. 2, No. 1, pp. 433-74.
- Robinson J. H., Callister L. C., Berry J. A., and Dering K. A. 2008, Patient-centered care and adherence: Definitions and applications to improve outcomes, *Journal of the American Academy of Nurse Practitioners*, Vol. 20, pp. 600-7.
- Schon D.A. 1984, *The Reflective Practitioner: How Professionals Think in Action*: Basic Books.
- Seligman L. 2006, Sensemaking throughout adoption and the innovation-decision process, *European Journal of Innovation Management*, Vol. 9, No. 1, pp. 108-20.
- Sherer, J.L., Anderson H.J., Lumsdon K. 1993, Putting patients first. Hospitals work to define patient-centered

care, *Hospital*, Vol. 67, No. 3, pp. 18-23.

Strömberg A., Mårtensson J., Fridlund B., Levin L-Å, Karlsson Jan-Erik, and Dahlström U. 2003, Nurse-led heart failure clinics improve survival and self-care behaviour in patients with heart failure: Results from a prospective, randomised trial, *European Heart Journal*, Vol. 24, No. 11, pp. 1014-23.

Walsham G. 1993, *Interpreting Information Systems in Organizations*, Wiley, Chichester.

Walsham G. 2001, *Making a World of Difference: IT in a Global Context*, Wiley, Chichester.

Weick K.E. 1995, *Sensemaking in Organizations*, Sage Publications, Incorporated.

Wickramasinghe, N., Bali, R. K., and Tatnall A. 2007, Using actor network theory to understand network centric healthcare operations, *International Journal of Electronic Healthcare*, Vol. 3, No. 3, pp. 317-328.

Winman T., Rystedt H. 2011, Electronic patient records in action. Transforming information into professionally relevant knowledge. *Health Informatics Journal*, Vol. 17, No. 1, pp. 51-62.

ACKNOWLEDGEMENTS

The research is performed in collaboration with The Jönköping Academy for Improvement of Health and Welfare, financially supported by Bridging-the-Gaps research project and Vinnvård Foundation and by the Swedish Governmental Agency for Innovation Systems (VINNOVA) through the VINNMER program.

COPYRIGHT

Linda Askenäs, Jan Aidemark and Klas Gäre © 2013. The authors assign to ACIS and educational and non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The authors also grant a non-exclusive licence to ACIS to publish this document in full in the Conference Papers and Proceedings. Those documents may be published on the World Wide Web, CD-ROM, in printed form, and on mirror sites on the World Wide Web. Any other usage is prohibited without the express permission of the authors.