Tackling Variability With A Pioneer Cardiovascular Disease Network In Spain

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Citation

C Bengoa Terrero, M Bas Villalobos, A García Lledó, I Fernández Rozas, A Curcio, L Maroto Castellanos, F Serrano Hernando, S Martínez Machuca, J Flores Soler, C Vergara-Uzcategui, J Pérez Villacastín. *Tackling Variability With A Pioneer Cardiovascular Disease Network In Spain*. The Internet Journal of Healthcare Administration. 2022 Volume 14 Number 1.

DOI: 10.5580/IJHCA.56354

Abstract

In Spain, a clinical network starting from the bottom-up to address the needs of the population has never taken shape around a specific disease. This network includes four hospitals, primary care and the main ambulance provider of the autonomous region of Madrid. We analyse the context, contributing factors as well as the challenges in setting-up this network focused on cardiovascular disease.

1. INTRODUCTION

Spain has a tax-based Beveridge type of health care system. Most management is decentralized to 17 Autonomous Regions [1]. The heads of cardiovascular disease (CVD) from four public hospitals in the Autonomous Region (AR) of Madrid, recognizing a high degree of clinical variability within and among centres [2], have come together to collectively address this challenge.

It began in 2003, when the main specialized hospital shared its clinicians with a satellite hospital for simple CVD procedures performed in that local hospital. This allows patients to stay close to home and their families whilst giving them access to specialized clinicians who have the skills and experience to carry out that procedure. This is also cost-effective since there is no need to employ staff for such little activity at the satellite hospital [3]. Complex procedures were still completed at the specialist hospital.

Progressively, two more hospitals joined this way of working and in 2018, this was formalized into a full-scale alliance called CardioRed1 which now includes primary care and the main ambulance provider of the AR of Madrid. The concept of clinical networks has been around in other countries as a means to offer care at improved cost [4, 5] but as far as we are aware, the organizational model where clinicians collectively address population health had not taken shape in Spain from the bottom-up until now.

This clinical network operates within a choice model in the AR of Madrid in which patients can choose where they wish to be treated. Given that other countries are abandoning competitive models from more collaborative ones [6-8] it will be interesting to assess how this choice plays out in the AR of Madrid in the coming years.

Bottom-up healthcare networks tends to be focused on relationship building, sharing knowledge or working on specific change ideas [8, 9]. CardioRed1's overall objectives are to unify CVD care in a population of more than 1.2 million people so that they can all benefit equally from organizational, diagnostic and therapeutic innovation.

CardioRed1 is distinct since it fulfils three conditions which have never been combined in Spain before. First, it is clinician-led rather than policy-led and is an example of bottom-up innovation. Second, it focuses on practical implementation to improve the health of its population (1,2 million), including 'sharing' patients to deliver the best care possible. Third, it is a cross-organisational agreement with a

governance structure which gives it robustness and durability.

The purpose of this analysis is to review the facilitators which allow this unique model in Spain to be born and reveal the current challenges.

Within CardioRed1 lie several projects that have been agreed as a roadmap covering the fields of (1) clinical safety and quality, (2) giving voice to patients, (3) prioritising prevention, and (4) achieving more efficiency. These fields then unfold into several projects as described in Box 1.

Box 1

Agreed projects within CardioRed1

Box 1: Agreed projects within CardioRed1	
Clinical safety and quality	Design and implement a patient pathway for atrial fibrillation.
	Use a uniform discharge report across the four hospitals
	Aorta Code: implementation of a new pathway for patients with acute aortic syndrome so that they are treated as fast as possible at the specialist hospital
Giving voice to patients	Co-design with patients an improved hospital admission process.
	Implementation of a nursing bundle to improve patient experience of admitted patients
Prioritising prevention	Early detection of silent atrial fibrillation patients so as to prevent brain strokes
	Education and training of primary care doctors through a videoconference programme (project ECHO)
Achieving more efficiency	Do-Not-Do: Reduction of diagnostic and treatments with no value for patients' health

1. IMPLEMENTATION SUCCESS.

CardioRed1 has been the result of the collective efforts of clinicians and leaders within the health sector whose dedication has been critical to its success. An array of strengths has been identified when launching and moving forward the network.

The success of the implementation of this project relies on evidence, the reality of clinical variability, a long history of organizational relationships, a bottom-up approach, the support of authorities, a structure for governance, and a support team. All these strengths are detailed separately. Additionally, we've included a quick self-evaluation based on The Health Foundation's effective networks for improvement report is detailed in Box 2.

Box 2

CardioRed1's self-evaluation using the Health Foundation [23] effective networks criteria

Box 2: CardioRed1's self-evaluation using the Health Foundation [23] **effective networks criteria**

1. **Common purpose** – achieving better quality, better patient experience, reducing variability and supporting efficiency through quality improvement.
2. **Cooperative structure** – Any hospital can pull out at any time from this collaboration. Whilst there is a governance structure to set a direction, the network itself cannot mandate to its members a specific project or activity.
3. **Critical Mass** – There are 4 hospitals, primary care and the ambulance provider and, dependent on how strict our definition of 'member' is, it has at least 140 staff who belong to it. This is sufficient volume to create a sense of identity, spread ideas and enough power to make an impact.
4. **Collective intelligence** - this network already pools data, information and ideas from its members. Patients benefit from this collective learning.
5. **Community building** – there is sense of community with progressively growing participation and commitment. There is a specific area of work called *CardioRed1 professionals*, focused on enhancing this community building.

2.1 Evidence, the reality of clinical variability and clinicians wanting improvement

Undoubtedly, clinical variation exists in healthcare worldwide [10]. Although there are several clinical guidelines published nationally and/or internationally setting certain standards of care, they rarely address implementation. Clinicians, who are often driven by evidence, know that variation exists between regions, hospitals [11], teams and even professionals [2] . Reducing the variation among four hospitals and within primary care might lead to considerable improvement in healthcare.

Whilst the four previously mentioned areas of focus of the network are all pivotal, the area of clinical safety and quality is the driving force between the network. It is especially important since the network is clinician-led with evidence suggesting that working collaboratively can improve outcomes [12-14].

2.2 A long history of organizational relationships

Trust, or the more comprehensive term of psychological safety, is arguably more important in healthcare than in other industries. It exists between the patient and the clinician but in this case also between professionals [15]. It is critically necessary when handling patient care within a team, or when establishing a new way of working between organizations [16, 17].

The link between these four hospitals is not geographical, but rather lies on previously agreed innovative work in cardiology. It is based on personal and organizational

relationships which have been building for a decade. Starting in 2003, a specialist hospital and an intermediate complexity hospital agreed to share medical specialists in interventional cardiology to complete the simpler procedures at the closest hospital. This achieved the triple aim of the patient and their family not having to move further away from their home, the patient gets better clinical care from a doctor that has vast experience, and lastly, the intermediate complexity hospital is making a better use of resources since there is no need to hire a specialised team for such little volume of patients. Two more hospitals joined this arrangement, in 2012 and 2018, finally reaching a total of four hospitals within this initial network.

Building trust between clinicians and organizations can be difficult, arguably harder between a specialist hospital and secondary hospitals, but 'sharing' patients and clinicians builds the foundation for that trust-building between professionals, leaders and organizations. Starting first with this innovative approach, which has been hugely successful [3], supported the idea that working together is a win-win situation for all involved, and that primary care and emergency transport provider should also be included.

2.3 A bottom-up approach

The fact that the network has been a clinically-led initiative has been key to its development. In this sense it is a bottom-up initiative and evidence indicates that this form of innovation is successful [18, 19]. It progressively acquired support for the management levels (CEOs) who recognized this level of clinical engagement as a suitable alternative to innovate with healthcare organisations today. These facts have made it possible to agree on a governance model.

Innovation is always a challenge, and especially when this particular way of working is not directly encouraged from the top. However, when the idea of forming a network comes from clinical leaders who trust each other and argue that working collaboratively will achieve better outcomes, experience and efficiency, any top-level leader will pave the way for it to happen.

Bottom-up innovations are frequent, they tend to be very specific can be too focused on research, and are rarely implemented elsewhere [20]. Whilst this is also a positive form of innovation, this network aims differently since, through clinical collaborative leadership, spreading innovation is itself part of the network thanks to its four hospitals, primary care and the ambulance provider. Projects are not launched unless they can be eventually implemented across the network. This can be done either by piloting an idea within one hospital site as a pilot, or by simultaneously designing and implementing an improvement project together.

Having this network led by clinicians gives it strength in the eyes of peers, especially to other cardiologists within the four hospitals. Being encouraged to collaborate by your head of service is different to having it pushed by a top-level hospital o political executive who may not know the reality of service delivery.

2.4 Leadership support

Bottom-up initiatives still need support from the top to thrive [21, 22]. The directors of the four hospitals as well as primary care and the political level, all gave their seal of approval for this form of collaboration in November 2018. Aside from that, support has been more in the form of allowing independent work, authorising the network to agree and progress without the need of continual approval from above. This allows for quick decision making and offers the flexibility that is needed among healthcare professionals.

2.5. Governance of the Network

Better-perceived strategic and operational network management is significantly associated with higher ratings of impact on quality of care and higher ratings of impact on system-wide change [12]. A structured governance board which meets twice a year now includes the CEOs and heads of cardiology of each hospital, the CEO of the main ambulance provider, as well as political representation of the regional health system administration for primary care, for IT, for integrated health processes and for hospital management. In November 2018, these members all signed the strategic alliance with a vision statement: "Taking care of a million hearts together".

At the operational level, there are two main management groups. First, the executive board of CardioRed1, which oversees fortnightly strategy and objectives' follow-up. Second, the main working group which takes place every two months (face-to-face or online) and is an open forum. Here, difficulties and plans for each project, as well as new proposals and quality policies are addressed.

2.6. Setting up a project support team

The collaborative nature of this arrangement is unique. It

undoubtedly puts additional pressure on clinicians who are being asked to do more than just deliver care to patients, but also critically evaluate, plan and implement projects, build relationships and think continuously on quality improvement.

Whilst clinicians have a breadth of expertise, they are not used to using project management tools nor should they be expected to manage diaries, coordinate stakeholders and complete documentation. The employment of project management support has pushed the projects forward. Since their only role is to support clinicians, their presence itself is a reminder of completing activities and fulfilling deadlines.

3. CHALLENGES TO OVERCOME

Whilst the tools used to launch and set the network have given it strength, as with any innovation, there are specific challenges to the progress and sustainability of a network of this type.

3.1 Resources (in manpower and funding)

The political level has been supportive of this innovative approach of collaborating in Madrid, although no additional public funding has been assigned. Evidence indicates that a common barrier to move forward on transformation, change or innovation at this scale is the absence of funding [24], including with networks [25].

For the first year of the network, the heads of service have relied on resources from a CVD research foundation – Fundación FIC. This funding has been used for the employment of project management support and for the launch of projects and materials.

3.2 IT Infrastructure

Arguably, a shared electronic patient record (EHR) is the strongest integrator of healthcare [26]. Whilst difficulties in their use or implementation are known [27-29], any improvement in the connectivity between health data benefits the patient and the healthcare professional.

Currently, there is no mandate to implement a shared EHR among hospitals in the AR of Madrid. In addition, not all 34 hospitals in the Region have got interoperable EHR between them or with primary care's EHR.

One of the main global projects to strengthen CardioRed1 is being developed with Madrid's IT Authority, starting with the unification of CV medical images and with the comprehensive goal to settle the necessary tools to share the required information between all healthcare levels.

3.3. A sense of belonging to CardioRed1 – internal and external communication

An ongoing challenge is the sense of belonging to the network. CardioRed1 is asking clinicians to lead quality improvement during their day to day work. This is undoubtedly adding extra pressure to already stretched thin professionals. Embedding this change of culture is a challenge when a network is perceived as something distant or does not seem to be offering benefits to the professional beyond improving patient care. Communicating the benefits seem critical, for example providing better tools to help clinical decisions, such as the unified CVD imaging platform soon to come into place.

The network is uniquely collaborative, meaning input from a wide array of stakeholders and leaders is needed even before a project is proposed or a decision is made. This is a continual learning process which is adapted dependent on the organisation or even individual that the network is collaborating with.

With the aim to create a method to address this challenge, several actions have taken place. First, the four heads of CVD disease have a scheduled videoconference every 3 weeks. Secondly, an all staff bulletin is periodically emailed out heightening the work of the members of the different projects. Third, a Twitter account which engages with professionals and tweets with information directly related to project progress has launched. Fourth, project support is distributed between the four hospitals which allows better understanding of the different hospitals' challenges and makes CardioRed1 an ever-present presence.

3.4. Stakeholder engagement

Stakeholder engagement without power is relentless. This analysis shows that a having to pave a new model of work from the bottom-up in a remit that is often left to policy-makers is a unique challenge. Stakeholder management theory has argued a linear idea that more stakeholder engagement is always better. However, that may not always be the case [30].

The network, since it lies at the bottom, has little leverage when change needs to take place outside of its direct scope and stakeholders are not always transparent or collaborative. Time is spent on stakeholder management and promoting specific actions to drive projects forward attempting to use

evidence and future outcomes as selling points.

Whilst quality improvement theory has stakeholder management embedding into its work since it provides an understanding on sometimes unforeseeable barriers, results, or ethical considerations [31], the time dedication by the clinical leaders within the network on stakeholder management is extensive.

Revaluation of the viability of projects or their actions is constant due to unforeseeable barriers. These revaluations are discouraging when the predicted results will evidently have a considerable impact on patient care/safety and the justification is not the lack of evidence, technology or even funding, but a seal of approval by a stakeholder.

RESULTS

Committed with quality improvement, CardioRed1 has been keen in establishing indicators for each of its projects, however, setting a cross-organisational shared vision and new way or working is harder to assess quantitatively since it is notably more subtle. Nonetheless, pushing forward a network of this magnitude in the dark would not be prudent and that is why we have several formal and informal mechanisms to grasp how well this new way of working is being acquired by the cardiovascular professionals of the network.

In an anonymous email survey completed by 27 healthcare professionals (5 nurses and 22 medical staff), results have been positive: 77% scored 4 or 5 when asked “Do you feel involved in CardioRed1 project?” (where 1 is not at all and 5 is totally) and 81% scored 4 or 5 when asked “Do what extent does CardioRed1 add value to your work?” (where 1 is not at all and 5 is totally). These results must be looked at with caution since survey responders are most likely those most committed to the network.

Other examples of staff commitment exist. The eight projects have one healthcare professional from each hospital championing and representing local improvement. This is particularly challenging for the smaller hospitals since service delivery practically takes up the totality of their time. Research, improvement or administration are not seen as part of their functions and staff must therefore rearrange their service delivery obligations with colleagues to make time for the network.

There is often a disconnect between what reaches the status of official knowledge and what is known informally. Soft intelligence is that which evades easy capture, straightforward classification and simple quantification [32]. Often the cultural and psychological elements of an organisation, which aren’t captured by hard metrics (rates of infection and complications) but are a valuable to design improvements and prevent system failures, are missed [33, 34]. CardioRed1 actively seeks the participation and the thoughts of staff, therefore setting the communication channels and culture where staff share soft intelligence and identify and address problems of quality.

This soft intelligence has come into play during 2019-nCoV pandemic, whereby professionals would naturally share their learning with each other. This has happened worldwide, but arguably at a faster rate within CardioRed1 since the channels and trust were already set-up. Learning during the crisis was also not exclusively clinical, in fact, it is managers, nursing leaders and heads of service that have reported that the peer support of having to completely reorganise their service delivery with the uncertainty of how to move forward has been useful. They all faced the unprecedented challenge of managing urgent cardiovascular care, with some staff falling ill, and some of their cardiologists, nurses and wards dedicated to COVID-19. This is an unexpected valuable result of the network.

CONCLUSIONS

Establishing an inter-organisational network of this magnitude with such an array of healthcare stakeholders has never been led from the bottom-up in Spain. Day to day CVD care delivery is not void of challenges within each of the organisations involved, nonetheless, clinicians have taken it on themselves to launch a structured new way of working where they are the decision-makers.

Policy-makers across the globe have attempted all forms of healthcare organisation. In fact, London has a similar format where CVD [35], diabetes, renal and others [36] are split into six areas all covering a population between one and two million people. However, how CardioRed1 has originated, without a mandate or encouragement from the political level is unique. Its governance is also dictated by clinicians rather than by central or regional healthcare bodies.

In the context of the current choice model, where regional policy encourages rivalry between healthcare providers [37], this collaborative solution may provide the stakeholders within CardioRed1 a competitive edge, so much so, CardioRed1 may have inadvertently become a trend setter within Madrid and Spain as a new model of organising care

delivery with better outcomes, more patient voice, a stronger focus on prevention and better use of limited resources.

This network focuses uniquely on implementation and process redesign, it does not directly seek to produce new diagnostic or treatment research but rather reorganise the pathway or criteria so as to guarantee effectiveness and equity in over one million people.

The drivers and motivators are set by healthcare professionals, which gives CardioRed1 a unique strength. Policy-makers in the AR of Madrid are keeping a close watch on the progress of this network as a possible model which could then be expanded. The reorganisation of the AR of Madrid's healthcare may be necessary, however, should regional policy-makers encourage other leaders to follow this model, it is critical that the process no be imposed from the top-down. If that were the case, the main driving force and essence of the network would then not be present.

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