

# Implementing an integrated cardiology programme in Eastern Lithuania to improve cardiovascular health

## Overview

The Eastern Lithuanian Cardiology Programme was initiated in response to Lithuania's high burden of cardiovascular disease, which disproportionately affected the eastern region. Following a detailed situational analysis to inform programme activities, senior management at Vilnius University Hospital Santarisku Klinikos, a tertiary centre in the eastern region, convened government officials and health providers to garner support for the initiative. With stakeholders motivated and engaged, the Programme was

rolled out across 40 health care institutions in the eastern region volunteering in the programme. Supported by €20 million in funds allocated by the EU and Lithuanian government, the Programme included strengthening provider competencies through trainings and conferences; investing in basic equipment to facilitate provision of cardiology services in primary and secondary settings; issuing concrete guidelines for providers to follow; and implementing electronic medical records to streamline care and improve coordination between providers as well as

connecting patients to their care. An external programme evaluation commissioned by the Ministry of Health showed success in shifting care away from tertiary settings, as well as improved health outcomes such as decreased mortality from acute myocardial infarction. However, full assessment of the Programme was hindered by the failure to incorporate monitoring and evaluation from the outset. Currently, the Programme is being passively implemented in the eastern region using infrastructure already in place.

## Problem definition

Throughout the 1990s and early 2000s, high rates of cardiovascular disease in Lithuania, particularly in the eastern region, were consistently reported. Inhabitants in the eastern region aged 45-64 years were at greatest risk of mortality due to coronary heart disease, myocardial infarction and cerebrovascular diseases<sup>1</sup>. Within the eastern region, data consistently showed an unfavourable mortality trend from cardiovascular diseases in areas outside of major cities. Both providers and patients reportedly found services fragmented and

concentrated in tertiary settings. Moreover, variable distribution of cardiology resources negatively affected rural areas and contributed to longer waiting lists for specialists in urban tertiary level centres where quality of care was perceived to be higher.

### Box 1

What problems did the initiative seek to address?

- High rates of cardiovascular disease in Lithuania, particularly in the eastern region.

- Cardiology services concentrated in tertiary settings; primary and secondary settings ill-equipped to provide cardiovascular care and perceived as being lower quality by patients.
- Tertiary settings overburdened; long waiting times for cardiology specialists.
- Poor access to cardiovascular care in rural areas.

## Health services delivery transformations

### Timeline of transformations

Concerns regarding cardiovascular health in the eastern region of Lithuania and inefficiencies in the delivery of services triggered discussions at Vilnius University Hospital about the potential for developing an integrated cardiology programme in the region. Following a detailed situational analysis in 2003, the Eastern Lithuanian Cardiology Programme was devised to strengthen cardiovascular care in primary and secondary settings. Securing funding for activities in 2004, the Programme was subsequently implemented over the next four years. With basic infrastructure for improved cardiology care now in place,

the Programme continues to be passively implemented today.

### Description of transformations

**Selecting services.** Cardiology services offered within primary and secondary settings in the eastern region have been expanded. Comprehensiveness of services in these settings has also increased and health promotion, screening and rehabilitation services are now available. New services implemented under the Programme specifically aim to address the needs of at-risk groups, such as through targeted screenings for cardiovascular disease.

**Designing care.** The Programme clearly defined the flow of patients across settings considering the full

continuum of care from prevention measures to highly specialized acute services to rehabilitation. Drawing on evidence from international models, decision support tools were designed to clarify linkages between health providers and support the systematic transfer of patients; tools included patient pathways, concrete guidelines and schemes for different situations, cardiovascular risk evaluation tables and a list of obligatory analysis for each level of care to minimize service duplication.

**Organizing providers.** By strengthening the role of primary care, the Programme has reinforced its role as gatekeeper for cardiology services. Primary care physicians are now involved throughout the care process, allowing them to oversee care for their patients. Simultaneous strengthening of secondary care has increased the local delivery of more specialized services. The shift of care to primary and secondary care providers, now prepared to handle cardiology patients, has helped unload the burden on tertiary centres and reduce waiting times for specialists. Implementation of electronic medical records has established clear communication channels between providers, connecting previously isolated rural practices and streamlining referrals. Electronic medical records also permit virtual consultations between providers, allowing more patients to be treated locally yet still benefit from specialist input.

**Managing services.** A standardized package of cardiology equipment was delivered to each participating location to even resource distribution across the region; this included modern cardiac ultrasounds, bicycles for stress testing and Holter monitors. Each location was also provided with the necessary resources to implement the new electronic medical records system. Renovations were carried out for most participating locations to prepare facilities to receive

Table 1

What were the chronological milestones for the initiative?

2003	First discussions among senior management at Vilnius University Hospital to explore the potential for integrated cardiology services in the eastern region to address concerns over poor cardiovascular health in the eastern region.
2003-2004	Planning phase for the Eastern Lithuanian Cardiology Programme: detailed situational analysis conducted and a strong evidence base for proposed activities developed; stakeholders engaged with the project; necessary funds sought.
2004	Funding secured from EU structural funds and the Lithuanian government.
2004-2008	Implementation phase: rollout of planned activities across participating facilities including improving infrastructure, training providers and implementing an integrated information system.
2006	Ministerial Order passed for a national primary care cardiology screening protocol for at-risk populations.
2008	Independent programme evaluation commissioned by the Ministry of Health.
2008-present	Passive implementation of activities utilizing infrastructure already in place.

**Table 2**

How was the delivery of health services transformed through the initiative?

Before	After
<b>Selecting services</b>	
Cardiology services highly specialized; narrow scope of services centred on diagnostics and treatment offered.	Expansion of services available in primary and secondary care; increased comprehensiveness of care through incorporation of health promotion, disease prevention and rehabilitation services; targeted interventions for at-risk groups.
<b>Designing care</b>	
Absence of guidelines or protocols for cardiology care; unnecessary duplication of services at each care level; limited involvement of patients in care process.	Concrete guidelines and care pathways established using evidence from international models; list of obligatory analysis dictates services to be provided at each care level; patients engaged in care process via an online patient portal.
<b>Organizing providers</b>	
Specialists concentrated in tertiary settings, often located in urban areas; primary care providers unable to act as gatekeepers to cardiology care; rural providers highly isolated and often unable to offer cardiology services; referral systems ineffective and continuity of care weak.	Strengthened primary and secondary care allows gatekeeping for cardiology services, as well as local delivery of some services; electronic medical records facilitate continuity of care, streamline referral systems and enable virtual consultations between providers.
<b>Managing services</b>	
No coordinated information system; inequitable distribution of cardiology equipment; primary and secondary settings ill-equipped to provide cardiology services.	Electronic medical records implemented; standardized equipment package distributed to all participating locations and renovations carried out to improve care facilities.
<b>Improving performance</b>	
Limited opportunities for provider advancement; lack of professional motivation among providers.	Trainings for providers across all care levels provided; conferences held to encourage peer learning and foster collaborative relationships.

equipment and enhance general aesthetics. Vehicles were also purchased to facilitate patient transfers.

**Improving performance.** Training was provided to over 100 providers across all care levels. Training included short courses for nurses, two-month trainings for primary care physicians, a two-year cardiology specialty for secondary level physicians and various learning opportunities abroad for tertiary specialists. Peer learning

and continuous performance improvement were also encouraged through regular conferences convened at Vilnius University Hospital.

**Engaging and empowering people, families and communities**

A concerted effort was made to inform the public about the new services made available through the Eastern Lithuanian Cardiology Programme. A logo was designed to increase public recognition of the Programme and television, radio and

newspaper announcements were made to raise public awareness. As a result of the Programme, patients can now access higher quality cardiology care in primary and secondary settings closer to their home and renovations have made these facilities more welcoming. Furthermore, patients are now actively engaged in their care through the use of an online portal that links to their electronic medical records. Here, patients can access useful information and advice, allowing them to play a more active

role in their care by empowering them with knowledge and providing them with useful disease management tools. Additionally, the portal has other convenient features for patients, such as allowing them to manage appointment bookings online. Patients using the portal have reported a new mindfulness for their health status and greater confidence in the accessibility of providers to address their questions and concerns.

### Health system enabling factors

While the Eastern Lithuanian Cardiology Programme is a regional initiative, several factors within the wider health system contributed to its success (Table 3). Ministry of Health endorsement for the Programme provided it with a level of legitimacy among providers. Furthermore, Ministry of Health funding supported implementation of activities. Although no formal legislation was enacted as a direct part of the Programme, the Ministry of Health passed a pertinent Ministerial Order in 2006, midway through the implementation phase of the Programme, setting screening standards in primary care for populations at risk for cardiovascular disease. Guidelines encourage the regular screening of at-risk patients, defined as males aged 40-55 and women aged 50-65 years. Adherence to the guidelines is supervised through the provider payment system, regulated by the insurance fund. Primary care providers receive payment-for-performance bonuses for reaching target numbers of screenings; while this is intended to incentivize implementation of services, in this case additional incentives may be needed to reach desired levels of screening activity. Other cardiology services made possible through the training and resources the ELCP provided are not incentivized. However, providers are now eligible to receive regular fees through the

insurance fund for these services, which prior to the Programme they were unable to perform.

To support the expansion of provider competencies called for under the Programme, a two-year cardiology programme was developed by Vilnius University Hospital. This continues to be offered as an available residency for new medical students, ensuring training in cardiology is sustainably incorporated in the medical education system. Additionally, new qualifications and recognized certifications were made available for providers participating in the voluntary training opportunities offered through the Programme.

At the end of the implementation phase, the Ministry of Health commissioned a formal evaluation. While the detailed situational analysis conducted prior to the

initiative provided a baseline for reporting progress, with the benefit of hindsight, failing to incorporate a stronger monitoring and evaluation framework throughout the initiative from the beginning was a limiting factor for reporting on its impact.

### Outcomes

In 2008, the Ministry of Health commissioned a formal review of the Eastern Lithuanian Cardiology Programme covering all 40 participating health care facilities. Comparing data between 2004 and 2008, reports found that combined mortality from all circulatory diseases decreased (Box 2). All 40 participating health care facilities received a basic package of cardiology equipment and standardized dissemination of resources was found to increase use of recommended practices. With

**Table 3**

How has the health system supported transformations in health services delivery?

System enablers	Example
Accountability	<ul style="list-style-type: none"> <li>Ministerial Order established professional standards for cardiovascular disease screening in primary care settings.</li> </ul>
Incentives	<ul style="list-style-type: none"> <li>Payment-for-performance incentives introduced for primary care cardiovascular screenings for at-risk patients.</li> </ul>
Competencies	<ul style="list-style-type: none"> <li>Cardiology residency developed and made permanently available to medical students.</li> <li>Recognized certification awarded to providers completing training courses offered through the Programme.</li> </ul>
Information	<ul style="list-style-type: none"> <li>Situational analysis conducted in the planning phase of the Programme provided baseline data for assessing the Programme.</li> <li>Ministry of Health commissioned an evaluation of the Programme at the end of the implementation phase; failure to incorporate a monitoring and evaluation framework from the outset recognized as a limitation.</li> </ul>

primary and secondary facilities better equipped to manage patients with cardiovascular disease, provision of care appeared to shift from tertiary care to lower level settings.

## Box 2

What were the main outcomes of the initiative?

- Combined mortality of all circulatory diseases decreased from 1.71% to 1.55% in the eastern region between 2004 and 2008; mortality from acute myocardial infarction declined by 5%.
- Access to care has increased by 45% based on the number of providers in the region trained to provide cardiology services.
- Provision of outpatient services increased by 26% across secondary-level hospitals in districts outside Vilnius; demands on specialized inpatient services at Vilnius University Hospital decreased by 6%.

## Change management

### Key actors

Development of the Eastern Lithuanian Cardiology Programme was led by senior management within Vilnius University Hospital (Box 3). The hospital's senior management displayed creativity and foresight in their ability to leverage the region's poor epidemiological context and provider dissatisfaction to sharpen the case for transforming the provision of cardiology services. As a specialist learning centre, the Hospital had the necessary recognition and expertise to carry the initiative forward. Support from stakeholders, including providers and government actors, was solicited early on in the design process through a series of meetings and advocacy efforts led

by the Director of Vilnius University Hospital. Input from the Ministry of Health was critical for more widely legitimizing the Programme among stakeholders.

## Box 3

Who were the key actors and what were their defining roles?

- **Director of Vilnius University Hospital.** Steered and managed the Programme, providing technical expertise in its design and serving as the spokesperson for the initiative to the Ministry of Health.
- **Senior management at Vilnius University Hospital.** Supported the Director in the design and implementation of the Programme.
- **Ministry of Health.** Formally acknowledged the Programme, giving it increased legitimacy among stakeholders; provided 20% of necessary funds; commissioned an evaluation of the Programme; passed a Ministerial Order implementing national cardiovascular screening protocols.
- **European Union.** Structural funds provided the majority of financing (80%) for the Programme.
- **Health providers.** Volunteered to participate in the Programme; completed additional training to expand competencies in cardiology; worked collaboratively to improve care provision.

## Initiating change

In 2003, with senior management at Vilnius University Hospital aware of the need to improve cardiology care in the eastern region, a detailed situational analysis examining demographics, epidemiological trends, health care institution activities and patient needs, was conducted prior to starting the initiative. This not only provided key

information on which to base the initiative's design, but also helped generate a sound evidence base to support the need for intervention and was critical for achieving buy-in from the Ministry of Health. Senior management at the Hospital used this analysis, along with their specialist knowledge of cardiology and experience of international care models to design the Eastern Lithuanian Cardiology Programme with input from stakeholders.

## Implementation

While the subnational and national-level actors steered the initiative and procured the necessary resources, providers at the micro-level capitalized on investments made under the Programme and applied their newly acquired skills to implement the new protocols and services. With advancement of clinical skills being the only incentive to enrol in training, it was providers' personal interest and professional ambition that supported transformations under the Programme. Encouraging provider involvement early on, as well as integrating regular opportunities for feedback throughout the Programme via a series of meetings and networking conferences, proved essential in counteracting the individualistic culture embedded in the health care system. While creating a cooperative common vision for service delivery required an extensive investment in time from the senior management team, developing the necessary culture of cooperation and teamwork was essential for capitalizing on the investments in resources and training made during the Programme.

## Moving Forward

The Programme continues to be passively implemented using the infrastructure already put in place. However, the Programme has not been incorporated into the regular budget or secured additional external funding. This prevents scaling up of the initiative and calls into question

how to financially support future resource needs. Some changes have, however, been sustainably incorporated. Legislation and incentives supporting preventive screening for cardiovascular disease are in place and the two-year cardiology training programme is now a permanently available residency option for medical students.

### Highlights

- A detailed situational analysis informed the initiative's design and identified the specific needs of the target population; this analysis also provided evidence supporting the need for intervention and baseline data for reporting progress.
- Strong leadership by senior management at Vilnius University Hospital provided technical expertise and generated stakeholder support; securing support from the Ministry of Health was essential for legitimizing activities.
- Extensive engagement of providers from the beginning was necessary for overcoming the individualistic culture within the health care system and building collaborative relationships.
- Provision of a standardized cardiology equipment package to all participating locations ensured basic quality standards were met and helped support providers implement their new training.

---

1 Laucevicius A., Abraitis V., Gaizauskiene A., Klumbiene J., Petruiloniene Z., Kizlaitis R., et al. Eastern Lithuania cardiology project (ELCP): demographic and epidemiological situation, activities of health care institutions and the needs of the patients of the region. *Seminars in Cardiology*. 2005;11(4).