How-to-Guide

Stent for Life Initiative

STENT FOR LIFE

EAPCI
A Registered Branch of the ESC

EUROPEAN SOCIETY OF CARDIOLOGY®

euro PCR

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Introduction

Dear Colleagues,

Welcome to the 2nd edition of the Stent for Life Initiative Guidebook which we trust you will find useful not only in helping to set up your local Stent for Life Initiative, but also in driving the Initiative forward and achieving positive change in your country.

As you know, the Stent for Life Initiative (SFL) is a unique European platform for interventional cardiologists, government representatives, industry partners, advocacy groups and patients to work together and, by shaping healthcare systems and medical practices, ensure that the majority of STEMI patients have equal access to the life saving indication of primary PCI.

SFL's overall aim is to improve delivery and patient access to the life-saving indication of PCI, thereby reducing the mortality and morbidity of patients suffering from acute coronary syndromes.

There are two key objectives that will determine our success:

1. Define regions and countries with an unmet medical need in the optimal treatment of ACS
2. Implement an action programme to increase patient access to primary PCI where indicated:
   - To increase the use of primary PCI to more than 70% among all STEMI patients
   - To achieve PCI rates of more than 600 per one million inhabitants per year
   - To offer a 24/7 service for primary PCI procedures at invasive facilities to cover the country STEMI population need

As part of the SFL Initiative, your task is to meet these objectives in your country, and this SFL Guidebook will provide you with guidance to do this. Within these pages you will find advice on all aspects of SFL, including setting up your local SFL structure and Task Force, establishing external partnerships, mapping the local situation, developing a strategic plan and delivering changes in local practice.

We urge you to familiarise yourself not only with the current contents, but also any updates we send as new materials become available.

Finally, we would like to thank you for your hard work and commitment to the success of this important initiative. We value your feedback so please do not hesitate to contact us if you have any questions or comments on the SFL Guidebook..

Yours faithfully,

Zuzana Kaifoszova
Stent for Life Initiative, Project Manager

Petr Kala
Stent for Life Initiative, Chairman

SFL European Executive Committee, Members & Partners

SFL Executive Committee

SFL Executive committee is an advisory body, which has 8-10 members, including the SFL Chairman. SFL Executive Committee sets long term (3-5 years) scientific and strategic objectives.

SFL Chairman:	Petr Kala	SFL Co-Chairman:	Jean Fajadet

Members:		SFL Ambassadors:	
	William Wijns	Chairman of EuroPCR		Fina Mauri
	Petr Widimsky	SFL Past Chairman		Marko Noc
	Steen Kristensen	SFL Past Chairman		Jan.J. Piek
	Stephan Windecker	EAPCI President		
	Carlo Di Mario	EAPCI Past President		
	Marie Claude Morice	EAPCI Women		
	Mark de Belder	BCS Past President		

Project Management

Zuzana Kaifoszova, M.D., MBA | SFL Project Manager | Europe

Stent for Life Initiative | Members

Bosnia and Herzegovina, Bulgaria, Cyprus, Egypt, France, Greece, Italy, Portugal, Romania, Serbia, Spain, Tunisia, Turkey and Ukraine

Stent for Life Initiative | Affiliate Organisations

Argentine Society of Cardiology, Emirates Cardiac Society, Saudi Heart Association, Siberian Association of Interventional Cardiologists, STEMI INDIA and Mexican Society of Interventional Cardiology

Participating Organisations

EuroPCR is made up of the winning elements of open-mindedness, innovation and a patient-centred approach, with discussion and debate on the different treatment options in a constructive manner. In line with this, the cardiovascular community identifies the best treatment option for each individual patient. Safe, effective, patient-centred healthcare will help us reduce the burden of cardiovascular disease. Life-saving PCI should be the basis of our daily practice and EuroPCR provides information on the latest techniques, updates and breakthrough science, allowing this information to be turned into actions that will improve the quality of life of the patients. EuroPCR is one of the initiators of SFL, along with the EAPCI.

The European Association of Percutaneous Cardiovascular Interventions (EAPCI) is a Registered Branch of the European Society of Cardiology (ESC). It was created in September 2006 as a result of a joint venture between the ESC Working Group on Interventional Cardiology and EuroPCR. EAPCI has over 6,500 members and 10 committees. Via its activities, it strives to become "the" exchange forum for all who care about cardiovascular health and wish to contribute to its improvement through the application of percutaneous cardiovascular interventions. The EAPCI is one of the initiators of SFL, along with EuroPCR.

The Acute Cardiovascular Care Association aims to advance knowledge in major life-threatening fields of cardiology such as acute coronary syndromes, cardiogenic shock, cardiac arrest, cardiac arrhythmias and acute heart failure, by providing training and education to physicians and nurses and by improving the outcome of patients admitted to ICCUs.

Stent for Life Initiative Industry Partners

Stent for Life Initiative is supported by industry partners; they have no influence on the scientific content of the programme. The current partners and partnership opportunities are listed at **www.stentforlife.com**

Building the Structure

Your Local Structure

Getting the right organisational structure for the Stent for Life Initiative in your country will provide you with a solid foundation from which to achieve the Initiative's objectives. It is worth taking the time to make sure your structure is effective and the best possible people and organisations are involved and represented.

The typical SFL structure looks like this:

SFL Country Champion
↕
SFL Steering Committee
↕
SFL Task Force
↕
SFL National Project Coordinator

We recommend that you mirror this structure unless there are compelling reasons to adopt a different one in your country.

SFL Country Champion

The SFL Country Champion is likely to be a well-known and respected cardiologist, and acts as the figurehead and ambassador for the SFL Initiative. The Country Champion's roles and responsibilities include:
*   Securing support and partnership from the local National Cardiac Society
*   Leading the SFL Task Force and the development and execution of the Country Implementation Plan
*   Serving as primary contact for the SFL European Executive Committee and SFL Project Manager, Europe
*   Collecting any available data on AMI treatment in the local country and monitoring how the situation is changing
*   Leading national level discussions with third parties, including government authorities, health care payers, hospitals, etc to facilitate the logistics for improved access to primary PCI

SFL Steering Committee

The SFL Steering Committee is the scientific body that oversees the gathering of scientific evidence in the country and provides broad strategic oversight for the SFL Initiative. It assists the Country Champion in leading the SFL Task Force and developing the Country Implementation Plan. The Steering Committee must be entirely made up of respected cardiologists, patient/advocacy group representatives or other relevant experts, and should not contain any representatives from industry partners. The SFL Steering Committee is also responsible for reporting on progress to the SFL European Executive Committee.

SFL Task Force

The SFL Task Force is responsible for carrying out the Country Implementation Plan, and should be drawn from representatives of all the key SFL stakeholders who are able to dedicate resources and expertise. Under the leadership of the SFL Country Champion and Steering Committee, and coordinated by the National Project Coordinator, the Task Force's responsibilities include:

- Mapping and analysing the local situation
- Identifying barriers to effective use of PCI
- Securing additional local industry and patient group partners as necessary
- Approaching and working with local government as necessary
- Developing tactical detail of Country Implementation Plan
- Securing and developing budgets

SFL National Project Coordinator/Manager

Recruiting the right Project Coordinator is very important to the success of SFL in your country. Although the Project Coordinator will not set your objectives or determine the strategy, he or she will be responsible for ensuring that the strategy is carried out and the objectives are met. The Project Coordinator role will include some or all of the following elements:

- Liaison with and reporting to the SFL Steering Committee
- Coordination of SFL partners, including the SFL Task Force and the resources at their disposal
- Providing administrative support to the SFL Country Champion
- Recruitment of additional partners, and securing additional funding if required
- Liaison with third parties, including government and patient groups
- Liaison with the SFL Project Manager, Europe, and with other SFL National Project Coordinators/Managers
- Supporting research projects
- Producing written materials, often (but not always) by adapting European templates
- Delivering presentations
- Understanding of, and liaison with, key media contacts
- Understanding of and experience in the field of cardiology

The official language of SFL, at least between countries and at the level of the European Executive Committee, is English. Therefore, good spoken and written English are essential to the role. It is also essential that you select a person with a proactive, 'can-do' attitude, as the SFL National Project Coordinator/Manager will be responsible for driving your projects on a day-to-day basis and ensuring successful delivery.

Finding a person who can fulfill all of these requirements can be difficult. Good places to start include:

- The SFL Task Force and local board members – Have they worked with a project manager or coordinator in the past who might be suitable?
- SFL Industry and Advocacy partners – Have they worked with anyone suitable? Do they have someone suitable who can be seconded? Can their HR departments help? Can they include a description of the job on the 'vacancies' page of their websites?
- Recruitment agencies that specialise in the health care sector

The SFL National Project Coordinator/Manager is not hired or contracted by the European Society of Cardiology (ESC), but instead by the national SFL organisation.

STEMI Patient Access to Primary PCI: Situation Analysis and Strategic Planning

Getting Started

With your structure firmly in place and the right people on board, it is time to move your local SFL initiative into the analysis and planning phase. Typically, this would involve the following steps:
- Mapping and analysing the country's situation
- Identifying barriers to the use of primary PCI
- Defining objectives and developing a three-year strategic plan
- Integrating SFL into a government supported programme
- Establishing a national ACS/AMI registry
- Engaging all stakeholders e.g. physicians, politicians, payers, patient organisations and industry partners
- Publishing findings

This section will provide guidance and suggestions on how to proceed with each of these steps.

Mapping and Analysing Your Local Situation

A good understanding of the local primary PCI situation is essential in order to devise strategies to change and improve that situation. As a first step, the SFL Task Force should establish the following pieces of information as accurately as possible:
- National and regional rates for AMI and ACS
- National and regional reperfusion rates
- National and regional mortality rates for AMI and ACS
- Disability rates after ACS
- The number and location of primary PCI centres
- The number and location of 24/7 primary PCI centres
- The ratio of primary PCI centres to overall population
- Average time it takes for a patient to arrive at a primary PCI centre, and what kind of transportation (e.g. ambulance, helicopter) is available
- Whether there is an existing transportation protocol explicitly showing the location of the nearest cath lab where the patient should be brought, thus providing the shortest delay
- What kind of equipment is available within ambulances (e.g. ECG equipment), and the level of training of Emergency Services personnel
- The staff allocation for each centre, and what kind of training support staff (including nurses) routinely receive
- The proportion of the population that is served by a primary PCI centre within a 90 minute travel window
- The differences in service between different cities and different regions – where is the service exemplary; where does it need improvement
- The differences in service between different catheterisation labs (i.e. private, public or university hospitals)
- The number of certified interventional cardiologists
- The number of interventional cardiologists per capita
- Whether there is an effective and trustful national registry
- Additional details of relevance

Not all this information will be readily available, but it is likely the SFL Task Force will be able to draw on the resources of the SFL Steering Committee, Industry Partners and affiliated third party groups (including the National Cardiology Society, National Statistical Institutes, Health Insurance Funds, etc.) to find much of the above. These data can be used to build an accurate picture of what the primary PCI situation is in your country. The quality of data should be as precise and detailed as possible because this snapshot of the local situation represents the backbone of the future action plan. We have created a template table for you to complete with your relevant country details (see page 53).

It is advised that you also use this data to produce an actual map of the primary PCI situation in your country (network, coverage and transportation), as this will help all your stakeholders to better visualise the challenges you face (see case study example, page 16).

We also recommend that you use the mapping exercise to identify primary PCI centres that you can potentially partner with, either as examples of best practice that you can use for peer-to-peer learning sessions with other centres, or to help them improve and upgrade the service they offer. You may also want to highlight on your map which centres you are partnering with and the regions where most support will be needed.

Identifying Barriers to the Use of PCI

Each country, once it has finished mapping out its primary PCI situation, must then identify the specific barriers to effective reperfusion that exist in their country. If the initial phase (mapping and analysing of the local situation) is based on detailed and adequate data, recognition of the problems comes by itself.
The most frequently encountered barriers are the following:
- Insufficient number or geographical spread of 24/7 cath labs (most typically concentration in big cities, shortage in less populated large areas), or sub-optimal staffing (possibly due to insufficient funding or training)
- Inadequate reimbursement for the procedure performed
- Dissimilarities in STEMI management in different regions/cath labs
- Delayed emergency service response, or inappropriate response, for example taking STEMI patients to the nearest Emergency Room even though it doesn't have a cath lab (lack of straightforward transport protocol)
- Emergency services are inadequately equipped, for example the ambulance does not have ECG equipment as standard, or personnel are inadequately trained
- Emergency services are not well motivated to participate in the STEMI management team
- Commercial bias in areas with excessive 24/7 cath labs
- Lack of effective quality control (EMS and PCI centres)
- Low awareness of STEMI symptoms by patients and/or family, leading to delayed contact with emergency services
- Lack of national registry - demonstrating current situation on nationwide and local level pointing out the areas for improvement, measuring the impact from primary PCI and showing the progress made over a certain period of time
- Lack of effective communication and collaboration between key parties, e.g.health care professionals, government representatives and/or patients.

Each country is unique and the current local situation has its own features determining specific barriers to overcome. Sometimes barriers could be numerous. One of the most important barriers is the lack of effective

communication and collaboration between key stakeholders in STEMI management. SFL provides a platform for such collaboration. A combination of common sense, good will, mutual understanding and respect has been proven to have the potential to find a solution even in the most complicated situations.

We have developed a table for you to use to help map out your local country barriers (based on patients, EMS, hospital and organisational) and the target end goals (see page 54).

Defining Objectives and Developing a Three -Year Strategic Plan

Once the local primary PCI situation is mapped out and the barriers identified, following a consecutive approach, you will be well-placed to set your SFL objectives – referring to the overall SFL three-year objectives outlined in the introductory letter at the beginning of this guidebook– and determine a strategy to achieve these, including a budget. You should decide what your priority objective is. It may be building a national 24/7 cath lab network to cover your entire country or to focus initially on target regions/cities. Another relevant objective, in the presence of an effectively functioning national 24/7 cath lab network, might be to focus on quality control and/or improve public awareness if the symptom to balloon delays are not optimal. It may be that the network is already in place, but that an Emergency Services transportation protocol is required, so that ambulance drivers know to bypass the nearest Emergency Room in favour of the nearest 24/7 cath lab. Refer to the positive as well as the negative experience from other SFL countries to predict possible pitfalls and avoid old mistakes. We recommend implementation of data collection systems so that your progress can be monitored. The objective information these systems give is quite convincing and is also useful if you claim any assistance or resource from the government.

Once your strategic plan is complete and approved by your country SFL steering committee, you will need to present it to the European SFL Executive Committee for feedback and approval.

The more representatives from various professional and patient organisations, government and industry partners participate in the development of the strategic plan the better it will be.

Integrating SFL into a Government Supported Programme

Government support and involvement is crucial for the success of SFL in each country. That is why continuous efforts are needed to convince the government representatives to integrate SFL into a supported national programme. The most frequent problems are associated with difficult access to the minister of health, so good relationships with decision makers in the government can promote collaboration. Recent clinical and health economics studies provide rather convincing information about financial and moral benefits from integration of the SFL initiative into a supported national programme. In countries with marked decentralisation of the authorities it takes even more effort to bring together differences between and within regions. Frequent changes in the government (especially in the ministry of health) could hamper ongoing political support. However, once achieved, it can be of great use to accomplish the objectives and the action plan. Legislative steps facilitating the opening of new cath labs and good reimbursement, both provided by the government, may result in rapid development of a 24/7 primary PCI national network. Government prioritisation of EMS could lead to a continuous training programme, better payment and modern equipment in ambulances, ultimately resulting in better EMS involvement in the STEMI management process. A media campaign supported by the government on a large scale would have maximal outreach. Active, effective quality control in PCI centres, executed by governmental authorities, can provide positive incentives for good quality (and in that way promote good medical practice), as well as effective restrictive steps for poor quality and/or commercial bias. Last but not the least, governmental support for the national ACS registry is very

important in terms of quality and completeness of the data.

In conclusion efforts to improve communication and collaboration with the government could be considerable but will lead to crucial support for the success of SFL.

Establishing a National ACS/AMI Registry

To assess the current status and progress on STEMI mortality, primary PCI penetration among STEMI patients and its impact on mortality and disability, we rely on accurate numbers. The only reliable source for the numbers is the national ACS/AMI registry.

Establishing such a registry is quite often a difficult task. Some of the reasons are associated with the reluctance of some hospitals to share the results of treatment while for others it is additional work that has to be done. It is very important that the data collected is precisely chosen. The questionnaire should cover relevant data only and should be fast and easy to complete. Usually residents and young doctors perform the data entry as they are enthusiastic and feel involved in the STEMI management team, however the person responsible for the quality of the data should be the chief of the department. Different incentives such as courses, scholarships, grants to attend congresses, participation/acknowledgment in articles or financial reimbursement could keep the motivation of people entering the data high.

Good collaboration with professional organisations (cardiology societies) and the government is important. It can provide respected and influential cardiologists to encourage participation and governmental support for positive incentives and quality control of the data. The best way to receive precise data is to make participation in the registry obligatory by a government, and/or to make reimbursement for the procedure performed dependent on the data completion. **A national AMI/ACS registry is essential for measuring progress. It should cover as many patients as possible and data quality control should be performed in order to receive real information.**

Engaging All Stakeholders

Stakeholders in the implementation of SFL originate from different areas. They have various backgrounds (medical, industry, political, etc.), but a common target – to reduce mortality and morbidity in ACS patients by improving access to primary PCI. This aim requires significant resources. By combining efforts towards a common target stakeholders can boost the effect at reduced cost. It is the very strength of the SFL initiative that it is able to unite partners from different areas, with various skills, sharing a common noble cause. Of course finances are important because implementing your strategic plan requires funding. It is therefore necessary to secure sufficient budget to carry out those plans. The most reliable sources of funding may include SFL Industry Partners, your National Cardiac Society, the larger, more influential patient organisations, and government – in particular the health department. Reaching out to all these groups, and any others that are relevant in your country, to secure funds is one of the key factors affecting success, and we encourage you to commit time, resources and influential personnel to achieving this goal. Of course you should not limit yourself to these sources. Best practice examples show that energy companies, mobile communication companies, chain stores, even famous people are willing to participate in the initiative. Of course money is important but knowhow and individual expertise from each one of the partners is much more significant because it promotes public campaigns, organisation of meetings, and dissemination of results in the best way possible. **In that way synergy between each stakeholder completes the efforts with maximal impact at minimal cost.**

Publishing Findings

The objectives and strategy that you set will of course be determined by the unique circumstances in your country, revealed by the mapping and analysis exercise. It is important that SFL is completely open and transparent about its activities and objectives, and that all partners and stakeholders have access to our research results and future plans. We therefore recommend and encourage you to write, present (at your national cardiology congress) and publish (in your national cardiology journal) the results of your country's mapping exercise, the barriers identified and your proposed solution. Publishing the experience is very useful for countries in the early phase of developing a system for STEMI care. Papers uniting information from several countries are of extreme value. **The last article covering SFL progress in 37 countries is cited in the current ESC STEMI guidelines.**

When publishing your findings, it is advised that this is always supported by the following mention: 'The Stent for Life Initiative is a joint initiative between the European Association of Percutaneous Cardiovascular Interventions (EAPCI), a registered branch of the European Society of Cardiology (ESC), and EuroPCR.

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Analysis and Planning

This account of setting up the SFL Initiative in the fictional state of Belovia provides an example of the steps that should be taken when first setting up your local SFL initiative.

Belovia is a small land-locked country with a population of 6.5 million. More than half the population live in the capital city, Reperfusia, but the mountainous regions in the north are sparsely populated.

Belovia joined SFL in 2009, and quickly appointed its SFL Country Champion, Steering Committee, Task Force and National Project Coordinator.

Under the guidance of the Country Champion and the Steering Committee, the Task Force began the mapping process to analyse the primary PCI situation in their country. Key results included the following:
- There are six national primary PCI centres that operate 24/7 and are potentially within 90 minutes of 85% of the population. However, primary PCI rates are less than 150/million/year
- The average EMS arrival time is over 40 minutes after a call is made and most ambulances are not equipped with ECG, meaning that the majority of patients are transferred to the nearest non-PCI hospital
- Ambulances responding to emergency calls from the mountainous north can take three to four hours to arrive at a hospital, following which a transfer to a cath lab is often required
- The older generations, who lived through the Belovia civil war, are very reluctant to complain about their health, and many do not know the symptoms of STEMI

The Belovia SFL Initiative examined these and other data, and determined that their priority objectives would be to:
- Greatly reduce the time taken for STEMI patients to present at a cath lab
- Educate consumers of all ages on the symptoms and consequences of STEMI

The local SFL team then decided upon the following strategies to achieve these objectives:
- Provide in-ambulance ECG and training for paramedics to ensure STEMI patients are taken straight to the cath lab with as little delay as possible
- Raise funding and political will to provide a helicopter ambulance for the mountainous region in the north
- Conduct a consumer awareness campaign to educate older people on the symptoms of STEMI, and also to encourage their children and grandchildren to look after the hearts of their loved ones

BELOVIA:
Population 6.5 million

● PCI Center operating 24/7

Potential reach of PCI center
(85% population within 90min
of PCI center)

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BELOVIA

Helicopter
ambulance area

Average time to
catch lab > 4 hours

⊙ Reperfusia

Area of dense
population
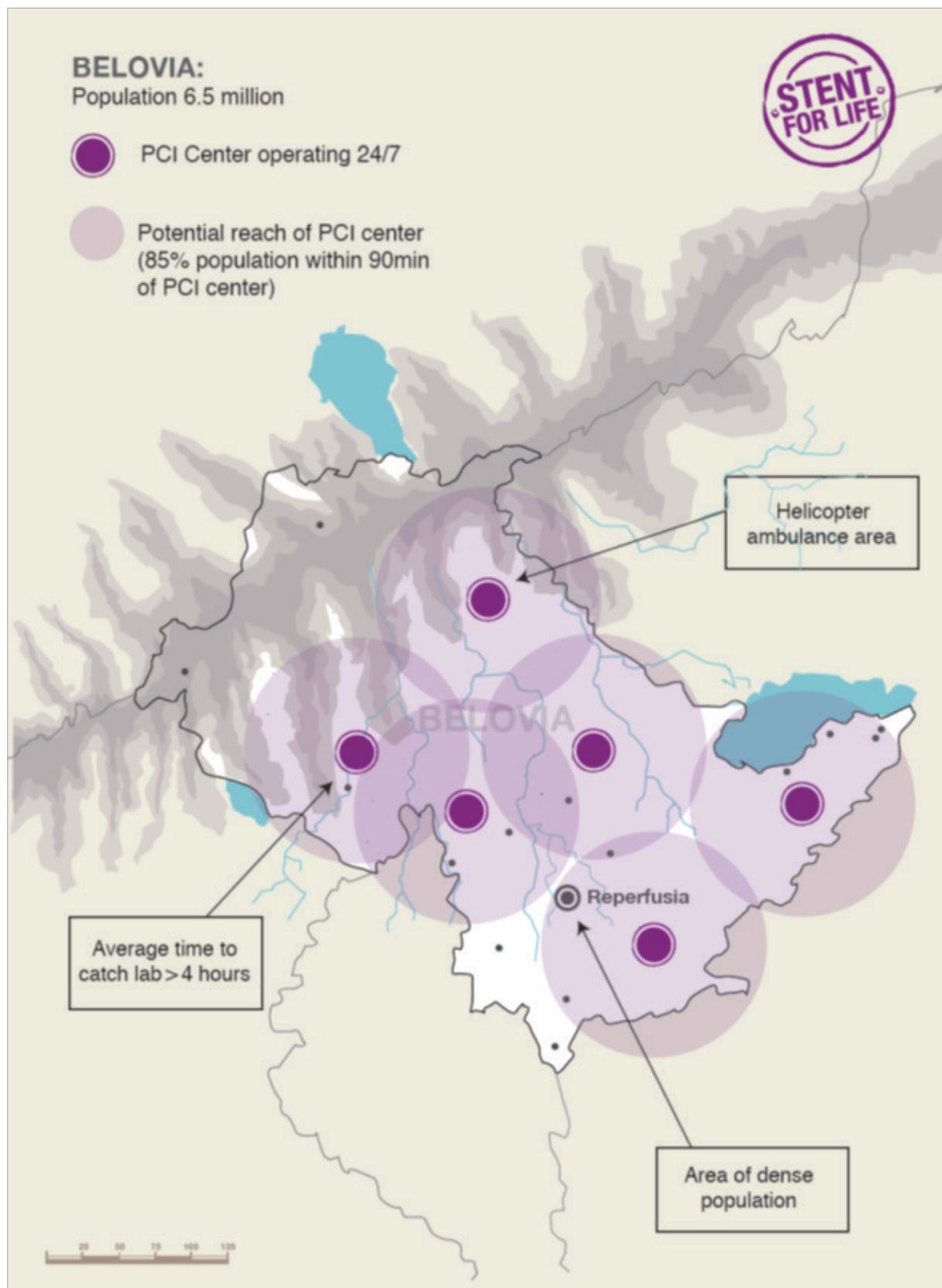
SFL Turkey: How to implement SFL in a huge country with demographic discrepancies

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Turkey is home to more than 75 million people who occupy an area of nearly 784,000 km2. The country is not just large but it also has a great variety of landscapes and communities. For these reasons Turkey has taken a regional approach to implementing SFL, which it joined in 2009.

Coronary artery disease (CAD) is a big issue in Turkey, with a prevalence of 3.5%. Some 215,000 people die from CAD each year and around 120,000 people have a second coronary event.

Overall there is no shortage of cath labs but a network is needed. In 2014 Turkey had 243 cardiac centres housing a cath lab and cardiac surgery. Out of 81 cities, 20 have no PCI centre and eight are two hours or more from the nearest centre.

Ministry of Health data shows that approximately 500,000 coronary angiograms were performed in 2013 and 8% led to primary PCI. The country has around 2,200 cardiologists.

Patient and system delays are both an issue in Turkey and efforts are currently focused on tackling the latter with the aim of reducing mortality. SFL Turkey developed a reperfusion map which divided the country into three parts: primary PCI area (time from first medical contact to the cath lab takes less than 90 minutes), lytic area (done by cardiologist) and lytic area (done by internist). From 2011 to 2015 the lytic areas decreased in size but there are still many areas outside the primary PCI zone, especially in the east where the STEMI network is not well established.

SFL Turkey's strategy for optimising patient survival has been to organise territory networks, each focused on the specific needs of that population. In the last year an implementation team was created and the country was divided into seven geographic areas, with one cardiologist responsible for each region. The goal is to build a SFL team in every primary PCI centre that will report to the responsible cardiologist using a web-based databank. Initially, around 100 cardiac centres will test out the protocol but the aim is to collect data from the whole country.

Some areas of Turkey, particularly the east, are not included in the primary PCI programme as they have less developed infrastructure and need a different system focused on early fibrinolysis. Here it has been agreed between SFL Turkey and the Ministry of Health that when the patient is less than 30 minutes from the hospital, thrombolysis should be delayed until reaching a secondary hospital which will then transfer the patient to a PCI centre. When the patient is more than 30 minutes from hospital, thrombolysis should be administered in the ambulance by paramedics. In primary PCI regions, ambulances will have a 12-lead ECG, which will be used by a paramedic, with the results electronically transmitted to a doctor at the intensive care unit (ICU) at the nearest primary PCI centre. Within five minutes of the ECG being received the doctor makes the diagnosis and decides whether the paramedic should bring the patient to the PCI centre. Cath lab teams are activated before patients arrive.

The system is up and running in Konya, a city in central Turkey. Patients diagnosed with STEMI pre-hospital are taken by ambulance to one of four accredited primary PCI centres.

The criteria for accreditation of primary PCI centres have been approved by the Ministry of Health. These centres should operate 24/7, perform 450 PCIs and 1,000 angiograms per year, and serve 500,000 residents.

Case Studies - Learning from SFL Countries' Experience:

As the population and the number of patients with coronary artery disease grow, the centre/population ratio has to be reduced. In Ankara, Istanbul, Izmir and Adana, for example, accredited primary PCI centres must serve 250,000 people.

To monitor progress, SFL Turkey has set up a STEMI registry. Data is initially being collected from SFL cities but plans are underway to obtain information from across the country.

Q&As

How did you choose and motivate the cardiology leaders in each region?

The cardiologists are active members of the Invasive Working Group of the Turkish Society of Cardiology and close friends of our SFL Country Champion.

How did you select SFL pilot cities?

We chose centres of expertise which currently fulfill the guideline driven characteristics of a functioning PCI centre. After the accreditation process is completed we will add more cities to the STEMI network.

How will you roll out SFL beyond the pilots?

We will promote the importance of SFL and encourage cardiologists in the next meeting of the Invasive Working Group.

How are you setting up the national STEMI registry?

Participation in the registry is not mandatory, but cardiologists who join will be able to use the databank to generate angiography and epicrisis reports of their patients.

What challenges have you encountered and how have you overcome them?

It is very difficult to motivate people. For this reason we included tools in the registry which might be useful to cardiologists during their daily clinical practice.

Key points on how to implement SFL in a huge country
- Set up regional STEMI networks, each with a lead cardiologist
- Agree accreditation criteria for primary PCI centres with the Ministry of Health
- Adapt the STEMI protocol to fit the requirements and restrictions of each region
- Use pre-hospital ECG to reduce system delays
- Start a nationwide registry with pilots

SFL Spain: How to set up SFL project in a complex geopolitical environment

J. R. Rumoroso[1], M. Telleria[2]
1 Stent for Life Spain, Country Champion
2 Stent for Life Spain, Project Manager

The importance of treating STEMI patients with primary PCI is accepted in Spain but the complex geopolitical environment makes it challenging to implement SFL on a national scale. The country is split into 17 regions, each with its own government and health budget, and there are four official languages. Many policies are agreed and carried out at a regional level. Primary PCI coverage varies widely. In 2008 the rate of primary PCI per million inhabitants per year was less than 200 overall, with some parts of Spain achieving 430 and others zero.

The national Ministry of Health issues a strategic plan for ischaemic heart disease every four to five years and the next one is due this year. This strategic plan is only a recommendation, it is not a law. Health ministers in each region will discuss the plan with the ministry but ultimately there will be 17 separate budgets and 17 plans of action. Despite this background there have been improvements since Spain joined SFL in 2009. In 2003 there were four STEMI networks covering 13% of the population and now there are 14 regional STEMI networks with 75% coverage (see figure 1). The rate of primary PCI per million inhabitants per year has grown to 299 in 2013. There are local networks that cover the population that belongs to a hospital, but they are not organised on a regional basis. The overall progress masks difficulties in particular regions. More than 2.1 million people live in the Canary Islands and 11 million tourists visit every year, mainly from the north of Europe. There are seven islands but only Tenerife and Gran Canaria have cath labs. Just one cath lab performs primary PCI 24 hours a day in an organised fashion. Tourism is the main income in the region and discussions are ongoing between SFL Spain and the government of the Canary Islands to improve access to 24 hour primary PCI on the islands. Andalucía also relies on tourism, hosting 30 million visitors each year on top of its 8.4 million residents. Just nine of the region's 14 cath labs operate 24 hours a day and the five local STEMI networks have little or no government support.

Last year the first SFL Spanish Forum was held and leaders from each region explained their own hurdles to providing primary PCI. The discussions revealed big differences between and within regions in salaries during the on call period, which is relevant given that 75% of STEMI patients requiring primary PCI present to hospital between 3pm and 8am.

In one region, on call salaries before taxes are up to €13.00 per hour for interventional cardiologists and €5.40 per hour for nurses. Payment does not increase with the number of primary PCI procedures performed and there is no rest period after being on call. There is a feeling that primary PCI programmes operate as nonprofit organisations and rely on volunteer interventional cardiologists.

Efforts are underway to establish a national registry to pinpoint where the greatest needs are so that appropriate action can be taken. Spain currently has 10 registries covering different communities and clinical areas. There has been little enthusiasm from doctors in the various regions for setting up a national registry. A survey by SFL Spain revealed that while some doctors were interested in participating others questioned the need for it. The second SFL Spanish Forum was held at the end of March and organisers used the opportunity to talk about the need for a national registry, provide an update on progress, and invite attendees to participate.

Q&As

How did you convince the Ministry of Health that SFL should be implemented nationally?
Every four years a strategic plan for ischaemic cardiomyopathy is released and highly respected cardiologists are consulted including our SFL Country Champion. Government representatives were invited to the second SFL Spanish Forum so that they could see how the treatment aims for acute coronary syndromes are similar to SFL's objectives and that SFL activities are performed in collaboration with other scientific communities such as the emergency medical service and acute cardiac care. Feeling that collaborative atmosphere was essential to convince them.

How did you conduct a situation analysis of the country?
A SFL ambassador was designated for each community. They are responsible for performing a situation analysis, spreading the SFL philosophy, gathering together all stakeholders, persuading leading cardiologists and hospitals, and performing several activities such as the ACT NOW. SAVE A LIFE campaign in schools.

How did you persuade leading cardiologists and hospitals in the regions to collaborate?
We have had several meetings in which we spoke to them about the need to establish networks were there are none.

How did you organise funding of STEMI treatment so that patients can be treated in any region of the country?
A health economy study was conducted to demonstrate the cost effectiveness of STEMI networks. In those regions where the main income is based on tourism, communicating the concerns of SFL Europe and projects such as the SFL Travel Guide have been really helpful. We have a plan with the Spanish Society of Cardiology to set up an economical study in Spain and once it is finished we will approach the media to explain it. How will you motivate cardiologists to participate in a national STEMI registry? Listening to their thoughts and encouraging them to participate in the creation of the registry, for example during the second SFL Spanish Forum.

> **Key points** on how to implement SFL in a complex geopolitical environment
> • Use local levers such as tourism to lobby politicians for support
> • Hold a national SFL Forum to raise awareness and share challenges and solutions
> • Establish a national registry to identify areas of greatest need

Figure 1:
Number of STEMI networks in 2003 and 2014

In 2003 there were four STEMI networks covering 12.8% of the population and now there are 14 STEMI networks with 75% coverage.

STENT FOR LIFE

Spain: Current Situation

2003
4 STEMI networks
12.8% Coverage

End 2014
14 STEMI networks
75% Coverage
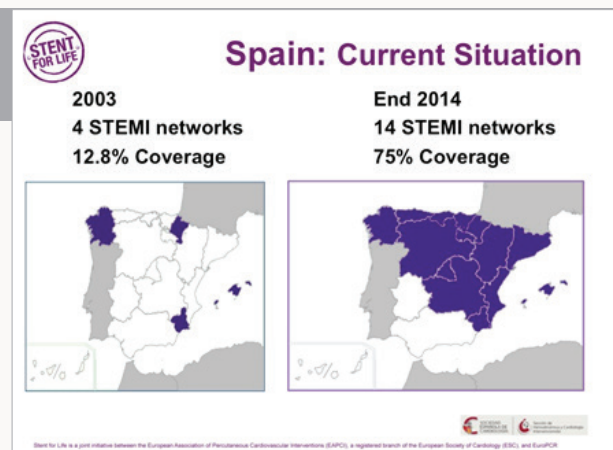
SFL Bulgaria: How to build a national 24/7 cath lab network and implement a transportation protocol

K. Karamfiloff
Stent for Life Bulgaria, Project Manager

Introduction

Cardiovascular diseases are a major cause of death in Bulgaria. There are numerous reasons for this fact. One of the principal factors, which has the potential to reduce cardiovascular mortality if addressed, is the performance of timely and effective mechanical reperfusion (primary PCI) in settings of STEMI.

In Bulgaria, the first primary PCI was performed in 1992 by which time it was already a proven safe and effective procedure. A major problem, however, was that it was a "boutique", non-mainstream treatment performed on a regular basis only at a few medical centres. Thus, the common STEMI patient could not benefit from it. It was clear that to reduce mortality primary PCI should be accessible for each STEMI patient. Therefore one of the major steps in that direction was to establish a 24/7 primary PCI network effectively covering the majority of the population (see Figure 1).

First steps

Establishing a national 24/7 primary PCI network in Bulgaria was quite a challenge. It could not have been achieved without positive, proactive collaboration between health care professionals (cardiologists, interventionalists, EMS staff, GPs), government (Ministry of Health, the National Health Insurance Fund) and patients. Some 14 years after the transition from a planned to a market economy, finally there were favourable conditions for such collaboration and also the right economical ground for successful partnership in the area of STEMI management

The national programme for the development of interventional and invasive cardiology in Bulgaria for a period of six years (2002-2008) came as a result of that effective partnership. It aimed to train interventionalists to work in newly opened cath labs, as well as to introduce primary PCI as the first-line mode of treatment for STEMI patients. Gradually, on the cath lab map, several new PCI centres appeared covering more and more patients (see Figure 2).

Bulgaria joins SFL

Despite the growing optimism, by the end of the national programme many issues remained unresolved. The major one was the noticeable lack of 24/7 PCI cath labs and trained interventionalists countrywide. Also, ambulances were reaching patients too late and the EMS was short of trained personnel. Furthermore, due to insufficient public awareness patients were going to their GP or the nearest hospital (most frequently non-PCI), where they received thrombolysis and were "kept" for five days so the hospital could be reimbursed. So even though progress was being made, it still seemed that there was a need to increase knowledge, raise awareness and find a new way to provide support for further development. SFL was that necessary know-how.

Since 2009, when Bulgaria joined the initiative, most of the issues have been resolved. Active communication and collaboration between all stakeholders led to the establishment of a favourable environment for the creation of an effective national 24/7 primary PCI network. A new training programme allowing certification

of invasive cardiologists was approved. New national cardiology standards were adopted. Legislative measures to facilitate and enhance the work of interventional cardiologists were accepted, and the reimbursement for the procedure performed was fair. As a result, numerous cath labs (private and public) appeared on the map for a relatively short period of time. To ensure 24/7 coverage, cath labs were reimbursed only if their working schedule was 24/7. Finally there were enough centres evenly covering the territory and enough trained personnel to perform the procedures (see figures 3 and 4).

To have a fully functioning primary PCI network, however, it is crucial for the patient to reach the PCI centre. EMS has played a central role in that goal. The Ministry of Health stated that EMS development was one of its priorities and as a result, payment of EMS staff gradually increased and most ambulances were finally fully equipped. EMS became a more prestigious and attractive place to work. Numerous educational meetings between SFL task force members, GPs and EMS contributed to clarification of the new transportation algorithms. To provide patient transportation in a timely manner, a strict transport protocol (endorsed by the Ministry of Health) was designed, stating that each STEMI patient should be brought to the nearest cath lab, thus avoiding commercial bias. Consequently, staff in each ambulance were perfectly aware of where they should transport STEMI patients depending on their location.

Final words

To establish a national primary PCI network, active collaboration and communication between three parties (health care professionals, government and patients) is crucial. Constant efforts are needed to identify and overcome emerging barriers. Legislative steps facilitating the opening of new cath labs and fair reimbursement for performed procedures seem to be fundamental for the establishment of a national 24/7 PCI network. To ensure its well-functioning, certain conditions (i.e. 24/7 work regimen, transport protocol) should be made and reinforced. And finally, permanent quality control is essential to prevent commercial bias.

Q&As

How did you prevent excessive cath lab opening?

In an ideal world, there should be an organic way of developing local PCI networks, united in a nationwide network. Thus, each new cath lab should be opened in a region where fast and easy access for STEMI patients is needed. Strategic mapping considering distances and population in the region is a prerequisite for even distribution on the PCI map, without excessive PCI centre overload. In the real world where public-private partnerships make the opening of cath labs with secured reimbursement relatively easy, it is fundamental for each new cath lab in the region to prove its necessity in terms of number of people and transportation periods.

How did you engage EMS staff for better collaboration?

Sometimes it is hard to motivate EMS staff given that their role in overall STEMI management is underestimated. Educational activities together with interventional cardiologists help to promote stronger relationships in the local network. Improved working conditions (higher salary, well equipped ambulances) contribute greatly to the collaboration. But the real motivation comes when EMS staff feel that they are an important part of the STEMI management team.

**How did you measure the effectiveness of the national primary PCI network?**

The ultimate marker for effectiveness is mortality. Unfortunately, quite frequently it is difficult to assess precisely. Some other parameters that are easier to measure also give us an idea about effectiveness. These are primary PCI penetration among all STEMI patients, transport delays (symptom to door and door to balloon times), procedural results and postprocedural disability. All of these factors give a notion about the level of public awareness, transportation protocol deviations and quality of work in the cath labs. Mortality is a composite marker combining the influence of each one of the factors.

How did you prevent commercial bias?

On the one hand, legislative steps facilitating the opening of new cath labs and good reimbursement enhance the rapid development of a national network. But on the other hand, they are prerequisites for creating commercial bias by excessive cath lab overload. Permanent quality control (for EMS and cath labs) and executive restriction steps (by the government and official authorities) if any violation is registered seem to be the most effective ways of ensuring good medical practice and preventing such commercial bias.

Figure 1:
Cath labs in Bulgaria in 2002

In 2002 there were three cath labs in Bulgaria, as shown by the red dots on the map.
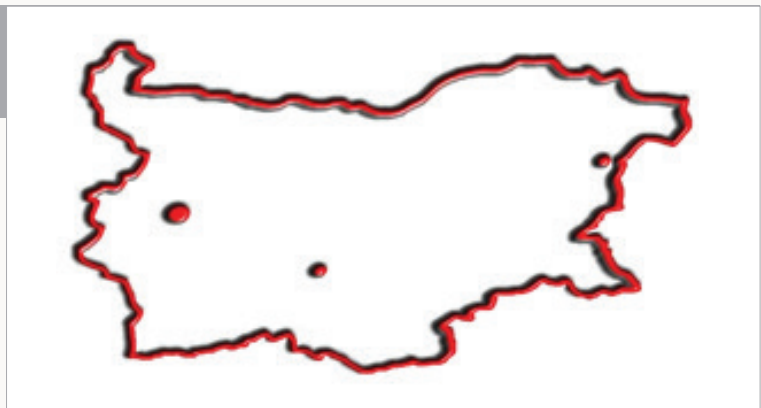
Figure 2:
Cath labs in Bulgaria in 2008

In 2008 there were seven cath labs, as shown by the red dots on the map.
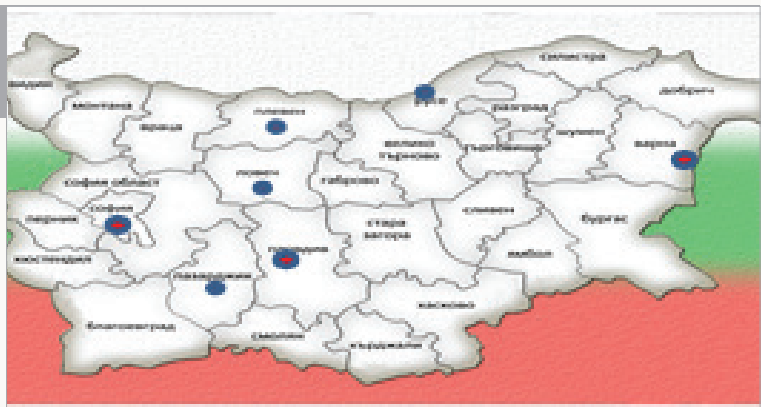
Figure 3:
Cath labs in Bulgaria in 2012

In 2012 there were 19 cath labs, as indicated by the red dots on the map.

Figure 4:
Cath labs in Bulgaria today

Today in Bulgaria there are sufficient cath labs evenly covering the country to provide primary PCI to the entire population.

SFL Egypt: How to work innovatively with government

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SFL Egypt has found innovative ways of working with the government during a turbulent period.
Egypt became a member of SFL at the end of 2010 and held a brainstorming session with 80 eminent intervention cardiologists, Ministry of Health (MOH) representatives including the minister of health, non-governmental organisations (NGOs), health insurance providers and the emergency medical service (EMS). A road map was created which specified five elements as being the responsibility of the MOH. These were: ambulance capacity to cover the geographic area; ability of ambulance staff to triage patients correctly; training programmes in primary PCI for emergency room staff and MOH physicians; protocol for emergency rooms; and patient funding. Three months later a two year revolution began. There were dramatic changes in ministers, delays in decision making and economic instability. The EMS became preoccupied with staging revolutionary activities.
Government support and involvement is essential to the success of Egypt's SFL road map. Meetings were held with successive health ministers to convince them that a national STEMI programme was needed. A protocol of cooperation and support between SFL and the MOH was agreed that included three goals: educating MOH physicians and referral doctors, providing patient funding through government health insurance, and improving the quality and coverage of the EMS.

Educating doctors

MOH and referral physicians, as well as family physicians, are some of the first contacts for primary PCI patients. Education events have been held in different parts of Egypt to communicate the essential information for diagnosis and management of STEMI, how to establish a primary PCI system in MOH hospitals, and the importance of acting quickly to diagnose and treat patients. Referral doctors have been trained to identify STEMI patients who should be sent for primary PCI.

Funding procedures

The MOH agreed to fund PCI procedures with bare metal stents in the 23 SFL pilot centres at a rate of 10,000 Egyptian Pounds (around €1,200) per case. The agreement was announced by the minister of health in April 2014 at a press conference which was also attended by the president of the Egyptian Society of Cardiology, SFL Egypt Champion Professor Mohamed Sobhy and other NGOs supporting the project in Egypt. This was followed by a media campaign to raise patient awareness in SFL pilot catchment areas.
In Egypt the financial logistics of health care rely on paperwork. SFL Egypt prepared approval forms for reimbursement of PCI procedures. Hospital administration staff received training on how to complete the forms and follow the payment protocol.
SFL Egypt convinced the MOH to allow retrograde reimbursement of hospitals for patients receiving primary PCI. It avoids the time delays inherent in the traditional system of requiring paperwork before a procedure is performed to ensure that it will be paid for.

Case Studies - Learning from SFL Countries' Experience:

Improving the quality and coverage of EMS

A programme was proposed for cooperation between the national ambulance authorities in Egypt and the Savonia University of Applied Sciences in Finland for the education of 200 paramedics from several geographical areas, plus all cath lab technicians and nurses working in SFL pilot centres.

SFL Egypt steering committee member Professor Sameh Shahin and Professor Sobhy presented a "hub and spoke model" to the government. The model aims to improve the STEMI network in highly populated areas such as Cairo which has around 20 million residents and a daily traffic jam. The spokes are only open during working hours.

Maintaining MOH support has been achieved through regular meetings to review project achievements, re-affirm the need for involvement and highlight future areas for assistance. The plan for 2015 is to integrate SFL with the Ministry of Communications and IT to automate data entry and smooth the way for a national STEMI registry. ICT for Health is currently running as a pilot project.

Despite plenty of upheaval in Egypt during recent years, SFL's novel and sustained collaboration with the government has boosted the rate of primary PCI for STEMI patients from 8% in 2010 to 24% in 2014.

Q&As

How have you engaged successive health ministers with SFL?

Through several meetings with MOH representatives and presenting the SFL project at all cardiology events. Our SFL Champion has established relationships with decision makers in the government.

How have you maintained continuity in government collaboration with SFL despite political upheaval?

By declaration of success stories from several areas supported by the MOH and engaging centres to work 24/7 which is one of the criteria to become a pilot SFL centre.

How did you agree on the protocol of cooperation and support with the MOH?

SFL Egypt's project manager created a template for the protocol and discussed it with several administrative parties in the MOH, then proposed it to the minister of health for acceptance.

This process took almost six months. During this time we ensured that SFL centres had the necessary facilities and that their geographical distribution was appropriate. We also mapped all primary PCI facilities in Egypt.

How did you persuade the MOH to pay for PCI procedures?

The MOH had set a reimbursement policy of 6,000 Egyptian Pounds (around €700) per case. We prepared a budget proposal to convince them that more was needed. We based the amount required per case on the experience of average hospitals and included partial sponsorship from pharmaceutical and device companies which is paid directly to hospitals.

How did you convince the MOH to allow retrograde reimbursement?

Our SFL Champion and the steering committee held three meetings with two ministers of health and MOH representatives to explain the normal process for treating primary PCI patients. They emphasised the importance of treating patients as quickly as possible. The SFL project manager prepared documents to be completed by three senior interventional cardiologists for each patient eligible for reimbursement at SFL centres.

Case Studies - Learning from SFL Countries' Experience:

How will you integrate SFL with the Ministry of Communications and IT?

The MOH in Egypt has signed several agreements with Ministry of Communications and IT concerning IT and networking. SFL Egypt proposed that SFL should become a part of these agreements so that assimilation occurs quickly and we can profit from existing facilities.

Key points on how to work innovatively with the government
- Government support and involvement is essential to the success of SFL
- Mapping is an important factor that helps in decision making with ministers
- Integration of all parties in the MOH (insurance, ambulance, cardiac care, emergency services and financial services) is important to understand the overall needs of STEMI patients and to find solutions to barriers including reimbursement
- Personal relationships between the SFL Country Champion and steering committee with several ministers of health and MOH decision makers facilitates the process of approvals
- Press conferences and media campaigns to declare government achievements are very important in the current political circumstances

SFL Greece: How to implement a national STEMI registry

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The Greek experience in implementing a national STEMI registry shows the difficulties and challenges that may be encountered and how to overcome them.

In 2009 Greece had low reperfusion figures. Only 9% of STEMI patients received primary PCI, while 41% had thrombolysis and 50% received no reperfusion therapy.
That same year Greece joined the SFL Initiative and over the next two years created a steering committee and task force, recruited a project manager, outlined a budget, raised awareness at meetings across the country, and met with industry and sponsors. Cooperation with the emergency medical service (EMS) began and Ministry of Health support was secured. SFL Greece created two local STEMI networks, one in Attica (Athens area) and one in Patra (south west Greece).

Measuring SFL implementation progress
In 2011, after two years of successful implementation, SFL Greece wanted to measure the coverage of STEMI treatment and time delays. Data was not available from hospitals, the Ministry of Health or the National Statistical Service, so the team set about starting its own National STEMI Registry.
There were numerous reasons for setting up the registry. Data on current clinical practice could be used to assess implementation of guidelines, boost quality of care, target specific subpopulations, reduce complication rates, improve cost effectiveness and generate new health policies.

The first step was to brief the principal stakeholders. These were the executive board of the Hellenic Cardiological Society, cardiologists at major hospitals, and industry. The SFL Steering Committee and Task Force helped finalise a web based questionnaire about type of reperfusion therapy and time delays and several tests were conducted before it went online. News about the launch of the registry was spread to Greek cardiologists through seminars, meetings and networking.

Creating a national SFL registry
The registry started in September 2011 and continued until the beginning of 2013. During that time the simple, practical questionnaire was completed by volunteers. The results show that the number of primary PCI per million inhabitants per year rose from 95 in 2009 to 346 in 2011. The proportion of STEMI patients receiving primary PCI rose from 9% in 2009 to 32% in 2011 and 33% in 2012, while the percentage of patients receiving no reperfusion therapy dropped from 50% in 2009 to 28% in 2011 and 33% in 2012. Primary PCI coverage nearly doubled in the Athens area, which had a new STEMI network. In 2011 59% of STEMI patients received primary PCI, up from 31% in 2009.
Data on time delays was not available before the registry, but the results are relatively stable between 2011

and 2012. In STEMI patients receiving primary PCI, the time from symptoms to first medical contact was 143 minutes in 2011 and 131 minutes in 2012, while the door to balloon time was 53 minutes in both years. But the time from first medical contact to balloon was longer than the two hours recommended by guidelines.

Solutions to overcome barriers in implementing a SFL registry

Implementation of the registry was not without difficulty. One of the main hurdles was that some doctors did not want to be involved. Residents and nurses were usually tasked with data entry but had little motivation to participate and it became a chore as time went on. In addition, the project team had no control over whether the data it received was complete.

SFL Greece found that networking is the most effective way to involve people. Another solution is to get influential people on board, such as the president of the national cardiac society and well respected cardiologists, to encourage participation. If some hospitals decide not to take part then study sites should be selected to ensure the sample is representative and avoid bias in the results.

Hospital representatives – doctors who appoint data entry people and are responsible for quality - can be handpicked to increase the chances of having motivated people on board. Data entry people can also be chosen and a vigilance committee established to monitor completeness and quality.

Incentives may help to maintain the enthusiasm of people charged with data entry. These could be courses, awards, scholarships, grants to attend congresses, acknowledgment in publications or financial reimbursement.

The registry generated the data SFL Greece needed to identify where improvements could be made. Patient delays are being tackled with the ACT NOW. SAVE A LIFE public campaign and a pilot programme of pre-hospital diagnosis and triage is addressing system delays. In 2015 a new National STEMI Registry will be conducted to measure progress.

Key points on how to implement a national STEMI registry
- Brief principal stakeholders including the national cardiology society, cardiologists at major hospitals, and industry
- Create a simple questionnaire for collecting data and test it out before the launch
- Tell cardiologists about the registry through seminars, meetings and networking
- Get influential people on board to encourage participation
- Choose motivated hospital representatives and data entry people
- Provide incentives for data entry people to maintain enthusiasm
- Establish a vigilance committee to monitor completeness and quality
- Use the data to make improvements and show participants their efforts were worthwhile

SFL Romania: How to synergise SFL and national heart foundation activities

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2 Stent for Life Romania, Project Manager

Synergy is a powerful way to maximise the value of SFL activities while keeping costs down. It is defined as the cooperation of two or more organisations to gain a combined effect greater than the sum of their specific individual effect.

SFL Romania uses synergy with the Romanian Heart Foundation (RHF) to implement the ACT NOW. SAVE A LIFE public campaign. The RHF was founded by members of the Romanian Society of Cardiology to execute the national strategy for cardiovascular disease prevention and to support public campaigns. It is one of the most important voices in cardiovascular disease prevention in RomaniaSFL Romania has used the credibility, experience and contacts of the RHF to run several synergistic activities. RHF leaders are on SFL's steering committee which has helped projects run smoothly.

Implementing a public awareness campaign in collaboration with PETROM, a partner of The Romanian Heart Foundation

SFL Romania has targeted well known RHF partners including Petrom, the biggest oil company in Romania with more than 22,000 employees. Petrom has a dedicated health and safety department and an active human resources department that prioritises the education of its employees. The RHF and Petrom had already implemented three primary prevention projects on diet, quitting smoking and physical activity.

SFL Romania promoted the ACT NOW. SAVE A LIFE campaign at Petrom by distributing more than 2,000 brochures and 10,000 flyers, and sending information directly to all employees. A TV commercial was broadcast on 10 information screens and the intranet, and seminars were held across Romania with RHF cardiologists. Having access to this important RHF partner enabled SFL Romania to target a large group of people every week all over the country. It also grew into a fundraising activity when Petrom became one of the main sponsors for other SFL activities that previously had no financial backer.

Joining existing RHF activities to promote the ACT NOW. SAVE A LIFE Campaign

Synergy was used for World Heart Day, which the RHF has celebrated every year since 2009 with outdoor activities for the general public. In 2014 activities were held in 35 cities, with a reach of over 2 million people in poor and wealthy areas. SFL Romania has an ACT NOW.SAVE A LIFE booth at these events and during the opening press conference RHF leaders highlight the success of the SFL STEMI programme in Romania.

To promote its social projects, the RHF has long term partnerships with the National TV Channel and the National Audio-Video Council (NAVC), which is the media regulator in Romania. SFL Romania used this opportunity to broadcast the ACT NOW. SAVE A LIFE video across the country. Fixed costs were shared and SFL benefitted from the RHF's established promotional channels and high credibility. The RHF did not have to spend time or money creating the video and was able to take part in an educational activity on secondary prevention which further increased the foundation's visibility and credibility.

Case Studies - Learning from SFL Countries' Experience:

Other synergistic actions have included the Heart Charity Gala, an advocacy event organised by the RHF. Invitations are extended to top artists, trend setters, local business people and policy representatives. SFL Romania invited SFL leaders Dr Raed Arafat, who received a prize for founding Romania's emergency medical services, and Dr Dragos Vinereanu, elected president of the Romanian Society of Cardiology and one of the most prominent cardiologists in the country. Both gave speeches emphasising the impressive reductions in mortality achieved by the STEMI programme in Romania.

SFL Romania has also used RHF cardiologists as ambassadors for the SFL Initiative.

Q&As

How did you convince the RHF to collaborate with SFL? Patients and families won't get the care they need if we don't take steps to maximise the use of all qualified health care providers. We need more registry data on treatments, time delays and outcomes. In Romania, it was the gap in secondary prevention of cardiovascular disease that needed to be filled and RHF members agreed to work with SFL to address this. Until this point Romania did not have any well developed secondary prevention programmes that provide timely results in the way that SFL does. A key to both understanding the problem and applying the appropriate solution lies in the availability and utility of local health intelligence and the RHF saw that SFL was privy to this information.

How did you persuade RHF partners like Petrom to allow SFL access to its employees, and to fund SFL activities? The RHF and Petrom are long term collaborators on cardiovascular prevention programmes. SFL training programmes for Petrom's employees came as a natural step in the development of this partnership.

How did you motivate RHF cardiologists to act as ambassadors for SFL? SFL is a European project that RHF members are proud to be part of and are motivated to contribute to. The SFL Initiative is supported by key interventional cardiologists from many countries where STEMI networks are well established. RHF members are well known Romanian cardiologists who are willing to share their own experience and help build a primary PCI programme in their country.

How do you maintain a good working relationship with the RHF in the long term? We have measured the impact of our synergist activities and shown that they are achieving outstanding results. RHF leaders know that this is just one aspect of a successful partnership. To help promote a good working relationship, SFL invited RHF leaders to join the SFL steering committee, the RHF invited SFL leaders to its charitable advocacy events, and we joined forces for educational programmes.

Key points on how to synergise with the national heart foundation
- Use the credibility, experience and contacts of the national heart foundation to maximise the value of SFL activities
- Invite foundation leaders to join the SFL steering committee
- Target foundation partners for sponsorship and awareness campaigns with employees
- Join forces for World Heart Day
- Access the foundation's promotional vehicles including TV channels
- Invite SFL leaders to the foundation's charitable advocacy events
- Use foundation cardiologists as ambassadors

STENT FOR LIFE

Action Plan Development and Project Progress Measurement

How to Develop an Action Plan

SFL country objectives should be defined according to the three year objectives for all Stent for Life pro-grammes. A strategy then needs to be determined to achieve them.

The next step is to develop a local one year action plan with clearly defined measurable objectives. The SFL Task Force should take on this responsibility, since it has representatives of all key SFL stakeholders who can dedicate resources, expertise and multidisciplinary approaches.

The action plan operationalises SFL goals and clearly states:
* The aim to be reached
* The steps that must be followed to achieve this objective, ie the activities to be performed
* The logical sequence in which these activities must be performed
* The dates for the beginning and end of each activity
* The person responsible for implementation of each activity
* The resources required for the implementation of each activity
* The intermediate results (milestones) to be reached at the end of each activity
* The indicators which will assess whether the activities were carried out satisfactorily

How to Measure Quantitative Objectives

Measuring progress against quantitative objectives is an important starting point for evaluating the success of a SFL programme.

The overall aim is to increase the use of primary angioplasty for reperfusion therapy in STEMI patients.

The following indicators can be used to assess progress:
* Total number of primary PCI and number of primary PCI per million inhabitants
* Proportions of STEMI patients taken to hospital receiving primary PCI, fibrinolytics, and no reperfusion therapy
* Number of 24/7 cath labs
* Average population size served by a 24/7 primary PCI centre
* Number of certified interventional cardiologists
* Overall in-hospital mortality for STEMI patients
* In-hospital mortality for STEMI patients receiving primary PCI, thrombolysis, and no reperfusion therapy

Please refer to the section on establishing a national ACS/AMI registry for details on how to collect the data.

Figure 1 shows how to record an action plan and monitor progress.

Project reference :
Project title:

Start for Life
e.g. Reduce Patient delay

Task Denomination	Person month	Participant responsible for task	Acronyms of partners involved in task	Year 1				Year 2			
				1 2 3 4 5 6 7 8	9 10 11 12	13 14 15 16 17 18	19 20 21 22 23 24 25 26 27				
Task 1: Taskforce meeting Invitations, Agendas and minutes	0,00	Project Manager	SM, HP, PCS, JF				
Task 2: Moment 1 Survey Launch	0,00	Champion	SM, HP, EP				
Task 3: Action Planning Year 1	0,00	Project Manager	Task Force				
Task 4: Fund raising of Year 1	0,00	PM, Champion	SM, HP				
Task 4: Patients leaflet	0,00	PM	Task Force				

M1   M2   M3
1st Progress Report   2nd Progress Report

Figure 1:
Action plan timeline

SFL Bulgaria: How to control quality in a STEMI system of care

K. Karamfiloff
Stent for Life Bulgaria, Project Manager

SFL Bulgaria began in 2009 with motivated partners and a public desire for change. But with time new players entered the scene and safeguards were needed to control the quality of STEMI care.

Public demand for change

The dissolution of the Soviet Union in 1991 was followed by economic collapse in 1997. But in the following 10 years conditions improved and in 2007 Bulgaria joined the European Union.

Enhanced standards of living allowed people to consider their poor health status and the country's high mortality from cardiovascular disease. Every country in the EU except Bulgaria and Russia had experienced a decline in cardiovascular mortality between 1990 and 2002 (see figure 1). Politicians sensed the public's changing opinions and attitudes and in 1998 obligatory health insurance was adopted by parliament. The National Health Insurance Fund (NHIF) was launched in 1999. Politicians realised that they would gain public backing by continuing health care reform and were open to major changes in STEMI treatment.

Health care professionals agreed with the need to provide primary PCI for STEMI patients but just two hospitals in the country had the capability.

First steps towards a national STEMI programme

A national programme for the development of interventional and invasive cardiology in Bulgaria was agreed for a period of six years (2002-2008). Legislative measures were adopted to facilitate the work of interventional cardiologists. More than 700 STEMI patients were treated with primary PCI in 18 months, with modest decreases in cardiovascular mortality for both men and women.

By the end of the programme in 2008 there were seven primary PCI centres but not enough 24/7 cath labs. There was a shortage of trained interventional cardiologists and no official training programme, making it impossible to certify new interventionalists. It was not considered prestigious to work in an ambulance and so there were insufficient paramedics and training was unavailable. Ambulances were ill equipped and reached patients too late. There was no protocol for ambulances detailing where to take STEMI patients who often ended up at their GP or the nearest hospital which frequently did not perform PCI. Non-PCI centres were keeping patients for five days to get full reimbursement for the clinical pathway. And there was no national registry to monitor adherence to guidelines.

Progress in building a STEMI network after joining SFL

Bulgaria entered the SFL Initiative in 2009 and collaborated with politicians, health care professionals and patient organisations to develop algorithms for the management and direct transport of STEMI patients to the nearest cath lab. A strict transport protocol endorsed by the Ministry of Health was designed to minimise the symptom-to-balloon delay and stipulated that patients should be taken to the nearest cath lab. Numerous educational meetings were held with GPs, cardiologists, emergency medical service (EMS) staff and patient

organisations to explain the new procedures. A massive PR campaign was launched to raise patient awareness of the new systems and a national registry was set up.

Major changes ensued. A national 24/7 primary PCI network was established that provided optimal coverage of the country, a training programme was approved which allowed certification of invasive cardiologists and new national cardiology standards were adopted by the Ministry of Health, the Bulgarian Society of Cardiology and the Bulgarian Society of Interventional Cardiology. To receive reimbursement, cath labs had to prove that they were providing a 24/7 service.

The rate of primary PCI in Bulgaria rose from 21% in 2008 to 56% in 2011 and the proportion of STEMI patients receiving no reperfusion fell from 63% to 36% in the same period.

Implications of poor quality control to a STEMI sytem of care

Unfortunately this prolific period of cooperation ended. Profiteers opened new cath labs and as the numbers grew competition followed. The transport protocol endorsed by the Ministry of Health was frequently violated. The EMS did not take patients to the nearest cath lab but to specific cath labs seeking a profit.

Competition between cath labs got out of control. They held PR campaigns to spread false claims, for example that doctors were lying to patients about the need to act quickly in a myocardial infarction and that doctors were draining the health insurance system. This led to public distrust of physicians.

The Ministry of Health reacted by doing an audit of cath labs. It detected that some hospitals were admitting patients with an unstable form of angina pectoris with 75% clear coronary arteries.

But cath labs continued to multiply and quality was suboptimal. Cath labs not led by commercial motives were paid less for their good work because of money seeking competitors.

Enforcing mechanisms to control quality of STEMI patient care

Mechanisms are now needed in Bulgaria to control the quality of STEMI care. Private centres should be required to meet specific standards such as having modern equipment and a contract with cardiac surgery. Criteria should be established for reimbursement such as providing 24/7 coverage, having at least two certified interventional cardiologists and proving the necessity for new cath labs on an epidemiological and infrastructural basis. A regional transport protocol should be designed and enforced.

Bulgaria has made great strides since joining SFL five years ago. The primary PCI rate is more than 600 per one million inhabitants per year, the country has sufficient 24/7 primary PCI services to cover the STEMI population, primary PCI is given to more than 60% of STEMI patients, and mortality from acute myocardial infarction has steadily decreased. The priority now is to put safeguards in place to improve and maintain quality so that patient outcomes get even better.

Q&As

How did you engage politicians, health care professionals and patient organisations to develop treatment algorithms and a transport protocol?

This is one of the rarest examples of all partners and stakeholders in the STEMI management process agreeing that there was a great need for major changes to the existing model. There was mutual understanding that this could not be achieved without the combined effort of each part – politicians

should adopt legislative steps to facilitate the work of cath labs; physicians (GPs, EMS, cardiologists, interventionalists) should be well trained in recognition, transport, primary PCI and further management; and patient organisations should raise public awareness. It was consolidation led by good intentions from all partners who wanted the best for the population.

How did you monitor and improve adherence to the transport protocol?

Initially we did not monitor transport protocol adherence, as we thought that it was a logical and intuitive step. Transporting the patient to the nearest cath lab should provide the shortest symptom to balloon period and the damage for the heart should be minimal. However, soon after we received unambiguous signals that patients in some regions were being transported to particular cath labs, initially for elective procedures and then for urgent ones. At several national cardiology meetings there were great debates about the protocol deviations, and we took this opportunity to officially inform the cardiology community about the problem. Unfortunately no punishment or other restrictive measure has followed.

How did you agree on reimbursement criteria and how are they enforced?

The most important reimbursement criterion was proving that the cath lab had 24/7 working hours. We managed to convince the NHIF, the only payer for medical procedures performed, that cath labs should be reimbursed only if they provide 24/7 coverage. This was because many energetic entrepreneurs saw an opportunity for financial profit and were planning to open cath labs only for elective patients. This measure was able to prevent that and provide permanent coverage for acute patients. We found that payment restriction is the ultimate instrument for enforcing the reimbursement criteria.

How do you maintain training for interventional cardiologists and paramedics?

Initially there was no approved programme for training interventional cardiologists. As the national primary PCI network grew dramatically, there was an obvious need for trained interventionalists. There was a period of intensive prolific learning after the adoption of the approved training programme, which ultimately resulted in certification. Traditionally in Bulgaria, EMS professionals have had a low salary and poor image. For these reasons the Ministry of Health has continued the EMS training programme and has simultaneously been gradually increasing their payment. Recently the situation has improved greatly together with the fact that the percentage of totally equipped ambulances has increased dramatically.

How did you reduce system delays?

System delays have been reduced for several reasons. First of all there are a lot of cath labs in the country and this dense distribution allows us to greatly shorten the transportation time. Secondly the diagnostic process takes much less time due to better training and "real STEMI" recognition. Finally, payment per primary PCI procedure is the highest among all the interventional procedures and hospitals are therefore finding ways to motivate the EMS to transport patients to the correct hospital as fast as possible.

Key points on how to control quality
- Monitor adherence to the transport protocol, which should be 100%
- Establish reimbursement criteria for primary PCI and use financial incentives and restrictions to enforce them
- Establish training for interventional cardiologists and paramedics to ensure that patients who come to the cath lab have the correct diagnosis and receive appropriate treatment
- Monitor system delays so that any drops in performance can be rectified

SFL Portugal: How to evaluate the impact of SFL on quality indicators of primary PCI

H. Pereira[1], S. de Mello[2]
1 Stent for Life Portugal, Country Champion
2 Stent for Life Portugal, Project Manager

Delays to treatment are the most readily available measurable index of quality of care in STEMI. They should be recorded in every hospital providing care to STEMI patients and be monitored regularly to ensure that simple quality-of-care indicators are met and maintained over time.
The components of delay in STEMI are shown in figure 1. These are:

• Patient delay: The delay between symptom onset and FMC (first medical contact)
• Delay between FMC and diagnosis: A good index of the quality of care is the time taken to record the first ECG with confirmation of diagnosis
• Delay between FMC and reperfusion therapy: This is the 'system delay'. It is more readily modifiable by organisational measures than patient delay. It is an indicator of quality of care and a predictor of outcomes

There are several ways to record the delays to treatment. In Portugal this is done using the Moment Surveys.

Assessing quality with the Moment Surveys

These prospective, observational snapshot registries assess patient and system delays in May each year. The surveys are conducted in all primary PCI centres in Portugal that have an interventional cardiology unit operating on a 24 hours a day, seven days a week basis (24/7). The aim is to register all consecutive patients catheterised for suspected STEMI in one calendar month. Patients transferred after having received thrombolytic therapy are excluded from the analysis.
The first survey, Moment 0, was done in May 2011 and involved 201 patients. Subsequent surveys (Moment 1, 2 and 3) were held in 2012, 2013 and 2014 included 196, 243 and 288 patients, respectively.
Information is collected on demographic variables, such as age and gender, and cardiovascular history. Data is captured on the number of patients who called 112 (the national number for medical emergencies) for direct assistance from the National Institute for Medical Emergency (INEM) which is responsible for pre-hospital transportation. The kind of first medical contact (FMC) and the mode of transport used to take the patient to a primary PCI centre is also recorded. Centres document whether the patient was treated in another hospital before arrival at the primary PCI centre.
The time between onset of pain and primary angioplasty is compared between groups in each year (2011 versus 2012, 2012 versus 2013, and 2013 versus 2014). Comparisons are also made between the observed delays and recommended time frames. The recommended delay between FMC and the first electrocardiogram is 10 minutes or less. The delay between FMC and reperfusion therapy (door to balloon time) should be 90 minutes or less, although in hospitals with PCI the goal should be 60 minutes or less. No data is collected on clinical outcomes of the performed interventions.

Case Studies - Learning from SFL Countries' Experience:

The following procedure is used to implement the surveys and analyse the results:
- SFL champion sends an email to directors of cath labs
- Cath lab directors receive follow up phone calls from the SFL project manager and SFL Task Force members involved in statistic analysis of the results to check on progress and problems
- Case report forms from each centre are sent by post to the Portuguese Association for Interventional Cardiology (APIC) office
- Statistic analysis is conducted by two members of the Task Force

The results of the annual surveys are presented at the Portuguese National Congress of Cardiology and at SFL meetings. In addition, they are submitted and published in national and international scientific journals. The conclusions made from the findings inform strategic planning and help the Task Force to fine tune its activities.

Results of the Moment Surveys

The surveys reveal that patient delay is still high in Portugal. The results show no improvement between 2011, when it averaged 118 minutes, to 2014 when it was 106 minutes. The data demonstrates that elderly (75 years or older) and female patients have longer delays, suggesting that awareness programmes should be targeted at these populations. The data also highlights the need to reinforce the message that patients should not wait to call for help, even if symptoms occur during the night. The onset of symptoms at night (between midnight and 8am) led to a 50% increased risk of patient delay.

Other predictors of patient delay were arrival at a primary PCI hospital by their own means and going to a primary health care centre first. Patients who called the emergency phone number 112 and arrived at a primary PCI hospital by ambulance experienced less delay. Greater awareness is needed about the importance of calling 112 fast when symptoms occur. Patients also need to understand the risks of not doing so.

System delay is also high in Portugal. In 2011 only 35% of patients were treated in less than 90 minutes and this fell to 27% in 2014. Again elderly and female patients were at greater risk of delays. First presentation to a non-primary PCI health centre increased system delay (figure 2) while patients calling 112 had less delays (figure 3). The results suggest that systems of care are needed that encourage diagnosis in the ambulance. Emergency medical services could perform an electrocardiogram (ECG) in the ambulance, leading to a more timely diagnosis of all patients including the elderly. The direct delivery of patients with STEMI to a primary PCI hospital might shorten the system delay and improve clinical outcomes.

Patients in the Centro region of Portugal were more likely to experience system delays, pointing to the need for geographic adjustments in Portugal's STEMI network to improve equity in access to primary angioplasty. Monitoring quantity and quality of primary PCI is important in every SFL country. Portugal's surveys have unmasked the lack of improvement in patient and system delays between 2010 and 2013 despite a 24% increase in the number of primary PCI. Measures are now being put in place to tackle delays and progress will be measured each May.

Key points on how to evaluate the impact of SFL on quality indicators
- Clearly define the time period, patients and indicators to be evaluated
- Design a simple survey that can be completed quickly
- After sending the survey to cath lab directors, follow up with regular phone calls to check on progress and problems
- Compare the findings to previous years and to recommendations
- Share the results at meetings and in publications
- Use the findings to inform strategic planning

Case Studies - Learning from SFL Countries' Experience:
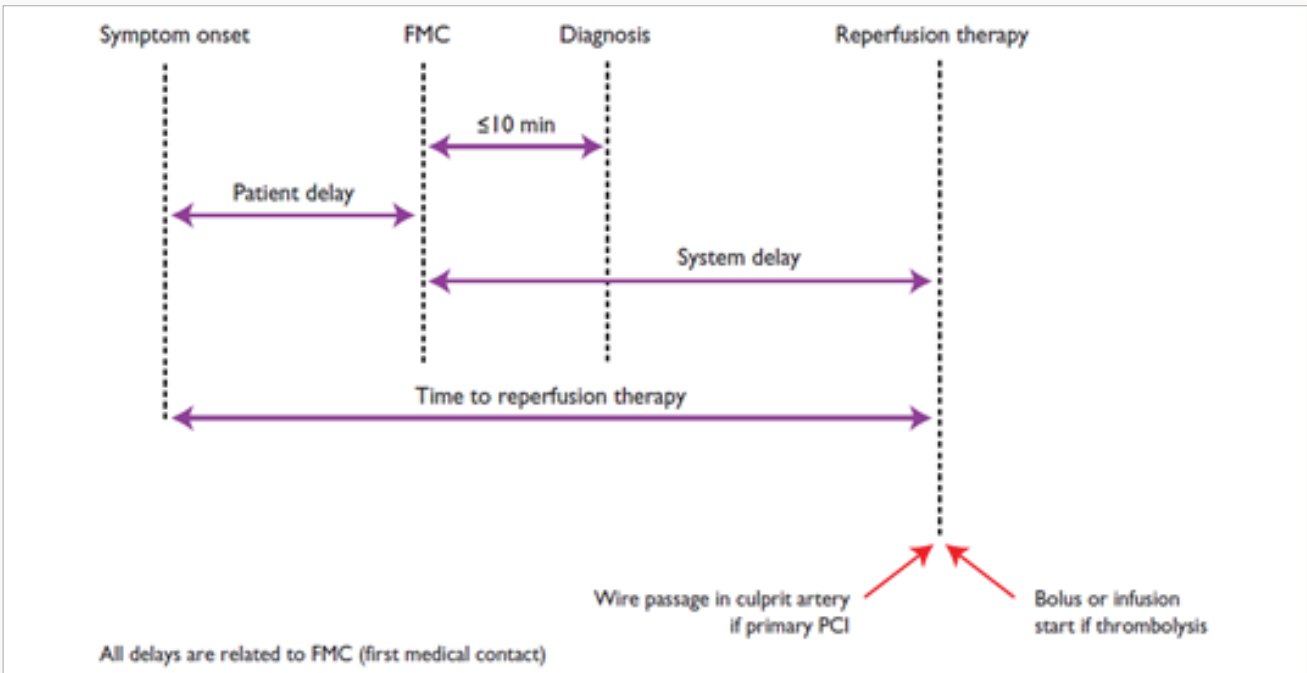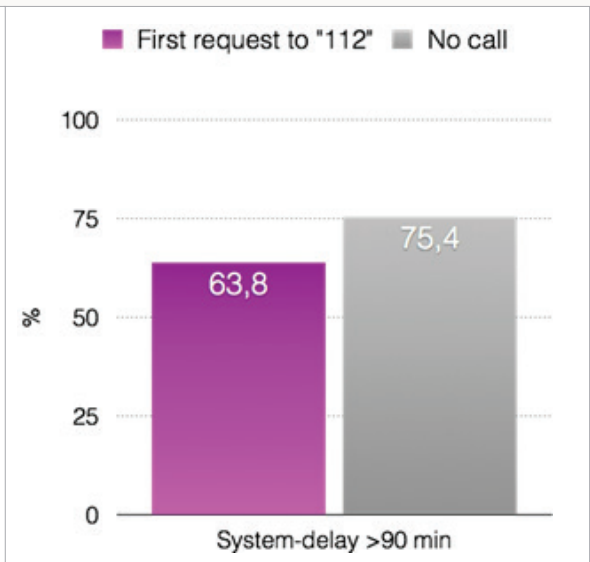

Figure 1:
Components of delay in STEMI and ideal time intervals for intervention, Source: Steg, 2012
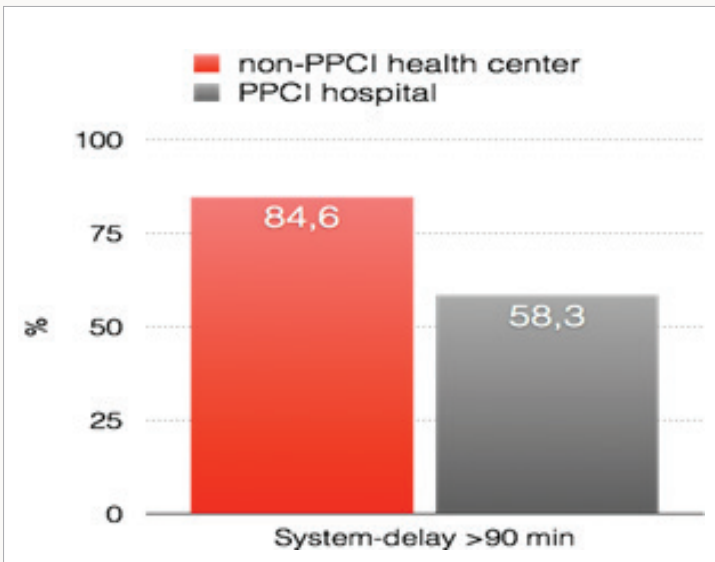
Figure 2: First arrival at a non-primary PCI hospital increases system delay

Today in Bulgaria there are sufficient cath labs evenly covering the country to provide primary PCI to the entire population.

Figure 3: First request to 112 decreases system delay

In 2012 there were 19 cath labs, as indicated by the red dots on the map.

SFL Spain: How to measure short term cost-effectiveness of a regional STEMI network

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1 Spanish Society of Cardiology, Interventional Cardiology Working Group
2 Stent for Life Spain, Project Manager

In the current economic climate, budget constraints run decisions on the best way to invest funds for public health. Despite the fact that STEMI networks promote guideline adherent therapy and thus reduce mortality, contemporary economic restraints might have a detrimental effect on the implementation of STEMI networks. The cost-effectiveness of a therapeutic or preventive intervention is the ratio of the cost of the intervention to a relevant measure of its effect. For that reason, this analysis is a helpful tool to provide a practical approach to decision making regarding health interventions.

The ratio of the change in costs to incremental benefits of a therapeutic intervention or treatment is called the incremental cost-effectiveness ratio (ICER). The equation for ICER is:

$$ICER = (C1 - C2) / (E1 - E2)$$

C1 and E1 are the cost and effect in the intervention or treatment group and C2 and E2 are the cost and effect in the control care group. Costs are usually described in monetary units while benefits/effect in health status are measured in terms of quality-adjusted life years (QALYs) gained or lost.

By using this ratio, comparisons can be made between treatment modalities to determine which provides a more cost-effective therapy. ICER studies thus provide an opportunity to help contain health care costs without adverse health consequences.

To show politicians that STEMI networks are cost-effective, a short term study was conducted in Catalonia by the previous SFL Spain team (Dr Manel Sabaté and Dr Ander Regueiro) with the help of the main researcher from the Centre for Research in Health and Economics at Pompeu Fabra University in Barcelona.

Before the Catalonian STEMI network was established, there were 10 primary PCI centres in the region but only four of them worked 24 hours a day. The Emergency Medical Service (EMS) was staffed by well trained doctors who administered prehospital fibrinolysis when needed. The Catalonian STEMI network was established in June 2009 and serves a population of approximately 7.5 million inhabitants. It is comprised of the EMS, 10 primary PCI hospitals and all remaining hospitals and primary care centres. EMS professionals perform an ECG, diagnose the patient and decide on the treatment strategy. Patients designated for primary PCI are transferred directly to the nearest cath lab and afterwards are taken to their local hospital to avoid overcrowding.

Implementation of the network raised the number of reperfused STEMI patients and modified the reperfusion strategies. Nearly 89% of STEMI patients received primary PCI after the network was established compared to 31% previously. Use of fibrinolysis fell from 37% to 4%, rescue PCI dropped from 11% to 3%

and no reperfusion reduced from 21% to 4.6%. It was recognised that increasing the number of patients receiving reperfusion and primary PCI might increase short term health care expenditures, therefore data on costs was collected and analysed.

The mean cost per patient was obtained according to reperfusion strategy (primary PCI, rescue PCI, fibrinolysis, and no reperfusion) and included hospitalisation, procedural, and additional on-call personnel costs. To avoid price changes between years, unit costs were left unchanged throughout the periods of analysis. Differences in costs were secondary to materials, medications, and hospital stay.

	Mean cost in euros	
Procedure	Pre STEMI network	Post STEMI network
Primary PCI	8,306	7,874
Fibrinolysis	5,956	5,956
Rescue PCI	10,806	10,086
No reperfusion	8,160	8,160

Effectiveness was evaluated in two different ways: 30-day avoided mortality, and QALY. The 30-day mortality in the primary PCI group decreased from 7.7% to 5.6%, in the fibrinolysis group from 10.5% to 3.6%, in the rescue PCI from 15.1% to 13.6% and in the no reperfusion group increased from 13.4% to 15.1%.

ICERs for each endpoint were calculated and a sensitivity analysis was performed with alternative scenarios for costs (Hartwell, 2005; Wailoo, 2010; and 30-day mortality). Below a cost threshold of €30,000 results were sensitive to variation in costs and outcomes.

Endpoint	ICER (euros)	QALYs (euros)
Base case	4,355	495
Hartwell, 2005	12,923	495
Wailoo, 2010	− 2,721	495
30-day mortality	2,838	308

Q&As

Why is a cost-effectiveness study important?
It directly relates the financial and scientific implications of different interventions. These studies are often

used by policy makers and hospital administrators to determine relative priorities when deciding treatments for disease conditions. ICER studies provide an opportunity to help contain health care costs without adverse health consequences.

What does ICER mean?
It is the additional cost of extending a particular intervention divided by the additional health gain that would result. Each country has a threshold that refers to the level of costs and effects that an intervention must achieve to be acceptable in a given health care system.

How are the costs measured?
The most important point is to make sure that all the relevant costs are included and that the classification categories do not overlap. In the Catalonian case the costs were divided into hospitalisation costs and others (including treatment, staff and fixed costs). As it was a short term study the costs related to readmissions or further treatments were not included, nor were the transportation costs.

How is effectiveness measured?
To evaluate the effectiveness, appropriate endpoints should be selected. According to the literature the main variables used for the evaluation of STEMI treatments are mortality, myocardial infarction, recurrent ischaemia, stroke, heart failure and quality of life.

Are the results applicable to other scenarios?
Information on costs, benefits and risks is rarely known with certainty, especially when one looks to the future. This makes it essential to carry out a sensitivity analysis to test the robustness of the study results to changes in some of the key numbers.

Key points on how to measure short term cost-effectiveness of a regional STEMI network
- Cost-effectiveness analysis is a helpful tool for decision making regarding health interventions
- STEMI networks increase the use of PCI
- The Catalonian STEMI network is cost-efficient
- Further studies are needed in different geopolitical scenarios

Stent for Life Public Awareness Campaign

Implementing a Public Awareness Campaign

The early phase of STEMI is critical to the prognosis of patients. It is essential that patients and their relatives recognise heart attack symptoms and take immediate action by dialing the emergency medical service for transportation to the nearest 24/7 primary PCI hospital.

Public campaigns affect decision-making processes at the individual level and increase the likelihood of achieving new behaviours. In those countries/regions where a primary PCI network is established the key campaign objectives are to increase public awareness of heart attack symptoms and the urgency of treatment:
- Educate patients and public to recognise AMI symptoms
- Act quickly and call ambulance
- Educate about primary PCI and its life saving indication

To measure the impact of the campaign, pretest and posttest surveys should be performed.

ACT NOW.SAVE A LIFE Campaign Implementation:

Phase 1: Survey patient and public level of awareness of ACS and the need to act quickly and call EMS
Phase 2: Launch a national public awareness campaign according to ACT NOW. SAVE A LIFE guidelines
Phase 3: Demonstrate the impact of ACT NOW.SAVE A LIFE public campaign on ACS awareness and patient behavior.

ACT NOW.SAVE A LIFE campaign should be implemented when a regional and/or national STEMI network is developed to ensure that STEMI patients have timely access to adequate treatment when calling the EMS.

KNOW THE SIGNS   ACT QUICKLY   CALL EMERGENCY SERVICES   RECEIVE TREATMENT

SFL Portugal: How to implement a low cost and high impact public campaign

S. de Mello
Stent for Life Portugal, Project Manager

When Portugal joined the SFL initiative just one third of STEMI patients called the national emergency number 112 and the median time from symptom onset to first medical contact (patient delay) was 118 minutes. Given that the early phase of STEMI is critical to the prognosis of patients, one of SFL Portugal's strategic objectives was to reduce the patient delay. The public campaign ACT NOW. SAVE A LIFE was launched to raise awareness of the symptoms of myocardial infarction and the need to act quickly by calling 112.

Establishing relationships and engaging different industries in SFL activites
There were limited resources available to fund the campaign. The SFL Task Force decided to expand the search for support beyond pharmaceutical and device companies to reach populations through other industries and avenues. SFL Portugal contacted supermarkets, shopping centres, professional associations such as Ordem dos Farmacêuticos, and companies in the energy, oil and telecommunications sectors. Well known actors, singers and TV presenters agreed to be SFL ambassadors and gave their pro bono endorsement to educational videos.

Identifying a variety of channels of communication
Diversifying its supporters has given SFL access to multiple communication channels targeting the public. A buzz was created around the campaign at gas stations, supermarkets, the Portuguese parliament, pharmacies, schools, theatres, and some City Hall counters which attracted media attention. The result was that all educational activities had coverage in newspapers, TV and radio.
Activities included distribution of leaflets, educational workshops in companies, school events with students and teachers, and cardiovascular screening in companies, shopping centres, primary health care centres, pharmacies and the national parliament.
Company investments were mainly spent on educational materials which were 400,000 leaflets, one video, five short movies with SFL ambassadors, 20,000 magnets and 20,000 pins. Daily posts were made on the ACT NOW Facebook page and the SFL website. Partner companies gave their time for free.

Public campaign impacting patient and public behaviour
Market research in 2013 showed that 23% of people in Portugal had heard about the ACT NOW. SAVE A LIFE campaign. SFL Portugal's annual moment surveys reveal that the median patient delay decreased from 118 minutes in 2011 to 106 minutes in 2014. The percentage of patients who went to a non-primary PCI centre before going to a primary PCI centre reduced from 62% to 46%. Despite these results there is still room for improvement, in particular increasing the percentage of patients who arrive at the cardiac centre by INEM (National Institute for Medical Emergency), which was still 37% in 2014.

Case Studies - Learning from SFL Countries' Experience:

Q&As

How did you implement a low cost and high impact public campaign?

There were limited resources available to fund the campaign so we used a wide range of methods such as:

Partnership development is key and increases support for a programme or issue by harnessing the influence, credibility, and resources of profit, non for profit, or governmental organisations. We formed partnerships with gas and telecommunications companies, broadcast an educational video with famous ambassadors in cinemas and theatres rooms, promoted our campaign on Delta Cafés sugar packs and partnered up with the national pharmacist college;

Public relations that promotes the inclusion of messages about a health issue or behaviour in the mass media. For example, signing of the partnership protocol by regional health authorities, regional meetings, and TV and radio interviews with the SFL Champion;

Media advocacy that seeks to change the social and political environment in which decisions that affect health and health resources are made. This can be done by influencing the mass media's selection of topics and by shaping the debate about those topics. For example, cardiovascular screening at the national parliament and municipalities, meeting to mark the third anniversary of SFL, partnership protocol signature with regional health authorities, and training journalists on how to treat acute myocardial infarction;

Pro bono advertising – public service messages in the media or in public spaces to increase awareness of and support for a service or behaviour. For example, educational films on outdoor TV screens in Lisbon, movies with ambassadors in theatres and cinemas, advertisement on public buses in Lisbon;

Individual and group instruction – influence, counsel, and provide skills to support desirable behaviours For example, training employees of company partners.

How did you persuade companies to become part of the campaign and how did you get access to companies' communication platforms?

1. The SFL team identified companies that have contact with daily lives of the population (e.g. gas companies, telecommunications companies, supermarket chains, shopping malls, pharmacies);
2. The SFL team looked for Task Force members who had acquaintances in these companies to take advantage of their network;
3. If there was any acquaintance, the Task Force member made contact to find out which department should be approached about the campaign. If there was no acquaintance, the SFL team approached the company to find out who should be contacted;
4. An appointment was made with the company to present the Stent for Life Initiative;
5. The SFL Champion and SFL Project Manager attended the meeting. The SFL Champion presented, supported by slides, the SFL mission, national picture regarding access to STEMI treatment, the established objectives, ACT NOW materials to be used and collaboration proposal (intranet, website, store counters with leaflets, newsletters, information leaflets included with payslips, regular published articles);
6. If the company agreed to become a partner, in most cases a protocol was signed between the SFL Initiative and a company representative;
7. In SFL Portugal's experience, this type of partnership usually creates the momentum needed to generate a buzz around the public campaign and deliver key educational messages widely through medical and lay press;
8. Employees were trained on what to do if the symptoms of acute myocardial infarction occur. Cardiovascular screening of employees was organised in the partner companies.

How did you convince famous people to become SFL ambassadors?

The SFL team appealed to their sense of social responsibility and explained that they could use their name and image to reduce mortality from acute myocardial infarction in Portugal.

How do you keep costs of the educational materials low?

1. Work with partners who can add their resources to your own
2. Conduct activities on a smaller scale
3. Use volunteer assistance
4. Seek out existing information and approaches developed by programmes that have addressed similar issues to reduce developmental costs

Key points on how to implement a low cost and high impact public campaign:

- **Planning and strategy development** - First we need to assess the problem, in this case how long the patient delay is. The Moment Zero survey was launched to find out the percentage of patients who call the emergency number and the median time from symptom onset to first medical contact (patient delay)
- **Developing and pretesting messages and materials** – A multidisciplinary Task Force (communication, industry, interventional cardiologists, marketing professionals) was created to prepare educational messages and materials
- **Implementing the programme** – Activities with partners were rolled out
- **Assessing effectiveness and making refinements** - Prospective, observational snapshot registries are used to assess patient and system delays in May each year. Information is collected on demographic variables, such as age and gender, and cardiovascular history. Data is captured on the number of patients who called 112 (the national number for medical emergencies) for direct assistance from the National Institute for Medical Emergency (INEM) which is responsible for pre-hospital transportation. The kind of first medical contact (FMC) and the mode of transport used to take the patient to a primary PCI centre are also recorded. A market research study was conducted to discover how well the Portuguese public recognised the ACT NOW campaign developed by SFL. It also investigated the awareness level of the Portuguese population regarding the symptoms of myocardial infarction and the need to dial the national emergency number 112.

SFL Initiative Budgeting and Fundraising at a Country Level

Securing Budget

Implementing your strategic plan will require funding. It is therefore necessary to secure sufficient budget to carry out those plans. The most reliable sources of funding may include:

- SFL Industry Partners not limited to medical device and pharmaceuticals companies
- Your National Cardiac Society
- Your National Emergency Medical Services
- The larger, more influential patient groups and foundations
- Government – in particular the health department

Reaching out to all these groups, and any others that are relevant in your country, to secure funds is one of the key factors affecting success, and we encourage you to commit time, resources and influential personnel to achieving this goal.

Securing and Working with Industry Partners

Numerous Industry partners are already signed up to SFL on a European level, and their local affiliate companies are natural partners in your country. Additionally, there may be other potential partners in your country. When assessing a potential partner, it is important that they are aligned with SFL's goals, and also that they are willing to actively support those goals. This support may include participating in defining strategy, as well as providing expertise such as project management, local analysis, patient awareness, promotion, funding and investment planning. They should not however, under any circumstances, influence the scientific content of the Initiative.

Monitoring Systems and Measuring Success

It will be important to be able to demonstrate success to your partners, funders and other stakeholders, most importantly patients at risk of STEMI. It is recommended that you determine what your local success will look like, and ways to measure this success, in this initial planning phase.

For example, if you decide to implement a consumer awareness campaign, you could consider conducting market research before the launch of the campaign and then after a key milestone in your campaign to determine if the campaign has had an impact on consumer understanding of the symptoms of heart attack and the need to call an ambulance quickly.

Part of measuring success will also involve monitoring the progress of your local initiatives. The exact nature of the monitoring system you adopt will depend on the unique circumstances within your country. For that reason, key performance indicators should be set for each action individually.
In some cases, you may already have a National primary PCI/STEMI Registry in place. If not, you may want to consider adopting one, so that all cases of primary PCI/STEMI are logged on a central database, including details such as the time from emergency call to catheterisation and any time delay during the implementation of primary PCI.

Reporting Results
It is important that the European SFL Steering Committee is kept up to date on the activities and progress taking place in each of the SFL countries. To help facilitate this, we have developed a reporting template (see page 55) which should be completed and emailed to Zuzana Kaifoszova (kaifosz@solutions4life.eu) a month in advance of the two main milestones – EuroPCR in May and ESC Congress in August – and at the end of the year (December).

Administration

Stent for Life Email Address
We recommend that each country set up a SFL group email address, which includes key country contacts, to make it as simple as possible to contact a SFL country. The format that should be used is as follows: stentforlife_countryname@…

SFL Portugal: How to dynamise local STEMI networks

J. S. Ferreira
Portuguese Association of Interventional Cardiology

SFL Portugal is using Stent Network Meetings to maintain enthusiasm among participants in local STEMI networks and generate solutions to issues that develop.

When setting up a management strategy for STEMI one of the main ingredients is the local STEMI network. It is essential to outline who is involved in the network and how they interact. Stakeholders in each region should be involved in the discussions and set common goals.

In Portugal, each local STEMI network holds Stent Network Meetings once a year to identify the main barriers to implementing the network and create action plans to address them. The half day meetings bring together all of the health care professionals who have a role in the patient journey. This includes call centre operators, ambulance crew, emergency room staff and cath lab teams.

Despite the many differences between local STEMI networks a standard agenda based on national objectives was agreed for all Stent Network Meetings. The agenda is usually composed of five lectures: SFL Europe/SFL Portugal presentation; involvement of local and regional stakeholders; emergency system flowchart; how to approach a STEMI patient; and STEMI guidelines and treatment. Workshops are held on identifying barriers and defining an action plan. Having the same agenda for meetings throughout the country allows SFL Portugal to collect information on particular topics from each local STEMI network which can subsequently be used to influence national and regional policies.

The commitment demonstrated by attendees of the Stent Network Meetings is a clear signal that SFL Portugal is bringing people together to work towards a common goal.

Q&As

How did you engage people to participate in local STEMI networks?
A personal invitation is made bearing in mind the role of each participant in the STEMI network.

How do you motivate people to attend Stent Network Meetings?
It must be clear to the participants that they are the experts and only with their involvement and expertise can a real change be made in STEMI networks.

Who was involved in defining the standard agenda for Stent Network Meetings?
The SFL Portugal team, cath lab directors and emergency system staff.

How do you agree a plan of action at Stent Network Meetings?
Based on the findings highlighted, a responsible person is identified to address these.

Case Studies - Learning from SFL Countries' Experience:

Key points on how to dynamise local STEMI networks
- Collaboration between all stakeholders is essential
- Meetings should have a dynamic format with a mix of lectures and workshops to encourage participation
- An informal approach is the best way to maximise attendance and discussion
- Common goals should be set to motivate people to work together

Template Materials

Stent for Life Initiative Action Checklist

Action	Delivery Date	Status (completed/ongoing/not-started)
Phase 1: Programme Launch		
SFL Country Champion appointment		
Letter of support from National Society		
SFL Steering Committee appointed		
SFL Task Force appointed		
SFL National Project Coordinator appointed		
Phase 2: Situation Analysis		
Mapping the local situation		
Draw map of local situation		
Defining barriers		
Phase 3: Planning and Budget		
Set three-year measurable objectives		
Define strategic approach		
Develop tactical plan and budget		
Present plan to SFL Executive Board		
Publish plan and/or present it at cardiology congress		
Secure budget		

Stent for Life Initiative Country Situation

Country Detail	Situation
Population	
Country surface area	
GDP per capita	
No. of interventional cardiologists	
Rate of NSTEMI, hospital mortality in this group	
Rate of STEMI, hospital mortality in this group	
Rate of AMI	
Rate of AMI mortality	
Usage rate of PCI	
Usage rate of thrombolysis	
Rate of no reperfusion therapy	
PCI per million	
Primary PCI per million	
% of primary PCI in STEMI patients	
No. of cath labs	
No. of 24/7 cath labs	
Average distance to cath lab	
No. of ambulances	
Average no. of ambulances with ECG	
Availability of helicopters	Yes / No
No. of patients that call EMS	

Stent for Life Initiative Barriers

Barrier	Goal	Current Situation

Patient Related Barriers

EMS Related Barriers

Hospital Related Barriers

Organisational Barriers

Stent for Life Initiative Reporting Template

Background Information	
Country	[Insert country]
Country Champion/Project Manager	
Key Partner Organisations	
Country Objectives	
Key Project Updates	
Summarise any key updates and/or progress you have made in the last 3-6 months, including your key achievements	[e.g. overall progress in achieving objectives, any meetings, media campaigns, new partners, etc]
Summarise any issues you have faced in the last 3-6 months	[e.g. lack of funding, resistance from policy makers, etc]
Next Steps	
Summarise your key activities for the next 3-6 months	[e.g. critical steps and progress in achieving objectives, etc]
Key milestones and meetings	[List any upcoming meetings and/or key milestones and their timing]