

**HEART-TEAM: JOINT POSITION OF THE SWISS SOCIETY OF CARDIOLOGY AND
THE SWISS SOCIETY OF CARDIAC SURGERY.**

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TEXT

Introduction

The role of the modern Heart-Team and its current application in the daily clinical practice have been extensively described in recent guidelines on coronary revascularization edited by the European Society of Cardiology [1]. Both the Swiss Society of Cardiology (SSC) and the Swiss Society of Cardiac Surgery (SSCC) officially endorse the European Guidelines and believe that this novel and evolving approach represents a unique opportunity that all cardiac institutions should be informed about, regardless of their internal organization.

Hence, and according to its political implications, the decision to publish a position paper which defines the role and the responsibility of the modern Heart-Team nationwide.

In particular, we will analyse areas where a modern Heart-Team concept must be adopted, namely coronary revascularizations, complex structural heart procedures and heart valve interventions.

The team-work

It is widely acknowledged that multidisciplinary and well-organized team-work enhances the quality of care and the management of patients with specific diseases. At the beginning of the sixties, the creation of a multidisciplinary “Tumor Board” was shown to be associated with an improved survival rate and quality of life in breast cancer patients [2].

In cardiovascular care, Heart-Team discussions of specific patient groups have been taking place for several years already. Typical issues are how to treat congenital heart disease (in both children and adults), to coordinate cardiac transplantation and, more recently, managing end-stage heart failure. A Heart-Team for coronary disease was first set up to select patients eligible for randomization in clinical trials comparing coronary artery bypass grafting (CABG) with medical therapy for stable angina [3]. Partly due to the introduction, in the seventies, of percutaneous coronary intervention (PCI), interventional cardiologists and cardiac surgeons were increasingly treating the same

population at risk offering alternative approaches. Randomized clinical trials comparing CABG and percutaneous revascularization followed, in which the two specialties worked closely together to ensure accurate patient selection and to establish well balanced distribution between the two treatments [4,5]. Because of its high clinical interest and prognostic relevance, the topic “myocardial revascularization” has been subject to numerous randomized clinical trials including, as reported in a recent network meta-analysis, globally more than 93'553 patients [6].

More recently, the advent of transcatheter valve therapies has also emphasized the role of a Heart-Team including both specialties for screening, managing and treating heart valve disease using different surgical or interventional approaches according to the individual risk of the patient. The Heart-Team concept has been developed and intensified in the last few years. The main goal is to offer a balanced and complementary approach to patient care by joint and shared decision-making among different medical care stakeholders, such as cardiac surgery, interventional cardiology and cardiac imaging [7].

Heart-Team in the context of coronary artery disease

The new guidelines on myocardial revascularization focus on the importance of the Heart-Team for patients requiring a complex myocardial revascularization [1], underlying the medical evidence that an individual stratification of the risk-benefit ratio considerably improves clinical outcome and prognosis [8,9], but also reduces the risk of under-(or inappropriate) use of coronary revascularization procedures [10,11].

In a multidisciplinary evaluation of complex coronary clinical scenarios - i.e. left main disease, three-vessel coronary disease, high risk proximal anterior descending artery lesions, selected patients with depressed left ventricular (LV) function - the role of the Heart-Team is: 1) to define the therapeutic goal (prognostic vs. symptomatic, complete vs. partial coronary revascularization);

2) to establish the best strategy for myocardial revascularization (percutaneous vs. surgical vs. pharmacological) and; 3) to measure the individual procedural risk, assessed by specific risk scores. The specific clinical and anatomic indications, which the Heart-Team should be involved in, have already been analysed in detail in the modern guidelines on myocardial revascularization [1] and, therefore, will not be discussed here.

The modern risk scores are based on the analysis of clinical and angiographic predictors evaluated in multicentric studies and registries on coronary revascularization and are recommended as an integrative tool for supporting decision-making processes within the Heart-Team. To date, the following well established surgical scores are recommended for their high reliability: the STS score of the Society of Thoracic Surgeons [12] and the updated version of the EuroSCORE, the EuroSCORE II [13]. Among the anatomic scores, the SYNTAX score remains the most used and reliable one, despite its complexity and a well-recognized interindividual variability limiting its daily clinical application [14].

As suggested by recent recommendations in case of stable complex coronary artery disease a non-invasive cardiologist, an interventional cardiologist and a cardiac surgeon (the components of the modern Heart-Team for coronary disease) have to be involved together in evaluating whether an optimal medical therapy, a PCI, a coronary artery bypass grafting or a hybrid approach (simultaneous or differed PCI and CABG) is the preferred treatment (Figure 1) [15]. The Heart-Team decision-making process while discussing coronary cases (regardless of the physical presence of the patient) have to be based on three important key-points: the knowledge transfer, the different treatment options and the final agreement on the best myocardial revascularization strategy for every single clinical case [15]. The latter has to be documented in the patient's chart.

Heart-Team in the context of valve disease

The introduction of transcatheter valve treatments rapidly changed the scenario of the modern management of heart valve disease, particularly aortic valve stenosis and mitral valve regurgitation.

During the last few years, both the number of patients treated by transcatheter approach and the spectrum of indication rapidly expanded, leading to a repetitive update of recommendations for clinical practice [16-20]. In the decision-making process for patients with advanced heart valve disease requiring treatment, the discussion within the Heart-Team represents an essential, irreplaceable decisional step and is considered by the Swiss Federal Office of Public Health as one of the mandatory conditions for the final procedural reimbursement (FOPH communication of 25th July 2013).

As strongly recommended by the European and the American guidelines on the management of valvular heart disease, the role of the modern Heart-Team for valve disease is to share and analyse all available patient's information. This information must include clinical-anamnestic data, anatomical details (coronary angiography, 2D – 3D echocardiography, computational cardiovascular imaging) and a calculated procedural risk score made by using on-line versions of the STS or EuroSCORE II calculators [21,22].

All of the above will allow the Heart-Team for valve disease to personalize and optimize the final treatment according to the most recent knowledge and recommendations in this rapidly evolving medical field. Every candidate for potential valve intervention has to be discussed within the Heart-Team. The discussion should be based on the following three key-points: the knowledge transfer, the discussion of the most effective treatment (percutaneous vs surgical vs hybrid vs conservative) and the final agreement on the treatment recommendation.

The Heart-Team in the context of valve disease consist of a cardiac surgeon, an interventional cardiologist (both experts in this field), an imaging specialist and, if necessary, an anaesthesiologist and intensive care specialist (Figure 2) [21]. All members of the Heart-Team for valve disease are strongly committed to work together and define for every single patient and every single scheduled procedure the different team players, according to the specific skills and the technical expertise.

Organization and logistic

At the time being there are no rules regarding the organization of a modern Heart-Team. What works well in one institution may not be the optimal approach in another.

Each institution is free to internally define the ways of interactions among the various teams. If the cardiac surgery unit is on site, the clinical cases are usually discussed on a regular basis or, if needed, during “*ad hoc*” meetings. If the centre has no cardiac surgery on site, meetings with cardiac surgeons can be organized via videoconferences or shared images (virtual Heart-Team).

Regardless of the internal organisation, a high level of **interaction** and **communication** is essential between the different teams and within the members of the Heart-Team. Advanced decision-making process should be based on the critical analysis of all available information including the patient clinical data and evidence-based data from the modern scientific literature.

In Switzerland 17 interventional institutions also have a cardiac surgery unit on site (5 university hospitals, 4 public hospitals and 8 private clinics), whereas 20 centres do not (11 public hospitals and 9 private centres) (Figure 3). Among them, as expected, there are considerable differences in term of interventional and surgical volume and, so far, there are no specific recommendations about the creation of institutional Heart-Teams in the context of coronary and heart valve disease.

Therefore, every centre in Switzerland is free to set-up its own Heart-Team and is free to manage the way the members of the Heart-Team should interact and communicate. Nevertheless, we believe that strong commitment, open-mindedness, adaptability, versatility and team-player capability should be the “must have” skills for every member involved in a modern and dynamic Heart-Team.

The goal of the Swiss Society of Cardiology, the Swiss Society of Cardiac Surgery and the Swiss Working Group on Interventional Cardiology is to underline the importance and the need for each cardiac centre to have a multidisciplinary, qualified Heart-Team based on international standards,

that can offer to the patients and the community a modern, balanced, complementary and individualized approach to complex coronary and valvular heart diseases.

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FIGURE LEGEND

Figure 1 Heart-Team in the context of coronary artery disease

CAD*: coronary artery disease.

Figure 2 Heart-Team in the context of heart valve disease

Figure 3

Geographical distribution of the Swiss interventional cardiology units (dated 2015) classified according to their PCI volume (< 500, 500-1000 PCI, > 1000 PCI per year) and the presence of cardiac surgery on site (yellow: with cardiac surgery on site, blue: without cardiac surgery on site)