THE IMPORTANCE OF PROBLEM
Cardiovascular disease is the nr. 1 „killer” in contemporary world, with about 16 millions deaths yearly [1]. In cardiovascular disease deaths top, our country is mentioned on the third place in the world. Acute myocardial infarction, and especially the clinical form with ST segment elevation on ECG (STEMI: ST Elevation Myocardial Infarction) is the main contributor of disease burden, as the number of specific deaths express. The level of mortality by cardiovascular disease is slightly decreased in high income countries; in contrast, in developing countries, this level continues to increase. In front of this cardiovascular disease aggression, complex measures are needed, including performant medical institutions.

The MATUCC need of development is legitimate by the notable cardiovascular mortality decrease in high income countries. E. Braunwald, probably the greatest cardiologist ever, called this type of units „the most important progress in infarction treatment” [2]. Now is the time that also in our country, as an European Union member, to develop MATUCC.

INTERNATIONAL CONTEXT
During 60s, as a result of the increase of AMI incidence, raise the „MATUCC” precursors, the coronary care units. This fact lead to a higher diagnosis accuracy, critical patients monitoring, as also optimization of the therapy of infarction and its complications.

In a recent review, Widimsky displays data of in-hospital global mortality by STEMI in European countries, our country being placed a bit over 8% [3] (Figure 1).

NATIONAL CONTEXT
Starting with 70s, the coronary care units raised in our country, firstly in university centers, then in county hospitals, Monitoring and Intensive Coronary Care Units.

The RO_STEMI registry displays an increased STEMI (ST Elevation Myocardial Infarction) prevalence in our country, our center reporting to national statistics about 200 cases yearly [4].

Where is positioned RO-STEMI within international STEMI in the last decade? Comparing our data with those from Euro Heart Survey registries, it’s obvious that in our country the number of STEMI is increasing. More precisely, by the 271 patients enrolled in Euro Heart Survey Acute Coronary Syndromes Snapshot Registry (7-13/DEC/2009), number that includes our center contribution, România finally took the third place among 47 countries in number of STEMI topic.

Revisiting the in-hospital mortality in Europe, România displayed a value of 8,1 %. At the decrease of this...
under 10%, a contribution had the National Programme for primary angioplasty in STEMI, started August 2010. Our personal opinion is that our country still has potential to improve this item, one way in this regard being the MATUCC network.

Since we have been knowing about the Ministry of Health Order regarding the approval of the Rule of MATUCC Organizing and Functioning in hospitals, we totally involve, with passion and responsibility, in founding and developing MATUCC in Arges County. We also are in touch with colleagues from the working group Emergency Cardiology of Romanian Society of Cardiology, as well as the Cardiology Comission from Ministry of Health, in order to contribute to the writing of specific protocols, to the development of national network, and other political and strategic documents in the field, or referring to cardiovascular disease.

According to the order of Ministry of Health regarding the approval of rule of organizing and work in MATUCC in hospitals [5], MATUCC syntagm is a compartment that fulfills criteria of space, technical equipment, and well-trained personnel for treating critical cardiovascular patients. MATUCC is organized in hospitals and works in dedicated and prepared spaces.

So, in November 2013, inside the Emergency County Hospital Piteşti, mATUCC was established. It was not easy to create such an unit, which is centered on critically ill patient, on an architectural structure built four decades ago.

ADVOCACY FOR THE NEED OF ESTABLISHING A NEW CENTER OF CARDIOLOGY

There are several points that favors the establishment of a new center of cardiology in our developping zone that covers three counties.

- an over half-century tradition in cardiology;
- cardiologists with multiple and diverse competences, well-known at national and international levels;
- competent diplomate nurses;
- a university associate professor;
- location over 100 km from the nearest tertiary center of cardiology;
- dinamic zone economically with hyperactive population and higher CV risk;
- cathlab;
- division of cardiovascular surgery;
- Romanian Society of Cardiology branch where spoke the most important cardiologists from Romania and four from abroad.

THE IDEA OF THE NEW PROJECT

The current exigences in coronary patients care care can be best satisfied in a new hospital building. We carefully studied the rule of organizing and work for MATUCC hospitals. Simultaneously, we actively visited 17 such units in Romania and abroad, learning and inspiring from the experience of renowned hospitals like „The Heart Hospital” Baylor Plano Dallas (Texas) [6] or the Clinical Hospital „Beilinson” Petah Tiqua (Israel), hospitals whose experience was shared once we visited the MATUCC type facilities within.

FRAMING MATUCC INSIDE THE NEW HOSPITAL EDIFICE

The new building of the zone cardiology center includes, in our vision, 11 structures of cardiovascular medicine disposed on 11 levels, having in addition two transport terminals, by car and by helicopter. The cardiovascular portfolio for our patients is generous, providing a large spectrum of services, from simple specific monitoring to complex interventional ones. The furniture harmonizes the hotel elegance and comfort with the intensive care pragmatism.

Inside the building, MATUCC covers a full level at 5th floor:
- (-2) underground: parking;
- (-1) emergency reception unit;
- (0) lobby/concierge + ambulatories + canteen/ restaurant + shopping area;
- (+1) 1st floor: management + conference rooms;
- (+2) 2nd floor: cardiovascular surgery division + surgery facilities;
- (+3) 3rd: interventional cardiology – angiography, coronary & peripheral;
- (+4) 4th: electrophysiology;
- (+5) 5th: MATUCC;
- (+6) 6th: clinical research;
- (+7) 7th: clinic cardiology division;
- (+8) 8th: biomarkers & imaging;
- (+9) 9th: rehabilitation/prevention & welness;
- (+10) heliport.

STRUCTURAL, ARCHITECTURAL, AND TECHNICAL SPACES OF THE NEW MATUCC

MATUCC are structured from the following components (figure 2):
- bed component, which comprises 15 intensive care beds and two central monitors;
Characteristics of hospitalizing zone:

- the room lane has a steady width of 3 meters, without “stenosis” that could confine the traffic of mobile beds;
- the net surface dedicated to each intensive care bed is 16 m² minimal useful area (+ WC & bathroom);
- every bed is oriented perpendicular to the wall;
- bed separators do not limit the monitoring of the patients;
- each bed has an additional potential space of 2 m from the wall, gained by its translation to the center of the room, allowing mobilizing and access to the head of patient, without confining the circulation inside the room;
- in order to facilitate the patient’s surveillance, the superior segment of doors and walls has protected windows, to allow light attenuation;
- rooms have generous windows incorporated, from ceiling to floor, which can open in need, and glasses have lavable surfaces to attenuate heat and solar light; in addition, there is a system of nocturnal lightning which allows personnel traffic without disturbing patients during sleep;
- rooms have wood laminated floors;

The bed component is placed in a well defined territory, with prior access from the emergency reception unit and to the laboratories of investigations, paraclinic, imaging and interventional cardiology. Being placed at 5th floor, MATUCC has in its proximity an elevator for beds. The direct access is allowed strictly for the admission or discharge of patients transported on mobile beds or chairs, as well as for emergency settings. For routine activities, both for the personnel, and for visitors, the direct access is strictly forbidden. The direct access in MATUCC is done through doors whose opening allows the rapid transport of mobile beds and chairs for patients. The visitor’s access is ruled by a programme posted on a visible place, according to current legislation.
The administrative component includes spaces dedicated to current administrative activities:
- one space dedicated to MATUCC coordinator, in communication with;
- one space dedicated to chief nurse, both separated by bed component, but easy to reach;
- space dedicated to MATUCC doctors, also used for research activities (reporting data to the Ministry of Health, Romanian Society of Cardiology, clinical trials etc.);

The technical component includes:
- laboratory facilities for emergency settings;
- stock spaces for devices, instruments and drugs;
- spaces for clean lingerie, as well for collectin dirty objects (clothes, garbage).

**SWOT analysis**

The stark and weak points represent, by definition, what the organization already has, while the opportunities and threats take into account the outer environment influences with extension through the future. The SWOT analysis is synthetised in table 1.

### Table 1 - The SWOT analysis

<table>
<thead>
<tr>
<th>Stark points</th>
<th>Weak points</th>
</tr>
</thead>
<tbody>
<tr>
<td>• performant human resource/working force with very good level of attachment;</td>
<td>• the organizational culture is influenced by the inner part of system;</td>
</tr>
<tr>
<td>• attractive city;</td>
<td>• some employees are exhausted working during free time in private;</td>
</tr>
<tr>
<td>• university platform;</td>
<td>• usual devices, carefully used and kept well;</td>
</tr>
<tr>
<td>• the trend of medical development in the zone;</td>
<td>• Individualism;</td>
</tr>
<tr>
<td>• a story of success in the zone: Dacia Renault;</td>
<td>• intercentric communication.</td>
</tr>
<tr>
<td>• the existence for many years of cardiovascular customers in neighbouring counties;</td>
<td></td>
</tr>
<tr>
<td>• optimizing internal processes by a modern, participative management, with team spirit, practically a self-led team;</td>
<td></td>
</tr>
<tr>
<td>• financing sources: County Council + clinical research.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• the increase of real patient number;</td>
<td>• emergent centers could absorb patients from adjacent counties;</td>
</tr>
<tr>
<td>• the change of behaviour: healthy patients;</td>
<td>• the emigration trend of medical human resources.</td>
</tr>
<tr>
<td>• european funds;</td>
<td></td>
</tr>
<tr>
<td>• the association of cardiovascular patients;</td>
<td></td>
</tr>
<tr>
<td>• the nucleus of cardiovascular prevention;</td>
<td></td>
</tr>
<tr>
<td>• access to new technology: TEE, RMN;</td>
<td></td>
</tr>
<tr>
<td>• possibility to test new tech during hands-on sessions;</td>
<td></td>
</tr>
<tr>
<td>• EU-like legislation – the normative MATUCC opening the market by regionalization;</td>
<td></td>
</tr>
<tr>
<td>• concurrent challenge of other emergent centers integration in national programme RO_STEMI;</td>
<td></td>
</tr>
<tr>
<td>• the new vision of political decisions regarding cardiovascular health;</td>
<td></td>
</tr>
<tr>
<td>• Telecardiology.</td>
<td></td>
</tr>
</tbody>
</table>
As you can see from the table, the „stark points” și „opportunities” quadrants prevail over „weak points” and „threatens”.

**Barriers**
The main limit to make this model work is the scarce developing funds during the crisis. Concerning the human resources we mention the conservative vision of decidents in prior fields as health and educational infrastructure, as well as the resistance to change of medical staff working now in Romanian hospitals.

**Discussion**
The development of coronary care units facilitate continuous monitoring of cardiac rhythm by well trained nurses empowered to initiate immediate therapy of arrhythmias irrespective of medical presence and with availability of specialized equipment (defibrillators, pacemakers) and drugs.

It is important that there is a national experience with USTIC, even though they were developed mainly in old hospitals.

The SWOT analysis displays the prevalence of Stark points and opportunities over weak points and threats. The present project/model can accomplish more, by considering threats as challenges, and valorizing them as opportunities.

The success of this project depends of several factors, and the initiative nucleus, by creativity, enthusiasm and hard work could make this project come true, by converging these factors.

The financial limit is often invoked. A chance for the success of the project is the EU funds.

Probably unique in our country, this project could be a starting point for developing a modern MATUCC network in Romania, with subsequent decrease of cardiovascular mortality decrease in our country.

**Conclusions**

In situația în care morbi-mortalitatea prin boli cardiovasculare din țara noastră este în topul mondial, România secolului al XXI-lea are nevoie de centre de cardiologie la distanțe optime (100-150 km) ce asigură tratamentul de înaltă calitate, în structuri supraspecializate și dotate la înalt nivel.

We sincerely hope that both the improvement of economical conditions and the positive willing of political decidents in health domain will lead to the accomplishment of this type of project, on medium term, in our country, particularly in Arges zone, to the benefit of all stakeholders from health system, having as a central element the critical cardiovascular patient.

**References**

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