Reducing time from discovery to treatment

Critical savings at Mater Dei Hospital

Time is the critical factor for heart attack victims. By focusing closely on the challenges and people involved in the process, the Mater Dei Hospital and Philips have reduced discovery to treatment times for cardiac patients on the island of Malta. The keys to their success are efficient communication strategies and advanced cardiac equipment that includes amongst others the Philips HeartStart MRx ALS monitor/defibrillator and the Philips Allura FD cath labs.

**Defending the sick in Malta**

Malta is famous for the medieval “Knights of Malta” whose mission was to defend the poor and the sick. Today the Mater Dei Hospital, one of the most advanced hospitals of its kind, is equipped with a whole new set of tools to continue its fight against life threatening diseases. It is an acute general hospital located in Birkirkara, Malta that is also used as the main teaching hospital of the University of Malta.

The facility has 825 beds and 25 operating theaters and serves a patient population of 400,000. It offers services in all specialties, including radiology, ophthalmology, otorhinolaryngology, neurology, pathology amongst others. This brand new hospital was opened in 2007 and huge sums were invested on modern technology with ‘state of the art’ equipment to enable it to effectively serve the large patient population.

**Unique challenges**

Malta is the most densely populated country in the European Union and one of the most densely populated countries in the world, with about 1,265 inhabitants per square kilometer (3,000 per square mile). Like many other countries, Malta is facing a tremendous challenge in light of its growing elderly population. To serve more patients, more quickly the Mater Dei Hospital carried out a project that looked for ways to shorten the time from discovery to treatment for heart attack victims. They chose their long-time partner Philips to help them create the most efficient and effective process possible for these patients.

**Who/where**

Mater Dei Hospital
Location: Malta
Type: acute general and teaching hospital
Serves: 400,000 population
Annual cath lab activity: 3,500 per year including 2,000 angiograms, 650 angioplasties, including primaries, 180 pacemaker implants and 40 ICDs and other procedures.
Professor Albert Fenech, interventional cardiologist

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**Challenge**
Reduce discovery to treatment times and improve quality of care for heart attack victims.

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**Solution**
The Mater Dei Hospital set up efficient communication strategies that work seamlessly with the facility’s advanced cardiology equipment, which include the Philips Allura FD10/10 biplane, Philips Allura Xper FD 10 X-ray system, two Philips iE33 echocardiography systems, the Philips HeartStart MRx ALS monitor/defibrillator and the Philips Xcelera image management system.

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**Key equipment**
- Philips Allura FD10/10 biplane
- Philips Allura Xper FD 10 X-ray system
- Two Philips iE33 echocardiography systems
- Philips HeartStart MRx ALS monitor/defibrillator
- Philips Xcelera image management system
Beating the clocks

Fenech looks at the process in terms of two clocks. One clock is the time that it takes for an individual to realize that his pain is bad enough to call for help and get professional help. The second clock starts when the hospital is contacted for an emergency ambulance. Mater Dei Hospital and Philips focused on improving this clock. An ambulance gets there as quickly as possible. The patient is then hooked up to a 12 lead ECG on the Philips MRx ALS monitor/defibrillator. The 12 lead gets transmitted straight away to the hospital where it gets transmitted to the cardiologist on call by whichever means available, fax, phone, etc., and that's when the ball starts rolling.

Fenech says, “This cuts out the middle man of the emergency room and the patient comes straight into the cath lab.” Using the Philips MRx system cuts out part of the time that it takes for people to get assessed in casualty or the emergency room and then brought into the cath lab because they can be brought straight into the cath lab from the ambulance.

Each step can be compacted

When the hospital and Philips looked at developing a more efficient process, they considered the entire chain of events for heart attack victims: the time that the individual takes to call for help, the time for the help to get to him, the time for the patient to be taken to a hospital that does primary angioplasties and the time it takes for the hospital to process the patient and perform a procedure in the cath lab. “All of those can be compacted,” says Professor Albert Fenech, interventional cardiologist.

Shortening that process meant thinking differently according to Fenech. “All of these years we’ve been talking about door-to-balloon time. I think we should concentrate now on pain-to-balloon time because there are various stages in the development of an infarct that can be shortened so that the sooner that the patient comes to a cath lab after his pain starts, the lower the mortality and the lower the morbidity which is almost as important as the mortality here,” says Fenech. “So anything that shortens the time from the moment the patient realizes that his pain is bad enough to call for help that he comes into the cath lab, so much the better.”

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**Efficient triage**

For patients that go to the casualty department at the hospital, they have an efficient triage system. Within five minutes of coming into the hospital the patient is examined. At that time healthcare practitioners assess the patient’s condition and make an ECG, if necessary. If the ECG shows an infarct and the history suggests an infarct confirmed by an ECG, then the cath lab is alerted. Fenech says, “If we are outside the hospital we are there within 15 or 20 minutes max.”

**Advanced cath lab**

Fenech explains that when the hospital chose its cath lab they of course wanted cutting edge technology, a system that would be user-friendly and reliable, and one that would provide the greatest pictures and results in the shortest time possible.

These goals were realized with Philips. The cath labs are equipped with one Philips Allura Xper FD 10/10 biplane system, one Philips iE33 echocardiography systems, one HeartStart MRx ALS monitor/defibrillator with transfer station and Philips Xcelera image management system with eight workstations and a digital archive. The Philips Allura allows rapid high quality imaging to help guide placement of stents during cardiac procedures. The systems intuitive operation means the specialist can focus better on the procedure and the patient.

**Reducing contrast medium**

A Philips’ biplane system was chosen because it offers other advantages for treating patients. Fenech says, “Malta has one of the highest incidences of diabetes in the world so contrast medium is an issue. We try to use as little contrast medium as possible. And the biplane has provided quite a solution for us because we use half as much contrast medium as we would have used in a normal angiogram to get a ventriculogram.” He adds, “And also they are quicker procedures. With the long waiting lists as ours, quick procedures are essential.”

**Within ten minutes we’ve got the engineers on site**

Fenech explains another important factor in choosing Philips. “We are an island, so if anything happens we need to be sure of a backup. An important consideration in choosing Philips is that we have local Philips people here on the island.” That’s an important difference compared to other countries where it may take service engineers one to three days to make a repair. He says, “When a lab goes down, which happens infrequently, we hardly have to take the patient off the table because within ten minutes we’ve got the engineers on site and have it fixed.” Up until a year ago the hospital only had one cath lab so that was a very important consideration. Even now that they have two cath labs, it’s still important that they know they can rely on Philips to get their equipment up and running as fast as possible.

**A question of loyalty**

The Mater Dei Hospital has been able to improve its treatment process for cardiac patients thanks to its longstanding partnership with Philips. Fenech says, “I think once you develop a relationship with any company the question of loyalty comes into it too, because that way you get far better and quicker service. When you are used to a standard of service the last thing you want is to do is have anything that is inferior to that.” This is one relationship that benefits everyone and looks to continue long into the future.