

INTEGRATED HEALTH SOLUTIONS<sup>SM</sup>

# CASE STUDY OPTIMISING CARDIO-THORACIC CENTRE PRODUCTIVITY

A major Dutch hospital could **treat 26 percent more patients** in just three months. This corresponds to an estimated **\$800,000 of incremental value\***, whilst also **shortening access times significantly** — an encouraging start to a project aimed at growing their open-heart surgery business.

\*Excluding material cost

**Medtronic**  
Further, Together

## THE CHALLENGE

Erasmus Medical Centre, the university hospital in Rotterdam, is the largest hospital in the Netherlands and is in fiercely competitive surroundings. Its thoracic surgery centre competes with seven others within an 80km radius — two of those within 40km.

Open-heart surgery is a major revenue driver and despite performing over 1000 open-heart surgeries in 2015, the team knew their market share was relatively low. This was primarily due to long waiting lists, access issues, and missed referral opportunities.

In addition to external competition and internal performance pressure, the centre's surgeons faced challenges typical for their patient cohort; long and highly variable surgeries, many urgent patient cases, and lengthy pre-operative preparation.

In that context, the thoracic surgery centre set goals to:

1. Improve efficiency and utilisation of resources
2. Increase the number of open heart surgeries by 50 percent by end 2017

## THE SOLUTION

Erasmus thoracic surgery centre partnered with Medtronic Integrated Health Solutions (IHS) in October 2015.

The objective was to optimise the surgical planning process, increase capacity and attract more referrals. Working collaboratively with the clinical and management teams, we guided the team through a two-phase process:

### Phase 1: Strategic Assessment

Through interviews with all relevant stakeholders and in-depth data analysis, we identified the bottlenecks that were creating inefficiencies and hindering planning:

- Long waiting list (12-14 weeks vs. 1-2 weeks in best practice centres) affecting patient experience and the hospital's reputation with referrers
- Unreliable planning and frequent last-minute changes in the daily schedule
- Incorrect estimates of surgery duration
- Cancellations due to capacity issues and time-intensive pre-operative preparation

IHS consultants created an action plan to address four areas:

1. Patient preparation
2. Capacity
3. Access and quality of referrals
4. Internal and external communication

### Phase 2: Change Deployment

We created two multi-disciplinary project teams to align on the change requirements and to gain buy-in and adoption of new working routines.

PROJECT GROUP	STEERING GROUP
Cardio-thoracic surgeon (deputy department head)	Cardio-thoracic surgeon (department head)
Cardio-thoracic surgeon (staff member)	Director of Thoracic surgery centre
Cardio-thoracic anesthesiologist	Erasmus MC OR manager
ICU physician	Erasmus MC ICU manager
Director of Thoracic surgery centre	IHS consultant
OR manager	
ICU manager	
High/Medium care manager	
Outpatient clinic manager	
IHS consultant	

**Table 1 - Project and steering groups composition**

All managers within the project group were working solely for the thoracic surgery centre. OR = Operating Room, ICU = Intensive Care Unit.

**1. We optimised patient preparation**

- Supported surgeons in developing guidelines for referring cardiologists to ensure all required patient information and diagnostic tests are completed prior to referral
- Concentrated all pre-operative preparation activities into a single day at the outpatient clinic, under the supervision of a senior surgeon
- Required all pre-operative preparation activities to be completed prior to scheduling surgery

**2. We maximised capacity**

- Earmarked one OR for urgent cases, based on analysis showing a low probability of multiple urgent cases in a single day
- Created two "open-ticket" beds for elective patients who can be sent to surgery when there are no urgent cases

**3. We improved access and quality of referrals**

- Introduced a "surgeon of the day" role and required them to be available to discuss patient cases immediately with referring cardiologists
- Gave the "surgeon of the day" the final decision-making responsibility for OR planning in case of last-minute changes — avoiding time-consuming discussions among various stakeholders

**4. We enhanced internal and external communication**

- Introduced a daily staff meeting to discuss progress of ongoing surgeries and anticipate potential bottlenecks
- Improved communication between the OR, ICU, and High/Medium Care coordinators who oversee capacity
- Raised referrers awareness on the shorter wait times. Surgeons visited all hospitals within the Erasmus MC's catchment area to share information on this significant improvement

To ensure lasting change and a smooth transition to all of these new processes, we involved staff throughout the project, conducting team workshops and individual coaching.

**THE IMPACT**

Erasmus thoracic surgery centre is now **halfway to its +50 percent goal by the end of 2017** and is strongly encouraged by such early positive results. In just three months, they achieved:

- **+26 percent** in total number of surgeries
- **+20 percent** in open-heart surgeries
- **\$800,000 of incremental value\*** - generated by the increased number of surgeries, taking into account the costs of staff and of IHS consultants
- **Reduced access time** from 12–14 weeks to 2–3 weeks
- **Less variability** in the number of surgeries per month, resulting in stabilised production levels and improved use of hospital resources

With members of staff increasing by **only 14 percent**. In addition, they experienced:

- -20 percent in shorter length of stay in the nursing ward
- An improved working environment for staff
- A stronger referral network

**The key success factors were:**

\*Excluding material cost

Quick decision making by all stakeholders

Very strong motivation and change readiness of surgeons

Involvement of the entire thoracic care chain

(OR, ICU, wards, surgeons, anesthesiologists, outpatient clinic)

Seasoned Medtronic IHS consultants with more than 10 years of best-practices experience

Mutual trust in each other's complementary skills

IHS did not interfere with clinical processes (patient group selection or surgery length) but focused on the organisation of these clinical processes (planning of the selected patient groups or support to the surgeons in predicting surgery length)

Access to European benchmarks and best-practices

## THE PLANNING & SCHEDULING CONSULTANT'S TOOLBOX

- **Flexsim software for patient flow simulation**  
Provides a visual representation of patient flows for scenario analysis and enables evaluation of changes in workflow. Useful tool in gaining clinical staff buy-in
- **Access time optimisation tools**  
Consist of framework and several calculation models, based on queueing theory, that allow for optimisation of outpatient clinic planning and procedure access times
- **Disco**  
Offers insight into patient flows, lead times, and contains features to help optimise processes
- **Waiting time optimisation tools**  
Organise patient flows, redistribute and balance tasks among care providers, and minimise patient wait times during hospital visits
- **Semi-elective and urgent patient planning tool**  
Determines how much time a CathLab or OR dedicates to semi-elective and urgent patients
- **Walk-in consultation toolbox**  
Assesses the capacity required to provide walk-in consultations. Creates appointment schedules that combine walk-in consultations and regular appointments
- **Multi-appointment/one-stop-shop toolbox**  
Enables outpatient clinics to perform all diagnostics and consultations on a single day

## FOR FURTHER READING

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## WHAT HOSPITAL STAFF SAY

"I liked the clear analysis of the problem and transparent communication. There was good interaction with people on the 'shop floor' so we could implement change."

"It was good to have independent contributors on the project because they can identify bottlenecks."

"IHS had very strong analytical skills, good representation of results and input."

"Good project management skills and leadership. I like that they can take over work that keeps us from doing our daily jobs and provide us with the tools to resolve issues."

# LET'S TAKE HEALTHCARE FURTHER, TOGETHER

Contact us at [integratedhealthsolutions@medtronic.com](mailto:integratedhealthsolutions@medtronic.com)

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