

4 December 2024

## Monitoring Committee

# Evaluation of the contribution of the React-EU funds in fostering the resilience of the healthcare system in Malta

Presentation of final report, findings and recommendations

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Funded by  
the European Union

**EIMICS**  
ADVISORY

# Introduction

- Purpose of the evaluation:
  - (a) **Accountability:** accountability for the funds spent.
  - (b) **Knowledge generation:** on effects on the ground and learning to improve on similar measures in the future.

# Evaluation Methodology

- The evaluation design reflects the nature of the project, represented by the acquisition of different equipment within specific health services (either at MDH, SVDP or GGH).
- The **nature of these health services varies significantly**, and this is reflected in the differing levels of causal effects that can be realistically considered in a research context.
- This structure effectively results in 26 separate sub-evaluations. In this regard, the following was carried out:
  - (a) Desk based analysis through review of documents, including Grant Agreement, tenders and contracts, and online research pertaining to other similar interventions.
  - (b) A survey to capture information on all 26 equipment items.
  - (c) 10 detailed case-studies, capturing also interviews and site visits.
  - (d) The remaining sub-interventions were covered through the information provided in the survey and desk research.

# Findings: Effectiveness

**EQ1:** To what extent has the equipment enabled / is expected to enable an improved service delivery within the healthcare system?



# Summary | Effectiveness

## 1. Volume for many services

Generally supporting growing demand

### Fixed x-ray rooms



Increase in number of X-ray procedures between 2019-2023/4

### Mobile x-ray

Supported a steady growth of about 2.5% yearly.

### Ophthalmic lasers

28% increase in laser clinic outpatient between 2017-2023  
→ growing usage of advanced ophthalmic treatments.

### Lithotripsy

90% increase in the first half of 2024 compared to the average of 2017-2022.



## SUPPORT SERVICES



Automated sorters

**+14%**  
throughput  
[2019-2024]

Toxicology

**+45%**  
tests  
[2022-2024]

**+40%**  
preparations  
/day



Isolators

# Summary | Effectiveness

## 2. Improved quality of services

- Patients
- Diagnostic equipment
- Health staff

**Main challenge in effectiveness**  
Human resource capacity and skills to deliver the services across several of the services under this study.

### MRI

High quality diagnostics  
Reduced the need for Gozitans to travel to Malta

### Microscope

Improved functionality  
→ better surgical outcomes  
→ improved ergonomics for medical team

### Video endoscopy

Improved imaging and enhanced diagnostic accuracy

### Lithotripsy

Higher success rates; Drastically lowers amount of ionizing radiation for patients.

### Mobile x-ray

Made bed-side imaging better

### Fixed x-ray

Better quality images improving diagnostic accuracy;  
Reduced radiation.

### Ophthalmic Lasers

More effective and require fewer sessions -  
Improving patient outcomes and satisfaction

### Motorised beds

Improved patient and staff comfort,  
reducing physical strain.



# Findings: Efficiency

**EQ2: To what extent was the project instrumental in improving the efficiency and resilience of the healthcare system in Malta?**

# Summary | Efficiency

## 1. Time Efficiency in some cases

Some examples

### Fixed x-ray rooms

**-17.5%**

Time per procedure from improved ergonomics

### Mobile x-ray

Allows for immediate image acquisition and processing.

### RRVs

112 response time reduced by up to **28%**

### Lithotripsy

 processing time from 3 months to 6 weeks

## SUPPORT SERVICES

### Automated sorters

Reduced sorting time from 1/1.5 minutes to a few seconds

### Toxicology

Faster testing;  
Reducing turnaround time  
Concurrent tests

### Electric Vehicles

Enabled nurses / midwives to drive themselves - more efficient



# Summary | Efficiency

## 2. Cost Efficiency in various ways

Mostly qualitative assessment

**Opportunities for more services**  
Lithotripsy  
Surgical Microscope

**3. Price reasonableness**

Prices were generally considered to be reasonable

**Fixed x-ray machine**

Reduced sickness-related absences among radiographers due to improved ergonomics and reduced noise pollution

**Microscope**

No longer necessary to send patients abroad

**Outreach services**

No reliance on drivers of other services; Earlier discharge → reduced bed occupancy

**Automated sorters**

Possibility to address non-conformities, potentially reducing costs associated with delayed diagnostics or treatment

**Mobile x-ray machines**

Decreased unit costs as they enable imaging more patients at any given time

**Low floor beds**

Reducing the need for surveillance frees up time for staff to focus on other needs

**Lithotripsy machine**

Reduced anaesthesia, freeing up anaesthetists; reducing manpower requirements

# Findings: Resilience and Sustainability

**EQ3: What is the impact / foreseen impact of the project on the resilience and sustainability of the healthcare sector in Malta in the long-term?**

# Summary | Resilience

## Resilience

Good understanding of the importance of redundancy and contingency planning  
Less awareness of the role of diversity, connectivity and learning

### 01. Redundancy / back-ups (e.g.)

- 5 Fixed x-ray rooms and portable x-ray machines
- Automated sorters
- Toxicology
- Isolators
- Ophthalmic lasers

### 04. Supply Chain

- Lack of diversity of suppliers for specialised equipment in the local market.
- Resilience in supply chain is evident in some cases.



### 02. Interoperability & Connectivity

- No changes were observed in the collaboration between the different departments.  
**Two positive exceptions**
- Outreach: positive connectivity with the social system.
  - Automated sorters: time to identify systemic errors & their causes and fix them.

### 03. Upgradability & Adaptability

- Positive e.g.** mainly in software or some components:
- Fixed x-ray machines
  - Lithotripsy
  - MRI
  - Operating Theatre lights
- Not possible e.g.**
- Mobile x-ray machines
  - Negative pressure isolators
  - Ophthalmic lasers

# Summary | Sustainability

## 01. Service Continuity

Continuous services based on:  
→ common reliance on extensive warranties and service agreements with prompt response requirements.  
→ enabling quick repairs and reliable access to spare parts.  
→ in some cases, replacements are provided.  
This situation applies in most cases.

## 01. Service Continuity

## 02. Durability

## 03. Operational Costs

## 02. Durability

The average life-time of health equipment under review is 8.5 years.

## 03. Operational Costs

The understanding is that once the investment need is identified and approved, operational costs to run the service are then considered in the budget of MDH.



# Findings: Horizontal Principles

**EQ4: How were the horizontal principles upheld?**

# Summary | Horizontal Principles

## SUSTAINABLE DEVELOPMENT

### Energy Efficiency

- ↓ Consumption
- X-ray machines
  - Ophthalmic lasers
  - Operating theatre lights



### Energy Demand

- ↑ Consumption
- MRI
  - Motorised beds

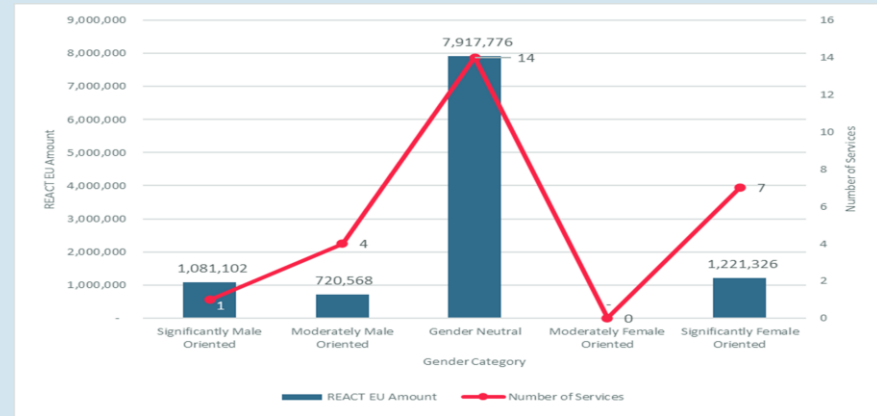
### Carbon Footprint

- ↑
- MRI
- ↓
- Electric vehicles
  - Rapid responses vehicles (hybrid)



## GENDER EQUALITY

Orientation of Investment towards gender prevalence



Some differences:

- MRI average time for F is slightly longer
- Outreach: Urology used more by M; and Orthopaedics more by F
- Lithotripsy: kidney stones more prevalent amongst M
- Motorised beds: more F in care facilities

## EQUAL OPPORTUNITIES + NON-DISCRIMINATION

Health services are provided with the same due care irrespective of nationality, age, disability or races: some observations

### Microscope

Determining factor - tissue availability for reconstruction

### MRI 3T

Cannot be used by people with pacemakers / valves

### Lithotripsy

Option to use anaesthesia is there for those who need it

### Outreach

Some mothers opt out from using such services including due to cultural considerations

### X-rays

Adjusted procedures for children + very old patients

## PARTNERSHIP

### Consultation Process:

- Programme amendments were adopted via the MC process

### Implementation Update:

- Provided through MC

### Conclusion:

- The procedure adopted is **reasonable** considering that MS were required to respond fast to address arising challenges resulting from the Covid-19 pandemic, as is normal in crisis situations, and in relation to the technical requirements that were addressed.

# MAIN CONCLUSIONS

## Main limitations

- High heterogeneity of the interventions limited the aggregation of data.
- Most cases had to rely on qualitative accounts, therefore limitation to triangulate.
- Quality of data varies between departments, and mostly is output based rather than outcome based.

## 01. Effectiveness

- Substantial increases in volume of services
- Quality improvements evident
- New services introduced
- Isolators
- Ophthalmic lasers

### MAIN CHALLENGE:

- Human resource capacity and skills

## 04. Horizontal Principles

- All horizontal principles were largely upheld across the different interventions.

## 01. Effectiveness

## 02. Efficiency

## 03. Resilience and sustainability

## 04. Horizontal principles

## 02. Efficiency

- Significant improvements in time efficiency.
- Significant improvements in cost efficiency.
- Prices were considered reasonable.

## 03. Resilience + sustainability

- Backups and contingency plans are in place.
- Upgrades possible for some equipment.
- Connectivity: Outreach + Sorters.
- Service continuity: maintenance + service agreement.

### MAIN CHALLENGE:

- Adequate backup staff.

# Recommendations



# Recommendations

Recommendation	Description
<b>Ability to provide backup staff</b>	<ul style="list-style-type: none"><li>• An almost universal resilience bottleneck identified as part of the research is the ability to provide staff backup.</li></ul>
<b>Opportunity to maximise the use of the investment</b>	<ul style="list-style-type: none"><li>• The equipment is essential to be available within the NHS, and meeting current demands. Examples include the Ophthalmic Lasers (CS#15) and the Surgical Microscope (CS#24).</li><li>• Whilst this means that there is a degree of resilience to handle shocks, a consideration to increase utilisation could be considered, for example by using the microscope more for neurosurgery (where there is more demand and if considered feasible).</li></ul>
<b>Optimise energy efficiency and considerations for renewable energy sources</b>	<ul style="list-style-type: none"><li>• Consideration of options for maximising energy efficiency, where relevant, without impinging on the quality of the health care service.</li><li>• A consideration should be given to invest in renewable energy solutions, to offset (part thereof) the increase in energy demands resulting from healthcare equipment (which remains critical).</li></ul>
<b>Considering feasibility of maintaining data at beneficiary level based on set parameters tied to health outcomes</b>	<ul style="list-style-type: none"><li>• Data that is output based, and outcome based are considered important reflection opportunities to monitor effectiveness of such investments where feasible.</li></ul>

# EMCS Advisory

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# Main Outcomes: Cost efficiency

The interventions also led to cost savings in various ways. Some examples:

- **X-ray machines** reduced maintenance costs and sickness-related absences among radiographers due to improved ergonomics and reduced noise pollution.
- **Microscope:** no longer necessary to send patients abroad for surgery.
- **Outreach services:** saved costs by reducing the need for drivers, with estimated savings of up to €105,474.60 per annum. Additionally, the reduction in hospital bed occupancy due to earlier discharges in midwifery and orthopaedic outreach services led to significant cost savings. For example, the average length of stay for normal deliveries was reduced by 0.45 days, resulting in an estimated annual saving of €1.55 million.
- **Automated sorters** which allowed pathology staff to focus on addressing non-conformities, potentially reducing costs associated with delayed diagnostics or treatment.
- **Mobile direct digital X-ray machines and digital wireless detectors,** decreased unit costs were noted as they enable imaging more patients at any given time.
- **Low floor beds** has led to lower surveillance costs by reducing the risk of falls, which in turn decreases the need for patient surveillance.
- **Lithotripsy machine** as a result of the reduced the need for anaesthesia, freeing up anaesthetists for other procedures and reducing manpower requirements