58. A NEW ORGANISATIONAL MODEL TO OPTIMISE HOSPITAL RESOURCES

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BACKGROUND:

From 2014 to 2016, the Humanitas Research Hospital in Milan, Italy had a strong increase in complex patients treated (e.g. +46% with red code in Emergency Room, +49% elective craniotomy). The General Intensive Care Unit (ICU) became the main bottleneck, and there was an increase in the postponement of surgeries and fewer beds were available for emergencies.

Humanitas Research Hospital in Milan. © Humanitas Research Hospital

OBJECTIVES:

- Reduce to zero the postponement of scheduled elective patients with intensive care needs
- Ensure access to patients coming from the Emergency Room and wards
- Implement a weekly planning for elective surgeries that need ICU

METHODS:

The project was implemented in three steps:

1. Assess surgeries that regularly use the ICU (e.g. craniotomy)
2. Define a simple clinical score to identify patients needing Postoperative Intensive Surveillance (PoIS): we retrospectively investigated patients undergoing elective surgery, searching for Determining Factors (DFs) for postoperative ICU admission. Later, we prospectively studied how DFs could predict admission to the ICU of consecutive patients scheduled for elective surgery. We created a PoIS index based on the results of this analysis. Multivariate analysis showed these DFs:
   a. Surgical invasiveness
   b. Diabetes mellitus
   c. Cardiomyopathy
   d. Cerebrovascular disease
   e. Male sex
3. Set a target of four elective patients per day with high risk of ICU (based on points 1 and 2 above) and plan the OR on this basis.

RESULTS:

What has been achieved?

- ✓ Increase in the number of patient admitted and treated in the ICU (+5%) with same asset
- ✓ Lower standard deviation in weekly admissions (3.5 in 2015 vs 2.6 in 2016), thanks to strict planning
- ✓ Large decrease in postponement of surgeries (12 patients in 2015 vs 2 in 2016)
- ✓ More access available for patients coming from Emergency Room and wards, increasing days with at least one bed free (+30%, an increase of 58 days of bed availability in five months)
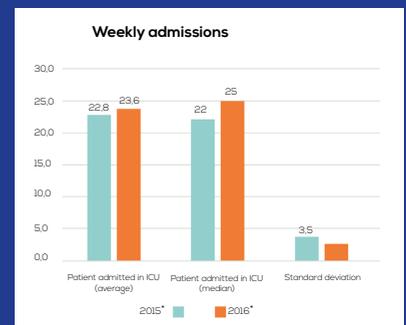
Weekly admissions

Graph showing increase in weekly admissions 2015–2016.
Source: Humanitas Research Hospital

TAKE-AWAYS:

What worked well?

- ✓ Our results show the power of PoIS to predict postoperative morbidity (better than ASA score) – we are continuously monitoring the score to optimise ICU admission management and our results may be promising
- ✓ Using a multidisciplinary approach with Anesthesia and the Intensive Care department, General Surgery department, NeuroSurgery department and Emergency department, together with the Operations and Medical Directorate
- ✓ Adopting this method for our standard planning
- ✓ Changing the surgical planning methods of surgeons to reach a common goal

	08/03/2016			09/03/2016		
	name	UO	surgery	name	UO	surgery
nr 1	xxxxxxx	epatectomy	CHG	xxxxxxx	esophagectory	CHG
nr 2	xxxxxxx	craniotomy	CHN	xxxxxxx	craniotomy	CHN
nr 3	xxxxxxx	TURBT	URO	xxxxxxx	colorectal	CHG
nr 4	xxxxxxx	craniotomy		xxxxxxx	lobectomy LUL	CHT
nr 5	xxxxxxx					

A sample of the weekly planning of elective surgeries in the ICU.
Source: Humanitas Research Hospital