

# "The COVID-19 Tracheo Unit"

## Interdisciplinary problem solving in the Emergency:

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### Introduction

During the Covid19 pandemic, the critical issue for health systems was the exhaustion of beds in ICUs. Ente Ospedaliero Cantonale (EOC) concentrated all its intensive care resources dedicated to COVID at the Ospedale Di Locarno (ODL), fully converted to a COVID hospital. To optimize the patient flow, one of the strategies was creating a "Tracheo Unit" to serve as relief for Intensive Care Unit (ICU), where was possible to transfer early tracheotomized patients to free ICU beds. A regular department was re-adapted in a full-fledged ICU ward. Since specialized ICU nurses were missing, we teamed a new interprofessional group up: the intake was strongly marked by the collaboration that characterized the entire therapeutic path of patients, and it allowed the growth of professionals who trained by working on the field.

### Internal organization

The department was set up to manage a maximum of 15 beds. It has h24 monitoring and video surveillance, in order to take full care of the patient as in the Intensive Care Unit.

The care team was composed of:

- 1 Pneumologist and two assistants
- 3 to 5 Nurses depending on the degree of bed occupancy
- 2 Physiotherapists
- 1 Occupational therapist
- 1 Speech therapist

The macro-objectives were:

- Ensure the continuation of care
- Weaning from ventilation
- Start a rehabilitation process
- Recovery of oral nutrition

Ventilatory support could be provided to patients 24/7. The ventilators available to the care team include Resmed Stellar, Resmed S9, Resmed Astral interspersed according to the clinical condition of the patients.

### Protocols

Thanks to a strong spirit of interdisciplinary collaboration, ad HOC protocols were created and shared, allowing effective and straightforward management of the various situations. The main ones include:

TLI (Tracheo Level Index)

Tracheotomy Weaning Progression Protocol

|                           | Tracheal cannula configuration                              | When                                   |
|---------------------------|---|--|
| <b>Level 1 (baseline)</b> | Closed inner cannula, inflated cuff                         | Always                                 |
| <b>Level 2</b>            | Closed inner cannula, deflated cuff                         | If patient is awake, sitting or in bed |
| <b>Level 3</b>            | Fenestrated inner cannula, deflated cuff                    | If patient is awake, sitting or in bed |
| <b>Level 4</b>            | Fenestrated inner cannula, deflated cuff and speaking valve | If patient is awake, sitting or in bed |

TSI (Tracheo Score Index)

Protocol for identifying the ideal time to remove the tracheotomy

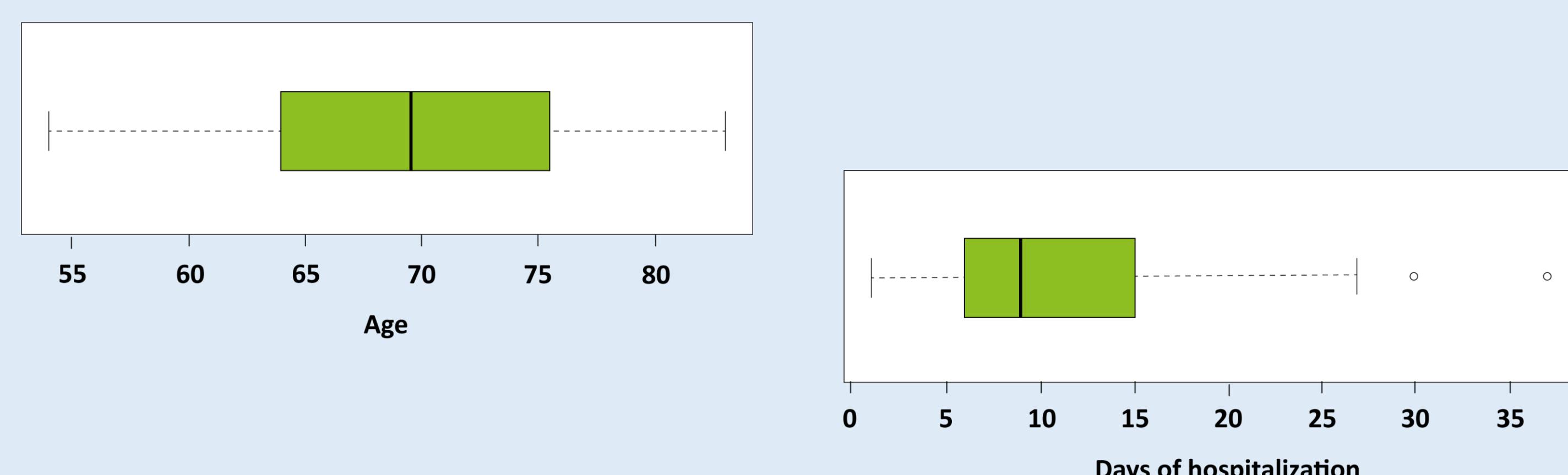
|                |   |
|----------------|---|
| <b>1 point</b> | Patient oriented  |
| <b>1 point</b> | Patient can stay 24h with the artificial nose without ventilation   |
| <b>1 point</b> | Good cough reflex, patient can stay with deflated cuff and speaking valve or artificial nose without any aspiration |
| <b>1 point</b> | Patient does not need deep tracheal aspirations   |

They had already been developed during the first wave, at a time when evidence was still lacking, and proved to be safe, reliable and pragmatic

### Results

The department was active for 85 days. During this time it received 48 patients, of whom 13 were women (27.1%) and 35 men (72.9%).

The average age of the patients was 69.5 years and their stay averaged about 11 days.



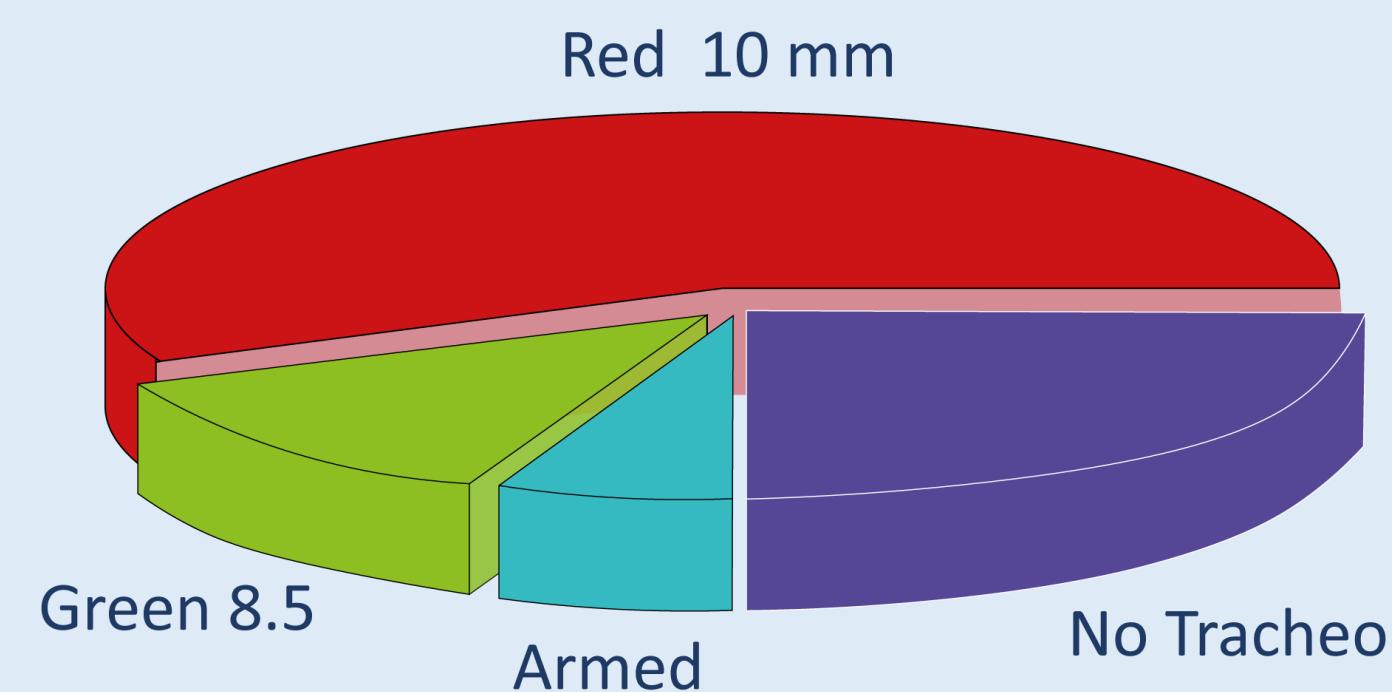
We did not find a strong correlation between the age of the patients and the days spent on the ward the Pearson's product-moment correlation found was 0.36

One death was registered during this period.

#### Tracheotomy

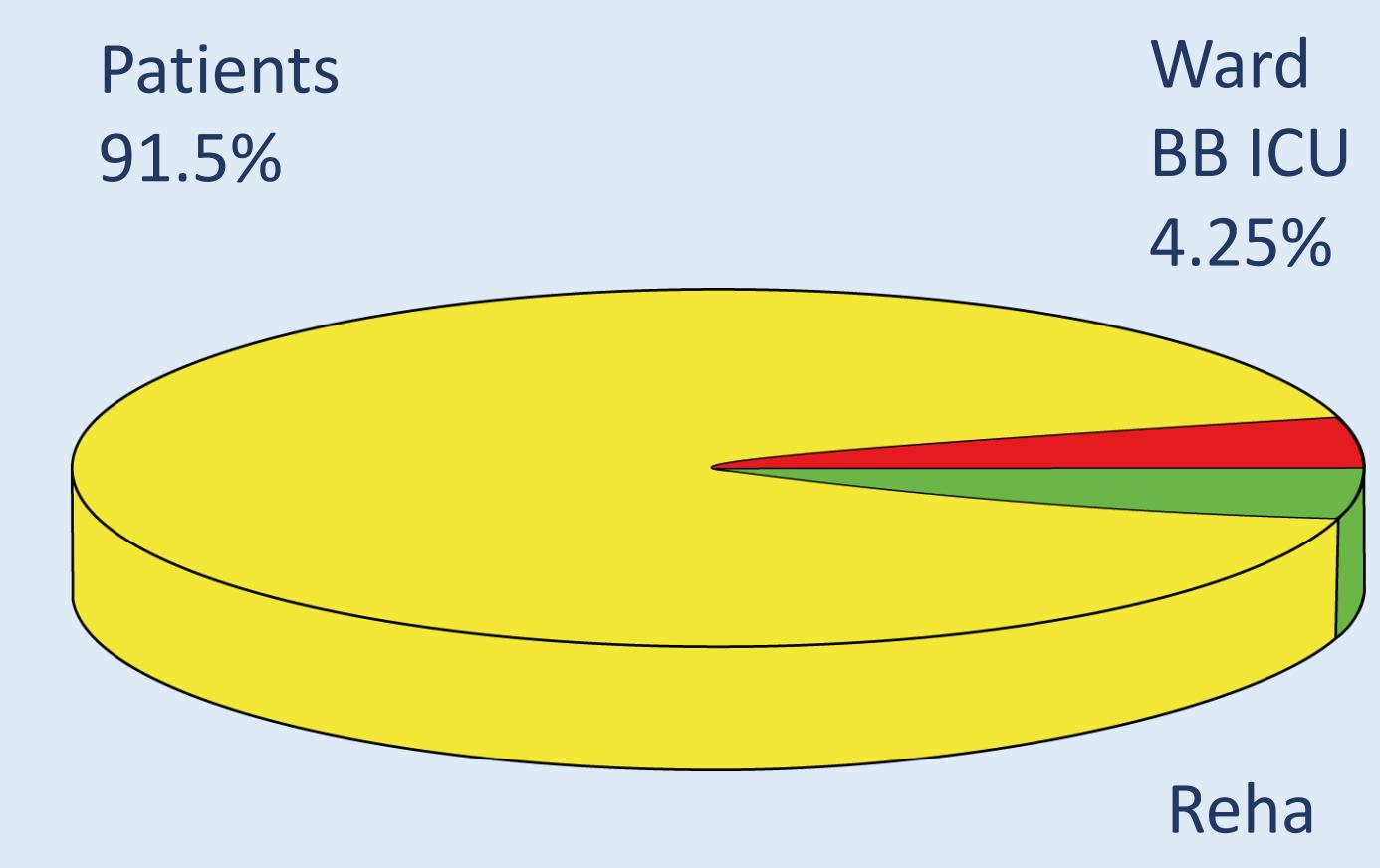
36 patients (75%) had a tracheotomy. These were placed by the pneumologist in the ICU. Of these 27 were of the "Red" type (75%) 10mm calibre, 6 of the green type 8.5 mm calibre (16.6%) and in 3 cases (8.4%) special "Armed" cannula were used.

#### Types of tracheal cannulae



#### Discharge

As soon as possible to maintain an ideal flow, patients were discharged for continued treatment and rehabilitation. 43 patients (91.5%) were transferred to specialized rehabilitation centers, 2 (4.25%) were transferred to communal wards within the hospital, again in 2 (4.25%) cases we witnessed a Bounce Back in the ICU.



### Conclusion

The simple fact that 48 patients were housed for an average of 10 days, i.e. a total of 480 bed-days, shows that the solution of opening a Tracheo ward as an outlet valve during the pandemic period proved to be a valid and effective one.

A total of 480 days/bed were spent in the department, a volume that certainly achieved the goal of relieving the ICUs. With only one death and two Bounceback in the ICU, we can say that safety of care was guaranteed. If necessary, an interprofessional approach seems to be effective in compensating for critical situations.

### References

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