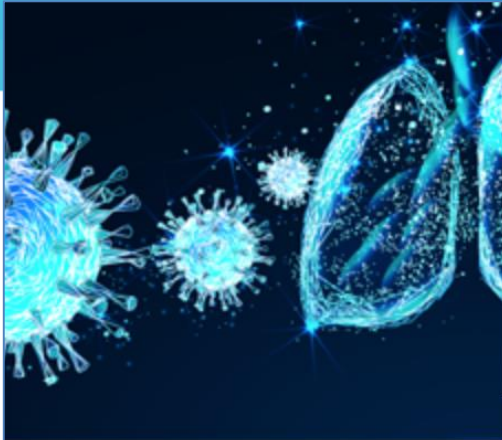


Lessons learned from the use of ventilators in clinical/healthcare (ICU) settings for COVID-19 patients

Prof. Jozef Kesecioglu, President of the European Society of Intensive Care Medicine (ESICM)

&

Prof. Maurizio Cecconi, President-Elect of the European Society of Intensive Care Medicine (ESICM)



The Intensive Connection

Preparing for COVID-19 Shared experience & guidance from our colleagues in Northern Italy

Message from the ESICM President – 5 March 2020

Dear Colleagues

Everyone is closely watching and monitoring the COVID-19 outbreak. This global emergency is presenting major challenges for our profession as we attempt to anticipate, tackle and eventually get ahead of it.

As there are many new experiences with this type of virus, we need to learn from those with more experience. Information is vital. As you will have seen, Northern Italy is in the middle of a crisis and Lombardy in particular has been severely affected. Our colleagues coordinating the emergency ICU response in Northern Italy have sent me the following message which they wish to convey to all our members.

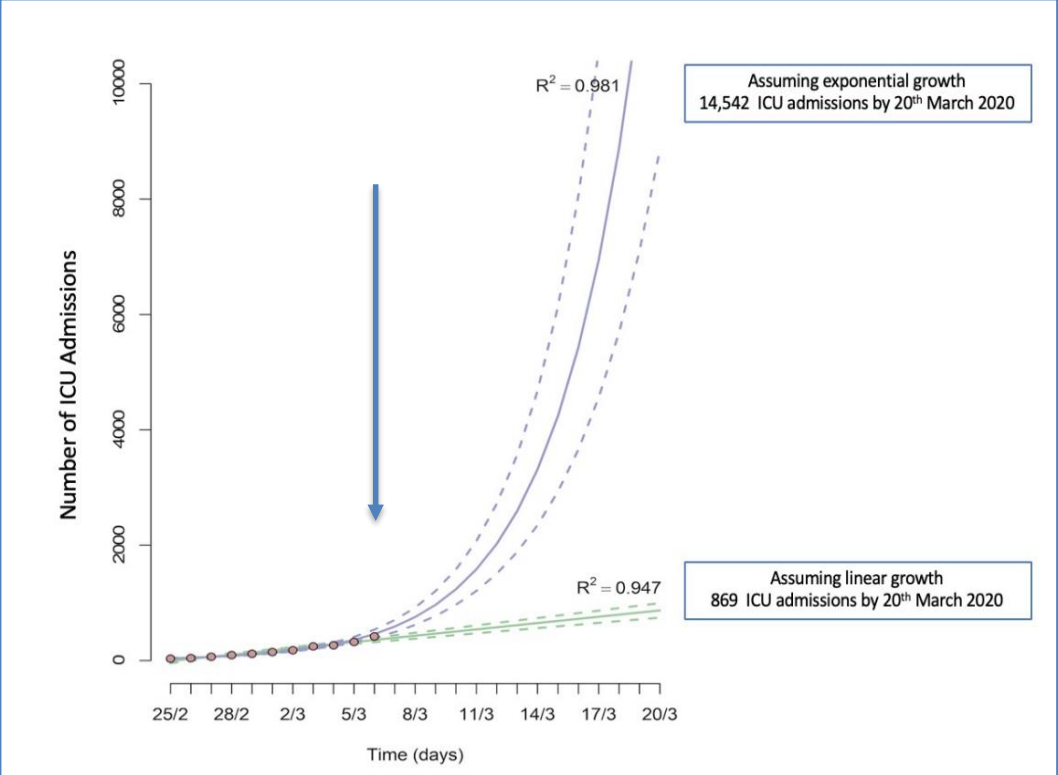
I salute all the work our colleagues are doing, globally, faced with this situation. ESICM will endeavor to do its part to share accurate information and resources.

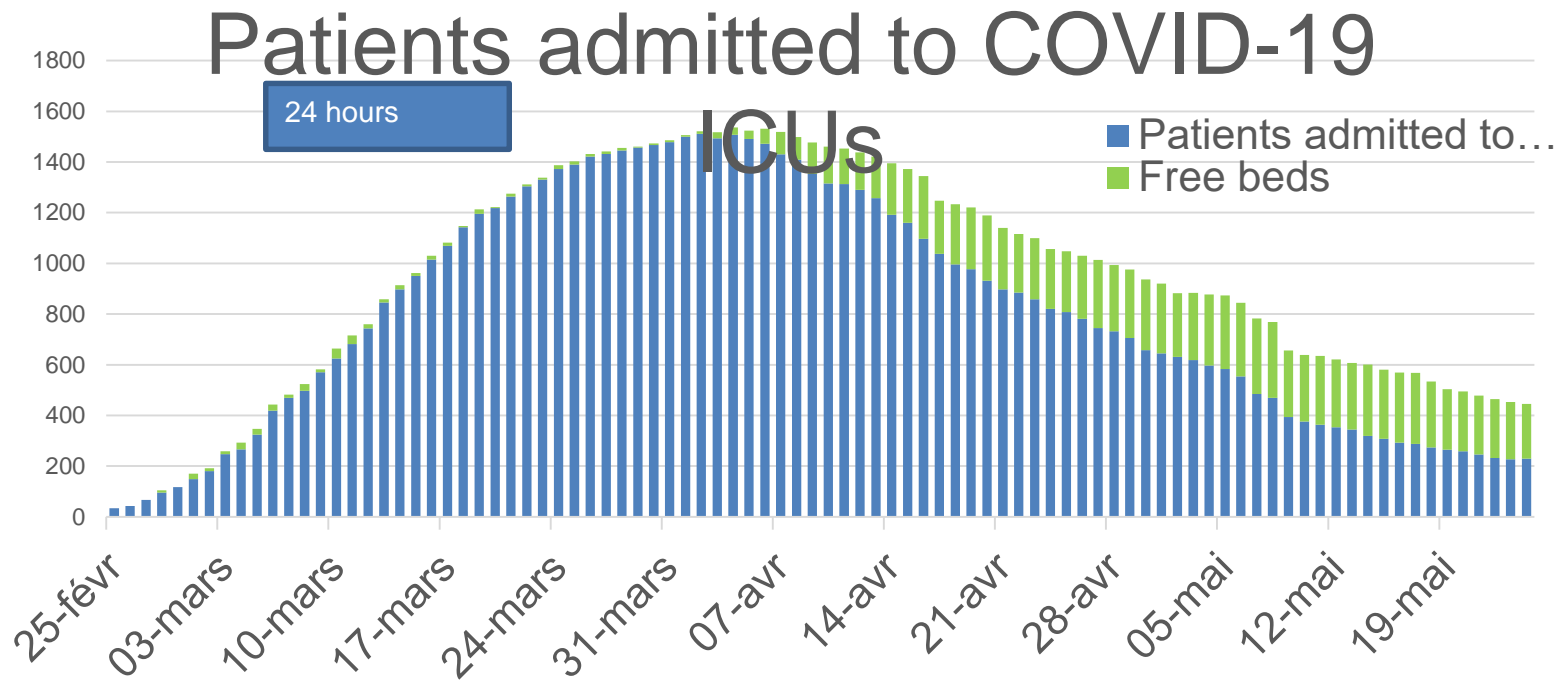
Wishing you all the strength needed in the coming months,

Lessons learned and recommendations with regard to COVID-19 pandemic

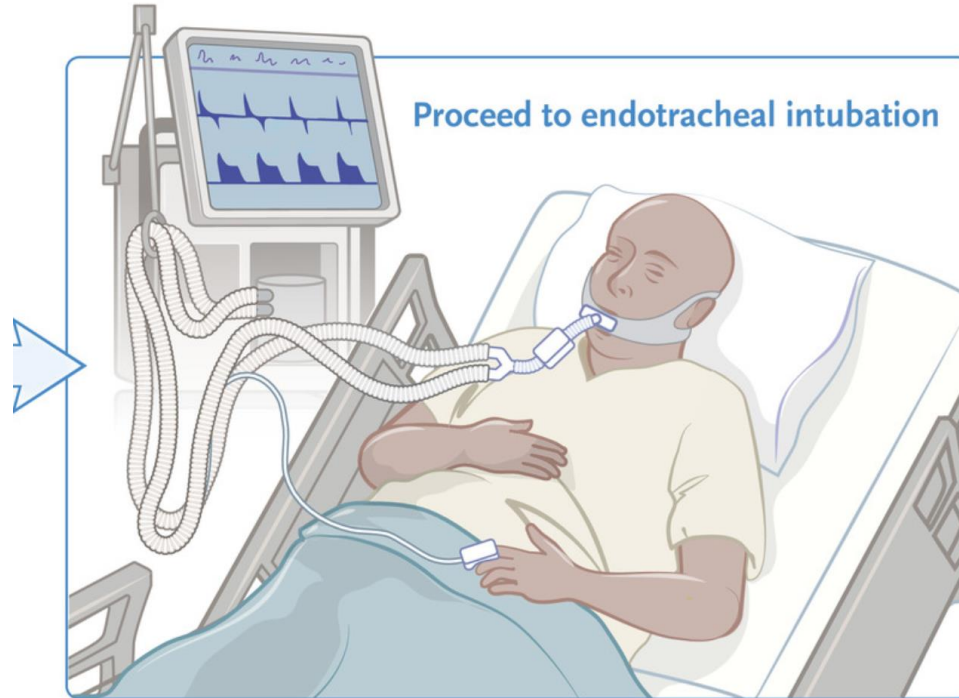
- Increase your surge ICU and hospital capacity
- Containment is key in hospitals but also and mainly in the community
- Don't work in "silos": work as a team
- Train, simulate, learn, share
- Protect your patients
- Protect your healthcare workers

Evolution of ICU Admissions





Imminent Mandatory Ventilation (IMV)

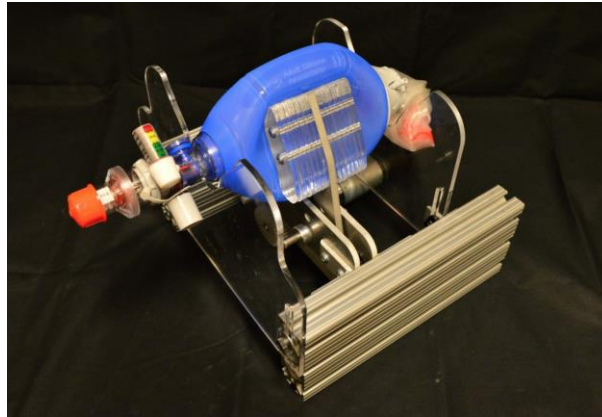


Alternatives to ICU Ventilators?

Off-label use of
Anesthesia devices



Open Source “DIY” Ventilators



MIT Ventilator Project

“Poor” quality
Non-CE Products



Precision Medicine: Protective Ventilation in ARDS

B Principles of Ventilator Management in ARDS Due to Covid-19

Measure height and calculate predicted body weight



Female predicted body weight (kg)

$$45.5 + (0.91)(\text{height in cm} - 152.4)$$



Male predicted body weight (kg)

$$50 + (0.91)(\text{height in cm} - 152.4)$$

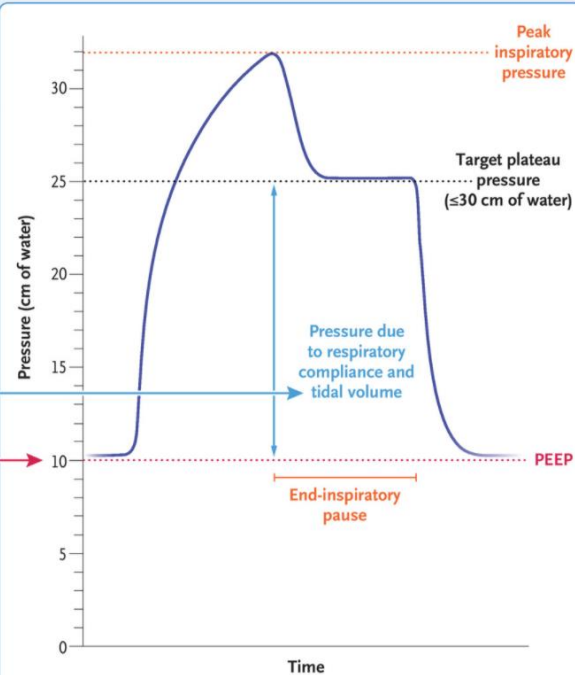
Target tidal volume, 6–8 ml/kg of predicted body weight

Set PEEP to prevent lung derecruitment

Monitor hemodynamics, respiratory compliance, and gas exchange at each PEEP setting

If plateau pressure >30 cm of water, consider:

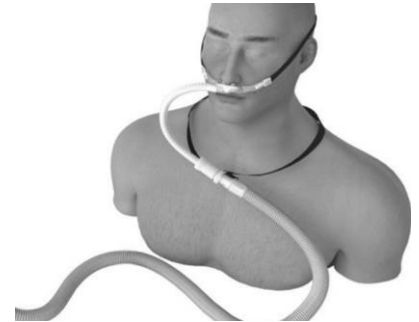
- Reducing tidal volume (minimum, 4 ml/kg of predicted body weight)
- Reducing PEEP
- Allowing higher plateau pressures in patients with obesity or reduced chest-wall compliance



Non-Invasive Respiratory Support, CPAP/NIV

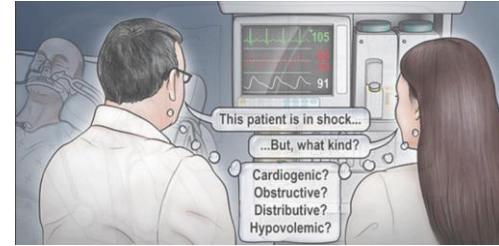
- For patients with a particular condition/ the “right patient”, doesn't replace IMV
- DIY solutions more feasible even if not optimal
- Plan adequate supply of machines and disposables

Disposables for patient machine interface



Intensive Care Medicine: not just a ventilator

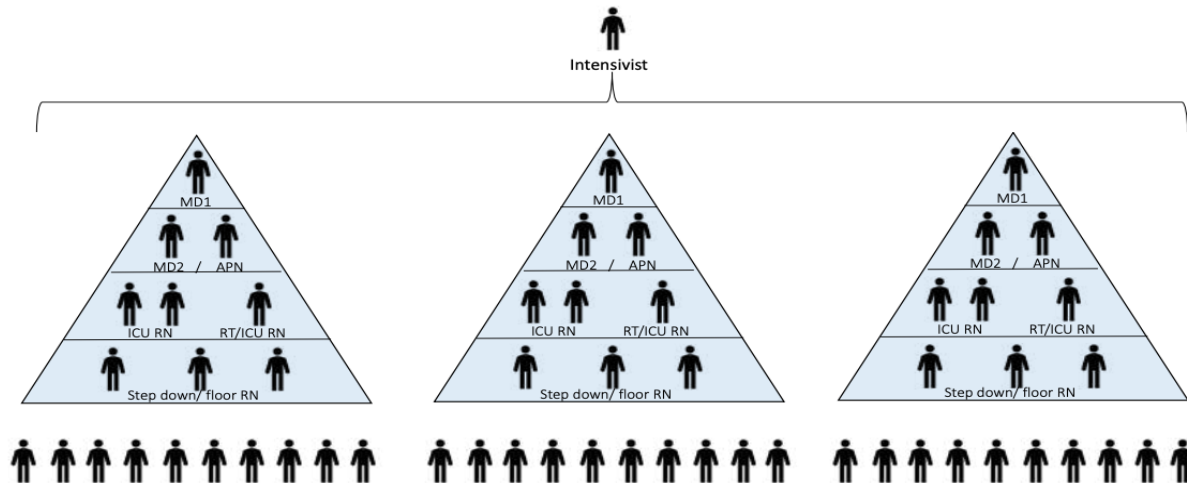
- **Human factor: Competent healthcare workers**
- Multidisciplinary teamwork
- Technology: not only ventilators:
 - Pumps
 - Monitors
 - ECMO
 - Renal Replacement therapy
 - etc.



Managing ICU surge during the COVID-19 crisis: Rapid Guidelines

Shadman Aziz¹, Yaseen M. Arabi², Waleed Alhazzani³, Laura Evans⁴, Giuseppe Citerio⁵, Katherine Fischkoff⁶, Jorge Salluh⁷, Geert Meyfroidt⁸, Fayez Alshamsi⁹, Simon Oczkowski³, Elie Azoulay¹⁰, Amy Price¹¹, Lisa Burry¹², Amy Dzierba¹³, Andrew Benintende⁶, Jill Morgan¹⁴, Giacomo Grasselli¹⁵, Andrew Rhodes¹⁶, Morten Hylander Møller¹⁷, Larry Chu¹¹, Shelly Schwedhelm¹⁸, John J. Lowe¹⁹, Du Bin²⁰, Michael D. Christian¹

ICM 2020



Number of ICU beds

- Immediate measures such as use of recovery beds, Operating Rooms (ORs) and medium care facilities
- Building ICU bed facilities outside the hospital
- What to do at national and EU level
- Sleeping ICUs

Healthcare professionals

- Nursing personnel
 - Supervising role
 - More patients per nurse
- Intensivists
- Moving Competencies: “Healthcare Army”
- What to do at national and EU level
 - Need to have a pandemics plan/blueprint ready

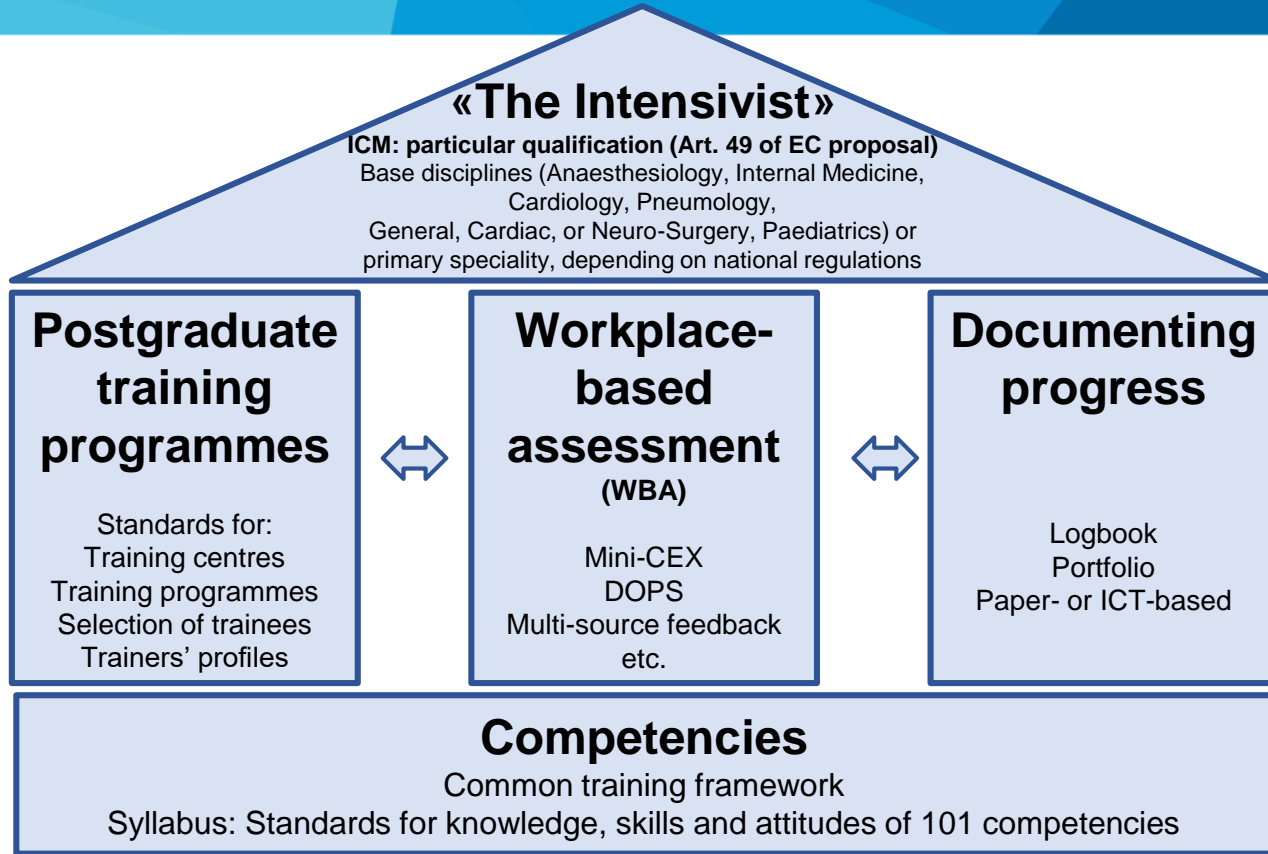
Harmonisation of Training and Free Movement of Specialists in Intensive Care Medicine

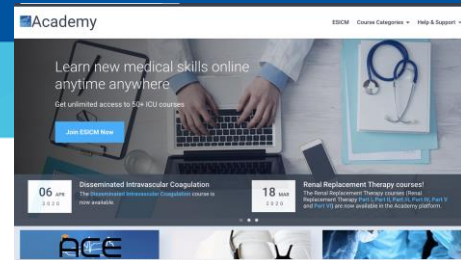
- The need for Intensive Care Medicine (ICM) will grow over the next years
- We must do this to be better prepared for this need (not only for COVID-19 second wave but also future pandemics)
- We need a European Strategy for Intensive Care Medicine

Harmonisation of Training and Free Movement of Specialists in Intensive Care Medicine

- Different pathways in Europe to become an Intensivist: need for harmonisation
- Need for mutual recognition, harmonisation of training and opening of the free movement of specialists in Intensive Care Medicine
- We do not ask for a Primary Specialty, we ask for a speciality
- ICM to be included in Annex V of the European Directive 2005/36/EC to solve this problem

Postgraduate training in ICM





ESICM Academy

«The Intensivist»

ICM: particular qualification (Art. 49 of EC proposal)
 Base disciplines (Anaesthesiology, Internal Medicine, Cardiology, Pneumology, General, Cardiac, or Neuro-Surgery, Paediatrics) or primary speciality, depending on national regulations

Postgraduate training programmes

- Standards for:
- Training centres
 - Training programmes
 - Selection of trainees
 - Trainers' profiles

Resources

e-learning
 online lectures
 references

- Specific courses:
- Basic: BASIC/fccs
 - Advanced: Ventilation, RRT, hemodyn. monitoring, etc.

Competent Trainers

Develop
 Teaching skills

Master workplace-based assessment (Mini-CEX, DOPS, etc.)

Documenting progress

Logbook
 Portfolio
 Paper- or ICT-based

Particular qualification in Intensive Care Medicine

PG training in ICM as Common Training Framework (CTF), based on [CoBaTrICE](#) Concept
 102 Competencies → Syllabus, including standards for knowledge, skills and attitudes



The Intensive Connection

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INTENSIVISTS CARE FOR LIVES!

