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LETTER

Learning from mistakes during the pandemic: the Lombardy lesson

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Dear Editor,

Pandemic SARS-CoV-2 is slowly declining after causing thousands of deaths in the World and in Italy, with an ICU mortality close to 50% [1]. In a matter of days, Italy ICU capacity (~5000 beds) almost doubled. Now that hospitals are slowly returning to normality, as intensivists we should draw some lessons. Epidemics are recurring with remarkable regularity (SARS 2003, H1N1 2009, MERS 2012, SARS-CoV-2 2019): we must be ready to address the next outbreaks effectively and timely.

In Lombardy, surgical theatres and regular wards were converted to ICUs and intermediate units. The shortage of specialized personnel was addressed creating a mixed staff, with experienced ICU doctors and nurses working alongside younger residents and doctors from different specialties. Field hospitals were built in the close neighbourhood of the main city hospitals (Bergamo, Cremona, Milano, San Raffaele). In addition, a stand-alone 600 beds ICU (21 M€) was built in Milan Fair Area: a total of 25 patients were admitted. Similarly, the NHS built 500 beds in the ExCel Convention Center in London (cost undeclared) in which 41 patients were admitted. In New York City, two temporarily hospitals were built on Long Island (250 M$) with no patients admitted. All these structures, as similar others in Barcelona and Madrid, are now ready to be dismantled.

In Lombardy, the mortality rate was fourfold higher than in the neighbouring Veneto region [2], despite the similar timing of outbreak. Several reasons may account for this phenomenon. We believe, however, that a more effective territorial medical organization may have mitigated SARS-CoV-2 impact. This could have been a primary reason explaining low mortality rates of COVID-19 in Germany.

In such a pandemic, the key role of intensive care is to provide support, "buying time" for patients to heal spontaneously. This is especially important when a specific, effective drug does not exist—as currently the case with COVID-19. It is possible that a fraction of the ICU mortality during epidemics is due to the overwhelming number of patients. Indeed, the sudden increase in ICU beds deployment with consequent "dilution" of trained personnel implies a decrease in intensity/adequacy of care, regardless the huge personal effort of single individuals.

Before the pandemic, Italy provided 8.8 per 100,000 population, a data in line with that of most other European countries [3]. A pressing shortage of ICU beds has merited front page news once before in Italy's recent history: 2009 H1N1 pandemic was a major stress test for Italian healthcare system. Lesson learned? Not quite but the creation of ECMOnet [4].

Is it a solution to increase ICU beds and if so, by how much? Italian government is now committing to create 3500 ICU beds (+70%). International standards would require training and hiring 12,250 nurses and 3200 doctors. Achieving these numbers in a short time span is unrealistic. Even a 15–30% increase, likely adequate if implemented together with a deep reorganization (Table 1), would require years to be completed.

A critical analysis of what worked and what didn't should be a fundamental growth moment for doctors and society in general, improving our capacity to face emergencies. As Cicero said "Cuiusvis hominis est errare, nullius nisi insipientis in errore perseverare": any man can make a mistake, only a fool keeps making the same one.

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Table 1 Steps to prepare healthcare systems for next pandemic

Stand-alone ICU Emergency Hospitals	To deal with an overwhelming influx of patients, adapting areas in the hospital buildings or positioning field hospitals near close and connected to central hospitals have shown to work, whereas stand-alone intensive care facilities or hospitals proved to be costly and useless
Personal Protective Equipment Availability	It is not acceptable that the Personal Protective Equipment are not available to the general population. The World Health Organization and intensive care community have warned several times before about the possibilities of a pandemic. However, most countries, including Italy, were unprepared. It is our responsibility to press in this direction
Territorial Medicine	To control an epidemic, a strong public healthcare territory medicine service must be in place, and prevention of the contagion must be implemented through appropriate identification and isolation of infected subjects
ICU Beds Availability	Intensive care is the last link on a long chain; to provide the best care it must maintain its characteristics and standards. In a harmonized framework, a 15–30% increase in beds, staffed with adequate personnel is likely to suffice, even in a severe pandemic

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Compliance with ethical standards

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