Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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important aspects of the trial. In designing cardiac arrest clinical trials, researchers should carefully consider strategies for communicating with the media and public.

P090
Impact of a low-cost minimalist reanimation manikin on mass education and early resuscitation in Belgium with emphasis on children between 10 and 18 years.

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Purpose: Impact of a low-cost minimalist reanimation manikin on mass education and early resuscitation in Belgium with emphasis on children between 10 and 18 years.

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Background: In sudden out-of-hospital cardiac arrest, bystander cardiopulmonary resuscitation (CPR) rate is proven to be most effective to increase survival rate. Learning basic CPR as of a young age is essential to enhance lay CPR rates. The school context is a good way to reach a pyramidal structure.[1]

Materials and methods: In 2009 we developed a low-cost minimalist reanimation manikin “Minipop,” focused on thoracic compressions, with a solidified foam to simulate the thorax, a spring "minimalist reanimation manikin" essential to enhance lay CPR rates. The school context is a good way to reach a pyramidal structure.[1]

Results: Since 2013, we equipped 511 schools, educated 3917 teachers and initiated approximately 80,000 children. 18,291 Minipops have been distributed. The material has a high quality resistance and the teacher’s satisfaction of the program is particularly positive. We have two known cases of a child, previously educated in our program, which was able to recognize a cardiac arrest, call 112 and successfully perform CPR.

Conclusions: We were able to build a strong pyramidal structure, which reached a large quantity of people.

1. Kids save lives. Bernd W. Böttiger, Federico Semeraro et al. European Journal of Anaesthesiology 2017; 34:792–796.

P091
Challenges of blood pressure monitoring during chest compressions

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The latest American Heart Association guidelines state that it may be reasonable to use physiological monitoring, such as end-tidal carbon dioxide or arterial blood pressure (BP), to optimise cardiopulmonary resuscitation. Both chest compression (CC) rate and depth impact patient physiological response. The application of CC induces motion which may artifact biosignals retrieved from the patient. The aim of this investigation was to measure the level of agreement between two BP sensing methods during CC as diastolic blood pressure has previously been linked to survival.

A 4-animal porcine study was conducted where BP response to various CC depths was captured. Fluid-filled and solid-state BP transducers were inserted into the left and right carotid arteries. CC were applied to the animals in 2-minute episodes, where each episode maintained a constant CC depth at a rate of 110 CC min-1. Systolic and diastolic BP readings were captured in 15-second intervals during CC. A linear regression model was applied to the respective systolic and diastolic measures between sensing methods and Bland-Altman limits of agreement were subsequently extracted.

There was a poor fit between the systolic sensing methods (R² = 0.374) and a strong relationship observed between diastolic BP recorded by each system (R² = 0.986). The mean difference (Bland-Altman limits of agreement) for systolic measures was 10.92 (−47.75 to 69.59) mmHg and for diastolic measures was −3.92 (−18.35 to 10.51) mmHg.

During CC the systolic BP observations were not in agreement where fluid-filled values were consistently greater than solid-state. Diastolic BP between the two systems were better aligned. Systolic BP is registered when maximum mechanical force is applied to the subject. In contrast, diastolic BP is observed when the chest is fully decompressed. Motion due to CC affects the accuracy of systolic BP measures, however, diastolic BP may not be affected.

P092
How SARS-CoV-2 pandemic changed medical emergency calls: a journey among virus effects and people’s fears in Italy

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Purpose of the study: Coronavirus disease 2019 (COVID-19) has caused severe morbidity and mortality around the world. As a consequence, emergency calls have increased worldwide. Emergency services in Italy are coordinated by 118 Operation Centres (118-OC). This study analyzes new tendencies in emergency calls received by 118-OC in Foggia University Hospital, covering the whole Province of Foggia and beyond, about 650,000 inhabitants.

Materials and methods: We analyzed all emergency calls received by our 118-OC during the second half of 2020, corresponding to the second wave of COVID-19, when emergency services and hospitals were better prepared than the first wave. A similar period was chosen before pandemic, from July to December 2019, as control. R statistical software was used for analysis and chi-squared tests were performed to compare frequencies.

Results: The increase in emergency calls in 2020 immediately stands out (p-value < 0.00001). However, in 2020 there was a statistically significant increase in “non-emergencies” and a decrease in “emergencies” (p-value < 0.00001). The decrease in overall emergencies was not proportional to all types of emergencies. Evaluating cardiocirculatory emergencies compared to non-cardiovascular ones, the former decreased much more than the others (p-value < 0.00001). Ultimately, a traumatic event was more likely to activate “118” than a cardiovascular event compared to pre-COVID times. Nevertheless, this decrease in cardiocirculatory emergencies was not accompanied by a decrease in STEMI, which were more numerous than expected (p-value < 0.0001).

Conclusions: COVID pandemic caused a decrease in real emergency calls, probably due to the fear of activating “118” even on the part of those who needed it. The suspicion of many cardiovascular diagnoses that have not been observed is conceivable. Moreover, our results show that in 2020 there were more cardiocirculatory events with STEMI than expected. Perhaps we need to recognize a link
between SARS-CoV-2 and acute coronary syndrome, as literature is beginning to hypothesize.

**P093**

**The effect of thoracic impedance on shock success during public access defibrillation**

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Thoracic impedance (TI) is used in defibrillation to alter shock characteristics to ensure patients receive a standard energy dose. Pulse duration, peak voltage and current are dependent on patient TI where increased TI typically results in a longer shock duration and a higher peak voltage. Some reports suggest that higher impedance patients experience lower rates of shock success. The aim of this analysis was to identify the effect of patient TI on shock outcome.

Electronic event data, recorded via HeartSine defibrillators and submitted on a voluntary basis between October 2012 and December 2018 were analysed. Patient TI logged prior to the delivery of the first shock in events with at least one defibrillation attempt were extracted. The first shock was subsequently annotated to determine shock success, defined as the termination of ventricular fibrillation or ventricular tachycardia for at least 5 seconds after shock delivery. Mean TI was compared between successful and unsuccessful defibrillation attempts by a 2-sample t-test.

A total of 467 patient events where defibrillation was attempted and had a determinable first shock outcome were analysed. The first shock success rate was 86.08% (n = 402) and mean (standard deviation) patient TI was 89.78 (22.37) Ω, ranging from 37 to 211 Ω. There was no significant difference (p = 0.989) in patient TI between successful and unsuccessful defibrillation attempts by a 2-sample t-test.

Results: The results were as follows:

|                      | 2019   | 2020  | 2021  |
|----------------------|--------|-------|-------|
| hospitalizations     | 20956  | 18290 | 19538 |
| deaths               | 30     | 90    | 94    |
| whereas COVID        | 0      | 16    | 7     |
| long stays (>48 h)   | 3      | 141   | 18    |

Thus, there was a 265% increase in relative mortality in 2020 vs. 259% in 2021 compared to 2019. In 2020 there was a 4700% increase in long stays compared to 2019. Death causes were classified as below:

| cause of death                      | 2019 | 2020 | 2021 |
|-------------------------------------|------|------|------|
| Cardiac                             | 4    | 13   | 23   |
| Neoplasms                           | 10   | 14   | 26   |
| Trauma                              | 1    | 3    | 4    |
| infectious diseases (incl. COVID)   | 6    | 35   | 15   |
| Hypothermia                         | 0    | 2    | 3    |
| Surgical                            | 3    | 3    | 3    |
| other (lung, kidney, neurological)  | 5    | 6    | 7    |
| Unknown                             | 10   | 14   | 13   |

Conclusion: COVID-19 pandemic considerably influenced the length of stay and subsequent mortality in the ER. The most likely reason was a lack of extra medical staff in other departments. The ratio of health workers to the population in Poland is still one of the lowest in the EU, with a long average working time, not leaving much space for extra hours in case of a pandemic.

We seem to have seen some of the social consequences of social distancing – hypothermias and suicide among lonely people.

**P094**

**Comparison of ER admissions, mortality, and length of stay in a district emergency department during COVID pandemic 2019-2021.**

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**Background:** The covid pandemic has severely impacted NHS in Poland. This study aimed to analyze how the number and category of deaths, hospitalizations, and length of stay in ER changed over the last 3 years.

**Methodology:** This is a retrospective observational study, in line with the principles of the Declaration of Helsinki. Data were collected from the electronic system of the hospital in Bochnia. The patients’ medical histories and the universal ICD-10 codes determined the primary death cause.

**Results:** The results were as follows:

|                      | 2019   | 2020  | 2021  |
|----------------------|--------|-------|-------|
| hospitalizations     | 20956  | 18290 | 19538 |
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We seem to have seen some of the social consequences of social distancing – hypothermias and suicide among lonely people.

**P095**

**Acute coronary syndrome during COVID-19 pandemic: statistical analysis by an Operations Centre in Italy**

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**Purpose of the study:** Multiple studies have presented an association between acute coronary syndrome (ACS) and SARS-CoV-2 acute respiratory syndrome. Our study aims to understand how COVID-19 pandemic has influenced the observation of ACS by the Emergency Health Service in the Province of Foggia and the northern Province of Barletta-Andria-Trani, the largest 118 Operation Centre in Italy.

**Materials and methods:** A retrospective observational statistical study was conducted, evaluating all the emergency calls for ACS received by our 118 Operation Centre before and during the pandemic.

As time window the second half of 2020 was chosen, corresponding to the second wave of COVID-19, when the pandemic was full-blown throughout Italy; an identical time window in 2019 was chosen as control period. The investigation was limited to STEMI, since it was an electrocardiographic diagnosis already defined at the first intervention. R software was used for data analysis.