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## Patients with cancer hit hard by deadly explosions in Beirut

Last week's explosions in Beirut, Lebanon, caused devastating and widespread damage, including destruction of hospitals and decimation of medical supplies, leaving already vulnerable patients with cancer in shock and without access to treatment.

Government officials have now confirmed that the two explosions, which occurred in the early evening on Aug 4, 2020, after a warehouse caught fire on Beirut's northern industrial waterfront, resulted from the detonation of 2750 tonnes of ammonium nitrate that had been incorrectly stored for the past 6 years in a depot nearby. The incident, which killed at least 220 people and left more than 6000 injured, devastated huge areas of the city, including hospitals and health-care facilities, piling enormous new pressures on a health-care system whose resources were already stretched financially and by the ongoing COVID-19 pandemic.

Saint George Hospital University Medical Center, located in the city centre and one of the biggest hospitals in Beirut, was so badly damaged as a result of the explosions that it was forced to close and send its patients elsewhere. Those affected included patients with cancer who were in the middle of their chemotherapy treatment—some of whom panicked and fled without notifying medical staff.

Rabih Said, a member of the oncology team at Saint George Hospital University Medical Center, described the challenges faced by staff in the chaos of evacuating patients from a hospital that had been demolished by the blasts. "The incident caused major emotional and psychological distress to our patients, many of whom were already vulnerable due to their cancer diagnosis and treatment. We lost some of our colleagues in the explosions, while patients witnessed the traumatic death and serious injury of family members and others within the hospital.

It was particularly challenging to organise the evacuation of patients with cancer who were immunocompromised and cytopenic, raising the risk of bleeding and infection, especially during the COVID-19 pandemic."

Peter Noun, a paediatric oncologist who works with more than 100 children in units at Saint George and the Lebanese Hospital Geitaoui—another nearby hospital that was severely damaged and forced to close—is worried about the disruption this has caused to his patients' treatment.

"Our major concern now is where to continue the chemotherapy for our kids," Noun explained. "Most of those in severe need went to another centre to continue receiving their treatment, but the capacity there is full. More than 45 of our patients have already missed one chemotherapy session, and it may be weeks before we are able to resume their treatment schedules."

Further to the damage and disruption caused to hospitals and medical centres, a warehouse containing large stocks of medicines was also destroyed near the site of the explosions. As well as vaccines and other essential medicines, it contained a supply of chemotherapy products to be distributed to patients across Lebanon.

"Although we do not yet know the extent of the damage, a significant number of cancer drugs were stored in a warehouse close to the explosion site," Said confirmed. "This is hugely concerning, as there was already a shortage of cancer treatments due to Lebanon's financial crisis and the cost of cancer drugs, making access to various expensive medications a challenge even before the blasts."

There are also concerns over toxins released by the explosions, which could pose severe health risks in both the short and long term, including an increased incidence of cancer. Lebanon's health minister issued a warning about the potentially hazardous effects of toxic air pollutants, such as nitrogen

dioxide, following the incident, advising those who were able to leave the area to do so.

"After months of severe economic crisis, our close friends from Lebanon will have to survive another disaster," reflected Benjamin Besse (Gustave Roussy Institute, Villejuif, France). "With more than 6000 injured people, hospitals have to prioritise first aid over cancer diagnosis and care."

Enrique Soto Pérez de Celis (National Institute of Medical Science and Nutrition, Mexico City, Mexico) agreed: "Disasters such as this one can be extremely challenging for health-care systems, not only by causing direct loss of life, but also by compromising the availability of medical services to treat other diseases such as cancer."

"Damage to clinics and hospitals can break the continuity of cancer therapy and jeopardise patient care, particularly for the most vulnerable, such as older adults or those receiving palliative or end-of-life care, who are in risk of losing access to urgent medications," he continued. "This highlights the relevance of training first responders who are part of rapid-response teams deployed to disaster areas to implement essential non-communicable disease interventions, and to include essential cancer medications in emergency kits."

Meanwhile, Richard Penson (Harvard Medical School, Boston, MA, USA) commented on the international relief response to the disaster: "COVID-19 has distanced us from our patients and our neighbours, but somehow heightened an awareness of the need to meet injustice with action. The necessary social distance has amplified the pain of suffering to a point where we are breaking. Witnessing the devastation in Beirut, from a world away, it is our humanity that connects us. We are traumatised together and must act together."

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Published Online  
August 13, 2020  
[https://doi.org/10.1016/S1470-2045\(20\)30470-8](https://doi.org/10.1016/S1470-2045(20)30470-8)

For more on the **explosions in Beirut** see <https://www.bbc.co.uk/news/world-middle-east-53720383>

For more on the **impact of the disaster on Saint George Hospital** see <https://www.nytimes.com/2020/08/04/world/middleeast/beirut-explosion-blast.html>

For more on the **destruction of medicine stockpiles** see <https://www.businessinsider.com/beirut-explosion-hospitals-damaged-cant-admit-patients-after-blast-2020-8?r=US&IR=T>

For more on the **toxic air pollutants released by the explosions** see <https://airqualitynews.com/2020/08/05/major-air-pollution-concern-following-beirut-explosion/and> <https://www.telegraph.co.uk/news/2020/08/04/huge-explosions-rock-central-beirut-citys-hiroshima/>