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Perspective

Cyberattack Affecting Radiation Therapy

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DESCRIPTION

The Health Service Executive, an organization that provides public health services in the Republic of Ireland, was the victim of a massive cyber-attack on its information technology systems. All systems were then shut down to prevent further damage and allow cybersecurity experts to investigate the attack. As a result, oncology services were severely disrupted and radiotherapy was suspended in all public radiotherapy departments. Ireland has a total of 5 large public radiotherapy centers and 6 smaller private radiotherapy centres. Due to the widespread adoption of electronic medical records in radiation therapy departments, no patient data could be obtained from individuals undergoing radiation therapy at the time of the cyberattack. A total of 513 patients discontinued radiation therapy nationwide. A national radiation therapy cyberattack response team was quickly formed to oversee the response to the attack. Immediate concerns were radiotherapy emergencies and category 1 patients in whom treatment gaps adversely affected outcome. Communication with patients and the general public was also a priority, and agreements were made with the private sector to treat patients affected by cyberattacks. National media was used to alert patients to the need to contact the radiotherapy department. The local radiotherapy department held daily emergency meetings with key staff, including IT staff. Because individual centers used different technologies for treatment planning and data storage, local cyberattack solutions were developed to restore radiation therapy to patients. In addition, a national document was created to prioritize the return of patients to treatment, and a national approach was developed to address treatment gaps caused by the attacks. All five centers had resumed radiotherapy by May 30, but the cyberattacks had lasting effects. This article outlines the impact of cyberattacks on national radiotherapy services and strategies for timely resumption of patient care.

Dublin St Luke's Radiation Oncology Network (SLRON), which includes St Luke's Hospital, SLRON at St James's Center, and SLRON at Beaumont Centre. Cork (Cork University Hospital (CUH)); Galway (Galway University Hospital (GUH)). Ireland also had a significant private sector that was very important during and after the cyber-attack. The practice of radiation oncology is continually evolving with advanced imaging, planning, and delivery system technology. The management and storage of large numbers of planning and image datasets has led to a paperless environment and the use of Electronic Medical Records (EMR) has become commonplace in radiotherapy departments. This reliance on technology means that radiotherapy services are particularly vulnerable to cyberattacks. Cyberattacks are on the rise around the world, which are disrupting radiotherapy services in the United States and New Zealand. At 1:00 AM, HSE was found to be the victim of a serious cyberattack on Information Technology (IT) systems. As an effect, more than 80% of IT infrastructure in public health was affected, disseminating patient information and diagnoses. This has severely impacted health care, including the National Health Service and oncology. Domestic communication systems, including the telephone network, were also lost. HSE immediately initiated a serious incident process and enlisted the assistance of the International Criminal Police Organization (INTERPOL) and the National Cyber Security Centre (NCS). On the day of the cyberattack, 31 out of 54 acute care hospitals within HSE announced at least partial service outages. The source of the cyber-attack was a malicious software "malware" infection on HSE workstations.

CONCLUSION

The cancer therapy, medical and surgical oncologies are less affected than radiotherapy, as they were not fully dependent on EMR. Because electronic prescribing of chemotherapy was not yet prevalent nationwide, chemotherapy administration was rarely interrupted, except for stopping concomitant chemotherapy until the patient resumed radiation therapy. The time-dependent cancer surgery went according to plan. Restoration of radiotherapy and radiology services became a national priority for HSE during the cyber-attack due to the impact on clinical service delivery. This paper provides an overview of the report on cyberattacks and their impact on radiation therapy.

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