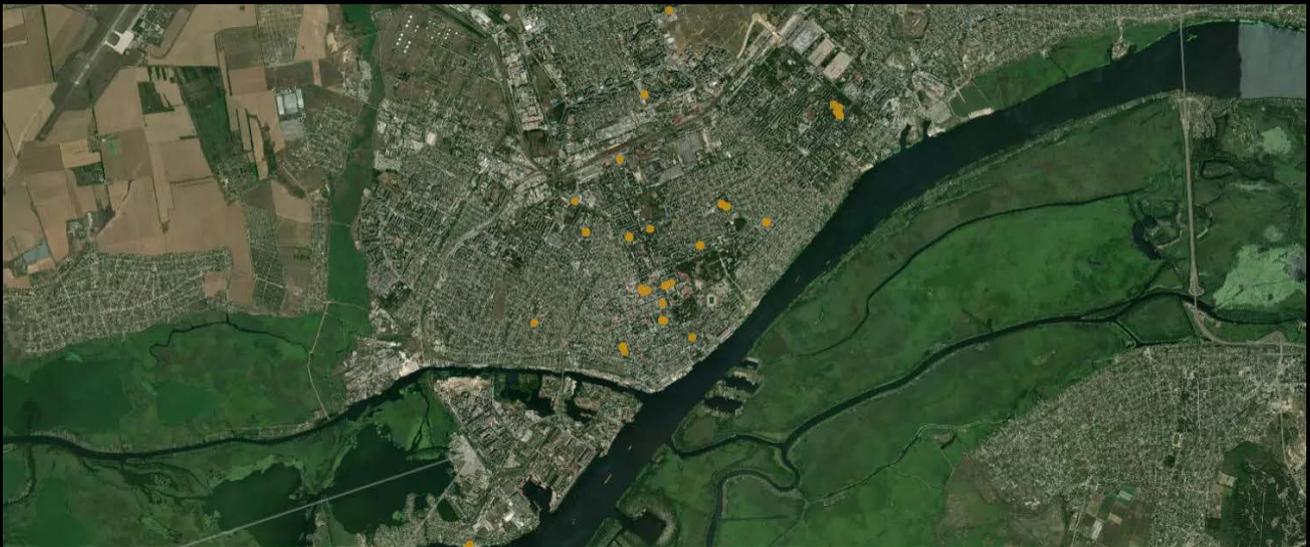


Eyes on Russia



Kherson after occupation: Mapping Russian attacks on medical infrastructure

SEPTEMBER 2023

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This report uses information collected through open-source research and verified by CIR's investigators to provide detailed descriptions of selected conflict events and their impact on the population of Ukraine.

Front & back cover: Eyes on Russia Map.

EXECUTIVE SUMMARY

The Centre for Information Resilience (CIR) has documented and verified a significant intensification of Russia's shelling of civilian infrastructure in Kherson city after its liberation on 11 November 2022. This report uncovers how these attacks have specifically impacted Kherson's medical infrastructure.

- Between 11 November 2022 and 18 May 2023 (intelligence cut off), CIR investigators verified 14 incidents resulting in damage to seven medical facilities in the city.
- Medical infrastructure in Kherson city remained largely intact during Russia's occupation, which began on 2 March 2022. CIR verified footage of just one incident of damage to medical infrastructure in the city whilst it was under Russian control; a fire department was heavily damaged on 22 September 2022.
- The damaged facilities include maternity wards, cardiology centres, rehabilitation centres, and children's hospitals.
- Most facilities were struck more than once (**Case studies 2, 3, 4, 5 and 7**). The drastic increase in the number of facilities repetitively damaged post-liberation, alongside the lack of legitimate targets around these facilities, indicates deliberate targeting.
- The first incident was verified by CIR approximately six weeks after Ukrainian forces liberated the city of Kherson from Russian control. On 27 December 2022, the Maternity Ward at the Kherson City Clinical Hospital was damaged by Russian artillery fire. No casualties were reported in this incident.
- The month that saw the highest number of verified attacks in Kherson city was January 2023, with five attacks, followed by December 2022 and February 2023, with three strikes each. March saw two attacks, with one in April and none in May.
- CIR investigators were able to verify the likely firing position for the strike that damaged the Kherson Regional Cardiology Centre's southern building on 23 March 2023 (**Case Study 2**). In this case, there was a clear direction of fire from the south, from Russian-controlled territory on the southern side of the Dnipro River.
- Whilst attacks against medical facilities in Kherson city dropped off between May and July 2023, CIR verified a number of attacks on medical and rescue workers in the city who were evacuating civilians following the collapse of the Kakhovka dam in June 2023. Additionally, in early August 2023, CIR verified damage to the "Kherson City Clinical Hospital", named after E.E. Karabelesh.

INTRODUCTION

Kherson was the first major Ukrainian city to be seized by Russian occupying forces at the beginning of the full-scale invasion¹ with President Putin declaring the city part of the Russian Federation on 30 September 2022 after a sham referendum. Since Ukraine liberated the city on 11 November 2022, Russian troops have made a concerted effort to make civilian life in the city unsustainable through daily artillery bombardment.

Despite the initial celebration and relief that Russian military forces had been ejected and were unlikely to return, the situation for residents has become dire.

According to official reports, on New Year's Eve, Kherson and the surrounding area were shelled at least 40 times, with rockets hitting civilian buildings and critical infrastructure.² Russia's repeated shelling of Kherson city has remained constant, with Russian shells striking

two separate supermarkets, a train pulling into the station, a petrol station, and a park on 3 May 2023, killing at least 16 civilians.³ This trend of increased shelling in the city since November 2022 has also affected other civilian infrastructure. A previous CIR investigation found that damage to educational facilities had increased significantly since Kherson's liberation.⁴

According to data provided by Kherson's City Council, despite the constant shelling, most medical facilities were still operational as of January 2023.⁵ There have, however, been further significant attacks since, damaging medical facilities in the city between February and April 2023, including repeated attacks on various locations. The continuous shelling of hospitals, maternity wards and rehabilitation centres could pose a risk to the sustainability and operability of the healthcare sector in the city.

¹ Schwartz and Pérez-Peña (2 March 2022).

Available at: <https://www.nytimes.com/2022/03/02/world/europe/kherson-ukraine-russia.html>

² BBC News (2 January 2023). Available at: <https://www.bbc.com/ukrainian/features-64141741>

³ Sabbagh (3 May 2023). Available at: <https://www.theguardian.com/world/2023/may/03/kherson-supermarket-struck-russian-bombing-wave-ukraine>

⁴ Centre for Information Resilience (19 April 2023). Available at: <https://www.info-res.org/post/the-effect-of-the-invasion-on-ukraine-s-education-system-one-year-overview>

⁵ Kherson City Council (Last accessed 31 May 2023). Available at: <https://miskrada.kherson.ua/news/kontakty-medychnykh-zakladiv-kudy-khersontsi-mozhut-zvertatysia-u-razi-potreby/>

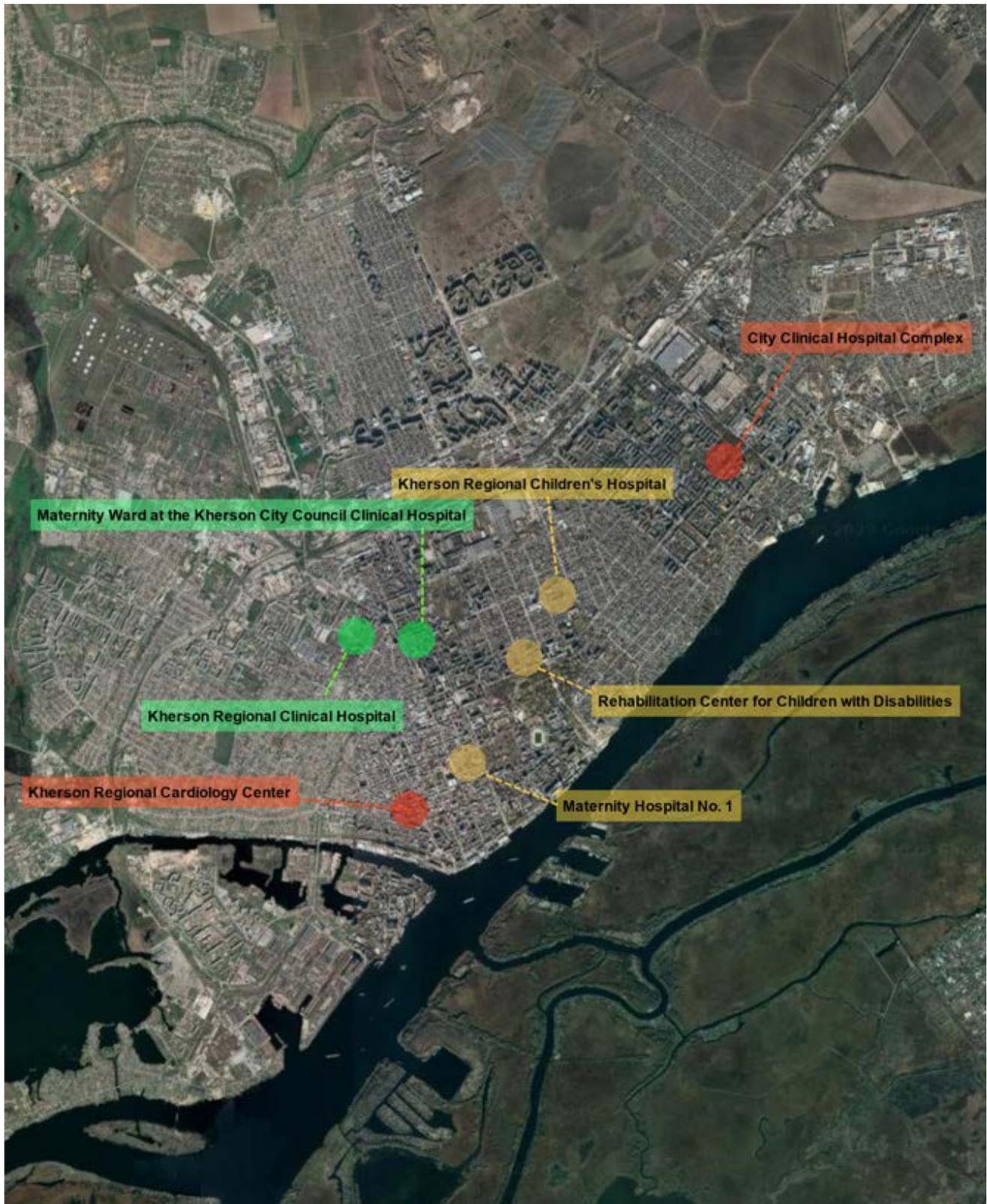


Figure 1: Map showing medical facilities in Kherson that are verified to have been hit once (green), twice (yellow) and three or more times (red) between Kherson's liberation in November 2022 and 10 April 2023.

Russia's activities in Kherson are strikingly reminiscent of Russian tactics in Syria, where apparently punitive strikes were delivered day after day for years in rebel-held areas of Idlib and Aleppo, unconnected to any ground operations. Russian aircraft deliberately⁶ and repeatedly targeted medical infrastructure in these areas, as well as water treatment plants, grain silos⁷ and schools. By February 2022, the Physicians for Human Rights Non-Governmental Organisation (NGO) had recorded⁸ 244 incidents of strikes on medical facilities conducted by either the Russian or Syrian air forces.

Alongside medical facilities, Russia has repeatedly⁹ targeted¹⁰ electrical¹¹ and water¹² infrastructure¹³, as well as emergency services¹⁴ and humanitarian aid services in Ukraine.¹⁵ In addition, CIR verified 17 incidents of damage to educational facilities since the Russian withdrawal from the city in the timeframe covered by this report. CIR has continuously

monitored and verified the damage to civilian infrastructure since the start of Russia's full-scale invasion, including incidents resulting in the damage of medical facilities in every oblast across Ukraine, including Kherson Oblast. This report is divided into three sections covering the dates 11 November 2022 (Kherson's liberation) to 18 May 2023 (cut off date for intelligence used in this report), providing a thorough analysis of CIR's verified information, to include:

- a brief overview of the data verified by CIR concerning the damage to medical facilities in Kherson city;
- an in-depth analysis of the seven verified cases of damaged medical facilities in the city;
- an examination of Russian firing positions specifically linked to the damage of Kherson's Regional Cardiology Centre - one of the seven verified case studies.

⁶ Triebert, Hill, Browne, Hurst, Khavin and Froliak (13 October 2019). Available at: <https://www.nytimes.com/2019/10/13/reader-center/russia-syria-hospitals-investigation.html>

⁷ The Interpreter (2 December 2015). Available at: <http://www.interpretermag.com/putin-in-syria-russian-mod-presents-claims-of-turkish-oil-trading-with-isis/#11344>

⁸ Physicians for Human Rights (March 2022). Available at: <https://syriamap.phr.org/#/en/findings>

⁹ Reuters (8 May 2023). Available at: <https://www.reuters.com/world/europe/russian-shelling-hits-power-networks-five-ukrainian-regions-ukrenergo-2023-05-08/>

¹⁰ Kirby (15 December 2022). Available at: <https://www.bbc.co.uk/news/world-europe-63983730>

¹¹ Varenytsia (1 December 2022). Available at: <https://apnews.com/article/russia-ukraine-nato-kyiv-climate-and-environment-europe-14a03b7a3d9b44598928ab209a82b775>

¹² Middleton, Sinmaz and Fulton (13 November 2022). Available at: <https://www.theguardian.com/world/live/2022/nov/13/russia-ukraine-war-kherson-mayor-warns-of-critical-water-shortages-after-russian-forces-destroyed-key-infrastructure-live>

¹³ Ukrinform (10 May 2023). Available at: <https://www.ukrinform.net/rubric-ato/3707312-kherson-authorities-warning-of-possible-water-outages.html>

¹⁴ The Telegraph (6 January 2023). Available at: <https://www.telegraph.co.uk/world-news/2023/01/06/ukraine-russia-war-latest-news-drone-missile-strike-putin-kyiv/>

¹⁵ @DefenceU (15 January 2023). Available at: <https://twitter.com/DefenceU/status/1614703618082639872>

ANALYSIS OF RUSSIAN STRIKES ON KHERSON CITY'S MEDICAL FACILITIES

AN OVERVIEW

Between 11 November 2022 and 18 May 2023, CIR verified 14 incidents resulting in damage to seven medical facilities in Kherson city.

The city's medical infrastructure remained largely intact during Russia's occupation (which began on 2 March 2022), with CIR verifying footage of just one incident to a fire department that was heavily damaged on 22 September 2022.¹⁶ This would suggest a level of restraint shown by the Ukrainian armed forces whilst attempting to re-capture the city that has not been shown by the Russian forces stationed on the left bank of the Dnipro River.

The month with the highest number of verified attacks was January 2023 with five, followed by December 2022 and February 2023, with three strikes each. March saw two attacks with one in April and no attacks in May.

The facilities damaged include maternity wards, cardiology centres, rehabilitation centres, children's hospitals, among others.

The following pages provide an in-depth analysis of every facility damaged between 11 November 2022 and 18 May 2023 that was verified by CIR.

¹⁶ @hochu_dodomu (22 September 2022). Available at: https://twitter.com/hochu_dodomu/status/1572874580343259138

CASE STUDIES

CASE STUDY 1: MATERNITY WARD AT THE KHERSON CITY CLINICAL HOSPITAL

27 DECEMBER 2022

On 27 December 2022, approximately six weeks after Ukrainian forces liberated the city of Kherson from Russian control, the former main building of the Kherson City Clinical Hospital was damaged¹⁷ by apparent Russian artillery fire. No casualties were reported during the attack but significant damage to a waiting room¹⁸ in the maternity ward was verified.

The Times¹⁹ reported on the attack:

'On Tuesday, a Russian shell crashed into a maternity ward, destroying a reception area next to a room for mothers and their newborn babies... 'We finished delivering a caesarean at 4pm. The explosions came at 5pm, as we were filling in forms,' Sergey Morozov, a doctor, said. 'The first blast was a bit further away, but

the second one was so close. The shell landed just ten metres from where the women and the babies were. We quickly got them into the shelter. It was terrifying.' Fortunately, there were no casualties.'

The hospital itself is located on Komarova Street, in central Kherson, just three kilometres from Russian-held territory on the left bank of the Dnipro River. CIR were able to verify the location of the strike by comparing online images of the hospital against images of the damage that emerged on social media shortly after the strike. A Google Street View image of the building, which is titled the 'Obstetric Department', is also available and aided in geolocation and verification of the claim that the maternity ward was damaged.



Figure 2: Geolocation of an image shared on Twitter showing damage to the City Clinical Hospital in Kherson, Kherson Oblast [46.645994, 32.600222].

¹⁷ Кирило Тимошенко (27 December 2022). Available at: https://eyersonrussia.org/event/event_7715_1672099200000

¹⁸ Пан Пачковский (27 December 2022). Available at: https://eyersonrussia.org/event/event_7667_1672099200000

¹⁹ Bennets (2 January 2023). Available at: <https://www.thetimes.co.uk/article/fight-to-save-boys-leg-as-russia-launches-new-blitz-on-kherson-szx3zrh05>



Figure 4: Shell damage to the south-facing wall of a building of the Kherson Regional Cardiology Centre [46.629387, 32.607774].

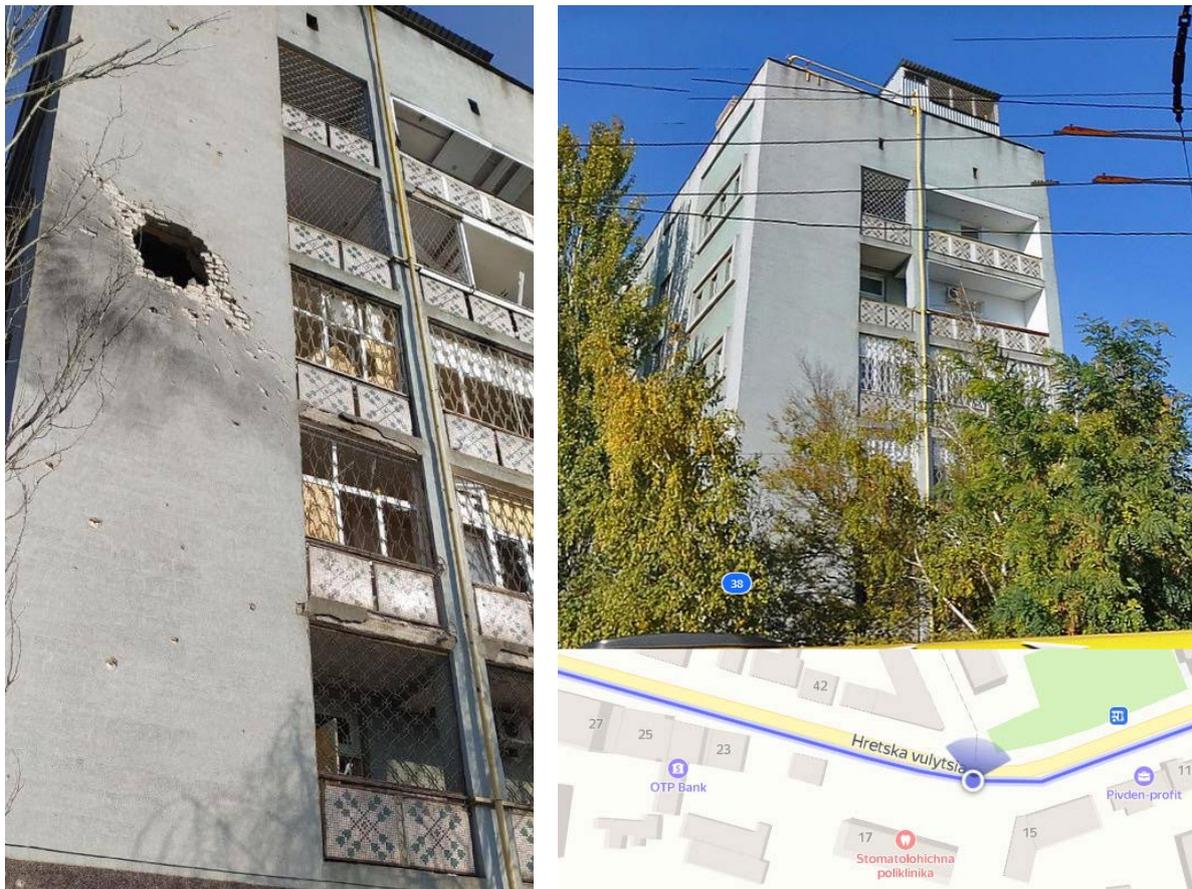


Figure 5: Comparison of photo²⁴ taken at the scene with Yandex street view²⁵

²⁴ @DefenceU (23 March 2023). Available at: <https://twitter.com/DefenceU/status/1638880782524579842>

²⁵ Yandex Maps (Last accessed 31 May 2023). Available at: <https://yandex.com/maps/-/CCUsuZal2B>

The third incident of shelling that affected the Serbinov's House building at the cardiology centre occurred on 10 April 2023. The Kherson Regional Administration posted photographs of damaged windows on Telegram and Ukrainian news outlet, 'Suspilne', shared images of damaged fencing on the street opposite the cardiology centre and reported²⁶:

"The prosecutor's office began pre-trial investigations into the shelling of Kherson by the Russian military on the morning of April 10.

This is stated in the Telegram of the prosecutor's office of the Kherson region.

Investigators recorded that as a result of shelling in the centre of Kherson, an architectural monument of local significance was damaged - the building of an art museum, as well as the administrative building of the district council. The blast wave damaged the windows of the regional cardiology centre, the report said."



Figure 6: Geolocation of images shared on social media showing damage to the Regional Cardiology Centre and nearby buildings in Kherson, Kherson Oblast [46.630136, 32.607502].

The Regional Cardiology Centre is located in central Kherson in an area surrounded by commercial properties, other medical facilities, educational facilities, and also museums and hotels suggesting this area is largely frequented by tourists. There are two minor government buildings nearby; a marriage registry office

and an immigration office. CIR assessed it unlikely these were the targets of the attack. CIR was unable to find any indication of military presence in or around the facility and high-resolution satellite imagery of the medical facility on the dates it was struck were not available.

²⁶ Suspilne (10 April 2023). Available at: <https://suspilne.media/440610-vijska-rf-obstrilali-likarnu-u-hersoni/>

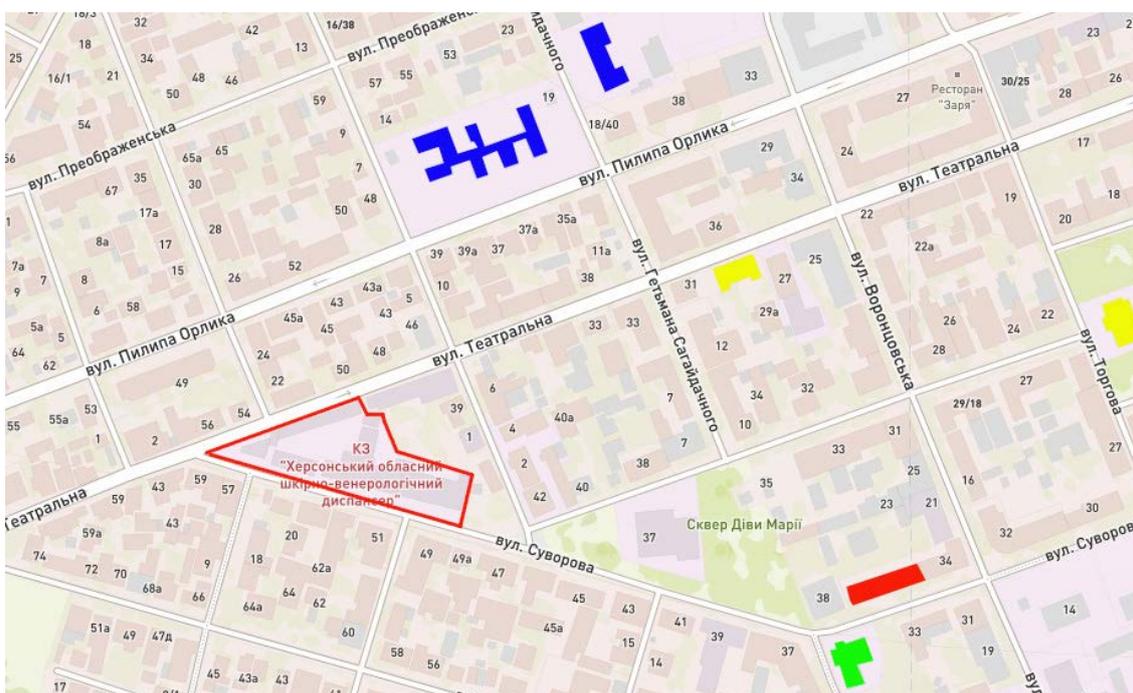


Figure 7: Map of medical facilities (solid red/red outline), educational facilities (blue), and government buildings (yellow) near the City Clinical Hospital maternity ward (green) in Kherson, Kherson Oblast.

CASE STUDY 3: KHERSON REGIONAL CHILDREN'S HOSPITAL

31 December 2022 and 10 January 2023

The Regional Children's Hospital in Kherson has been damaged on two occasions since Kherson's liberation in November 2022, with the first incident occurring on New Year's Eve. Approximately 700 windows of the hospital were broken and damage to a number of rooms

was verified by CIR investigators. There were reports of a fatality during shelling of the city on 31 December, however, CIR was not able to verify these reports and it is not clear whether the fatality occurred at the hospital or elsewhere in the city.

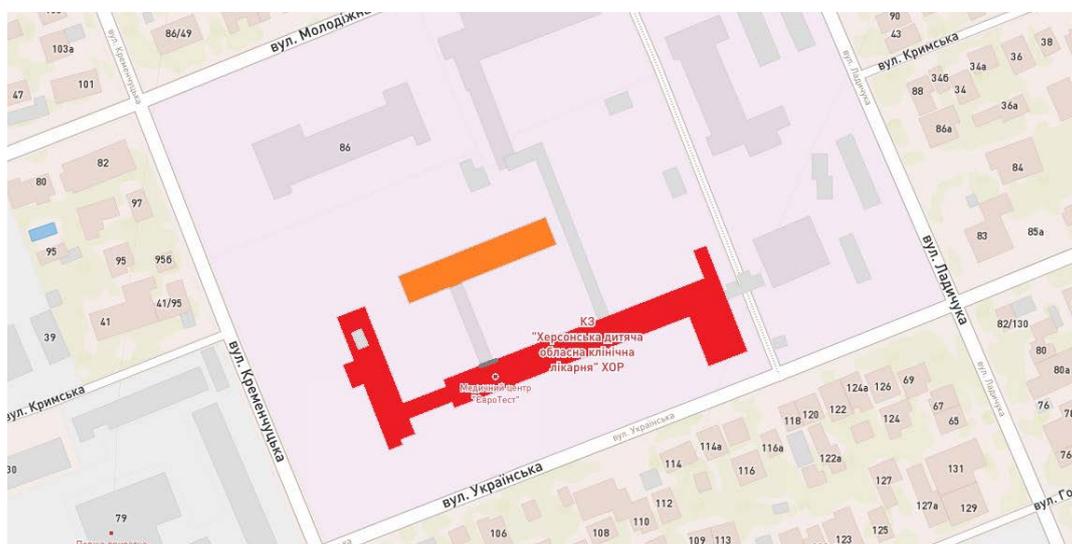


Figure 8: Building struck on 31 December highlighted in red, building struck on 10 January in orange.

On 31 December 2022, shelling²⁷ damaged²⁸ the main building of the Kherson Regional Children's Hospital.

“On December 31, a toddler boy and his sister were walking down the street, when a shell landed nearby, injuring both. A major bleed from the boy's wounded leg endangered his life,

and he was rushed to the children's hospital to receive an emergency infusion – where a shell struck the room just next door, blowing out the windows. Hit by half-a-dozen shells that evening, the hospital could not continue to function, and the boy had to be rushed to Mykolaiv, where he remains awaiting a further operation.”²⁹

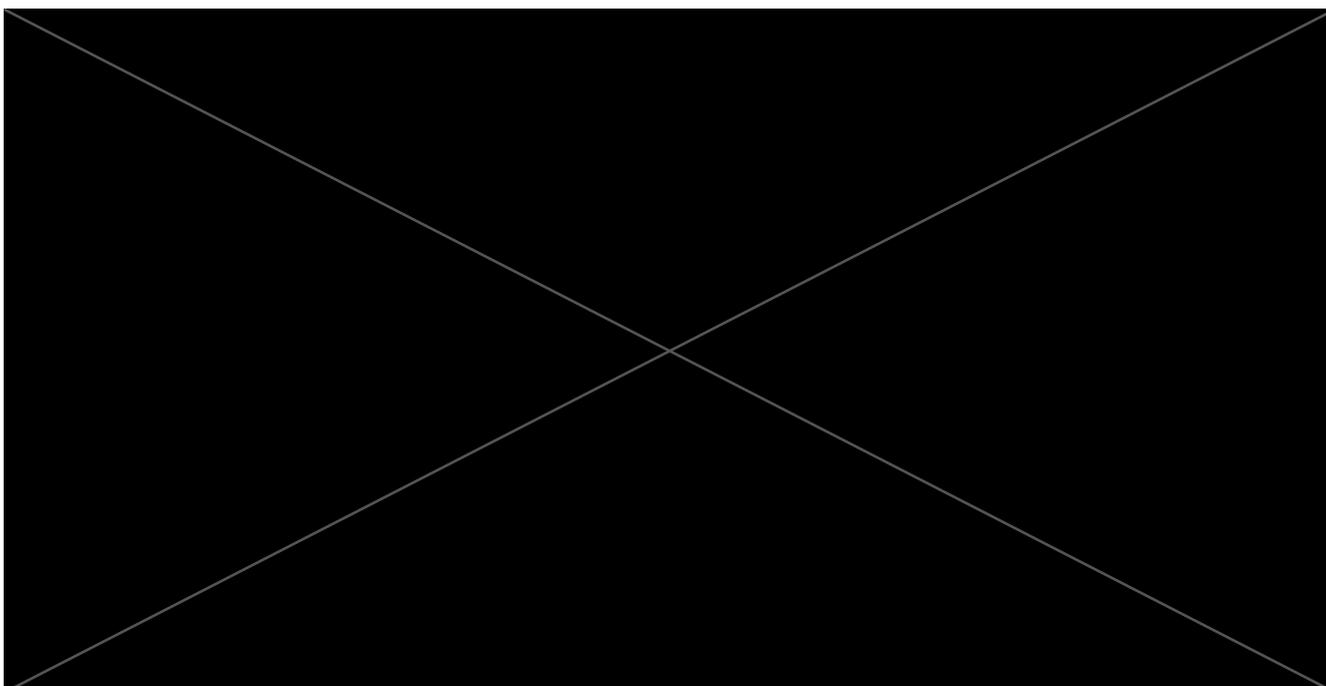


Figure 10: Damage to a room at the Kherson children's hospital. Photo from an archived copy of a deleted Telegram post.

²⁷ ПЕТРЕНКО (1 January 2023). Available at: https://eyesonrussia.org/event/event_7775_1672444800000

²⁸ Херсонська обласна державна адміністрація (1 January 2023). Available at: https://eyesonrussia.org/event/event_7776_1672444800000

²⁹ Borden (13 February 2023). Available at: <https://iwpr.net/global-voices/shelling-just-shelling>

³⁰ Bennets (2 January 2023). Available at: <https://www.thetimes.co.uk/article/fight-to-save-boys-leg-as-russia-launches-new-blitz-on-kherson-szx3zrh05>

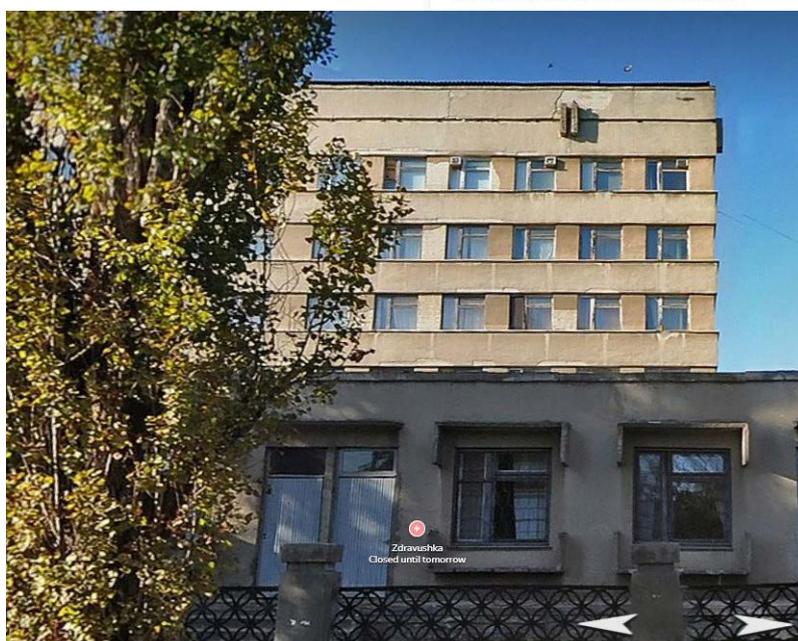


Figure 11: Comparison of images of the Kherson Children's Hospital following the strike (top-right) with those from Google Maps³¹ (top-left) and Yandex Maps³² (below).

³¹Google Maps (Last accessed 31 May 2023). Available at: <https://goo.gl/maps/YWbq9CLdBZ3n7MZA7>

³²Yandex Maps (Last accessed 31 May 2023). Available at: <https://yandex.com/maps/-/CCUse4sY3C>

A local news report³³ from 8 March showed that the hospital remained functional, though

windows had been boarded up and some rooms were unusable due to shell damage.

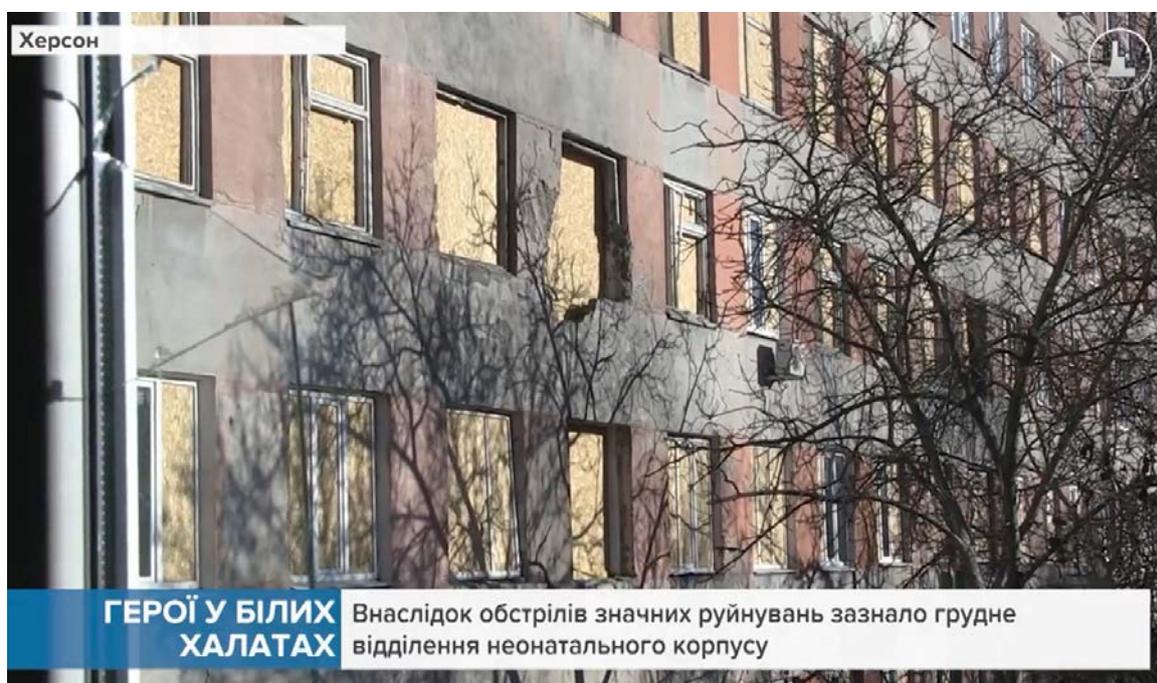


Figure 12: Damage to the main building of the Kherson Children's Hospital following the strike on 31 December 2022. (Screenshots from Kanal 402³⁴ video).

³³ Канал 402 (8 March 2023). Available at: <https://www.facebook.com/kanal402/videos/916469332730695/>

³⁴ Ibid.

On 10 January 2023, another wing of the Kherson Children's hospital was³⁵ damaged³⁶, which reportedly housed a number of services,

including the children's endocrinology department and a private immunisation clinic.



Figure 13: Comparison of the damaged building with image from Google Maps³⁷ (below).

³⁵ @SCIUkraine (11 January 2023). Available at: https://eyersonrussia.org/event/event_7980_1673308800000

³⁶ Херсонська міська рада (11 January 2023). Available at: https://eyersonrussia.org/event/event_7970_1673308800000

³⁷ Dzuhan (August 2017). Available at: <https://goo.gl/maps/BbkKLwR7jGxJZQdN8>

CASE STUDY 4: MATERNITY HOSPITAL №1

11 and 25 January 2023

Maternity Hospital №1 in Kherson was shelled on two separate occasions, just two weeks apart, in January 2023. According to the then Deputy Head of the Presidential Administration, Kyrylo Tymoshenko, an employee of the hospital was

seriously wounded as a result of the strike³⁸ on 11 January. However, CIR was not able to verify this claim. The hospital was hit for the second time on 25 January, resulting in damage to a number of rooms and windows but no reported casualties.



Figure 14: Two images showing the aftermath of the strike on 11 January 2023 at Maternity Hospital №1.

³⁸ ТИМОШЕНКО Офіс Президента (11 January 2023). Available at https://t.me/tymoshenko_kyrylo/3392



Figure 15: Geolocation of images of damage to Maternity Hospital №1 in Kherson, Kherson Oblast [46.63376, 32.615516].

Maternity Hospital №1 is located in a largely commercial area in central Kherson, south of the Kherson Regional State Administration building which has been struck on a number of occasions both by Ukrainian and Russian artillery. There are a number of schools and medical facilities

located nearby, however CIR has not found any evidence of military presence in or around the hospital on either of the two dates that the hospital was damaged by shelling. High-resolution satellite imagery for the dates the medical facility was struck was not available.

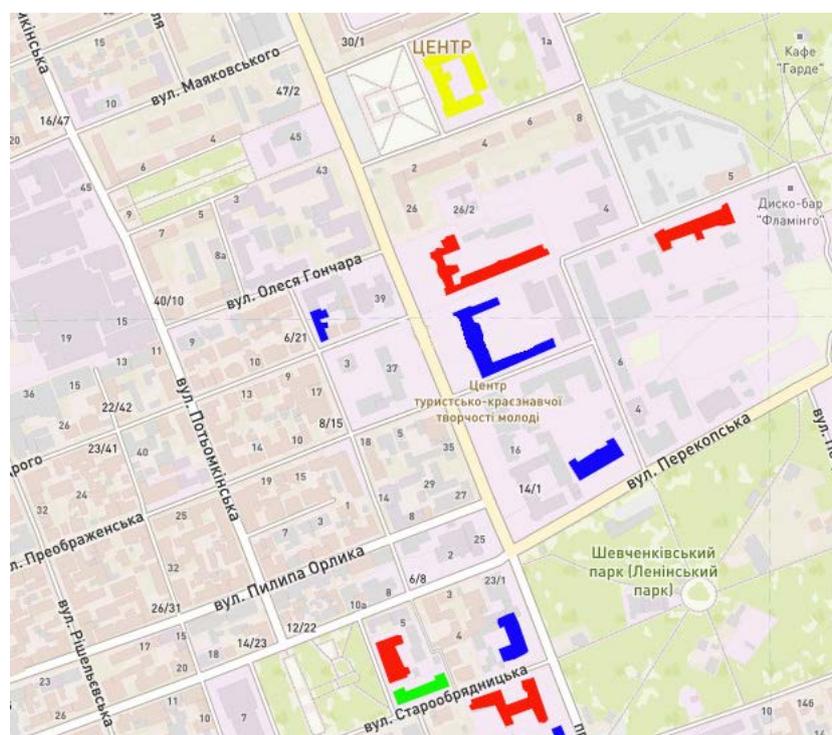


Figure 16: Map of medical facilities (red), educational facilities (blue), and government buildings (yellow) near Maternity Hospital №1 (green) in Kherson, Kherson Oblast.

CASE STUDY 5: REHABILITATION CENTRE FOR CHILDREN WITH DISABILITIES

15 January 2023 and 8 February 2023

Kherson's Rehabilitation Centre for Children with Disabilities was shelled twice, the first time on 11 January, severely damaging classrooms where

sessions were reportedly planned for later that day. Fortunately, no children were present and the security guard on-site was not injured³⁹.



Figure 17: Geolocation of damaged Rehabilitation Centre for Children with Disabilities [46.644196, 32.623059].

³⁹ Suspilne (16 January 2023). Available at: <https://suspilne.media/359568-327-den-vijni-hronika-podij-v-hersonskij-oblasti/>

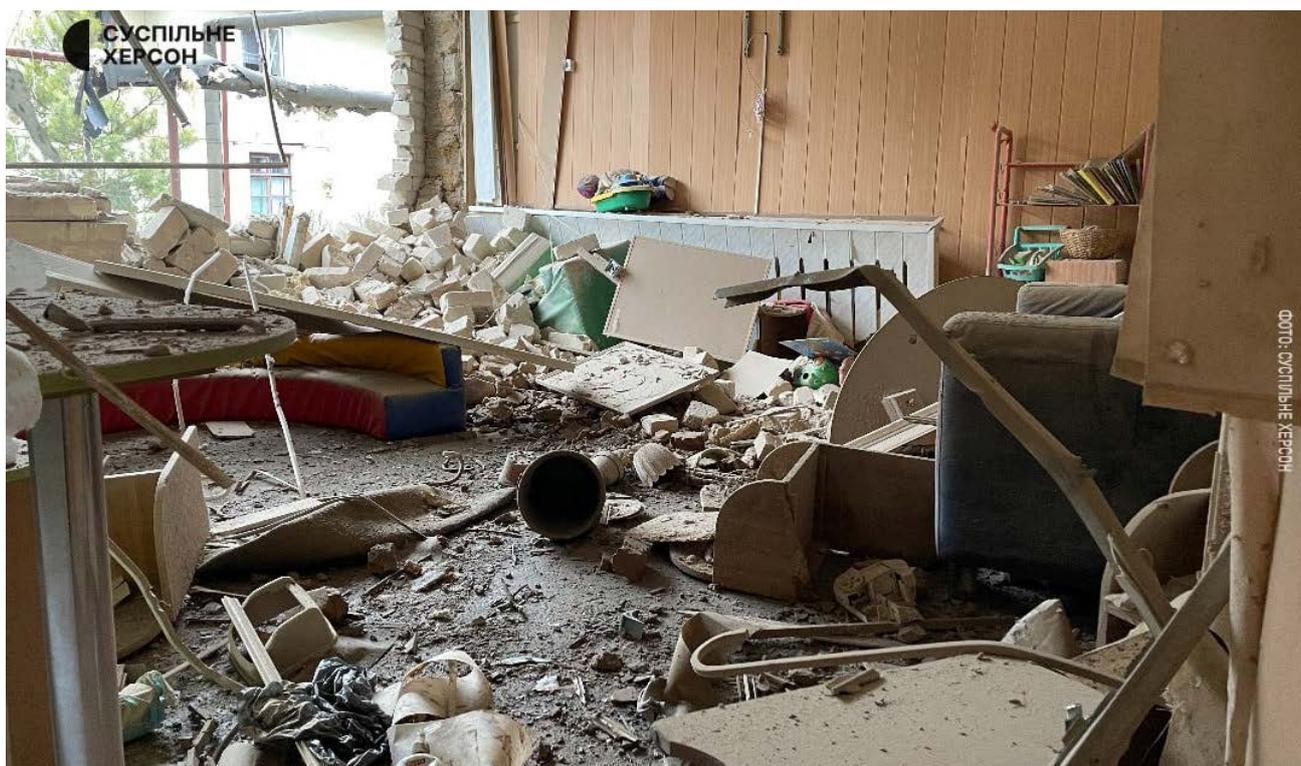


Figure 18: Damage inside the Rehabilitation Centre after the 11 January strike. Photo: Suspilne Kherson.

The Rehabilitation Centre was damaged again⁴⁰ by shelling on 8 February. This time, an elderly

civilian on the street outside the building was killed, apparently beneath a fallen tree.



Figure 19: Damage to the Rehabilitation Centre after the 8 February 2023 strike. Photo: Kherson Oblast Military Administration.

⁴⁰ Херсонська обласна державна адміністрація (8 February 2023). Available at: <https://t.me/khersonskaODA/3616>



Figure 20: Geolocation of footage of the aftermath of the 8 February strike at the Rehabilitation Centre using Yandex Maps⁴¹ [46.644196, 32.623059].



Figure 21: Structural damage inside the Rehabilitation Centre.

The rehabilitation centre is located in the southern half of Kherson city in a largely commercial area. The centre is located just north of a large park and located between Kherson Regional Clinical Hospital, which CIR verified as struck on 29 January 2023, and several educational facilities including Kherson State University. The

Kherson Regional State Administration building is not visible on the below map but is located approximately 700 metres south-west of the rehabilitation centre. CIR was not able to identify any military positions or equipment in the area surrounding the centre on the occasions it was struck.

⁴¹Yandex Maps (Last accessed 31 May 2023). Available at: <https://yandex.com/maps/-/CCUsQJxCwB>



Figure 22: Map of medical facilities (solid red/red outline), educational facilities (solid blue/blue outline), near the Rehabilitation Centre for Children with Disabilities (green) in Kherson, Kherson Oblast.

CASE STUDY 6: SHELLING OF KHERSON REGIONAL CLINICAL HOSPITAL

29 January 2023

Russian artillery struck⁴² the main building of the Kherson Regional Clinical Hospital on 29 January 2023. According⁴³ to Ukraine's

Health Minister, Viktor Liashko, the hospital's traumatology unit suffered the worst damage.



Figure 23: Comparison of the building to the right of the first photo with a Google Maps⁴⁴ image below, also showing the architectural similarities of the main building [46.645271770968975, 32.60889421326103].

⁴² https://eyersonrussia.org/event/event_8302_1674950400000

⁴³ <https://twitter.com/ViktorLiashko/status/1619686045704163329>

⁴⁴ Google Maps (Last accessed 31 May 2023). Available at: <https://goo.gl/maps/SwzoHT4m3UTJUy1j8>

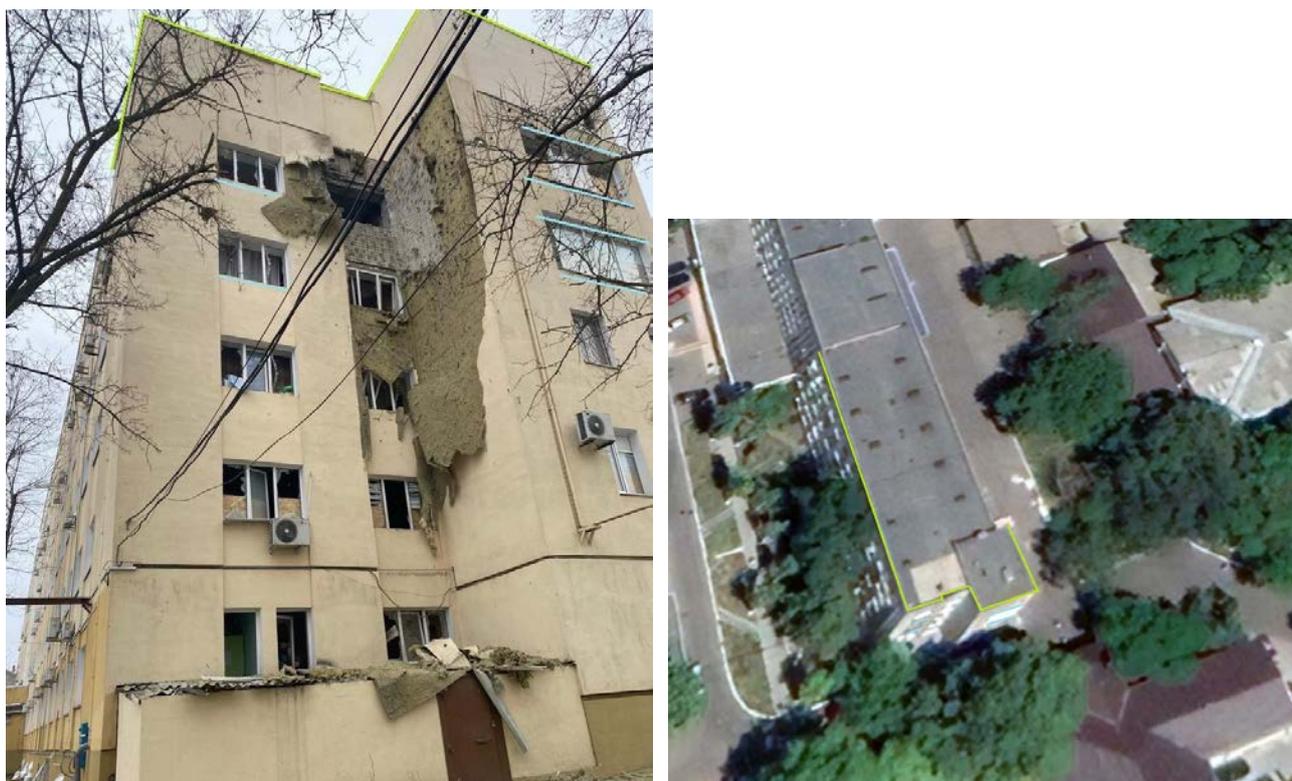


Figure 24: Comparison of roofline and windows with Google Earth satellite image

The Kherson Regional Administration reported⁴⁵ that two women - a nurse and a

cafeteria worker - had been injured in the attack.

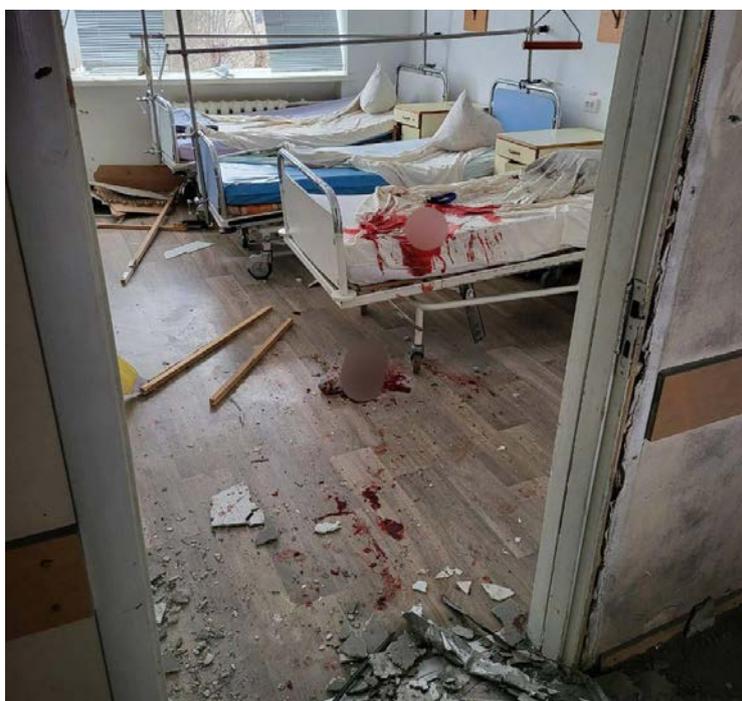


Figure 25: Aftermath of strike at the Kherson Regional Clinical Hospital. Photo from archived version of deleted Telegram post.

⁴⁵ Херсонська ОДА (29 January 2023). Available at: <https://t.me/khersonskaODA/3393>

The hospital is located in the southern half of Kherson city in a largely commercial area just north of a large park. It is located to the north-west of the Rehabilitation Centre for Children with Disabilities (Case Study 5) which was verified as damaged on two separate occasions. The

hospital is also located near several educational facilities including Kherson State University. The Kherson Regional State Administration building is not visible on the below map but is located approximately 700 metres away from the hospital.



Figure 26: Map of medical facilities (solid red), educational facilities (solid blue/blue outline), near the Kherson Regional Clinical Hospital (green), Kherson Oblast.

CASE STUDY 7: CITY CLINICAL HOSPITAL COMPLEX

24 February 2023, 24 February 2023, and 27 March 2023

The Kherson City Clinical Hospital Complex suffered damage to two separate buildings on 24 February 2023, one year to the day after Russia’s full-scale invasion of Ukraine. CIR was able to verify damage to both the maternity ward and the main reception building of the complex. According to Ukrainian news agency ‘Glavcom’,

Ukrainian officials released a statement claiming: *“Tonight, Russian invaders struck one of the city hospitals in Kherson. At the time of the attack, there were about 120 patients there Due to enemy shelling, the maternity, reception and oncology departments were damaged, as well as the fence was destroyed.”*



Figure 27: Damage to main entrance (red) and maternity ward (green) of the City Clinical Hospital Complex on 24 February 2023.

The hospital was struck again on 27 March 2023, with no civilian casualties reported. CIR verified damage to windows and the facade of the main entrance of the hospital. According to a statement by the Kherson City Council:⁴⁶

“The enemy continues shelling residential areas and medical facilities in Kherson. Tonight, targeted terrorist attacks by Russians came to the city hospital. O.S. Luchansky. Fortunately, as a result of these enemy attacks, there were no dead and injured. City communal services, together with the medical staff of the institution, are already promptly and

unitedly overcoming the consequences of the destruction. Most departments of the hospital will start functioning tomorrow”.

The hospital is located in the north-east of the city in what appears to be a largely residential area.

In the surrounding area, CIR has found mostly educational and medical facilities, bars, restaurants and apartment buildings. CIR has found no evidence of military facilities near the hospital.



Figure 28: Map of medical facilities (solid red) and educational facilities (blue outline), near the City Clinical Hospital Complex (green), Kherson Oblast.

⁴⁶ Херсонська міська рада (Last accessed 31 May 2023). Available at: <https://miskrada.kherson.ua/news/obstriliano-likarniu-im-o-s-luchanskohe/>

RUSSIAN FIRING POSITIONS

Only one of the attacks documented in this report, the shelling of the southern building of the Kherson Regional Cardiology Centre on 23 March 2023 (Case Study 2), provides us with a relatively clear idea of the direction from which

the attack came. The wall of this building faces south-south west. CIR projected crude vectors from this impact site to a distance of about 40 kilometres, which would cover the ranges of most Russian barrelled artillery.



Figure 29: Photo (left) from Ukrainian Operational Command South⁴⁷ with projection southwards on Google Earth (right).

⁴⁷ Operational Command “South” (23 March 2023). Available at: <https://www.facebook.com/OperationalCommandSouth/posts/pfbid0oPSTgaQidGXrG27fft393jzK8kKvD93MFLBQXafSvDPZPn1wEZhZQsu4KJxTWqmVI>

There are undoubtedly Russian military positions within this area, as satellite imagery revealed⁴⁸

trenches and tents established near the village of Promin in November 2022 (see Figure 30).



Figure 30 : Planet satellite image of earthworks near the Russian-occupied village of Promin on 10 November 2022 [46.33857174430706, 32.7484744955387].

However, the trenches appear to have fallen out of use by April 2023 and CIR has not been able to discern any evidence of firing from these positions from Sentinel satellite images captured on 23 March 2023.

Beyond the search area for this one particular strike, CIR has been able to verify footage of a number of Russian defensive positions as well as Ukrainian-released footage showing the

damage or destruction of Russian artillery pieces. By using open-source tools such as NASA's Fire Information for Resource Management System (FIRMS), CIR has been able to find evidence of fires in areas of Kherson Oblast in which Russian defensive positions have been verified. The fires in these positions are possibly as a result of Ukrainian counter-battery fire or Suppression of Enemy Air Defences (SEAD) strikes against Russian air-defence.



Figure 31: FIRMS data (left) showing detected fires south of the Olesky Sands national park and Sentinel satellite imagery (right) showing fires in the same locations on 19 May 2023.

⁴⁸ @scil_int (12 November 2022). Available at: https://twitter.com/scil_int/status/1591487340974936066



Figure 32: Planet satellite images of smoke rising from the Oleshky Sands on 7 and 18 May 2023.

This area was in use by Russian artillery for some time, as Planet satellite images, captured on 7 and 18 of May showed similar plumes (see Figure 32).

Notably, there were reports⁴⁹ of artillery fire heard⁵⁰ in Kherson on 7 May, though no evidence of impact damage has been verified by CIR.

CIR have verified footage of the destruction of several Russian artillery positions on the left bank of the Dnipro River. Whilst we are not able to say definitively that these positions are responsible for the damage to the abovementioned medical facilities between November 2022 and May 2023, the locations of these positions are within range of the facilities and provide evidence of Russia's capability to strike Kherson city.

On 1 February 2023, footage was posted on Twitter showing the destruction of a Russian Giatsint-B 152mm howitzer.⁵¹ While it is not

possible to confirm the exact date of the footage, the Kherson Regional Clinical Hospital was damaged just three days earlier (Case Study 6) on 29 January. The footage was geolocated⁵² to a wooded area west of the Oleshky Sands national park, approximately 25 kilometres from central Kherson. According to the National Defence University of Ukraine the howitzer has a range of up to 40 kilometres putting it well within range of the city of Kherson.⁵³

Additional footage posted on social media on 2 February showed the destruction of an unidentified artillery system in a wooded area south⁵⁴ of the village of Hola Prystan.⁵⁵ While CIR has not been able to identify the exact system seen, the distance from Kherson city is 16 kilometres, well within range for a number of artillery systems employed by the Russian armed forces.

⁴⁹ @kava202224 (7 May 2023). Available at: <https://twitter.com/kava2022/statuses/1655282017481678849>

⁵⁰ @KhersonKim (7 May 2023). Available at: <https://twitter.com/KhersonKim/status/1655316146097143809>

⁵¹ @Danspiun (2 February 2023). Available at: <https://twitter.com/Danspiun/status/1621097360850919424>

⁵² https://eyersonrussia.org/event/event_8374_1675209600000

⁵³ The National Defence University of Ukraine (Last accessed 31 May 2023). Available at: <https://nuou.org.ua/en/152-2a36-gaczint-b.html>

⁵⁴ @aleksander21966 (2 February 2023). Available at: https://eyersonrussia.org/event/event_8389_1675296000000

⁵⁵ @bayraktar_1love (2 February 2023). Available at: https://twitter.com/bayraktar_1love/status/1621222681541545985

CIR also verified footage of a BM-21 ‘Grad’ Multiple Rocket Launcher System (MRLS) hidden under a bridge near Oleshky.⁵⁶ The system has a range of approximately 20 kilometres and was located 8 kilometres from central Kherson. The City Clinical Hospital in Kherson was struck by artillery fire four days prior. The above locations

have been struck a number of times by Ukrainian artillery and/or air strikes. By analysing satellite imagery, defensive positions are clearly visible and occasionally, smoke can be seen rising from what is potentially destroyed or damaged Russian hardware, however the smoke could also be from burning trees or bushes from outgoing artillery fire.

CONCLUSION

The number of times each medical site was struck is remarkable. Two complexes were struck three times each over the course of a few months.

While CIR has not seen any fragments of munitions from the sites, the reports of shells being used and lack of nearby impacts in each case suggests that barrelled artillery was used rather than multiple-launch rocket systems (MLRS). Given the much higher accuracy of barrelled artillery and the single-shot nature of these attacks, it appears that at least some of these sites are being deliberately, and repeatedly targeted.

The impressive air defences established in Kyiv in the last two months may have caused Russian military planners to change tack regarding strategic bombardment, and the cruelty inflicted on Kherson could well be repeated across many Ukrainian cities without sufficient defences. Kherson itself, however, remains acutely vulnerable as even advanced air defence systems, such as those deployed in Kyiv, are designed to tackle missiles and aircraft rather than

artillery shells fired at relatively short range. The only effective mitigation, which evidence above indicates is being conducted by the Ukrainian armed forces, is to strike firing positions, troops and munitions stores in occupied territory to the south. As long as Russian forces are able to deploy on the opposite bank of the Dnipro River, Kherson will continue to suffer.

Whilst attacks against medical facilities in Kherson city dropped off between May and July 2023, CIR verified a number of attacks on medical and rescue workers in the city who were evacuating civilians following the collapse of the Kakhovka dam in June 2023. Additionally, in early August 2023, CIR verified damage to the “Kherson City Clinical Hospital”, named after E.E. Karabelesh. This hospital has not been damaged previously but is located approximately 600 metres from Maternity Hospital No.1, which was damaged twice previously.

CIR investigators continue to monitor the targeting or structural damage to medical facilities and other civilian infrastructure in Ukraine for future reporting.

⁵⁶ @KyleJGlen (31 March 2023). Available at: <https://twitter.com/KyleJGlen/status/1641790015632990208>

ANNEXE I

METHODOLOGY

To investigate the damage to medical infrastructure in Kherson City, CIR investigators collected digital data commonly referred to as user-generated content (UGC) from open sources. The sources used in this report include, but are not restricted to, official accounts from Kherson's regional administration and Kherson's City Council, social media channels from the so-called 'military-civilian administration' of the Kherson Oblast, Kherson's city and regional police departments, the administrators of the medical facilities themselves, eyewitnesses on social media, news reporters and satellite imagery.

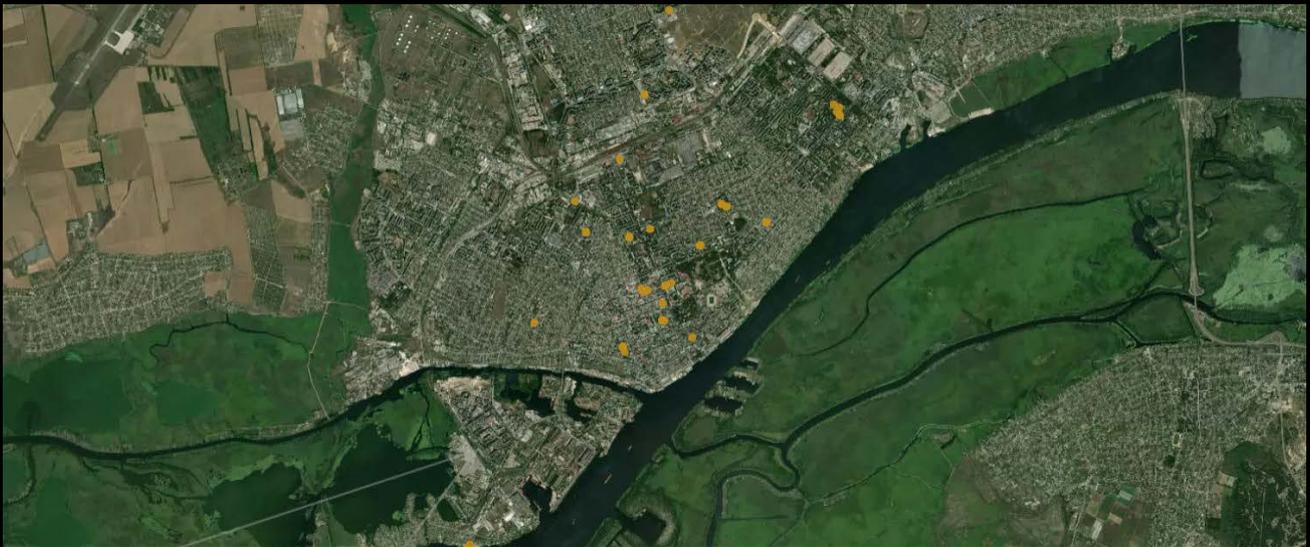
Each piece of information collected is logged in the Eyes on Russia database and given an entry number. The footage entered in the database is saved, archived, and hashed for future legal inquiries to hold those responsible to account. All collected data undergoes a verification process using independently replicable techniques such as geolocation, chronolocation and identification of visual features in the media to determine where it happened, when it happened, and what is being shown in the media.

This stage involves looking at visual clues in the footage and cross checking it with satellite imagery, Google Street view, or other related media, to determine the precise coordinates of the location seen in the video or photo. CIR investigators occasionally cross-reference the geolocation of specific imagery against other images or videos taken nearby to identify the approximate time when the footage was taken.

Once data has been collected, archived, hashed, verified, and categorised, it undergoes a review process by a team of senior investigators to ensure information is as accurate and reliable as possible. Data is also reviewed for privacy and safety. Once the entry has been reviewed, the content moves to an external database that only a limited number of people have access to. This information can be used for further investigations.

This report covers incidents taking place between 11 November 2022, the date of Kherson's liberation, and 18 May 2023. The first facility was damaged on 27 December 2022.

Eyes on Russia



Kherson after occupation: Mapping Russian attacks on medical infrastructure

SEPTEMBER 2023