



MEDICAL FACILITIES UNDER FIRE

SYSTEMATIC ATTACKS DURING APRIL 2017 ON IDLIB HOSPITALS SERVING MORE THAN ONE MILLION IN SYRIA



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COVER PHOTO BY: MUZAFFAR SALMAN (2013)

PRESERVING DOCUMENTATION OF HUMAN RIGHTS VIOLATIONS



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In April 2017 25 hospitals or medical facilities in Syria were attacked: an average of one attack every 29 hours.⁸ 91% have been independently found to be carried out by Syrian government or Russian forces.⁹ Many of those targeted were located in Idlib, the largest remaining opposition controlled city after 2016's siege in Aleppo left thousands displaced - the majority went to Idlib or to the Aleppo countryside.¹⁰

Information published in this joint report suggests that in April 2017 Syrian and Russian armed forces were responsible for the eight attacks on Syrian hospitals and healthcare centers - facilities serving a combined 1.3 million people (a beneficiary group larger than the population of Brussels), as reported in witness statements as well as by the managers of those medical facilities.

The Syrian Archive and its partners (Syrians for Truth and Justice, Justice for Life) analysed and verified this pattern of attacks by cross referencing a combination of open-source visual content, flight observation data, and witness statements. Findings regarding these attacks were characterized by repeated bombardments, lack of warnings, and an absence of active military hostilities in the vicinity of the attack. Through collecting, verifying and reporting investigative findings from these incidents, the authors hopes to preserve critical information that may be used for advocacy purposes or as evidence in future proceedings seeking legal accountability.

This report complements and supports recent efforts by human rights



organisations to report violations targeting medical facilities in Idlib in April 2017. Those efforts include:

- Syria Campaign (May 2017): "Saving Lives Underground"¹¹
- Medecins Sans Frontieres (Feb. 2017): "At Least 25 Killed in Attack on MSF-Supported Hospital in Northern Syria (Updated)"¹²
- Human Rights Watch (May. 2017): "Hospitals, Health Workers Under Attack"¹³
- Organisation for the Prevention of Chemical Weapons (June 2017): "OPCW Fact-Finding Mission Confirms Use of Chemical Weapons in Khan Shaykhun on 4 April 2017"¹⁴

The added value of this report to the efforts mentioned above includes damage identification, as well as cross referencing and contextualising visual content (75 verified videos) with witness statements (14 people) and with flight observation data (6343 observations) provided by a spotter organisation of aircraft in the immediate vicinity of hospitals at the time of attacks. Geolocation of visual content was done in collaboration with the Bellingcat Investigation Team.

Prior to publication, consent was acquired with those interviewed (e.g. medical workers, facility managers, and Civil Defense volunteers) regarding the public sharing of information regarding attacks.

This report is broken into the following sections: Ethics; Methodology; Specific attacks against hospitals and field clinics; Further research; Errors, corrections and feedback.



BACKGROUND

Hospitals have been forced into the frontlines of the Syrian conflict since it began six years ago. On 22 May 2011, two months after opposition protests against President Bashar al-Assad began, government forces stormed the hospital in Dara'a, kicked out non-essential medical staff, and placed snipers on the roof. The following day snipers began firing on demonstrators, marking the start of escalations that have continued to this day.¹⁵

In 2012, in a widely condemned move in violation of International Humanitarian Law, President Bashar al-Assad introduced counter-terrorism legislation which declared illegal any medical facilities operating without government approval. Requests for government approval to operate medical facilities in opposition held territory were ignored, effectively making illegal the operation of any opposition held hospitals.¹⁶ The law also criminalised failing to report “anti-government activity,” which according to the UN, “effectively criminalized medical aid to the opposition.”

Since then, hospitals and medical facilities have repeatedly been bombed in attacks largely attributed by international human rights monitors to Syrian and Russian

forces. For example, in 2013 the United Nations Independent Commission of Inquiry, the group responsible for investigating alleged war crimes in Syria, found that attacks on hospitals are used systemically as a weapon of war by the Assad regime.¹⁷ The Commission of Inquiry additionally found that deliberate attacks against medical staff and ambulances amount to war crimes of intentionally attacking medical personnel and transport, who are awarded special protection under International Humanitarian Law.

Medecins Sans Frontieres, an international humanitarian non-profit organisation that supports many facilities in Syria, stopped sharing data on medical facilities with Russian and Syrian forces because they feared the data they shared, such as geocoordinates, that was intended to protect civilians and humanitarian workers was being used to deliberately target them.¹⁸

Under International Humanitarian Law, medical personnel enjoy a protected status. As part of their protected status, they cannot be targeted by any party to the armed conflict.¹⁹ The law defines medical personnel as, “Personnel assigned, by a party to the conflict, exclusively to the search for, collection, transportation, diagnosis or treatment, including first-aid treatment, of the wound-

ed, sick and shipwrecked, and the prevention of disease, to the administration of medical units or to the operation or administration of medical transports.”²⁰ Moreover, persons performing medical duties who do not fall within this legal definition but are attacked when providing similar medical services enjoy the same protection under International Humanitarian Law.²¹

The principle of proportionality also prohibits parties to an armed conflict from launching attacks that might incidentally harm medical personnel, creating excessive harm in relation to any concrete military advantages gained.²² Article 3 of the Geneva Conventions further requires that the wounded and the sick be collected and cared for during armed conflict.

“ABOUT THE AUTHORS”

This report has been written jointly by the following organisations:

SYRIAN ARCHIVE

The Syrian Archive²³ is a Syrian-led initiative striving to promote sustainable peace and respect for human rights within Syrian society through facilitating justice and accountability efforts. This includes evidence gathering and documentation of incidents; the acknowledgment that war crimes and human rights violations

have been committed by all parties to the conflict; the identification of perpetrators to end the cycle of impunity; and the development of a process of justice and reconciliation. Through collecting, verifying, curating and investigating visual content, the Syrian Archive aims to preserve data as a digital memory to establish a database of human rights violations, and to act as a tool for legally implementing justice and accountability efforts as concept and practice in Syria.

Since its founding in 2014, the Syrian Archive have collaborated with organisations including Human Rights Watch (HRW), Amnesty International, Berkeley University and Essex University, Witness, Bellingcat and various agencies of the United Nations (UN), specifically the Independent International Commission of Inquiry on the Syrian Arab Republic.

SYRIANS FOR TRUTH AND JUSTICE

Syrians for Truth and Justice²⁴ is a Syria-based independent, non-governmental organization whose members include Syrian human rights defenders, advocates and academics of different backgrounds and nationalities. The initiative strives for Syria, where all Syrian citizens (males and females) have dignity, equality, justice and equal human rights.



JUSTICE FOR LIFE

Justice for Life²⁵ is a Syria-based civil society and a non-governmental non-profit organization concerned with strengthening and promoting the culture of human rights in Syria. The organisation is based in Deir Ezzor province. Justice for Life aims to contribute to the implementation and promotion of human rights culture and to the supporting of activists in this area - informing citizens of their civil and political rights and emphasizing the concept of “the rule of law” and its role in community development. Justice for Life has successfully implemented research and advocacy investigations with the goal of building an evidence base of human rights violations. Since its founding in 2013, the group has grown to include a staff of 45 volunteers.

BELLINGCAT

Bellingcat²⁶ is an award-winning investigative search network of using open source and social media content to investigate a variety of subjects, ranging from Mexican drug lords to conflicts being fought throughout the world. Bellingcat brings together contributors who specialise in open source and social media investigation, and creates guides and case studies so others may learn to do the same.

DATA ETHICS

The authors have strived to incorporate a “Do No Harm” ethical framework into its processes. Due to the repeated targeting of hospitals, medical facilities, and medical personnel since 2012 particularly by Syrian and Russian forces, additional precautions and ethical issues were raised.

As the Syrian Archive, it is important to be transparent in our findings and methodologies. We believe that visual documentation of human rights violations that is transparent, detailed, and reliable are critical towards providing accountability and can positively contribute to post-conflict reconstruction and stability. Such content can humanise victims, reduce the space for dispute over numbers killed, help societies understand the true human costs of war, and support truth and reconciliation efforts.

In order to prove that digital content has been verified, geolocation is needed. In the past the Syrian Archive has verified and published the locations of particular human rights violations; due to repeated targeting of hospitals and medical facilities, it was decided that publicly publishing the exact locations of facilities, even for those in longer in use, could potentially pose additional risks



towards those working in such environments.

For this reason, two versions of this report have been written: a public version which provides summary findings, and a private version which includes additional information, such as coordinates, provided to those groups given the mandate to investigate human rights violations in the Syrian conflict. The private report and its data will also be prepared to be given to the International, Impartial and Independent Mechanism on Syria (IIIM), as well as to the UN Commission of Inquiry on Syria.

Prior to publication, consent was acquired with those interviewed (e.g. medical workers, facility managers, and Civil Defense volunteers) regarding the public sharing of information regarding attacks.

METHODOLOGY

This report took an interdisciplinary approach towards investigating attacks on medical facilities in Idlib during April 2017. In the report, the authors have included a variety of sources for analysis and investigation, which each have their own respective methodologies. Specific methodologies are provided in the following pages:

WITNESS STATEMENTS

Following the hospital attacks in Idlib province during the month of April 2017, Syrians for Truth and Justice,

along with the Justice for Life Organisation, established a field research team which was tasked with entering the city and inspecting the impact sites. These organisations were additionally tasked with collecting material evidence as well as accounts of the survivors, such as those injured and their families, as well as accounts of eyewitnesses (e.g. medical staff; managers of the hospitals; civil defense team members).

Interviews were conducted in person in Idlib by staff members of their respective organisations and recorded on audio devices and then later transcribed. Staff members conducted a total of 14 semi-structured interviews using a standardised questionnaire. Questions asked to respondents focused on the following themes:

- 1-Details surrounding the attack (e.g. date, time, location)
- 2- The number of patients each medical facility provided care to on a monthly basis
- 3- The types of departments or procedures medical facilities conducted
- 4- The geographic areas served by medical facilities
- 5- Whether this medical facility had been previously subject to attack
- 6- Information regarding casualties and those injured as a result of the attack



FLIGHT OBSERVATION DATA

To cross-reference with findings from visual content, flight observation data information was provided to the Syrian Archive by an organisation employing a well-developed network of spotters (flight observers) of aircrafts departing from military air fields primarily located in northwestern and central Syria²⁷.

Flight data and the visual content were analysed to identify whether flights were observed in the vicinity of locations attacked for locations in which aerial bombings were alleged

VISUAL CONTENT

The Syrian Archive employed its Digital Evidence Workflow, based off of the Electronic Discovery Reference Model developed by Duke University School of Law²⁸. This workflow consists of five components: A) Identification; B) Collection and secure preservation; C) Processing, verification and analysis; D) Review; and E) Publication. A “Do No Harm” ethical framework has been applied to all steps in the digital evidence workflow. Detailed methodologies of these components are analysed in the following subsections.

A. Identification

The Syrian Archive’s identification process has three

steps: 1) Establish a database of credible sources for digital content; 2) Establish a database of credible sources for verification; 3) Establish a standardised metadata schema. These three processes are outlined in detail

1) Establish database of credible sources for content
Before any collection, archival, or verification of digital materials was possible, the Syrian Archive first established a database of credible sources for visual content. The Syrian Archive project worked to identify over 300 credible sources, a list consisting of individual journalists and field reporters, larger media houses (e.g. local and international news agencies), human rights organisations (e.g. Syria Institute for Justice), Syrian Civil Defense (White Helmets), and local field clinics and hospitals, and others. Many of the sources used by the Syrian Archive began publishing or providing visual content in late 2011-early 2012 and have also published work in other credible media outlets.

Credibility was determined by analysing whether the source is familiar to the Syrian Archive or to its existing professional network of Syrian journalists, media activists, human rights groups and humanitarian workers; whether the source’s content and reportage been reliable in the past. This is determined by evaluating how long the source has been reporting and how active they



are. To determine where the source is based, social media channels are evaluated to determine whether videos uploaded are consistent and mostly from a specific location where the source is based, or if locations differ significantly. Channels are analysed to determine whether the video account uses a logo and whether this logo is consistently used across videos. Channels are additionally analysed for original content to determine whether the uploader aggregates videos from other news organizations and YouTube accounts or whether they upload mostly user-generated content.

2) Establish database of credible sources for verification
Secondly, the Syrian Archive project worked to establish a database of credible sources for verification. These sources provide additional information used for verification of content originating on social media platforms or sent from sources directly. Those verifying content are made up of citizen journalists, human rights defenders and humanitarian workers based in Syria and abroad. To preserve data integrity, sources used for content did not comprise part of the database for verification.

3) Establish standardised metadata scheme

Third, the Syrian Archive recognised the need for a standardised metadata scheme for organising content, but also that any metadata scheme used would be a highly

political choice. Given that there are no universally accepted legally admissible metadata standards as of the date of this publication, efforts were made to develop a framework in consultation with a variety of international investigative bodies. Among these include consultations with members of the International Criminal Court, with members of the United Nations Office for High Commissioner of Human Rights, with members of the International, Impartial and Independent Mechanism on international crimes committed in Syria (IIIM), with archival institutes like the NIOD Institute for War, Holocaust and Genocide Studies, with international human rights organisations like Amnesty International, Human Rights Watch, and Witness, and with research institutes like the Human Rights Center at UC Berkeley School of Law.

Establishing a standardised metadata schema is necessary in order to assist users in identifying and understanding when, where, and what happened in a specific incident. A review of practices by other war archival institutes, such as those of NIOD, found that additional information is helpful for contextualising raw visual content (e.g. location of video recording; date of video recording and upload; and the origin of the video). Metadata collected by the Syrian Archive project includes description of the visual object as given (e.g. YouTube



title); the source of the visual content; the original link where footage was first published; specific landmarks able to be identified; weather (which may be useful for geolocation or time identification); specific languages or regional dialects spoken; clothes or uniforms able to be identified; weapons or munitions used; device used to record the footage; and media content type. The metadata is populated automatically and manually depending on how it was collected from e.g open source or closed source. A detailed description and full list of metadata field types are provided on the Syrian Archive website.²⁹

In categorising violations, the Syrian Archive has decided to use the violations categories used by the Office of United Nations High Commissioner for Human Rights (OHCHR). This was done because OHCHR is one of the groups in the unique position of being able to investigate incidents of human rights violations and war crimes. These categories consist of many often overlapping categories. Categories identified by the UN OHCHR Inquiry on Syria and used by the Syrian Archive project include:

Violations: treatment of civilians & hors de combat fighters

- Massacres and other unlawful killing;
- Arbitrary arrest and unlawful detention;

- Hostage-taking;
- Enforced disappearance;
- Torture and ill-treatment of detainees;
- Sexual and gender-based violence;
- Violations of children's rights;

Violations: conduct of hostilities

- Unlawful attacks;
- Violations against specifically protected persons and objects;
- Use of illegal weapons;
- Sieges and violations of economic, social and cultural rights;
- Arbitrary and forcible displacement.

Should potential investigations by international bodies not be pursued by the UN OHCHR and rather by another investigative body, it is anticipated that the Syrian Archive will modify violations categories to meet the needs of those investigating.

B. Collection and secure preservation

The collection and secure preservation of the digital evidence workflow ensures that the original content is not lost due to removal on corporate platforms. This is done by collecting and securely storing digital content



on external backend servers before it goes through basic verification. It is then backed up securely on servers throughout the world. Videos are hashed with (SHA-256) and (Md5) consistent with current best practices and timestamped to ensure they are not tampered with after being collected from social media platforms (open source) or taken directly from sources (closed source). Simultaneously it is hashed and timestamped by an independent and impartial third party for reference and integrity purposes. Once verified, content is centrally published on the Syrian Archive website in an open-source format. The Syrian Archive uses the Littlefork software for this process, a free and open source software developed for use in human rights investigations using online-based user generated content research.³⁰

C. Processing, verification, and analysis

After content has been collected and stored securely, the next stage of the digital evidence workflow refers to the processing, verification, and analysis of digital materials. Detailed descriptions of these three components of the digital evidence workflow are outlined

1) Processing

Metadata from visual content collected from social media platforms is parsed and aggregated automatically using a predefined and standardised metadata scheme, as described above. Metadata from visual content sent

to the Syrian Archive directory is created manually using the standardised metadata scheme.

This prepares the visual content for initial verification. As much additional metadata and chain of custody information as possible is recorded. This is done to assist users in identifying and understanding when, where, and what happened in a specific incident.

2) Verification

Verification is comprised of three components: 1) Verify the source of the video uploader; 2) Verify the location where the video was filmed; 3) Verify the dates in which the video was filmed and uploaded. Detailed descriptions of these three processes are outlined

- Verify the source of the video uploader

Establish that the source of the video on the Syrian Archive's verified list of credible sources. If the source is not an existing trusted source, determine the new source's credibility by going through the procedure highlighted above.

In some cases, near-duplicate content may be published. For example, if one video is 30 seconds and a second video is 10 minutes but includes all or portions of the



first video, both videos would be published as long as it is possible to verify both videos. Similarly videos from news organisations or media houses featuring all or parts of content from other videos are also preserved, as long as verification is possible. The Syrian Archive also preserves duplications if they are from different sources and the original uploader is unable to be determined (for example if two identical videos are uploaded simultaneously).

The video uploader source may not necessarily be the same as the source who originally filmed content. In most of the video footage verified by the Syrian Archive, only the video uploader and not the video filmer is known. Advanced verification in the analysis phase includes the source of filming, a process done in cases deemed priority.

- Verify the location where the video was filmed

Each video goes through basic geolocation to verify that it has been captured in Syria. More in-depth geolocation is conducted for priority visual content in order to verify that it has been captured in a specific location. This has been done by comparing reference points (e.g. buildings, mountains ranges, trees, minarets) with Google Earth

satellite imagery, Microsoft Bing, and Digital Globe, as well as OpenStreetMap imagery and geolocated photographs from Google Maps. In addition to this, the Syrian Archive has referenced the Arabic spoken in videos against known regional accents and dialects within Syria to further verify location of videos. When possible, the Syrian Archive has contacted the source directly in order to confirm the location, and cross-reference video content by consulting existing networks of journalists operating inside and outside Syria to confirm the locations of specific incidents.

- Verify the dates in which the video was filmed and uploaded

The Syrian Archive verifies the date of capturing the video by cross referencing the publishing date of visual content collected from social media platforms (e.g YouTube, Twitter, Facebook and Telegram) with dates from reports concerning the same incident. Visual content collected directly from sources is also cross referenced with reports concerning the same incident featured in the video.

- News reports from international and local media outlets, including Reuters, Smart News Agency, Aleppo

Media Center, Qasioun News Agency, LCC;

- Human rights reports published by international and local organisations, including Human Rights Watch, Amnesty International, Syrian Human Rights Network, Violations Documentation Center in Syria, Syrian American Medical Society, and Physicians for Human Rights;
- Reports shared by the Syrian Archive's network of citizen reporters on Twitter, Facebook and Telegram about the incidents.

Additional tools are used to check the date of the visual content such as Google reverse imagery and Sun Calc.

3) Analysis

In some cases, the Syrian Archive is able to conduct in-depth open source investigations. Time and capacity limitations means not all incidents are able to be analysed in-depth, however by developing a replicable workflow it is hoped that others can assist in these efforts of investigate other incidents using similar methods. A detailed overview of in-depth incident analysis is provided in the investigations section of the Syrian Archive website.³¹

D. Review

Once digital materials have been processed, verified, and analysed, it is then reviewed for accuracy. In the event of a discrepancy, content is fed back into the digital evidence workflow for further verification. If content is

deemed accurate it moves to the publishing stage of the digital evidence workflow.

E. Publication

Once the visual content is verified and reviewed, it's then published on the Syrian Archive database where they are made publicly available in a free and open source format. Regular reports on verified visual content ensure that the feedback loop between the Syrian Archive and sources who filmed the videos is closed. This allows the Syrian Archive to add value to the visual content being preserved, verified and analysed immediately for advocacy purposes and later on for accountability and justice purposes.

SPECIFIC ATTACKS AGAINST HOSPITALS AND FIELD CLINICS

This section provides an overview of eight attacks on medical facilities (including hospitals and field clinics) in Idlib, verified by the Syrian Archive and its partners as having taken place during April 2017. For all incidents identified, visual content indicates that either Syrian or Russian forces attacked medical facilities treating civilians. This was determined by conducting an analysis of primary sources - such as verified video footage, flight data, and witness statements - as well as secondary sources, such as reports by international human rights organisations and media houses.

Determinations for each incident were reached through an analysis of video documentation, flight records and witness statements. By examining a variety of sources of information for each attack, the Syrian Archive was able to corroborate and strengthen the findings from their visual content dataset. Visual content gathered and verified by the Syrian Archive is extensively analysed - including in-depth geolocation and, when relevant, munition identification.



To cross-reference findings from visual content, flight observation data was provided to the Syrian Archive by an organisation employing a well-developed network of spotters. Following an analysis of the visual content and flight observation data, the Syrian Archive identified excerpts of statements from witnesses and victims collected by Syrians for Truth and Justice for Life and combined them with findings from their earlier analysis to provide corroborating witness statements for each attack. Full statements are included in the Appendix to this report.

Detailed overviews of each incident are provided in the following pages. An overview of the visual content is provided first, followed by an overview of the corroborating flight observation data and witness statements. All times provided are in Damascus local time, and in 24-hour format.



INCIDENT 1

THE NATIONAL HOSPITAL OF MARRET NUMAN

LOCATION: IDLIB : MARRET NUMAN

HOSPITAL: THE NATIONAL HOSPITAL OF MARRET NUMAN

BENEFICIARIES: ~500,000 PEOPLE

DATE: 2 APRIL 2017

TIME: 07:30 PM ~ 08:30 PM

ATTACKS: THREE AIRSTRIKES

REPORTED CASUALTIES: NONE REPORTED

REPORTED INJURED: MEDICAL PATIENTS

MUNITIONS IDENTIFIED: NOT AVAILABLE

POTENTIALLY RESPONSIBLE: RUSSIAN OR SYRIAN AIR FORCE

“
 THE SHELLING CAUSED HEAVY PHYSICAL DAMAGE TO THE BUILDING, THE MEDICAL EQUIPMENT AND THE HOSPITAL AMBULANCE. THE SURGERY DEPARTMENT WAS THE MOST DAMAGED AS ONE OF THE ROCKETS FELL IN THE MIDDLE OF THE OPERATING ROOM.”

”



The first hospital attack identified took place on 2 April 2017. One of the first videos about this incident (source: Abu Ali al Marawy) was published on Facebook 21:13 Damascus time. ³²

The video shows the first moment of the attack on the hospital from a far view. In the video they mention an aircraft firing a rocket in Marret Numan.



Shaam News published a video on their YouTube channel showing the destruction inside the hospital.³³



Muaz Al Shami, a citizen journalist, also published a video on his YouTube channel showing destruction inside the hospital, as well as destruction of the ambulance car parked outside of the facility.³⁴



Qasioun News agency also published a video on their YouTube channel showing the damaged roof.³⁵ From the video still below, it is apparent that two roofs were damaged from two different floors.



A separate video published by Qasioun News agency shows the damaged roof from above in the daylight.³⁶



Marret Numan Network, a group of citizen journalists, published a video on their YouTube channel showing the destruction of the exterior and interior of the building and clear damage of the roof as a result of it being targeted with an airtstrike³⁷



The Idlib health directorate conducted video interviews with doctors from Marret Numan hospital, which they published online as well.³⁸ One of the doctors said: “This airstrike is not like any airstrike and Marret hospital is not like any hospital. It’s a huge hospital. It was serving a big area from north countryside of Hama into the southern countryside of Idlib which has a population of 1,500 000 people. ”



Later in the video at 1:48, a doctor states: “The hospital receives 30.000 patients per month. It does more than 1000 surgeries monthly. This hospital will not get back to be working any time soon. This is a clear message that the regime wants to kill any kind of life in our liberated areas.”

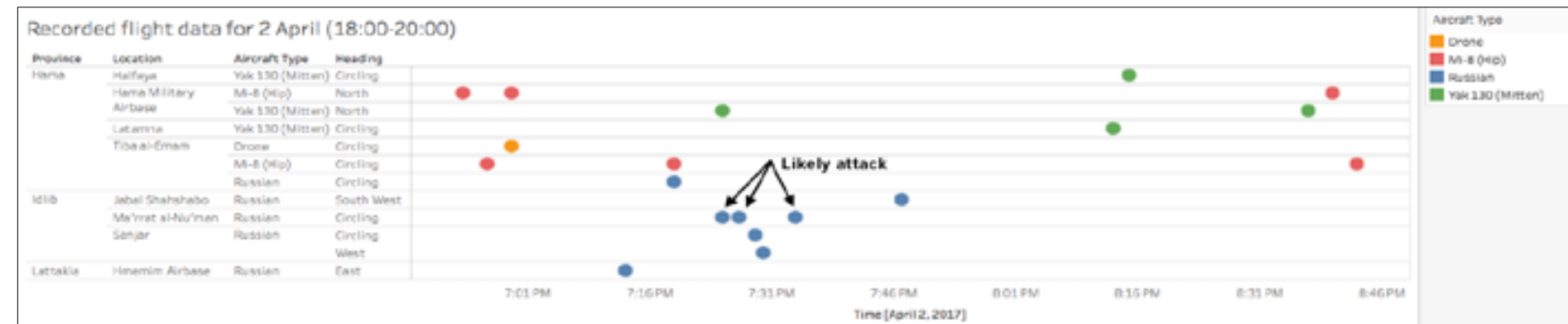
In one interview published in a video by the journalist “Hadi Al Abdallah” who spoke with Dr. Abdul Hadi Haidar who works at the national hospital in Marret Numan.³⁹ Dr Haidar said: “All those injured and the patients were very scared after the hospital attacks. I didn’t know what to do. Should I look after the patients? Or the children? Or myself? We still have infants in incubators inside. The hospital was attacked with three airstrikes which happened at the same time, 10 minutes after each strike



Orient news published a video about the attack showing the outside view of the hospital building during the day.⁴⁰ This vantage point was used to geolocate the hospital’s building.



The journalist also conducted an interview with one of the hospital workers. In the interview, the hospital worker said: “Yesterday at 19:20 we were transferring a patient into the surgery room when we heard the first bombing, so we all went to the basement floor. The women, children and infants departments were full and there were injuries among them as a result of this attack.” To provide a further layer of verification, the Syrian Archive cross-referenced findings from the videos with flight observation data from a spotter organisation. This process necessitated analysing observation data for flights between 18:00 and 20:00, the period directly before and after the reported attack.



Through comparing where flights were observed, the time they were observed, and the direction flights were heading, and comparing this data to geolocation conducted in earlier steps, the Syrian Archive was able to identify a potential flight seen circling in the immediate vicinity of geolocated attack site. Previous research has found that circling flights typically indicate target acquisition and/or preparation for imminent attack.

The map above demonstrates that the medical facility attacked was well within range of the aircraft detected. Witness statements of the attack was provided jointly by Syrians for Truth and Justice and by Justice for Life. Dr. Mohamed Osman, who was in the central Ma`arat al-Nu`man Hospital at the moment of the attack, affirmed to the investigative team that on 2 April 2017 at about 20:30, a military aircraft believed to be Russian, launched three airstrikes on the hospital using six thermobaric bombs. The bombs targeted both the upstairs directly as well as the main yard of



(SOURCE: GOOGLE EARTH)

the hospital. The structural damage to the hospital from the attack was so significant that it caused the hospital to be out of service. Dr. Osman confirmed in his statement:

“The shelling caused heavy physical damage to the building, the medical equipment and the hospital ambulance. The surgery department was the most damaged as one of the rockets fell in the middle of the operating room.” Ibrahim al-Qasim, the anesthetist present at the hospital at the time of the attack, stated that warplanes targeted

the hospital with three airstrikes, while it was crowded with doctors and patients. This caused dozens of injuries and considerable material damage to the hospital. He stated in his statement:

“A ROCKET HIT THE OPERATING ROOM AND ANOTHER ONE DESTROYED THE INTENSIVE CARE ROOM COMPLETELY, SO WE IMMEDIATELY TRANSFERRED AS MUCH WOUNDED AS POSSIBLE TO THE BASEMENT, BUT THE MATERIAL DAMAGE WAS VERY EXTENSIVE.”

Al-Qasim emphasized that Ma'arat al-Nu'man hospital is one of the largest medical facilities located in areas controlled by the Syrian armed opposition. As such, most hospitals and medical centers in the vicinity dispatch patients to Ma'arat al-Nu'man hospital, given that has the capacity to support many medical specialties and surgeries, including a cardiology and surgery department. Al-Qasim mentioned that at the beginning of the conflict the hospital served a densely populated area, including Ma'arat Al-Nu'man and its outskirts, with a total of about 500,000 people benefiting from its services.

Furthermore, Ubada Al-Thekraa, the director of the Civil Defense in Ma'arat Al-Nu'man, explained to this report's investigative team that when Russian warplanes launched the first raid on this particular hospital, Civil Defense members rushed to it, and while they were there, they were shocked by two other raids that caused the electricity to be cut from the hospital. Al-Thekraa added:

“THERE WERE INFANTS INJURED WHO WERE IN THE INCUBATOR DEPARTMENT; SOME OF THEM WERE TRANSFERRED TO HOSPITALS OUTSIDE MA`ARAT NU`MAN. I REMEMBER WELL THAT THE DESTRUCTION PERCENTAGE WAS OVER 60.



INCIDENT 2

THE MEDICAL POINT OF KHAN SHAYKHOUN

LOCATION: IDLIB : KHAN SHAYKHOUN

HOSPITAL: THE MEDICAL POINT OF KHAN SHAYKOUN (AL RAHMEH)

BENEFICIARIES: ~5,000 PEOPLE

DATE: 4 APRIL 2017

TIME: ~11:00, 4.5 HOURS AFTER THE CHEMICAL ATTACK

ATTACKS: NINE AIRSTRIKES BASED ON WITNESS STATEMENTS

REPORTED CASUALTIES: NOT AVAILABLE

REPORTED INJURED: MEDICAL STAFF AND PATIENTS

MUNITIONS IDENTIFIED: S-5M ROCKET

POTENTIALLY RESPONSIBLE: SYRIAN OR RUSSIAN AIR FORCE



“AS SOON AS WE HEARD THE ROAR OF THE WARPLANES, I RUSHED INSIDE WITH SOME VISITORS, AND THEN THE WARPLANES BEGAN TO TARGET THE AREA AND HIT THE HOSPITAL. ALTHOUGH THE HOSPITAL WAS ESTABLISHED IN AN UNDERGROUND CAVE, THE ROCKETS WERE ABLE TO PENETRATE IT AND CAUSED CONSIDERABLE DAMAGE TO THE MEDICAL EQUIPMENT.”



The second hospital attack took place on 4 April 2017 in Khan Shaykhoun. The bombing occurred approximately 4.5 hours after the widely reported chemical attack targeting Khan Shaykhoun.⁴¹

The Organisation for the Prohibition of Chemical Weapons published a report about this on 30 June 2017, confirming the use of chemical weapons in Khan Shaykhoun.⁴²

Many of the civilians injured as a result of the chemical attack had been transferred to this medical point for treatment, as documented in a video published by Smart News Agency.⁴³ See still from the video provided

The initial moment of airstrikes against the Khan Shaykhoun medical point and the Civil Defense center were captured by reporter Muaz Al Shami published a video.⁴⁴



(SOURCE: SMART NEWS AGENCY)



Muaz Al Shami then walks outside of medical point to document the smoke resulting from the airstrike.

Another reporter who was at the targeted site, Hadi Alabdallah, also published a video showing destruction inside and outside the medical point.⁴⁵



(SOURCE: HADI ALABDALLAH)



In the video, Hadi Alabdallah states: “This site was targeted by five airstrikes which resulted in huge damage to the building as well as to the Civil Defense ambulance car and truck. The Civil Defense center and medical point are out of service completely. The air force is still flying around us.”

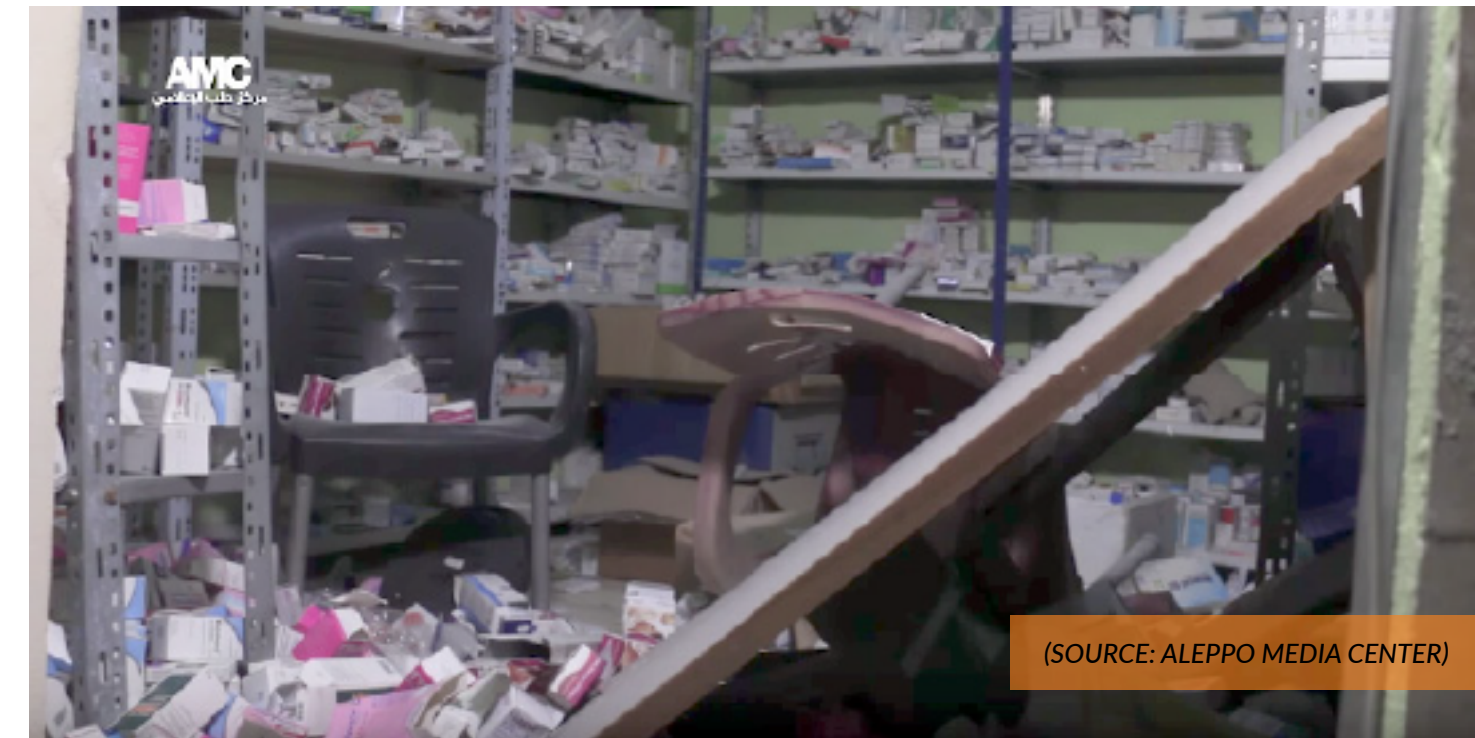


(SOURCE: HADI ALABDALLAH)



Aleppo Media Center (AMC) also published a video (The video is removed from YouTube but archived with the Syrian Archive) featuring the first moments of the attack. Their video documents inside the medical point where children’s voices are clearly heard in the background.

A separate video published by AMC (The video is removed from YouTube but archived with the Syrian Archive) includes an interview with one of the workers at the hospital. In the video, the hospital worker explains: “The hospital



(SOURCE: ALEPPO MEDIA CENTER)

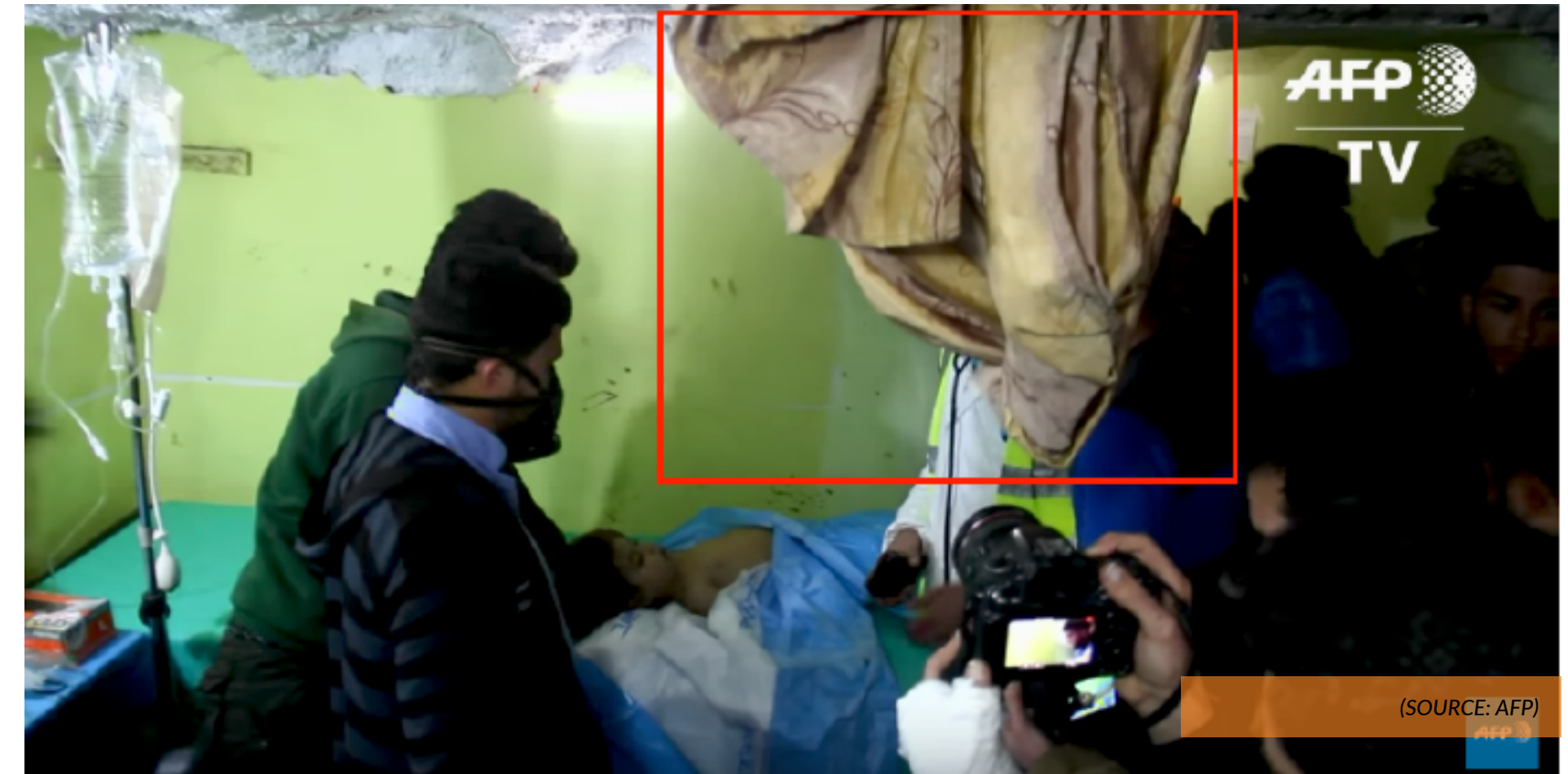
received hundreds of injured people as a result of the chemical attack. This included women and children. The Russian and Syrian air force attack targeted the medical point with 15 airstrikes which damaged the medical point very badly, and it’s out of service now.” Damage to the interior of the hospital is shown in a still from the video



Reporter Yamaan Khatib also published a video on his Twitter account which shows the first moments of the airstrikes targeting the medical point providing services to many people injured in the Khan Shaykhoun chemical attacks.⁴⁶



AFP published a separate video from inside the same medical point, which allowed the Syrian Archive to cross-reference and verify that the reporter Yamaan Khatib was inside the same facility when it was attacked.⁴⁷



The Civil Defense Center in Idlib published a video on their YouTube channel showing the damaged building after the attack.⁴⁸ In the video, one of their volunteers confirms that the medical point was rendered out of service as a result of the attack.

A still from a video published by Baladi News (The video is removed from YouTube but archived with the Syrian Archive), provided below, shows the destruction of the medical point building:



(SOURCE: BALADI NEWS NETWORK)



Two videos were published by the Syrian Network for Human Rights, the first taken from inside the medical point building and the second taken from outside the medical point building. The first video shows people trying to leave the building, struggling with being stuck inside.⁴⁹

A second video by the Syrian Network for Human Rights shows the outside of the medical point and damage to the western side of the building. At 0:04, the person recording states: “4 April 2017 Khan Shaykoun is attacked with four airstrikes (one after the other), after the chemical massacre.” While the recorder was capturing the video, a fifth airstrike occurred. Upon commencement of this new airstrike, the recorder confirms, “This is the fifth airstrike on Khan Shaykhun.”

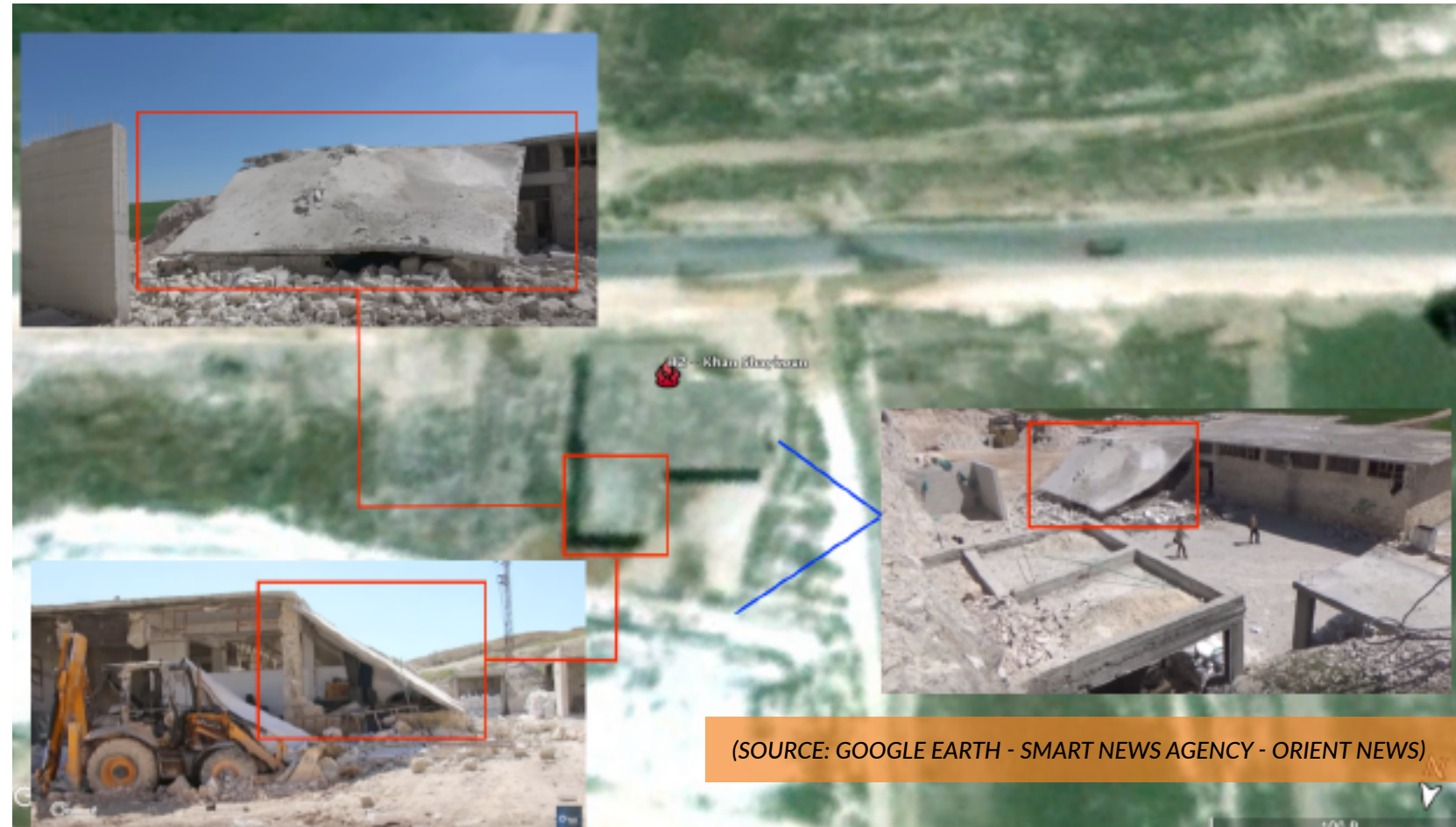
Smart News Agency published a video clearly documenting the outside area of the medical point and the Civil Defense Center.



(SOURCE: SMART NEWS AGENCY)



Using stills from the videos above and Google Earth, the Syrian Archive was able to geolocate the attacked site.



Additional satellite imagery was obtained through DigitalGlobe, from which further geolocation was possible.



(SOURCE: DIGITALGLOBE - AL DORAR AL SHAMYEH)

The location of the medical point, verified through geolocation by Bellingcat and the Syrian Archive, is very close to the reported location of the chemical attack that occurred in Khan Shaykhoun on 4th April early morning.⁵⁰ Geolocation of the medical point building, as well as of the smoke that resulted from the airstrikes, is provided



(SOURCE: GOOGLE EARTH - ALEPPO MEDIA CENTER)

Remnants of the weapon used in the attack on the hospital were documented in a video published by Orient News⁵¹ and in another video published by Dorar Al Shamyah.

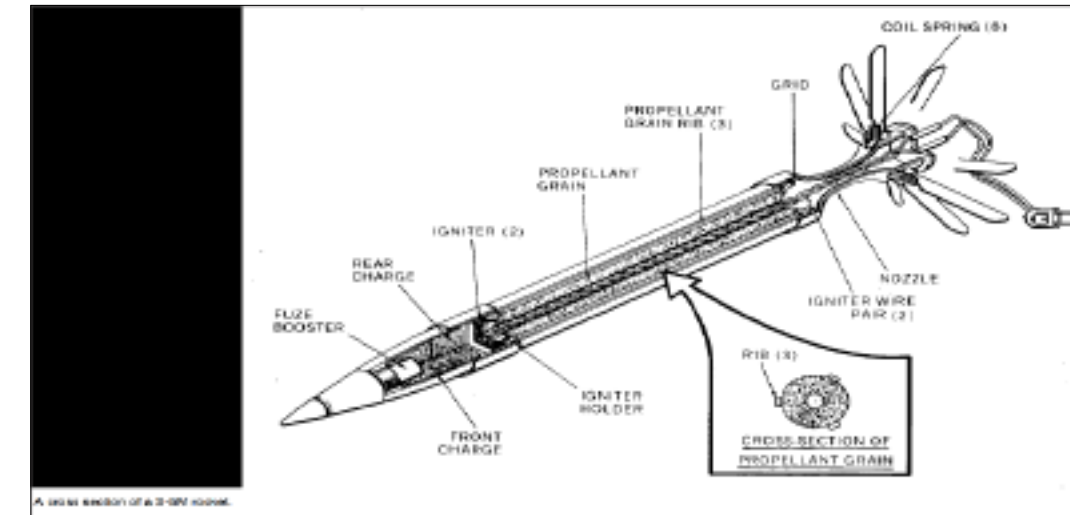




(SOURCE: AL DORAR AL SHAMYEH)

The photos above indicate that S-5M rockets (developed by the Soviet Air Force and used by military aircraft against ground area targets) were used in this attack.⁵²

are reference images of S-5M rockets for comparison:



RETRIEVED FROM "S-5 ROCKET," WIKIPEDIA.⁵³



RETRIEVED FROM "S-5 ROCKET," WIKIPEDIA.⁵⁴



Smart News Agency published a video showing the crater of one of the rockets,⁵⁵ as shown below:



A statement about the attack has been published by the Syrian Civil Defense, as well as by the Idlib Health Directorate on their public Facebook pages.⁵⁶

The Syrian Archive compared two satellite images from DigitalGlobe - one taken on 21 February 2017 before the 4 April 2017 attack, and one taken on 2 June 2017 after the attack. The building damage highlighted in white below to the front side and the east side of the building can be clearly identified.



SATELLITE IMAGE: DIGITALGLOBE ©2017



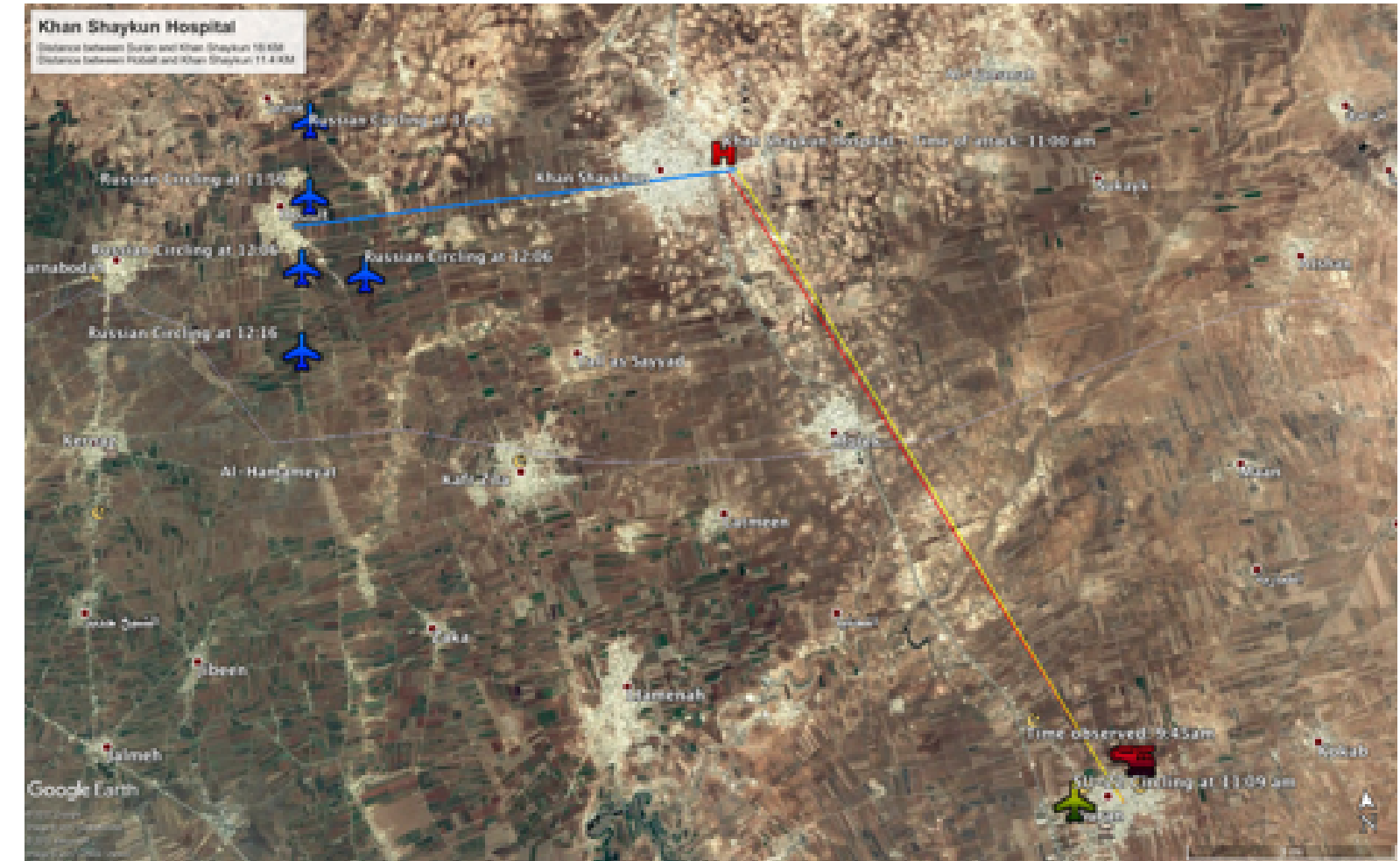
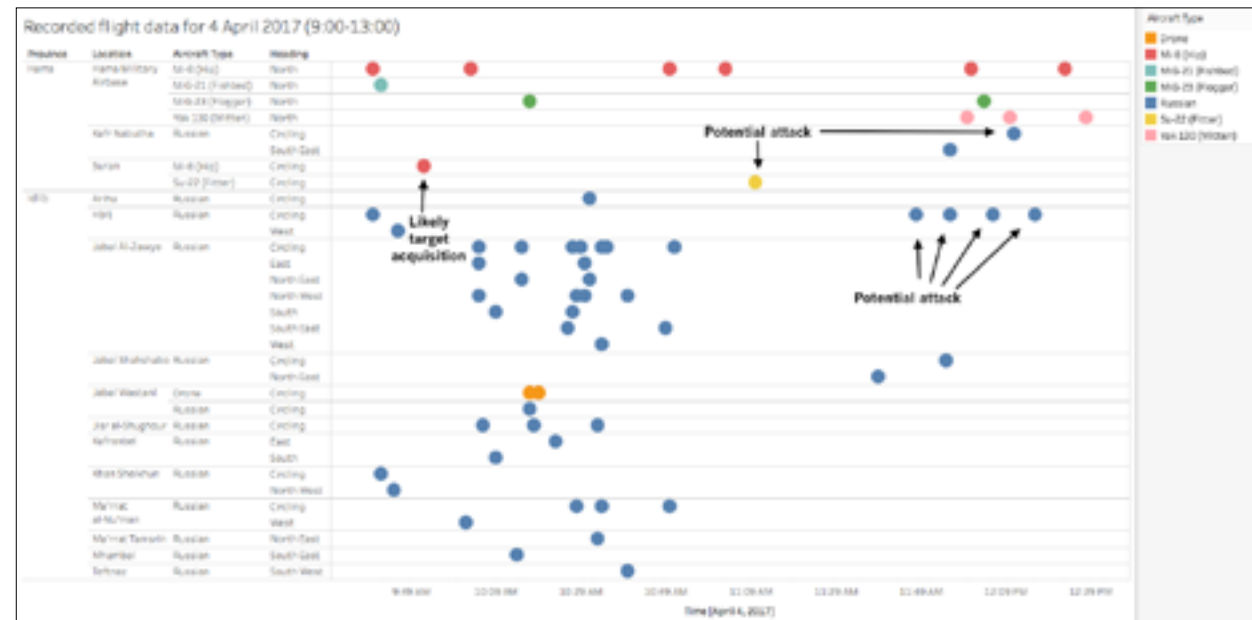
To provide a further layer of verification, the Syrian Archive analysed flight observation data provided by a spotter organisation. This consisted of analysing observation data of flights between 09:00 and 14:00, the period directly before and after the reported attack.

Through comparing where flights were observed, the time they were observed, and the direction flights were heading, and comparing this data to geolocation conducted in earlier steps, the Syrian Archive was able to identify a potential flight seen circling very close to the geolocated attack site.

The report’s source for flight observation data has found that circling flights typically indicate target acquisition and/or preparation for imminent attack. In this case, the Mi-8 helicopter flight observed near the attack site around 10:00 has been determined to likely be acquiring the target for the later attack. Due to the larger number of flights found circling around the attack site around 12:00, identifying the specific plane responsible for the attack was unable to be conducted for this incident.

However, the presence of a large number of Syrian or Russian aircraft in the immediate vicinity to the attack site

confirms that an incident may have occurred at this time and location. As with the previous incident, though some aircraft are labelled “Russian,” it is possible the flight was operated by the Syrian air force, rather than the Russian air force, as the Syrian air force also used Russian planes.



SATELLITE IMAGE: DIGITALGLOBE ©2017

The map above demonstrates that the medical facility attacked was well within range of the aircraft detected. The Mi-8 observed and determined to likely be acquiring the target, as well as the drone observed and potentially involved in the attack, were detected circling 18km from

the attack site. The four Russian aircraft observed and determined to potentially be involved in the attack were detected circling 11.4 km from the attack site.

Witness statements of the attack were provided jointly by Syrians for Truth and Justice and by Justice for Life. The Managing Director of Al-Rahma hospital in Khan Sheikhoun located in the Idlib countryside, who did not disclose his name for security purposes, said in his statement to the investigative team that only two hours after targeting the city with chemical weapons on 4 April 2017, Russian warplanes launched nine air raids that lasted for an hour. They targeted the southern area of Khan Sheikhoun, where the Civil Defense Centre and Al-Rahma hospital exist, and caused significant material damage to the hospital such that it was rendered inoperable. He added:

“AT ABOUT 11:00 AM, I WAS INSIDE THE HOSPITAL WORKING ON REPORTS OF THE CHEMICAL ATTACK ON THE CITY JUST TWO HOURS AGO. WE WERE SHOCKED BY SUSTAINED RAIDS WHICH FOCUSED ON THE HOSPITAL YARD AND ITS MAIN GATE, IN ADDITION TO THE DRUG STORE WHICH WAS DEVASTATED. MOREOVER, THE SHELLING CAUSED

THE DISRUPTION OF THE ELECTRICITY GENERATORS AND CONSEQUENTLY, POWER WAS CUT OFF FROM THE HOSPITAL.”

In another statement, the field coordinator of the hospital, who also declined to disclose his name for security purposes, confirmed that Russian warplanes targeted the Al-Rahma hospital alongside other medical facilities near Khan Sheikhoun, especially those that had received large numbers of patients injured by the previous chemical attacks. He added:

“AS SOON AS WE HEARD THE ROAR OF THE WARPLANES, I RUSHED INSIDE WITH SOME VISITORS, AND THEN THE WARPLANES BEGAN TO TARGET THE AREA AND HIT THE HOSPITAL. ALTHOUGH THE HOSPITAL WAS ESTABLISHED IN AN UNDERGROUND CAVE, THE ROCKETS WERE ABLE TO PENETRATE IT AND CAUSED CONSIDERABLE DAMAGE TO THE MEDICAL EQUIPMENT.”

In a related context, Anas Diyab, a member of the Civil Defense in Khan Sheikhoun, who contributed in transferring the injured from the hospital after bombarding it



by more than five airstrikes, spoke to the report's investigative team, stating:

“AL-RAHMA HOSPITAL, ALSO KNOWN AS THE CAVE HOSPITAL, IS CONSIDERED THE ONLY SURGICAL HOSPITAL IN THE TOWN AND PROVIDES SERVICES TO KHAN SHEIKHOUN PEOPLE AND THE SURROUNDING VILLAGES AS WELL. HOWEVER, RUSSIAN WARPLANES TARGETED THE HOSPITAL AND THE CIVIL DEFENSE CENTER, AIMING TO CAUSE A HUMANITARIAN CATASTROPHE, AND DENYING ACCESS TO TREAT THOSE WHOM WERE AFFECTED BY THE CHEMICAL ATTACK - THUS KILLING AS MANY PEOPLE AS POSSIBLE.”



INCIDENT 3

THE HEALTH CENTER IN THE TOWN OF HEISH

LOCATION: IDLIB : HEISH

HOSPITAL: THE HEALTH CENTER IN THE TOWN OF HEISH

DATE: 7 APRIL 2017

TIME: 04:15

ATTACKS: 10+ AIRSTRIKES

REPORTED CASUALTIES: 10

REPORTED INJURED: 10

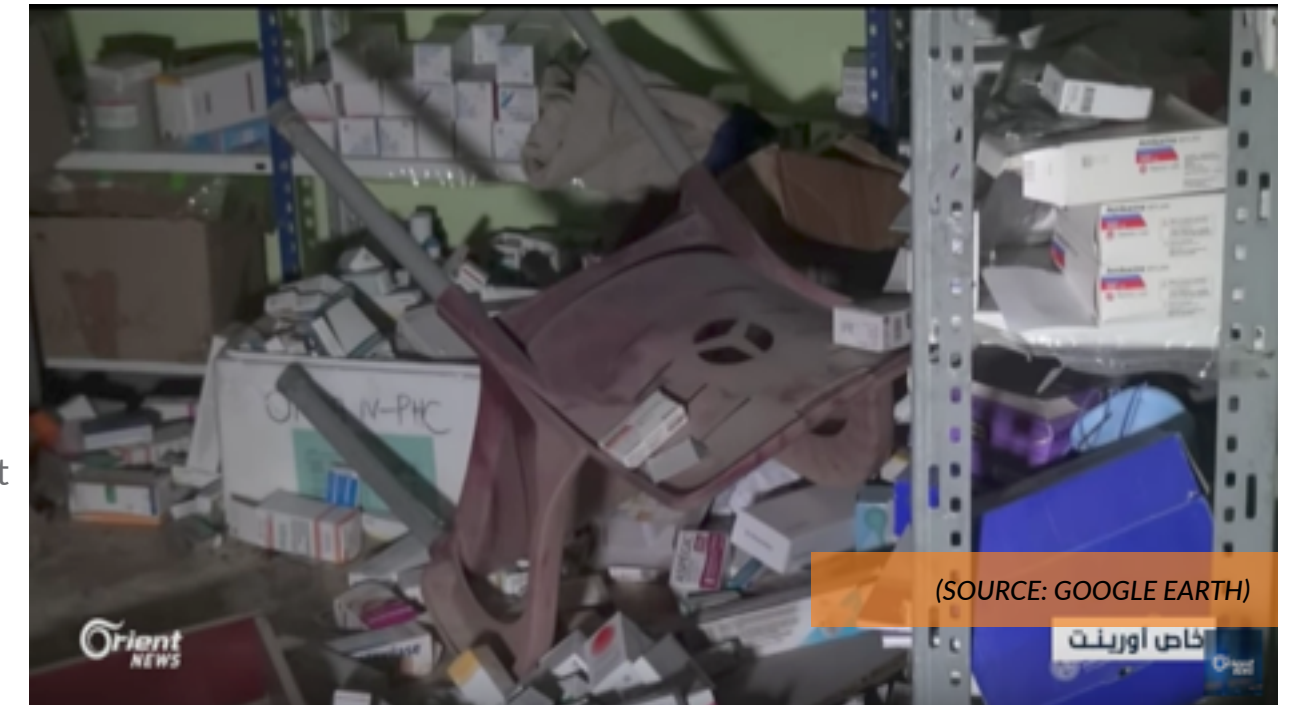
MUNITIONS IDENTIFIED: NOT AVAILABLE

ALLEGED PERPETRATOR: RUSSIAN OR SYRIAN AIR FORCE

“THE AIRSTRIKE - WHICH SHOCKED US WHILE WE WERE ASLEEP - RESULTED IN DOZENS OF DEATHS AND INJURIES AMONG PATIENTS AND MEDICAL PERSONNEL AS WELL”



Orient News Agency published a video after the attack⁵⁸, a still from which is provided:
In the video, Orient News reporter Mouhammed Faisal states at 00:20 “The Heish town was attacked with two airstrikes which resulted of 8 casualties. Five of them are internally displaced people and the other three are from the Heish town itself. While rescuing the injured people as a result of the attack, we were targeted again by Russian air strikes which resulted in the destruction of the only medical point in town. It’s completely out of service now.”



(SOURCE: GOOGLE EARTH)



Journalist Hadi Al Abdallah separately published a video showing destruction of civilian houses as a result of what he called Russian airstrikes on the town of Heish⁵⁹. At 00:05 in the video, he states: “The Russian airstrikes targeted civilian houses in Heish town and resulted in 8 casualties and more than 10 injured. The casualties were families sleeping in their homes.”



(SOURCE: HADI ALABDALLAH)

Journalist Hadi Al Abdallah separately published a video showing destruction of civilian houses as a result of what he called Russian airstrikes on the town of Heish. At 00:05 in the video, he states: “The Russian airstrikes targeted civilian houses in Heish town and resulted in 8 casualties and more than 10 injured. The casualties were families sleeping in their homes.” One of the rescuers conducted an interview with Hadi Al Abdallah. In the

same video at 01:08, the rescuer states: “At 03:55⁵⁷ the Russian air force conducted an airstrike, followed by another two airstrikes at 03:58 which resulted in 5 casualties including two children from one family, 3 other casualties from another family (parents and their 17 year old child), and 10 injured.”

Thiqa News Agency published a video showing the impact site and an interview with one of the rescuers at the site⁶⁰. The rescuer states: “At 03:48 AM the first airstrike hit the medical point crosspoint, and then the second rocket hit here in this residential area which affected around 10 to 15 houses.”

Other videos about this attack were published by Marra Now Media Network⁶¹ and Jiser News Agency. Both videos show the destruction of civilian houses. To provide a further layer of veri-

fication, the Syrian Archive analysed flight observation data provided by a spotter organisation. This consisted of analysing observation data of flights between 02:00 and 04:00 pm, the period directly before and after the reported attack.



Through comparing where flights were observed, the time they were observed, and the direction flights were heading, and comparing this data to geolocation conducted in earlier steps, the Syrian Archive was able to identify a potential flight seen circling very close to the geolocated attack site.

The report’s source for flight observation data has found that circling flights typically indicate target acquisition and/or preparation for imminent attack. In this case, the flight observed near the attack site around 02:16 has been determined to likely be acquiring the target for the later attack. The flight used for the attack itself has been unable to be determined.



As with previous incidents, though some aircraft are labelled “Russian,” it is possible the flight was operated by the Syrian air force, rather than the Russian air force, as the Syrian air force also used Russian planes.

Witness statements of the attack were provided jointly by Syrians for Truth and Justice and by Justice for Life. Abdul Basset Kernazy, director of the Medical center in Heesh town, in the Idlib countryside, stated to the report’s investigative team that on 7 April 2017, at about 4:15 at dawn, planes believed to be Russian, targeted the medical center with two thermobaric missiles, causing considerable destruction to some parts of the medical center. He said:

“THE AIRSTRIKE - WHICH SHOCKED US WHILE WE WERE ASLEEP - RESULTED IN DOZENS OF DEATHS AND INJURIES AMONG PATIENTS AND MEDICAL PERSONNEL AS WELL; MANY OF THE INJURED WERE TRANSFERRED TO NEARBY MEDICAL CENTERS. AFTER THE RAID WAS OVER, WE MOVED THE MEDICAL CENTER TO ANOTHER PLACE.”

Khalid Halaby, a medic who was there in the medical center at the moment of attack, confirmed to the investigative team that warplanes, believed to be Russian, targeted the center and killed 10 people. He said:

“WE WOKE UP ON THE SOUND OF A STRONG EXPLOSION, SOON WE REALIZED THAT RUSSIAN WARPLANES CONDUCTED RAIDS ON THE MEDICAL CENTER. I, WITH THE REST OF THE MEDICAL STAFF, RUSHED TO SEE WHAT HAPPENED AND TO PROVIDE AID TO THOSE WHO NEED IT. WE SAW THAT MOST PARTS OF THE INFIRMARY WERE DEVASTATED... MOREOVER, THE AIRSTRIKES KILLED 10 CIVILIANS, 3 OF THEM FROM HEESH, AND 7 ARE DISPLACED FROM HALFAYA TOWN LOCATED IN HAMA.”

Halaby added that the bodies of the deceased were completely distorted to the extent that it was difficult to identify most of the dead; some of them, however, were able to be identified as:

Hamdo al-Ibrahim
Mustafa Hamdo al-Ibrahim
Hamdo al-Ibrahim`s wife

Those injured were identified as:

Taha al-Ibrahim, 60.
Hassan Najeeb al-Ali, 48.
Mohammed al-Halaby, 65.



INCIDENT 4

THE HOSPITAL IN SHANAN

LOCATION: IDLIB : SHANAN

HOSPITAL: SHANAN HOSPITAL

DATE: 17 APRIL 2017

TIME: 12:25

ATTACKS: THREE AIRSTRIKES

REPORTED CASUALTIES: NOT AVAILABLE

REPORTED INJURED: 5

BENEFICIARY NUMBER: ~60.000

REPORTED INJURED: ONE INJURED FROM THE CIVIL DEFENSE TEAM, AND FIVE BETWEEN MEDICAL STAFF WHO WERE WORKING IN THE HOSPITAL AND PATIENTS WHO WERE BEING TREATED IN THE HOSPITAL.

WEAPON USED: NOT AVAILABLE

ALLEGED PERPETRATOR: SYRIAN OR RUSSIAN AIR FORCE



“

“DURING THE ATTACK, ONE OF THE DOCTORS AT THE HOSPITAL WAS PERFORMING A CAESAREAN OPERATION AND SHE HAD TO TAKE THE PATIENT, WHILE HER ABDOMEN WAS STILL OPEN, TO A NEARBY HOUSE TO COMPLETE THE OPERATION.”

”



The fourth attack identified targeted Shanan hospital for women and children. It took place on 17 April 2017. The Syrian Archive verified a video showing the first moment of the airstrike that targeted the hospital.



The Civil Defense Center published a video showing the attacked hospital, in which they claim was targeted with a double tap airstrike. This means that the hospital was attacked once with an airstrike, and followed shortly after by another airstrike after rescuers were at the scene.

In the video, a member of the Civil Defense states: “We were in the center when the first airstrike happened in Sarjeh. We divided into two teams, one team went

to rescue civilians in Sarjeh and the other team stayed in the center. After a bit, the second airstrike targeted Shanan hospital. We went to the Shanan hospital to rescue civilians and doctors. The third airstrike targeted us during our rescue mission in Shanan hospital, but we continued doing our work until the fourth airstrike targeted the hospital but all civilians and doctors were out of the building by then.” Stills from the video are provided:



(SOURCE: SYRIAN CIVIL DEFENSE IDLIB)



(SOURCE: SYRIAN CIVIL DEFENSE IDLIB)



In the same video at 01:06, a member of the Civil Defense states: “Today 17 April 2017, Shan'an was targeted 3 airstrikes, there was 5 minutes between each attack. The first airstrike hit 5 meters close to the hospital which resulted of destruction in the hospital walls and windows. The Syrian Regime air force usually leave 3 to 4 minutes to do another airstrike to attack the people that are around the impact site. The Syrian Civil Defense was at the impact site during the airstrike but they were able to rescue civilians and hospital staff team.”

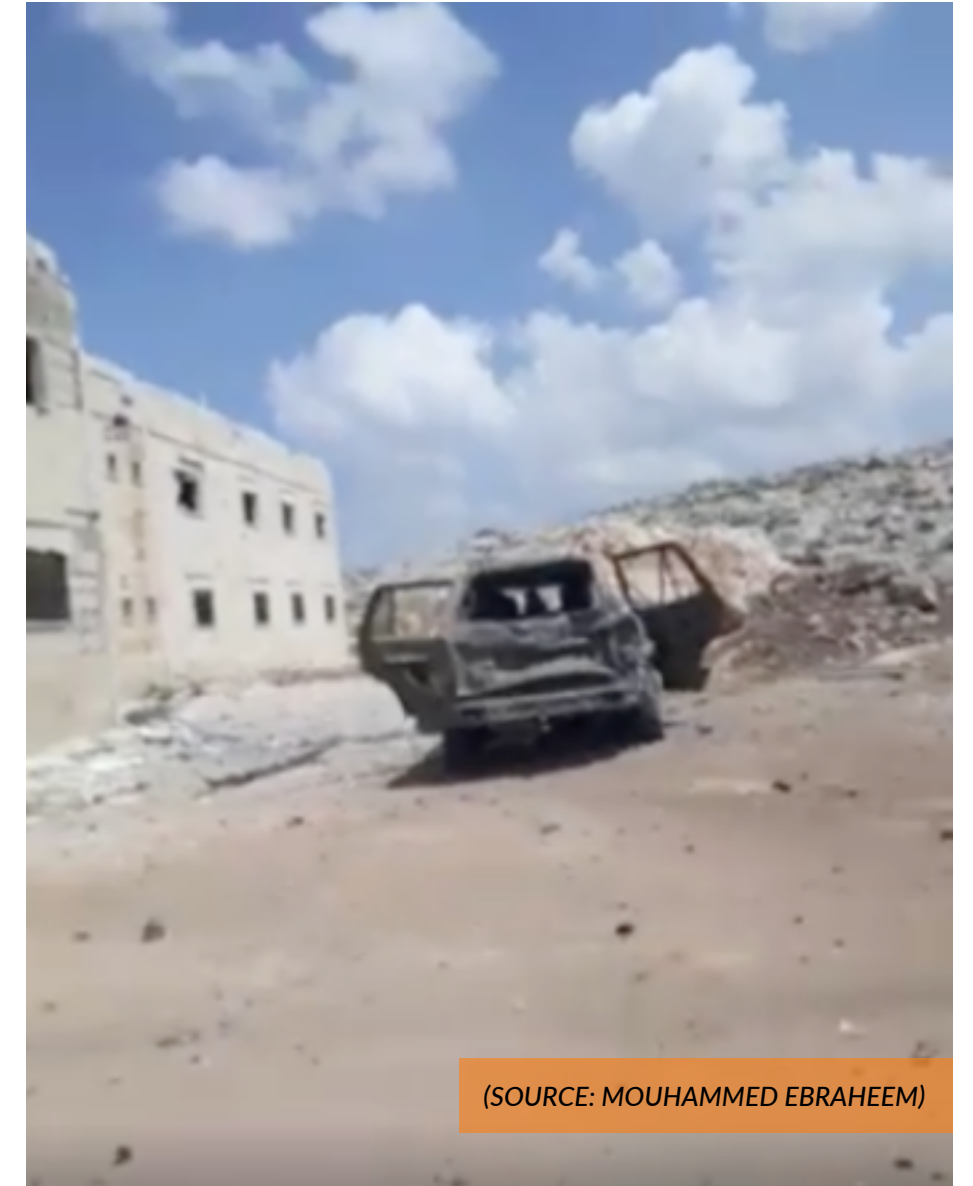
An additional image, a still from the same video, showing one of the attack craters is provided



(SOURCE: SYRIAN CIVIL DEFENSE IDLIB)

Step News Agency published an additional video on 17 April 2017 which shows an injured colleague of theirs as a result of attacks in Shan'an.

Another video published on Facebook by user Mouhammed Ebraheem shows the hospital after the attack.



(SOURCE: MOUHAMMED EBRAHEEM)

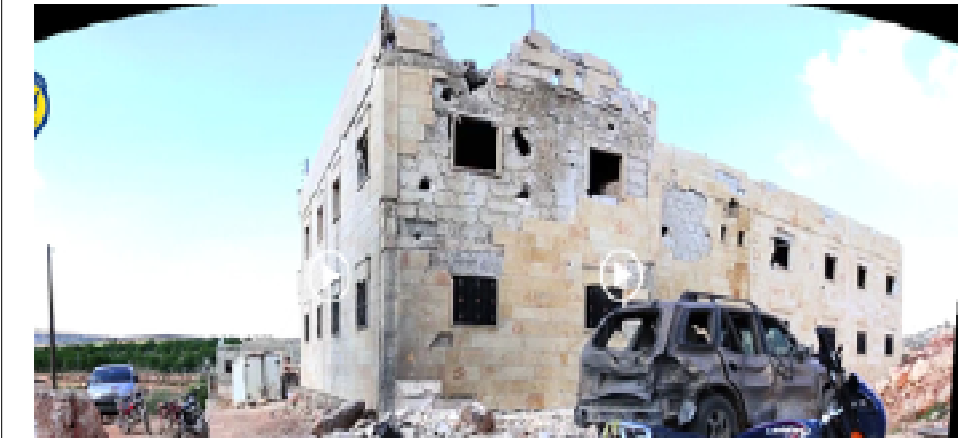


Idlib Health Directorate additionally published a statement about the attack, in which the incident is described. A screenshot of the Facebook statement is provided

The Union of Medical Care and Relief Organizations (UOSSM) also published a press release about the attack the following day, on 18 April 2017.

Washington DC- A Syria Relief child and maternity hospital in Idlib was targeted yesterday at 1:05 p.m. Damascus time, by three airstrikes causing extensive damage to the facility. No fatalities or serious injuries were reported. At least five medical staff were wounded including a gynecologist and an anesthesiologist who were in the middle of an operation when the hospital was attacked. The doctor was able to quickly sew the mother up, and the patient and baby were not harmed in the attack. The hospital suffered extensive damage to operating rooms and lab facilities and was put out of service. Syria Relief is a member of the Union of Medical Care and Relief Organizations (UOSSM).

Using stills from the Civil Defense video the Syrian Archive was able to create a panoramio image to get a better view of the impact site.:



The map above demonstrates that the medical facility attacked was well within range of the aircraft detected. The three drones observed and, as well as the ten Russian planes observed and determined to likely be acquiring the target or potentially involved in the attack were detected circling 9.16km from the attack site.

Witness statements of the attack were provided jointly by Syrians for Truth and Justice and by Justice for Life. Abdel Salam Al-Amin, the Managing director of al-Ikhlâs hospital in Shanan village, said in his statement:

“On April 17, 2017, at 12:25 pm Damascus time, the hospital was targeted by seven sustained Sukhoi SU-24 affiliated to the Syrian regime; it caused the hospital to be completely out of service, and injured three from medical staff and two visitors as well... The most important thing to mention is that during the attack, one of the doctors at the hospital was performing a caesarean operation and she had to take the patient, while her abdomen was still open, to a nearby house to complete the operation.”

Abdel Salam confirmed that the damage to the hospital was extensive. The operation and the incubator rooms were destroyed.



INCIDENT 5

THE HOSPITAL IN ABADEEN (THE CAVE HOSPITAL)

LOCATION: IDLIB : ABADEEN

HOSPITAL: THE MEDICAL POINT OF ABADEEN

BENEFICIARY NUMBER: ~6.000 PEOPLE

DATE: 22 APRIL 2017

TIME: FIRST ATTACK: 14:30; SECOND ATTACK: 17:15

ATTACKS: 2 AIR-TO-GROUND ATTACKS, 1 GROUND-TO-GROUND ATTACK

REPORTED CASUALTIES: 4

REPORTED INJURED: 2

MUNITIONS IDENTIFIED: TOCHKA SERIES MISSILE

ALLEGED PERPETRATOR: RUSSIAN OR SYRIAN AIR FORCE

“THE RUSSIAN WARPLANES TARGETED THE HOSPITAL WITH TWO HIGH EXPLOSIVE ROCKETS: THE FIRST HIT THE OPERATING ROOM AND THE OTHER TARGETED THE PATIENTS WARD, THE LABORATORY, THE EMERGENCY ROOM AND THE RADIATION ONCOLOGISTS AS WELL. “
USE THIS QUOTE IN THE BOX SOMEWHERE IN THE MIDDLE OF THE INCIDENT.
“WE FOUND THREE BODIES FROM THE SAME FAMILY, A FATHER, HIS WIFE AND THEIR 8-YEAR-OLD DAUGHTER.”

The fifth hospital attack identified occurred on 22 April 2017. This attack targeted Abadeen, also known as the cave hospital as it is located inside of a cave. The Civil Defense team published a video of going to the impact site after it was attacked.



The video appears to show two bodies under rubble were recovered by the Civil Defense team. In the video, Civil Defense members mention one casualty under rubble who was a patient in the surgery room at the time of the attack.



Baladi News Agency published a video on their YouTube channel which shows the Civil Defense team removing rubble as a result of the attack.

Another video published (Video evidence is removed from youtube but archived with the Syrian Archive) by user “حسين الأدبي” who works in the media office of Ashayer shows the destruction as a result of the attack against Abadeen hospital. In the video, the person filming states: “The media office documents the location of Abadeen hospital that was targeted by the air force which resulted in more than 7 casualties and many injured. The Civil Defense team is removing the rubble to recover the bodies of casualties under it.”



(SOURCE: HUSSEIN IDILBY)

Stills from the video show that the hospital is located in a cave for



(SOURCE: HUSSEIN IDILBY)

Dr Abdul Rahman Hala'a who is the manager of the coordination medical office of Al Shaam Association conducted an interview with Smart News Agency as well as with Jiser news channel after the attack.

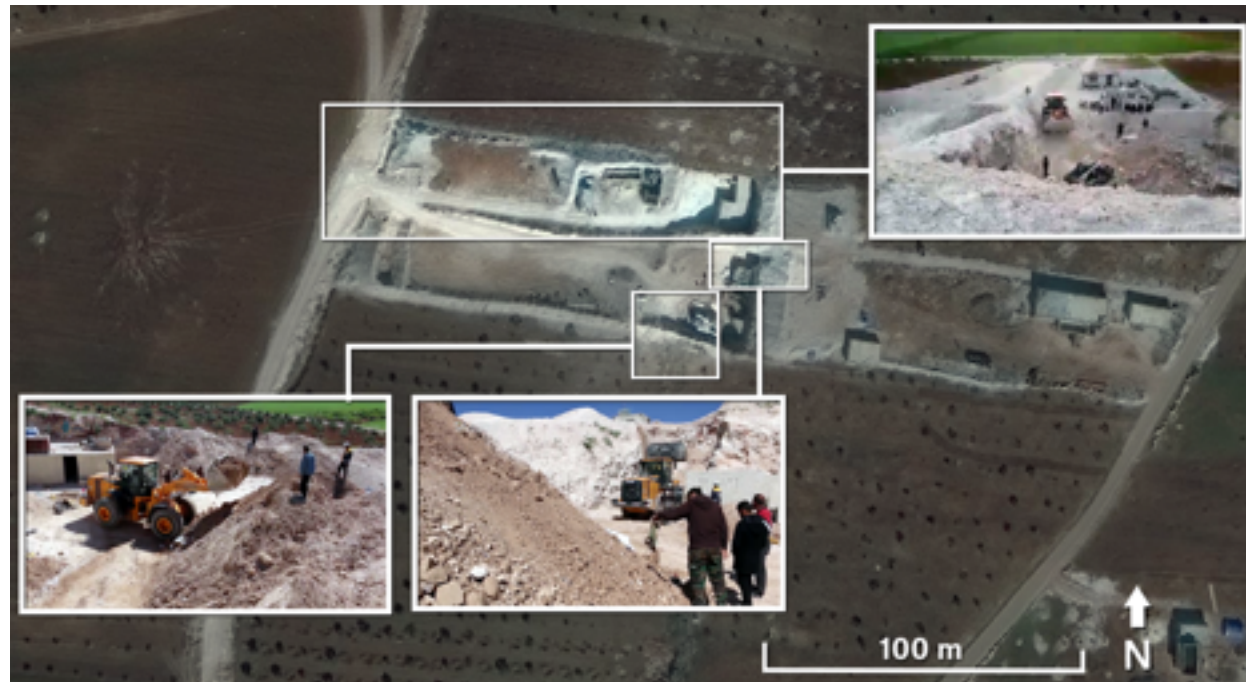
In the interview, he stated: “On 22 April 2017 one of Hamah hospitals was attacked. We mostly believe that it's by the Russian air force, as we heard from observation offices through walkie talkies. The hospital is completely out of service as a result of the attack. The attack resulted in many casualties, as well as injuries among the patients and the hospital team. A seven-year-old child was also among the casualties. She just had had an operation in the hospital this morning. Other patients were transferred to other hospitals after the attack. The building damage is about 80%, as well as the equipment in the hospital. The rocket that attacked the cave went through 7 - 10 meters of rock. Most of our equipment was damaged as a result of this attack. The Civil Defence came after the attack to rescue those injured and to recover the bodies of casualties, but the hospital was attacked again with cluster bombs which killed a child who was standing in the area next to the attacked site.”



(SOURCE: QASIOUN NEWS AGENCY)

Fayad Abu Rass, who is a photographer from Idlib, published photos from the attacked site showing the destruction of the hospital.

The Syrian Archive was able to geolocate the attacked hospital using the above videos and photos and comparing them to satellite imagery from DigitalGlobe.



SATELLITE IMAGE: DIGITALGLOBE ©2017 - QASIOUN NEWS AGENCY)



The use of cluster bombs in this attack was reported in a video published by the “All4 Syria” YouTube account, which shows the impact site from a different location.



The above photo has been geolocated, and it is very likely that the impact site of the reported cluster munition is very near the attacked hospital as shown below:



After the hospital attack in Abadeen, the Civil Defense team in Idlib published the following photos mentioning a cluster munitions attack that targeted an area near the attacked hospital while the Civil Defense team was rescuing injured and recovering casualties.



SATELLITE IMAGE: DIGITALGLOBE ©2017-(ALL 4SYRIA)

This attack resulted in one casualty and an injury for a man and his son. The injured child was getting treatment when the attack happened, as mentioned in the commentary for the photos



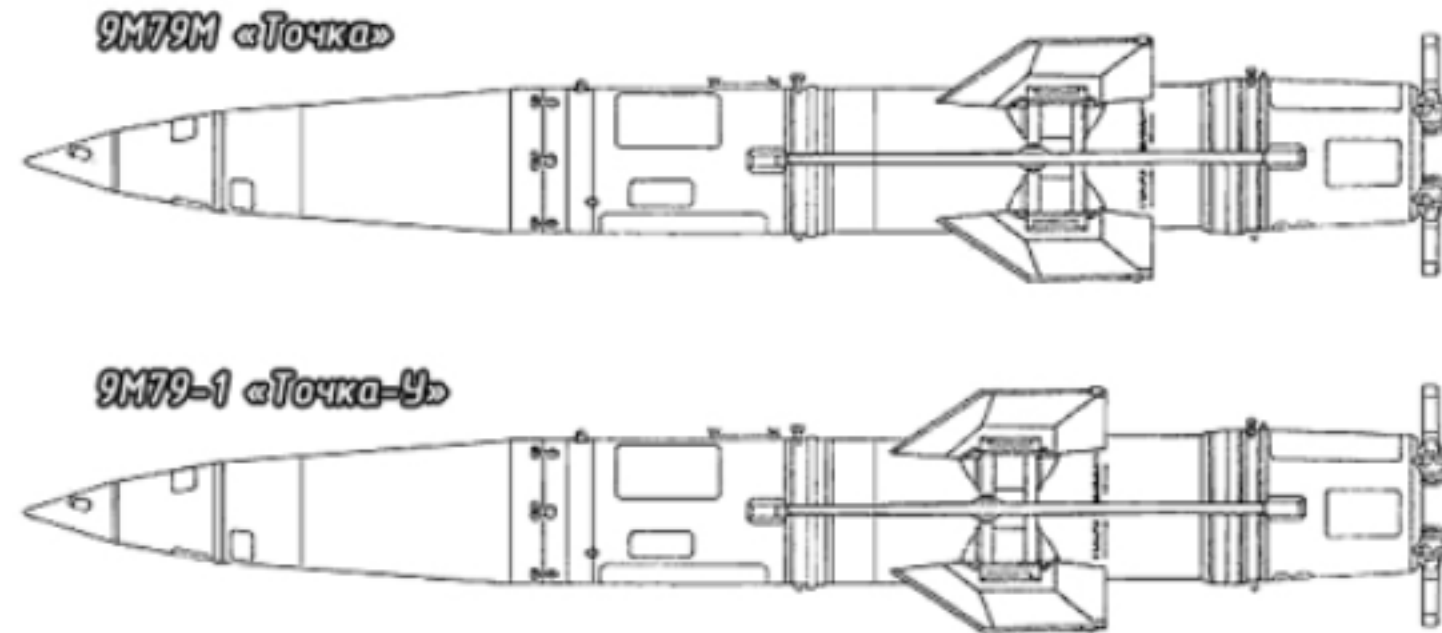
(SOURCE: CIVIL DEFENSE IDLIB)

Remnants of the missile used to attack the area surrounding the Abadeen Hospital (the second attack after the initial targeting of the hospital as mentioned earlier) were documented in a video that was published by the YouTube channel of user “Kaes Idlby”.



(SOURCE: KAES IDLBY)

From the photo above, it has been determined that the missile pictured in the photo is a Russian made Tochka series missile,⁶² as described in a public website called lostarmour.



(SOURCE: [HTTP://LOSTARMOUR.INFO/](http://lostarmour.info/))



EFFECTIVE RANGE OF TOCHKA (SOURCE: GOOGLE EARTH
- [HTTPS://DE.WIKIPEDIA.ORG/WIKI/SS-21_SCARAB](https://de.wikipedia.org/wiki/SS-21_SCARAB))

The Hama Health Directorate published a report about the incident on their public Facebook page.⁶³ The report stated: “On Saturday 22-04-2017, the Markazi hospital in Abadeen was targeted with a Russian airstrike resulting in 5 casualties from patients and civilians as well as 2 injured civilians and 2 injured from the medical team of the hospital. The attack resulted in getting the hospital out of service as well as destroying its equipments, laboratory, rooms and a van car.”





(SOURCE: HAMA HEALTH DIRECTORATE)

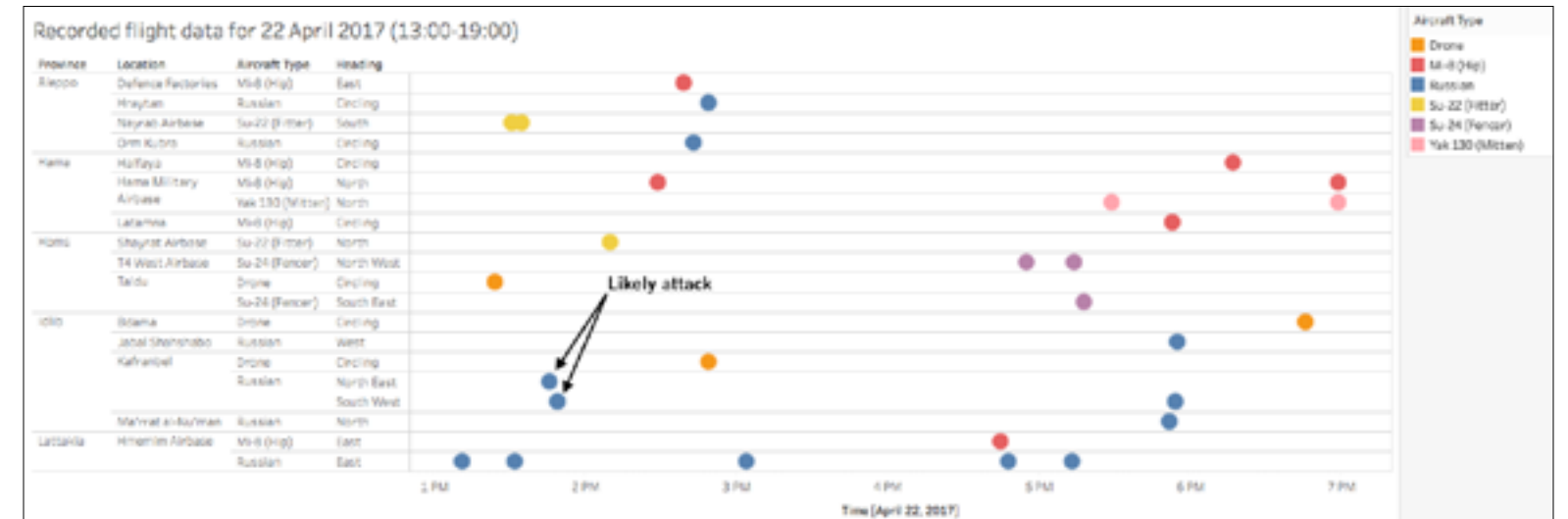
An additional statement about this attack was published by the United Nations Office for the Coordination of Humanitarian Affairs.⁶⁴

Comparing two satellite images from DigitalGlobe before (21 February 2017) and after (19 May 2017) the attack (22 April 2017), the Syrian Archive was able to identify damage to the medical facility.



SATELLITE IMAGE: DIGITALGLOBE ©2017

To provide a further layer of verification, the Syrian Archive analysed flight observation data provided by a spotter organisation. This consisted of analysing observation data of flights between 13:00 and 19:00, the period directly before and after the reported attack.



Through comparing where flights were observed, the time they were observed, and the direction flights were heading, and comparing this data to geolocation conducted in earlier steps, the Syrian Archive was able to identify potential flights seen circling very close to the geolocated attack site.

The report's source for flight observation data has found that circling flights typically indicate target acquisition and/or preparation for imminent attack. In this case, two flights by Russian aircraft were observed near the attack site around 13:20, which the Syrian Archive has determined to be likely responsible for the attack.



The map above demonstrates that the medical facility attacked was well within range of the aircraft detected. The Russian plane observed and determined to potentially be involved in the attack was detected circling 15.5km from the attack site.

The second attack, at around 17:15, was unlikely to be committed by a flight, as the munition identified in the attack was a Tochka series missile, a ballistic missile series which tend to be launched from the ground due to their size and weight (approximately 2,000kg). Tochka series missiles have a range of between 70-185 km, well within the range to be launched from the ground in regime held territory.

As with previous incidents, though some aircraft are labelled "Russian," it is possible the flight was operated by the Syrian air force, rather than the Russian air force, as the Syrian air force also used Russian planes.

Witness statements of the attack were provided jointly by Syrians for Truth and Justice and by Justice for Life. In his statement, Mustafa al-Mesri, the Managing Director of the Central Hospital in Abdeen town, informed the report's investigative team that the Central hospital - also

known as the cave hospital because it is located inside a cave on the northern outskirts of Abdeen town - was bombed with two high explosive concussion rockets on 22 April 2017.

This caused an explosion inside the hospital that killed 3 civilians and injured a number of the medical personnel and the patients with serious injuries. In addition, it led the hospital to be completely out of service. Al-Mesri stated:

“ON APRIL 22, 2017, AT ABOUT 2:00 PM, THE RUSSIAN WARPLANES TARGETED THE HOSPITAL WITH TWO HIGH EXPLOSIVE ROCKETS: THE FIRST HIT THE OPERATING ROOM AND THE OTHER TARGETED THE PATIENTS WARD, THE LABORATORY, THE EMERGENCY ROOM AND THE RADIATION ONCOLOGISTS AS WELL.”

As a result, four patients were killed; they were identified as Mohammed Abu Zayed, Iyad Saleh, his wife and his 8-year-old daughter.”

One of the Civil Defense members of Habit Center who declined to disclose his real name, said that the attack on the Central Hospital in Abdeen was possibly conducted using high explosive ground-to-ground missiles, which forced the Civil Defense team to do great efforts to rescue people who were trapped in the rubble. The Civil Defense member added:

“At the exact moment of shelling the Central Hospital, we were in Al-Habit town warning people about the Russian’s warplanes raids and at about 2:00 pm we heard a call through the observatories that we had to flee to Abdeen Central Hospital. Immediately we went to the hospital – since we were the nearest Civil Defense center to Abdeen town- as soon as we arrived, we started to help a nurse who was lying on the ground, while a medical team was helping two others. After that, we searched the rubble and managed to take out a displaced young man who was still alive and we learned

that he was a patient. We continued searching and a few hours later we found a displaced young man from Halfaya in Hama and we took him out from under the rubble, but he was dead. The next day, we continued removing the rubble and we managed to get to the completely devastated operation room.

WE FOUND THREE BODIES FROM THE SAME FAMILY, A FATHER, HIS WIFE AND THEIR 8-YEAR-OLD DAUGHTER.”



INCIDENT 6

KAFAR TAKHARIM HOSPITAL (WASSIM HASSEINO)

LOCATION: IDLIB : KAFAR TAKHARIM

HOSPITAL: KAFAR TAKHARIM HOSPITAL

BENEFICIARY NUMBER: ~200.000 PEOPLE

DATE: 25 APRIL 2017

TIME: 02:00 DAMASCUS TIME

ATTACKS: TWO AIRSTRIKES

REPORTED CASUALTIES: NOT AVAILABLE

REPORTED INJURED: NOT AVAILABLE

WEAPON USED: NOT AVAILABLE

ALLEGED PERPETRATOR: SYRIAN OR RUSSIAN AIR FORCE



“

“ALL THIS HIGHLIGHTS THAT THE MAIN AIM OF BOMBING IS TO DESTROY THE INFRASTRUCTURE OF ALL HOSPITALS IN THE OPPOSITION AREAS.”

”



The sixth hospital attack identified occurred on 25 April 2017. The Civil Defense published a video which documented them going to the targeted site after the attack.⁶⁵ In the video, it is possible to hear someone saying through the walkie talkie: “They implemented the strike,” and then at 01:18, the sound of the attack is heard.

Another video published by SMO News Agency shows the attacked site immediately after the airstrike.⁶⁶ In this video, a person is heard saying: “Kafar Takharim surgery hospital has been attacked with two rockets resulting in a civilian injured and damage in and around the building. The hospital is out of service as a result of the attack.” Eba Agency “وكالة إباء” also published a video, which features an interview with the Director of the “Nabeel Saed” hospital⁶⁷. The video mentions that two Russian airstrikes targeted the hospital as staff was treating injured people attacked earlier around midnight.



A video published on 25 April 2017 by the YouTube channel of user “مراسل صحفي اا” shows the destruction the day after the attack where a huge crater is visible.





Orient news published a separate video showing the crater in front of the hospital, as well as the damaged building and cars.⁶⁸

(SOURCE: DIGITALGLOBE)



In the video, one of the medical workers who witnessed the attack stated: "At 12:30 Kafar Takharim was targeted with airstrikes...During our work to aid and rescue the injured people, the hospital was targeted with two thermobaric rockets that damaged the hospital, and as a result it's out of service. Also the team of the hospital was injured. The hospital stock was completely damaged too."



(SOURCE: DIGITALGLOBE)



Another witness who was present during the attack stated: “Two airstrikes targeted the hospital as we were rescuing the injured people who were attacked during the night. We found ourselves under rubble and four were injured from the medical team.”



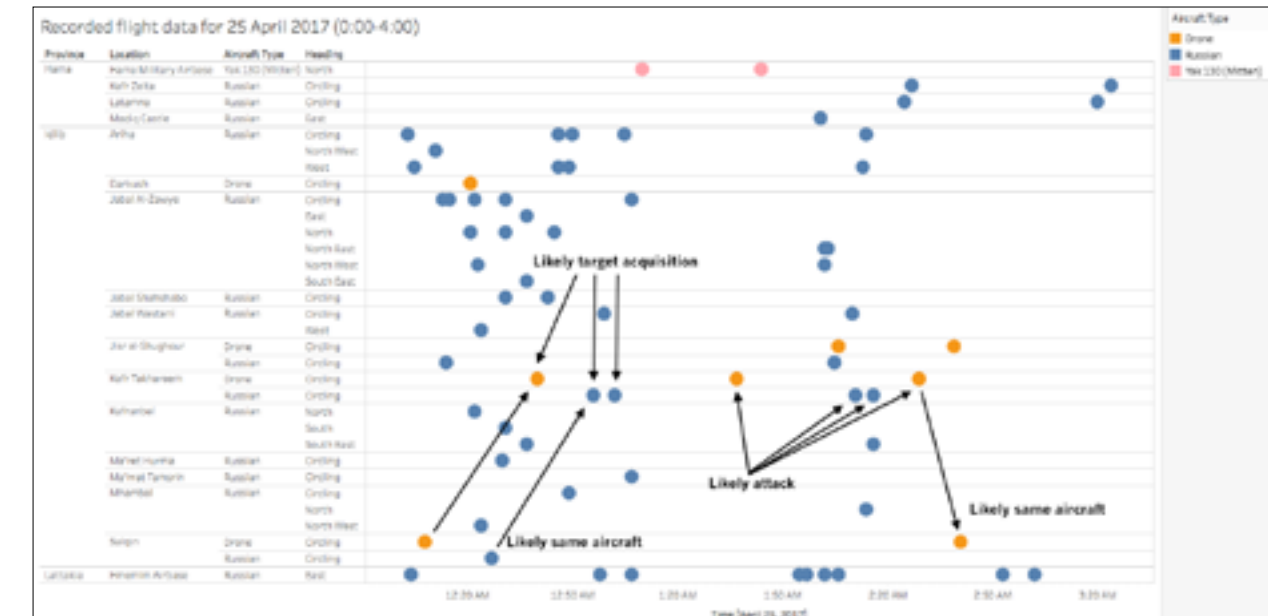
The Syrian Archive was able to geolocate the hospital based on the verified visual content related to incident and comparing this to Google Earth

(SOURCE: GOOGLE EARTH - SYRIAN CIVIL DEFENSE IDLIB)

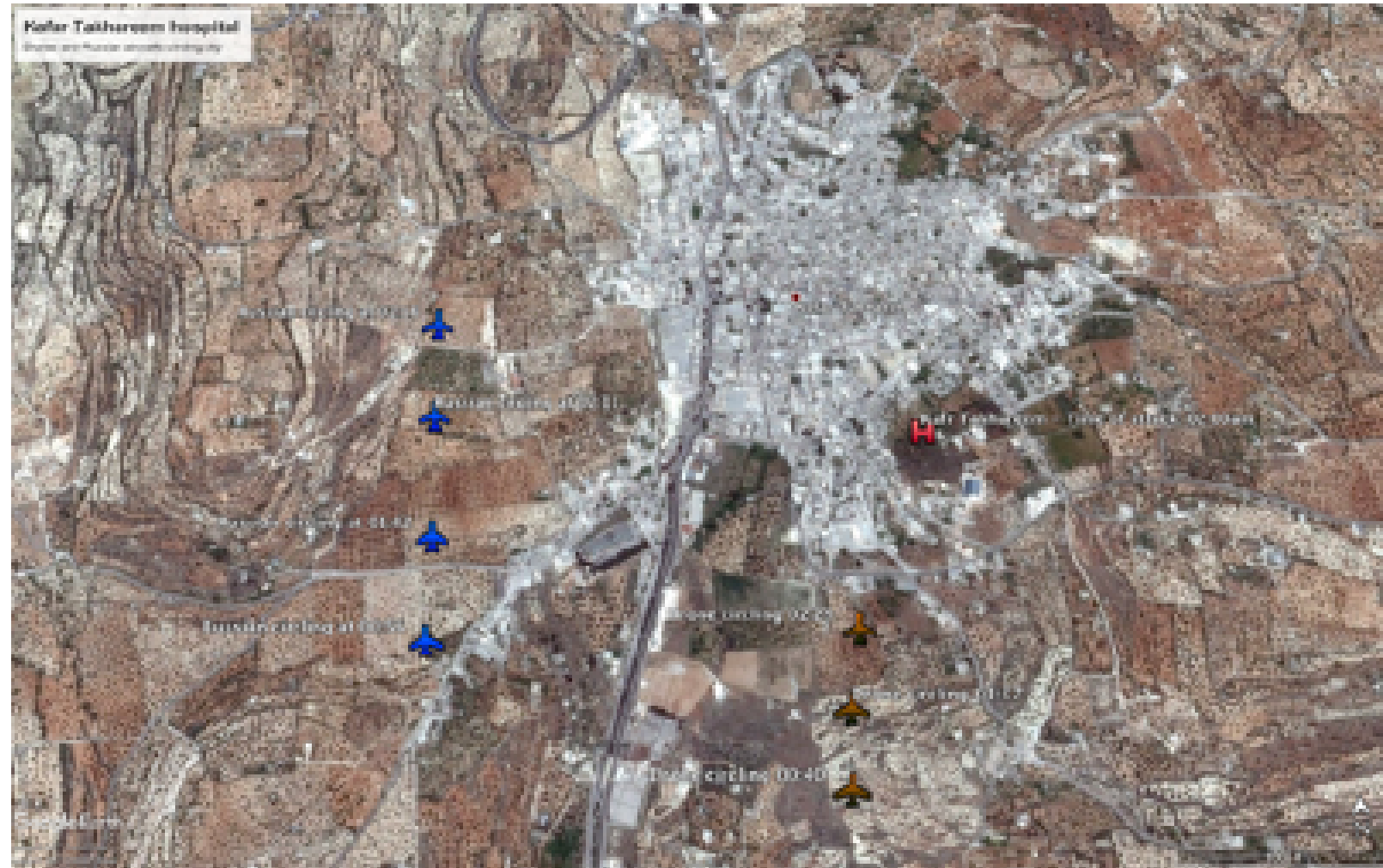


The location of the hospital is near a residential area and there appears to be no nearby military operations.

To provide a further layer of verification, the Syrian Archive analysed flight observation data provided by a spotter organisation. This consisted of analysing observation data of flights between 0:00 and 4:00, the period directly before and after the reported attack



Through comparing where flights were observed, the time they were observed, and the direction flights were heading, and comparing this data to geolocation conducted in earlier steps, the Syrian Archive was able to identify potential flights seen circling very close to the geolocated attack site.



(SOURCE: GOOGLE EARTH)

Previous research has found that circling flights typically indicate target acquisition and/or preparation for imminent attack. In this case, the several flights by drones or by Russian aircraft were observed near the attack site around 00:40, which the Syrian Archive has determined were likely acquiring the target for the later attack. The flights seen circling the attack site in the period around 02:00, indicated in the visualisation above, were likely the aircraft responsible for the attack. As with previous incidents, though some aircraft are labelled “Russian,” it is possible the flight was operated by the Syrian air force, rather than the Russian air force, as the Syrian air force also used Russian planes.

Witness statements of the attack were provided jointly by Syrians for Truth and Justice and by Justice for Life. In his statement, Dr. Waleed Mohammed, a specialist in orthopedic surgery, and the Director of the Shahid Wasim Husseino Hospital in Kafr Takharim, told the investigative team:

“AT ABOUT 2:00 AM THE RUSSIAN/SYRIAN WAR-PLANES TARGETED THE HOSPITAL WITH TWO AIRSTRIKES THAT LED THE HOSPITAL TO BE COMPLETELY OUT OF SERVICE... THE ATTACK WAS CONDUCTED AFTER TARGETING THE DUWAILAH AREA, AND THE WOUNDED WERE TRANSFERRED TO THE HOSPITAL GIVEN THAT IT IS LOCATED IN A BORDER AREA FAR AWAY FROM THE COMBAT AREAS. ALL THIS HIGHLIGHTS THAT THE MAIN AIM OF BOMBING IS TO DESTROY THE INFRASTRUCTURE OF ALL HOSPITALS IN THE OPPOSITION AREAS.”

INCIDENT 7

THE UNIVERSITY HOSPITAL IN DEIR SHARQI

LOCATION: IDLIB : DEIR SHARQI

HOSPITAL: THE UNIVERSITY HOSPITAL OF DEIR SHARQI

DATE: 27 APRIL 2017

TIME: 05:15

BENEFICIARY NUMBER: ~600.000 PEOPLE

ATTACKS: 5 AIRSTRIKES AIRSTRIKES

REPORTED CASUALTIES: 3

REPORTED INJURED: NOT AVAILABLE

WEAPON USED: NOT AVAILABLE

ALLEGED PERPETRATOR: SYRIAN OR RUSSIAN AIR FORCE

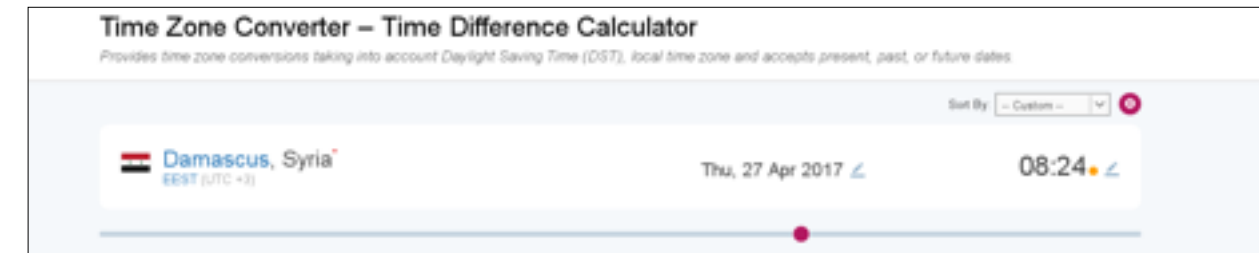


“THERE WERE THREE TO FOUR PATIENTS IN THE INTENSIVE CARE ROOM, BUT UNFORTUNATELY, THEY HAD DIED BECAUSE THE GAS SUPPLY WAS BROKEN, [WHICH] CONSEQUENTLY CAUSED THE OXYGEN TO BE CUT FROM THE PATIENTS.”

”



The seventh hospital attack identified occurred on 27 April 2017. Hadi Al Abdallah has published a video on his YouTube channel at 08:24 Damascus time showing the destruction in the hospital after the attack⁶⁹.



Sun analysis demonstrates that the video was filmed in the early morning hours.



At 02:03 of the video above: Hadi Al Abdallah is seen interviewing one of the Civil Defense team members during the rescue mission. In his interview, Al Abdallah states: “The university hospital was targeted in Deir Sharqi by airstrikes. After the first airstrike the civil defense team went to rescue civilians and there were big number of injured and casualties. The second attack that included four airstrikes happened while the civil defence were rescuing injured civilians or recovering casualties”

Separately, Qasioun News Agency published a video showing what they claim to be the first moments of the attack against the hospital in Dar Sharqi⁷⁰. An additional video about the first moment of the attack was published by Step News Agency⁷¹. The Civil Defense team published a video showing the rescue operations⁷². The Syrian Archive was able to geolocate the hospital using public information and video footage, and comparing, this to satellite imagery from DigitalGlobe taken before the attack.

A huge crater, which was formed as a result of the attack, can be seen in a video published by Orient News Agency.⁷³



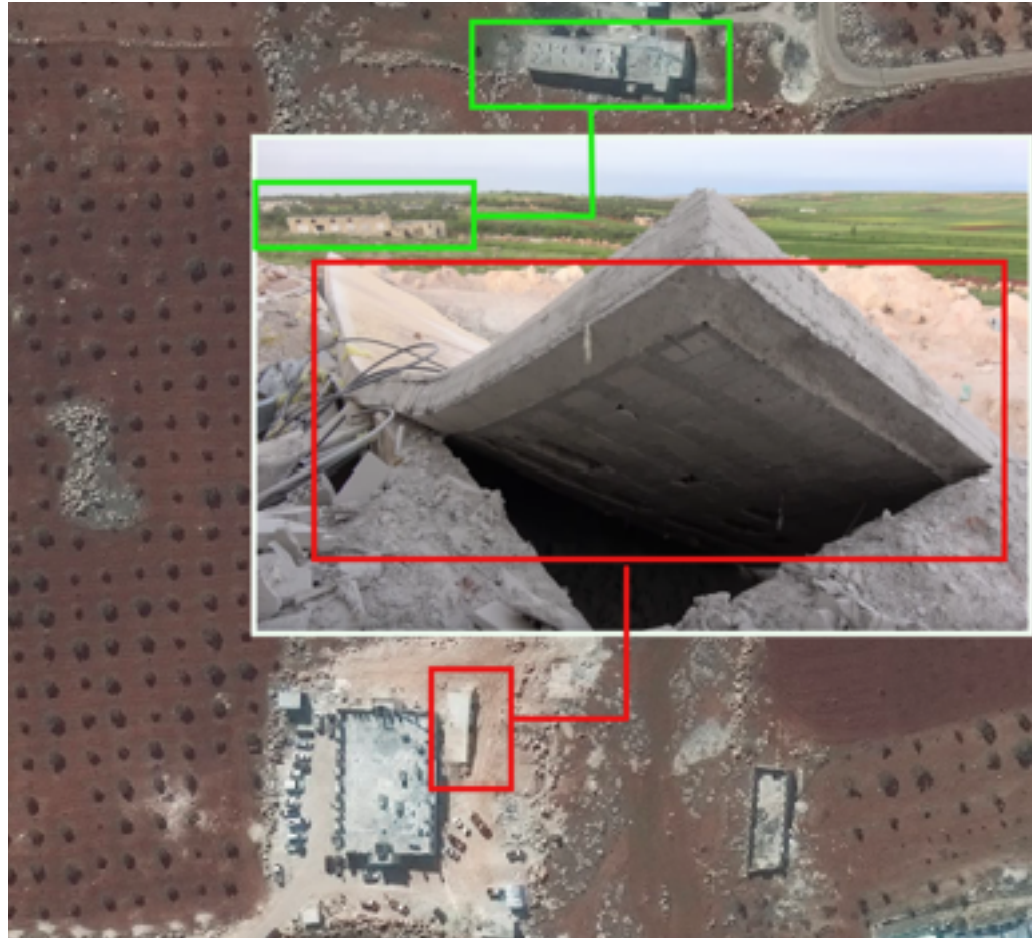
SATELLITE IMAGE: DIGITALGLOBE ©2017 - ORIENT NEWS



This raises the possibility that an air to ground attack was conducted around the hospital. The smaller building located to the western side of the building was attacked and completely destroyed, as shown in the video published by Orient News.



SATELLITE IMAGE: DIGITALGLOBE ©2017-ORIENT



SATELLITE IMAGE: DIGITALGLOBE ©2017



(SOURCE: QASIOUN NEWS AGENCY)

Muaz Al-Shami ⁷⁴, a citizen journalist, and Qasioun News Agency have separately published videos showing those injured and the casualties as a result of this attack, as well as the damage to the hospital building. This damage includes damage to interior of the hospital, as well as to its equipment, medical stock, and oxygen-tank supply.



(SOURCE: MUAZ AL SHAMI)





(SOURCE: MUAZ AL SHAMI)

Videos filmed by Qasioun News Agency and by the citizen journalist “Hadi Alabdallah” show that the roof of the hospital building was hit.



(SOURCE: HADI ALABDALLAH)



(SOURCE: QASIOUN NEWS AGENCY)

That the hospital building was hit from above raises the possibility of an air to ground attack that targeted the hospital directly. To provide a further layer of verification, the Syrian Archive analysed flight observation data provided by a spotter organisation. This consisted of analysing observation data flights between 03:00 and 07:00, the period directly before and after the reported attack



Through comparing where flights were observed, the time they were observed, and the direction flights were heading, and comparing this data to geolocation conducted in earlier steps, the Syrian Archive was able to identify potential flights seen circling very close to the geolocated attack site.

The report's source for flight observation data has found that circling flights typically indicate target acquisition and/or preparation for imminent attack. The flights seen circling the attack site in the period around 05:20, indicated in the visualisation above, were likely the aircraft responsible for the attack, confirming witness accounts that an attack on the hospital occurred at 05:15. As with previous incidents, though some aircraft are labelled "Russian," it is possible the flight was operated by the Syrian air force, rather than the Russian air force, as the Syrian air force also used Russian planes.



(SOURCE: GOOGLE EARTH)

The map above demonstrates that the medical facility attacked was well within range of the aircraft detected. The three Russian planes observed and determined to potentially be involved in the attack was detected circling 5km from the attack site directly after the attack had taken place.

Witness statements of the attack was provided jointly by Syrians for Truth and Justice and by Justice for Life. In his statement to the investigative team, neurologist and hospital staff member Mohamed Al-jesry stated:

“On April 27, 2017, exactly at 05:15 am at dawn, the attack occurred when I was still awake in the hospital...Warplanes directly targeted the hospital with two sustained strikes, we immediately rushed again into the hospital, as soon as the strikes stopped, because there were three to four patients in the intensive care room, but unfortunately, they had died because the gas supply was broken, [which] consequently caused the oxygen to be cut from the patients. Moreover, some members of the medical staff were injured, and 90% of the hospital was almost completely destroyed because the Russian planes used concussion rockets in the attacks.”

INCIDENT 8

THE SHAMNA MEDICAL POINT IN MAR ZITA

LOCATION: IDLIB : MAR ZITA

MEDICAL POINT: THE SHAMNA MEDICAL POINT IN MAR ZITA

DATE: 27 APRIL 2017

TIME: 07:15

ATTACKS: TWO AIRSTRIKES AIRSTRIKES

REPORTED CASUALTIES: 5 MEDICAL WORKERS

REPORTED INJURED: NOT AVAILABLE

WEAPON USED: NOT AVAILABLE

ALLEGED PERPETRATOR: SYRIAN OR RUSSIAN AIR FORCE

“ I WAS AT HOME NEAR THE CENTER WHEN IT WAS BOMBED BY RUSSIAN WARPLANES, AND I IMMEDIATELY RUSHED TO LOOK FOR MY FRIENDS AND COLLEAGUES IN THE SYSTEM. I WAS SHOCKED WHEN I SAW AHMAD SULEIMAN, MY COLLEAGUE, SERIOUSLY INJURED; I TRIED TO TRANSFER HIM BY CAR BECAUSE THE AMBULANCE CARS WERE COMPLETELY BURNED.”

(SOURCE: HADI AL ABDALLAH)



The eighth hospital attack identified took place on 27 April 2017. Hadi Al Abdallah, a citizen journalist, published a video about the attack showing the medical point on fire as a result of airstrikes.⁷⁵



INCIDENT 8

THE SHAMNA MEDICAL POINT IN MAR ZITA

LOCATION: IDLIB : MAR ZITA

MEDICAL POINT: THE SHAMNA MEDICAL POINT IN MAR ZITA

DATE: 27 APRIL 2017

TIME: 07:15

ATTACKS: TWO AIRSTRIKES AIRSTRIKES

REPORTED CASUALTIES: 5 MEDICAL WORKERS

REPORTED INJURED: NOT AVAILABLE

WEAPON USED: NOT AVAILABLE

ALLEGED PERPETRATOR: SYRIAN OR RUSSIAN AIR FORCE

“ I WAS AT HOME NEAR THE CENTER WHEN IT WAS BOMBED BY RUSSIAN WARPLANES, AND I IMMEDIATELY RUSHED TO LOOK FOR MY FRIENDS AND COLLEAGUES IN THE SYSTEM. I WAS SHOCKED WHEN I SAW AHMAD SULEIMAN, MY COLLEAGUE, SERIOUSLY INJURED; I TRIED TO TRANSFER HIM BY CAR BECAUSE THE AMBULANCE CARS WERE COMPLETELY BURNED.”

(SOURCE: HADI AL ABDALLAH)



The eighth hospital attack identified took place on 27 April 2017. Hadi Al Abdallah, a citizen journalist, published a video about the attack showing the medical point on fire as a result of airstrikes.⁷⁵

In the video, members of the Civil Defence team can be seen extinguishing the fire as a result of the attack. Hadi Al Abdallah conducted an interview with one of the medical workers from the hospital, who stated: "Today at 07:00 this morning, the Russian air force targeted Shamel medical facility with more than one airstrike, which resulted in a large explosion and many injured and casualties including medical workers and White Helmet rescue workers. The attacks on hospitals intended to destroy all hospitals in Idlib."

Smart News Agency also published a video showing the attacked site and features an interview with one of the Civil Defense team who was part of the rescue mission



(SOURCE: HADI AL ABDALLAH)

⁷⁶. The Civil Defense member stated:

"THE RUSSIAN AIR FORCE IS TARGETING ALL HOSPITALS AND MEDICAL POINTS IN IDLIB. TODAY THEY ATTACKED THE UNIVERSITY HOSPITAL IN DEIR SHARQI AND NOW THE MEDICAL POINT OF SHAMNA HAS BEEN TARGETED AS WELL WITH TWO AIRSTRIKES. THE WHITE HELMET TEAM CAME TO RESCUE THE PEOPLE AFTER THE FIRST AIRSTRIKE AND THEN THEY WERE ATTACKED WITH ANOTHER AIRSTRIKE DURING THE RESCUE MISSION WHICH RESULTED OF INJURIES AND CASUALTIES".

RSF Media Office also published a video showing the destruction of the hospital, its ambulance cars, as well as its medical stock.⁷⁷



(SOURCE: RFS)



(SOURCE: RFS)

Using stills from the videos above, and using Hugin software, the Syrian Archive was able to stitch photos to clearly see the impact site.

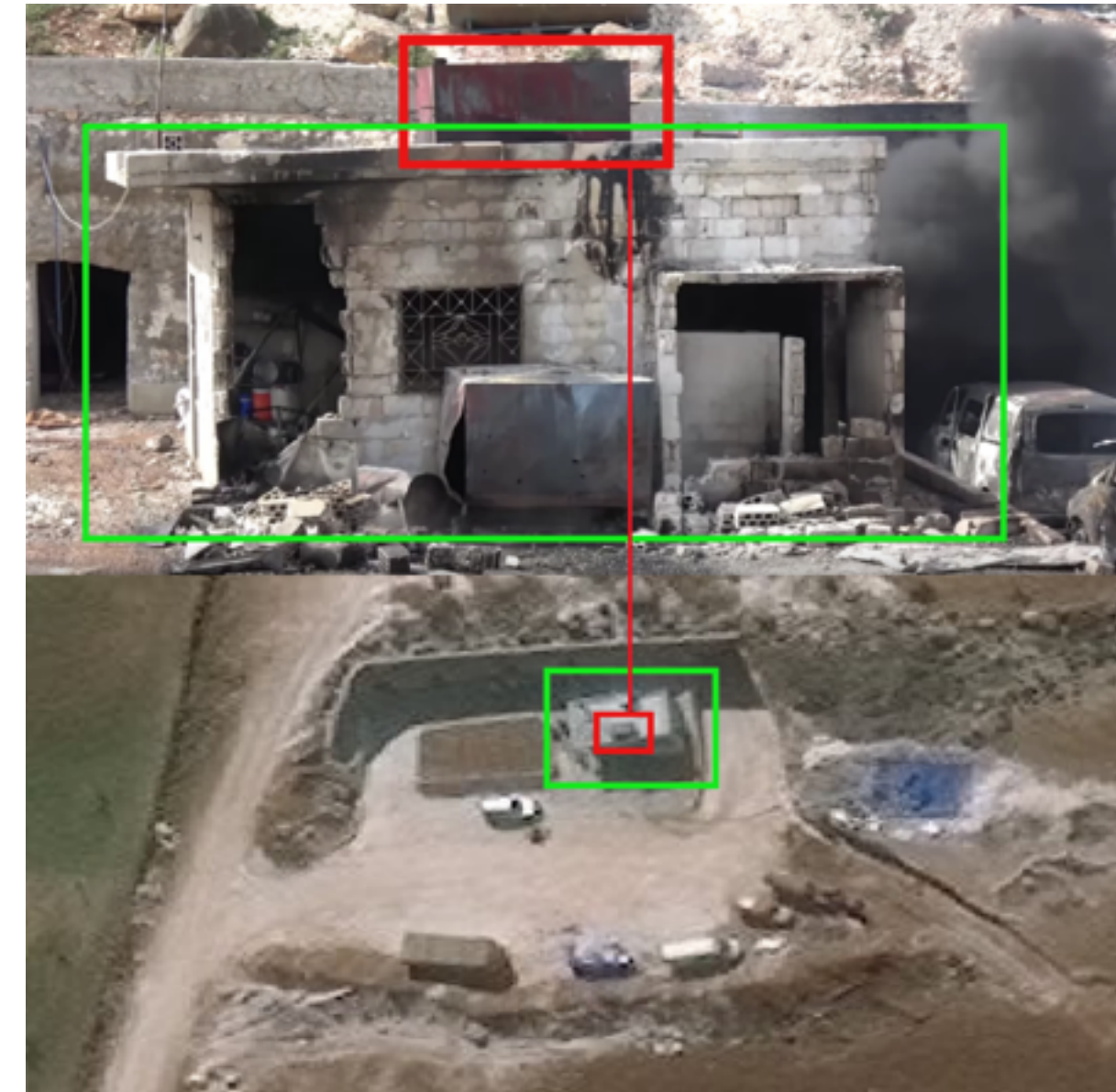


(SOURCE: SHAM NEWS AGENCY)

Smoke as a result of the attack can be seen, as well as objects that the Syrian Archive was able to identify from a recently acquired satellite image from DigitalGlobe that was taken on 21 February 2017.



SATELLITE IMAGE: DIGITALGLOBE ©2017- SHAM NEWS AGENCY



SATELLITE IMAGE: DIGITALGLOBE ©2017- SHAM NEWS AGENCY

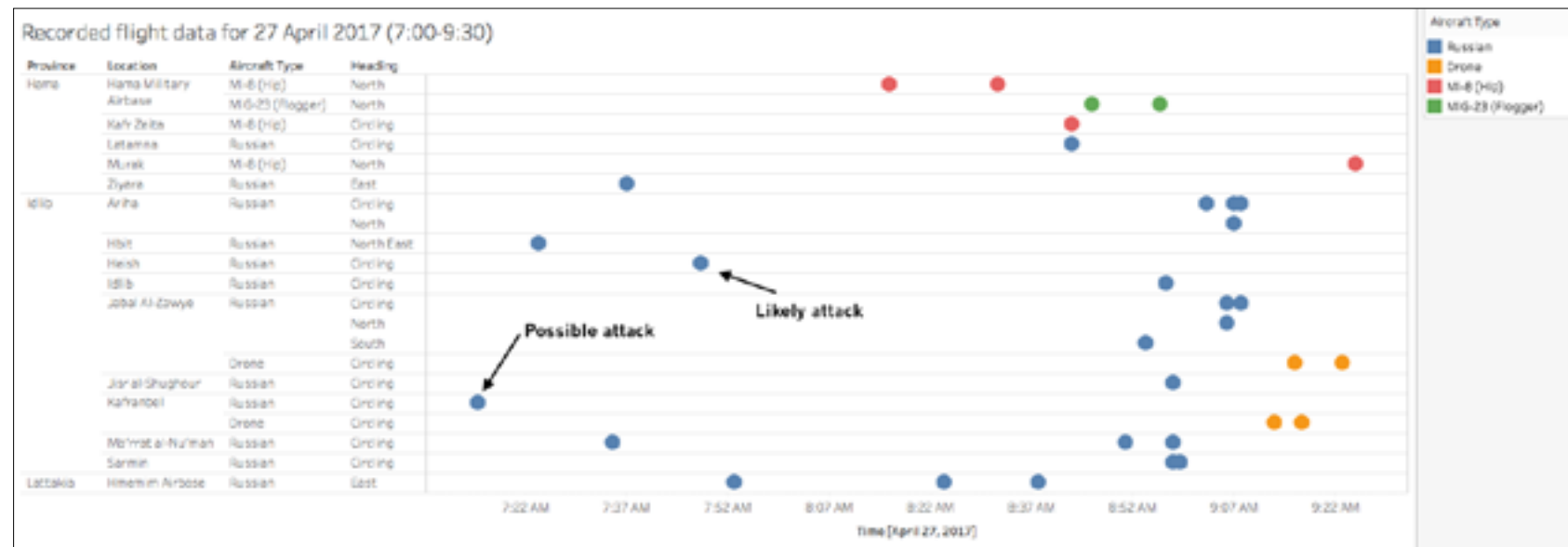


To provide a further layer of verification, the Syrian Archive analysed flight observation data provided by a spotter organisation. This consisted of analysing observation data of flights between 07:00 and 10:00, the period directly before and after the reported attack.

Through comparing where flights were observed, the time they were observed, and the direction flights were heading, and comparing this data to geolocation conducted in earlier steps, the Syrian Archive was able to identify potential flights seen circling very close to the geolocated attack site.

Previous research has found that circling flights typically indicate target acquisition and/or preparation for imminent attack. In this case, several flights Russian aircraft were observed near the attack site around 07:20, which the Syrian Archive has determined were likely responsible for the attack.

As with previous incidents, though some aircraft are labelled “Russian,” it is possible the flight was operated by the Syrian air force, rather than the Russian air force, as the Syrian air force also used Russian planes.



The map above demonstrates that the medical facility attacked was well within range of the aircraft detected. One Russian plane observed and determined to potentially be involved in the attack was detected circling 6.2km from the attack site 10 minutes prior to the attack. The other Russian plane observed and determined to potentially be involved in the attack was de-



tected circling 6.26km from the attack site 33 minute after the initial attack.

Witness statements of the attack were provided jointly by Syrians for Truth and Justice and by Justice for Life. In his statement to the investigative team, Abu Samer al-Hamawi, a nurse who works for Shamna Ambulance System in Ma'arr Zita located in the countryside of Idlib, said that warplanes believed to be Russian carried out an airstrike on Shamna Ambulance System on 27 April 2017, exactly at 07:15. The attack killed five people, including paramedics and visitors, injured others, and caused extensive material damage to the ambulance system so that it was rendered out of service. Al-Hamawi said:

“The Shamna Ambulance System is an emergency center that provides emergency services and the first aid to those who need it during the attacks. It also includes a drug store and other medical supplies such as, gauze, povidone, and sterilizers. The center serves the town of Ma'ar Zita and all the surrounding villages. I still remember well the morning of April 27, 2017

I WAS AT HOME NEAR THE CENTER WHEN IT WAS BOMBED BY RUSSIAN WARPLANES, AND I IMMEDIATELY RUSHED TO LOOK FOR MY FRIENDS AND COLLEAGUES IN THE SYSTEM. I WAS SHOCKED WHEN I SAW AHMAD SULEIMAN, MY COLLEAGUE, SERIOUSLY INJURED; I TRIED TO TRANSFER HIM BY CAR BECAUSE THE AMBULANCE CARS WERE COMPLETELY BURNED.”

Al-Hamawi clarified that when the Civil Defense teams arrived at the Ambulance System in order to put the fires out that the initial bombing caused, Russian warplanes reiterated shelling the center with high-explosive rockets, killing 5 people and wounding a number of Civil Defense members. The attack resulted in considerable material damage to the fire truck affiliated to the Civil Defense and the burning of a car that belonged to one of the visitors. Al-Hamawi noted that renovation of the Ambulance System is still undergoing up until the writing this report.

According to al-Hamawi, the deaths from the targeting of Shamna emergency system are identified as:

Amina al-Hamawiya, a patient.
Majid Mohammed al-Omar, a medic.
Saleh Ahmad al-Rahmon, a patient.
Ahmed Suleiman, a medic.
Yusef Sotel, a medic from the Sheikh Mostafa ambulance section.

Mousa Zedan, a Civil Defense member, who was one of the first arrivals at the Shamna Ambulance System following the bombing, confirmed that the Russian warplanes targeted the fuel stores of the system and caused large fires. It targeted as well the gathering point for cars belonging to the ambulance system; there were about 7-8 cars. Zedan continued:

“Fires and smoke spread everywhere. We worked hard to put out the fires, and then we evacuated the wounded. I remember that fires lasted from 8:00 am to 2:00 pm, this state needed the fire teams from Ma'arat al-Nu'man, Kafranbel and Heesh centers to join us in putting out the fires.”

FURTHER RESEARCH

While attacks on medical facilities in Idlib during April 2017 were the focus of this report, many other medical facilities were attacked in Hama during the same period, and throughout the country over the last six years. The investigation of attacks on other medical facilities is the subject of further research.

Through using a variety of sources to corroborate verified visual content, the Syrian Archive aims to additionally provide a resource and methodological framework for other human rights researchers and advocates on using open-source investigation techniques to conduct similar investigations. Should readers have interest in potential collaborations on further research or investigations, please do engage with us at info@syrianarchive.org.

ERRORS, CORRECTIONS AND FEEDBACK

The authors of this report have strived for accuracy and transparency of process in reporting and presentation, while balancing the need to protect the safety of those providing documentation in some instances. With these interests in mind, detailed methodologies for some information deemed sensitive have not been published.

With that said, while all efforts have been made to present our best understanding of alleged incidents, it is recognised that the publicly available information for specific events can at times be limited.

If readers have new information about particular events; find an error in our work - or have concerns about the way we are reporting our data - please do engage with us. You can reach us at info@syanarchive.org.



REFERENCES

- 1- Beals, E. (2017). "Doctors resort to crowdfunding Syrian hospitals as red tape locks aid money." The Guardian. <<https://www.theguardian.com/global-development/2017/may/11/doctors-syria-crowdfunding-maintain-underground-field-hospitals>>. Accessed 13 Jul. 2017.
- 2- Allen-Ebrahimian, B. (2017). "Hospitals Become the Front Line in the Syrian Civil War." Foreign Policy. <<http://foreignpolicy.com/2017/05/31/syria-hospitals-assad-civil-war-russia-usaid/>>. Accessed 13 Jul. 2017.
- 3- Lucente, A., and Al Shimale, Z. (2017). "Displaced Syrians stuck in limbo at Idlib's Taiba camp." Aljazeera. <<http://www.aljazeera.com/indepth/features/2017/01/displaced-syrians-stuck-limbo-idlib-taiba-camp-170129054623992.html/>>. Accessed 13 Jul. 2017
- 4- The Syria Campaign. (2017). Saving Lives Underground: The case for underground hospitals in Syria. <<https://d1p8u7ytnu6qui.cloudfront.net/Saving%20Lives%20Underground%20report.pdf>>. Accessed 13 Jul. 2017.
- 5- Medecins sans Frontieres. (2017). "At least 25 killed in attack on MSF-supported hospital in northern Syria (updated)." Medecins Sans Frontieres. <<http://www.doctorswithoutborders.org/article/least-25-killed-attack-msf-supported-hospital-northern-syria-updated>>. Accessed 13 Jul. 2017.
- 6- Human Rights Watch. (2017). "Hospitals, Health Workers Under Attack." Human Rights Watch. <<https://www.hrw.org/news/2017/05/24/hospitals-health-workers-under-attack>>. Accessed 13 Jul. 2017.
- 7- Organisation for the Prohibition of Chemical Weapons. (2017). "OPCW Fact-Finding Mission Confirms Use of Chemical Weapons in Khan Shaykhun on 4 April 2017." Organisation for the Prohibition of Chemical Weapons. <<https://www.opcw.org/news/article/opcw-fact-finding-mission-confirms-use-of-chemical-weapons-in-khan-shaykhun-on-4-april-2017/>>. Accessed 13 Jul. 201
- 8- Beals, E. (2017). "Doctors resort to crowdfunding Syrian hospitals as red tape locks aid money." The Guardian. <<https://www.theguardian.com/global-development/2017/may/11/doctors-syria-crowdfunding-maintain-underground-field-hospitals>>. Accessed 13 Jul. 2017.
- 9- Allen-Ebrahimian, B. (2017). "Hospitals Become the Front Line in the Syrian Civil War." Foreign Policy. <<http://foreignpolicy.com/2017/05/31/syria-hospitals-assad-civil-war-russia-usaid/>>. Accessed 13 Jul. 2017.
- 10- Lucente, A., and Al Shimale, Z. (2017). "Displaced Syrians stuck in limbo at Idlib's Taiba camp." Aljazeera. <<http://www.aljazeera.com/indepth/features/2017/01/displaced-syrians-stuck-limbo-idlib-taiba-camp-170129054623992.html/>>. Accessed 13 Jul. 2017.
- 11- The Syria Campaign. (2017). Saving Lives Underground: The case for underground hospitals in Syria. <<https://d1p8u7ytnu6qui.cloudfront.net/Saving%20Lives%20Underground%20report.pdf>>. Accessed 13 Jul. 2017.
- 12- Medecins sans Frontieres. (2017). "At least 25 killed in attack on MSF-supported hospital in northern Syria (updated)." Medecins Sans Frontieres. <<http://www.doctorswithoutborders.org/article/least-25-killed-attack-msf-supported-hospital-northern-syria-updated>>. Accessed 13 Jul. 2017.
- 13- Human Rights Watch. (2017). "Hospitals, Health Workers Under Attack." Human Rights Watch. <<https://www.hrw.org/news/2017/05/24/hospitals-health-workers-under-attack>>. Accessed 13 Jul. 2017.



48 - "الدفاع المدني السوري في محافظة ادلب" (2017). "الدفاع المدني السوري- خان شيخون |4-4-2017 غارات جوية تستهدف مركز الدفاع المدني" - Retrieved from <<https://www.youtube.com/watch?v=IG0fOnOlyL>>. Accessed 17 Apr. 2017.

49- Syrian Network for Human Rights. (2017). "إدلب -خان شيخون:دمار بمركز الدفاع المدني جراء قصفه بصواريخ طيران حربي نعتقد أنه روسي ج4 4 2017". Retrieved from <<https://www.youtube.com/watch?v=3PHLF3VLx4>>. Accessed 20 April 2017.

50 - Organisation for the Prohibition of Chemical Weapons. (2017). "OPCW Fact-Finding Mission Confirms Use of Chemical Weapons in Khan Shaykhun on 4 April 2017." Organisation for the Prohibition of Chemical Weapons. <<https://www.opcw.org/news/article/opcw-fact-finding-mission-confirms-use-of-chemical-weapons-in-khan-shaykhun-on-4-april-2017/>>. Accessed 13 Jul. 2017.

51 - Orient News. (2017). "خروج مشفى الرحمة ومركز الدفاع المدني في خان شيخون عن الخدمة". Retrieved from <<https://www.youtube.com/watch?v=KutpAEKdZio>>. Accessed 6 April 2017.

52 - "S-5 Rocket" (2017). Wikipedia. Retrieved from <https://en.wikipedia.org/wiki/S-5_rocket>. Accessed 10 July 2017.

53 - ibid.

54 - bid.

55 - Smart News Agency. (2017). "خروج مشفى ومركز للدفاع المدني في خان شيخون بإدلب عن الخدمة بقصف جوي". Retrieved from <<https://www.youtube.com/watch?v=o7-cZts25Ck>>. Accessed 5 April 2017.

56 - Idlib Health Directorate. (2017). "بيان مشترك بين #الدفاع_المدني_السوري و#مديرية_صحة_إدلب حول مجزرة #خان_شيخون". Retrieved from <<https://www.facebook.com/Idlib.Health.Direcatorate/posts/964387723664583:0>>. Accessed 4 April 2017.

57 - "الدفاع المدني السوري في محافظة ادلب" - Retrieved from <<https://www.youtube.com/watch?v=pAkmt0DnAc>>. Accessed 6 April 2017.

58 - Orient News. (2017). "طيران حربي يرتكب مجزرة في بلدة حيش في إدلب". Retrieved from <<https://www.youtube.com/watch?v=fSTjk6ERLb0>>. Accessed 7 April 2017.

59 - هادي العبدالله Hadi Alabdallah (2017). "Retrieved from <<https://www.youtube.com/watch?v=8q552FQXLNc>>. Accessed 6 April 2017.

60 - thiqa agency. (2017). Retrieved from <https://www.youtube.com/watch?v=Vag_LHW_jMQ>. Accessed 7 April 2017.

61 "شبكة المعرفة الآن" بالفديو : آثار الدمار في بلدة حيش إثر قصف الطيران الروسي للبلدة صباح اليوم - Retrieved from <<https://www.youtube.com/watch?v=tfMj49qh62k>>. Accessed 7 April 2017

62 "SS-21 Scarab" (2017). Wikipedia. Retrieved from <https://de.wikipedia.org/wiki/OTR-21_Tochka>. Accessed 14 Jul. 2017

63 - Idlib Health Directorate. (2017). Retrieved from <<https://www.facebook.com/Idlib.Health.Direcatorate/photos/a.648305141939511.1073741828.648124961957529/981613398608682/?type=3&theater>>. Accessed 22 April 2017.

64 - United Nations Office for Coordination of Humanitarian Affairs. (2017). "Retrieved from <http://reliefweb.int/sites/reliefweb.int/files/resources/Attacks%20on%20hospitals%20Press%20Statement%20EN_Clean.pdf>. Accessed 27 April 2017.



65 - Syria Civil Defence Videos. (2017). "قصف جوي استهدف مشفى كفرتخاريم بريف ادلب ما أسفر عن سقوط جرحى وخروج المشفى عن الخدمة". Retrieved from <<https://www.youtube.com/watch?v=7G1B3M6qlq>>. Accessed 25 April 2017.

66 - SMO News Agency. (2017). Retrieved from <<https://www.youtube.com/watch?v=sXEA4C1SHUI>>. Accessed 26 April 2017.

67 - 2017) "وكالة إباء" Retrieved from <https://www.youtube.com/channel/UCJ6BZDIwW0AjmXe_sL0u3Zg>. Accessed 13 Jul

68 - Orient News. (2017). "خروج مستشفى كفرتخاريم في إدلب عن الخدمة بسبب الاستهداف المباشر". Retrieved from <<https://www.youtube.com/watch?v=69rNCv6Shxw>>. Accessed 26 April 2017.

69 - هادي العبدالله Hadi Alabdallah. (2017). "الطائرات الحربية تقصف مشفى دير شرقي في ريف ادلب بخمس غارات جوية وتخرجه عن الخدمة كليا 2017-4-27" Retrieved from <<https://www.youtube.com/watch?v=iCqA8uzVklg>>. Accessed 26 April 2017.

70 - Qasioun News Agency. (2017). "لحظة قصف الطيران الروسي مشفى في قرية الدير الشرقي بريف ادلب". Retrieved from <<https://www.youtube.com/watch?v=pkq2gw9yWXg>>. Accessed 27 April 2017.

71 - Step News Agency. (2017). Retrieved from <<https://www.youtube.com/watch?v=g55RZibwxVY>>. Accessed 28 April 2017.

72 - (2017) (الدفاع المدني السوري في محافظة ادلب). "الدفاع المدني السوري ادلب قطاع معرة النعمان اسعاف الجرحى وانتشال الشهداء في مشفى الجامعة 2017-4-27" Retrieved from <<https://www.youtube.com/watch?v=z0o2LbPzFOA>>. Accessed 27 April 2017.

73- Orient News Agency. (2017). "خروج مستشفى الجامعة في معرة النعمان عن الخدمة بسبب استهداف العدوان الروسي". Retrieved from <<https://www.youtube.com/watch?v=CTkZ2bciD38>>. Accessed 27 April 2017.

74 - 2017) (معاذ الشامي). "اللحظات الاولى لاستهداف مشفى #الجامعة بريف معرة النعمان وتدميرها من قبل الطائرات الروسية" Retrieved from <<https://www.youtube.com/watch?v=d3qlceFvP7g>>. Accessed 26 April 2017.

75 - هادي العبدالله Hadi Alabdallah. (2017). "بعد مشفى دير شرقي الطائرات الحربية تحرق النقطة الطبية في بلدة معرزيبا بريف ادلب 2017-4-27" Retrieved from <<https://www.youtube.com/watch?v=gUNQf08JU4>>. Accessed 27 April 2017.

76 - Smart News Agency. (2017). "قصف جوي على نقطة طبية في بلدة جنوب إدلب". Retrieved from <https://www.youtube.com/watch?v=CueLA_ku0ao>. Accessed 27 April 2017.

77 - RSF Media Office. (2017). "الروسي يستهدف نقطة نقطة شامنا الطبية على أطراف قرية معرزيبا مخلفاً 4 شهداء". Retrieved from <<https://www.youtube.com/watch?v=DHUmNsgSoh4>>. Accessed 27 April 2017.



