
**THE RAF AND AIRSTRIKES:
WORKING TO PROTECT CIVILIANS**

Monday 3rd December 2018

**Summary report from a joint
AOAV-Chatham House round-table**

1.0 CONTEXT AND WHY IT MATTERS

It is a reality – and a tragedy – that when air- or ground-launched weapons are used against targets in or around densely populated areas civilians suffer the most in terms of deaths and injuries.

In its 2017 *Explosive Violence Monitor* – a record and assessment of civilian casualties caused by explosive weapons over that year – Action on Armed Violence (AOAV) recorded 42,972 deaths and injuries as a result of the global use of explosive weapons. It found that, when those attacks occurred in populated areas, 92% of casualties were civilians. It also found that, in 2017, there was a 257% rise in civilian deaths caused by US-led Coalition airstrikes in Iraq and Syria (totalling some 2,187 deaths).¹

These figures fail to capture the immediate and long-term suffering caused by explosive violence to civilian populations. Many more people around the world are impacted by explosive weapons than can be represented by casualty data alone. Those uprooted by explosive violence are in the millions. Countless flee across international borders. Even greater numbers are displaced internally.

2.0 EVENT STRUCTURE AND REPRESENTATION

This event was part of a two-year Joseph Rowntree Charitable Trust-funded project, during which AOAV plans to examine the Royal Air Force's (RAF) past and ongoing use of airstrikes over Iraq and Syria. The first of three proposed round-tables to this end took place at Chatham House, London, on 3rd December 2018. It involved over 30 people invited from UK Government, Parliament, civil society, academia and the UK military, and discussions were organised around four main sessions, each led by a moderator and featured two presenters speaking for 15 minutes. Debate and discussion took place under the Chatham House Rule.

The opening session provided an overview of the airframes, munitions, targeting systems and tactics utilised by the RAF. Session 2 assessed what systems and procedures the RAF used to avoid causing civilian deaths and injuries, or damage to key civilian infrastructure. Session 3 scrutinised the methods deployed to ascertain, post-strike, whether civilians had been killed or injured as a result of an airstrike. Finally, Session 4 provided a forum for discussing how the RAF (and Ministry of Defence) might further develop policies and protocols that could encourage greater transparency and foster deeper accountability to Parliament and to the UK public as a whole.

3.0 INTRODUCTORY SESSION

The early consensus among participants was that the concept of accountability was at the heart of the meeting. It was acknowledged that, whilst the RAF conducts airstrikes with far greater transparency than many other militaries, there was a continuing need to scrutinise airstrikes and how they are conducted, lest a closed political culture develop within the armed forces, or within associated instruments of scrutiny.

The RAF, as part of a wider coalition led by the United States, has dropped more than 3,400 bombs and missiles in Iraq and Syria since the beginning of 2016.² For two years, the UK government stated that there was no evidence the RAF airstrikes had killed civilians. A Ministry of Defence (MoD) spokesperson stated in October 2017 that ‘we have no evidence that RAF strikes have caused civilian casualties. We recognize the challenge faced by coalition pilots in close urban fighting against a ruthless terrorist enemy that uses civilians as human shields.’ It was only in May 2018 that the MoD admitted that a Reaper drone fired on an IS vehicle in eastern Syria on 26 March 2018 had ‘unintentionally’ killed a civilian on a motorbike when he crossed the target area at the last minute.

Given that the United States acknowledged in December 2018 that at least 1,139 civilians had been inadvertently killed in airstrikes over the last four years during the campaign against the Islamic State in Iraq and Syria (ISIS)³, the UK government’s claim that their airstrikes have killed only one person seemed problematic to many in the group.

A distinction was made early on in the debate between ‘wars of choice’ and ‘wars of national survival’. The latter were seen as naturally more brutal, while the former – exemplified by UK involvement in Syria and Iraq – allowed for a greater degree of calculated engagement. Some participants pointed out that we cannot avoid all civilian casualties; the public must understand that, in wars, civilians are killed. All agreed that militaries must strive tirelessly to try and avoid civilian casualties.

The role of the House of Commons Defence Committee was cited early on as a key body holding the military and Ministry of Defence to account, but that such accountability was dependent upon gaining better access to defence data from the MoD. A 2016 Defence Committee report – *UK military*

operations in Syria and Iraq inquiry – was said to have clearly shown how great the resistance was against making information fundamental to understanding UK military actions in Syria and Iraq publicly available.

In numerous instances, the UK government was trying to bomb ‘both sides’ involved in the Syrian civil war – both the Assad regime and IS. Many participants felt this meant that clear strategic and political goals needed to be stated *before* the UK committed itself to military engagement. In Syria, the UK was said to have desired the defeat of both belligerents, but how this was to be achieved using airpower alone was not clear from the outset. The UK was also said to be generally reluctant to divulge which ground forces were being supported by their airstrikes. This was possibly due to the sensitivities in admitting that, for example, Kurdish forces (particularly ‘Kurdish People’s Protection Units’) were being aided tactically; such support would be scrutinised critically by States and civil society alike.

It was widely agreed that a politically successful military engagement becomes endangered, and even rendered unlikely, when any conflict is entered into without a clear objective, where success is ill-defined, and where victory might mean different things to different coalition factions. There is always the need to assess whether, in such an engagement, the use of airpower would result in ‘something better’ – with the need to define what ‘something better’ might mean or look like. There was also a call to identify clearly what forces on the ground were considered allies and how the use of airpower could prove beneficial to them prior to starting any hostilities.

It was observed that for every 8.7 airstrikes in Iraq there was only 1 in Syria, and that these strikes more frequently targeted infrastructure key to IS’s operations. One reason for this disparity was that, due to time delays, IS was given a ‘window’ to move its forces across the border to Iraq, thus providing fewer obvious, exposed targets to hit within Syria.

Ongoing underinvestment in the UK’s armed forces, contrasted against a growing eagerness to use force – albeit force conducted via the use of airstrikes – was also seen as problematic, especially in terms of carrying out actions that could not endanger non-combatants. Important questions had to be asked before committing to intervention: could airpower alone achieve success without being supported by allied troops on the ground? Is policy in this area fit for purpose? Upon entering conflict, do tactics reflect a coherent, and achievable, strategy?

Questions raised

- Has the notion of ‘containment’ been eroded in recent years in favour of intervention?
- How does one determine what mode of strategic action would produce more positive outcomes in the long-term?
- Has the ‘Responsibility to Protect’ normative framework disintegrated over the last decade, particularly as a result of UK (and French) intervention in Libya?

- Do Members of Parliament understand the mechanics, tactics and rules of engagement involved in the use of airstrikes?
- Is there a disconnect between the 'need to do something' and an aversion to risk: where airstrikes become countenanced as the only mode of intervention?
- What are the chief weaknesses in terms of oversight of the RAF and Ministry of Defence? Are these rectifiable?

4.0 SESSION 1: AN OVERVIEW OF RAF TECHNOLOGY AND WEAPON SYSTEMS

For any informed discussion on possible civilian casualties resulting from the UK's use of airstrikes, it is important to have an overview of the technology utilised by the RAF and an understanding of how that technology was employed tactically. Session 1 served to highlight and examine the airframes, munitions, targeting systems and intelligence gathering apparatus used in employing airstrikes over Iraq and Syria.

A number of participants noted that they believed the UK military's technology and conflict systems were dictated by a 15-year development and procurement plan. When the UK first began to use these sometime out-dated military assets to counter insurgencies, significant adaptations were required. The Typhoon, originally conceived as a multi-role air superiority fighter, was a prime example of such. Since 2011 (and its role over Libya), that RAF's aircraft had to be adapted and equipped to undertake air-to-surface strike missions and made compatible with a number of different armaments and equipment, including Storm Shadow and Brimstone missile systems.

Given that enemy targets in Syria and Iraq often resided close to civilian infrastructure – such as mosques, hospitals and electricity generators – the RAF was said to have deployed its equipment in a 'legally aware' manner, something that was said to be to the detriment of its war-fighting ability. Some spoke of pilots – particularly drone operators – as being heavily invested in the area of their operations; they were so immersed in the areas they were monitoring that they became adept at predicting and anticipating the everyday movements of civilians within villages and towns.

On the whole, it was agreed that the RAF's weapon systems were far superior, and deployed in a more selective manner, than those of many other militaries (in comparison to, for instance, Russia). It was noted that the Brimstone system, for example, was 'so precise' it could supposedly hit a small area on a targeted enemy vehicle (the example of hitting the engine of a motorcycle was used to demonstrate such accuracy). It was noted that UK systems were less reliant upon continuously computed impact point systems (CCIP) as used by the Russian Air Force. The CCIP was a system that, although improved over recent years, could not match the three main types of guidance systems employed by the RAF over Iraq and Syria. Such 'continuously targeting' systems include a combination of coded laser, Global Positioning System guidance, and radar targeting.

The three main types of RAF airframes – Typhoon, Tornado and Unmanned Aerial Vehicle (Reaper) – were each said to have specific advantages, as were the weaponry they carry – Brimstones, Paveway IVs and Storm Shadows. Storm Shadow has a greater ‘stand-off’, while the Brimstone’s precision was portrayed as ‘unparalleled’. The Tornado was said to have the advantage of being a two-person airframe; the single-seater Typhoon’s instruments and layouts were described as highly advanced (particularly in terms of its human interface design and technologically-advanced pilot’s helmet).

The definition of ‘precision’ was greatly disputed between participants, and it was admitted that, regardless of the quality of the weapon system, ‘successful’ strikes – both in terms of hitting the target in the desired way and avoiding civilian casualties (or damage to civilian infrastructure) - was dependent on an ‘accurate collateral damage estimate’, the accuracy of data pertaining to the target, the mapping of terrain by radar, and the movement of civilians (or opponents) during the attack phase. When attacks were being conducted during ‘dynamic’ situations, or during high intensity actions, the challenge became significantly greater. It was stated that up to 95% of attacks in Syria and Iraq have been conducted during ‘dynamic’ situations.

The relative yield of a missile or bomb was also seen as problematic. Even a small warhead can cause significant damage and loss of life when deployed or launched inaccurately. Pressure-based munitions also prove particularly deadly to civilians exposed to an attack. Even with the development of weapons such as MBDA’s Selective Precision Effects At Range (SPEAR) missile – supposedly accurate enough to target a particular floor of a building – such weapons are at the mercy of multiple factors including weather and accurate intelligence.

Debate evolved around the use, efficacy and moral dilemma of deploying autonomous or semi-autonomous weapons, including Storm Shadow. It was noted that it was impossible to programme a weapon to decide ‘what is proportional’ and that, even with sophisticated pre-programming, an autonomous weapon would ‘decide’ based upon mathematics rather than morality. Conversely, it was also argued that some degree of ‘autonomy’ was not automatically bad - if embedded within a responsible chain of command that had considered ethical and legal issues carefully. This argument saw autonomous or semi-autonomous weapons as just another weapon in a nation’s armoury.

Questions raised

- In intelligence-led campaigns, such as over Syria and Iraq, does the UK have enough qualified people in roles that facilitate the effective use of airstrikes?
- Is the UK truly prepared to face the wide range of potential future conflicts?
- How do military planners reconcile the need to anticipate the likely future conflict(s) with a significant lead-in and development period to design and produce effective equipment and systems?
- Are UK military personnel fully trained to operate in future high-intensity conflict scenarios?

- Is the focus on the benefits of 'precision weapons' overshadowing the yield potential of particular missiles and bombs?
- Does the 'sell' of 'precision weapons' fail to account for undermining factors such as poor intelligence, human failure and weather conditions that might lead a failure of the system and subsequent civilian harm?
- Is there sufficient scrutiny of decision-making processes regarding autonomous weapons systems, and is IHL capable of addressing this?
- Is information being made available concerning the true failure rates of weapon systems being deployed over Syria and Iraq?

5.0 SESSION 2: MITIGATING RISK

Consensus was quickly obvious vis-à-vis the importance of transparency at both the Ministry of Defence and within UK government circles. The public claim that the RAF had a virtually 100% success rate in terms of avoiding civilian casualties was seen sceptically, especially in light of so many organisations reporting upon incidents that countered this claim. The notion that airpower could be non-injurious to civilians, while also being highly effective against the enemy, was dismissed as running counter to the predictable harm such weapons have been seen consistently to inflict. With the UK now chiefly relying upon allies providing 'boots on the ground' and not their own troops, the reliance upon airpower alone was also seen to be problematic in terms of achieving military success.

The challenges of operating over Syria became quickly apparent once air strikes began. IS rapidly deployed to urban centres, embedding themselves within civilian populated areas. The UK military planners had to adjust quickly to this new reality, but it was said that the laws on engagement were always applied rigorously in that response.

It was commented that great pressure and artificial constraints were placed upon the UK military by its own politicians. A major challenge was having no UK troops on the ground to follow up on airstrikes or to provide reliable intelligence for strike planning. In Libya, the strategic challenges of striking targets within urban areas was pronounced. What if the use of tanks, for example, belonging to forces that did not respect international humanitarian law (IHL) was threatened, and what if such use could devastate urban areas? Was there a moral case for disabling those vehicles, even when there was a chance of 'collateral damage'?

During the discussion it was also made clear that, when projecting collateral damage estimates, it is not standard practice for the RAF to take into account the possibility there might be existing explosives in a strike zone. This presents further unknown variables that could exacerbate the impact of an airstrike.

The practical challenges of decisions to authorise and activate airstrikes had additional moral and ethical dimensions. Participants made clear that IHL does not absolutely prevent the deployment of explosive weapons over populated areas, and concepts such as proportionality are open to debate. Many believed that any sanction of the use of air-strikes over towns and cities should be more than just an interpretation of what is permissible under law. Moreover, global condemnation of states that cause civilian casualties by air-strikes provides a wider political and strategic reason for limiting civilian casualties as much as possible.

As a corollary to the moral debate, the importance of public opinion as a regulator of intervention was seen as important. An ongoing – and yet unpublished – study being carried out between UK and US universities was cited. This study concluded that, out of the United States, Israel, the United Kingdom and France, the public in the UK was least likely to support airstrikes when it was predicted that there would be significant civilian harm caused. When broadened to look at the scenario of ‘risking soldiers versus sparing civilians’, the UK citizenry were more likely than the other states examined to risk forces rather than risk the lives of civilians.

The core debate around accountability and transparency within the RAF was further probed by assessing how the RAF could improve its reporting post-strike. Pilots and operators of the United States Air Force (USAF) were encouraged to report proactively on individual missions, particularly when there were concerns that an airstrike had gone awry. Some participants outlined how the UK had strong, clear and consistent post-strike reporting. It was said that pilots returning from a sortie immediately completed a comprehensive, five-page report form; that pre- and post-strike footage was reviewed; and that footage and written reports were conveyed to the Joint Warfare Centre to be reviewed, recorded and stored. Additionally, it was said that airstrikes over Iraq and Syria frequently took place around 3am, so as to ensure the least amount of civilian activity and therefore civilian casualties. Furthermore, when operating within a coalition – as the UK does frequently – it was said that it was impossible to be opaque in terms of operational policies: in short, you could not get away with killing civilians with air-strikes if you were operating within a coalition – the other members would ‘call you out’.

Although it was argued by those with experience of RAF operations that few weapons dropped or launched by the UK went unaccounted for, and that problems or anomalies were few and far between – if pilots or commanders had doubts, for instance, strikes were aborted – others pointed to inherent challenges regarding communication between pilot and command, once an airframe was ‘in-situ’ above a target zone. Fundamentally, though, it was conceded that airstrike collateral damage assessments were estimations, dependent upon multiple and often unknown variables. In an airstrike, it is impossible to calculate every risk; assumptions have to be made, for example, about who is inside a building before a bomb is dropped.

What many also saw as unclear was just how the Ministry of Defence learnt from its own experiences and mistakes. And, importantly, just how it propagated lessons learned between conflicts or significant military operations. Additionally, many participants questioned the accountability mechanisms within the MoD, stating that the virtually zero civilian casualty figure so publicly claimed had two detrimental effects. First, that the MoD had 'bought in' to its own message. And, second, that the UK public were being led to believe that UK airstrikes were virtually risk free.

Questions raised

- How can the Ministry of Defence be more transparent?
- Working in coalitions, how has the UK sought to play a positive role in terms of how airstrikes are conducted?
- Harm is generally calculated in terms of weapon's physical impact: should we also include the psychological traumas and the reverberating effects that an airstrike may cause?
- What are the advantages and disadvantages of utilising 'local knowledge' to inform the planning of an airstrike?
- Should the RAF cease to carry out airstrikes using explosive weapons with wide area effects over populated areas?

6.0 SESSION 3: ASSESSING IMPACT

Explosive weapons, including airstrikes, account for thousands of civilian lives and injuries each year in current conflicts. According to eight years of data from AOA, there have been over 22,000 airstrikes reported in English-language media, resulting in 310,000 casualties. Of these, 75% were civilians – 80,000 killed and 150,000 injured. In populated areas, civilians account for over 90% of the casualties. In lesser populated areas, they account for less than 30%.⁴

The scale of human suffering caused by the use of airstrikes is frequently eclipsed or lost in the midst of discussions around other types of explosive weapons. Concerns were raised around a perceived and continuing focus on, for example, deaths and injuries caused by the use of landmines.

Proportionally, landmines kill fewer people than airstrikes. More widely, airstrikes have accounted for just under one quarter of all civilian casualties from explosive violence since 2011.⁵

The top perpetrators of civilian harm from airstrikes in Syria and Iraq have been Syria, Saudi Arabia, the US Coalition (including the United Kingdom), Israel and Russia. There was an agreement that attaining exact death and injury figures was extremely challenging, particularly given the number of belligerents operating in and over Syria. Data was based upon information from journalists, local parties on the ground in Syria and Iraq, the militaries involved, and international research and civil society organisations. Some of the difficulties in determining exact numbers of dead and injured in the face of counter-claims by nation states involved in the conflicts in Iraq and Syria was highlighted, but such figures are routinely questioned by the state actors involved, forcing civil society into the role of the perpetual investigator, often without resources for such.

It was highlighted that harm to civilians from the use of air-dropped explosive weapons goes well beyond initial deaths and injuries. In terms of reverberating effects, this includes mental and physical scars. Many civilians are left disabled by airstrikes - injuries that require life-long treatment. The severe psychological impact caused by air-strikes is also compounded by a lack of healthcare provision or medical expertise. Damage to infrastructure that supports society is often widespread, and the destruction of places such as hospitals, schools, water plants and sewage processing facilities can take years to repair. Such major infrastructural damage heightens the risks posed to a society's general health and wellbeing, while raising the spectre of severe environmental contamination. Participants acknowledged that deadly remnants of war – including unexploded air-to-surface missiles and bombs – were frequently present post-airstrike.

Furthermore, the collective fear, anxiety and uncertainty caused by bombing campaigns – or the threat of bombing – can have extensive repercussions for a functioning economy. Post-conflict economic stagnation is common, particularly given internal displacement. Many people never return to their former homes, a factor that exacerbates the disintegration of employment and local economic enterprise. In turn, a return to a normal day-to-day life can be made virtually impossible as the persistent threat presented by unexploded ordinance prevents rebuilding and discourages the displaced from returning. Such unexploded ordinance remains a major cause of ongoing casualties and can severely impact agricultural communities.

In terms of 'blowback' – how airstrikes might fuel vengeance narratives that, in turn, lead to more violence – the data remains unclear. But speakers presented evidence that showed that terror groups often called for revenge attacks after airstrikes had occurred.

Speakers made clear that there has been violence of extreme proportions conducted by all parties to the conflict in Iraq and Syria. This was particularly the case during the Mosul offensive. It was highlighted that the US-led coalition delivered 110,000 munitions from the air (split equally between Iraq and Syria) and that most airstrikes – over 90 per cent – were dropped or launched during 'dynamic' situations – strikes that were not wholly pre-planned. Additionally, most airstrikes were launched at targets situated in urban areas. By the end of 2018, the United States had conceded that it was responsible for the deaths of 1,130 civilians in Iraq and Syria, and that, partly in response to the scale of the suffering, partly in response to lobbying from civil society, it had established a civilian casualty reporting cell that communicated directly with Airwars, the International Committee of the Red Cross and other international civil society organisations.

The UK was said to have conducted 5.6% of the total number of airstrikes over Iraq and Syria. The RAF had recorded and admitted to having caused one civilian fatality (said to have occurred in a rural area), accounting for 0.09% of total recorded fatalities, with none counted in Mosul and Raqqa.

In context, in 2017, the RAF dropped six times as many munitions in and around Mosul as it had during its sorties over Afghanistan; in total, 29,000 munitions were dropped on Mosul by the US-led coalition. Total civilian casualties from one civil society organisation was put at between 9,000 and 20,000, though this included damage from multiple sources, including Iraqi forces and IS.

In terms of the UK, MoD sources reported that the RAF had struck 750 targets in Mosul (second only to US). During the Mosul campaign, the United States and Australia – the only two coalition members to admit having caused civilian deaths there – reported having been responsible for causing 400 civilian casualties. A speaker commented that a John Hopkins' University study, having surveyed 800 households, found that there had been 2.09 deaths per 100 people during the Mosul offensive.⁶

Speakers commented that there were possibly 237 incidents where the RAF could have caused significant civilian harm, and that these incidents cast doubt on the RAF's near 'zero casualty' record. It was argued that there were multiple reasons why the RAF's position was questionable: there were limitations on just how accurate precision systems could be; even the smallest munitions has a large, unpredictable blast range; RAF air strikes were usually highly intensive; assessments of whether civilians were present in a strike zone was largely dependent on observation at a particular time; 31% of attacks over Mosul, and 63% of attacks over Raqqa, were conducted in and around highly populated areas; there was little, if any, investigation of the targeted area after an airstrike; casualty assessments were inconsistent at best; due to political pressures, the UK's Ministry of Defence was very likely to under-report civilian casualties; and US Centcom (Central Command) reported on 80 deaths that it – the United States – was not responsible for, and yet no other coalition member had taken responsibility for.

Questions raised

- How can the UK's Ministry of Defence better promote transparency?
- Have RAF operations become more transparent over recent years?
- In terms of making the decision to initiate airstrikes, is there a moral requirement for MPs to understand the nature of airstrikes, the limitations of the 'precision weapon' argument and the threat posed to civilians and key infrastructure?
- Does the RAF assess likely infrastructural damage and reverberating effects when it conducts a collateral impact assessment?
- Is there anything unique about airstrikes that may fuel revenge narratives and terrorism?
- Should more information pertaining to airstrikes be proactively put out into the public domain (as opposed to requiring a Freedom of Information request)?
- Are simple observations of a strike zone, particularly when operating in 'dynamic situations', sufficient to amass data critical to the successful fulfilment of an airstrike and the limitation of harm to civilians?
- Should more oversight be brought to bear on the RAF and MoD, particularly in light of US attempts to be more transparent?

6.0 SESSION 4: ACCOUNTABILITY AND TRANSPARENCY

In this session, the challenges in assessing harm and working with multiple parties to conflict – including state and non-state actors – with the aim of protecting and caring for civilian populations were raised.

The meeting heard from humanitarian organisations that insist on neutrality and that maintain lines of communication with governments that are carrying out airstrikes; this facilitates access to information deemed crucial to ameliorating the worst excesses of conflict. Such humanitarian organizations have witnessed and recorded extraordinary levels of harm in Syria, Iraq and Yemen – civilian infrastructure has been widely destroyed, and human suffering has been recorded on a large scale.

These humanitarian organisations have seen recent changes in the way conflicts are waged. There was agreement between participants that the way wars are now fought, particularly when Western states are involved, is through alliances and coalitions; alliances have the advantage of shared intelligence and data and often provide access to advanced, integrated weaponry. However, the incentive for Western powers to deploy ground troops is receding, and with it, the necessity and will to use airpower has increased greatly.

It was argued that the ‘farther away’ from the battlefield the military finds itself, the greater the risk posed to civilians on the ground. In this new paradigm, human intelligence plays an essential role in ensuring that airstrikes are proportional, and done with an eye to minimising civilian harm; but with that reliance comes great risks. When intelligence is patchy, an airstrike could go awry. When situations are ‘dynamic’, mistakes can occur.

For these reasons, participants agreed that accountability and transparency were crucial to the regulation of airstrikes. It was suggested that there was a need for transparency on how airstrikes are used and how IHL is understood and applied when planning and conducting airstrikes; and that examples of good practice in terms of transparency should be disseminated to partners. Concerns were voiced as to whether current decision-making and planning processes still continued to reflect concerns that had been raised in the 2016 Iraq Report (‘Chilcot report’).

Overall, it was stressed that great importance needs to be placed on the real victims of modern warfare – civilians. Globally, more civilians than armed actors die as a result of the use of airstrikes, and the reverberating harm to infrastructure and healthcare systems affect civilian populations disproportionately. It was anticipated that non-state actors would continue to play a major role in modern conflict scenarios, and that conflict in urban areas would not lessen. Both of these elements, combined with the rising use of airpower by state actors, would continue to endanger civilian lives and livelihoods and contribute to ever greater insecurity locally, nationally and regionally.

Speakers pointed to the particular vulnerabilities of children, pointing out how fragmentation from air-launched or air-dropped munitions have severe and long-term impact on the developing human body. It was noted that harm to children was exacerbated by a dearth of paediatric programmes and research devoted specifically to the impact of munitions on the body of a child. There was little understanding, for example, on the effect of a blast wave on the still-developing physiology and bone structure of an infant. The impact on the brain of a child was of special concern, particularly when it would take years to assess long-term physical and mental development, in a context where medical facilities and specialists were largely absent. It was also noted that injured children were not, as a rule, treated in UK field hospitals – a hospital admission apparently denied by UK military doctrine.

Six key areas were agreed upon in terms of enhancing accountability and transparency within the MoD and RAF: adjusting the working culture to one of openness; strengthening policy on military intervention across all UK Government departments; improving communication with NGOs, and establishing a liaison point within the MoD; developing systems to track civilian harm and record civilian casualties; championing monitoring, evaluation and accountability (and, where possible, integrate this across coalitions); developing policy for supporting victims of RAF airstrikes.

Questions raised

- Is the RAF sufficiently prepared to operate in delicate, dynamic situations where civilian populations are located?
- Has the RAF sought to learn from models of accountability, as used by some of its coalition partners?
- From communications between civil society and the MoD, there is evidence the MoD is reluctant to put in place measures to improve accountability. Why is this the case?
- How can the MoD and RAF demonstrate that operations, including collateral damage assessments, are conducted within the constraints set by international humanitarian law?
- What has been learned from RAF operations over Mosul?
- Would the passing of 'primary legislation', forcing the MoD to become more transparent, work in reality?

This report was made possible by the generous financial assistance of the Joseph Rowntree Charitable Trust.

¹ For more see: <https://aoav.org.uk/explosiveviolence/>

² <https://airwars.org/>

³ <http://www.centcom.mil/MEDIA/NEWS-ARTICLES/News-Article-View/Article/1722540/combined-joint-task-force-operation-inherent-resolve-monthly-civilian-casualty/>

⁴ <https://aoav.org.uk/explosiveviolence/>

⁵ <https://aoav.org.uk/explosiveviolence/>

⁶ Lafta R, Al-Nuaimi MA, Burnham G (2018) Injury and death during the ISIS occupation of Mosul and its liberation: Results from a 40-cluster household survey. *PLoS Med* 15(5): e1002567. <https://doi.org/10.1371/journal.pmed.1002567>