

CITATION: S. v. Ukraine International Airlines JSC, 2024 ONSC 3303

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CV-21-00661405-0000

CV-21-00674491-0000

CV-21-00670960-0000

DATE: 20240610

ONTARIO

SUPERIOR COURT OF JUSTICE

BETWEEN:

N.S. in her personal capacity and as Trustee) *Joe Fiorante, K.C., Jamie Thornback,*
of the Estate of H.A., deceased, and as) *Valérie Lord and Paul Miller, for the*
Litigation Representative of the Estate of) plaintiff
K.A., deceased)

Plaintiff)

– and –)

Ukraine International Airlines JSC) *Clayton Hunter and Jiwon Son, for the*
defendant)

Defendant)

AND BETWEEN:

Omid Arsalani in the capacity of Estate) *Tom Arndt, for the class*
Trustee Without a Will of Hiva Molani,)
Fatholla (Vahid) Hezarkhani in the Capacity)
of Administrator of the Estate of Naser)
Pourshabosibi, Fatholla (Vahid) Hezarkhani)
in the Capacity of Administrator of the)
Estate of Firouzeh Madani and Habib)
Haghjoo)

Plaintiffs)

– and –)

Ukrainian International Airlines JSC) *Clayton Hunter and Jiwon Son, for the*
defendant)

Defendant)

AND BETWEEN:

The Estate of Behnaz Ebrahimi-Khoei, The
Estate of Rahmtin Ahmadi, Hadi Ahmadi,
Farnaz Moinsad, Manijeh Maali, Mahmoud
Ahmadi and Hossein Ebrahimi-Khoii

Plaintiffs

*Vincent Genova, Peter Jervis, Douglas
Worndl and Pritpal Mann, for the plaintiff*

– and –

Ukraine International Airlines JSC

Defendant

*Clayton Hunter and Jiwon Son, for the
defendant*

AND BETWEEN:

Razia Dhirani, Rehana Dhirani and Arif
Dhirani, Jibraan Dhirani, Isa Dhirani, Deen
Dhirani, minors by their litigation guardian,
Arif Dhirani, Kian Hossain, Qais Hossain,
by their litigation guardian Rehana Dhirani,
and the Estate of Asgar Dhirani, by its
Executor Razia Dhirani

Plaintiffs

*Roderick S.W. Winsor and Steven Kelly, for
the plaintiffs*

-and-

Ukraine International Airlines PJSC

Defendant

*Clayton Hunter and Jiwon Son, for the
defendant*

AND BETWEEN:

Ali Ahmari-Moghaddam, Administrator of
the Estate of Mojtaba Abbasnezhad,
Gholamhossein Abbasnezhad and Sina
Abbas Nejad

Plaintiffs

Jordan D. Assaraf, for the plaintiffs

-and-

Ukraine international Airlines PJSC

*Clayton Hunter and Jiwon Son, for the
defendant*

Defendant)
)
AND BETWEEN:)
)
A.H.P. and P.E.P. by their Litigation)
Guardian, K.K.) *Frances Shapiro Munn and Hamish Mills-*
) *McEwan, for the plaintiffs*
Plaintiffs)
)
-and-)
)
Ukraine International Airlines)
) *Clayton Hunter and Jiwon Son, for the*
Defendant) *defendant*
)
AND BETWEEN:)
)
)
The Estate of Seyed Mehran Abtahi)
Foroushani, by its Litigation Administrator,) *Stephen Birman and Lucy Jackson, for the*
Seyed Arman Abtahi, Seyed Arman Abtahi,) *plaintiff*
personally, Behnoosh Mohammadi Jazi,)
Seyed Mahdi Abtahi, Fatemeh Hatami)
Varnosfaderani, Seyed Iman Abtahi and)
Amooshahi Varnosfaderani)
)
Plaintiffs)
)
-and-)
)
Ukraine International Airlines) *Clayton Hunter and Jiwon Son, for the*
) *defendant*
Defendant)
)
) **HEARD:** November 20, 21, 22, 23, 24, 27,
28, 29, 30, December 1, 4, 5, 6, 7, 8, 2023,
January 10, 11, 12, 2024

J.T. AKBARALI J.

Overview

[1] On January 8, 2020, Ukraine International Airlines’ flight PS752 (“PS752”) departed from Tehran Imam Khomeini International Airport (“IKA”). Shortly after take-off, the flight was hit by two surface-to-air missiles launched by members of Iran’s Islamic Revolutionary Guard Corps (“IRGC”). Tragically, all 176 passengers and crew aboard PS752 lost their lives.

[2] Ukraine International Airlines JSC (“UIA”) has been named as a defendant in one class proceeding, and 101 individual actions, arising out of the accident.¹ Most of these claims are governed by the *Montreal Convention for the Unification of Certain Rules for International Carriage by Air*, 1999 (the “*Montreal Convention*”). A few are governed by the *Warsaw Convention*.

[3] These reasons relate to the trial of the class proceeding, and six representative individual actions, all of which are governed by the *Montreal Convention*. The parties have agreed that the result of this trial will apply across all actions commenced in the Ontario Superior Court of Justice to the extent that the claims in those actions are governed by the *Montreal Convention*. These reasons do not affect the actions governed by the *Warsaw Convention*.

[4] The parties to this trial agree that an “accident” as defined in the *Montreal Convention* has taken place.² They agree that, under the terms of the *Montreal Convention*, UIA is strictly liable for the accident. That liability is unlimited unless, under the *Montreal Convention*, UIA can prove that it was not negligent in allowing PS752 to depart Tehran on the morning of January 8, 2020. UIA’s reverse onus defence that it was not negligent is the issue in this trial.

Brief Conclusion

[5] For the reasons I set out below, I find that UIA has failed to prove, on a balance of probabilities, that it was not negligent in allowing PS752 to depart Tehran on January 8, 2020. As such, its liability under the *Montreal Convention* is unlimited.

Background

[6] At this stage in these reasons, I set out some background to assist the reader in understanding the analysis that follows.

The Geopolitical Context: Military Tensions between the United States and Iran

[7] The long history of tensions between the United States and Iran is the backdrop against which the tragedy of PS752 unfolded. This history was explained at trial by Dr. Michael Wallace³, whom I qualified as an expert to provide opinions on the structure of the Iranian military, and the history of military tensions between Iran and the United States.

¹ UIA disputes that Ontario has jurisdiction over one of the claims, but the jurisdictional question is not at issue in this trial.

² “Accident” means “an unexpected or unusual event or happening that is external to the passenger”: *Bland v. EVA Airways Corporations*, 2013 WL 12324773 (SDNY), at p. 3.

³ Dr. Wallace is a Senior Professor of Practice (since 2014) and the Director of Emergency and Security Studies (since 2012) at Tulane University, and an adjunct professor at the U.S. Naval War College (since 2019). He teaches courses including terrorism and intelligence analysis, and theatre decision making.

[8] Dr. Wallace explained that, following the Iranian Revolution in 1979, Iran established a Shia Muslim country which sees not only countries such as Israel and the United States as its competitors, but also Sunni Muslim countries like Saudi Arabia.

[9] Prior to the Iranian Revolution in 1979, there was a single military in Iran, the Artesh, which had been trained in significant measure by the United States. At the time of the Iranian Revolution, the Iranian military was already highly professional, but not trusted by Ayatollah Khomeini, Iran's then-supreme leader, because of its historical ties to Western governments.

[10] For that reason, Ayatollah Khomeini established a second military command and control structure in Iran: the IRGC, which is made up of about 190,000 personnel in ground, naval, air and unconventional forces who are known to be fervently devoted to the Iranian regime.

[11] Artesh focuses on defending Iran against external threats while the IRGC focuses on threats to the Iranian regime, including threats to its nuclear program. The IRGC includes the Qods force, a clandestine branch of the IRGC which focuses on extra-territorial operations, including exporting the Iranian Revolution through support for terrorist activities abroad.

[12] I make no attempt to set out a comprehensive history of the tensions in the Middle East involving Iran since 1979; it suffices to note that, at least since 1979, these tensions have been present, often through proxies. The Qods force has been involved in the proxy battles that have been ongoing at least since the Iranian Revolution.

[13] However, a series of events beginning in 2018 are relevant to understanding the state of the tensions at the time PS752 was shot down.

[14] In April 2018, the government of the United States designated the IRGC as a foreign terrorist organization, marking the first time an official military government force had been so designated. In May 2018, the United States withdrew from the 2015 Joint Comprehensive Plan of Action ("JCPOA") nuclear agreement, an agreement with the objective of slowing down Iran's nuclear power program that had been entered into while Barack Obama was president. This withdrawal worsened relations between Iran and the United States. The withdrawal from the JCPOA was in furtherance of a new American policy to apply maximum pressure on Iran's economy in order to force Iran to renegotiate the JCPOA and to deny Iran revenue to develop its strategic capabilities or to support unrest in the region.

[15] In May and June 2019, oil tankers from Saudi Arabia, the United Arab Emirates, and Norway were attacked. The United States attributed those attacks to the IRGC.

Prior to his academic career, he was an American naval officer for 20 years, and a senior intelligence analyst with the Joint Chiefs of Staff JW at the Pentagon. Iran has been one of the focuses of his work.

[16] On June 20, 2019, Iran shot down an unmanned American aircraft (“UAV”) that it claimed violated its airspace. A week earlier it had attempted to shoot down another unmanned American aircraft. The following month, on July 18, 2019, American forces downed an Iranian drone via jamming in the Strait of Hormuz.⁴

[17] Also in July 2019, the United Kingdom impounded an Iranian tanker off Gibraltar for violating the European Union embargo on oil to Syria. In retaliation, Iran seized a British-flagged tanker in the Strait of Hormuz. The Iranian tanker was released following an order of a court in the United Kingdom on August 15, 2019. Iran released the British tanker on September 22, 2019.

[18] Through its proxy, the Houthi movement in Yemen, Iran launched a cruise missile attack against Saudi Arabian energy infrastructure in September 2019, which shut down a significant portion of Saudi Arabian oil production, and further escalated tensions between Iran and the United States.

[19] Then, in mid-December 2019, Iran launched rockets against Iraqi military facilities where American forces were co-located. Iran launched a subsequent attack on December 27, 2019, which killed an American contractor and wounded four American troops near Kirkuk, Iraq.

[20] On December 29, 2019, the United States launched airstrikes on targets in Iraq and Syria against an Iranian-backed group, Kata’ib Hezbollah.

[21] On December 31, 2019, supporters of Kata’ib Hezbollah and other Shia militias surrounded and entered the American embassy in Baghdad. Some of the outer embassy buildings were set on fire. The militias withdrew from the embassy on a promise from the Iraqi parliament that it would hold a vote on expelling American forces from Iraq.

[22] Then, in a major escalation of tensions, on January 3, 2020, the United States launched an airstrike that killed Qods Force Commander Major General Qasem Soleimani and Kata’ib Hezbollah leader Abu Mahdi Al-Muhandis. The open assassination of a senior leader in a foreign government by the American government was unprecedented. The assassination of General Soleimani was met with outrage in Iran, where he was very popular and influential; by some accounts, General Soleimani was the second most powerful person in Iran. In any event, it is certain that General Soleimani was extremely powerful in Iran. The Iranian Supreme Leader Khamenei threatened to retaliate for the killings.

[23] The then-American president, Donald Trump, warned Iran on Twitter (as it then was), that if it retaliated for the killing of General Soleimani, the United States military had identified 52 sites, “some at a very high level & important to Iran and Iranian culture” and would hit them “VERY FAST AND HARD”.

⁴ The Strait of Hormuz is a narrow channel between the Omani Musandam Peninsula and Iran, which connects the Persian Gulf to the Gulf of Oman.

[24] On January 8, 2020, at about 2:00 a.m. local time in Tehran, or 22:30 UTC⁵, Iran launched “Operation Martyr Soleimani”, launching ballistic missiles — perhaps as many as 16 of them — at two Iraqi bases at which American soldiers were stationed. This response to the killing of General Soleimani was notable because it marked the first time American forces had been subjected to a ballistic missile attack by Iran, raising the stakes higher than they had been in the past. The attack continued for about three hours.

[25] No American was killed in the attack, but many were injured, including with traumatic brain injuries.

[26] Following the attack on Americans in Iraq, the Iranian military went into a state of high alert, in view of Mr. Trump’s vow to retaliate fast and hard. Iran would not have known where or when the Americans would attack, but the Commander of the IRGC Aerospace Force said Iran was “totally prepared for a full-fledged war”.

[27] Thus, on January 8, 2020, Iran’s air defence forces, including its surface-to-air missiles (“SAMs”) were prepared for an American attack, partly because Mr. Trump had vowed to respond very fast and hard, and partly because, due to the length of the attack on the Iraqi bases, American forces would have been keen to neutralize the threat against them emanating from Iran.

[28] This was the political and military situation as it existed in the early morning of January 8, 2020, in Tehran, when PS752 was supposed to take off to return to Kyiv.

History of UIA’s Kyiv-Tehran-Kyiv Route

[29] UIA established its flight route between Boryspil International Airport, in Kyiv, Ukraine to IKA in June 2014. The flight call number from Kyiv to Tehran was PS751, while the return flight call number was PS752.

[30] To establish the route, UIA obtained permission from the States of Ukraine, Iran, and Türkiye, as the route overflowed the airspace of each of those states. UIA operated the route several times each week. The route operated on a repetitive flight path that, by January 8, 2020, had not changed since the route’s inception.

[31] In order to establish the route, UIA had to undertake an initial security assessment of the route. At this point in the narrative of events, it is useful to understand, in a summary way, the difference between aviation security and aviation safety. I address this topic in detail in my analysis of the issues.

⁵ In these reasons, I sometimes refer to the time in Tehran, or in Kyiv, or Coordinated Universal Time, also referred to as Greenwich Mean time (“UTC”). In choosing which time zone to use, I refer to the time zone that I think best explains the narrative. For clarity, Kyiv time is UTC + two hours, and Tehran time is UTC + 3.5 hours.

[32] UIA's Vice President of Flight Operations, Captain Igor Sosnovskyi, describes aviation security as being concerned with acts of unlawful interference that may jeopardize the safety of civil aviation, including unlawful seizure, hostage-taking, introduction of weaponry on board an aircraft or at an airport, use of an aircraft for purpose of causing harm, communication of false information to jeopardize the safety of an aircraft, and destruction of an aircraft in service.

[33] Aviation safety is concerned with identifying and assessing hazards that have potential to cause damage to an aircraft's operations, including organization hazards, environmental hazards, human factor hazards, and technical hazards.

[34] A hazard identification and safety assessment is done before each flight to ensure, for example, that an aircraft has the minimum required equipment, or that there are no weather patterns that could endanger the flight. If safety hazards are identified, mitigations are put in place as required.

[35] UIA did not routinely undertake security assessments with respect to its flights. Rather, the Kyiv-Tehran-Kyiv route underwent four separate security assessments up to January 8, 2020: one at the inception of the route, and the others when UIA determined that a change in circumstances warranted an updated security assessment. Those updated security assessments occurred: (i) in June 2019, after Iran shot down an unmanned American drone; (ii) on January 6, 2020, after the assassination of General Soleimani; and, (iii) on January 8, 2020, after Iran's missile attack on US forces at Iraqi bases, but before PS752 took off from IKA.

[36] The sufficiency of these aviation security assessments is hotly contested.

[37] A security assessment can only be performed by someone qualified, trained, and certified to undertake one. UIA had a Directorate of Aviation Security ("AVSEC") with three employees qualified to undertake security assessments. UIA's Deputy President and Director of AVSEC, Petro Martynenko, gave evidence at trial about the establishment of the route, and the security assessments done between the establishment of the route and the shoot-down of flight PS752. I review this evidence in detail in my analysis of the issues.

[38] I also review in detail the role of international organizations, states, and airlines in ensuring aviation security, as well as the documents that set out industry standards for aviation security and safety in my analysis of the issues.

The Events of January 7-8, 2020

[39] January 7, 2020 was Orthodox Christmas, a holiday in Ukraine. Mr. Martynenko was on duty on the evening of January 7, 2020, and into the morning of January 8, 2020, while the other members of AVSEC enjoyed the holiday with their families. Mr. Martynenko had taken a nap in the afternoon of January 7, 2020, so that he could be rested in order to monitor the situation in the Middle East, where there were concerns that Iran might respond to the assassination of General Soleimani. Mr. Martynenko's concern was for the security of PS752, which was scheduled to depart Tehran on the morning of January 8, 2020.

[40] Before the ballistic missile attack, PS751 arrived at IKA following an uneventful flight from Kyiv, landing in Tehran at 00:57 local time on January 8, 2020. The flight crew, all of whom were adequately trained and qualified, left IKA after PS751 landed to get some rest at a hotel near the airport. The hotel likely did not have news channels available on television, or at least none that the flight crew, none of whom spoke Farsi, could understand.

[41] Iran launched the ballistic missile attack on American forces at Iraqi bases in the hours following the landing of PS751. There is no evidence that the flight crew was aware of the ballistic missile attack before PS752 departed, although there is evidence that passengers were aware, and concerned about air safety.

[42] Mr. Martynenko gave evidence that he became aware of the ballistic missile strike at some time between 2:00 a.m. and 3:15 a.m. Kyiv time (3:30 to 4:45 a.m. Tehran time) and thereafter conducted an updated security assessment, which I address in greater detail below. In the result, he determined that the risk for PS752 to depart Tehran was higher than it had been assessed on January 6, 2020, but still acceptable.

[43] Prior to the departure of PS752 but after the commencement of the ballistic missile attack, 15 planes departed from, and eight planes landed at, IKA. Some of those planes flew routes of a similar trajectory to the usual flight path of PS752. In addition, other airlines overflew the airspace over Tehran (known as “Tehran FIR”). Certain other airlines altered their flight paths, both in the days before January 8, 2020, and in the days after, such that they would not overfly Tehran FIR. Some did so due to the security risk. For others, there is no evidence in the record as to why they changed their flight paths.

[44] PS752’s departure from Tehran, scheduled for 5:15 a.m. Tehran time, had been delayed. At 6:12 a.m. Tehran time, or 2:42 UTC, PS752 finally departed IKA for Kyiv. It did not deviate from its approved flight path. The aircraft was airworthy, and all aircraft systems were functioning properly at take-off.

[45] Notably, the evidence indicates that PS752 had a working dual transponder system, which enables a secondary radar surveillance system that can be used in addition to a primary radar system. The importance of the radar surveillance systems was explained by Ian Gilbert⁶, whom I qualified at trial to give evidence on avionics and the operation of the transponder on board PS752.

[46] Mr. Gilbert explained that primary radar surveillance systems use ground-based antennae to transmit a radar pulse, and then listen for the small amount of return energy that is reflected

⁶ Mr. Gilbert, a chartered engineer, has over 50 years experience in avionics, including with British Airways as a senior development engineer, and with Honeywell, as Director Technical Services, Europe, Middle East, Africa and the CIS. Since 2007, he has worked as a consultant to aerospace companies consulting on platforms and systems including global positioning, data link, satellite communications, flight management and unidentified aerial vehicles.

back from an aircraft to position or track it. The time delay between the transmission of the pulse and the reflected return measures the distance of the aircraft. Primary radar surveillance can be used to locate an aircraft that has no on-board equipment.

[47] A secondary radar system requires an airborne transponder which sends its signal from the aircraft without being interrogated by ground antenna first. PS752 was equipped with dual transponders, providing redundancy should one fail. Different ground-based systems can be used for secondary radar surveillance, that is, to receive signals, and therefore information, from an airborne transponder.

[48] Consistent with Mr. Gilbert's information from other sources, Iranian media has reported that IKA has a modern airport radar system including "Monopulse Secondary Surveillance Radar", indicating that it would be able to receive return signals from PS752's transponder. Those signals would identify PS752's altitude, speed, position, heading, and callsign, plus a code showing the radio frequencies the crew are listening to and the air traffic control services they are using at any given time. Given what is known about the sophistication of the Iranian aviation authorities and Iran's military, I infer that IKA did have this type of modern radar system. Thus, were IKA or Iranian military to have interrogated PS752's transponder, they would have received a valid response which ought to have made it clear that PS752 was a commercial airline, and not a military threat.

[49] The evidence indicates that PS752's transponder was transmitting information until it was struck by a SAM, after which the transponders stopped transmitting, likely due to loss of electrical power. PS752's path was tracked by primary radar surveillance until it crashed.

[50] According to Iran's investigation report, to which I turn shortly, PS752 was deconflicted and permission was obtained from the Iranian military to allow it to depart. There is no objective evidence to back up these conclusions; there is only Iran's say-so. As will become apparent, Iran's statements about the cause of the destruction of PS752 are, at best, wholly unreliable, and at worst, deliberate mistruths. Thus, while it is possible that the flight was deconflicted and permission granted from the military for it to leave, we will likely never know for sure.

[51] There was absolutely no reason that PS752 should have been taken to be anything other than a commercial jet airliner. It was flying away from Tehran, gaining altitude, flying at a speed that was expected for a commercial airliner but not for a missile, at an altitude that was not consistent with a missile, and with a working transponder system that, were secondary radar surveillance in use, would have provided the Iranian military with information about the commercial aircraft if they interrogated it.

[52] Notwithstanding, mere minutes after takeoff at 6:12 am Tehran time, PS752 was struck by two SAM missiles fired in succession by an Air Defence Unit ("ADU") operated by the IRGC. The missile strikes rendered the aircraft uncontrollable. It crashed, killing everyone aboard.

[53] Immediately after the crash, the cause was unclear (except, presumably, to the IRGC). Aircraft continued to land at, depart from, and overfly IKA. After three days of denials, Iran finally admitted that it had shot down PS752.

The Questionable Iranian Investigation

[54] Iran is a state party member of the *Convention on International Civil Aviation*, commonly known as the *Chicago Convention*, which sets out principles and arrangements respecting civil aviation to ensure its safety, among other things. As a state party member to the *Chicago Convention*, Iran was required to conduct an investigation into the destruction of PS752. In the end, Iran concluded that human error was at fault.

[55] According to Iran, the radar of the SAM unit that fired the missiles at PS752 was misaligned after it was “relocated for the last time” at 04:54 local time, by a distance of around 100 metres. Iran claims that the relocation introduced a bearing error of 105 degrees into the SAM’s fire control system and that the operator failed to realign the unit properly, such that the unit displayed objects as moving in a space and direction that the objects were not actually moving in. This alleged misalignment was demonstrated by a video created by Dr. Kara Greene⁷, whom I qualified as an expert in aircraft performance and flight path accident reconstruction. Dr. Greene’s accident reconstruction video revealed that the 105-degree misalignment would have wrongly shown planes that were taking off from IKA and following the trajectory of PS752’s regular flight path, away from Tehran, as originating from the southwest direction, and flying towards Tehran.

[56] Iran’s report alleges that the SAM had been kept in standby mode (so that its radar was not operating) from 04:54 until about 06:07, when it was placed in operating mode. Shortly thereafter, at 06:14, the SAM detected PS752 but due to the misalignment, it appeared to be flying toward Tehran. The SAM operator reported the “target” to higher command at 06:14:19, and then, having received no response, fired a missile at 06:14:39. According to Iran, therefore, about 40 seconds elapsed between the SAM detecting PS752 and the first missile being fired.

[57] Iran claims that the misalignment, when coupled with an anticipated US response to Iran’s ballistic missile strike, led the ADU to incorrectly identify PS752 as an incoming US cruise missile.

[58] There are many reasons why Iran’s explanation makes absolutely no sense. I have already described why the working transponder system makes it unlikely that PS752 could have been mistaken for a threat by the ADU if the military were employing a secondary radar surveillance system. In addition, had the military deployed a primary radar system to interrogate PS752,

⁷ Dr. Greene is a pilot, a former member of the U.S. Airforce, and a mechanical and aeronautical engineer who specializes in aircraft accident reconstruction and analysis. She holds a Ph.D. in aerospace engineering, and has taught courses at the Air Force Academy in aeronautics, experimental methods, a capstone mathematics course, and flight test techniques.

doing so would have corrected the alleged misalignment problem, and PS752 would have been identified as coming from the direction of IKA, flying north, away from Tehran.

[59] Moreover, Iran's explanation does not make sense given the capability of the air defence system it was using. UIA led evidence from Dr. Justin Bronk⁸, whom I qualified as an expert in air defence weapons systems. Dr. Bronk's evidence confirmed that Iran's explanation that the shootdown of PS752 was caused by human error, at least in the manner it describes, is unconvincing.

[60] Dr. Bronk explained that the type of SAM at issue here (a 9K331 Tor-M1, which I will continue to refer to as a SAM in these reasons) is a Russian-made short-ranged air defence system that is optimized for engaging incoming precision guided munitions including cruise missiles. To be able to engage fast incoming missiles, the SAM needs a fire control system capable of extremely rapid engagements and a powerful, high-frequency, high-resolution radar.

[61] The SAM is designed to be moved frequently to keep pace with the armoured formations it was designed to protect. It was designed around a highly mobile tracked chassis with target acquisition and fire control radars and missiles, all mounted on the same vehicle.

[62] The SAM system is highly automated, and is designed to track incoming targets while it is moving. It must stop moving to fire a missile, but only for seconds. The minimum time from target detection to missile launch is 3.5 to 10 seconds when stationary. If the SAM is moving, it requires an additional two seconds to stop, to allow it to fire.

[63] The SAM also has a secondary TV tracking system that provides visual target identification capability.

[64] Given the capabilities of the SAM system, the Iranian explanation of human error is implausible.

[65] First, a 100-metre relocation of the SAM should not have introduced an uncorrected bearing error into the SAM's radar. Deconfliction is a crucial part of any military air defence system, especially one capable of rapid engagement, like the SAM. No military wants to down its own aircraft accidentally. The SAM system is designed to move. It should not have required a bearing correction after a move of just 100 m, and certainly not in the magnitude of 105 degrees.

⁸ Dr. Bronk is a Senior Research Fellow for Combat Airpower and Military Technology at the Royal United Services Institute. His work includes briefing international politicians, senior military and business leaders, conducting fieldwork, conducting site visits to military bases, facilities and ships with UK and international armed services, and editing the Royal United Services Institutes' online journal. His experience includes acting as a weapons expert in connection with the shoot-down of Malaysia Airlines flight MH-17. Dr. Bronk is also a Professor in Airpower Studies at the Royal Norwegian Air Force Academy. Dr. Bronk holds a Ph.D. from the Defence Studies Department at Kings College London, University of London.

Dr. Bronk explained that the only time an error of the magnitude Iran claims could be introduced into the system is if the SAM were moved other than under its own power, like on a train or trailer.

[66] Second, if the SAM was moved only 100 metres, it should have detected other commercial airlines that followed a similar flight path to PS752 prior to the departure of PS752. Given the implausibility of the 105-degree bearing error, the SAM should have detected those other flights as following the same flight path as it detected PS752 flying. An alert crew should also have detected other aircraft flying a similar path to PS752. None of those other flights were interfered with. There is no explanation for why only PS752 was identified as a target. Moreover, the SAM crew should have been aware that they were stationed near IKA, the primary international airport serving Tehran, and thus been aware of the possibility of civilian aircraft in the area.

[67] Third, it is logical that the SAM would relocate by 100 metres or so, and do so repeatedly during the night, consistent with how one would expect an air defence system to respond to an anticipated strike. Regular, short movements of the SAM would both protect Iran's airspace and make it less likely that the SAM itself would be located and targeted by the Americans. However, a SAM that is moving in the night in circumstances where the military is on high alert would not be on stand-by, but would be active, with its radar system on, and the system set ready to fire throughout the night.

[68] Thus, a SAM that is being repositioned by 100 metres would have its radar surveillance coverage operational while repositioning in order to maintain situational awareness, especially since it only needs two seconds to stop to fire, which takes between 3.5 and 10 seconds. The SAM can be moved 100 metres while still providing air defence capability, which is how one would expect Iran would employ its SAMs while anticipating an American strike.

[69] Fourth, the SAM should have identified PS752 as a larger and slower contact than an incoming cruise missile, and should have identified that PS752 was in a steady climb, rising from 2400 feet above ground level at the time of detection and climbing to about 4100 feet above ground level by the time the missile was launched. For comparison, an American cruise missile flies much faster and at altitudes of about 30-100 feet over hostile territory to minimize its chances of being shot down.

[70] Fifth, the crew of the SAM could easily have used the SAM's optical sensor capability to visually identify the target before firing. The standard lights on a civilian aircraft would have identified PS752 as a commercial airliner even if there were no other optical aids on the SAM.

[71] Sixth, if it is correct that the Iranian military gave PS752 permission to take off, and deconflicted it, the SAM crew near the airport ought to have been looped into that communication.

[72] Seventh, Dr. Bronk also explained that SAMs are a short-ranged system that function as a last line of defence. There is no reason why a SAM crew deep in Iranian territory that was in

communication with other defence units and maintaining situational awareness would expect to be the first defence unit confronted with a US cruise missile attack.

[73] Finally, Dr. Bronk questioned what rules of engagement the SAM crew had been issued, and why they felt authorized to fire missiles without higher command authority. Were they in fact authorized to fire live weapons without higher command authority when they were stationed so close to a major civilian airport, and if so, why? Or did the crew act in breach of the rules of engagement, and if so, why? The accident raises questions about the training of, and adequacy of communication between, the IRGC command structure and the ADU, none of which are answered by Iran's implausible explanation.

[74] I admitted the report resulting from Iran's investigation into evidence, because it is part of the narrative of events. But I do not rely on Iran's report for proof of the truth of its contents, given its lack of credibility, which I have just described.

[75] Given the number of Canadians on board PS752, the Government of Canada delivered two reports into the tragedy. Both are in evidence before me. The first, entitled *Flight PS752: The long road to transparency, accountability and justice*, was published in December 2020. The second, entitled *The Downing of Ukraine International Airlines Flight 752, Factual Analysis, Forensic Examination and Assessment Team*, was published on June 24, 2021.

[76] The Canadian reports are limited by the fact that Canada did not have unfettered access to the source material that would have allowed for a proper investigation. However, to the extent that the Canadian reports identify information relevant to the shoot-down of PS752, I accept that that information is credible and reliable. I note that the parties themselves agree that the Canadian reports are admissible for proof of the truth of their contents. As required, I deal with the Canadian reports in greater detail in my analysis.

[77] While there was more relevant evidence that was led at trial, at this juncture I turn to the issues in the case. I address other relevant evidence, as necessary, in my analysis of the issues.

Issues

[78] The following issues must be determined:

- a. Has UIA proven that it did not breach the standard of care in making its assessment of risk to PS752 from taking off, and in permitting PS752 to take off from IKA on January 8, 2020? Answering this question involves determining the content of the standard of care and assessing whether UIA breached it.
- b. If UIA cannot prove that it did not breach the standard of care, has UIA proven that its breach of the standard of care did not cause the passengers' damages in fact; that is, but for UIA's breach of the standard of care, would the passengers have been killed?
- c. If UIA cannot disprove causation in fact, are the passengers' losses too remote to be recoverable? That is, has UIA proven that there is no causation in law?

First Preliminary Issue: The Protective Order

[79] Prior to this action coming to trial, Glustein J., in his capacity as case management judge, issued two protective orders, dated November 19, 2021, and June 13, 2022. These orders sought to protect from disclosure sensitive information relating to airline safety and security which, if broadly known, could pose a risk to the travelling public.

[80] UIA sought an order that would extend Glustein J.'s protective orders and make specific provision for how to deal with confidential information in the context of the trial.

[81] I directed UIA to bring a motion at the outset of trial for the confidentiality order it sought, and to provide notice to the media of its motion in accordance with the court's practice direction. No media attended to motion to make submissions.

[82] There was some dispute between the parties as to which portions of documents should be subject to a protective order. In the end, after negotiations between the parties, UIA redacted a number of its documents to remove sensitive information that was not relevant to the issues in this trial.

[83] There remained only one document with respect to which UIA sought a protective order, and about which I heard argument.

[84] The document in issue is known as Order 390, which is a collection of guidelines on assessing the level of threat to the security of the civil aviation of Ukraine. This document was issued as "Official (restricted) use only" by the Ministry of Infrastructure of Ukraine.

[85] To obtain a copy of Order 390, UIA had to undertake not to disclose or otherwise use Order 390 in open speech, publication in the media, in court proceedings, exhibitions, showrooms, or any other public spaces unless it obtains the written consent of the Ministry of Infrastructure of Ukraine.

[86] Order 390 has been superseded by another order. Despite multiple requests from UIA, the Ministry of Infrastructure of Ukraine has not provided its written consent to UIA to disclose or otherwise use Order 390 publicly.

[87] Should UIA breach its undertaking, under article 172(8) of the Code of Ukraine on Administrative Violations, UIA's Chief Executive Officer is at risk of a penalty which could be a fine of up to 150 times the Ukrainian minimum wage.

[88] Accordingly, because Order 390 has relevance to these proceedings, UIA sought an order allowing it to file that document under seal, and to exclude everyone except for court staff, lawyers, and the relevant witness, whenever evidence was being given with respect to Order 390 at trial.

[89] The legal principles relevant to a protective order are set out in *Sherman Estate v. Donovan*, 2021 SCC 25, [2021] 2 S.C.R. 75. First, it is necessary to recall the fundamental

importance of the open court principle. In *Sherman Estate*, at para. 1, the Supreme Court of Canada wrote:

This Court has been resolute in recognizing that the open court principle is protected by the constitutionally-entrenched right of freedom of expression and, as such, it represents a central feature of a liberal democracy. As a general rule, the public can attend hearings and consult court files and the press — the eyes and ears of the public — is left free to inquire and comment on the workings of the courts, all of which helps make the justice system fair and accountable.

[90] The Court confirmed the “strong presumption in favour of open courts”, but allowed that exceptional circumstances arise in which competing interests justify imposing a restriction on the open court principle. In such cases, the applicant must demonstrate first, “as a threshold requirement, that openness presents a serious risk to a competing interest of public importance” — a high bar that serves to maintain the strong presumption of open courts: *Sherman Estate*, at para. 2; see also paras. 3, 37.

[91] The court has inherent jurisdiction to make a confidentiality order, and jurisdiction under s. 137(2) of the *Courts of Justice Act*, R.S.O. 1990, c. C.43, to make an order sealing documents.

[92] Under s. 135(2) of the *Courts of Justice Act*, the court may order the public to be excluded from a hearing where the possibility of serious harm or injustice to any person justifies a departure from the general principle that court hearings should be open to the public.

[93] The legal test to grant a confidentiality order is set out by the Supreme Court of Canada in *Sherman Estate*, at para. 38. There are three prerequisites that a party must establish when it is asking a court to exercise its discretion in a way that limits the open court principle:

- a. Public disclosure would pose a serious risk to an important public interest;
- b. No reasonable alternative means would prevent this risk; and
- c. The benefits of the order outweigh any negative effects.

[94] The Supreme Court of Canada held that only when all of these prerequisites are met can a discretionary limit on openness be ordered. The test applies to all discretionary limits on court openness, such as publication bans, sealing orders, an order excluding the public from a hearing, or a redaction order, subject only to valid legislative enactments: *Sherman Estate*, at para. 38.

[95] At the trial, I determined that the protective order sought by UIA was appropriate:

- a. Public disclosure of Order 390 would have involved forcing UIA to breach its undertaking given to the Ukrainian government to keep confidential sensitive information. Even though the Order has been superseded, there is an important public interest in ensuring that an airline respects its undertaking to a government entity, especially here, where the undertaking was made in order to receive sensitive security-related information.

- b. The order proposed was very narrow in scope. It provided for only one document to be sealed. Only one witness gave evidence about Order 390, and that evidence was brief. The protective order was so narrowly tailored that no other reasonable alternatives would have prevented the risk.
- c. I considered whether the observers in the courtroom could be allowed to remain while evidence was given about Order 390. However, during the day prior to the evidence being given about Order 390, court staff reported having observed people in the courtroom gallery recording parts of the proceedings, in violation of s. 136 of the *Courts of Justice Act*, R.S.O. 1990, c. C.43, despite the s. 136 warning having been given. I addressed the issue about recording directly, and also asked counsel to speak to their clients about it. But given that breach of the legislation, I was not prepared to allow evidence about Order 390 to potentially be recorded by an observer.
- d. Finally, the benefits of the order were significant, while the negative effects were minimal.

[96] In the result, I signed the protective order permitting Order 390 to be sealed, and directing that evidence about Order 390 be given in the absence of everyone except the witness in question, court staff, and the parties' lawyers and their staff.

Second Preliminary Issue: Guidelines for a Trauma-Informed Process

[97] Because the plane crash that gave rise to these actions was a traumatic event, I was concerned about the potential for the usual trial processes to retraumatize those parties and observers who lost loved ones in the crash of PS752, and those witnesses who had been involved in the events. I was also concerned about the potential for vicarious traumatization of others involved in the trial processes, including counsel and staff, other observers, court staff, and me.

[98] For that reason, at the trial management conference, I asked counsel to consider the nature of the evidence that would be led, and the orders or directions that could be given to assist in minimizing the potential for retraumatization or vicarious traumatization during the trial.

[99] Trauma-informed legal processes⁹ are not yet broadly understood or widely deployed. Although the process we followed is not relevant to my determination on the merits of the trial, I

⁹ Information about trauma-informed legal processes may be found in, for example, a publication of the Substance Abuse and Mental Health Services Administration, an agency within the US Government's Department of Health and Human Services, entitled "SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach" (July 2014), found at [SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach \(hhs.gov\)](https://www.samhsa.gov/trauma-informed), or in Helgi Maki, Marjorie Florestal, Myrna McCallum, and J. Kim Wright, *Trauma-Informed Law: A Primer for Practicing Lawyers and a Pathway of Resilience and Healing* (United States of America: American Bar Association, 2023).

describe how we approached the trial in the hopes that it will aid counsel and courts who seek to fashion a trauma-informed process in their individual trials and hearings. We can aspire to a systemic shift to a trauma-informed legal system, but that shift will begin one hearing at a time.

[100] First, it is important to describe what I mean by a trauma-informed process. It is not one that aims to heal the trauma that participants in the process have experienced. It is not about manners or kindness. It is about adapting our processes in a way that seeks to minimize the trauma that the legal process itself can create, and it is about understanding how a person's trauma might inform or affect their interactions with the legal system. A trauma-informed process can thus operate to remove barriers to just outcomes, and enhance public respect for, and the legitimacy of, the administration of justice.

[101] In this case, most of the evidence given focused on aviation security and safety assessments, and much of it was given by experts. Thus, the most important focus of a trauma-informed process in this trial was to minimize the potential that the trial itself could lead to re-traumatization, or vicarious traumatization, rather than on removing barriers to just outcomes in the process due to the impacts of trauma.¹⁰

[102] In advance of the trial, counsel prepared and agreed to Trauma Informed Trial Guidelines, which were entered as a lettered exhibit at trial. The guidelines required that participants in the process be given ample advance notice, as well as immediate advance notice, before any evidence was led that was expected to be traumatic. This enabled observers, and certain participants in the trial whose presence for the evidence was not strictly necessary, to absent themselves if they wished to do so.

[103] The guidelines filed by counsel included three appendices: (i) Trauma Informed Care Guide for Claimants; (ii) Trauma Informed Care Guide for Counsel, Court Staff; and (iii) Trauma Informed Care Guide to Preparing for Trial. These appendices included information for observers and participants on how to recognize trauma, how to cope with and process trauma during the trial process, and how to process trauma after the conclusion of the trial. These appendices were made available in hard copy in the courtroom and were posted in the chat on the zoom for those participants attending remotely, both towards the beginning of trial and when traumatic evidence was expected. Counsel also made the appendices available to their clients in advance of trial.

[104] One family member whose sister died in the accident offered evidence through an affidavit. Questioning of the family member was very limited, so as to minimize the need for him to orally give evidence that might have been difficult for him, and that was not really in dispute in any event. It also shielded observers from evidence that might have been traumatic to hear.

¹⁰ For example, this was not a trial where the impacts of trauma on memory created any concerns with respect to the assessment of the credibility of the evidence.

[105] Counsel arranged to have trauma specialists available by phone during the trial. Those specialists were able to provide support to anyone experiencing trauma in English and in Farsi.

[106] Throughout the trial, I reviewed with counsel where we were in the process, and what evidence was expected next. Apart from being a good trial management practice, doing so enabled me to ensure that the observers to the trial knew what to expect next, hopefully demystifying the process for them, and empowering them with information.

[107] At the outset of trial, and at the conclusion, I addressed the family members and participants directly. I acknowledged their loss and their suffering. I reminded them that they were free to take breaks whenever they needed. I indicated they should not be embarrassed if they cried in the courtroom. I assured them that at no point during the trial process did I, court staff, or any of the lawyers and their staff, forget that underlying all the evidence about aviation security and safety procedures, was a tragedy that had caused all of them immeasurable grief, a fact that is obvious in the circumstances.

[108] I am sure there is room for improvement in the process we employed, but I am equally sure that employing the process we did was infinitely better, and more human, than conducting the trial on a business-as-usual basis. The issues between the parties remained hotly contested and counsel were all able to advocate effectively for their clients. The trauma-informed guidelines counsel consented to, and I approved, did not, and were not intended to, alter the adversarial nature of the trial. Rather, they allowed the contested trial to unfold without causing unnecessary trauma to the trial participants and observers.

[109] With the permission of the professional who prepared the appendices for the guidelines, I attach the guidelines and their appendices to these reasons, to make them available as a resource for others who seek to bring a trauma-informed perspective to their cases.

Third Preliminary Issue: The Defendant's Expert Edmond Soliday

[110] UIA engaged Edmond Soliday as a proposed expert on the issues of airline safety and security. At the outset of Mr. Soliday's evidence, the plaintiffs indicated that they would object to his qualification as an expert, but all parties agreed that the nature of the objections required me to hear his evidence and cross-examination in its entirety before argument was made on the issue. I agreed to proceed in that manner.

[111] Mr. Soliday testified on November 28 and 29, 2023, and the argument with respect to his proposed qualification as an expert was heard on December 4, 2023. On December 8, 2023, I advised the parties that I had decided I would not qualify Mr. Soliday as an expert witness, and that my reasons for that conclusion would form part of my reasons on the merits. What follows are my reasons for declining to qualify Mr. Soliday.

[112] I begin with the principles governing admissibility of expert evidence, about which the parties are in agreement.

[113] Determining whether to admit expert evidence involves a two-stage analysis. In the first stage, there are four threshold requirements that must be established (*White Burgess Langille*

Inman v. Abbott and Haliburton Co., 2015 SCC 23, [2015] 2 S.C.R. 182, at paras. 19 and 23, citing *R. v. Mohan*, 1994 CanLII 80 (SCC), [1994] 2 S.C.R. 9, at pp. 20-25; see also *R. v. Abbey*, 2017 ONCA 640, 140 O.R. (3d) 40 (C.A.) at para. 48):

- a. Relevance, which at this stage means logical relevance;
- b. Necessity in assisting the trier of fact;
- c. Absence of an exclusionary rule; and
- d. A properly qualified expert, which includes the requirement that the expert be willing and able to fulfil the expert's duty to the court to provide evidence that is impartial, independent and unbiased.

[114] If the threshold requirements are met, the court moves on to the second stage of the analysis. There, the judge, as gatekeeper, determines whether the benefits of admitting the evidence outweigh its potential risks, considering factors such as legal relevance, necessity, reliability, and absence of bias.

[115] In applying these principles, the court must remain cognizant of its gatekeeping role. As I stated in *O'Brien v. Maxar Technologies Inc.*, 2022 ONSC 1572, at para. 34:

In *White Burgess*, the Supreme Court of Canada, at paras. 16-19, noted that the jurisprudence has emphasized “the important role that judges should play as ‘gatekeepers’ to screen out proposed evidence whose value does not justify the risk of confusion, time and expense that may result from its admission.” The Court reiterated the dangers of expert evidence, relying on its earlier decision in *Mohan*, including: (i) that the trier of fact will inappropriately defer to the expert's opinion rather than carefully evaluate it; (ii) the potential prejudice created by the expert's reliance on unproven material not subject to cross examination; and (iii) that it may lead to an inordinate expenditure of time and money.

[116] In this case, given that all parties agreed I had to first hear Mr. Soliday's evidence in its entirety, my gatekeeping function was not directed at saving time or money, but rather centered on the other risks of expert evidence, described above.

[117] I begin by considering Mr. Soliday's qualifications, described in his report, his *curriculum vitae*, and his oral evidence.

[118] Mr. Soliday had a successful career in airline safety and security at United Airlines. He began in the industry at the age of 19. By the age of 21, he was employed as a flight engineer for United Airlines. He left United Airlines for a period of time to serve in the military, where he flew helicopters, and then eventually returned to United Airlines. By 1985, he was working as a flight manager at United Airlines, and about a year after that, he became the Senior Staff Executive to the Senior Vice President of Flight. According to Mr. Soliday, he interfaced with United Airlines' safety department and its security department. In the last eleven years that Mr.

Soliday was at United Airlines, he was the Vice President of Safety, Quality Assurance and Security.

[119] Mr. Soliday also sat on a number of aviation safety related advisory boards and commissions, and was the “Most Knowledgeable Witness” for United Airlines in the proceedings that followed the 9/11 attacks in the United States.

[120] Mr. Soliday retired from United Airlines shortly after 9/11, but continued to consult for it in connection with the 9/11 proceedings. He began a new career when he was elected to the Indiana House of Representatives in 2006, where he continues to serve. Currently he is the Chair of the Utilities, Energy and Transportation Committee.

[121] Mr. Soliday has done some aviation consulting since he ceased consulting for United Airlines in about 2004. He gave two examples in his evidence. He is consulting with respect to a case involving fuel dumping over Los Angeles, and in a case involving a shooting in the Fort Lauderdale airport. He has never consulted with respect to flying into a conflict zone, and has never used International Civil Aviation Organization (“ICAO”) document 10084 (“ICAO 10084”), which the parties agree is a key document with respect to identifying the industry standard for security threat risk assessments for airlines flying over or near conflict zones.

[122] Mr. Soliday’s experience is very impressive, but insofar as he has experience dealing with flights over or near conflict zones, from either a safety or a security perspective, the experience relates to his time as a full-time employee at United Airlines, over twenty years ago.

[123] According to Mr. Soliday, ICAO document 10084 is simply a memorialization of the security process he used to undertake when he was employed by United Airlines, such that his experience is directly relevant to its use. He never explained how he was able to attest to that. I do not accept that evidence. ICAO 10084 was drafted in response to reports of the Dutch Safety Board (“DSB”) on the downing of Malaysia Airlines Flight MH17 (“MH17”) over Eastern Ukraine on July 17, 2014. The DSB sought to identify gaps in the industry’s approach to flying over or near conflict zones in its report into that tragedy. It is simply not possible that nothing changed following the downing of MH17 in terms of the industry standards. Moreover, Mr. Soliday stated that ICAO 10084 introduced new “mitigations” relevant to flying over or near conflict zones, while at the same time insisting it was simply a memorialization of how risk assessments were always conducted. But mitigations necessarily impact risk analysis. There is no explanation for the inconsistency in Mr. Soliday’s evidence.

[124] Other aspects of Mr. Soliday’s evidence gave me concern. For example, it is widely known in the aviation industry that the United States’ Federal Aviation Administration (“FAA”) conveys information to aviators through Notices to Airmen (“NOTAMs”). There are NOTAMs at issue in this litigation. NOTAMs include a location indicator, to allow users to identify what airspace they refer to. Each state is responsible for issuing NOTAMs applicable to their own airspace.

[125] In this case, the FAA issued NOTAMs which bore the identifier KICZ. That identifier refers to a conflict zone (“CZ”) with a ghost location, because a civil aviation authority like the

FAA has no jurisdiction to issue a NOTAM with respect to the airspace of other states. Mr. Soliday did not know that the KICZ identifier referred to a conflict zone. Although no formal document was identified that specifically defined KICZ as an identifier for a conflict zone NOTAM, multiple witnesses testified that it is understood to be a conflict zone NOTAM identifier in their evidence. Moreover, ICAO 10084 defines certain acronyms including: (i) CZIB – conflict zone information bulletin; and (ii) CZIR – conflict zone information repository. If Mr. Soliday were current on aviation security, he would have known that a NOTAM with the identifier KICZ refers to a conflict zone.

[126] Thus, while Mr. Soliday has had an impressive career in airline safety and security, his expertise is out of date. For that reason, Mr. Soliday does not pass the first threshold of the *Mohan* test. He is not a properly qualified expert.

[127] The plaintiffs raised other concerns with Mr. Soliday's evidence, including that he relied on facts that were not in the record anywhere and that UIA was not even attempting to establish. These include (by way of example only) that: (i) the security department of UIA had spoken with UIA's Operational Control Centre ("OCC") to determine if OCC had received threat information before PS752 took off on January 8, 2020; and (ii) OCC was monitoring events in the Tehran airspace in the hours before PS752 took off. The plaintiffs question the relevance and necessity of a report that relies on facts that would be key if true, but which no party asserts, and which are inconsistent with the only evidence in the record on those points.

[128] The plaintiffs also raised concerns about Mr. Soliday's mischaracterization of the plaintiffs' experts' evidence. I agree that Mr. Soliday, in his written report and oral testimony, mischaracterized the evidence of Mr. Gillespie and Mr. Edwards, in effect setting up a straw man to take down. The plaintiffs argue that this is improper advocacy, and question how an expert's evidence can be helpful if it deliberately obfuscates the questions in issue and causes confusion.

[129] I note too that Mr. Soliday did not make concessions that should have been made, failed to acknowledge errors in his report when they were pointed out to him, and indicated in his evidence that he had placed only certain tweets before me when others were clearly relevant, but omitted. Generally, the information he omitted was less favourable to UIA's position. The plaintiffs argue that this demonstrates improper advocacy.

[130] On their own, if Mr. Soliday were a properly qualified expert, I would not have considered any of these individual factors to require a conclusion that Mr. Soliday's evidence would not have passed the first stage of the *Mohan* test. However, even if Mr. Soliday were a properly qualified expert, the collective effect of these other concerns would have led me to conclude that the benefits of admitting Mr. Soliday's evidence would not have been outweighed by the risks of its admission.

[131] Finally, if I am wrong to have excluded Mr. Soliday's evidence on both the first and the second branch of the *Mohan* test such that it should have been admitted, the factors I reference above would have led me to assign his evidence no weight.

Fourth Preliminary Issue: Admission of the Other Expert Evidence

[132] Almost all the witnesses in this trial were offered as experts in their respective fields. I qualified all the other proposed experts, apart from Mr. Soliday. No objections were raised with respect to their qualifications or otherwise to the admission of their evidence.

[133] I do not propose to write reasons setting out the *White Burgess* analysis for each expert. These reasons are long enough; it is neither necessary nor efficient to memorialize uncontested qualification determinations for many expert witnesses. I was satisfied that each proposed expert was an appropriately qualified expert in the field in which they were proffered. Each offered evidence that was necessary and relevant. As I refer to the evidence of each expert in these reasons, I note the scope of the expertise for which I qualified them to testify, and a brief description of their qualifications.

[134] The sole exception to this is Alec Moffat, who inadvertently was not formally qualified at trial, but whose qualifications I address, and accept, when I reach the analysis of his evidence.

Framework of the *Montreal Convention*

[135] As I have noted, the parties agree that the vast majority of the actions commenced in Ontario against UIA relate to claims governed exclusively by the *Montreal Convention*, which was incorporated into law in Canada through the enactment of the *Carriage by Air Act*, R.S.C. 1985, c. C-26. At this point, I set out the relevant framework from the *Montreal Convention*, as it is within this framework that the issues in this action must be determined.

[136] Article 29 of the *Montreal Convention*, incorporated in the *Carriage by Air Act*, Schedule VI, provides for the exclusivity of the *Montreal Convention* with respect to those claims that fall within its scope. Actions for damages in relation to matters falling within the scope of the *Montreal Convention* may only be pursued if they are the types of actions specifically permitted under the provisions of the *Montreal Convention*: *Thibodeau v. Air Canada*, 2014 SCC 67, [2014] 3 S.C.R. 340, at para. 57.

[137] In *Thibodeau*, the Supreme Court of Canada held that the *Montreal Convention* has three main purposes: (i) to create uniform rules governing claims arising from international air transportation, (ii) to protect the international air carriage industry by limiting carrier liability; and (iii) to balance that protective goal with the interests of passengers and others seeking recovery: at para. 41.

[138] Article 17(1) of the *Montreal Convention* permits a cause of action for damages for bodily injury or death of a passenger arising from international carriage by air:

The carrier is liable for damage sustained in the case of death or bodily injury of a passenger upon condition only that the accident which caused the death or injury took place on board the aircraft or in the course of any of the operations of embarking or disembarking.

[139] Because UIA has admitted that the shooting down of PS752 is an accident within the meaning of article 17 of the *Montreal Convention*, it is strictly liable for unlimited damages relating to the death of the passengers.

[140] However, Article 21 of the *Montreal Convention* provides that the liability of UIA is limited to “128,821 Special Drawing Rights”¹¹, if UIA proves that:

- a. such damage was not due to the negligence or other wrongful act or omission of the carrier or its servants or agents; or
- b. such damage was solely due to the negligence or other wrongful act or omission of a third party.

[141] When applying Article 21 of the *Montreal Convention*, courts apply local concepts of negligence: *Lee v. Air Canada*, 228 F. Supp. 3d 302 (S.D.N.Y. 2017).

[142] To the extent that Article 21 refers to negligence, that is a concept well-known in Canadian law. There is no definition in the *Montreal Convention* of “other wrongful act or omission”. *Black’s Law Dictionary* (11th ed., 2019) defines “wrongful” as “contrary to law”.

[143] In *JR v. Austrian Airlines AG*, Case C-589/20 at paras. 71-73, the Regional Court in Korneuberg, Austria found that the ordinary meaning of “wrongful” is usually a broad synonym of unfair, illegal, harmful or blameworthy, while ‘negligence’ refers to the failure to give the required care and attention to someone or something for whom or which one is responsible.

[144] UIA argues that “wrongful act or omission” contemplates intentional harm and torts other than negligence, none of which is alleged in this case. As a result, UIA focuses its submissions on negligence. The plaintiffs also focus on negligence in their submissions. No one contends that any other “wrongful act or omission” is at issue in this case. As a result, I confine my analysis to concepts of negligence.

[145] There is no disagreement about the elements of negligence. The Supreme Court of Canada reiterated the elements of negligence in *Mustapha v. Culligan of Canada Ltd.*, 2008 SCC 27, [2008] 2 S.C.R. 114, at para. 3. Negligence requires: (i) a duty of care; (ii) the defendant’s behaviour breached the standard of care; (iii) the plaintiffs suffered damage; and (iv) the damage was caused, in fact and in law, by the defendant’s breach.

¹¹ A “Special Drawing Right” is an artificial currency, the value of which is based on a basket of currencies, including the U.S. dollar, the British pound and the Japanese yen. I was advised at trial that 128,821 Special Drawing Rights is roughly equivalent to \$230,000 CAD.

[146] As I have noted, Article 21 creates a reverse onus on UIA to establish that it was not negligent. The Alberta Court of Appeal addressed the nature of the burden created by a reverse onus provision in *Bradford v. Snyder*, 2016 ABCA 94, 37 Alta. L.R. (6th) 102, finding, at para. 21, that if the evidence shows that the party who bears the reverse onus is at fault, or if the evidence is too meagre or too evenly balanced for a court to determine the issue, the presumption will not be rebutted.

[147] Where a third party's negligence contributes to a passenger's injury, principles of apportionment are inapplicable. It is only when the injury is solely due to the negligence of the third party that the *Montreal Convention* limits an airline's liability. Thus, if UIA is even 1% responsible in negligence for the passengers' death, its liability under the *Montreal Convention* is unlimited: *Nelson v. Lorenzo*, 2021 WL 930163 (J.D. Hartford 2021), at p. 4.

[148] For purposes of this trial, UIA admits that it owed the passengers and crew aboard PS752 a duty of care. UIA also admits that the passengers and crew aboard PS752 suffered damage.

[149] The questions are thus whether UIA breached the standard of care, and if so, whether the passengers' damages were caused, in law and in fact, by UIA's breach.

Did UIA breach the standard of care?

Legal Framework

[150] The standard of care in negligence is that of the reasonable person in similar circumstances. Where the defendant has special skills and experience, the defendant must "live up to the standards possessed by persons of reasonable skill and experience in that calling": *Hill v. Hamilton-Wentworth Regional Police Services Board*, 2007 SCC 41, [2007] 3 S.C.R. 129, at para. 69; see also para. 73.

[151] "The standard is not perfection, or even the optimum, judged from the vantage of hindsight. ... The law of negligence does not require perfection of professionals; nor does it guarantee desired results": *Hill*, at para. 73.

[152] In *Ryan v. Victoria (City)*, [1999] 1 S.C.R. 201, at para. 28, the Supreme Court of Canada described the standard of care as follows:

Conduct is negligent if it creates an objectively unreasonable risk of harm. To avoid liability, a person must exercise the standard of care that would be expected of an ordinary, reasonable and prudent person in the same circumstances. The measure of what is reasonable depends on the facts of each case, including the likelihood of a known or foreseeable harm, the gravity of that harm, and the burden or cost which would be incurred to prevent the injury. In addition, one may look to external indicators of reasonable conduct, such as custom, industry practice, and statutory or regulatory standards.

[153] The question is thus whether UIA and its personnel met the standard required of a reasonable airline and its personnel in similar circumstances as those underlying this action.

[154] At para. 29 of *Ryan*, the Court described the relationship between legislative standards and the standard of care as follows:

Legislative standards are relevant to the common law standard of care, but the two are not necessarily co-extensive. The fact that a statute prescribes or prohibits certain activities may constitute evidence of reasonable conduct in a given situation, but it does not extinguish the underlying obligation of reasonableness. ... Thus, a statutory breach does not automatically give rise to civil liability; it is merely some evidence of negligence. ... By the same token, mere compliance with a statute does not, in and of itself, preclude a finding of civil liability. ... Statutory standards can, however, be highly relevant to the assessment of reasonable conduct in a particular case, and in fact may render reasonable an act or omission which would otherwise appear to be negligent. This allows courts to consider the legislative framework in which people and companies must operate, while at the same time recognizing that one cannot avoid the underlying obligation of reasonable care simply by discharging statutory duties. [Citations omitted.]

[155] The Court went on, at para. 40 of its decision in *Ryan*, to find that, where a statute strictly defines the manner of performance and precautions to be taken, it is more likely that compliance with the statute constitutes reasonable care without additional measures being necessary. On the other hand, where a statute is general or provides for discretion as to the manner of performance, or where unusual circumstances exist that are not clearly within the scope of the statute, mere compliance is unlikely to exhaust the standard of care.

[156] External indicators of reasonable conduct relevant to determining the content of the standard of care also include custom, industry practice, professional standards, and regulatory standards in addition to statutory standards: *Hill*, at para. 70, *Krawchuk v. Scherbak*, 2011 ONCA 352, 106 O.R. (3d) 598, at para. 125; *R. v. Saskatchewan Wheat Pool*, [1983] 1 S.C.R. 205, at pp. 227-228.

[157] Parties have been found to be negligent even when acting in compliance with statutory standards, or other external indicators of reasonable conduct, such as industry practice: see, for example, *Zsoldos v. Canadian Pacific Railway*, 2009 ONCA 55, at paras. 30, 42-44; *Murphy v. Atlantic Speedy Propane* (1979), 103 D.L.R. (3d) 545 (N.S.S.C.).

[158] Having identified the relevant legal principles, I turn to a discussion of the framework of the aviation industry, and the relevant practices, statutes, and professional standards to assist in determining the content of the standard of care.

Industry Framework

[159] At an international level, civil aviation is regulated as between states that are party to the *Chicago Convention*.

[160] The *Chicago Convention* contemplates the creation of ICAO and identifies its role: to organize and support the international cooperation that a global civil aviation industry requires, including by adopting and amending international standards and recommended practices and procedures dealing with international civil aviation.

[161] ICAO was thus founded as a result of the *Chicago Convention*. Among other things, ICAO promulgates international standards and recommended practices, policies and guidelines which apply directly to states that are party to the *Chicago Convention*.

[162] States party to the *Chicago Convention* may implement ICAO standards nationally through law, nationally approved standards, recommended practices, policies, and guidelines. Airlines subject to a particular state's authority may be required to obtain approval for their manuals, practices, policies, guidelines and procedures from the regulator in that state. It is undisputed that an airline is bound to follow the standards required of it by its governing state.

[163] Thus, one important purpose of ICAO standards is that they filter down into a state's regulations, and into the manuals, documentation, processes and procedures of the airlines regulated by that state. However, all parties agree that if a particular state that is a party to the *Chicago Convention* does not implement certain ICAO standards nationally, an airline in that state may still look to ICAO publications and elsewhere for guidance on industry practices.

[164] In addition, airlines may be members of the International Air Transport Association ("IATA") which administers a safety audit program known as the IATA Operational Safety Audit ("IOSA"). As explained by Jonathan Gillespie,¹² whom I qualified at trial as an expert in aviation safety management systems and the conduct of aviation safety risk assessments, IOSA is a safety audit process that was established by IATA to facilitate code-sharing between airlines. The IOSA process is based on IOSA standards, which themselves are based upon ICAO standards. Before airlines had access to the IOSA process, the regulator in each state would require an airline under its authority to audit its codeshare partners, which was an expensive and drawn-out process. IOSA processes offer a standardized method by which each state regulator is reassured that an IOSA-certified airline adheres to industry standards and can be accepted as a

¹² Mr. Gillespie has been a pilot since 1980. Between 1993 and 1996, he was the Flight Safety Officer (a title later changed to Flight Safety Manager) with Emirates. In that role, he participated in the development of one of the first airline safety management systems before such systems were mandated by ICAO. Between 1996 and 2005, he was an Air Safety Investigation Manager for Emirates, providing expert safety investigation and risk analysis services within the Flight Safety Department. Between 2005 and 2010, Mr. Gillespie took on the role of VP-Flight Safety for Emirates, accountable directly to the CEO and the regulatory authority for independent safety and quality oversight of all flight and ground operational activity. He managed the team responsible for the air safety reporting program, accident and incident investigation, flight data management, operational hazard identification, risk assessment and management, and liaised with industry bodies, regulators and others. Since 2010, Mr. Gillespie has worked as an aviation safety and risk management specialist consulting with industry worldwide, and has acted as an expert witness in the field of flight operations and safety.

codeshare partner of the airlines under that regulator's jurisdiction, without the need for costly individual audits.

[165] UIA had been through the IOSA process successfully. At the time of the downing of PS752, UIA held an IOSA certificate that was valid until June 17, 2021.

[166] States party to the *Chicago Convention* are also subject to civil aviation safety audits which measure their compliance with ICAO guidelines. ICAO runs a Universal Safety Oversight Audit Program through which it audits states. In 2018, Iran was audited and found to be above the global average in most categories of civil aviation safety (legislation, organization, licensing, accident investigation, air navigation services and aerodromes). It was below the global average in operations (where it scored 60% in effective implementation of guidelines) and airworthiness (where it scored close to 80% in effective implementation of guidelines).

[167] ICAO is also involved in certifying training programs. For example, Mr. Martynenko was certified by the State Aviation Administration of Ukraine (the "SAAU"), Ukraine's civil aviation regulatory authority, to perform aviation security threat risk assessments after he completed a training course approved by ICAO at the "ICAO Aviation Security Training Centre of the State Enterprise 'Boryspil International Airport.'" Thus, although Mr. Martynenko was certified to conduct security threat risk assessments by the SAAU, the training program he undertook was certified by ICAO.

[168] This framework reveals that there are various sources to which one may look to determine the legal and industry standards that inform the standard of care, including ICAO documents, IOSA documents, the laws of Ukraine, the regulations of the SAAU, and the policies, procedures, guidelines and manuals of UIA.

Relevant Guidelines, Standards, Procedures and Policies

[169] There was substantial evidence led about the different industry documents which could have guided or did guide UIA's actions with respect to PS752. Many of the documents are repetitive of newer or more authoritative sources.

[170] The documents disclose a shared responsibility for civil aviation safety and security between, among others, states party to the *Chicago Convention* and airlines.

[171] I describe below what I view to be the most important aspects of the most relevant documents that were placed in evidence. In doing so, I draw, not just from the documents themselves, but from the evidence given by Mr. Gillespie with respect to airline safety, and by

John Edwards¹³, whom I qualified as an expert on aviation security threats and risk assessments, with respect to matters within his scope of expertise.

Some High-level Obligations of States, Regulators, and Airlines

[172] The *Chicago Convention*, article 1, recognizes that every state has “complete and exclusive sovereignty over the airspace above its territory.” Any scheduled international air service that seeks to operate over or into the territory of a contracting state requires that state’s permission. States are entitled to restrict or prohibit aircraft from flying over certain areas of its territory for reasons of military necessity or public safety. In exceptional circumstances or during a period of emergency, or in the interest of public safety, a state may temporarily restrict or prohibit flying over the whole or any part of its territory: articles 6, 9(a) and (b) of the *Chicago Convention*.

[173] Any state party to the *Chicago Convention* that finds it impracticable to comply in all respects with ICAO’s standards, or which deems it necessary to adopt regulations or practices that differ from those established by ICAO, “shall give immediate notification” to ICAO of the differences: article 38.

[174] ICAO document “Annex 17 to the Convention on International Civil Aviation: Security, Safeguarding International Civil Aviation Against Acts of Unlawful Interference” (“Annex 17”) sets out standards and recommended practices to be applied by contracting states with respect to acts of unlawful interference, which, by the terms of Annex 17, include destruction of an aircraft in service. Section 2.1 of Annex 17 sets out its objectives, which have as their thrust the obligation of each state to safeguard against unlawful interference with civil aviation to protect the safety of passengers, crew, ground personnel and the general public (see also ICAO 8973, *Aviation Security Manual*, at para. 2.1.1). In furtherance of this objective, each state is responsible for establishing an organization and developing and implementing regulations, practices and procedures to safeguard civil aviation. In Ukraine, this is the SAAU.

¹³ Mr. Edwards has 40 years of aviation experience. He currently holds positions including: (i) with McLaren Aviation Ltd., an aviation survey and loss adjusting services provider, in the course of which he undertakes security and safety risk reviews of different aspects of the civil aviation industry; (ii) aviation consultant for a global securities provider, conducting due diligence of scheduled and charter flight service providers when operating within or into countries or airports at high to extreme security risk; (iii) aviation consultant providing services for aviation security and safety compliance and performance, risk management, crisis management and emergency planning. His past positions include Assistant Director, Security Policy for IATA, Event Organizer and Lead for the 2013 AVSEC World Conference, and Head of Cargo Security & Quality Assurance, Corporate Security at British Airways. In his years of experience, he developed the first IATA (and industry) Assistance & Capacity Building Program aimed at working alongside regulators and airports to assist states in need of support, and managed the drafting of the Aviation Security Annex, working with government stakeholders. He has also worked in diverse cross-border environments and has participated in consultations aimed at amending or developing aviation security legislation.

[175] Annex 17 requires each contracting state to keep “under constant review the level and nature of threat to civil aviation within its territory and airspace above it, and establish and implement policies and procedures to adjust relevant elements of its national civil aviation security program accordingly” based upon a security risk assessment carried out by the relevant national authorities: see s. 3.1.3.

[176] Also relevant is ICAO Doc. 9554-AN/932, entitled “Manual Concerning Safety Measures Relating to Military Activities Potentially Hazardous to Civil Aircraft Operations”. The purpose of this guidance, set out in s. 1.1, is to assist states “in providing for the safe and orderly flow of international air traffic in the event that military activities, which constitute potential hazards to civil aircraft, are planned and conducted”. It requires that the common use of airspace by civil and military aviation shall be arranged to ensure the safety, regularity, and efficiency of international civil air traffic. This requires cooperation, including with air traffic services authorities. Air traffic services authorities are directed to provide appropriate military units with flight plan and other data concerning flights of civil aircraft: see, for example, paras. 2 (background), 3.1, and 3.2.1.

[177] Paragraph 4.1 of ICAO Doc 9554-AN/932 notes that a NOTAM “shall be originated and issued by States regarding the presence of hazards which affect air navigation” in their territory. It also underscores the need for coordination between military and air traffic services to ensure the safety of civil aviation, and notes that the need for close coordination is even more critical where there is armed conflict or the potential for armed conflict: paragraph 10.1.

[178] Annex 15 to the Convention on International Civil Aviation, Aeronautical Information Services, para. 6.3.2.3 requires that a NOTAM be issued when there is the “presence of hazards which affect air navigations”, including military exercises.

[179] ICAO Annex 19, 2d edition, July 2016 establishes a requirement that state regulators ensure service providers, such as international airlines, have a safety management system (“SMS”) in place to manage safety risks: para. 3.3.2. Annex 19 defines a safety risk to be “the predicted probability and severity of the consequences or outcomes of a hazard”. An SMS includes provisions relating to the identification of hazards (based on a combination of reactive and proactive measures), the assessment of safety risks, and mitigation measures: see Appendix 2 to Annex 19.

[180] Annex 19 also notes that guidance on the implementation of the framework of an SMS is contained in ICAO document 9859, entitled “Safety Management Manual”, about which I say more below.

[181] States party to the *Chicago Convention* agree to ensure that the civil aviation operators within their jurisdiction adhere to standards, policies, procedures and guidance with respect to both aviation security and aviation safety.

[182] This expectation was codified into Ukrainian law. The *Air Code of Ukraine* (the “Code”), October 20, 2019, acknowledges, in article 4, that Ukraine is responsible for the fulfillment of international obligations as a member of ICAO. In article 85, the *Code* places the responsibility

for the development and implementation of a program of civil aviation safety and security on the SAAU. The SAAU's obligation to assess risks and levels of threat to civil aviation security is formalized in the *Code*. Article 87 provides that the SAAU constantly assesses risks and the level of threat to the safety of civil aviation.

[183] Article 86(2) of the *Code* requires subjects of aviation activity to develop and update, on the basis of the state program of civil aviation security, their aviation security programs and take measures to protect civil aviation from acts of illegal interference, but it does not specify how the development and updating of an aviation security program ought to be done.

[184] It is uncontroverted that UIA was subject to the law of Ukraine. UIA's aviation security program and aviation safety program were reviewed and approved by the SAAU, as required by Ukrainian law.

[185] From this review, I note that Ukraine was responsible, through the SAAU, to ensure UIA's security and safety programs were effective. Ukraine and SAAU were also responsible for conducting their own assessments of risks to civil aviation, in particular within Ukrainian airspace. Iran was responsible for ensuring adequate communication between its military and civil aviation authorities, and for releasing a NOTAM and/or closing some or all of its airspace when there were risks to civil aviation in the airspace that justified doing so.

[186] At this time, I delve deeper into the industry standards, policies, practices and guidelines related to aviation security. Thereafter, I turn to the question of airline safety. There is some overlap in the sections below on security and safety, just as there is overlap in the concepts and their application to civil aviation.

Aviation Security

[187] ICAO Doc. 8973 provides guidance with respect to aviation security. I note the following from the document:

- a. Sensitive aviation security information should be limited to those who have a need-to-know (para. 2.3.6(a));
- b. States should ensure that the aircraft commander (the pilot-in-command) is authorized to protect the safety of the aircraft and the persons and property on board (para. 3.6(a));
- c. Formal and informal lines of communication between the aviation security officials of states assist in the rapid exchange of information, including any increase in the threat level (para. 4.4.1.1);
- d. A state should make its own assessment of the risk applying to its territory and assets and establish risk mitigation measures (para. 9.1.1.5);
- e. To establish or improve security culture in organizations, measures should be developed to enhance such norms, beliefs, values, attitudes, and assumptions.

Those enhancements should aim at furthering principles including: (i) allowing the necessary time and making the necessary efforts to comply with security measures, even when under pressure; (ii) challenging other personnel in case of irregularities and accepting being challenged; and (iii) fostering critical thinking regarding security and interest in identifying potential security vulnerabilities, deviation from applicable procedures, and solutions (para. 9.2.1.2 (c), (e) and (g));

- f. Security Management Systems (“SeMS”) are designed to be integrated with, or connected to, other structured managements systems such as an SMS or a quality management system (para. 9.3.1);
- g. States should carry out periodic threat and risks assessments at a national level, taking into account international, national and regional situations and environments, from which mitigating measures are developed (para. 9.3.4.1);
- h. Entities implementing SeMS should develop and carry out a local threat identification process supplementing national threat and risk assessments in coordination with other local parties involved (para. 9.3.4.2); and
- i. Changes in the threat environment may require the urgent application of additional security measures or, when no other alternatives exist at that point in time, the suspension of operations (para. 9.3.4.5).

[188] There was some discussion in evidence about ICAO document 10108, entitled “Aviation Security, Global Risk Context Statement”. ICAO 10108 focuses on the threat of terrorism and offers a methodology and a framework for states to conduct risk assessments at the national level. It describes itself as being primarily aimed at “decision makers, practitioners and other relevant stakeholders within Member States who are responsible for conducting aviation security risk assessments”: see paragraphs 1.1, 1.2, 1.5.

[189] ICAO 10108 sets out a risk assessment method and process map, along with information about how to assess vulnerabilities, and the importance of assembling information to assist in evaluating the threat. Among other things, it discusses the risk to civil aviation posed by SAMs, noting that they are predominantly under the control of state actors with effective command and control systems in place, and can only be operated as designed by fully trained personnel. However, it also notes that some SAMs have likely passed into the hands of non-state actors. The ICAO Aviation Security Panel Working Group on Threat and Risk (“WGTR”), which prepared ICAO 10108, concluded that the risk to civil aviation from a deliberate SAM attack was low. The WGTR also concluded that the only effective mitigation against a SAM attack is to avoid airspace within range of the SAM. The WGTR noted that a SAM attack on civil aircraft could occur because of lack of appropriate command and control leading to misidentification or mistargeting, examples of which exist, albeit rare. Among the risk factors associated with misidentification was routing over locations or assets of high strategic importance.

[190] I turn now to ICAO 10084, which is, in my view, the most important document in the context of the security threat risk assessment that UIA had to undertake on January 8, 2020.

[191] ICAO 10084, entitled Risk Assessment Manual for Civil Aircraft Operations Over or Near Conflict Zones, is ICAO's memorialized standards, practices, procedures and guidance for flights over or near conflict zones. Although geared to flights at altitude, it is the guidance that most closely addresses the situation UIA was faced with assessing on January 8, 2020.

[192] Before I turn to the document itself, I note that it arose from the reports delivered by the DSB after the downing of MH17 over Eastern Ukraine in 2014. MH17 originated in Amsterdam and was en route to Kuala Lumpur when it was shot down by a SAM.

[193] The DSB issued three reports into the crash of MH17, dated October 2015, February 28, 2019, and 2021. The first of these pre-dated the crash of PS752. In that report, the DSB was critical of traditional security threat risk assessment methods which focused on attempting to define the probability of a SAM threat to civil aviation as opposed to addressing in a qualitative manner the risk-increasing and uncertain factors that need to be included as part of a threat analysis.

[194] The DSB's lengthy reports made recommendations to improve the safety of international civil aviation flying over or near conflict zones. The first DSB report was the genesis of ICAO 10084, the second edition of which was published in 2018.

[195] I do not intend to delve into the content of the DSB reports in detail, although I refer to them in my analysis below as needed. At this stage, it suffices to note that the recommendations in the first DSB report were adopted in significant measure into ICAO 10084.

[196] As a preliminary matter, I note that UIA disagrees that Tehran FIR was a conflict zone on January 8, 2020, and as a result, seemed at first to be calling into question the relevance of ICAO 10084. In a sense this disagreement over whether Tehran FIR was a conflict zone is immaterial, because UIA also acknowledges that ICAO 10084 was a relevant document for it to consider when conducting its security assessment of PS752 on January 8, 2020, and moreover, its evidence is that it did consider ICAO 10084. In his evidence, Mr. Martynenko deposed that, at all material times, AVSEC was guided by the standards, recommended practices, procedures and guidance provided by ICAO, including ICAO 10084.

[197] In any event, I find no traction in UIA's argument that Tehran FIR was not a conflict zone, which seems to hinge on the notion that a conflict zone must be officially declared in order to exist. First, waiting for a bureaucratic operation to formally declare an airspace to be a conflict zone before conducting risk assessments or implementing mitigating measures would run counter to the overall goal of protecting the safety of international civil aviation.

[198] Second, ICAO 10084 defines "conflict zones" as:

[a]irspace over areas where armed conflict is occurring or is likely to occur between militarized parties, and is also taken to include airspace over areas where such parties are in a heightened state of military alert or tension, which might endanger civil aircraft.

[199] In the hours before PS752 took off, Iran launched ballistic missiles through its airspace over a period of hours towards American troops in Iraq, after the then-President of the United States had threatened to retaliate “FAST AND HARD” against Iran for any attack responding to the killing of General Soleimani. UIA’s own expert, Dr. Bronk, gave evidence that, prior to the take-off of PS752, Iran would have been in a heightened state of military alert or tension, as it would have been anticipating retaliatory strikes from the United States. On the morning of January 8, 2020, Tehran FIR was a textbook example of a conflict zone.

[200] Moreover, I note that the Canadian Report, *The Downing of Ukraine International Airlines Flight 752: Factual Analysis*, records that Canada’s Forensic Team determined that the conditions in Iran on January 8, 2020 were consistent with a conflict zone as defined by ICAO guidance. The parties agreed that the Canadian Reports into the downing of PS752 may be admitted as proof of the truth of their contents.

[201] A second preliminary issue arose at trial with respect to the applicability of ICAO 10084, that is, whether UIA was obligated under Ukrainian law to apply ICAO 10084. The plaintiffs rely on an Operational Directive issued by the SAAU which was drafted in Ukrainian and translated into English in the original. The English portion of the directive includes the following (errors in original):

With the aim of updating threats assessment process, which is implemented in accordance with the Ministry of transport order #390 (confidential) dated 11.05.2007, and introduction of measures to decrease the risks level during flights planning over/near conflict zones, I propose to conduct the mentioned assessment and introduce measures aimed at decreasing the risk level using the information published at the ICAO site ... as well as methodology and information resources indicated in ICAO working paper HLSC/15-WP/10.

[202] The ICAO working paper referred to in the directive is the predecessor to ICAO 10084, and is consistent with ICAO 10084 and the DSB reports (the first of which had been released at the time the working paper came into existence).

[203] As with the question of whether Tehran FIR was a conflict zone, the question of whether the effect of the directive was to make UIA obliged by Ukrainian law to consider ICAO 10084 when conducting its assessment of whether PS752 should be permitted to take off from IKA is not relevant. UIA’s evidence is that it took ICAO 10084 into consideration. UIA’s position is that ICAO 10084 was a relevant guide that it considered. The question, which I address below, is not whether it had to consider it; it is whether it did so in a manner that complied with its obligations.

[204] I now turn to the content of ICAO 10084, which entails a lengthy review of the document given its importance to the analysis.

[205] The purpose of ICAO 10084 is described in paragraph 1.1.1 as follows:

This manual contains advice to States, aircraft operators, (civil and military) air navigation service providers (ANSPs), and other entities deemed appropriate on the subject of risk assessment for civil aircraft operations over or near conflict zones. It contains consolidated guidance to support implementation of relevant ICAO Standards and Recommended Practices (SARPs), ICAO guidance material and industry best practices. It covers the risk from both deliberate acts and unintentional hazards to civil aircraft operations over or near conflict zones.

[206] Thus, while it is clear that states party to the *Chicago Convention* are responsible for implementing ICAO guidance nationally, it is also clear that ICAO 10084 is a tool to guide civil aircraft operators, like UIA, who have to perform security threat risk assessments due to flying over or near conflict zones.

[207] ICAO 10084 focuses primarily on the risk posed by SAMs, “as these are currently considered to pose the most significant risk to civil aircraft operating over or near conflict zones”: para. 1.1.2.

[208] ICAO 10084 acknowledges that the decision as to whether a civil aircraft will be flown through airspace that could otherwise be considered unsafe relies on various parties involved, including the state that manages the airspace (here, Iran), aircraft operators (here, UIA), ANSPs, the state of the operator (here, Ukraine), ICAO, regional civil aviation authorities and other stakeholders: para. 1.2.4.

[209] With respect to risks to civil aircraft from operations over or near conflict zones, ICAO 10084 notes the high risk to civil aircraft from SAMs if targeted. Aircraft are an easy and vulnerable target due to their size, and are generally neither equipped nor tasked to consider tactically responding to being fired upon: para. 2.1.1.

[210] ICAO 10084 notes that SAM attacks on civil aviation are extremely rare, referring to three documented occurrences, the most recent of which (prior to PS752) was the downing of MH17. In two of these cases, the targeting was likely unintentional, while the third occurred during a military training exercise. There were no documented cases of an intentional SAM attack on a civilian aircraft: para. 2.2.

[211] Thus, there is a higher risk to civil aviation as an unintended target when flying over or near conflict zones based on misidentification. However, ICAO 10084 also notes that there are well-established mitigations in place, such as airspace management, surveillance, navigation and communication systems, which should enable civilian aircraft flying through controlled airspace to be readily identified. Generally, the risk of unintentional shoot-down by a SAM is low, but it “may vary significantly over time, and from place to place, as a result of events, and higher levels of risk are particularly associated with overflying areas of armed conflict”: paras. 2.4.1, and 2.4.2.

[212] Appendix A of ICAO 10084 presents the risk factors most likely to be associated with an elevated level of risk of an intentional SAM attack on a civilian aircraft. Of note:

- a. The availability of SAMs is widespread and growing, and many are highly mobile. Information about the military deployment of SAMs will not be available in many cases. Thus, the local presence of SAMs is only likely to be a useful factor in assessing risk if their presence in an area can be ruled out with high confidence.
- b. The existence of armed conflict, including the threat of conflict where the parties are on a high state of military alert or heightened tension, in an area over which a flight is operating is a significant risk factor.
- c. When flying over or near conflict zones, the most important risk factors are:
 - i. Use of military aircraft in a combat role or for hostile reconnaissance by at least one party in the conflict, including unmanned aircraft;
 - ii. Use of aircraft to transport ground troops or military equipment by at least one party;
 - iii. Poorly trained or inexperienced personnel operating SAMs, and the absence of robust command and control procedures for authorizing launch, which is likely to increase the risk of misidentification of civil aircraft;
 - iv. Lack of effective air traffic management over the relevant airspace;
 - v. Routing passes over or close to locations or assets of high strategic importance that may be considered vulnerable to aerial attack in a conflict situation.

[213] Appendix A also identifies information that aircraft operators or states wishing to conduct a risk assessment may wish to understand:

- a. The types of military equipment available to the parties and the likelihood that they may have access to SAMs;
- b. The broader military capabilities of parties;
- c. The nature of the conflict, and whether one side was reported to be using, or considered likely to use, air power against the other;
- d. Indications or notifications of the loss of effective control over the relevant airspace by the state or organization responsible for providing air navigation services; and
- e. Specific areas or locations that may be of particular strategic importance or sensitivity in the context of the conflict, such as key infrastructure or sites of military importance, and which might be considered as likely targets for air attack.

[214] Appendix A advises that “those who do not have reliable access to this sort of information may wish to consider subscribing to services provided by organizations that specialize in providing information and analysis about conflict and security issues.” When I turn to the application of the facts to the standard of care, I will address one such organization, Osprey Flight Solutions. One of Osprey’s founders testified at trial about Osprey’s information-gathering processes and its conclusions, publicly released in the hours before the shootdown of PS752, that the risk to civil aviation was “EXTREME” for all Iranian airspace at all altitudes. Osprey’s assessment culminated in a general advisory against all flight in or over Iran at all altitudes at 00:47 UTC on January 8, 2020, subject to an operation specific risk assessment.

[215] With respect to information gathering, para. 4.3.1 – 4.3.2 of ICAO 10084 acknowledges that relevant information and intelligence may not always be readily available (hence the suggestion in Appendix A to subscribe to a service). Where information obtained by states through direct intelligence gathering or through the exchange and sharing of such information with partner states is available, that information should be the primary source for operators to conduct their own risk assessment, but it should not be considered in isolation. Rather, cross-validating available information is necessary to establish a comprehensive risk picture.

[216] ICAO 10084 identifies, in para. 4.3.2, helpful sources of information to include:

- a. Aeronautical information, such as NOTAMS and other official advisories;
- b. Information from states, which may include non-public details;
- c. Information from membership networks, for example, operator alliance networks and commercial entities offering membership to information exchange platforms;
- d. Information from aerodromes;
- e. Open-source information, such as newspapers, magazines, television and social media platforms.

[217] ICAO 10084 recognizes the responsibility of the state with territorial control of the airspace to provide parties with essential risk information related to that airspace to feed into the risk assessment process, and to ensure coordination of military forces and air traffic services to ensure the safety of civil aircraft operations in the airspace if such operations are allowed: para. 3.1.

[218] The responsibilities of the aircraft operator are outlined in section 3.2 of ICAO 10084. These include ensuring that flights will not commence unless risk assessments are carried out and appropriate mitigation actions are taken to ensure the safety and security of the aircraft on the intended flight route from departure to arrival. This includes assessing the airspace over or near areas where there is armed conflict posing a risk to civil aviation: para. 3.2.1.

[219] Of note, “the absence of any restriction in foreign airspace should not preclude the operator from making its own determination on the safety/security risks of the airspace to be

flown through”. In doing so, the aircraft operator can use various information sources such as government advisories, other aircraft operators and open-source intelligence: para. 3.2.2.

[220] Aircraft operators should also ensure that the necessary information and advice is updated and passed to the pilot-in-command in real time, usually before take-off. If the situation is rapidly changing, information must be provided in-flight: para. 3.2.4.

[221] When conducting risk assessments for flying over or near conflict zones, para 4.1.2 of ICAO 10084 provides that “the characteristics of armed conflicts require a risk assessment process that should appropriately consider both security and safety elements”. Although security and safety assessments are different in nature, “they need to be complementary”:

Security deals with the intentional act to commit an act of unlawful interference, whereas safety is concerned with the management of hazards stemming from unintentional negative impact on the performance of the systems related to the operation. A comprehensive risk assessment process will address all potential actions involving implications for civil aircraft operations over or near conflict zones.

[222] Security assessments are more qualitative, as they are geared to determining threats based on the intent and capability of involved actors. Where intent cannot be determined, “intelligence information about military capabilities may nonetheless be a valuable source for the identification of hazards that could pose an unintentional risk to civil aviation. The available information on existing threats and hazards is the necessary input to the risk assessment process which serves to inform decisions on whether to continue civil aircraft operations over or near conflict zones”: para. 4.1.3.

[223] The complete risk assessment is based on an assessment of threat likelihood, consequence, vulnerability and hazard. General assumptions that can be made include:

- a. The reasonable worst-case consequences of successfully downing a passenger aircraft are high, based upon the loss of life and economic repercussions of the attack;
- b. There are no mitigating actions available once civil aircraft is on a dedicated flight path and a SAM is deployed;
- c. Therefore, the most important risk factor is the threat likelihood.

[224] Section 4.2 of ICAO 10084 contains a graphic demonstrating a risk assessment cycle, and a graphic demonstrating the conduct of risk assessments for flying over or near conflict zones which I reproduce below:

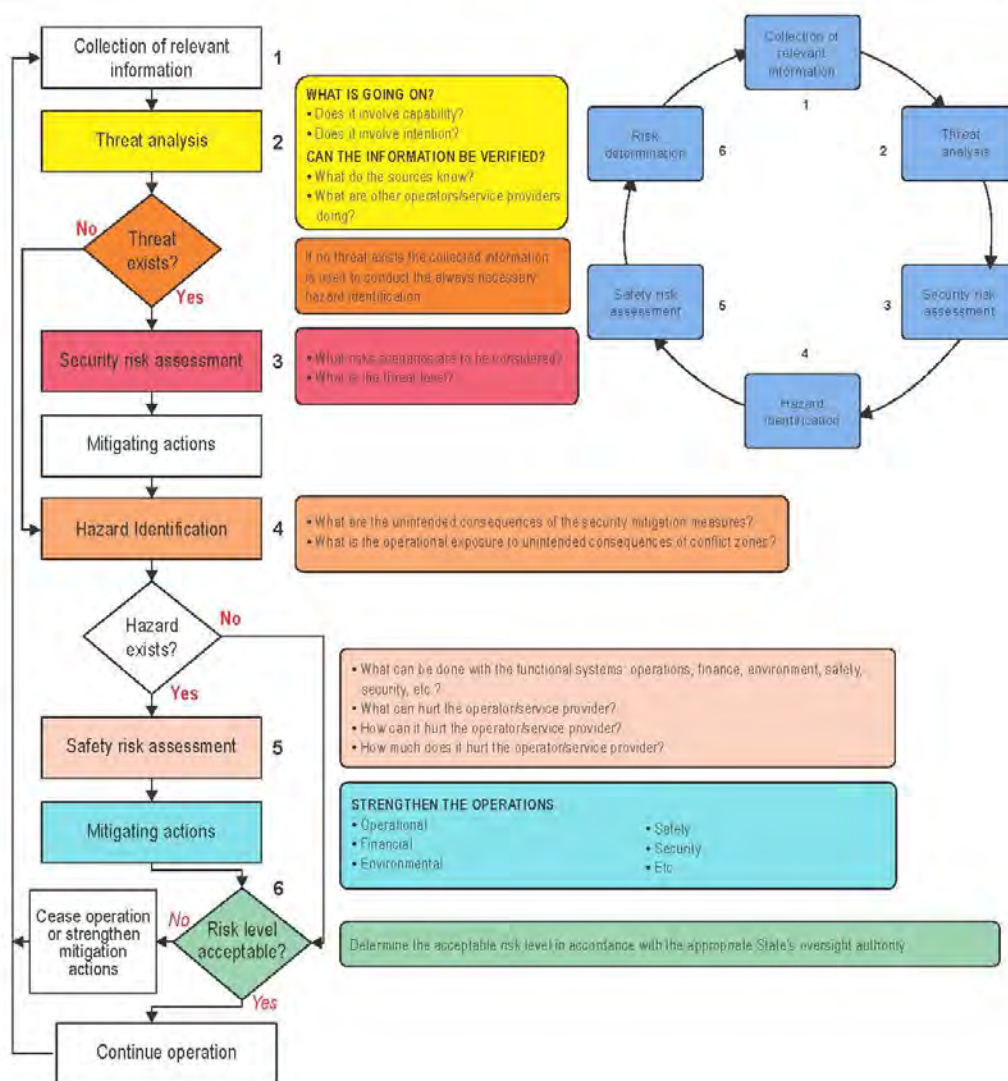


Figure 4-2. Flow chart of the risk assessment cycle for operators and service providers

[225] From the circular graphic above that sets out the risk assessment cycle when assessing the risk of flying over or near conflict zones, I note: (i) the collection of relevant information to the risk assessment is both the starting point and an ongoing obligation; and (ii) a security risk assessment is followed by a hazard identification, which in turn is followed by a safety risk assessment, all in the context of evaluating risk when flying over or near conflict zones.

[226] The flow chart reproduced above develops each of the steps in the risk assessment cycle. From this, I note that if, after a threat analysis, one concludes that no threat exists, one must still proceed to a hazard identification, which includes asking the question “what is the operational exposure to unintended consequences of conflict zones?” The next step, if a hazard is identified, is to undertake a safety risk assessment.

[227] On the other hand, if a threat analysis leads to a conclusion that there is a threat, one must first conduct a security risk assessment, and consider mitigating actions, and thereafter turn to the hazard identification process. At that point, one would also ask “what are the unintended consequences of the security mitigation measures?” in addition to asking about the operational exposure to unintended consequences of conflict zones. If a hazard is identified, the safety risk assessment must then be undertaken.

[228] This is relevant to a contested issue at trial, that is, whether UIA was required to undertake a safety assessment having regard to the information available about the conflict in Tehran FIR on January 8, 2020. It is common ground that a hazard identification process and related safety assessment is always required before any flight, but the parties disagree about whether this process ought to have included an assessment of operational risks that could arise from exposure to unintended consequences of conflict zones when flying in or near conflict zones.

[229] In my view, ICAO 10084 supports the plaintiffs’ position that a safety and a security assessment were each required in the context of assessing risk to PS752 from flying in or near a conflict zone. This conclusion is consistent with the evidence of Mr. Gillespie, and also with FLT 1.12.2¹⁴ from IOSA Standards Manual, which provides that:

The Operator shall have a safety risk assessment and mitigation program in the flight operations organization that specifies processes to ensure:

- (i) Hazards are analyzed to determine the corresponding safety risks to aircraft operations;
- (ii) Safety risks are assessed to determine the requirement for risk mitigation action(s);

¹⁴ To similar effect is DSP 1.12.1 from IOSA Standards Manual.

- (iii) When required, risk mitigation actions are developed and implemented in flight operations.

[230] FLT 1.12.2 identifies “hazards relevant to the conduct of aircraft operations” as being potentially associated with, among other things, “operations in airspace affected by armed conflict”.

[231] I note also that ICAO document 9859 discusses the fact that successful risk management in aviation should aim for overall risk reduction in the system, and thus it is necessary to consider the fact that “effective security measures may have negative impacts on safety, and vice versa”, thus acknowledging the linkage between airline safety and airline security and the need for the security and safety programs to be complementary: see paras. 1.4.2-1.4.3.

[232] ICAO 10084 also identifies possible mitigations of the risk, including (i) conduct of specific risk assessments to inform routing decisions; (ii) provisions by ICAO, states, and/or other entities of guidance and information to assist in making risk assessments and routing decisions, and (iii) avoidance by civil aircraft of airspace over conflict zones where the risk of unintentional attack is assessed as unacceptably high.

[233] Appendix A provides further guidance on the risk assessment. It sets out a three-element risk assessment: (i) analysis of plausible threats, likelihoods and consequences; (ii) residual risk assessment; and (iii) recommendations for further risk-based work and possible mitigation.

[234] It identifies the key components for completion of the risk assessment to be: (i) threat scenario, that is, identification and description of a credible attack; (ii) likelihood of an attack, that is, the probability or likelihood of that attack being attempted, based on terrorist intentions and capabilities but not taking into account current security measures; (iii) consequences, that is the nature and scale of the consequences in human, economic and reputational terms under a reasonable worst case scenario; (iv) current mitigating measures; (v) residual vulnerabilities, once the current mitigating measures have been taken into account; (vi) residual risk, that is, the overall risk which remains assuming current mitigating measures have been implemented; and (vii) possible additional mitigation to further mitigate residual risks where necessary.

[235] Likelihood, consequences and vulnerability are each scored on a five-point scale. Likelihood is scored as follows:

- a. High likelihood means a very plausible scenario with an actual attack of this kind having occurred in the past few years, or strong evidence of capability, intent and planning;
- b. Medium-high means a clearly plausible scenario with relatively recent examples or evidence of early attack planning or hostile reconnaissance;
- c. Medium means an essentially plausible scenario with some evidence of intent and capability and possibly some examples, but no evidence of current attack planning;

- d. Medium-low means a scenario for which there are no, or no recent, examples, but some evidence of intent; and
- e. Low means a theoretically plausible scenario but with no examples of signs of attack or attack planning, and a theoretical intent but no apparent capability.

[236] Consequences are:

- a. High, if they comprise hundreds of deaths, economic costs in the billions, and severe disruption to services and confidence in the aviation system;
- b. Medium-high if they have some, but not all, of the high consequences;
- c. Medium if they comprise tens of deaths, economic costs in the tens or hundreds of millions of dollars, and substantial disruption to services and confidence in the aviation system;
- d. Medium-low if they have some but not all of the medium consequences above; and
- e. Low if they comprise possibly some deaths and injuries, some economic impact, and some disruption to services and confidence in the aviation system.

[237] The vulnerability ratings are:

- a. High, if no mitigating measures are in general effect;
- b. Medium-high if mitigation has a limited scope;
- c. Medium if features of both medium-high and medium-low vulnerabilities are present;
- d. Medium-low if mitigating measures are generally in place but may be immature or only partially effective;
- e. Low if mitigating measures are generally regarded as effective and are in widespread use.

[238] Using these scales, each plausible scenario is given a residual risk score on a five-point scale based on a combination of the assessed scores for likelihood, consequences and vulnerability.

[239] UIA's aviation security risk management program is outlined in a manual, several versions of which were entered in evidence. I focus on the manual revised in November 2019, in force at the time of the shutdown of PS752.

[240] The manual indicates that the purpose of UIA's security risk management program is to prevent acts of unlawful interference with UIA activities "due to timely detection of negative factors" affecting airline security, and to eliminate them. The manual recognizes that effective prevention of acts of unlawful interference "can only be achieved in case of involvement of all complexes and units, management, flight crews and service personnel".

[241] Consistent with ICAO guidance, the manual sets out a three-stage risk assessment methodology: (i) analysis of possible threats, probability of their implementation and their consequences; (ii) residual risk assessment; and (iii) preparation of recommendations for further work on risk assessment and its possible minimization.

[242] Of note, the manual does not provide any specific methodology with respect to assessing threats presented by SAMs; rather, its guidance is with respect to security risks generally. As I noted in my review of the law with respect to the standard of care, where guidance is general, it is less likely that mere compliance with the guidance will exhaust the standard of care.

Aviation Safety

[243] As I have already explained, while aviation safety and aviation security are different, the safety and security risk management programs must be complementary. I have found that, in circumstances where an airline will be flying in or near a conflict zone, both a security and a safety assessment are required to identify the risks specifically related to the proximity of the plane to the conflict.

[244] Safety is defined in ICAO 9859 as "the state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level". This definition is also reflected in Annex 19.

[245] ICAO 9859 also addresses record-keeping. Paragraph 2.5.8.1 provides that safety risk management activities should be documented, including any assumptions underlying the probability and severity assessment, decisions made, and any safety risk mitigation actions taken.

[246] ICAO 9859 also notes that aviation safety is dynamic, in that new safety hazards and risks continuously emerge and must be mitigated: para. 2.1.3.

[247] Appendix B to ICAO 10084, which is consistent with and in part duplicative of ICAO 9859, provides an example of a safety risk assessment methodology. First, one determines the safety risk probability, by asking how likely it is that a safety risk or consequence will occur: para. 1.1. A safety occurrence is considered foreseeable "if a reasonable person could have expected the kind of occurrence to have happened under the same circumstances": para. 1.3.

[248] Appendix B includes a typical safety risk probability classification table. It includes five categories to denote the probability related to an unsafe event or condition, the description of each category, and an assignment of a value to each category. In this example:

- a. Frequent likelihood means the safety risk is likely to occur many times (has occurred frequently) and is valued at 5;

- b. Occasional likelihood means the safety risk is likely to occur sometimes (has occurred infrequently) and is valued at 4;
- c. Remote likelihood means the safety risk is unlikely to occur but possible (has occurred rarely) and is valued at 3;
- d. Improbable likelihood means the safety risk is very unlikely to occur (not known to have occurred) and is valued at 2;
- e. Extremely improbable likelihood means it is almost inconceivable that the event will occur, and is valued at 1.

[249] The second step is to assess the severity of the safety risk, taking into account the potential consequences related to the hazard, to determine the extent of harm that might reasonably be expected to occur as a consequence or outcome of the identified hazard. It considers fatalities or serious injuries, damage to the aircraft, and damage to air traffic services or aerodrome equipment.

[250] In this example, there are five categories of severity, as follows:

- a. Catastrophic, meaning the aircraft/equipment are destroyed and there are multiple deaths, valued as A;
- b. Hazardous, meaning a large reduction in safety margins, physical distress or a workload such that operational personnel cannot be relied upon to perform their tasks accurately or completely, serious injury, and major equipment damage, valued as B;
- c. Major, meaning a significant reduction in safety margins, a reduction in the ability of operational personnel to cope with adverse operating conditions as a result of an increase in workload or as a result of conditions impairing their efficiency, a serious incident, and injury to persons, valued as C;
- d. Minor, meaning nuisance, operating limitations, use of emergency procedures, and a minor incident, valued as D;
- e. Negligible, meaning few consequences, valued as E.

[251] Next, a safety risk index rating is created by combining the results of the probability and severity scores. A matrix is created that results in each combination of factors obtaining a score. For example, a safety risk with remote probability (3), but catastrophic consequences (A), is scored as 3A.

[252] The index is then exported to a safety risk tolerability table that describes in narrative form the tolerability criteria for the particular organization. Safety risks are conceptually assessed as acceptable, tolerable, or intolerable. In the example provided in Appendix B, a safety risk range of 3A yields a safety risk description of intolerable, requiring the airline to take

immediate action to mitigate the risk or stop the activity. A tolerable risk can be tolerated based on the safety risk mitigation, and may require a management decision to accept the risk. An acceptable risk requires no further safety risk mitigation.

[253] UIA maintains a Safety Management Manual. Under s. 2.1.5, the Safety Management Manual sets out a general framework for the assessment and mitigation of safety risks which is consistent with that identified by the various ICAO documents: an assessment of risk probability, risk severity, risk assessment and risk acceptance. Section 2.1.6 requires accurate keeping, maintenance, storage and destruction of safety records.

[254] The Safety Action Group of UIA's OCC was tasked with hazard identification and safety risk assessment, including the assessment of hazards related to operations in airspace affected by armed conflict: see UIA Operations Control Manual, s. 1.3.4. One of the identified risk assessment and mitigation methods identified in the Operations Control Manual was to "react to unwanted events and problems as they occur and develop appropriate remedial action", suggesting that responses to arising safety hazards should be capable of being nimble and rapid.

[255] Neither the Safety Management Manual nor the Operation Control Manual set out a specific framework or process for the assessment of safety risks associated with operations in airspace affected by armed conflict. As I have noted, when the guidance is general, as was the guidance for conducting a hazard identification and safety risk assessment process associated with operations in a conflict zone, it is more likely that merely following the guidance does not exhaust the standard of care.

Did UIA meet the standard of care?

[256] After spending considerable time reviewing the industry and legal standards applicable to airline security and safety risk assessments, I turn to consider whether UIA met the standard of care required of it on the morning of January 8, 2020. Having regard to the law I set out earlier at paras. 154-156, from *Ryan, Hill, Krawchuk, and Saskatchewan Wheat Pool*, I conclude that all of the industry and legal standards I describe above are relevant to understanding the standard of care that UIA had to meet. The standards I review above that address the responsibilities of other stakeholders in the civil aviation scheme are relevant in assessing to what extent UIA was justified in relying on, in particular, civil aviation authorities and states, when conducting its risk assessment on January 8, 2020.

[257] I find that mere compliance with UIA's manuals or the law of Ukraine was not sufficient to exhaust UIA's standard of care on the morning of January 8, 2020. None of those sources provided anything more than general information about conducting risk assessments related to flying over, in, or near conflict zones. To meet the standard of care, UIA was required to follow the guidance provided by ICAO with respect to security threat risk assessments, safety risk assessments, and flying over or near conflict zones, in addition to the guidance set out in its manuals and in the laws of Ukraine.

[258] In considering whether UIA met the standard of care, I place particular importance on the content of ICAO 10084, as it is the guidance that is most responsive to the situation UIA had to

assess on January 8, 2020, and on ICAO 8973 which provides useful guidance on security threat risk assessments.

[259] In order to assess UIA's conduct against the standard of care required of it, I begin with an outline of how security and safety assessments were conducted generally at UIA.

UIA's Structure and Processes

UIA's Aviation Security Directorate

[260] As I have noted, Mr. Martynenko was the Deputy President and Director of the Directorate of Aviation Security.

[261] Before Mr. Martynenko joined UIA, he worked as a police officer, and then in security at an airport. Mr. Martynenko began his employment with UIA in 2006 as an inspector with AVSEC, and gradually worked his way up, gaining additional levels of responsibility with respect to aviation security. As I have already noted, Mr. Martynenko was certified in aviation security by the SAAU. At the time of the shoot-down of PS752, Mr. Martynenko's then-current certificate was dated July 27, 2018. Mr. Martynenko explained that it was mandatory for him to retrain every two years to renew his certification to conduct aviation security threat risk assessments.

[262] Mr. Martynenko explained that the aviation security department at UIA was divided into two parts: first, personnel working in the field, and second, mid-level management personnel who worked five days a week. Around the time of the shoot-down of PS752, two mid-level management personnel assisted Mr. Martynenko in conducting security threat risk assessments: Yuriy Bobrovnyk, Head of AVSEC, and Evgeniy Blakyta, Deputy Head of AVSEC. Of the three, only Mr. Blakyta spoke English. In addition, there were an additional 24 or 25 employees who were part of the AVSEC team.

[263] AVSEC worked on a 9 am – 6 pm shift. When AVSEC was not on duty, it relied on the OCC to contact them if OCC received information relevant to aviation security. According to Mr. Martynenko, through this system, UIA was conducting daily monitoring and daily assessments of incoming information relevant to security risks.

[264] When Mr. Blakyta would begin a shift, he would contact OCC to obtain whatever information they had received while AVSEC was off shift. Mr. Blakyta would also monitor media through the internet and news bulletins.

[265] When conducting monitoring, UIA would use primary news and information sources including Russian and Ukrainian language mass media outlets as well as major international mass media websites. Mr. Blakyta would monitor English language websites.

[266] According to Mr. Martynenko, UIA did not subscribe to Osprey Flight Solutions, or any other open-source risk management provider. He explained that AVSEC would look to the publicly available information from such providers only in circumstances where additional detail or information was necessary or would be helpful after having reviewed the available applicable

official notices or information issued by or with the authority of the relevant states, information from its own personnel and providers, and information from media reports.

UIA's Flight Operations Department

[267] As I have already noted, UIA led evidence at trial from Mr. Sosnovskiy, UIA's Vice President of Flight Operations. Mr. Sosnovskiy joined UIA at its inception in November 1992, and continues to hold positions as Captain, Instructor, and Examiner. He became Vice President of Flight Operations in February 2004.

[268] Mr. Sosnovskiy explained that, in this role, he was responsible for the management and supervision of all flight operations activities, the development and implementation of flight operations and crew training, and the management of safety within flight operations activities and ensuring the overall safe and efficient conduct of all flights.

[269] Mr. Sosnovskiy described how UIA addressed its responsibilities under the umbrella of aviation safety. First, as I have already described, UIA had an aviation security risk management system, that is AVSEC. Second, UIA had an aviation safety risk management system concerned with the aviation safety of the operation of its flights, including quality and safety management, continuing airworthiness, flight operations and ground operations (which include the OCC) and flight dispatch.

[270] According to Mr. Sosnovskiy, a threat or risk that pertains to potential acts of unlawful interference, such as the destruction of an aircraft in service, would trigger an assessment of aviation security threats and risks within AVSEC's mandate. If the threat pertains to potential hazards, whether organizational, environmental, human factor or technical, the assessment of aviation safety threats and risks would be performed within the mandate of the Flight Operations System.

[271] I note that Mr. Sosnovskiy gave evidence that a safety risk assessment relating to conflict zones would not be undertaken unless there was some kind of official recognition of armed conflict. That may have been UIA's practice, but I do not accept that it is what the industry standards required; it is inconsistent with, for example, para. 3.2.2 of ICAO 10084. As I have already noted, waiting for an official declaration that an airspace is a conflict zone before conducting safety risk assessments or implementing mitigating measures runs counter to the primary goal of protecting passengers, crew, and the public, which is the whole purpose of having security and safety risk assessments in the first place. To conclude an official declaration is needed elevates form over substance. Put more bluntly, the passengers and crew on a plane that find themselves flying through airspace where missiles are being launched do not care whether the airspace in question has been officially designated a conflict zone. They care about not being hit by the missiles.

[272] UIA's operation of a particular route falls within the ambit of the OCC, which has around-the-clock operational control over all flights planned in the 72-hour period prior to scheduled departure until completion.

[273] Twelve hours before the schedule departure of a planned flight, OCC is responsible to ensure, for example, that a commander of the flight (also called the pilot commander, or the pilot in charge) has been designated, a complete crew has been scheduled, and the aircraft is airworthy.

[274] The commander is the pilot designated by OCC to be responsible for the operation and safety of the aircraft, and has the final authority as to the operation of the aircraft. The commander must take all measures required for safety, whether the aircraft is on the ground or in flight. The commander has the ultimate responsibility and final authority to make decisions with respect to the operation of the flight.

[275] This structure is referred to as a “non-shared responsibility” model, where the commander is supported by flight dispatch and the OCC, neither of which have authority to overrule the final decision of the commander.

[276] Prior to the flight, the commander has responsibilities for flight preparation. These include pre-flight checks, a crew briefing, and review of an electronic briefing package.

[277] The electronic briefing package is designed to contain all available applicable and relevant aeronautical and meteorological information with respect to the flight, including applicable and relevant NOTAMs, Internal Notification to Crew (“INTAMs”), Snow Notices to Airmen (“SNOWTAMs”), runway and conditions, temperature, pressure reports, upper wind and aerodrome meteorological forecasts.

[278] UIA used a third-party service provider known as Jeppesen to prepare the electronic briefing package. Jeppesen would include only NOTAMs with a location designation along the route in the briefing package.

[279] If information in the briefing package raises a potential hazard that puts into question the safe operation of the flight, a safety risk assessment is done to determine whether the risk is significant enough to postpone or cancel the flight. The safety risk assessment is undertaken by those involved in the flight operations system, such as the flight dispatcher and OCC at the outset of flight preparation, or the commander with the support of the flight dispatcher and OCC.

[280] The commander also has a line of communication open to OCC or flight dispatch to report any information she observes on the ground, in the air, or on arrival at the airport. If such information pertains to threats related to the safe operation of a flight, a safety risks assessment is undertaken.

[281] According to Mr. Sosnovskyi, if AVSEC becomes aware of information that triggers the need for a security risk assessment, Flight Operations is only informed if AVSEC concludes the aviation security risk is unacceptable, and cancels the flight. Mr. Sosnovskyi gave evidence that neither Flight Operations nor the commander are trained to conduct security risks assessments, and thus could add nothing to the process of assessing security threats. He testified that they rely on AVSEC to do the job it is trained to do. In other words, despite the UIA manual, and other

industry documentation that require a safety risk assessment of hazards related to flying in or near conflict zones, in practice, UIA did not conduct any such safety risk assessment.

Risk Assessments Related to the Kyiv-Tehran Route

[282] I next turn to the specific risk assessments related to the Kyiv-Tehran route.

[283] Because each security threat risk assessment undertaken by UIA built on the previous one(s), it is necessary to begin with a discussion of the three previous security threat risk assessments undertaken of the route before January 8, 2020.

[284] An initial security risk assessment, of both IKA and the Kyiv-Tehran flight route, was undertaken by AVSEC prior to the commencement of the route. According to Mr. Martynenko, some of the factors AVSEC considered were:

- a. All States from and over which the route was to be operated were states party to the *Chicago Convention* and members of ICAO. In Mr. Martynenko's view, the states could thus be relied upon to conduct themselves in accordance with ICAO guidelines.
- b. Ukraine would conduct its own threat and risk assessment before granting approval to UIA to operate the route.

[285] In conducting its assessment, AVSEC reviewed available information from the SAAU with respect to the threats and risks to aviation security in regard to Iran and Türkiye, directives and notices issued by ICAO and IATA, among others, the existence of flight prohibitions or restrictions applicable to the route, aeronautical information publications ("AIPs") and aeronautical information circulators ("AICs") issued by or with the authority of the relevant states, CZIBs issued by or with the authority of relevant states and applicable to the route, NOTAMs issued by states applicable to the route, and information available from open sources including news media and risk websites.

[286] AVSEC concluded the aviation risks of the route were acceptable, particularly with the addition of mitigating steps including, of note:

- a. Instituting continual monitoring, going forward, of the security (military and political) situation at IKA, in Iran and in the region of states through/over which the route was to be operated. Mr. Martynenko explained that "continual" did not mean constant, but rather that AVSEC monitored open-source information daily but periodically;
- b. Instituting continual monitoring and following, going forward, of any incident related to the aviation security at IKA, in Iran and in the region of states through/over which the route was to be operated; and
- c. Ad hoc or random interviews of aircraft crew members with respect to their observations or knowledge of suspicious military activity at or around IKA.

[287] UIA obtained permission to operate the route from Ukraine, Türkiye, and Iran. Mr. Martynenko deposed that AVSEC understood that, by granting permission to UIA to operate the route, each state had conducted its own threats and risks assessment for the route. In his oral evidence, Mr. Martynenko insisted that Iran would not have given permission to UIA to fly a route that would take it close to high value, strategic or military targets.

[288] I note here that Mr. Martynenko was incorrect in this assumption. Open-source information from 2011 placed in evidence describes an arsenal explosion at the Alghadir missile base, located about 30 miles to the west of Tehran. Dr. Bronk noted in his evidence that the location of the SAM that shot down PS752 would have been near to the Alghadir missile base. UIA's flight route was thus also near to the Alghadir missile base, a fact that AVSEC could have learned had it sought out the information.

[289] Mr. Sosnovskyi deposed that, prior to the commencement of the route, ground operations and flight operations undertook an initial aviation safety risks assessment, which included assessing such factors as IKA's dimensions, availability of ground service facilities and immigration authorities, alternative airports, fuel calculations, climate and meteorological phenomena along the route, and the NOTAMs applicable and relevant to the route.

[290] UIA also undertook periodic security reviews of the operations at IKA between 2016 and 2019, none of which identified any concerns.

[291] A second risk assessment of the route was performed in June 2019, after AVSEC learned from media reports that Iran had shot down an American UAV. Mr. Martynenko explained that, based on statements in open-source information, AVSEC understood that the United States would not retaliate militarily against Iran for the strike because doing so would be disproportionate. He explained that AVSEC understood that historically, tensions between the United States and Iran were characterized by proportionate responses to actions taken by one or the other.

[292] In updating its security risk assessment for the route, AVSEC considered: whether any of Ukraine, Türkiye or Iran had issued restrictions or prohibitions on their airspace (they had not); that Iran had been audited by ICAO in 2018; information provided by crew members of aircraft operating the route as to their observations of operations at IKA; its past assessments of the security situation at IKA; NOTAMs, AIPs, AICs and CZIBs issued by Ukraine, Türkiye or Iran, and applicable to the route; the fact that the route operated on a repetitive flight plan authorized and approved by Iran; all flights operating the route and the flight path in and out of IKA would require approval and clearance from Iranian authorities, which, in AVSEC's understanding, included civilian and military authorities; the UIA airplane on the route was a Boeing 737 which would be known to Iranian authorities, and was equipped with transponders; the shootdown of the UAV occurred 1200 km from IKA and even further from the flight path of the route; the Iranian military was a sophisticated organization; the American presence in the Persian Gulf was long-standing, and the American military was sophisticated; IKA is an international airport that operates solely in the realm of civil aviation; a commercial airliner would not be a potential target of a US military reaction to the shootdown of the UAV; and any American response to the shootdown would be proportionate.

[293] On June 21, 2019, UIA was asked by a reporter about a NOTAM issued by the FAA on that same day, prohibiting all aircraft operators from operating flights in the overwater area of the Tehran FIR only above the Persian Gulf and Gulf of Oman. The June 2019 NOTAM did not come to UIA's attention through its usual monitoring sources.

[294] Mr. Martynenko explained that the US NOTAM would not have come to UIA's attention because it bore the location indicator KICZ, which was not designated to the Tehran FIR and was not related to any of the stages of the route. Moreover, it applied only to US aircraft operators, and airlines flying code share flights with American operators, and thus did not bind UIA.

[295] The June 2019 NOTAM could not have borne a location indicator designated to the Tehran FIR because only the states with territorial control over airspace may issue NOTAMs with respect to that airspace. That is why it bore the identifier KICZ, which I have already explained, denotes a conflict zone with a ghost location.

[296] Given that UIA had received a copy of the June 2019 NOTAM, AVSEC considered it and confirmed it had no applicability to the route, as the UIA route did not operate in the overwater area above the Persian Gulf and the Gulf of Oman. Mr. Martynenko said the NOTAM did not provide UIA with any new information which could be related to the types or levels of threats in the region.

[297] AVSEC concluded that the risk of misidentification of UIA's aircraft by either Iran or the United States was low or minimal. It concluded that the aviation security risks were acceptable with the measures already in place and with additional risk mitigation steps:

- a. Standardizing the information gathering and interviewing of crew members, and implementing interviews after each flight from IKA; and
- b. Increasing the intensity and level of monitoring of the military and political situation at IKA, in Iran, in Türkiye and in Ukraine.

[298] The killing of General Soleimani in Baghdad on Friday January 3, 2020 was a major event. After the killing of General Soleimani, Iran's Supreme Leader Khamenei vowed to retaliate for the murder, and Iran publicly indicated it was assessing thirteen options for retaliation. At the same time, then-President Trump vowed to retaliate for any Iranian response.

[299] Mr. Blakyta, the only AVSEC member proficient in English, monitored English language open sources. According to Mr. Martynenko, by January 6, 2020, AVSEC had concluded from its ongoing monitoring of sources that the degree of tension between the United States and Iran had risen so much that a threat from Iran was real, and required an updated security risk assessment.

[300] To undertake this risk assessment, Mr. Martynenko, Mr. Bobrovnyk and Mr. Blakyta met during the course of their regular working day on January 6, 2020 to review the information AVSEC had obtained and the sources it had monitored since January 3, 2020.

[301] Those sources are set out in a document that AVSEC prepared for its counsel that was entered into evidence (without any objection). Mr. Blakyta participated in its preparation and noted the open-source information UIA used to monitor the situation in Iran between January 3, 2020 and January 6, 2020. These included CNN, the Washington Post, the BBC, the Daily Mail, Al Jazeera, www.controlrisks.com, www.safeairspace.net, UNN, Fars News, www.easa.europa.eu, <https://ops.group/story> and Osprey Flight Solutions.

[302] In the course of this security risk assessment, AVSEC considered: the factors from its previous risk assessments; media reports which showed an increase in tensions between Iran and the United States; the distance from IKA to Baghdad (900 km by road, and 695 km by air); the route did not operate in Iraqi airspace or near the Iraqi border; IKA was operating in the usual course; no crew members reported observation of suspicious military activity at IKA or in the surrounding area; the commercial airlines that typically operated scheduled flights into and out of IKA were, to UIA's knowledge, operating in the usual course; UIA understood each of these airlines conducted their own security threats and risks assessment, and so UIA concluded that the other airlines deemed the security risks acceptable; information from the ControlRisks Middle East Riskmap 2020 indicating the security risk forecast for Iran was moderate and the political risk forecast was high, in keeping with the usual course in respect of Iran, and consistent with the 2019 forecast; and potential targets of an Iranian military response to the killing of General Soleimani would be outside of Iran and far from IKA.

[303] As a result, AVSEC concluded that the risk of misidentification to UIA's aircraft was low or minimal. Using the framework and methodology set out in UIA's aviation security risk management program, AVSEC documented its conclusions on a certificate on assessment of threats and risks to security of the route and IKA. Although it understood that the tensions between Iran and the United States had heightened, AVSEC concluded that, in view of the totality of the factors it considered, the increase in tension did not provide sufficient grounds for stopping the route.

[304] AVSEC documented, with respect to a threat of the use of SAMs, that:

- a. the probability level was medium-low, meaning there are no, or no recent, examples, but some evidence of intent, yet with a method apparently not sufficiently developed for a successful attack scenario or probably superseded by other forms of attack;
- b. the level of implications was high, meaning that were the risk to come to pass, there would be hundreds of deaths, billions of dollars in economic loss, and severe disruption to services and confidence in the aviation system;
- c. the level of vulnerability was medium, meaning that some of the following features are present: mitigation has a limited scope, or mitigating measures are generally in place, but they may be immature or only partially effective;
- d. the risk category was medium-low, with the mitigation measures already in place.

[305] As such, AVSEC concluded that the risk was acceptable.

[306] I note that the analysis for probability of the security threat risk, focusing as it does on intent, is misaligned with the concern that an aircraft may become a target of a SAM through miscommunication, misidentification or miscalculation. This is despite the fact that unintentional shoot-down is a risk identified in ICAO 10084. The misalignment is both a feature of the nature of the security risk analysis iterated by ICAO, and another factor that supports the need for a complementary safety risk assessment. However, no safety risk assessment with respect to a flight in or near a conflict zone was done on January 6, 2020.

[307] According to Mr. Martynenko, after the January 6, 2020 security threat risk assessment, AVSEC continued to monitor the security situation in Iran with an increased intensity and level of monitoring.

The Risk Assessment on January 8, 2020

[308] Recall that January 7, 2020 was Orthodox Christmas in Ukraine. Mr. Martynenko was on duty beginning in the evening of January 7, 2020, while Mr. Blakyta and Mr. Bobrovnyk spent the holiday with their families. Knowing he would need to be awake overnight, as PS752 was scheduled to depart in the middle of the night Kyiv time, Mr. Martynenko took a two-hour nap on the afternoon of January 7, 2020.

[309] Mr. Martynenko testified that, before he came on duty on January 7, 2020, flight operations personnel had been instructed to monitor media sources, and Mr. Blakyta had agreed to keep monitoring media sources from home while Mr. Martynenko spent time with his family earlier in the day.

[310] At 8 p.m. on January 7, 2020, Mr. Martynenko received a report from the personnel in the Kyiv airport at the time of their shift change, and began to monitor media sources. He indicated that he was confident that any official information that arose (NOTAMs, AIPs, AICs and CZIBs) issued with the authority of Ukraine, Türkiye, or Iran would be communicated to him by OCC.

[311] No one other than Mr. Martynenko was monitoring for security threat risk information at that time. OCC, which had apparently been monitoring unofficial and official sources of information during the day on January 7, 2020, was not monitoring any sources of unofficial information in the evening and overnight. OCC did not even learn about the ballistic missile attack on Iraqi bases until after PS752 had been shot down.

[312] The ballistic missile attack launched by Iran commenced at around 1:30 a.m. Tehran time, which is midnight in Kyiv. Mr. Martynenko could not recall exactly when he became aware of it, but deposed that it would have been sometime between 2:00 a.m. and 3:15 a.m. in Kyiv, or about two to three hours after the attack. Although he was monitoring for the very type of risk that materialized, it took at least two hours after the attack began for him to learn about it. The BBC, one of the sources Mr. Blakyta had monitored in the days prior, began reporting on the missile strike 23 minutes after it began.

[313] Mr. Martynenko monitored Russian and Ukrainian language news sites. He also saw some CNN reports, but it is unclear whether that is because he went to the CNN site and used Google translate, or whether he went to a site that republished the CNN reports.

[314] As a result of his monitoring, Mr. Martynenko learned that Iran had launched missiles at Iraqi military bases housing American personnel in the area of Erbil, Iraq, and the Ain al-Asad air base in Western Iraq. He learned that the missiles were likely launched from the Kermanshah province of Iran.

[315] According to Mr. Martynenko, he understood that there were no reported American casualties. However, initial media reports about casualties were inconsistent, and in any event, unclear in the hours immediately after the ballistic missile attacks.

[316] Mr. Martynenko also testified that he understood that Iraqi military bases had been warned by Iran in advance of the launch of the missiles. He did not recall where he saw those early reports. In cross-examination, Dr. Wallace confirmed that while he was aware of reports that Iran had warned Iraq about the incoming missiles, he was not aware of any reports that Iran had given warnings to American authorities about the incoming attack. When asked whether it was reasonable to believe that Iraq would pass the warning onto American troops, Dr. Wallace said it was not. He noted the then-existing tensions between Iraq and the United States, which had just assassinated a foreign government leader on Iraqi soil, along with a number of Iraqis. Iraq was, Dr. Wallace described, very upset about the American failure to respect its territorial sovereignty.

[317] Mr. Martynenko stated that, after the initial reports of the ballistic missile strikes, there were no media reports of any further or subsequent military action by either Iran or the United States.

[318] Mr. Martynenko testified that, given what he had learned, he determined it was necessary to update the security threat risk assessment for PS752, and that he began to do so at around 3:00 a.m. Kyiv time.

[319] Mr. Martynenko was the only person involved in the security risk assessment on January 8, 2020. He did not contact any colleagues in AVSEC, including Mr. Blakyta, who could have assisted with monitoring English language news sites. These sites had information available faster than did the Ukrainian and Russian websites. Mr. Martynenko did not contact anyone in Flight Operations to conduct a hazard identification and safety review. He did not contact the commander of the aircraft.

[320] Mr. Martynenko deposed that he began with the security risk assessment documented in the certificate dated January 6, 2020. He considered all the factors he and his colleagues considered on January 6, 2020, and additionally he considered that:

- a. PS751 had landed as scheduled and was on the ground at IKA prepared for its scheduled departure until ultimately cleared for take-off by Iranian authorities;

- b. There was no information from the commander of PS751 and PS752 or any crew members of anything other than normal and usual operations at IKA;
- c. No official information, such as a NOTAM, had been provided by Iranian authorities in relation to civil aviation or noting that Iran had placed its military on high alert at IKA or elsewhere;
- d. To his knowledge, commercial airlines were continuing to operate in and out of IKA in the usual course, and he expected each airline would have conducted their own aviation security threats and risks assessments and had concluded that the risk of flying were acceptable;
- e. No NOTAM, AIP, AIC or CZIB issued by Ukraine, Türkiye, or Iran revealed any prohibitions or restrictions on the airspace through which the route would fly;
- f. The missiles had been launched from Kermanshah, which is 420 km from IKA;
- g. IKA was 840 km and 670 km from the targets of Iran's ballistic missile launch;
- h. The route of PS752 did not fly through the airspace of Iraq, but far from it, and further still from the targets of Iran's ballistic missile launch;
- i. Any American response to the missile attack would be proportionate and likely with advance warning to Iran;
- j. Potential targets of a US military response would seek to avoid civilian consequences, civilian aircraft would not be targeted, and targets would likely be the Iranian missile batteries that launched the missiles on January 8, 2020;
- k. PS752's flight plan had been approved by Iranian authorities and was expected to be cleared for take-off by Iranian authorities, which included civilian and military authorities.

[321] Mr. Martynenko deposed that, on January 6, 2020, AVSEC had considered possible retaliatory actions that Iran might take, and the missile strikes it launched on January 8, 2020 were not as significant as other possibilities AVSEC had considered. There is no evidence about what other retaliatory actions AVSEC had considered.

[322] Mr. Martynenko acknowledged that the events and early media reports indicated a further increase or escalation in temperature of the tensions between Iran and the United States.

[323] Mr. Martynenko concluded that the risk of continuing the operation of the route was acceptable.

[324] Mr. Martynenko documented his risk assessment later in the day on January 8, 2020, after PS752 had been shot down. In the certificate dated January 8, 2020, Mr. Martynenko recorded:

- a. The threat of SAMs was of medium probability, which was an increase from the medium-low assessment of January 6, 2020;
- b. The threat of SAMs had a high level of implications, unchanged from the assessment on January 6, 2020;
- c. The level of vulnerability from the threat of SAMs was medium, unchanged from the assessment on January 6, 2020;
- d. The risk category was medium, an increase from the medium-low assessment on January 6, 2020;
- e. The risk acceptance criteria remained acceptable, as it had been assessed on January 6, 2020.

[325] There was other information publicly available, and free, that Mr. Martynenko could have accessed, but did not, in the course of conducting his risk assessment on January 8, 2020.

The FAA NOTAM

[326] At 00:07 UTC on January 8, 2020, the FAA issued a conflict zone NOTAM prohibiting US registered aircraft from entering Iranian airspace “due to heightened military activities and increased political tensions in the middle east, which present an inadvertent risk to US civil aviation operations due to the potential for miscalculation or mis-identification.”

[327] An FAA NOTAM can be publicly accessed in a number of ways. There is no dispute that, were Mr. Martynenko to have searched to see if the FAA had issued a NOTAM, he could have found it. But despite knowing the FAA had issued a NOTAM after the shoot-down of the American UAV in June 2019, and knowing the FAA is an organ of one of the two governments that was party to the ongoing conflict, he did not look to see if the FAA had issued a NOTAM.

[328] At 3:45 am Kyiv time, CNN made a post on Twitter stating that the FAA had issued a restriction on flights in Iran, Iraq, the Persian Gulf, and the Gulf of Oman. Although Mr. Martynenko was monitoring internet sources, and stated that he had seen some information from CNN, he did not see any information from CNN about the FAA NOTAM.

[329] Mr. Martynenko testified that, even if had seen the NOTAM, it would not have changed his assessment, because he considered the risks of misidentification in his assessment. I note, however, that Mr. Martynenko also maintained that the risk of misidentification was higher for American operators than it would be for others, like UIA. I disagree with this assessment. It is illogical. The risk to American operators would likely be different than to other operators if the threat at issue was intentional targeting of civilian flights. But by its nature, miscalculation and mis-identification involve unintentional targeting, a risk that affects all civilian aircraft in the airspace equally.

Osprey Flight Solutions

[330] Osprey Flight Solutions is, as I have noted, a commercial service provider that provides specialized risk assessment advice to the global aviation industry with a particular focus on the risks of operation in or near conflict zones. In January 2020, Osprey maintained a public Twitter (as it was then known) feed and a website that had some public information on it. It also maintained a free email service to which anyone could subscribe to get the full text of Osprey's alerts by emails. In addition, it provided paid subscription services. UIA did not subscribe to Osprey's services, but it did monitor Osprey's website between January 3 and January 6, 2020.

[331] Osprey was founded in 2017 by three individuals, one of whom, David Nicholson¹⁵, gave evidence at trial.

[332] Osprey developed proprietary software, based on the peer-reviewed master's thesis of one of its founders, to gather intelligence from open sources on potential risk to aviation across the globe. By January 2020, Osprey was on its third iteration of the software platform.

[333] Osprey's software gathers information from over 200,000 sources in 65 different languages across a broad spectrum of sources including social media, government websites, intelligence, data providers, and media. It scrapes the sources every 15 minutes, and gathers about 1.5 million data points daily. The software filters the data for relevance, geolocates incidents, and date-stamps and categorizes incidents into 80 different subtypes. It is designed to insure cross-verification of information and avoid single source reports, or circular reports where the same information is reported repeatedly. The data is then sent to a human analyst for quality control. Once quality controlled by a person, the information goes into Osprey's database as a verified ping. The database creates a digital model of aviation security risk, and has artificial intelligence capabilities.

[334] Forecasts go out daily. Analysts create notification alerts to notify recipients of incidents that have a significant impact on aviation. Osprey scores potential concerns using four categories of risk, each of which includes five criteria. The numerical score is converted into a risk description ranging from incidental to extreme.

¹⁵ Mr. Nicholson is an engineer who served in the UK Armed Forces for 12 years, the last six of which were as a member of the Special Forces. He had a number of tours of duty in conflict regions including Iraq and Afghanistan. Following his retirement, he joined a maritime security firm, where a significant portion of his work included assessing security issues in high threat areas marked by conflict, and in engaging with government and regulatory authorities. He subsequently joined International SOS and Control Risks as Global Security Director for Aviation and Maritime where he headed up the aviation security team. After the downing of MH17, Mr. Nicholson formed the view that there were serious gaps in the aviation industry's approach to operations in or near conflict zones. He concluded there was a need for more sophisticated, data driven risk assessment tools to assess the risk to civilian aviation operations in areas marked by conflict. The co-founders of Osprey have equally impressive experience, including as in the field of intelligence, terrorism studies, and aviation analysis.

[335] Osprey assessed airspace over Iran to be low risk at all altitudes at the beginning of 2019. In June 2019, Osprey raised its risk level of Iranian airspace to moderate at all altitudes due to the increase in conventional military activity in the region.

[336] On June 13, 2019, after Iran shot down the American UAV, Osprey raised its risk rating for southern Iranian airspace from moderate to high at all altitudes. Then, on September 14, 2019, following Iranian cruise missile and drone strikes on Saudi Arabian oil facilities, Osprey raised its risk rating for all Iranian airspace at all altitudes to high.

[337] Throughout 2019 and January 2020, Osprey issued a total of 83 alerts for events in the Gulf region that included Iran. Osprey's risk assessment of operating in Iranian airspace took into account key events, and factors including, by way of example only:

- a. The United States pulling out of the JCPOA nuclear deal with Iran;
- b. The downing of the American UAV by Iran in June 2019;
- c. The assassination of General Soleimani;
- d. Iran's history of not issuing notice of activities that could affect flight safety;
- e. Iran's aggressive shoot-down policy, which, though unlikely to target civilian flights, in Osprey's assessment significantly increases the risk to civilian aircraft of misidentification or miscommunication during times of military conflict or rising tensions;
- f. Osprey's view that Iran's military command and control structure, is complicated and increases the risk of errors and misadventure;
- g. The escalating conflict between Iran and the United States, each of which had at their disposal a large range of weapons including long range ballistic missiles and short-range ballistic missiles ("SRBMs"). In Osprey's view, it was not possible to reliably predict when or where attacks would take place.

[338] On January 7, 2020, at 22:30 UTC, after the ballistic missile attack, Osprey raised its risk assessment of Iranian airspace to extreme, and immediately pushed its assessment out to its clients via its risk assessment reporting products.

[339] At 00:47 UTC, just around the time Mr. Martynenko was commencing his security threat risk assessment, Osprey issued its increased risk assessment to the public via Twitter and its email subscription service. The Twitter post said: "Iraq – Iran conducts ballistic missile strikes against US military targets, defer all flight over Iraq & Iran."

[340] The email provided information about the Iranian ballistic missile strikes, indicating that the US Department of Defence confirmed that Iran launched more than 12 SRBMs at the Iraqi targets, and no information had been verified with respect to casualties, however:

details are still emerging as the situation remains fluid and subject to change. Additional SRBM launches from Iran into Iraq targeting locations where US military advisers are present could occur within the next 12-24 hours without notice.

[341] Osprey's analysis of the security situation included the following:

The US is likely to respond to the reported SRBM attacks into Iraq with strikes against military-centric targets in Iran within the next 72-96 hours. Follow-on Iranian ballistic and/or cruise missile as well as drone strikes against US interests in the Middle East region would become a credible scenario depending on the scale and severity of any US strikes. ...

Risk area recommendation: Defer all flights subject to an operation specific risk assessment.

[342] Osprey's advice in the email included ensuring crews scheduled to operate to or over the country in the near term were fully aware of the latest security situation.

[343] Osprey also commented on Iran's shoot-down policy as follows:

The country has an aggressive air intercept and shoot-down policy which allows air and air defence forces to intercept and disable aerial targets violating airspace regulations. Military air and air defence assets may be employed to down aerial targets under the auspice of the policy. While legal civil aviation flights are unlikely to be directly targeted, there remains a latent but credible risk of misidentification and interception by military air and air defence assets.

[344] The Osprey alert also indicated that Iran "has a history of not issuing adequate notice of activities in its airspace that could affect flight safety".

[345] Osprey received the FAA Notam when it was first issued through the FAA's distribution system. The NOTAM was published through FAA's email system and prohibitions page (which is publicly available) at 00:57 UTC, right around when Mr. Martynenko was beginning his security threat risk assessment.

[346] The FAA NOTAM restricting flight was consistent with Osprey's assessment. Given the nature of the threat disclosed in the FAA NOTAM (miscalculation or mis-identification), there was nothing to suggest to Osprey that the risk was confined to American operators only. The FAA NOTAM was directed at American operators and airlines operating codeshare flights with American operators in the region because those were the limits of the FAA's jurisdiction, not because the risk was not present for other civil aviation operators in the region.

[347] Osprey issued a second advisory at 1:32 UTC on January 8, 2020, while Mr. Martynenko would have been actively conducting the security threat risk assessment, in which it advised that the FAA had issued the NOTAM prohibiting US civil aviation operations over Iraq, Iran, the Persian Gulf, and the Gulf of Oman. It repeated that additional SRBM launches from Iran into

Iraq could occur within the next 12-24 hours and that the United States was expected to respond within the next 72-96 hours.

[348] Osprey repeated its risk recommendation: Defer all flights subject to an operation specific assessment. It also repeated its advice to ensure crews scheduled to operate to or over the country in the near term are fully aware of the latest security situation.

[349] Osprey repeated its assessment of Iran's aggressive shoot-down policy, and the "latent but credible risk of misidentification and interception by military air and air defence assets". It repeated that Iran has a history of not issuing adequate notice of activities in its airspace that could affect flight safety.

[350] Although AVSEC had monitored Osprey's publicly available information about the security situation in Iran between January 3 and 6, 2020, Mr. Martynenko did not access that information on January 8, 2020.

[351] Mr. Martynenko indicated that, even had he been aware of the Osprey risk rating, he did what it indicated he ought to do, that is, conduct an operation specific risk assessment, and consider the risk of misidentification or miscalculation. Mr. Nicholson testified that recommending an operation specific risk assessment is a phrase Osprey uses recognizing that some of its clients, such as the Red Cross, must fly into high-risk environments. He was also clear in his evidence that Osprey is not a decisionmaker for civil aviation operators, but rather provides input for decisionmakers to use when determining the risks to their aviation.

Did the risk assessment of January 8, 2020 meet the standard of care?

[352] In my view, the risk assessment conducted on January 8, 2020 failed to meet the standard of care required of UIA and its employees in a number of ways, which I describe below.

Lack of Information and Analytical Failings

[353] Although gathering and continuing to gather relevant information is the cornerstone of a competent security threat risk assessment, UIA had neither set itself up to have the required information on January 8, 2020, nor did Mr. Martynenko acquire that information on January 8, 2020. Without information that was reliable in breadth and in depth, the analytical process of the security threat risk assessment was necessarily diminished.

[354] As I described earlier, ICAO 10084 sets out key risk factors to consider when flying over or near conflict zones where it may be assumed that SAMs are available to a party engaged in the conflict. There is no evidence that Mr. Martynenko considered any one of those factors.

[355] In particular, there is no evidence that he considered the use of military aircraft in a combat role or for hostile reconnaissance by at least one party in the conflict, although he was aware that Iran had used SAMs to attack an American UAV about six months before.

[356] Nor is there any evidence that he considered the likelihood of the use of aircraft to transport ground troops or military equipment by at least one party, although on January 6, 2020,

it was reported that six American bombers were being repositioned for possible operations in Iran, if ordered.

[357] Crucially in my view, there is no evidence that Mr. Martynenko considered whether UIA's flight route passed over or close to locations or assets of high strategic importance that might have been considered vulnerable to aerial attack in a conflict situation.

[358] Mr. Martynenko acknowledged that he did not have any information about whether there were SAM missile crews along the flight route, or how well-trained they were. He did not know about the Iranian military structure. He admitted that he did not know if Iran had an aggressive shoot-down policy. He did not know PS752's flight route passed close to an Iranian missile base. And Mr. Martynenko did not attempt to access the broader swath of sources of information recommended in ICAO 10084 that would have shed light on these matters.

[359] Although there was open-source information available, at no time did UIA or Mr. Martynenko try to find it. Had he done so, he would have learned from that open-source information that commanders in Iran's dual military structure may delegate authority to shoot down in times of crisis, which can lead to complications and mistakes. He would have learned that Iran has an aggressive shoot-down policy. He would have learned that UIA's flight route passed close to Alghadir missile base.

[360] The thread running through the informational failures of January 8, 2020 is Mr. Martynenko's assumptions, which served to facilitate his confirmation bias, and reveal UIA's lackadaisical approach to security.

[361] Mr. Martynenko assumed that the state of Ukraine would have done its own security threat risk assessment, and if it had information relevant to the security situation in Iran, it would have advised him. As a result, he saw no need to contact state authorities. He had no information to support this assumption. Moreover, it was Orthodox Christmas. A telephone call to the SAAU would have ensured that the SAAU had not missed relevant information due to the holiday that was important to a risk assessment for PS752.

[362] Mr. Martynenko assumed that, if the commander or flight crew had any relevant information, they would contact him or OCC, and that their failure to do so suggested there was no issue on the ground at or near IKA. There was no basis for this assumption either. The flight crew had spent a few hours to rest late at night in a hotel without news in a language they could understand. Their opportunity to make any observations was limited. And if they had made any relevant observations, it was entirely possible that they were without crucial context to understand the import of the observations they had made such that the importance of such observations was not apparent to them.

[363] Mr. Martynenko assumed that Iran would not have given permission for UIA to follow a flight route that flew over or near a military facility, although he acknowledged that were he aware of a military base near IKA it would have impacted his final risk assessment. As we know, there was open-source information available that disclosed the presence of Alghadir military

base close to IKA from at least 2011, but AVSEC did not take steps to find that information at any time.

[364] Mr. Martynenko assumed that Iran would abide by its international obligations and issue a NOTAM or close its airspace if there were risk to civil aviation within it. This assumption is belied by the fact that Iran launched ballistic missiles on the same day through airspace through which civil aviation also flies without issuing a NOTAM or closing its airspace. And to Mr. Martynenko's knowledge, it had done so in the past, for example, when it shot down the American UAV in June 2019. Moreover, the Osprey flight alert made reference to Iran having a history of not issuing adequate notice of circumstances or events in its airspace that could impact flight safety, but Mr. Martynenko did not know that because he did not look for it.

[365] I note too that Mr. Martynenko acknowledged in cross-examination that there was a lack of transparency with respect to Iran and its affairs. He had no basis to conclude that Iran would comply with its obligations to issue a NOTAM or close its airspace on January 8, 2020.

[366] ICAO 10084 and ICAO 8973 also make clear that an operator must conduct a security threat risk assessment even if the state whose airspace is at issue has not issued a NOTAM.

[367] Moreover, Mr. Martynenko did not consider the fact that if Iran were to use a SAM defensively, it would not have the time to issue a NOTAM or close its airspace.

[368] Because a number of airlines continued to take-off from, or land at, IKA or overfly Tehran FIR between the launch of the ballistic missiles and the shoot-down of PS752, Mr. Martynenko assumed that other airlines had conducted a security threat risk assessment and decided the risks of flying into and out of IKA were acceptable. He had absolutely no evidence to back up this assumption. Mr. Martynenko did not contact any other airlines at any time.

[369] The question of the behaviour of other airlines requires some analysis.

[370] First, of the flights that arrived at IKA after the ballistic missile attack, but before the shoot-down of PS752, eleven landed before the Osprey advisory was issued, seven of which landed before the FAA NOTAM was issued. Three more landed after the Osprey advisory. An additional flight landed within minutes of the shoot-down. It is unclear what warnings or information the other airlines had accessed during this time, or the basis on which they made those decisions.

[371] Mr. Gillespie testified that, were he an airline captain who was made aware that missiles had been launched in nearby airspace, he might continue to land. Mr. Nicholson also testified that rerouting aircraft could be more dangerous than landing. This makes sense for several reasons. First, in a situation when missiles might be flying, one would want to be out of range of the missiles as soon as possible to minimize risk. Second, a plane on a regularly scheduled flight to IKA would have other considerations, including where to divert to, and what hazards or risks an alternate route would present, including whether there was sufficient fuel on board to get to the alternate airport safely. While a regular pre-flight safety risk assessment includes identifying alternate airports to which a flight can divert if necessary, there is no evidence as to whether the

airlines that landed at IKA had identified alternate airports that were in locations more dangerous than IKA, given the then-current unfolding state of affairs.

[372] Of the eight flights that departed IKA on January 8, 2020 prior to the shoot-down of PS752, two departed prior to the issuance of the FAA NOTAM. One departed minutes after the Osprey alert was issued. Four of the airlines that departed IKA subscribed to Osprey's email service, but there was no evidence as to which department in the airline received the alert email, nor what use, if any, they made of it.

[373] Moreover, there is evidence in the record from Alec Moffat¹⁶, who was offered as an expert in aviation forensics and investigations, to indicate that certain airlines altered their behaviour in the days after January 3, 2020, up to and including January 8, 2020. For example:

- a. Singapore Airlines began avoiding Iranian airspace as of January 6, 2020, consistent with reports that it had diverted flights due to developments in the region;
- b. Two British Airways flights made abrupt course changes between 01:17 UTC and 01:47 UTC and diverted to Istanbul. A third British Airways flight made a circling course change over Kuwait at approximately 01:25 UTC before heading west over Saudi Arabia.

[374] I note that there is no evidence in the record that is not hearsay as to why these airlines altered their behaviour.

¹⁶ Mr. Moffat currently holds the position of President and Director of Investigations with RJ Waldron, an aviation forensics firm. He has conducted over 700 investigations into aviation accidents, incidents and aircraft system failures worldwide, including on-site investigations, accident reconstruction and laboratory examinations. Mr. Moffat is also an instructor with the Southern California Safety Institute specializing in the Accident Investigation Course, and Aircraft Fire and Explosion Course, among others. He has previously held positions as an accident investigator with the Transportation Safety Board of Canada, as an instructor for the Avionics Technology Program at the British Columbia Institute of Technology and as a technical instructor and course developer for Air Canada and Canadian Airlines. He is a full member of the International Society of Air Safety Investigations. He has acted as an expert witness in numerous cases. I noted on review of Mr. Moffat's evidence as I prepared my reasons that I did not at the time of trial qualify him as an expert. It appears that I, and counsel, carried on with his evidence, offered as an expert, inadvertently, and because there was no objection with respect to his qualifications. To dispel any doubt, Mr. Moffat is a properly qualified expert to give evidence with respect to the questions he was asked to opine on: (i) whether reliable flight data is available to determine if any of a number of airlines re-routed flights to avoid Iranian airspace prior to the downing of PS752, (ii) whether any other air carrier felt that the situation prior to the departure of PS752 defined the entire Tehran FIT as a conflict zone. Moreover, the evidence he offered was both relevant and necessary to my determinations. I conclude that the two-stage analysis in *Mohan* is made out and qualify Mr. Moffat as an expert on aviation forensics and investigation.

[375] The June 2021 DSB report, which the parties have agreed may be admitted for proof of the truth of its contents, indicates that KLM became aware of the FAA NOTAM on January 8, 2020. It consulted open sources and the Netherlands Defence Intelligence and Security Service. A decision was taken less than an hour later to stop flying over Iran and Iraq, because “missiles had been fired and further unforeseen events might occur”. The decision to stop flying was taken one and a half hours before PS752 was shot down.

[376] The Canadian report, “Flight PS752: The Long Road to Transparency, Accountability and Justice”, which the parties have agreed may be admitted for proof of the truth of its contents, indicates that, on January 7, 2020, Canadian aviation authorities became aware that Iran launched a missile strike, and that there was the possibility of further military action. Canadian aviation authorities spoke to their American counterparts and were advised that the FAA was in the process of issuing a NOTAM directing American airlines not to fly into the airspace of Iran or Iraq. Transport Canada officials then reached out to Air Canada, the only Canadian airline that operates in the Middle East, and received confirmation from Air Canada officials that they were already taking action to divert their flights away from the danger zone.

[377] There thus is evidence in the record that KLM and Air Canada altered their flight paths because of their unfavourable risk assessment with respect to flights over Iran and Iraq.

[378] Mr. Gillespie also gave evidence that the fact that other airlines are operating does not indicate that it is safe to do so, without liaising with them to determine on what basis they are conducting operations.

[379] Mr. Martynenko’s assumption that other airlines had judged the security risk of flying in Iranian and Iraqi airspace to be acceptable was wrong, at least with respect to some airlines, who had reached the opposite conclusion. And he had no basis to assume that those airlines that continued to operate in Tehran FIR had judged the risk of doing so to be acceptable, because he did not liaise with any other airline. There is absolutely no evidence on the record as to whether the airlines that continued to operate in Tehran FIR conducted any security threat risk assessment or safety assessment of doing so.

[380] Mr. Martynenko assumed the threat risk to PS752 lay in the potential American response to Iran’s ballistic missile attack. However, he had no basis to conclude that Iran would not launch further SRBMs. Nor did he consider whether Iran might respond to American retaliation, or perceived American retaliation, by engaging its air defence systems, an act which necessarily must be taken quickly, and under pressure, leading to an increased risk of misidentification and miscalculation.

[381] Mr. Martynenko assumed that any American retaliation against Iran for the ballistic missile strikes would have been against the source of the missiles, although that was inconsistent with the threats made by American government officials in the days before the ballistic missile strike Iran launched.

[382] Mr. Martynenko assumed that the American and Iranian militaries were sophisticated and would not target a civilian aircraft. However, as Dr. Bronk testified, deconfliction is a problem

for all militaries, even advanced ones. Dr. Bronk also testified that factors that may lead to misidentification resulting in friendly fire strikes have been researched and include stress, inadequate coordination, faulty information, reduced visibility, inadequate training, chaotic conditions, inexperience, psychological warfare, panic, carelessness and the necessity for split second decisions. Mr. Martynenko did not consider these factors, although at least some of them must have been present on January 8, 2020, including stress, chaotic conditions, and the necessity for split second decisions. Dr. Bronk also testified that the Iranian military was likely scared of being hit in a retaliatory American strike and that fear was compounded by the fear of failing to properly respond to a US strike if it did occur. Thus, the assumption that the Iranian and American militaries were sophisticated and would not target PS752 unintentionally had no factual foundation.

[383] Mr. Martynenko also assumed that the Iranian military would be involved in clearing PS752 for take-off. While the evidence suggests that there may have been some military involvement in clearing PS752 to take off, even assuming that to be true, there was no basis to conclude that as a result, PS752 would be safe, when deconfliction remains an ongoing problem for even sophisticated militaries.

[384] Mr. Martynenko did not check whether the FAA had issued a NOTAM. He assumed any FAA NOTAM would not apply to UIA and that there would be nothing relevant he could learn from an FAA NOTAM. However, he acknowledged that the FAA had significantly more resources, expertise, and information available to it, both in terms of quantity and quality, than UIA did. Moreover, as an American entity, it was attached to one of the two parties to the conflict that created the security risk he was assessing. It thus could be expected to have access to better, non-public, information, which ICAO 10084 identifies as being particularly valuable, and which could have been reflected in any NOTAM that it issued.

[385] In contrast, while denying the FAA NOTAM would have changed his risk assessment, Mr. Martynenko indicated that, had German authorities issued a NOTAM, he would have considered it on January 8, 2020 because Lufthansa at the time executed flights to Iran. It defies logic to think that German authorities would have had better information than the FAA. Mr. Martynenko had no basis to conclude that there would be nothing relevant from the FAA to assist with his security threat risk assessment on January 8, 2020.

[386] Notwithstanding that AVSEC had monitored Osprey's publicly available information between January 3, 2020 and January 6, 2020, Mr. Martynenko did not check to see if Osprey or any other private risk assessment service had released any advisories, although ICAO 10084 recommends that operators consider using such a service if they do not have access to sufficient information sources to make informed risk assessments. He assumed Osprey could offer no new information, and that his own monitoring of media would be as good as Osprey's. He ignored a free and available source of information that UIA had judged to be valuable just days before.

[387] Although the information from Osprey was in English, Mr. Martynenko could have readily accessed it and used Google translate, as he said he did with other English language sources of information, or he could have involved Mr. Blakyta to assist.

[388] Given the short time frame between PS752's scheduled take-off and when Mr. Martynenko learned about the ballistic missile launch on January 8, 2020, a source like Osprey would have had a far greater capability to assess available information than did one man, by himself in his home in the middle of the night, reading mostly Russian and Ukrainian language news sources which were slower to publish news than other sources. The circumstances that existed on January 8, 2020 made the recommendation in ICAO 10084 to access a service that provides risk assessments particularly apt.

[389] It would have cost Mr. Martynenko nothing to check to see what Osprey had concluded. Although UIA's position is that the Osprey alerts provided no new information, because Mr. Martynenko considered the risk of misidentification, the Osprey alert contained information that would have challenged at least some of the assumptions Mr. Martynenko made, or filled in gaps in his knowledge. For example, the Osprey alert included information about Iran's aggressive shoot-down policy, about which Mr. Martynenko stated he was not aware. The Osprey alert would have challenged Mr. Martynenko's illogical assumption that American aircraft were at greater risk of misidentification than other aircraft were. The Osprey alert would also have challenged Mr. Martynenko's assumption that he could rely on Iran to close its airspace or issue a NOTAM if it were aware of a risk in its airspace that could affect flight safety. It would have challenged his assumption that only some of the airspace in the region presented risk. Realizing that he was operating on assumptions that were not warranted should have led Mr. Martynenko to reevaluate his assumptions, and should have changed the quality of the security threat risk analysis that he was undertaking.

[390] ICAO 8973 highlights the importance of critical thinking, challenging other personnel and accepting being challenged when conducting aviation security threat risk assessments. Mr. Martynenko did not bring in any others to the security threat risk assessment he was undertaking, so no other person had the opportunity to challenge his assumptions. Osprey's alert could have offered a test of his assumptions, but he did not access it.

[391] The time pressure he was under is also relevant. While ICAO 8973 also highlights the importance of allowing the necessary time and making the necessary efforts to comply with security measures, even when under pressure, Mr. Martynenko did not decide to delay the flight to allow himself more time to complete the security threat risk assessment on a more thorough collection of information. Nor did he access Osprey or any other private risk assessment provider to gain access to a more robust collection of information.

[392] If there were any day that Mr. Martynenko should have looked to see what Osprey's assessment of the situation was, it was when he was by himself, at home, in the middle of the night, in the early morning hours after Orthodox Christmas, with a plane on the ground in Tehran scheduled to depart in perhaps as little as a half hour, having just learned that Iran had launched ballistic missiles at American troops in Iraq mere hours before, and being unable to read English language sources of information, which update faster than Ukrainian or Russian language sources. It is not best practice to have one person (untrained in safety risk assessments) making the decision as to whether the flight should be allowed to depart, be delayed, or be cancelled in such circumstances. To not involve others to help, to not take more time to gather information, and to not take advantage of the superior capabilities of Osprey or some other provider to

accumulate and analyze masses of information quickly to reach a recommendation and analysis that could have assisted UIA in its assessment process, was pure hubris.

[393] I conclude that UIA breached the standard of care by failing to consider, or even attempting to consider, the information identified by ICAO 10084, and failing to seek information from all the recommended sources.

[394] Mr. Martynenko assumed that the absence of information from sources like Iran, or Ukraine, or the commander, supported a decision to fly when in fact the absence of evidence burdened his security threat risk assessment with unwarranted assumptions and diminished the quality of the analysis. The quality of the analysis could only be as good as the quality of the information gathered; the analysis thus also fell below the standard of care.

Failure to Conduct a Hazard Identification and Safety Assessment

[395] By failing to contact anyone in flight operations or OCC to advise of the missile attack on Iraq from Iranian airspace, Mr. Martynenko ensured that no one at UIA could fulfil their obligation to conduct a hazard identification and safety risk assessment that was required when flying in or near a conflict zone.

[396] While I accept the evidence of UIA employees, Mr. Martynenko and Mr. Sosnovskyi, that they did not consider it necessary for a hazard identification and safety risk assessment to be undertaken, I have already explained why, in my view, industry standards and indeed UIA's own manual required exactly that.

[397] By failing to ensure a hazard identification and safety risk assessment was undertaken, UIA fell below the standard of care.

Failure to Communicate with the Commander

[398] There is also no question the commander of PS752 had the authority (as did Mr. Martynenko) to delay or cancel the flight. Annex 6 to the Convention on International Civil Aviation clearly identifies the commander as being in command and charged with the safe conduct of a flight.

[399] Although Mr. Martynenko denied that there was any reason for him to contact the commander of PS752, in July 2019, he had issued a memorandum entitled "Instructions for the Aviation Security Service personnel regarding Informing and interviewing crews on high-risk flights". Flights to and from the airports of the Middle East, such as the Kyiv-Tehran route, were identified in the memo to be high-risk flights, and as such the memorandum applied to the Kyiv-Tehran route.

[400] The memorandum includes the following direction:

During the preparation of flights with a high degree of risk, before the departure, aviation security service personnel must inform the flight crew about the specifics

of the flight and point out the issues that require increased attention from the crew, namely:

- The presence of suspicious persons near the aircraft or at the airport;
- The presence of armed persons directly at the airport or in the surrounding area;
- Suspicious activities at the airport
- The presence of military equipment directly at the airport or nearby territory;
- Availability of any information on military activities in the region of flights.

[401] This memorandum indicates that the commander ought to have been made aware of the presence of military equipment and the military activities ongoing in the region of IKA. This requirement is consistent with section 3.2.4 of ICAO 10084.

[402] On cross-examination, Mr. Martynenko testified that there were no military activities ongoing in Iran at the time PS752 was scheduled to take off. He denied that Iran having fired ballistic missiles was military activity, but said that American retaliation would have been. In my view, this is a poor effort at rationalizing what was going on during the early hours of January 8, 2020. It defies logic to suggest there were no military activities ongoing in the region of the flight. By Mr. Martynenko's own direction, the commander of PS752 ought to have been notified about what was going on.

[403] Furthermore, one of two of the mitigation measures put in place to lower the security threat risk to PS751 and PS752 was to obtain information from the UIA crew with respect to security. Yet in the midst of a significant escalation in military tension between the United States and Iran, with the UIA aircraft on the ground in Tehran, Mr. Martynenko decided it was not necessary to contact the commander.

[404] Moreover, Osprey's advice included that airlines ensure that the crew of any flight flying in Iran be fully briefed about the security situation. This is a sensible mitigation. While the commander is not trained to conduct security threat risk assessments, he and the crew was trained in security generally, and with information about the then-current security situation in Iran, observations that the crew might not have evaluated properly in an informational vacuum might have become important once they were fully briefed.

[405] By failing to contact the commander, Mr. Martynenko not only deprived himself of the opportunity to obtain potentially relevant information, but deprived the commander of the opportunity to make fully informed decisions when discharging his duty to ensure the safe operation of the flight. This is another way in which UIA's conduct fell below the standard of care.

Causation in Fact

[406] The parties agree that the appropriate test for determining causation in fact is the “but for” test; that is, but for the defendant’s negligent act, would the plaintiff’s damages have occurred? To find causation in fact, the defendant’s negligence must have been necessary to bring about the plaintiff’s injury: *Clements v. Clements*, 2012 SCC 332, at paras. 8 and 13.

[407] The “but for” test must be applied “in a robust common sense fashion”, with no need for “scientific evidence of the precise contribution the defendant’s negligence made to the injury”: *Clements*, at para. 9.

[408] The Court of Appeal has identified three steps in the process that a trier of fact uses to determine causation. The first is to determine what likely happened. The second is to consider what likely would have happened if the defendant had not breached the standard of care. The third step is to allocate fault among the negligent defendants (although, in the circumstances of this case, the third step is not relevant): *Sacks v. Ross*, 2017 ONCA 773, at para. 47. I note that there is no debate that Iran’s conduct was a but for cause of the plaintiffs’ loss. This analysis focuses on whether UIA’s conduct was also a but for cause.

[409] Although normally the plaintiff’s burden to prove causation in fact on a balance of probabilities, given the reverse onus, the burden here lies with UIA to disprove causation in fact.

[410] UIA argues that any breach of the standard of care was not a cause of the plaintiffs’ damages. It relies on the third report of the DSB, which, it argues, concluded that using the standard for risk assessment methodology described in ICAO 10084 prevailing at the time of the shoot-down of PS752, both states and airlines assessed the scenarios drawing uncertain threats with catastrophic consequences to civil aircraft as being unlikely, and concluded that continuing flights in Iranian airspace was acceptable. UIA argues that even absent a breach of the standard of care, under the prevailing standard for risk assessment methodology in ICAO 10084, UIA could and would have still arrived at the same conclusion that it was acceptable to continue the operation of PS752, just as a reasonable airline in similar circumstances would have done.

[411] The DSB, in its third report, noted that the increase in tensions in the Iran and Iraq region in the period January 2 – January 7, 2020 and the uncertainty about the development of the conflict situation did not lead to a noticeable change in flight behavior of the European Union airlines that it investigated. “Only after the risk level further increased due to the ballistic missile attacks in Iraq, the number of flights dropped clearly.”

[412] The DSB noted that in the timeframe between the missile attack and the shoot-down of PS752, 24 flights operated to or from IKA, of which two were EU airlines. In the same timeframe, 31 flights of EU airlines from eight different countries overflowed Iran or Iraq.

[413] The DSB report concluded that, despite indications of growing military tensions and the presence of missiles, neither states nor airlines took the decision to stop flying. The DSB considered it desirable to “further develop the risk assessment method for flying over and near

conflict zones, in which, based on the precautionary principle, greater weight should be given to uncertain but catastrophic scenarios”.

[414] The DSB found that the uncertain situation that emerges in any escalating conflict is still underestimated by all parties involved, and noted that this can be “explained by the fact that the likelihood of a threat occurring is given a considerable weighting in the risk assessment method employed”. It concluded that the risk assessment methods then-currently in use are insufficient in situations characterized by unpredictable conflict.

[415] The DSB recommended that, instead of considering the likelihood of a risk, the impact of the scenario based on the precautionary principle should be leading.

[416] The problem UIA faces is that the criticism of the DSB in its third report was principally directed at the fact that most airlines continued to operate in Iranian and Iraqi airspace in the time period between January 2 and January 7, 2020, and it was only after the ballistic missile strike that airlines began to alter their behaviour.

[417] The causation question would be of a different quality if I were charged with assessing UIA’s security threat risk assessment on January 6, 2020, but the assessment at issue is the one undertaken on January 8, 2020, after the ballistic missile strike.

[418] Moreover, the very first DSB report also addressed uncertainty in security threat risk assessments:

The Dutch Safety Board expects uncertainty to be the basic point of departure of the approach adopted by the parties. This means that the parties concerned shall remain constantly alert and receptive to signals that could indicate the inaccuracy or incompleteness of earlier assumptions. This requires them to be constantly vigilant with regard to risks and be prepared to question common assumptions.

[419] The first DSB report also recommended that ICAO and states amend their relevant standards and regulations such that “risk-increasing and uncertain factors” are included in risk assessments.

[420] I do not accept UIA’s argument that, on January 8, 2020, it applied the prevailing standard of risk assessment methodology, and would have reached the same conclusion in any event.

[421] It did not apply the prevailing standard of risk assessment methodology, in that it failed to collect or even attempt to collect the necessary information, including from the recommended sources, before assessing the security threat risk to PS752. It was not prepared to question its assumptions.

[422] Had it done so, it would have determined, as did KLM and Air Canada, and as did Osprey and the FAA, that the uncertainty of the risk of misidentification and miscalculation in Iranian airspace warranted that PS752 be, at the very least, delayed for a period of time to see

how the situation developed, in particular given the proximity of its flight route to the Alghadir missile base.

[423] This conclusion is consistent with the evidence of Mr. Edwards, who undertook his own security threat risk analysis. While necessarily completed after the shoot-down of PS752, Mr. Edwards conducted it based on the information that was available at the time Mr. Martynenko completed his security threat risk assessment, prior to the shoot-down of PS752.

[424] Mr. Martynenko and Mr. Edwards formulated their security threat risk matrices in different ways. While Mr. Martynenko considered the risk of SAMs having regard to their probability, implications, vulnerability and risk category, Mr. Edwards considered the likelihood, consequences, current mitigating measures, residual vulnerability, residual risk and possible additional mitigations of each of the five factors identified in ICAO 10084 as key factors affecting risk of SAMs.

[425] There was much debate about whose approach to the matrix was correct, but in my view, the focus on the chart itself is unhelpful. ICAO 10084 identifies the factors to be considered and sources of information to access. Unlike a safety risk assessment, there is no clear manner in which security threat risks should be documented, likely due to the often-sensitive nature of the information. The question is about how one performs the assessment, not how one records it.

[426] As I have noted, there is no evidence that Mr. Martynenko considered the five key threat scenarios that have the most impact on the assessment of the risk of SAMs.

[427] Mr. Edwards, however, did consider those factors. He noted that certain of those threats — use of military aircraft in a combat role or for hostile reconnaissance or use of missiles; misidentification of aircraft to transport ground troops of military equipment; and flight routing passes over or close to locations or assets of high strategic importance — had high likelihood and high consequences, but no current mitigating measures, and no possible mitigating measure apart from cancelling the flight.

[428] I conclude that, had Mr. Martynenko considered the five key factors from ICAO 10084, and had he obtained the relevant information that was easily available, he would have reached the same conclusion as Mr. Edwards.

[429] I also note Mr. Edwards' evidence that, even if Mr. Martynenko's January 8, 2020 assessment of the security threat risk of a SAM attack were correct, having raised the probability level of an attack to medium, and the risk category to medium, there can be no explanation for the risk acceptance criteria remaining unchanged at the lowest level of "acceptable". Even on his own analysis, he should have at least delayed the flight.

[430] I thus find that UIA has failed to prove that its breach of the standard of care was not a but for cause of the plaintiffs' damages.

[431] While I have focused above on the impact of the failure to conduct a security threat risk assessment, I note that UIA offered no evidence that a safety risk assessment would have supported a decision to fly; it maintained its position that no safety risk assessment was required.

[432] Nor did UIA offer any evidence that the flight would have departed had the commander of PS752 been advised of the situation. That is, perhaps, unknowable.

[433] Regardless, UIA has also failed to prove that a safety risk assessment would have yielded a conclusion that the risk to PS752 was acceptable, or that the flight would have taken off even if the commander was fully informed of the situation in Iran.

[434] These are additional reasons why UIA has failed to prove that its breach of the standard of care was not a but for cause of the plaintiffs' damages.

Remoteness

[435] A finding of negligence requires that the defendant's breach of duty must have caused the plaintiff's harm in law. The question is whether the harm is too unrelated to the wrongful conduct to hold the defendant fairly liable, or, put another way, whether plaintiff's harm is too remote to warrant recovery: *Mustapha*, at paras. 11-12.

[436] To determine whether the harm is foreseeable, and not too remote, the court applies the standard of the foresight of the reasonable person. The degree of probability to satisfy the reasonable foreseeability requirement is one which would occur to the mind of a reasonable person in the position of the defendant, and which they would not brush aside as far-fetched: *Mustapha*, at paras. 12-13.

[437] It is the general harm that must be reasonably foreseeable, and not its manner of incidence: *Bingley v. Morrison Fuels*, 2009 ONCA 319, at para. 24.

[438] While it is usually for the plaintiff to prove causation at law on a balance of probabilities, in this case due to the reverse onus that applies, it is the defendant's burden to prove that the injury is too remote to warrant recovery.

[439] UIA argues that the degree of probability of the human error that resulted in the shoot-down of PS752 does not meet the foreseeability requirement, and points again to the DSB third report indicating that airlines assessed the risk of the threat as being unlikely, such that it was acceptable to continue to fly.

[440] I reiterate that the DSB criticisms related principally to the time leading up to the ballistic missile strike, and not thereafter. The DSB's third report does not assist the defendant.

[441] Moreover, UIA's arguments with respect to remoteness are burdened by the mistake the Court of Appeal warned about in *Bingley*, that is, focusing on the foreseeability of the particular chain of events that occurred rather than on foreseeability of the general harm.

[442] The precise chain of events did not need to be reasonably foreseeable. The question is whether the risk of PS752 being struck by a SAM would occur to a reasonable person, and they would not brush it aside as far-fetched.

[443] In my view, the risk of PS752 being struck by a SAM was reasonably foreseeable:

- a. Osprey, using its sophisticated software and analysis, warned of the very risk that transpired;
- b. The FAA warned of the very risk that transpired in its NOTAM;
- c. There was a relatively recent example of a flight, MH17, being struck unintentionally by a SAM when flying in a conflict zone;
- d. Mr. Martynenko himself decided the risk was worth undertaking a security threat risk assessment and concluded the risk was medium;
- e. A passenger on the plane texted her brother expressing fear of the very risk that materialized.

[444] I thus conclude that UIA has failed to establish that the plaintiffs' losses are too remote.

Costs

[445] At the close of trial, the parties agreed to provide me with their costs submissions, which I would review after I had completed my reasons on the merits. I have followed this process.

[446] The three main purposes of modern costs rules are to indemnify successful litigants for the costs of litigation, to encourage settlement, and to discourage and sanction inappropriate behaviour by litigants: see *Fong v. Chan* (1999), 46 O.R. (3d) 330 (C.A.), at para. 22.

[447] Subject to the provisions of an act or the rules of this court, costs are in the discretion of the court, pursuant to s. 131 of the *Courts of Justice Act*, R.S.O. 1990, c. C.43. The court exercises its discretion considering the factors enumerated in r. 57.01 of the *Rules of Civil Procedure*, including the principle of indemnity, the reasonable expectations of the unsuccessful party, and the complexity and importance of the issues. Overall, costs must be fair and reasonable: see *Boucher v. Public Accountants Council for the Province of Ontario* (2004), 71 O.R. (3d) 291 (C.A.), at para. 38. A costs award should reflect what the court views as a fair and reasonable contribution by the unsuccessful party to the successful party rather than any exact measure of the actual costs to the successful litigant: see *Zesta Engineering Ltd. v. Cloutier* (2002), 21 C.C.E.L. (3d) 161 (Ont. C.A.), at para. 4.

[448] The plaintiffs are the successful parties and as such, they are presumptively entitled to their costs.

[449] The plaintiffs seek costs on a substantial indemnity scale. They argue that UIA unnecessarily lengthened and complicated the proceeding, by, for example, creating undue complexity with respect to the confidentiality of documents, and by taking positions that were without merit.

[450] I agree that certain of UIA's positions were difficult to understand. In particular, it is hard to understand why UIA took the position for most of the trial that ICAO 10084 was not a relevant source of guidance for it on January 8, 2020, when Mr. Martynenko testified that he

considered it, and given its clear application to flights over or near conflict zones. As I noted, UIA also took the position that Iran was not a conflict zone, when it clearly was. UIA also failed to agree that tensions escalated in the region after the killing of General Soleimani, when they clearly had, based on the open-source information in the record and the evidence of the witnesses.

[451] However, while some of UIA's positions were unwarranted, overall, it did not conduct the trial or the litigation in a manner deserving of sanction.

[452] Nor are there any offers that, in my view, impact the assessment of costs. UIA made an offer to pay the limited liability to which it would be subject under the *Montreal Convention*, which it did not beat. The plaintiffs offered to settle the trial on the basis that UIA would admit negligence, and therefore its unlimited liability under the *Montreal Convention*, and counsel would recommend a 5% reduction in the plaintiffs' assessed losses. A recommendation to make a concession is of uncertain value.

[453] As a result, while I am not inclined to order substantial indemnity costs, in assessing the quantum of costs, I shall keep in mind that, in some respects, UIA's choices increased the time that the plaintiffs had to spend on the trial.

[454] In terms of assessing the quantum of costs, I note the following factors:

- a. The litigation was complex, involving an examination of facts including the geo-political situation in the region, military strategy, weapons capability, and aviation standards and practices.
- b. The litigation required a significant expenditure on expert witnesses to illuminate all of those areas of fact.
- c. The litigation was extremely important. At issue is not just millions, and perhaps tens of millions, of dollars, but for the plaintiffs, the litigation was also about getting answers and seeking accountability. Moreover, the litigation has ramifications for the aviation industry, airline insurers, and public safety.
- d. The litigation involved a novel issue. Counsel advise that they are unaware of any other case in the world that has considered the standards to which airlines must adhere when flying in or near conflict zones.
- e. The litigation involved significant work. Unlike most aviation litigation, the plaintiffs did not have the benefit of a reliable accident investigation report, as Iran's report was not credible, and was widely criticized. The Canadian reports were limited by access to information, and in any event, did not focus on the conduct of UIA. Unlike UIA, which has experience with civil aviation standards and practices, the plaintiffs had to build their case from scratch, through the assistance of experts and investigations. It was extraordinarily time-consuming.

- f. Having opted for a streamlined trial process involving the class action and seven individual actions, the overall costs of the litigation arising out of PS752 was minimized. Although the costs of the litigation are significant in monetary terms, they are a fraction of what it would have cost to litigate all actions individually.
- g. The streamlined trial process minimized the amount of trial time required, but the preparation to ensure that the trial proceeded smoothly and effectively was more than would normally be the case. The upfront effort was necessary to prosecute all the cases in a cost-effective and efficient manner.
- h. In my view, the plaintiff counsel groups successfully avoided duplication of effort to the extent feasible.
- i. Those plaintiffs whose lawyers participated in the trial but in a less active capacity were still entitled to have lawyers present and to have their lawyers prepare for the litigation, review productions, attend discoveries, case conferences and the trial, and generally to advise them.
- j. The hourly rates charged by plaintiffs' counsel are appropriate and competitive in their markets;
- k. UIA would reasonably have expected that, given the stakes of this litigation, the plaintiffs would have prosecuted the litigation to the fullest extent. They would also have expected that the plaintiffs would have had to incur all the expenses associated with developing the case without the benefit of a proper accident investigation report.
- l. UIA's own bill of costs discloses partial indemnity costs of \$670,827.83.

[455] In view of the factors above, I turn to consider each group of plaintiffs' counsel to assess the quantum of costs that is fair and reasonable for each.

Howie Sacks & Henry LLP and Camp Fiorante Matthews Mogerman LLP

[456] Howie Sacks & Henry LLP ("HSH") worked as a team with Camp Fiorante Matthews Mogerman LLP ("CFM"). The bills of costs support full indemnity costs of \$1,078,929.50 plus disbursements of \$86,433.89, for HSH and \$1,501,537 plus disbursements of \$292,219.69 for CFM. It appears that the claim for fees is exclusive of HST. On a partial indemnity scale, they would seek costs of \$540,000 for HSH and \$750,700 for CFM.

[457] HSH and CFM took on the greatest responsibility in this proceeding for the plaintiffs. They led the lion's share of the plaintiffs' evidence and conducted many of the cross-examinations. Their efforts supported the efforts of other plaintiff groups, who would otherwise have had higher costs.

[458] As a result, the HSH and CFM plaintiffs have borne the brunt of the impact of the unwarranted positions that UIA took in the litigation.

[459] In my view, it is fair and reasonable for UIA to pay to the HSH and CFM plaintiffs costs as follows:

- a. With respect to HSH, \$600,000 plus HST plus disbursements of \$86,433.89;
- b. With respect to CFM, \$850,000 plus HST plus disbursements of \$292,219.69.

Rochon Genova LLP

[460] Rochon Genova LLP (“RG”) took the lead for the plaintiffs with respect to the issues around the sufficiency of the security threat risk assessment, which analytically was very important, especially given that UIA only did a security threat risk assessment, and not a safety risk assessment.

[461] RG has calculated its partial indemnity costs at \$1,855,266.57, inclusive of HST and disbursements. Its actual fees are \$2,283,930.00.

[462] While I accept that RG will have costs higher than many of the other plaintiff groups as a result of their lead role with respect to the security threat risk assessment issue, I can find no justification for awarding RG more in costs than HSH and CFM, given their respective responsibilities. I conclude that the time spent by RG is excessive.

[463] In the result, I award the RG plaintiffs their costs fixed at \$1,150,000 plus HST plus disbursements of \$299,062.04.

Blaney McMurtry LLP and Thomson Rogers

[464] Blaney McMurtry LLP (“Blaney”) and Thomson Rogers (“TR”), although counsel on two separate actions, worked as a team, and participated actively in the trial. In my view, their work added significant value to the development of the record and to the argument.

[465] Blaney quantifies its partial indemnity costs at \$740,823.39 plus HST, and claims disbursements of \$56,372.35. TR’s partial indemnity costs are \$250,204.20 plus HST plus disbursements of \$30,340.45.

[466] In my view, fair and reasonable costs awards are as follows:

- a. With respect to the Blaney plaintiffs, costs fixed at \$740,000 plus HST plus disbursements of \$56,372.35;
- b. With respect to the TR plaintiffs, costs fixed at \$250,000 plus HST plus disbursements of \$30,340.45.

Gluckstein Personal Injury Lawyers

[467] Gluckstein Personal Injury Lawyers (“Gluckstein”) did the bulk of its work behind the scenes for its clients. It had only one lawyer and an articling student attend trial.

[468] In addition, Mr. Assaraf took the lead on developing the trauma-informed guidelines that were used to manage this trial.

[469] Gluckstein's partial indemnity costs are \$168,595.77 all inclusive. Of this amount, \$45,616.74 are disbursements.

[470] I fix the Gluckstein plaintiffs' fair and reasonable costs at \$168,595.77 all inclusive.

TWA Law

[471] TWA Law ("TWA") is class counsel for the class action. Its bill of costs does not include preparation of the pleading, the funding motion, the carriage motion, the certification motion, the cost of dealing with opt-out procedures or the costs of preparing costs submissions (in this respect, it is alone).

[472] The class action was not as integrated in the process to trial as were the other actions. The order that this matter proceed to a joint, streamlined, trial was made over opposition of the class.

[473] The class was not included in UIA's offer to settle. As a result, TWA had to be ready to proceed to trial on its own in the event that the other plaintiffs were able to reach a resolution with UIA.

[474] TWA participated in the trial in a manner that minimized duplication and trial costs. It also participated in the preparation of the matter for trial, including reviewing productions, attending discoveries, attending case conferences, and attending trial, all of which was necessary work and required to advise the class.

[475] TWA claims partial indemnity costs of \$397,598.50 plus disbursements of \$37,429.67. It appears that the partial indemnity costs are exclusive of HST.

[476] I fix the class's costs at \$397,598.50 plus HST plus disbursements of \$37,429.67.

Nelligan O'Brien Payne LLP

[477] Nelligan O'Brien Payne LLP ("NOP") played a comparatively minor role in the trial. To the extent counsel attended, they did so via zoom. The NOP plaintiffs seek partial indemnity costs of \$6,528.36 inclusive of HST. This amount includes \$356.40 in partial indemnity costs for the preparation of its bill of costs.

[478] NOP minimized its costs in light of the number of parties involved. The costs it incurred were minor in relation to the gravity of the claim advanced on behalf of the NOP plaintiffs. It was able to limit its costs by reliance on the work of others who took a greater role in the trial. In my view, NOP's request for costs is more than reasonable in the circumstances.

[479] I fix the NOP plaintiffs' costs at \$6,528.36, all inclusive.

Summary of Orders

[480] In summary, I make the following orders:

- a. I declare that the defendant has failed to prove, on a balance of probabilities, under article 21 of the *Montreal Convention*, that the plaintiffs' damage was not due to the negligence or other wrongful act or omission of the carrier or its servants or agents; or that such damage was solely due to the negligence or other wrongful act or omission of a third party.
- b. The defendant, UIA, shall pay costs to the plaintiff groups as set out below, within 60 days:
 - i. To the HSH and CFM plaintiffs: with respect to HSH, costs fixed at \$600,000 plus HST plus disbursements of \$86,433.89; and with respect to CFM, costs fixed at \$850,000 plus HST plus disbursements of \$292,219.69.
 - ii. To the RG plaintiffs, costs fixed at \$1,150,000 plus HST plus disbursements of \$299,062.04.
 - iii. To the Blaney and TR plaintiffs: with respect to Blaney, costs fixed at \$740,000 plus HST plus disbursements of \$56,372.35; and with respect to TR, costs fixed at \$250,000 plus HST plus disbursements of \$30,340.45.
 - iv. With respect to the Gluckstein plaintiffs, costs fixed at \$168,595.77 all inclusive.
 - v. With respect to the class, costs fixed at \$397,598.50 plus HST plus disbursements of \$37,429.67.
 - vi. With respect to the Nelligan plaintiffs, costs fixed at \$6,528.36, all inclusive.

[481] Finally, I wish to thank all counsel for the high quality of their work and for their considerable efforts to manage the trial process efficiently, and in a trauma-informed manner.

J.T. Akbarali J.

ONTARIO
SUPERIOR COURT OF JUSTICE

B E T W E E N:

N.S. in her personal capacity and as Trustee of the Estate of H.A., deceased, and as Litigation
Representative of the Estate of K.A., deceased

Plaintiff

-and-

UKRAINE INTERNATIONAL AIRLINES

Defendant

TRAUMA INFORMED TRIAL GUIDELINES

To minimize re-traumatization and vicarious trauma experienced by witnesses providing testimony, Counsel, court staff and observers of the proceedings, the following measures are recommended:

1. Counsel will prepare witnesses and observers ahead of time for the potential of re-traumatization and vicarious trauma.
2. Witnesses and/or observers have been encouraged to view the resource material prepared by a trauma specialist with respect to what re-traumatization and vicarious trauma is and how to best cope/support others.
 - Appendix A – Trauma Informed Care Guide for Claimants
 - Appendix B – Trauma Informed Care Guide for Counsel, Court Staff
 - Appendix C – Trauma Informed Care Guide to Preparing for Trial
3. Counsel will announce what will be covered on each day in court so observers can make an informed decision on whether to attend. In addition, Counsel will announce before commencing an examination which areas could cause an emotional response. Counsel will announce immediately before any audio is played or text messages of victims are displayed in court to allow persons to prepare and/or leave.
4. Witnesses and/or observers will be reminded they can take a break at any time.
5. Counsel will have a trauma specialist available, via phone, for support during the trial.

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Appendix A



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A Trauma Informed Care Guide to Preparing for Trial to prevent Re- Traumatization: A Guide for Claimants

Prepared by:
Eden Dales, B.A., M.S.W., R.S.W., Registered Social Worker
Owner and Director, Eden Dales Social Work

Recommendations for Claimants to Reduce the Risk of Re-traumatization:

Crisis Intervention Services to be aware of for Claimants:

1. Eden Dales Social Work (EDSW)

- EDSW is a community based social work practice, specializing in trauma
- EDSW is comprised of a group of registered social workers, who will be available to claimants over the course of the trial to offer crisis counselling, to address intense emotional experiences during the trial.
- Services can be offered by video or phone, and provided within 48 hours of your request.
- Requests for social work services should be directed to the main office, by email info@edendales.com or phone 416.398.1888
- Rate for services is \$200.00 per hour and services are covered by most extended health benefit plans

2. Public Mental Health and Crisis Resources:

- If crisis intervention is required, you are encouraged to proceed to the emergency department, call 911, or call the Toronto Distress Line, <https://www.dcoft.com/> or 416 408-4357 or 408-HELP

- These are free resources and can be accessed immediately.

1. In Advance of the Trial:

Communication with the Court:

- If comfortable, communicate trauma-related needs with the court, such as requesting when breaks are offered, or accommodations to manage emotional distress.
- Ask specific questions and ask to be informed when sensitive topics will be discussed, offering an opportunity to remove yourself if topics that have been triggering in the past will be addressed.

Trial Overview:

- Ask for a clear and simple overview of the trial process, including key stages, such as opening statements, examination of evidence, witness testimonies, and closing arguments.
- Gain as much information as possible about the schedule, agenda, plan
- Remember, any information you are excluded from hearing is a protective measure, decided upon by the judge, council, and court staff as a protective measure to prevent re-traumatization and support you.
- Ask to be notified prior to sensitive information being presented, offering a chance to take a break.
- Ask for a schedule to be notified when breaks are offered.

Pre-Trial Preparation:

- Take 5 -10 minutes to read about trauma, complex trauma and how trauma impacts functioning.
- Your knowledge and awareness of trauma will help you in your coping and managing your stress, or helping support others by understanding their experience.
- Resources about trauma, complex trauma, how to cope with distress, care for yourself, communicate empathy, and how to have a positive impact on yourself and others are all included below.

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A Trauma Informed Guide to Reduce Risk of Re-Traumatization

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- Be aware of potential triggers and develop personal coping strategies.
- Come prepared with a trial prep pack:
 - pen and paper (to note down thoughts, feelings, perceived inaccuracies, concerns)
 - large cold water
 - snack
 - something to hold/squeeze to maintain stress
 - cheat sheet of stress reducing activities: reminders such as this is not personal, this all part of the process, this is over soon, visualize cool air on face, muscle relaxation exercise -tighten and release each muscle group from head to toe (stress starts in the body, therefore healing must start with the body, not the mind), reminders of helpful tips

Establishing Boundaries and Setting Boundaries:

- Clearly identify personal boundaries for self-care and stick to them
- This will empower you to cope with the distressing trial process, and manage the long days and exhausting experience.
- Your emotional well-being is of the utmost priority and taking care of yourself will result in a healthy recovery from trauma.

Managing Exposure:

- Discuss with legal representatives about managing exposure to distressing details and images during the trial, when, where, how, why etc
- De-personalize this process (this is something that happened to you, and this process is what is required for the hopeful outcome, by removing yourself from distressing evidence discussions, you are taking an active role in your own healing and recovery)

Knowledge of Rights:

- Understand individual rights within the legal process and feel empowered to reach out to your council outside of the courtroom, with specific questions, thoughts, inaccuracies etc. This information will help with your coping.
- Keeping a pad and pen next to you is important to note down perceived inaccuracies, strong opinions, strong feelings, and thoughts so you can address

- them at the appropriate time with the appropriate person, to get your needs met for information.
- Find out how to have a daily successful debrief after each day in trial, with those who have a shared experience.
- This daily healing habit will have a positive impact on your overall recovery from trauma.

2. **During Trial**

Successful breaks Taking:

- Connect with a trusted support person.
- meet physiological needs regardless of how you are feeling
- having something to eat
- having something cold to drink
- breathing fresh air (change environment, we cannot heal in the same room in which we became distressed)
- regulate and re-set nervous system
- see HALT model

Documenting Triggers:

- have a pen and paper next to you during trial to write down thoughts, ideas, observations, inaccuracies, questions to be addressed and topics to debrief (thoughts, feelings, physical sensations)

Awareness of Triggers:

- the better you can name your emotions and know your triggers, the better prepared you will be to endure this stressful proceeding.
- Identify and communicate potential triggers to legal and mental health professionals to minimize exposure during the trial.

Your Role in the Process:

- Understanding your requirements for attendance and participation: Clarify your role during the trial, what is required of you, ahead of trial.

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- be clear on who is being called to provide evidence/offer opinions, and what will be presented.
- reducing the number of unpredictable stressors, by asking specific questions outside of the courtroom, will help immensely.

Nature of Evidence:

- Detailed Explanation: gain details about the type of evidence that will be presented, and when.
- Anticipating Challenges: think about potential challenging aspects of the evidence, planning to remove yourself periodically.
- This helps to mentally prepare for what you might encounter.

Trauma Triggers:

- Identification: Identify potential triggers related to the evidence, such as specific details, images, or testimonies.
- Think empathetically about what may be triggering and notify council ahead of trial and prior to discussing these topics during trial
- Coping Strategies: Discuss coping strategies with your support network to manage triggers, practice tools, including breathing exercises, grounding techniques, or requesting breaks during testimony.

Legal Terminology Review:

- If possible, ask for legal vocabulary so you are prepared for unfamiliar terminology.
- Refer to the Ontario Court Glossary of Terminology to familiarize yourselves with the language in the courtroom.
- <https://www.ontariocourts.ca/ocj/criminal-court/definitions-and-glossary/>
- Languages: Have a support person who speaks English and can help you understand the process in your own language
- Refer to Costi Agency for resources in a variety of languages-<https://www.costi.org/lb/languages.php>

Supportive Services:

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- Refer to the above listed information for urgent mental health support during and outside of the trial
- Obtain mental health support before crisis presents, to learn healthy coping tools
- Peer Support: connect with others who have a shared experience to share your experience, listen to theirs, offer support, obtain support, and collaborate on coping strategies.

Safety Measures:

- Come with a safety plan if panic presents (template in resources)
- Come prepared with a cheat sheet of coping tools (template below)

Have a trusted support person available by phone or physically present:

- Have someone available to you to check in with who understands your own experience.
- Educate your support person on tools to help you feel calm and regulated.

Continuous Communication:

- Maintain open lines of communication, keeping a list of thoughts, feelings, questions.
- Manage distress around perceived inaccuracies and know when to address these.

3. Post-trial

Post-Trial Support:

- Obtain ongoing mental health support after the trial, recognizing that the conclusion of legal proceedings may bring up new emotions.
- Obtain information about available resources for grief counseling, trauma counselling, and support groups.

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A Trauma Informed Guide to Reduce Risk of Re-Traumatization

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- Debriefing Sessions: Encourage clients to debrief daily after trial, discuss their emotional experience that day, with those who have a shared experience, to obtain and offer support, and prepare them to cope with future trial dates.
- Continue to reach out to others who are struggling to cope with this trauma, and the distress of the trial. Helping others helps YOU immensely.
- Remember that every individual's response to trauma is unique, so be gentle with yourself and others.
- Team and individual support are crucial, and your experience may change with new challenges to be addressed.

Trauma-Informed Approach to Post-Trial Coping:

- Detailed Information: Obtain clear and detailed information about the post-trial process, potential challenges, and plan for addressing perceived inaccuracies and heightened emotions related to the experience of the trial
- Manage expectations for future actions.
- Plan for post-trial trauma processing therapy with a trusted mental health professional (to address emotional impact) before symptoms become unmanageable. Learning healthy ways to process grief and trauma is vital to healing and recovery.

Appendix B

Exhibit GG



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A Trauma Informed Care Guide to Preparing for Trial to prevent Re- Traumatization: A guide for Judges, Council and Court Staff

Prepared by:

**Eden Dales, B.A., M.S.W., R.S.W., Registered Social Worker
Owner and Director, Eden Dales Social Work**

Crisis Intervention Services to be aware of for Claimants:

1. Eden Dales Social Work (ESDW)

- EDSW is a community based social work practice, specializing in trauma
- EDSW is comprised of a group of registered social workers, who will be available to claimants over the course of the trial to offer crisis counselling, to address intense emotional experiences during the trial.
- Services can be offered by video or phone, and provided within 48 hours of your request.
- Requests for social work services should be directed to the main office, by email info@edendales.com or phone 416.398.1888
- Rate for services is \$200.00 per hour and services are covered by most extended health benefit plans

2. Public Mental Health and Crisis Resources:

- If crisis intervention is required, you are encouraged to proceed to the emergency department, call 911, or call the Toronto Distress Line, <https://www.dcoft.com/> or 416 408-4357 or 408-HELP
- These are free resources and can be accessed immediately.

Recommendations for Judge, Counsel, and Court Staff

1. In Advance of Trial

Trial Overview:

- Explanation of Legal Process: Provide a clear and simple overview of the trial process, including key stages, such as opening statements, examination of evidence, witness testimonies, and closing arguments.
- Provide as much information as possible about the schedule, agenda, plan.
- Reassure claimants any information they are excluded from hearing is a protective measure, decided upon by the judge, council, and court staff as a protective measure to prevent re-traumatization.
- Inform claimants you will do your best to notify them prior to sensitive information being presented, offering a chance to take a break.
- Inform claimants when breaks will be offered.

Trial Preparation:

- Take 5 -10 minutes to read about trauma, complex trauma and how trauma impacts functioning.
- Your knowledge and awareness of trauma will be communicated in your approach and will help reduce the risk of re-traumatization.
- Resources about trauma, complex trauma, how to communicate empathy, and how to have a positive impact on claimants are all included below.
- Review when breaks will be provided, advise how to take breaks effectively (support person, meet physiological needs regardless of how they feel - something to eat, something cold to drink, breathe fresh air, connect with a trusted supportive person-regulate nervous system, re-set, H.A.L.T. model)
- Address potential triggers and develop coping strategies.
- Ensure claimants have trial prep pack ready:
 - pen and paper (to note down thoughts, feelings, perceived inaccuracies, concerns)
 - large cold water
 - snack

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- something to hold/squeeze to maintain stress
- cheat sheet of stress reducing activities: reminders such as this is not personal, this all part of the process, this is over soon, visualize cool air on face, muscle relaxation exercise -tighten and release each muscle group from head to toe (stress starts in the body, therefore healing must start with the body, not the mind), reminders of helpful tips

Their Role in the Process:

- Understanding Participation: Clarify the client's role during the trial, whether they will be testifying, attending specific sessions, or providing input on key decisions.
- Empowerment: Emphasize the claimants to take notes during the trial, write down questions and thoughts, which can be discussed with council outside of the courtroom.
- Communicate empathy and compassion and validate claimants' input, questions and thoughts, as their input is valuable.

Nature of Evidence:

- Detailed Explanation: Prepare clients for the type of evidence that will be presented, explaining that it may include documents, reports, and potentially graphic or detailed information.
- Anticipating Challenges: Discuss potential challenging aspects of the evidence, allowing clients to mentally prepare for what they might encounter.

Trauma Triggers:

- Identification: Help clients identify potential triggers related to the evidence, such as specific details, images, or testimonies.
- Think empathetically about what may be triggering and notify claimants ahead of trial and prior to discussing these topics during trial

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- Coping Strategies: Discuss coping strategies to manage triggers, including breathing exercises, grounding techniques, or requesting breaks during testimony.

Legal Terminology Review:

- Encourage claimants to refer to the Ontario Court Glossary of Terminology to familiarize themselves with the language in the courtroom.
- <https://www.ontariocourts.ca/ocj/criminal-court/definitions-and-glossary/>
- Languages: Encourage claimants to have a support person who speaks English and can help them understand the process in their language
- Refer to Costi Agency for resources in a variety of languages- <https://www.costi.org/lb/languages.php>

Supportive Services:

- Access to Mental Health Professionals: Refer to the information above about how to access crisis resources and familiarize yourself with this in the event that a claimant is in distress and needs urgent support, encourage them to take a break and reach out for help
- Peer Support: Facilitate connections with support groups or peer networks to share experiences and coping strategies.

Safety Measures:

- Security Measures: Discuss security measures in place to ensure the physical safety of clients during the trial.
- Confidentiality: Emphasize confidentiality measures to protect sensitive information.

Provide Information and Education:

- Clearly communicate the trial process, potential triggers, and what to expect during proceedings.
- Offer information on the legal terminology and procedures to empower claimants and reduce uncertainty.

Create a Safe and Supportive Environment:

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- Establish a safe space for meetings and discussions, ensuring physical and emotional safety.
- Provide access to mental health professionals and support groups before, during, and after trial proceedings.
- Encourage them to bring a pen, pad of paper, drink, and snack to have with them for sustainability and coping and have someone they trust available by phone to help support them.
Encourage claimants to know themselves best and remove themselves when topics that have been triggering previously are discussed.

Trauma-Informed Legal Support:

- Educate yourselves in trauma informed care and court proceedings as a method to prevent re-traumatization.
- Ensure that legal teams use empathetic language, avoid retraumatizing questions, and prioritize sensitivity during interactions.

Crisis Intervention Plan:

- Encourage claimants to prepare a personal crisis intervention plan in case of heightened emotional distress during the trial, who to call, have number handy.
- Identify designated professionals who can provide immediate support if needed.

2. During Trial

Trauma Informed Communication:

- Communicate empathy, compassion, humanity, make direct eye contact, soften, remember this is another human being who has suffered unimaginable pain, and remember demonstrating compassion has nothing to do with your defence/position/outcome/advocacy for your client. Both can occur simultaneously. Imagine if this was your loved one...

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- *Statements that communicate empathy:*
 1. thank you for sharing that....
 2. I am glad you are telling me....
 3. I am so sorry this happened...
 4. is there someone you would like to be here with you?
 5. Is this ok ?
 6. can we continue?
 7. Is it ok if I ask about....
 8. I am thinking about how devastating this must be for you....
 9. We will continue for xxxx minutes, and then you can have a break, would that be ok?
 10. This will take xxxxx time....
 11. Now we are going to review evidence, ok?
 12. Do you need a minute before we proceed?
 13. Pause, soften, allow space for grief-this will always help and never hurt

Community and Peer Support:

- Encourage peer support and group therapy sessions, fostering a sense of community among claimants.
- Share stories of resilience and recovery from individuals who have experienced similar traumas.

Continuous Communication:

- Maintain open lines of communication, allowing claimants to express their concerns and ask questions.
- Provide regular updates on trial proceedings and any changes in the legal process.

3. Post-trial

Post-Trial Support:

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- Refer to resources above for ongoing mental health support after the trial, recognizing that the conclusion of legal proceedings may bring up new emotions.
- Review above information about available resources for grief counseling and support groups.
- Offer support regardless of outcome.
- Remember that every individual's response to trauma is unique, so flexibility and individualized support are crucial. Regularly assess the effectiveness of your approach and adjust based on the evolving needs of the claimants.

Legal Team Collaboration:

- Collaborative Approach: Ensure effective communication between mental health professionals and the legal team to address the client's emotional well-being during trial proceedings.
- By providing comprehensive information, addressing concerns, and offering ongoing support, clients can be better prepared to navigate the trial process with a reduced risk of re-traumatization.

Trauma-Informed Approach to Post-Trial Coping:

- Detailed Information: Provide clear and detailed information about the post-trial process, potential challenges, and plan for addressing perceived inaccuracies and heightened emotions related to the experience of the trial
- Manage expectations for future actions.
- Check in on them, this goes a long way
- Debriefing Sessions: Encourage clients to debrief daily after trial, discuss their emotional experience that day, with those who have a shared experience, to obtain and offer support, and prepare them to cope with future trial dates.
- Continued Support: Ensure ongoing access to mental health support and resources after the trial concludes.

Clear Communication:

- Regular Updates: Keep clients informed about the trial's progress, changes in schedule, and any developments to minimize uncertainty.
- Communication Channels: Establish clear channels for clients to express concerns and ask questions during and after the trial, outside of the courtroom and how to access this information (refer to their own council)

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A Trauma Informed Guide to Reduce Risk of Re-Traumatization

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Appendix C

Exhibit GG



EDEN DALES SOCIAL WORK

SOLUTION FOCUSED. POSITIVE CHANGE.

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A Trauma Informed Care Guide to Preparing for Trial to prevent Re- Traumatization: Coping Tools and Resources for Claimants, Judges, Council and Court Staff

Prepared by:

**Eden Dales, B.A., M.S.W., R.S.W., Registered Social Worker
Owner and Director, Eden Dales Social Work**

Crisis Intervention Services to be aware of for Claimants:

1. Eden Dales Social Work (EDSW)

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- Requests for social work services should be directed to the main office, by email info@edendales.com or phone 416.398.1888
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- These are free resources and can be accessed immediately.

Resources and Tools for All:

Understanding Trauma

Complex trauma

- Complex post-trauma stress response: trauma can have profound and enduring effects on individuals, often impacting various aspects of their lives.

Signs of complex trauma:

Emotional Signs:

- Intense Mood Swings: Individuals may experience intense and unpredictable mood swings, ranging from anger and irritability to sadness and anxiety.
- Difficulty Regulating Emotions: Challenges in managing and regulating emotions, leading to emotional dysregulation.
- Persistent Sadness or Depression: Long-lasting feelings of sadness or depression, often unrelated to current circumstances.
- Heightened Anxiety: Chronic anxiety, hypervigilance, and a heightened startle response.

Behavioral Signs:

- Impaired Relationships: Difficulty forming and maintaining healthy relationships, including trust issues and fear of abandonment.
- Self-Harming Behaviors: Engaging in self-harming behaviors, such as cutting or substance abuse, as a way to cope with emotional pain.
- Avoidance: Avoidance of people, places, or activities that trigger traumatic memories.
- Aggression or Violence: Outbursts of anger, aggression, or violent behavior, often as a response to perceived threats.

Cognitive Signs:

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- **Memory Impairments:** Difficulty with memory, concentration, and cognitive functioning, possibly stemming from the impact of trauma on the brain.
- **Negative Self-Perception:** Low self-esteem, negative self-image, and a persistent sense of shame or guilt.
- **Distorted Beliefs:** Developing distorted beliefs about oneself, others, and the world, often influenced by traumatic experiences.

Relational Signs:

- **Difficulty Trusting Others:** A pervasive difficulty in trusting others, leading to challenges in forming and maintaining healthy relationships.
- **Fear of Abandonment:** An intense fear of being abandoned or rejected, stemming from past experiences of loss or neglect.
- **Isolation:** Social withdrawal and isolation, as individuals may feel safer when avoiding potential triggers.

Physical Signs:

- **Sleep Disturbances:** Insomnia, nightmares, or other sleep disturbances related to traumatic memories.
- **Chronic Pain:** The manifestation of physical pain and somatic symptoms, often with no clear medical explanation.

Coping Mechanisms:

- **Maladaptive Coping:** Engaging in maladaptive coping mechanisms, such as substance abuse, self-harm, or disordered eating, to manage overwhelming emotions.
- **Dissociation:** Periods of dissociation or feeling detached from one's body or surroundings as a defense mechanism against emotional pain.
- It's important to note that individuals may exhibit a combination of these signs, and the severity can vary. Furthermore, symptoms of complex trauma may not always be immediately apparent and can emerge over time.
- Seeking professional help from mental health experts, such as psychologists or trauma-informed therapists, is crucial for a comprehensive assessment and appropriate intervention.

Strategies:

Psychoeducation and Information Sessions:

- Gain clear and detailed information about the trial process, what to expect, and the specific topics that will be addressed.
- Anticipatory actions: Gain insights into potential stressors during the trial, helping individuals anticipate and prepare for emotional challenges.
- Obtain Trauma-Informed Counseling before and during the trial to address emotional distress and enhance coping skills.
- Identify sources of support with family, friends, community or a trauma therapist: Establishing a trusting therapeutic relationship to create a safe space can allow one to express their feelings and concerns.

Stress Management Coping Strategies:

- Grounding Techniques: Teach grounding techniques to help individuals stay connected to the present moment during moments of distress.
- Mindfulness Practices: Introduce mindfulness and relaxation techniques to manage anxiety and overwhelming emotions.
- Breathing Exercises: Teach controlled breathing exercises to promote relaxation and emotional regulation.
- Building Resilience and healthy self-esteem
- Strengths-Based Approach: Focus on individuals' strengths and resilience to empower them in facing challenges.
- Positive Coping Skills: Encourage the development of positive coping skills that align with individual preferences and abilities.
- Safety Planning: Develop safety plans, both emotional and physical, to help individuals manage distressing emotions or situations.
- Emergency Contacts: Provide access to emergency contacts and crisis intervention services for additional support.

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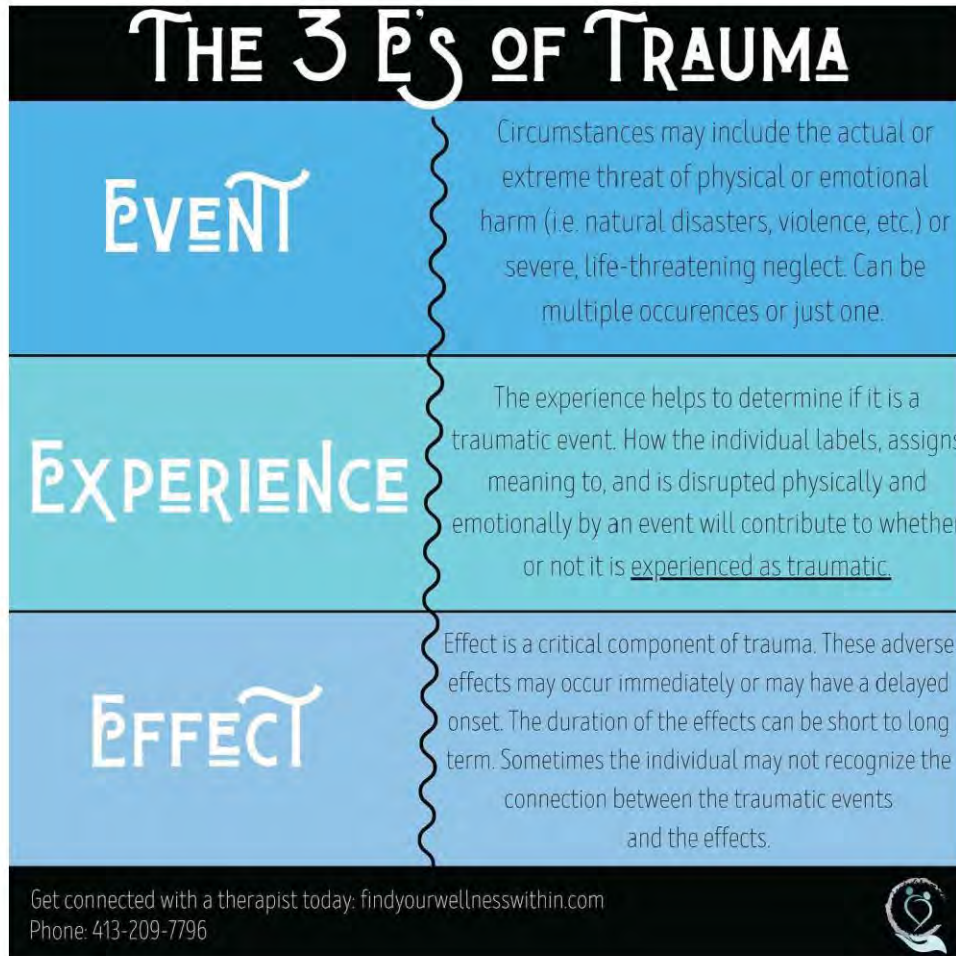
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- **Support Networks and Social Support:** Encourage individuals to maintain connections with supportive friends, family, or community members during the trial.
- **Support Groups:** Facilitate access to support groups or networks of individuals who have faced similar legal proceedings.
- **Self-Care Practices:** Collaborate on the development of personalized self-care strategies that individuals can implement during and after trial days.
- **Regular Check-Ins:** Conduct regular check-ins to assess well-being and adjust support strategies as needed.
- **Legal Professionals:** Collaborate with legal professionals who have a trauma-informed understanding to create a courtroom environment that minimizes re-traumatization.

Individuals facing trial after traumatic events require a holistic and collaborative approach that combines legal, therapeutic, and supportive measures. Flexibility, empathy, and a trauma-informed perspective are essential components of preparing individuals to tolerate the distress associated with the trial process.



Understanding Trauma's Impact

TRAUMA: 3 E's

- Trauma results from an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being.

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- Trauma is a NORMAL response to an ABNORMAL event

The "three E's" included in the SAMHSA definition distinguish trauma from other crises or negative life events because of the lasting effects the event(s) can have on a person:

Event: the actual event

Experience: the individual's experience of the event (differs among everyone, depends on a variety of bio-psycho-social and environmental factors such as history of trauma, history of chronic stress, other health conditions, lack of support, lack of resources, lack of coping tools and more)

Effect: the lasting effect of the event and experience which is unique to all, and largely depends on how the individual experienced the event.

******this is why a group of people can experience the same event, but have a completely different outcome.**

"When you go through a crisis, you get broken apart, and you're able to put yourself back together. When you live through a trauma, you're shattered, and you can't put the pieces back together, not the same way they were."

Stress/Distress Management:

Grounding Techniques in Trauma-Informed Care

- strategies designed to help individuals stay connected to the present moment, manage overwhelming emotions, and prevent re-traumatization.
- These techniques can be valuable tools for individuals facing distressing situations, such as legal proceedings, where they may be at risk of re-experiencing trauma.

Deep Breathing:

- Instruct the individual to take slow, deep breaths. Focus on the sensation of the breath moving in and out, grounding them in the present moment.

Mindfulness Meditation:

- Guide the person through mindfulness exercises, encouraging them to observe their thoughts and feelings without judgment. Techniques may include body scans or awareness of the breath.

5-4-3-2-1 Technique:

- Name five things you can see, four things you can touch, three things you can hear, two things you can smell, and one thing you can taste. This sensory exercise engages the senses to promote awareness.

Grounding Objects:

- Carry a small object with sensory significance, like a smooth stone or a textured item. Touching and focusing on the object can provide a tangible connection to the present.

Self-Talk:

- Encourage positive and reassuring self-talk. Have the individual repeat affirmations or comforting phrases to themselves to counteract negative thoughts.

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Guided Imagery:

- Use guided imagery to create a mental safe space. Have the person imagine a calm and secure environment, describing details like sights, sounds, and textures.

Body Scan:

- Guide the individual to bring attention to each part of their body, starting from the toes and moving upward. This promotes awareness of physical sensations and breaks the focus on distressing thoughts.

Grounding Through Touch:

- Engage the sense of touch by squeezing a stress ball, holding onto an object, or feeling the texture of surfaces. Physical touch can provide a connection to the present.

Movement and Stretching:

- Encourage gentle movements or stretching exercises. This helps release tension in the body and brings attention to physical sensations.

Coloring or Drawing:

- Provide coloring materials or encourage drawing as a way to shift focus to a creative and calming activity.

Naming Emotions:

- Have the person identify and verbally express their current emotions. Naming emotions can contribute to a sense of understanding and control.

Safe Place Visualization:

- Guide the individual to visualize a safe and comforting place. This could be a real location or an imaginary space that brings a sense of security.

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Progressive Muscle Relaxation:

- Lead the person through a sequence of tensing and then relaxing different muscle groups. This technique promotes bodily awareness and relaxation.

Affirmation Cards:

- Create or use cards with positive affirmations. The individual can read these affirmations to themselves when feeling overwhelmed.

Connecting with the Environment:

- Encourage the person to focus on the external environment by describing details in the room, such as colors, shapes, or sounds.

Tailoring grounding techniques to individual preferences and needs is crucial in trauma-informed care. These techniques provide a toolkit for managing distressing moments and maintaining a sense of safety during potentially triggering situations.

**NAMING OUR EMOTIONS GIVES US CONTROL OVER EMOTIONAL REGULATION
AND HELPS US ADVOCATE TO GET OUR OWN NEEDS MET:**

HOW DO I FEEL RIGHT NOW?

						
Aggressive	Angry	Anxious	Ashamed	Bashful	Bored	Cautious
						
Confident	Confused	Curious	Depressed	Determined	Disappointed	Disbelieving
						
Disgusted	Ecstatic	Embarrassed	Enraged	Envious	Exasperated	Exhausted
						
Frightened	Frustrated	Grieved	Guilty	Happy	Hopeful	Hurt
						
Indifferent	Interested	Jealous	Joyful	Lonely	Loved	Loving
						
Miserable	Optimistic	Overwhelmed	Pained	Puzzled	Regretful	Relieved
						
Sad	Satisfied	Shocked	Shy	Smug	Sorry	Stubborn
						
Stupid	Surprised	Suspicious	Thoughtful	Withdrawn		

What Can You Do to Counter Re-traumatization? (for anyone involved in this process)

Communicate empathy and compassion:

- Demonstrating empathy and compassion does not mean changing your professional stance or legal decision
- Make Eye contact
- Communicate non-verbally a caring stance, considering what it may feel like to be in their shoes
- Communicate verbally that you are listening, you are considering their distress, you are glad to hear their story....
- Safe, compassionate statements:
 - I am listening to you and thinking about what it feels like to experience what you experienced
 - thank you for sharing your story with me, it really helps me understand your experience
 - I am glad you are telling me this
 - Make space for their story
 - Follow up:
 - Be sure to check in afterwards
 - offer to support them, ask what may help (can someone you trust be with you)
 - let me know if you need a break
 - I know this is hard, are you ok for me to continue?

Use Systematic Relaxation

- Prepare for trial with systematic relaxation skills
- deep relaxing breathing
- mindfulness meditations
- Yoga
- Movement (repetitive, rhythmic)

These techniques help to calm the nervous system down after becoming activated.

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Tools to Cope with Panic and Distress:



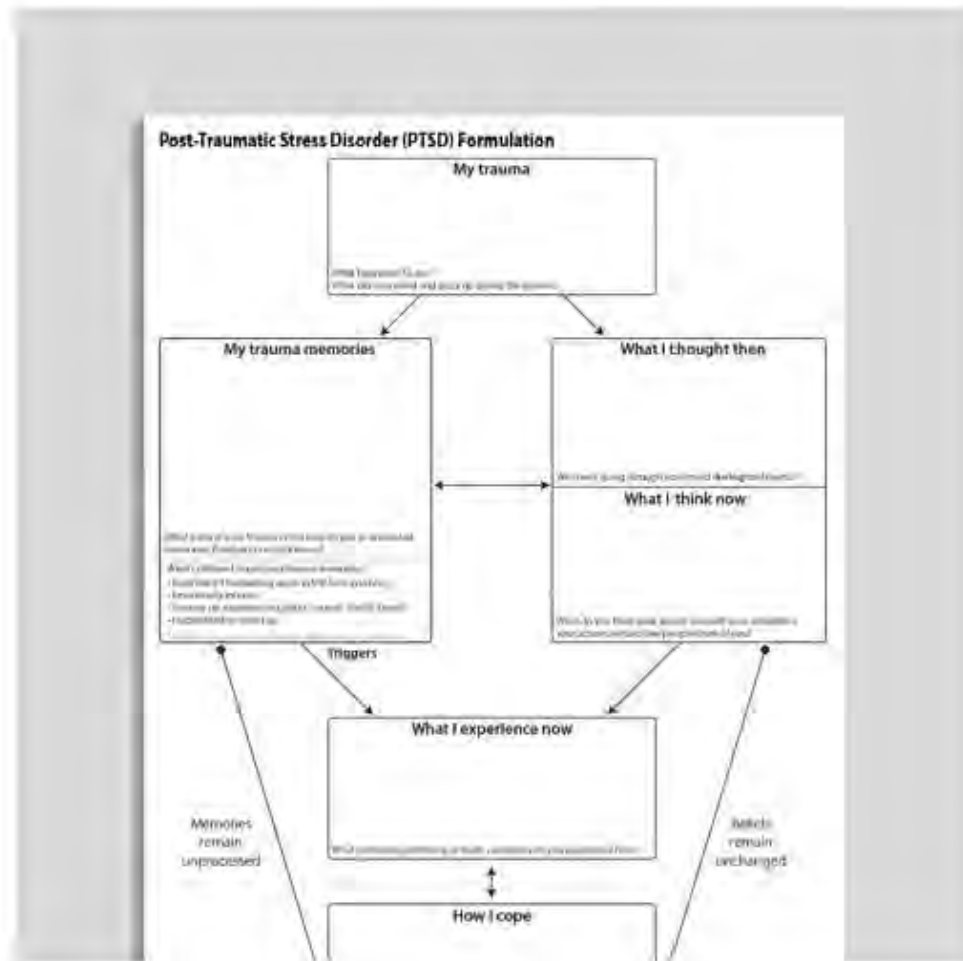


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Court Trial - Thought Challenging Record	
Put your thought in the dock What's the negative thought that's troubling you?	
Defence What evidence suggests that this thought is true? What facts would a defence lawyer use to convince the jury that this thought is accurate?	
Prosecution What evidence suggests that this thought is false? What facts would a prosecution lawyer use to discredit this thought?	
 Jury The jury's job is to weigh up the evidence for and against the thought. They have to set aside their feelings and make a balanced judgement based on the evidence presented.	
Verdict Given all of the evidence presented, what do you think of the original thought you wrote? What is a balanced and realistic way of looking at the thought now? Sum up your new way of thinking.	

Be prepared

know yourself, know your triggers and bring reminders: tip sheet for coping

Emergency Self-Care Worksheet

Why do I need to do this? It is very hard to think of what to do for yourself when things get tough. It is best to have a plan ready for when you need it.

What should be in it? You need to consider 3 general areas: what to do, what to think, and what to avoid.

1. Make a list of what you can do when you are upset that will be good for you.

a. What will help me relax? _____

For example,

- Breathing, Muscle relaxation, Music
- Reading for fun, watching a movie
- Exercising, Taking a walk

b. What do I like to do when I'm in a good mood? _____

- List all the things you like to do so you remember what they are when you need to think of something to do.

c. What can I do that will help me throughout the day? _____

For example,

- Avoid too much caffeine if feeling anxious
- Remember to breathe
- Watch my thoughts
- Stay in the moment

d. Other: What else do YOU need to do that is specific to YOU? _____

2. Make a list of people you can contact if you need support or distraction.

For example, your best friend, other friends, sibling, parent, grandparent, other relative, therapist, priest/minister/rabbi/imam, etc.

- Divide the list of people into categories by asking yourself the following questions:
 - Who can I call if I am feeling depressed or anxious?
 - Who can I call if I am lonely?
 - Who will come over to be with me if I need company?
 - Who will listen?
 - Who will encourage me to get out of the house and do something fun?
 - Who will remind me to follow my self-care plan?
 - Other:

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3. Next, make a list of positive things to say to yourself when you are giving yourself a hard time.

Examples of negative self-talk:

- "I got a B- on the paper; that proves that I shouldn't be in graduate school." CHANGE to: "That is a good grade. I will work on getting a better one."
- "I do not understand research methods, I am so dumb." CHANGE to: "A lot of students are having a problem with this course. Maybe we should start a study group to help each other."
- "I can't get all this work done. I should just drop out." CHANGE to: "I will develop a schedule so that I can get this all done." "I can check with other students for ideas." "I can get some feedback from the professors that might help me do the assignments."

You get it. Try to think about what you would say to a client with the same struggles and apply it to yourself.

4. Next, make a list of who and what to avoid when you are having a hard time.

Examples of people to avoid:

- My boy(girl)friend broke up with me. I will not call my sister as she always hated him. She'll be happy he's gone.
- I didn't get my assignment in on time and I'm worried about my grade. I will not call my dad. He is a stickler for doing things in advance so that they are never late. He'll just give me a hard time.
- I am discouraged about my grades. I won't call my best friend because she'll just tell me not to worry about it and to quit school if it's such a hassle.

You get this too. Not everyone can be supportive or helpful with every situation. Go to the ones who can be supportive about the specific issue you are dealing with.

Examples of things to avoid:

- I should not stay in the house all day.
- I should not stay in bed all day.
- I should open the shades and let the light in.
- I should not listen to sad music.
- I should not drink too much alcohol.
- Other:

Again, you get it.

5. Write this plan on a 3x5" card. Keep it in your purse/wallet (and on your phone if you can). Look at it often. Add any good ideas to it whenever you can. USE IT!

(Prepared by Elaine S. Rinfrette, PhD, LCSW-R)

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Trauma Coping Tools:

"Most people who suffer from trauma are used to living 'from the neck up' as Bessel Van der Kolk, MD, has said, and using the body to help aid in dealing with trauma can be very helpful."

Concept	Key Aspects	Implications for Care
Trauma has individual impacts	➤ Event(s) ➤ Experience of event(s) ➤ Effect of event(s)	• Understand that people with similar experiences may have different sequelae, ranging from none to PTSD.
Prerequisites for trauma-informed care	➤ Realization ➤ Recognition ➤ Response ➤ Resisting re-traumatization	• Be aware of the prevalence and impact of trauma. • Recognize the signs of trauma in patients and colleagues. • Integrate knowledge and awareness with action to make clinical services safe for survivors of trauma, whether patients or staff. • Identify and ameliorate policies and practices that could re-traumatize patients or staff.
Principles of trauma-informed care	➤ Safety ➤ Trustworthiness and Transparency ➤ Peer Support ➤ Collaboration and Mutuality ➤ Empowerment, Voice and Choice ➤ Cultural, Historical, and Gender Issues	• Prioritize safety of patients and staff. • Make systems transparent so patients and staff can trust in and feel safe in their workplace. • Link survivors to others with shared experience. • Minimize administrative hierarchy and create a culture of shared decision-making between patients and clinicians. • Ensure patients, clinicians, and other staff feel free to speak and seek their needs without fear of repercussion. • Educate clinicians and staff on pertinent past and present systemic injustices so everyone has a shared mental model of different potential sources of trauma patients and colleagues may experience.

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Understanding Trauma and how it impacts daily functioning is key to recovery:
Information is power:



State Dependent Functioning

We all behave, and function, based on the brain state we are currently in. When we are stressed, angry, panicked, distressed, depressed, anxious, worried, or unsettled emotionally, we are not able to use reason and logic to heal. Follow these steps:

1. Regulate:

- a. regulate our nervous system (breathe fresh air, eat something, hold ice in each hand, cold water on neck and face, cold drink, change the room/environment briefly, go outside)
- b. We cannot heal in the same environment in which we became distressed

2. Relate

- a. Connect with a trusted support person, review tools and reminders from someone you trust

3. Reason

- a. Only when we are regulated, can we use logic and reason to problem solve
- b. Suggesting someone see things differently, when they are distressed, is futile until they are calm, regulated and in the brain state where reasoning is possible.

State-Dependent Functioning

- ❖ Sensory information enters the lower brain first
- ❖ The more aroused we are, the less we are able to access the higher brain before reacting
- ❖ When we are frightened we all behave like toddlers
- ❖ Cognitive and relational interventions will be ineffective until the person can regulate enough to lower their arousal state

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Retraumatization WHAT HURTS?

SYSTEM <i>(Policies, Procedures, Structural and Institutional Racism and Oppression)</i>	RELATIONSHIP <i>(Power, Control, Subversiveness, Interpersonal Racism and Oppression)</i>
 HAVING TO CONTINUALLY RETELL THEIR STORY	 NOT BEING SEEN/HEARD
 BEING TREATED AS A NUMBER	 NON-TRANSPARENCY AND VEILED TRUTHS
 BEING SEEN AS A LABEL (I.E. ADDICT, SCHIZOPHRENIC)	 DOES THINGS FOR RATHER THAN WITH
 NO CHOICE IN SERVICE OR TREATMENT	 USE OF PUNITIVE TREATMENT, COERCIVE PRACTICES AND OPPRESSIVE LANGUAGE

Compensate for my Brain State: Dr Bruce Perry's Arousal Continuum

EdPsychInsight 

"I feel safe and comfortable. The top part of my brain is working well to keep a lid on my feelings. I'm able to think in more abstract and rational way. I can consider the past, present and future".

"My thinking is more concrete and less creative. I now perceive time in terms of hours and days. I may be a little nervous about new or unfamiliar things, but I can be reassured by structure, routine and connection".

"I'm struggling to process what you are teaching and stay focused. My breathing and heart rate have changed. I'm more sensitive to the way you look and move. The present is just hours and minutes to me".

"I'm feeling overwhelmed, I'm more reactive to my surroundings and more prone to fight, flight or freeze. My sense of time is restricted to minutes and seconds. I can't easily trust you. I'm just trying to survive".

"The bottom part of my brain is completely in charge. I have no sense of time. I'm not really thinking any more. You're seeing my reflexes. I may want to move or stay still; lash out or run away. I need you to keep me safe. It will take time for my terror to subside".

CALM

ALERT

ALARM

FEAR

TERROR

All functioning is "State-Dependent". Prolonged stress or traumatic experiences will heighten a child's sensitivity to demands and changes - some may have an "Alarm" baseline and quickly become emotionally dysregulated.

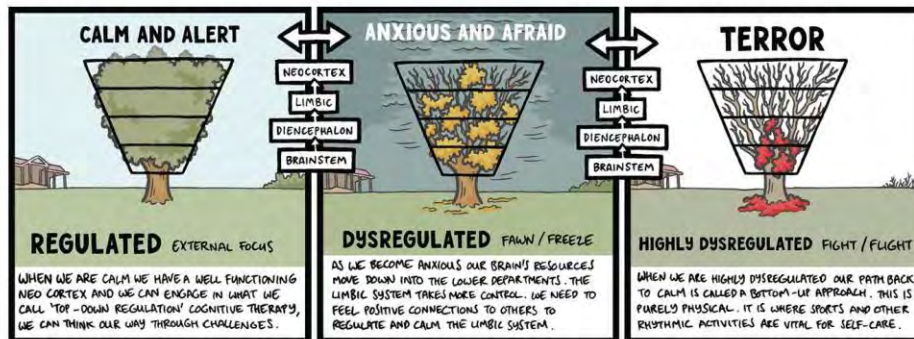
All teaching of new concepts and skills elicits some stress. We need to aim for the arousal sweet-spot between Calm and Alert - content which is engaging, challenging but not overwhelming. Increased structure, repetition and time for reflection will help it reach the top of the brain.

Rewards and sanctions will be of little use when the child can't make connections between actions and consequences. We need to focus on regulating the lower parts of the brain - using movement, dance, art, music, breathing and grounding - and providing healthy relational experiences.

Teaching children about feelings and how to express them - through words, gestures and visuals - is important in helping them to notice changes in their state and seek support before they fall down the arousal continuum.

In order to be a source of safety, comfort and reassurance, we need to keep track of our own brain state. Prioritising self-care will enable YOU to stay regulated.

STATE-DEPENDENT FUNCTIONING



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Co-Regulation Techniques

TECHNIQUE	DESCRIPTION
 Label Feelings	Help your child identify big feelings by labeling your child's feelings in a neutral tone of voice. For example, "It seems like that really frustrated you," or "I can see it made you sad when . . ."
 Breathe Together	Calmly take deep breaths so your child can see you practicing self-calming. If it does not make your child more upset, sit next to or hold your child while you breathe deeply so your child can feel the rhythm of breathing.
 Body Calming	Slowly and rhythmically rub your child's back, feet, etc, when they are recovered. Connecting like this lets them know that you will be there when they are ready to talk.
 Back Stories	Tell your child a story while drawing on the top half of your child's back. For example, draw a circle with rays for the sun, draw triangles for mountains, tap your fingers to walk up the mountain, and brush your hand back forth to make wind. Then, switch places and let your child tell a story on your back.
 Music	Sing or play relaxing songs. Model how to sing/dance/play an instrument. Your child will learn to use music as an active calming tool.
 Sensory Activities	Creating a soothing environment can reduce distress. Try lowering lights and turning off noisy toys and devices. Weighted blankets or other objects that children can touch or feel can help them focus and calm down. A cold washcloth over the eyes can reduce visual stimulation and calm an overly stressed system.

Timmer, S., Hawk, B., Lundquist, K., Forte, L., Aviv, R., Boys, D., & Urquiza, A. (2016) PC-CARE: Course of Treatment Manual. Unpublished Manuscript.

Trauma Affect Regulation: Guide for Education and Therapy:

- (TARGET) is a manualized, trauma-focused psychotherapy
- For those suffering from posttraumatic stress disorder (PTSD)
- TARGET teaches skills for processing and managing trauma-related reactions to stressful situations, such as PTSD symptoms, traumatic grief, survivor guilt, and shame
- The goal of treatment is to help individuals regulate intense emotions and gain control of posttraumatic stress reactions
- It provides a framework for understanding and managing trauma memories and affecting dysregulation.
- Therapy focuses on the client's core values and hopes, resilience, and client strengths
- TARGET draws on cognitive-behavioral therapy and self/relational models of treatment to define a set of steps for clients to learn how to regulate intense emotions and solve social problems while simultaneously managing distress.

The program introduces a seven-step skill sequence—known by the acronym FREEDOM—that helps individuals learn to process and manage trauma-related reactions to stressful current situations.

These steps are:

- **F**ocus. A step to reduce anxiety and increase mental alertness.
- **R**ecognize. An activity to help individuals recognize specific stress triggers.
- **E**motions. A step to identify primary feelings.
- **E**valuate. A step in which individuals evaluate main thoughts/self-statements.
- **D**efine. An activity to help individuals determine and define their main personal goal(s).
- **O**ption. An activity where individuals identify one choice that represents a successful step toward the main goal(s) that he or she actually accomplished during a current stressful experience.
- **M**ake a contribution. An activity to help individuals recognize how that option reflected their core values and made a difference in others' lives.

The 5-4-3-2-1 Grounding Technique

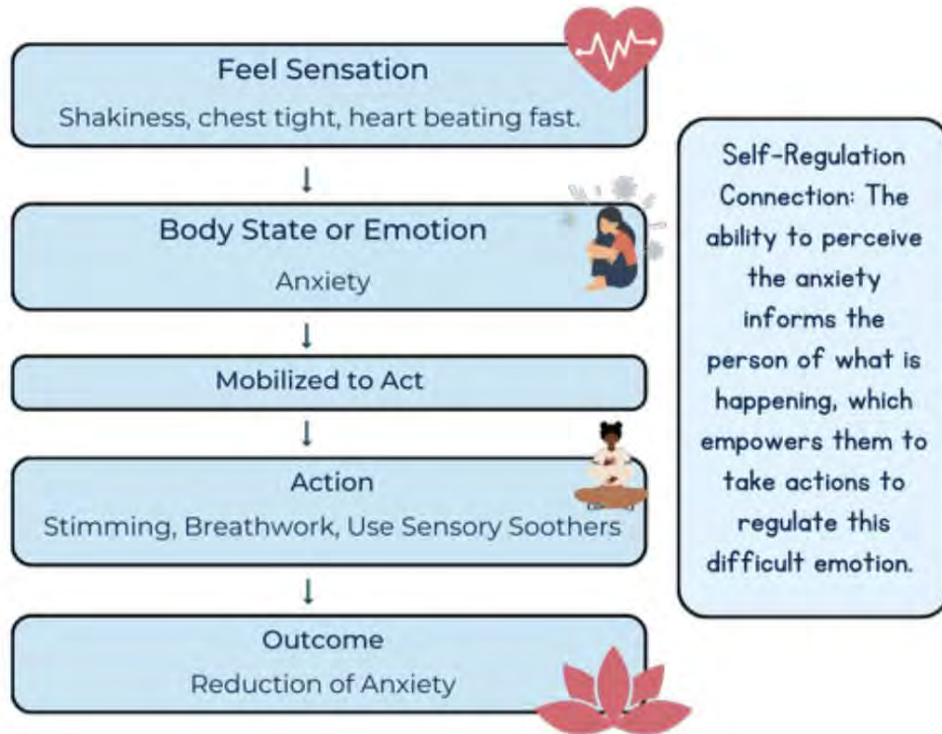
Ease your state of mind in stressful moments.



#DeStressMonday

DeStressMonday.org

DESTRESS
MONDAY

**Noticing Freeze**

- Bored, not interested
- Confused, forgetful
- Distracted, not listening
- Clumsy
- Talking about something else
- Not moving to where you've asked
- Scanning the room
- Wide eyed, pupils might dilate
- Daydreaming, starting into space

Grounding Freeze

- Stay with me, don't leave me
- Tell me I'm ok & that I am safe
- Watching TV
- Deep breathing
- Spinning on a swing
- Climbing & hanging
- Rolling or cycling down a hill
- Digging in mud or sand
- Jumping on a trampoline
- Do my chores with me
- Gently wonder where I have gone & invite me back to you
- If I have forgotten what I was supposed to be doing, remind me again gently
- Hot chocolate & toast
- A warm bath & a warm towel
- A soft teddy for bedtime

**Noticing Flight**

- Hyperactive, manic, silly
- Aggressive, threatening: stiffening up, clenching fists
- Running away, escaping, disappearing, hiding under the table/bed/sofa
- Clumsy
- Disruptive, loud & noisy
- Can't cope with free play
- Can't follow house rules
- Not doing what you've asked
- Lonely
- Keeping super busy
- Baby talk/silly voices
- Bumping into people
- Needing to get into the car/house/park first

Grounding Flight

- Keep me close by
- Find me again happily or patiently
- Deep breathing
- Give me a familiar & easy chore
- Crunchy foods - carrot sticks, a biscuit, a rice cake or crisps
- Tell me that I am safe with you
- Hanging from monkey bars
- Talk through what you think I am finding tricky using a kind voice
- Heavy blankets
- Create a safe space where I can hide away I when I need to
- Tug of war
- Cup of warm milk or hot chocolate
- Hot water bottle & a soft teddy
- Recognize I sometimes find 'normal' family life threatening
- Accept that if I feel threatened, I feel in real danger
- If you send me to do something & I forget, just patiently ask again

Noticing Fight

- Hot and bothered
- Argumentative, angry and aggressive
- Controlling, demanding and inflexible
- Lie or blaming
- Unable to concentrate on one thing
- Unable to follow the house rules
- Confrontational
- Disrespectful
- Disregarding of others, pushing away friends/family members
- Shouting, loud and noisy
- Immature

Grounding Fight

- Tell me you love me even when my I push you away
- Don't punish me for being cross; reward me with your kindness and love for getting calm again
- Keep me safe from hurting myself
- Match my energy
- Deep breathing
- Chewy foods
- Support me socially
- Hanging, swinging and climbing
- Warm bath with lots of bubbles
- Warm milk or a hot chocolate
- Hot water bottle
- A super soft teddy and/or blanket
- Give me a task that makes me feel important
- Connect with me and show me empathy before exploring the consequences of my behavior
- Create somewhere safe to go to so I can calm down
- Make things predictable. Tell me about changes before they happen, especially if strangers are coming to the house or I'm going somewhere new
- Accept I might not know why I behaved in that way & I might not remember what happened
- Listen and acknowledge how I feel, even if you see it differently, it will help me feel listened to

Noticing Submit

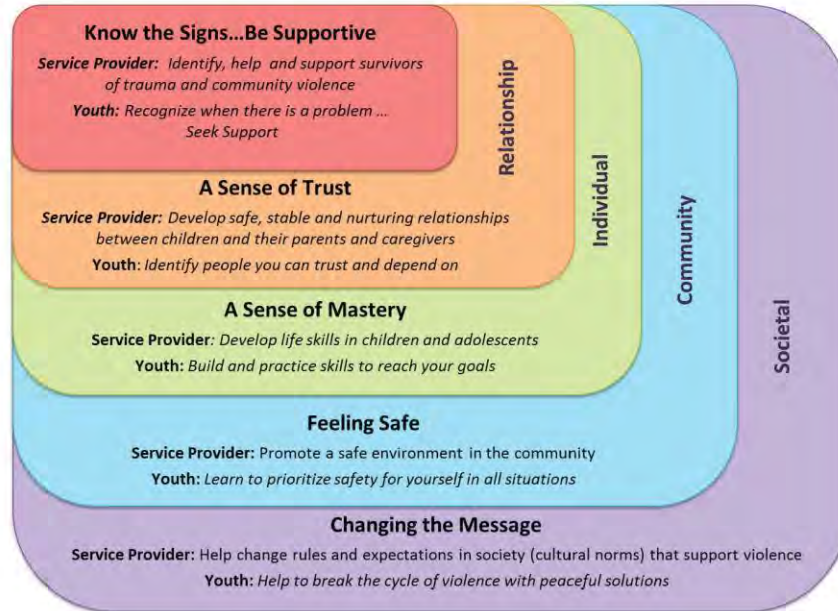
- Unhappy, low mood
- Alone or withdrawn
- Fidgety but not disruptive, anxious
- Never questioning or asking questions
- Never drawing unnecessary attention
- Yes or no answers - doing just enough to avoid being noticed, unable to think
- Quiet & passive, compliant

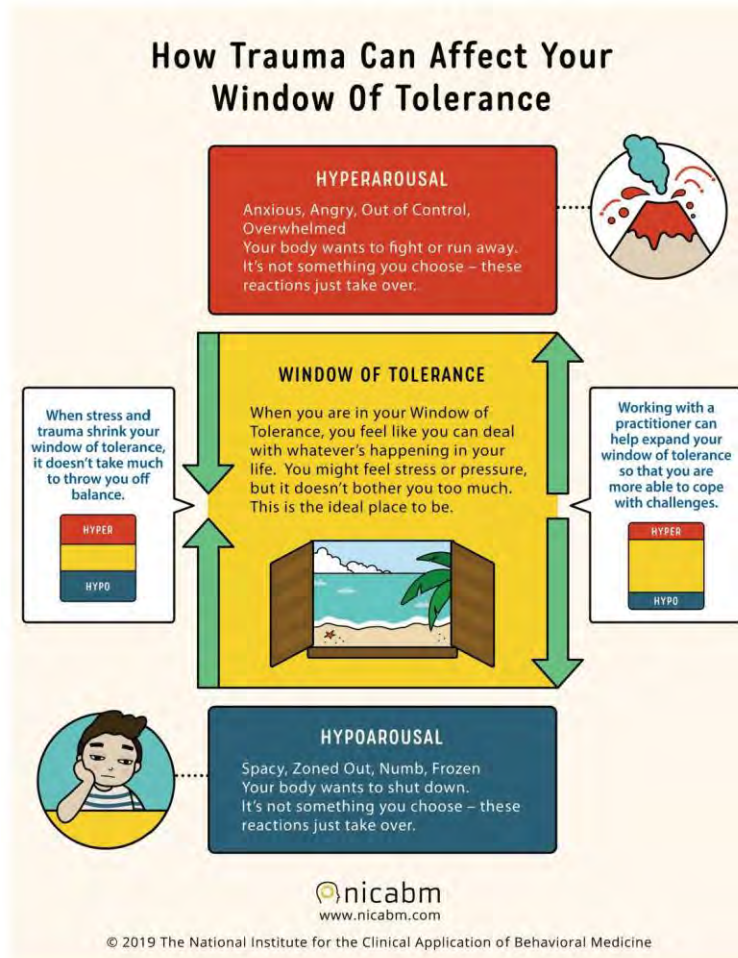
Grounding Submit

- See me, listen to me
- Give me small repetitive things to do
- Weighted blanket
- Building with Lego or Play-doh
- Tell me I am safe
- Deep breathing
- Swinging
- Let me spend quiet time just with you
- Understand that social media might symbolizes a comforting connection
- Hot chocolate and a crunchy biscuit
- Wrap me up in a soft blanket & watch TV
- Understand that playing computer games, lets me be by myself somewhere safe
- Recognize I am hurting inside & might need professional help
- Know that I am easily bullied, look out for this don't expect me to tell you
- Notice I will say what I think you want me to say
- Be aware that I am an easy target & can be coerced easily to keep the peace
- Know I can't cope being the center of attention
- Watch for me removing myself
- Warm bath and a warm towel
- Warm pyjamas



How to support those who have experienced trauma:





FOUR CORE STRATEGIES FOR MANAGING STRESS AND ANXIETY

1. ATTENTION - CENTERING TECHNIQUES

To neutralize anxiety, it can often help to use techniques designed to focus attention beyond anxious thoughts.





MEDITATION
BREATHING
VISUALIZATION

2. EXPRESSIVE, CREATIVE STRATEGIES

To channel anxious thoughts or feelings in more productive ways, we might identify specific outlets to express creativity, such as working on a project, drawing, and athletics.





WORKING ON
A PROJECT
ARTS
PHYSICAL MOVEMENT

3. REFLECTION EXPLORATION STRATEGIES

To monitor where anxiety arises, become more aware of anxiety triggers, and reflect on anxious thoughts and feelings, we might try strategies that foster self-observation.





JOURNALING
SELF-MONITORING
COMMUNICATION

4. HEALTHY LIFESTYLE VALUES

To reduce residual feelings of anxiety, it could help to turn attention toward healthy habits, healthy relationships, healthy pleasures, and a healthy environment.





NUTRITION
RELATIONSHIPS
EXERCISE


www.nicabm.com © 2020 The National Institute for the Clinical Application of Behavioral Medicine

Adapted from Shelly Horrell, PhD

A poster with a teal background and red text. At the top, the acronym 'H.A.L.T.' is written in large, bold, red capital letters. Below it, a line of text explains that the acronym is a simple guide for recognizing common signs of stress. The poster is divided into four quadrants, each with a red heading and a paragraph of text. The headings are 'HUNGRY', 'ANGRY', 'LONELY', and 'TIRED'. The text in each quadrant provides advice on how to address these symptoms. At the bottom, there is a red paragraph summarizing the purpose of the guide and a red URL: 'www.dissonance.website'.

H.A.L.T.

The H.A.L.T. acronym is a simple guide for recognizing common signs of stress.

HUNGRY

When did you last eat? Are you craving unhealthy food? Can you have a snack? Eating regularly and eating well can help keep you balanced. It doesn't have to be much, but try eating a few bites and make sure you've had some water.

ANGRY

Are you irritated at little things? Are you angry and don't know why? The situations or people that are annoying you might not be the problem. Take some deep breaths, stretch your legs, and make space to process your reactions.

LONELY

When was the last time you spoke to a friend? Reach out and connect in person, on the phone, or even with just a quick text. If you are home alone, get out of the house to see other living beings at the park, the store, or walking down the street.

TIRED

How are you sleeping? When was the last time you slept a full night through? Make some time to rest and re-energize. If not a full night of a rest, a nap can do wonders until you are able to get back on a regular sleep schedule.

Each one of these symptoms, or some combination, may signal that you need a break or help. Use H.A.L.T. to check in and recognize when to take extra care of yourself.

This resource is not intended to replace treatment. If you are experiencing a mental health emergency, call the National Suicide Prevention Lifeline at 1-800-273-8255 or dial 911.

www.dissonance.website

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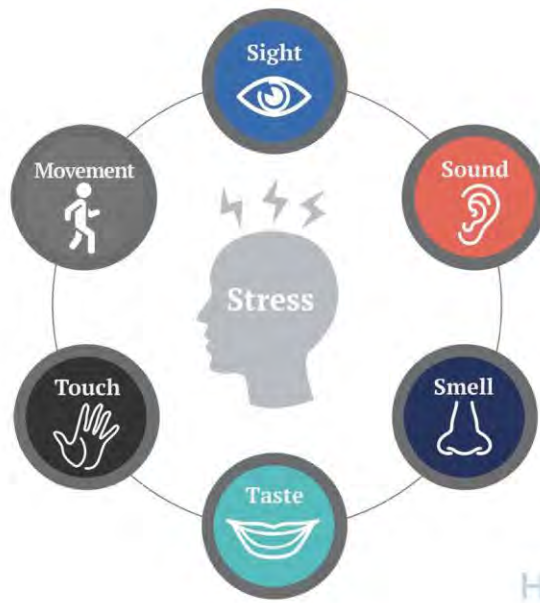
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Use Your Senses to Relieve Stress



HelpGuide

Distress Tolerance Skills: TIPP

- **Temperature:** Changing your body temperature can help cool you down both emotionally and physically.
- **Intense Exercise:** Increasing oxygen flow helps decrease stress levels.
- **Paced Breathing:** Slow, deep breathing soothes the nervous system and increases oxygen flow.
- **Paired Muscle Relaxation:** When you tighten a muscle and then allow it to rest, it will be more relaxed than it was before you tightened. This will help decrease heart rate.

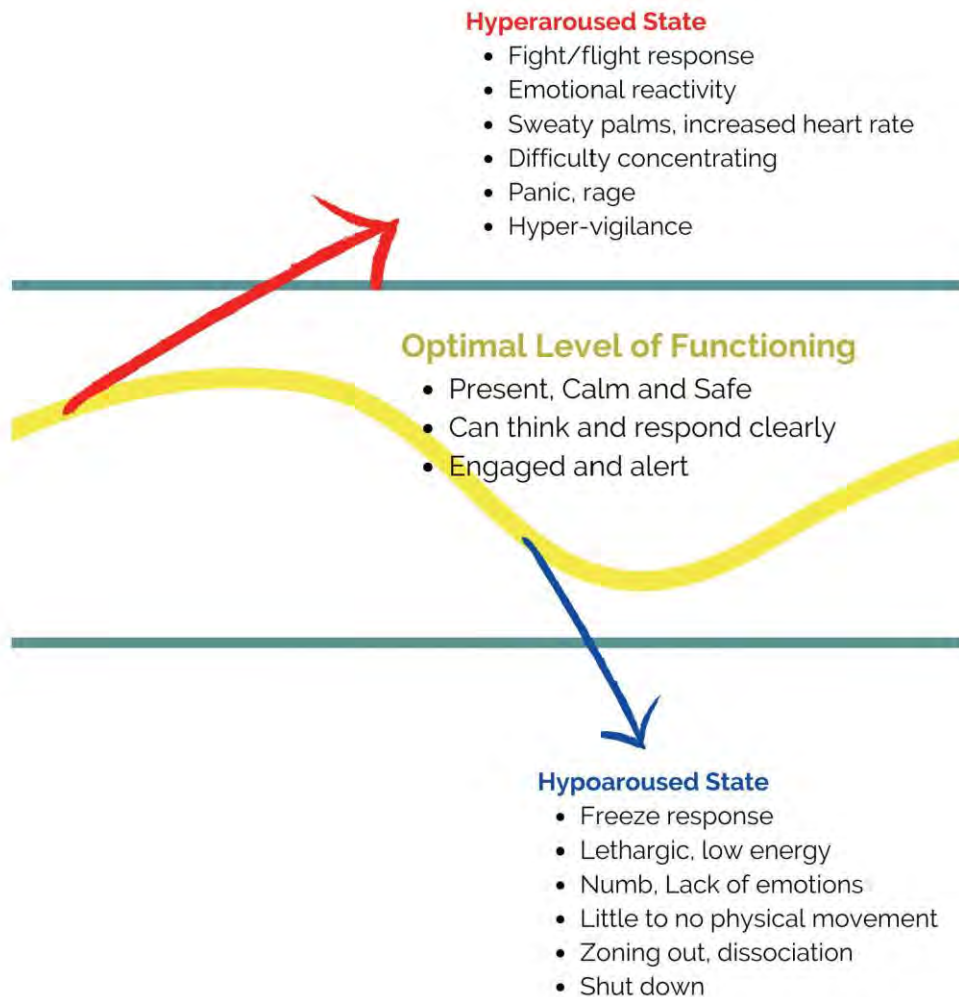


Eddins Counseling Group

PERSONAL AND CAREER COUNSELING SERVICES

www.eddinscounseling.com

Window of Tolerance



Self-Assessment -how am I coping?**PTSD Checklist 5 (PCL-5)****Instructions:**

Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. How much you have been bothered by that problem IN THE LAST MONTH.

	Not at all	A little bit	Moderately	Quite a bit	Extremely
1 Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2 Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3 Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?	0	1	2	3	4
4 Feeling very upset when something reminds you of the stressful experience?	0	1	2	3	4
5 Having strong physical reactions when something reminds you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	0	1	2	3	4
6 Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7 Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?	0	1	2	3	4
8 Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9 Having strong negative thoughts about yourself, other people, or the world (for example, strong thoughts such as "I am bad," "There's something seriously wrong with this, no one can be trusted," and "The world is a dangerous place.")?	0	1	2	3	4
10 Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11 Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12 Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13 Feeling distant or cut off from other people?	0	1	2	3	4
14 Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
15 Irritable behaviour, angry outbursts, or acting aggressively?	0	1	2	3	4
16 Taking too many risks or doing things that could cause you harm?	0	1	2	3	4

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HealthyPlace.com

How to Cope with Triggered Trauma Memories

- **Move your body.** Get your body moving to release endorphins and shift your body's response.
- **Use grounding techniques.** Bring yourself into the present by getting in touch with your senses.
- **Go outside.** This is a great place to apply grounding techniques. Breathe the fresh air.
- **Practice cozy self-care.** Draw a warm bath. Put on your comfiest pajamas.
- **Let emotions be.** Allow yourself to process the emotions with patience.
- **Try tapping.** Tapping calms anxiety, builds self-acceptance and draws your awareness into your senses.
- **Get support.** Having a sense of community is essential to avoid falling prey to isolation.



Post-Traumatic Stress Disorder (PTSD)

Some PTSD symptoms include:

 Nightmares.	 Flashbacks.
 Avoiding reminders of the event.	 Forgetting important aspects of the traumatic event.
 Unable to experience positive emotions.	 Irritability and angry outbursts.
 Negative thoughts about yourself or others.	

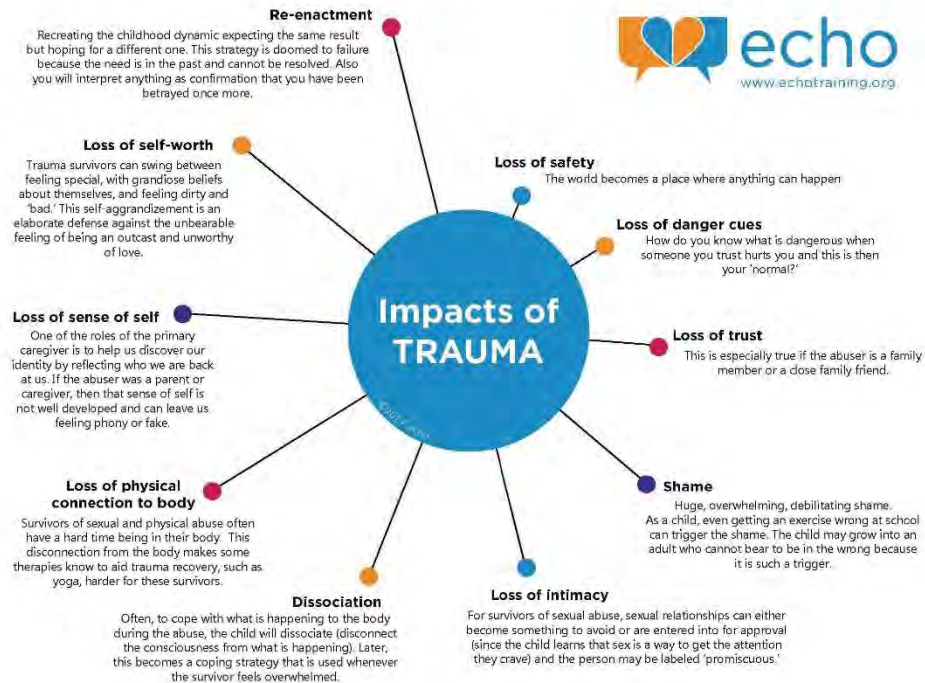
 Cleveland Clinic

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Learn your Triggers

It's especially hard when a trauma response hits you when you don't expect it. You may be at the grocery store or getting gas, and suddenly, a trigger catches you off guard and you feel an immense sense of danger or dread. To help prevent such a reaction, it's important to learn about your own trauma triggers and what might set them off. This will help you better understand yourself and the healthy boundaries you may need to set.

Triggers



Trigger: A stimulus—such as a person, place, situation, or thing—that contributes to an unwanted emotional or behavioral response.

The Problem

Describe the problem your triggers are contributing to. What's the worst-case scenario, if you are exposed to your triggers?

Trigger Categories

Just about *anything* can be a trigger. To begin exploring your own triggers, think about each of the categories listed below. Is there a specific emotion that acts as a trigger for you? How about a person or place? List your responses in the provided spaces.

Emotional State	
People	
Places	
Things	
Thoughts	
Activities / Situations	

Tips for Dealing with Triggers

- Oftentimes, the best way to deal with a trigger is to avoid it. This might mean making changes to your lifestyle, relationships, or daily routine.
- Create a strategy to deal with your triggers head on, just in case. Your strategy might include coping skills, a list of trusted people you can talk to, or rehearsed phrases to help you get out of a troublesome situation.
- Don't wait until the heat of the moment to test your coping strategy. *Practice!*

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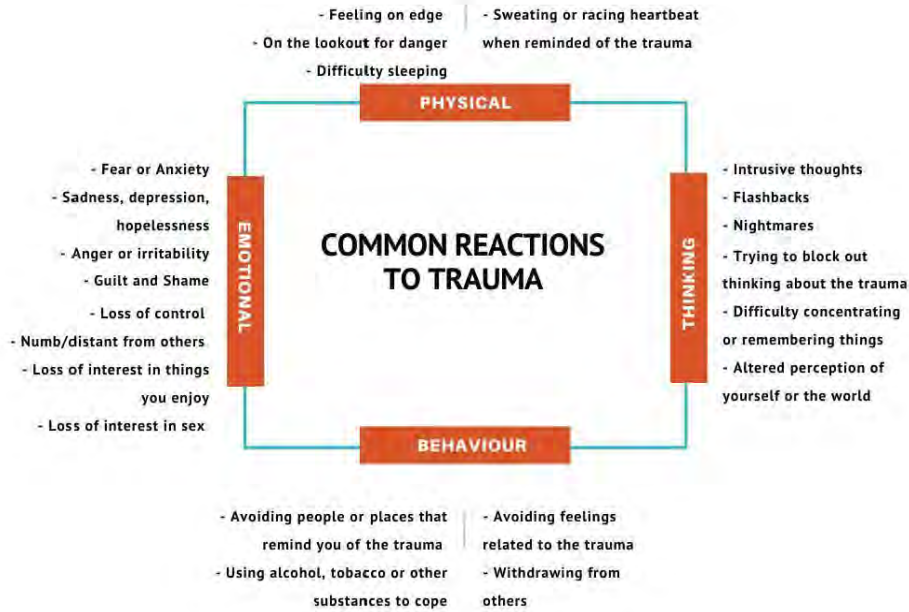


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PTSD Self-Care Tips

EVIDENCE-BASED PSYCHOTHERAPIES FOR PTSD ARE HIGHLY EFFECTIVE TREATMENTS (SUCH AS PE, CPT & EMDR).
ADJUNCTIVE SELF-CARE MAY INCLUDE:

1



Journaling.

↻

4-7-8 2



Grounding & 4-7-8 Breathing Techniques.

3



Peer Support Groups.

4



Meditation & Mindfulness.

5



Healthy Diet & Exercise.

↻

*KEEP IN MIND THAT EVERYONE'S PATH TO HEALING WILL BE A LITTLE DIFFERENT; CERTAIN SELF-CARE TIPS WILL WORK BETTER FOR YOU THAN OTHERS.

Learn more about PTSD recovery at seattleanxiety.com (Resources)



TRAUMA: 8 SELF-CARE TIPS

Here's how to take care of yourself after experiencing a traumatic event.



Get professional help

A qualified counsellor can help you cope better after a traumatic experience.



Give yourself time

Take time out for yourself to accept what has happened.



Talk about the event

This will help you feel more resilient and better able to process your feelings.



Join a support group

People who've been through similar trauma can be very supportive.



Avoid spending lots of time alone

Being around caring people is good for your mental health.



Exercise regularly

Even a gentle walk can assist your recovery.



Get enough sleep

If you're struggling to sleep, talk to your GP about medication.



Avoid self-medicating

Don't use alcohol or illegal drugs to cope. They won't help your long-term recovery.

Source:
At Grobler, ER24 Head of Trauma Counselling.

Our 5 Basic Needs

@the.love.therapist

Survival	Health, shelter, nourishment, reproduction, safety, security
Love & Belonging	Drive for connection with friends, family, intimate partners, pets, etc.
Power	Desire to achieve, be recognized & respected, feel worthwhile, feel in control of your life, be competent, make a difference, & have confidence
Freedom	Having choices, being independent & autonomous, ability to move freely & be in charge of your own time
Fun	Pleasure, play, humor, relaxation, inspired learning

*5 Basic Needs is based on Choice Theory

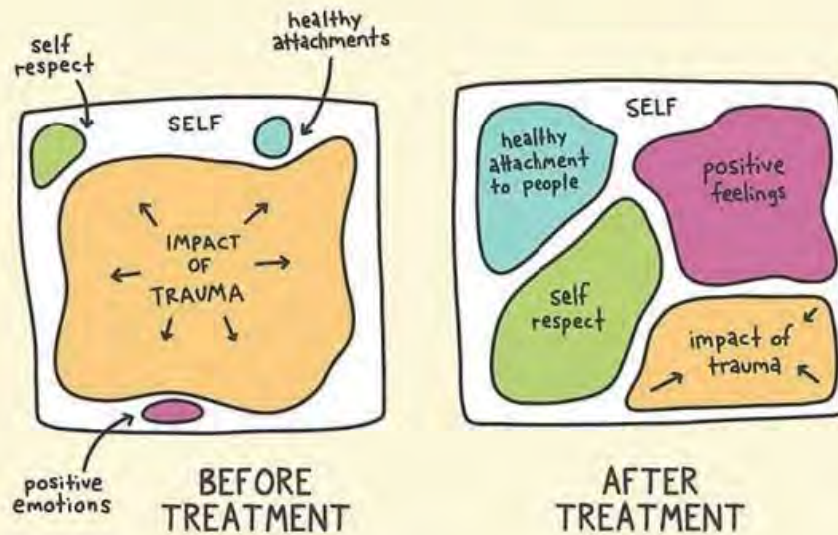
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HOW TRAUMA THERAPY WORKS:



DESCRIBED BY BATSON AND ROTH (1994)
VISUALLY TRANSLATED BY @LINDSAYBRAMAN

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S. v. Ukraine International Airlines JSC, 2024 ONSC 3303

ONTARIO
SUPERIOR COURT OF JUSTICE

BETWEEN:

N.S. in her personal capacity and as Trustee of the
Estate of H.A., deceased, and as Litigation
Representative of the Estate of K.A., deceased

Plaintiff

– and –

Ukraine International Airlines JSC

Defendant

REASONS FOR JUDGMENT

J.T. Akbarali J.

Released: June 10, 2024