CBRN Threats and Incidents Involving Non-State Actors – 2018 Annual Report

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Sammanfattning

Denna årsrapport är producerad inom ramen för ett av Försvarsdepartementets anslagsprojekt, där uppgiften är att bedöma hotet från ickestatliga aktörers användning av kemiska-, biologiska-, radiologiska- eller kärnämnen (CBRN), för att orsaka negativa effekter i samhället. Innehållet baseras uteslutande på information från öppna källor och omfattar ett urval av aktuella incidenter som skett under 2018.

Den Islamiska Staten i Irak och Syriens (Daesh) militära förmåga, som innefattade en kapacitet att producera och använda rudimentära kemiska stridsmedel, har till stora delar slagits ut. Det finns dock farhågor att Daesh fortsatt har intention och kunskap att utveckla och använda kemiska vapen. Denna förmåga skulle även kunna användas för att initiera attentat utanför konfliktområdet genom vägledning och instruktioner. Individer med kontakter inom den jihadistiska miljön har, under året, visat intresse för giftiga ämnen för attentatsplanering. Jihadisters intresse för att använda giftiga ämnen i attentat mot väst manifesteras kontinuerligt via webbforum, telegramkanaler och andra social-media applikationer.

Liksom tidigare år har även 2018 präglats av att olika former av farliga ämnen använts i antagonistiska syften runt om i världen.

Nyckelord: ickestatliga aktörer, terrorism, kriminalitet, bioterrorism, CBRN, hotbedömning, årsrapport

Summary

This annual report has been produced by a research group at FOI (Swedish Defence Research Agency), within the framework of a grant from the Swedish Ministry of Defence. The report's aim is to assess the threat posed by non-state actors' use of chemical, biological, radiological, or nuclear materials (CBRN) that can cause adverse effects on society. Its content is based solely on open source information and includes a selection of incidents that occurred in 2018.

In recent years, the main source of concern for terrorist attacks with toxic materials has been linked primarily to the Islamic State of Iraq and Syria (Daesh). Daesh military capability, which included a capacity to produce and use rudimentary chemical warfare agents, has been considerably reduced. However, there are concerns that Daesh still has the knowledge and intention to develop and use chemical weapons. This ability could also be used to initiate attacks outside the conflict area, by sending guidance and instructions via encrypted communication.

Jihadists' interest in using toxic materials in attacks against the West is continuously manifested through web forums, telegram channels, and other social media applications.

As in previous years, 2018 was also characterized by the fact that, around the world, various forms of dangerous materials were used with malicious intention.

Keywords: non-state actors, terrorism, crime, bioterrorism, CBRN, threat assessment, annual report

Content

Introduction

This annual report is produced by an FOI (Swedish Defence Research Agency) research group whose task is to assess the threat from non-state actor use of chemical, biological, radiological or nuclear materials (CBRN) to cause adverse effects on society. The research is financed by a grant from the Swedish Ministry of Defence. We continuously produce different types of spoken or written materials that highlight this type of threat. The research is aligned in cooperation with the Government Offices, who are also the main receiver of the results generated by the research group. The annual report is the regularly recurring product that can be communicated to a wider circle of recipients. The present report is the seventh in the series of annual reports on this topic.[1]

This report is intended to reflect the results of our continuous intelligence monitoring during 2018 and provide an overall description of the relevant incidents that have occurred. Furthermore, information concerning the likelihood that CBRN materials are being used by non-state actors is provided. The report is based solely on open source information. It does not constitute a complete review of all information gathered by the members of our research group. The purpose of the report is to uphold a strategic function by presenting a general summary of assessed relevant incidents on an annual basis. From this material, deviations and trends can be identified over time.

Perspective of CBRN threats from non-state actors

The threat from international terrorism is expected to remain high, based on openly available threat assessments and strategic data for counter-terrorism in European countries. The recent terrorist attacks in Europe show that Islamist-motivated actors continue to be the largest terrorist threat. A majority of these attacks have been planned and carried out by single individuals who have chosen simpler weapons and methods, and primarily aimed at unprotected civilians in market places, pedestrian streets, or public transport systems.

The successful offensive launched against the Islamic State (hereinafter referred to as Daesh) in Syria and Iraq in recent years has led to the decline of organized Daesh soldiers and Daesh's losing control of its last territorial strongholds in the region. The terrorist group's previous

[1] Corresponding reports for the years 2012-2017 are so far only available in Swedish. FOI reports can be downloaded from the FOI website, www.foi.se.

extensive influence, through territorial control, systematic propaganda, and large financial resources has decreased dramatically. The organisation's military capability, which included a capacity to produce and use rudimentary chemical warfare agents, has been dismantled. Since the spring of 2017, only a few unconfirmed incidents linked to toxic materials have occurred in conflict areas in Syria and Iraq. However, the emergence of information on the planning of attacks with toxic materials and linked to Daesh and Daesh-sympathizing individuals in Western countries is still recurring.

Current perceptions regarding the threat from weapons of mass destruction and CBRN attacks are mainly characterized by the Syrian regime's systematic chlorine gas attacks in the conflict area and the use of potent nerve agents by government regimes in politically motivated murders and attempted murders (e.g. at Kuala Lumpur Airport, Malaysia, in February 2017, and in Salisbury, UK, in March 2018). Concerns regarding future use of these weapons are also affected by the recent trend of eroded and dismantled mechanisms of international armaments control, non-proliferation, and verification.

The current complex security policy situation, however, implies that there is reason to consider a possible dynamic between state and non-governmental security threats and the relationship to actors who may use CBRN materials for murders and attacks. In Britain, the current Minister of State for Security, Ben Wallace, has stated that in the UK the likelihood of terrorist attacks with chemical materials is increasing in light of the incident in Salisbury, when a variant of the nerve agent Novichok was used against a former Russian agent. Media sources also state that the British Security Service’s Joint Terrorism Analysis Centre upgraded the threat of terrorist attacks using chemical materials on the basis of the same perspective. In order to strengthen preparedness to be able to handle such attacks, training has been conducted with scenarios that include simultaneous terrorist chlorine gas attacks at London Underground stations.[2]

During 2018, the UK revised its Strategy for Countering Terrorism, CONTEST. The strategy states that the terrorist threat in the UK has increased and that in addition to the attacks that have taken place in recent years, a large number of attacks by religiously motivated actors, as well as from right-wing extremist groups, have been disclosed and stopped.

No terrorist attack with chemical materials has taken place in the UK of late, but, according to the country's National Risk Assessment, terrorist

[2] Mark Nicol, “Jihadis are plotting a devastating chemical weapons attack in Britain”, Daily Mail, December 9, 2018.

attacks involving CBRN materials are assessed as attacks that can lead to very extensive consequences.[3] Although the likelihood of antagonistic attacks with chemical and biological materials is assessed as low, the recently revised Biological Security Strategy is indicated as a threat that may increase in the future.[4] This assessment is based not only on the effects of current technology development and technology dissemination that may be of relevance for the CBRN threat, but also on the changing risk of outbreaks of disease that may cause widespread consequences.

The US intelligence system also warns of the prevailing security policy developments linked to the risk of spreading of weapons of mass destruction and use of chemical weapons. The use of chemical weapons by states and terrorist groups in recent years is highlighted as a particularly challenging trend and it is believed to lead to an increased probability of this type of threat in the coming year.[5] In December, 2018, the US President published a strategy to combat terrorist attacks using weapons of mass destruction.[6] The strategy is similar to the counter-terrorism strategy presented in 2006 by the former US President, George W. Bush, and does not really include anything new to combat the problem. Since the presentation of the strategy at the end of 2018, reactions from US experts in this field include arguments that the occurrence of a few incidents where terrorists used simpler variants of chemical materials does not justify the attention this threat has received in launching a national strategy.[7]

In 2018, the international police organisation Interpol also carried out a number of activities that highlight CBRN perspectives. A new initiative from Interpol's Bioterrorism Prevention Unit is Project Pandora, which aims to strengthen the conditions for discovering and combating illegal trade and activities within Darknet[8] that can lead to terror threats with biological agents. To achieve this strengthening of capability, Project Pandora largely consists of targeted training initiatives and exercises for police organisations that work with Internet-related crime and counter-terrorism.

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3 HM Government, CONTEST – The United Kingdom’s Strategy for Countering Terrorism, June 2018.

4 HM Government, UK Biological Security Strategy, July 2018.

5 Daniel R. Coats, Worldwide Threat Assessment of the US Intelligence Community, January 29, 2019.

6 The White House, National Strategy for Countering Weapons of Mass Destruction Terrorism, December 2018.

7 Al Mauroni, The New U.S. Strategy to tackle WMD terrorism is new wine in old wineskins, war on the rocks, December 14, 2018.

8 Darknet, a.k.a. as Dark Web, or Deep Web, is a part of the Internet not searchable by common web search engines.

The increased concern about terrorist attacks with chemical materials led Interpol to arrange *The Global Congress on Chemical Security and Emerging Threats* at their Lyon headquarters, in October. The congress was organized in conjunction with the US Federal Bureau of Investigation (FBI) and the US Department of Homeland Security (DHS), as well as the G7 Partnership Against the Spread of Weapons and Materials of Mass Destruction. The purpose of the congress was among other things to strengthen contacts between authorities, international organisations, and the chemical industry, regarding security threats. The discussions during the meeting highlighted, in particular, the need to develop cooperation between different actors, including governments, industries, scientific institutions, and international partners, involved in addressing C-terror threats.

Concerns about future terrorist attacks with infectious materials were expressed by the Dutch Minister of Defence, Ank Bijleveld, at the annual Munich Security Conference, in February. Speaking before members of the press, Defence Minister Bijleveld emphasized that the threat from bioterrorism must be taken seriously and that a large-scale biological attack could take place within the next 10-15 years. The basis for the minister's perspective was said to be concern for the effects of ongoing technology development and technology dissemination, in combination with the fact that many countries remain unprepared to handle the extensive spread of infectious disease.[9]

At the end of December, in a statement by the state-controlled Iranian news agency, IRNA, the Iranian Chief of Civil Defence, Brigadier General Gholam Reza Jalali, argued that Iran, as well as individual leaders in countries that are allies of Iran, had been exposed to bioterrorism. The statement came in conjunction with Jalali’s warning of future, hidden, and state-supported bioterror attacks that can be carried out with the aim of weakening the state’s critical infrastructure.[10]

Jihadists’ interest in using toxic materials in attacks against the West is continuously manifested through web forums, telegram channels, and other social media applications. In most cases, information and manuals that have already been in existence on radical forums are recirculated, sometimes with minor adjustments. An example of an appeal for CBRN attacks is a video published in July, by a Daesh-sympathizing propaganda channel, which calls for the use of infectious agents against nonbelievers in Western countries. The channel claimed that this is justified in the light of the crimes committed by Western countries against Muslims in the

[9] Janosch Delcker, Risk of bioweapon attack growing, Dutch defense minister says, Politico.eu, February 18, 2018.

[10] CBRNE Diary, Bioterrorism attacks always probable: Iranian general, December 2018.

Middle East and in Africa. Daesh sympathizers in Western countries were therefore invited to use infectious agents, such as hanta virus, cholera, and other disease-producing organisms, to spread disease through contamination of food and beverages.[11]

As in previous years, 2018 was also characterized around the world by the fact that various forms of dangerous materials were used with malicious intention. A development of concern that has hit particularly the UK in recent years, and as we have reported previously,[12] is a dramatic increase in the number of attacks with corrosive materials. Unlike many other of the globally-occurring attacks with corrosive materials, where females are often the victims, the targets of the attacks in the UK are more often males. The attacks are largely linked to everyday crime, such as robbery and attempted theft. However, 2018 has seen an improvement in the situation. According to available statistics from the London Metropolitan Police for the first five months of 2018, the number of acid attacks had decreased by 43%, compared with the same period in 2017.[13] They nevertheless still constitute a major problem: 105 attacks were carried out during January–May 2018. In November 2018, British legislation was tightened concerning private ownership of corrosive substances. An additional constriction, which gives the Police greater authority to inspect persons for suspected possession of corrosive materials, was carried out early in 2019.[14]

Another type of incident that occurs with some regularity is to play on the widespread fear that the general public has of the threat to use toxic materials. An example of this is so-called powder letters, which from time to time are sent to authority representatives, various news media, politicians, and entrepreneurs. In the vast majority of cases, they only contain something harmless, such as flour, or sugar substances.

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11 Pro-ISIS media outlet circulates video calling for biological attacks in the West, Memri TV, July 20, 2018.

12 Magnus Normark, Anders Lindblad, Stina Holmgren Rondahl, Anna-Karin Tunemalm & Per Wikström, CBRN-hot från ickestatliga aktörer – Årsrapport 2017, FOI-R--4583--SE, December 2017.

13 James Nolan, Acid attacks in the UK, sadly, are not going anywhere, vice.com, August 21, 2018.

14 GOV.UK, Police to get more stop and search powers to tackle acid attacks, February 20, 2019.

Threats, rhetoric, and information dissemination

In their rhetoric, radical extremists regularly refer to the use of CBRN materials for antagonistic purposes. This was also a fact in 2018.

Within the Islamist violent extremism environment, rhetoric and propaganda linked to the use of CBRN materials and distributed through public media channels have declined in recent years. There are probably several reasons for this development. The Daesh propaganda machine, which was extensive and resource-rich during the expansive period of the terrorist organisation (until 2015), has significantly diminished as an effect of its significant loss of competent personnel and resources. In addition, the fight against proliferation of jihadist propaganda on the Internet and through social media has become increasingly efficient, which has led to diminishing conditions for this type of information dissemination.

Another factor behind the reduction in public propaganda is that the extremists themselves have changed tools for their activities. Several investigations into terrorist crimes have shown that these actors use encrypted messaging applications to communicate with other actors within the radical Islamist environment. Such communication results in major challenges for law enforcement authorities in identifying critical information dissemination in a timely manner and being able to prevent a forthcoming attack. Opportunities for hidden information dissemination and communication also exist within Darknet. Guidance on how to reach jihadist forums on Darknet is said to have spread through encrypted message channels, such as Telegram.[15] Studies of activities within Darknet in recent years show that this anonymous and hidden information infrastructure is mainly used for illegal purposes, including not only the trading of drugs and the dissemination of illegal types of information, such as child pornography, for example, but also the obtaining of illegal weapons and tools that can be used for terrorist purposes.[16, 17]

Although instructions and calls for attacks are mainly spread through hidden and encrypted channels, this kind of open-ended propaganda still exists. An example is the information that was disseminated in July via

[15] Gabriel Weiman, Going Darker? The challenge of Dark Net terrorism, Woodrow Wilson Center, USA, 2018.

[16] Levi Maxey, Terrorists stalk Dark Web for deadlier weaponry, The Cipher Brief, January 17, 2018.

[17] Moore & T. Rid, Cryptopolitik and the Darknet, Survival, Global politics and strategy, Routledge, February 1, 2016.

the Abd al-Faqr media group, which urged Muslims in Western countries to use biological weapons against civilians. This media channel often disperses messages in the interests of Daesh. The call also included a video clip in which attacks with infectious agents were justified from a religious perspective and where rudimentary guidance for the procurement and use of these agents was conveyed.

Through its Telegram channel, the Daesh-sympathizing online group Muharir al-Ansar has spread threats to poison food – such as vegetables and fruit – in Western countries (e.g. Australia and the United States).[18] The threats were expressed in late September, together with an illustration of strawberries and a bottle of poison, which is likely a reference to earlier incidents in the same month, when around 200 incidents of strawberries contaminated with sewing needles and pins were reported to Australian authorities. None of the persons who were found to be responsible for the food safety crisis appeared to have any connections to the religious extremist environment.

We will make you check everything and anything you eat out of fear, horror and terror. . .

Muharir al-Ansar, Telegram, September 2018.

This type of threat rhetoric should not be regarded as an indication of impending attacks, but rather as a simple means for an actor with limited or no ability to operationally implement terrorist attacks, and to spread fear and inspire others to perform acts of violence.

Open Internet fora where chemical and technical information with relevance for C-warfare production are discussed may be of interest to antagonistic non-state actors. Such discussions include contributions both with, and without, technically correct and detailed information. Postings on a high technical level indicate that the anonymous sender has sufficient knowledge to produce at least rudimentary chemical weapons. The information often comes from open scientific literature, and is discussed and explained in such terms that people with good competence in chemistry can acquire methods of manufacturing highly toxic

[18] Brian M. Perkins, Pro-Islamic State groups threaten Australia, The Jamestown Foundation, Terrorism Monitor Brief-293, October 12, 2018.

chemicals. During 2018, there were well-informed and detailed discussions on the production of the chemical agent that was used to poison persons in Salisbury, UK.

Although many postings in Internet fora are theoretically correct, the absence of reports with examples of actual production, including access to starting materials and relevant equipment, shows that the technical threshold to use the information in practice is high.

CBRN-related incidents linked to Daesh

The complex and devastating conflict in Syria and Iraq is unique in many ways. In addition to the unusually destructive and violent elements of the conflict, which primarily affect the civilian population, the use of chemical weapons by several parties has been a unique feature that has not occurred in other modern-day conflicts. The fact that no one has been held accountable for the chemical weapons attacks reported to have taken place since the beginning of 2013 means that the conflicting parties' perceptions of the benefit and usefulness of these weapons will probably persist. Existing thresholds for chemical weapons use, in the form of international standards, conventions, resolutions, and political condemnations are clearly insufficient to prevent the use of chemical weapons in this type of conflict.

As an effect of Daesh's being driven out of its strongholds and fragmented as a military power, the conflict has changed since 2016. However, pockets of Daesh fighters remain in border areas between Iraq and Syria, but today they only pose a local threat in those areas. Other terrorist organisations are also present in the conflict area, particularly in northern Syria.

There have been no reports of mustard attacks by Daesh in either Iraq or Syria during 2018. The few alleged cases of C-warfare use that have been reported are related to chlorine gas. Information linked to the alleged cases is scant and therefore its credibility is difficult to assess. Subsequently, the ability of the terrorists to produce and use chemical weapons in Iraq should by now have been reduced to a minimum. Although key persons identified within Daesh's chemical weapons operations have been killed or captured, it is still possible that knowledge and experience regarding chemical weapons has been preserved. The terrorist organisation probably has a continued interest in utilizing toxic materials in its future activities in the region or for attacks against targets in Western countries.

Information on development activities related to toxic materials, weapon carriers, and distribution methods was revealed mainly in the period 2014-2017. In 2018, no information emerged that changes the earlier picture of the organisation's activities as being run by people with inadequate knowledge for the purpose and mainly centred on readily available toxic materials. Daesh's ability to disperse these toxic materials remained at a fairly rudimentary level, while the most common weapons carriers were driven by improvised explosive charges and self-produced ammunition.

In connection with the chemical weapons used in the Syrian conflict, there have been reports of such attacks being staged or carried out by opposition groups in the country. This was the case in the attack on April 7 in Douma, just outside of Damascus, which is said to have caused about 40 fatalities. The Syrian regime, supported by allied nations such as Russia, has argued that opposition groups used two buildings in the Douma area to store and manufacture chemical weapons that were used in the attack in Douma. The OPCW team that was sent on a fact-finding mission to the area to investigate the attack found that neither of the two designated premises could have been used to store or manufacture chemical weapons. Furthermore, they could not find any connections between the buildings and the attack on April 7th. Although the victims of the attack were exposed to chlorine gas from modified tanks that dispersed the gas in a civilian residential building, the OPCW team concluded that the tanks were probably released from high altitude, probably by helicopter.

One problem for members of Iraq's national CBRN team, when rendering safe those areas besieged by Daesh, is the toxic chemicals that the latter have left behind, for example in Mosul. The exposure risk is imminent, perhaps without intention or possibly with intention, e.g. in the form of mined devices. As Daesh was being pushed away from the territories they once controlled in Iraq, Iraqi and Kurdish forces documented their findings and observations of equipment that had allegedly been used to produce toxic agents and ammunition.

However, there are concerns that Daesh, locally, still has the intention and knowledge to develop and use chemical weapons in the areas – mainly in south-east Syria, against the Iraqi border – that are still under their control.[19]

This CW ability could also be used to initiate attacks outside the conflict area, through guidance and instructions via encrypted communication channels, such as Telegram and WhatsApp. Daesh’s interest in inspiring and providing practical guidance for attacks with toxic chemicals in Western countries, using the experience gained in the conflict areas, has already been manifested, namely in the attempted attack in July 2017, for which two persons in Sydney, Australia, stand accused. A contact within Daesh in Syria had instructed the assailants to manufacture a hydrogen sulphide diffuser, most likely for an attack on public transportation in Sydney. The assailants, however, were unable to complete the dispersal device before Australian police revealed their plans and apprehended the

[19] Ryan Brown & Barbara Starr, First on CNN: ISIS creating chemical weapons cell in new de facto capital, US official says, CNN, May 17, 2017.

two persons.[20] The information concerning Daesh involvement in the case in Sydney gives reason for concern, as the method for producing and spreading highly toxic hydrogen sulphide is based on a relatively simple process relying on readily available chemicals obtainable at low cost.

The approach of providing tailor-made and direct guidance for attack preparation within the jihadist environment has also occurred in Europe. In June, German police seized a Palestinian in possession of the plant toxin, ricin, and the materials for manufacturing an improvised explosive device. The same person had previously tried to enter Syria on two different occasions. Instructions for the manufacture of ricin have also been seen in two other cases in Europe, where people who had been in direct contact with persons within the jihadist environment were arrested for preparing terrorist crimes.[21]

During 2018, there was no information suggesting that Daesh attempted to use radiological or biological materials for antagonistic purposes. However, there were calls for the use of, and detailed instructions on how to extract, different toxins, especially ricin and botulinum toxin, which contributed to a concern that Daesh has, or has had, some experimental activity in this area. In 2018, as a consequence of an incident in Bandung, Indonesia, in 2017, when a terrorist cell linked to Daesh[22] was suspected of having planned an attack with radioactive materials, Malaysia's concerns over the antagonistic use of radiological material increased. This was particularly apparent in August 2018, when an Iridium-192 (^{192}Ir) radiation source was lost during a domestic transport, and received great media attention.

[20] Andrew Zammit, New development in Islamic State's external operations: The 2017 Sydney plane plot, CTC Sentinel Volume 10, Issue 9, October 2017.

[21] Cologne ricin plot bigger than initially suspected, Deutsche Welle, June 20, 2018.

[22] Magnus Normark, Anders Lindblad, Stina Holmgren Rondahl, Anna-Karin Tunemalm & Per Wikström, CBRN-hot från ickestatliga aktörer – Årsrapport 2017, FOI-R—4583—SE, December 2017.

Incidents with nuclear and other radioactive materials

Incidents with nuclear and other radioactive materials

During the past year, a few incidents have occurred that deserve to be discussed in this annual report. It should be noted that, in our opinion, none of the reported incidents are of a magnitude to pose a threat to international security.

Information on incidents related to nuclear and other radioactive materials comes from open sources and the media. Statistical information has been gathered from the IAEA Incident and Trafficking Database (ITDB). Incidents that are reported to the ITDB concern nuclear and other radioactive materials outside regulatory control. In 2018, 227 incidents were reported from around the world. Of these, 118 were reported from European countries.

Terrorism

Intent to kill with radioactive material

An undercover FBI agent, in his statement of October 24, wrote that an unidentified user, named *Tigolebittes,* had tried to buy radioactive material on Darknet, to kill a man 183 cm tall and weighing 100 kg. *Tigolebittes* requested a radioactive material that was so rare that, if the cause of death became apparent, the conclusion would have to be that only an actor in the form of a state could have had access to it. This can be seen as a parallel to the case of the former Russian FSB officer, Alexander Litvinenko, who was poisoned by radioactive polonium-210.[23] The FBI agent sent a non-radioactive material to the address given by *Tigolebittes*. On October 25, Jeremy Ryan, from Madison, Wisconsin, was arrested and accused of terrorism. Ryan was the recipient and had also signed for the delivery. In the written statement, Ryan is accused of attempting to acquire radioactive material for the purpose of killing or causing physical harm.[24] Ryan had previously acquired an infamous

[23] Magnus Normark, Anders Lindblad, Björn Sandström, Anna-Karin Tunemalm & Per Wikström, CBRN-hot från ickestatliga aktörer – Årsrapport 2016, FOI-R--4424--SE, 2017.

[24] Complaint for violation of Title 18, United States Code, Section 2332i, https://www.justice.gov/file/1104301/download

reputation for himself, at least regionally, for his political involvement and protests. In 2014 and 2018, he stood for Congress, and challenged the incumbent Republican, as well as the Speaker of the US House of Representatives, Paul Ryan. In 2018, his campaign slogan read "*Because Radical Change Requires Something Radically Different*!"[25] In December, it was reported that a judge in the case had ordered a local psychiatric evaluation, to assess whether Jeremy Ryan was capable of undergoing a legal process. The defence stated that, as Ryan was battling with cancer, it had been his intention to use the radioactive material on himself, as a last resort.[26]

Slovak sentenced to life imprisonment after sending radioactive material to authorities

The FOI 2016 annual report described a case in Slovakia, where five different legal entities received threatening letters.[22] A number of those letters contained small amounts of the radioactive material americium-241, which is common in smoke detectors.[27] No one was injured by the letters. A then 53-year-old man, today identified as Štefan K, was suspected of being the sender and he was arrested shortly afterwards. The prosecutor claims that the man got hold of radioactive material through his occupation.[28] The intention with the contaminated letters is thought to have been to destabilize the country by spreading fear. NAKA, Slovakia's National Crime Agency, took the matter very seriously and had already prosecuted Štefan K in December 2016, in the hope that a rapid handling of the case would discourage copycats.[29] In July 2018, The Specialised Criminal Court in Pezinok sentenced Štefan K to life imprisonment. He was sentenced for terrorism and unlawful production and possession of nuclear and other radioactive materials. Štefan K maintained his innocence and launched his own appeal to be handled by the Supreme Court of Slovakia.

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25 J. Ryan, Jeremy Ryan for Congress, http://www.therightryan.com/

26 Channel3000, Court orders competency exam for man who tried to buy radioactive material, December 4, 2018.

27 Am-241 is the most common americium isotope, with a half-life of 432 years. Many smoke detectors contain a minute activity of Am-241.

28 Associated Press, Slovak sentenced to life in prison for posting americium, New York Times, July 9, 2018.

29 The Slovak Spectator, Man accused for sending radioactive packages faces life sentence, December 22, 2016.

Crime related to radioactive materials

Attempted fraud

It is not uncommon for alleged radioactive material to appear on the black market, due to their perceived high market price. During 2018, incidents were reported from for example Ankara, Turkey, and Kolkata, India.

In March, Turkish police seized 1.4 kg of suspected radioactive material during an anti-smuggling operation in Ankara.[30] According to the Turkish news channel NTV, the seized material was californium. The four persons arrested in the operation allegedly intended to sell the material for approximately USD 70 million. Californium is a rare synthetic element with limited use, and production is limited to the US and Russia. It was unlikely that all of the seized material was californium, since it would require several thousand years of production.[31, 32] The Turkish Atomic Energy Agency's (TAEK) examination of the material showed that it was not radioactive. Detailed analysis revealed it to be the polymer, sodium 4-styrenesulfonate, an organic substance with no nuclear or radioactive properties.[33, 34]

The material that was seized in Kolkata, India, in July was suspected to be uranium. Five men were arrested with a wrapped yellowish material labelled as uranium, which they hoped to sell for about USD 500,000. The package also carried a label saying "Made in USA," along with the date of production and best-before date (June 3, 2017, and October 28, 2024). In addition, the men also possessed obviously fabricated documents. Analysis showed that the material was not uranium. According to unconfirmed reports, it was most likely uranium resin. Uranium resin is an ion exchange material used in the separation and analysis of uranium, but does not itself contain uranium.[35]

Stolen radioactive sources in the United States

In 2018, a theft of radioactive material in the US, dating to 2017, was reported by news media. Personnel from the Idaho National Laboratory

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30 BBC, Turkish police seize radioactive material in anti-smuggling raid, March 19, 2018.

31 R.C. Martin, J.B. Knauer & P.A. Balo, Production, distribution and applications of californium-252 neutron sources, Applied Radiation and Isotopes, Volume 53(4-5), pp. 785-792, 2000.

32 The annual production of californium-252 in the world is less than 1 gram.

33 Ahval News, "Nuclear" mystery solved in Ankara, March 20, 2018.

34 Daily Sabah, Radioactive element scare in Ankara turns out to be organic substance, March 20, 2018.

35 Arshad Ali, Five held by Kolkata Police for trying to sell fake uranium for Rs 3 crore, Daily News and Analysis, July 5, 2018.

(INL) were tasked with collecting and transporting a radiation source to Idaho for final disposal. To ensure that the material was the right one, the two experts had instruments to measure and identify radionuclides. Together with the instruments, they also carried weak radiation sources for instrument control purposes. On the way back to INL, the two experts stayed at a hotel in San Antonio and then left the check sources (cesium-137 and plutonium-239) in their rental car.

The next morning, they discovered that a car window had been smashed and that the check sources, together with the measuring instruments, were stolen.[36] INL maintains that the radiation sources do not pose a risk to the public, since the amounts of stolen radioactive material were minute and the relevant authorities were informed. Criticism directed against INL and other authorities focused on the fact that the incident was not made public at the time it took place.[37]

Other

18-year-old in Turkey handicapped as a result of accidentally handling radiation source

An 18-year-old Turkish man, Eyüp Bapun, who was employed by a construction company, wanted to cover his father's medical expenses. On his third work day he found a piece of metal, which he believed was a band of prayer beads, and put it in his pocket. In reality, the object was a 192-Ir radiation source[38] used in a radiography device on the work site. Bapun suffered serious burn-like injuries due to the radiation from the source. Two fingers were so badly injured that amputation was necessary. Bapun is now assessed by the authorities to be 80% disabled. Instead of offering to compensate Bapun for the injuries he incurred, the construction company sued him for trying to steal the radiation source, something that astonished both Bapun and the judge in the case.[39]

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36 Thomas Claburn, Crooks swipe plutonium, cesium from US govt nuke wranglers' car. And yes, it's still missing, The Register, July 16, 2018.

37 P. Malone & J. Smith, Plutonium is missing, but the Government says nothing, The Center for Public Integrity, July 16, 2018, (updated October 29, 2018).

38 Iridium-192 has a half-life of 74 days and decays through beta particles and gamma radiation. It is used in construction work to identify flaws in welding, but also in radiation therapy for treatment of various cancers.

39 Hürriyet Daily News, Turkish teen's life turns to hell after confusing radioactive material for prayer beads, July 31, 2018.

Incidents with chemical materials

Toxic chemical agents are the most common CBRN-materials used in antagonistic incidents, domestically as well as internationally. In criminal cases where someone has intentionally planned to poison another individual or individuals, already-existing toxic agents, acquired in various ways, have predominantly been used. There are also examples of cases where perpetrators have produced toxic agents themselves, however, based on starting materials that can be purchased. In the following, a number of incidents related to crime that occurred during 2018 are described. The reported incidents do not comprise a complete compilation of 2018 incidents; rather, they should be seen as a representative sample.

Domestic incidents

In April, Sweden's Higher Education Expulsions Board established that the earlier temporary decision to expel the so-called "poison doctoral student" from Uppsala University would not only be upheld, but any future possibility of being admitted to any type of higher education would also be refused. Upon his arrest, the student, whose sentence involved the theft of chemicals, was also suspected of preparing for dispersal of a poison.[40] We have previously reported on this case.[41, 42]

In October, a woman was arrested on suspicion of having poisoned her partner in Norrtälje, Sweden, in February 2018. Concerns that the man had not died by natural causes were raised by the insurance company when the woman claimed compensation. During the insurance company's investigation, information emerged that required contacting the police. In a renewed analysis of the man's blood, which had been stored from the autopsy, it was found that the sample contained large amounts of poison. The toxic agent in question cannot be identified by means of the open source information available to us, but it has been speculated that it could be a cyanide compound.[43]

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40 S. Svanström, Giftdoktoranden nekas fortsatta studier, ERGO, April 3, 2018.

41 Magnus Normark, Anders Lindblad, Björn Sandström, Anna-Karin. Tunemalm & Per Wikström, CBRN-hot från ickestatliga aktörer – Årsrapport 2016, FOI-R—4424—SE, 2017.

42 Magnus Normark, Anders Lindblad, Stina Holmgren Rondahl, Anna-Karin Tunemalm & Per Wikström, CBRN-hot från ickestatliga aktörer – Årsrapport 2017, FOI-R—4583—SE, December 2017.

43 Kim Malmgren, Hon misstänks ha dolt mordet på sin sambo, Expressen, October 29, 2018.

In connection with a house search in Strömsund, Sweden, in April, the police found large quantities of chemicals in a storage room and detected that terror-related videos had been downloaded to the owner's mobile phone. The man and additional persons were later charged with preparing for terrorist crime and terrorist financing.[44, 45] The man did not possess the permits required for owning such high concentrations of one of the chemicals, which he had bought from a company stock that had been sold due to bankruptcy. Permits are required, as the chemical in question can be used as starting material for production of explosives. A missing jerrycan that should have contained the specific chemical was found several months later, but by then it was empty. One of the other men charged was in possession of material that could be used for bomb production. During a house search in April, a protective mask and chemicals that could be used to generate toxic gas and other destructive chemicals were also found. This led to speculation in the news media that the men intended to acquire an ability to carry out C-attacks.

In mid-August, a syringe with unknown content was allegedly used as a weapon during a remarkably violent extortion attempt. Four perpetrators assaulted the victim and tried, while threating him with an axe and a knife, to bring in a debt of SEK 24,000. During the attack, the victim was stabbed with a syringe that at first made him more aggressive, followed by his becoming lethargic and experiencing breathing difficulties. One of the perpetrators wore clothes that suggested the attackers were linked to criminal bikers. The prosecutions brought forward include gross extortion and gross attempt at extortion.[46]

Other incidents during 2018 that, although they involved hazardous chemicals, probably did not involve an actor who intended to spread them, are nevertheless worth mentioning; one such incident includes the finding of ampoules with possibly toxic contents. Four glass ampoules were found during spring-cleaning of a pre-school yard in Gustavsberg, in Stockholm. Their analysis at the National Forensic Centre showed that the ampoules contained osmium tetroxide, a highly poisonous substance. The discovered vials remained unbroken and no one was injured during the incident. How the ampoules had ended up in the school yard is still not clear. The police have closed the investigation pending further clues.[47]

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44 Marie Selander, Terrorbrott förbereddes i Strömsund – hundratals kilo kemikalier beslagtogs, SVT Nyheter, December 27, 2018.

45 Tidningarnas Telegrambyrå, Kemikalierna motsvarar tunnelbanebomberna i London, December 27, 2018.

46 Elias Arvidsson, Drogades med spruta vid indrivning av skuld. Göteborgs- Posten, December 10, 2018.

47 Linda Dahlin, Ampullerna vid Munkmora förskola innehöll gift, mitt i Värmdö, September 25, 2018.

In connection with a fire in a shed in 2018, the rescue services discovered a large stash of chemicals that the owner had collected over a long period of time. There was no suspicion, however, that the owner had any plans to use the chemicals for antagonistic purposes.[48] The incident received considerable attention regarding exposure risks to neighbours and rescue services personnel. Unauthorized storage of hazardous chemicals may constitute a serious health, fire, or explosion hazard.

International incidents

Kosovo

In January, four members of Kosovo's parliament, from the opposition party, Vetevendosje, received suspended sentences. In both 2015 and 2016, in protest against a border settlement with Montenegro and an EU-brokered deal with Serbia, they had thrown tear gas grenades within the parliament building.[49] Another eleven parliamentarians are awaiting their sentences for similar offences. In March 2018, members of the same party again used tear gas to try to stop a vote that would allow citizens to travel freely within Schengen. The protest failed and the proposal was voted through.[50]

Italy

In December, a pepper spray-like substance was released at a hip-hop concert in a nightclub near Ancona. Panic erupted in the crowded room and insufficient evacuation routes caused the death of five teenagers and a 39-year old mother, who were trampled to death. More than fifty persons suffered serious injuries.[51] In Italy it is not unusual during robberies for perpetrators to use pepper spray to distract victims.[52]

Germany

A 57-year-old German has been accused of attempting to murder at least three of his colleagues at a large company that assembles metal parts.[53] The man, who had been employed by the company for 38 years and was

48 Susanne Nord, Uthusbrand avslöjade otillåtna kemikalier, SVT Nyheter, May 18, 2018.

49 Reuters, Four Kosovo MPs get suspended jail terms for tear gas protest, January 3, 2018.

50 Ulrika Zaccheus, Tårgas i Kosovos parlament för att stoppa omröstning, SVT, March 21, 2018.

51 Diana Maltagliati & Frances D'Emilio, Concert stampede in Italy leaves 6 dead and over 50 hurt, Associated Press, December 9, 2018.

52 Steve Scherer, Deadly Turin soccer stampede was caused by pepper spray thieves – prosecutor, Reuters, April 13, 2018.

53 Radio Gütersloh, Vergiftete Pausenbrote in Schloß Holte-Stukenbrock, May 2018 - February 2019.

considered a loner, was revealed when a colleague became suspicious. Two days in a row, the colleague had discovered a white powder on his lunch sandwich, so he shared his suspicions with management. The company took action to investigate the cause and thus managed to catch the man on a surveillance video as he was tampering with his colleague's food. The white powder was found to be the toxic substance lead acetate ($Pb(CH_3COO)_2$). Lead acetate is also called lead sugar, because of its sweet taste. During a search of the suspect's residence, a home laboratory suitable for production of various poisonous agents was discovered in the basement. Among other things, heavy metals such as lead, mercury, and cadmium were found. Use of these chemicals is regulated to a large extent, as they are considered to be particularly hazardous. Investigators from the German National Criminal Police also found the same substance in the basement as was used in the poisoning at the company. The investigation was expanded to examine whether there were any connections to the deaths of 21 company employees during a 20-year period. In addition to the current incident, the man is now suspected of having attempted to murder three other persons; two of them developed serious kidney problems, while the third is a colleague suffering brain injuries and in a coma. During the trial, it became apparent that the man had also, for unknown reasons, poisoned his own well with mercury.[54]

Germany has in recent years experienced several high-publicity cases where foodstuffs have been intentionally poisoned. Incidents and threats of this type of poisoning have been described in previous annual reports, e.g. 2017.[55] In one case, a man in Tübingen was sentenced in October 2018 to 12.5 years in prison for the crime he had committed.[56] In a letter to the police, the man had threatened to poison baby food in supermarkets around Germany and other countries if he did not receive money as requested.[57] German authorities also found five jars of contaminated child food. The man could be arrested due to the help of pictures from surveillance cameras and information from the public. The infant food had been contaminated with ethylene glycol.[58]

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54 Markus Berkenkamp, Schlosser versetzte eigenen Brunnen mit Quecksilber!, Bild, November 28, 2018.

55 Magnus Normark, Anders Lindblad, Stina Holmgren Rondahl, Anna-Karin Tunemalm & Per Wikström, CBRN-hot från ickestatliga aktörer – Årsrapport 2017, FOI-R—4583—SE, December 2017.

56 Merrit Kennedy, Man sentenced in Germany for poisoned baby food scheme, National Public Radio Inc. (USA), October 23, 2018.

57 Deutsche Welle, German police say supermarket food poisoner suspect has confessed, September 30, 2017.

58 Ethylene glycol (glycol) is often used as an antifreeze additive in coolant fluid. Ethylene glycol is quite toxic and may cause kidney damage. It is commonly used in intentional poisonings of domestic animals (dogs and cats).

USA

A 42-year-old Russian female, Viktoria Nasyrova, was arrested in February, on suspicion of poisoning a woman in Brooklyn, New York, two years earlier.[59] The victim of the poisoning attempt survived. The indictment stated that the accused had prepared a cheesecake with the Russian drug, Phenazepam, an analogue of diazepam (Valium).[60] After the victim had lost consciousness, the perpetrator tried to make it look like a suicide. The reason for the assault was that the victim was a lookalike to the perpetrator, who intended to steal the other woman's identity. The perpetrator has a background of crime both in Russia and in the US, including a suspected murder in Russia.[61]

A 32-year-old woman in Bend, Oregon, was sentenced in March to 21 years in prison for anesthetizing/drugging children in a day care centre with the sleep-regulating hormone, melatonin. The melatonin in the children was detected by chemical analysis.[62] While the seven children she was caring for were asleep, she could leave her own children at school and go to a gym to tan and train. Melatonin is sold without prescription in the US. The children appeared to be unaffected by their involuntary sleeping sessions.

Police in Fairfax County, Virginia, are investigating a possible poisoning attempt with chocolate-glazed doughnuts containing pieces of the chemical naphthalene. Naphthalene (LD_{50} 490 mg / kg) is used for example in moth balls in some countries, but it is no longer approved as a pesticide within the EU. Naphthalene, which has a special scent and taste, is a product of the petroleum industry and is used in tar oil production. A father had asked his children to hand over six doughnuts to his ex-wife, but one of the children, who had bitten into one of the doughnuts, thought it had a bad taste. It was then discovered that the doughnuts had been tampered with, so the incident was reported to police. The ex-husband had previously threatened to kill the woman, who had been granted a protective order.[63]

A 52-year-old woman in York County, South Carolina, was accused in August 2018 of killing her 64-year-old husband using tetrahydrozoline, a

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59 The Guardian, Woman accused of poisoning her lookalike with cheesecake to steal identity, March 1, 2018.

60 CBS News, Woman accused of poisoning look-alike with cheesecake, February 28, 2018.

61 CBS New York, International manhunt for Russian murder suspect ends in Brooklyn, March 21, 2017.

62 Eder Campuzano, Bend woman gets 21 years for drugging kids so she could go tanning, do CrossFit, The Oregonian, February 21, 2018.

63 Justin Jouvenal, Police investigate whether father gave children poisoned doughnuts to take to his estranged wife, Washington Post, May 10, 2018.

substance normally found in eye drops and nasal sprays.[64] The drug may become fatal if mixed with food or, as in this case, water. As the autopsy revealed that the husband's body contained traces of the poison, the police considered it the probable cause of death.

During 2018, there were several incidents where powder letters were sent, for example to politicians[65] and military facilities.[66] In the latter case, which occurred at a military base in Fort Meyer, Virginia, two people who handled an opened letter, received diffuse symptoms from a hazardous, but unknown, agent. As a security measure, eleven persons were isolated, decontaminated, and medically evaluated for possible exposure to the agent. The letter had been addressed to the battalion headquarters and not to any individual. The sender of the letter, which did not contain a message, has not been identified. The FBI and The Naval Criminal Investigative Service were involved in the ensuing investigation. Open source information does not reveal what the powder consisted of. For additional powder letter incidents, see the section below on incidents with biological agents.

An employee at an animal clinic in Escambia County, Florida, suspected that she had been poisoned, as her mouth felt numb and she was nauseous after drinking from her water bottle. She observed a white powder in the bottle; surveillance camera footage revealed a female colleague tampering with her water bottle. An analysis of the bottle showed that the powder was phenobarbital, a drug-classified barbiturate and epilepsy drug, which is used to counter epilepsy and seizures in animals, and available from the clinic. The colleague was arrested and charged with food poisoning, and her employment at the clinic was immediately terminated.[67]

Ethylene glycol is a readily available toxic chemical that frequently appears, both intentionally and accidentally, in human and animal poisoning cases. Ethylene glycol is a liquid with a sweet taste. Perhaps it most common use is as an antifreeze in radiators. A mode for deliberate poisoning of individuals and animals is by adding the chemical to food and drink. An example in 2018, from Arizona, concerns a woman who

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64 Andrew Dys, York County SC wife murdered husband with poison, cops say, heraldonline.com, August 31, 2018.

65 Jonathan Dienst, Mystery envelope with white powder sent to Manhattan apartment of Trump daughter-in-law, NBC, February 12, 2018.

66 J. J. Green, Testing underway on suspicious letter that sickened 11 at area military base, Washington Top News, February 28, 2018.

67 Emma Kennedy, Animal clinic employee poisoned coworker's water bottle with pet medication, police say, Pensacola News Journal, July 25, 2018.

poisoned her husband's drinks. The man was hospitalized with harmful levels of ethylene glycol in his body, but survived.[68]

A 43-year-old man in Columbia, Missouri, is accused by the FBI of attempting to buy toxic chemicals over the Internet on two occasions during 2018. According to the charges, the man has tried to buy dimethyl mercury to poison a woman who did not want a relationship with him.[69] According to media information, the man had used Bitcoin to order dimethyl mercury in the name of a juvenile, but received the delivery himself. The man was also later charged with possession of child pornography and 9 kg of methamphetamine.[70]

An international chemistry student from China, but studying at Lehigh University, Pennsylvania, was apprehended and investigated on suspicion of poisoning his student roommate with thallium.[71] After consuming drinks stored in the shared refrigerator, the victim felt a burning sensation in the mouth, vomited, and experienced seizures. The perpetrator had suggested to the victim that someone else had probably poisoned their water and milk with thallium. A blood test revealed high levels of thallium in the victim. The culprit later admitted that he had bought the toxic chemical, claiming that he had intended to poison himself if he did not pass an exam.[72] Open source information does not reveal the chemical composition of the poison. Some thallium compounds are readily soluble in water and are without colour or taste. They are extremely toxic and, even in very small doses, can cause serious damage to several organs.

Australia

A 51-year-old female from a small farming village in Queensland was accused in January of intentionally poisoning two of her adult children to death.[73] A daughter and son were murdered, almost five years apart. The 18-year-old daughter was found dead by a neighbour in the family home in 2012, when the rest of the family was on a cruise. According to media information, the mother had given her mentally-handicapped daughter

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68 Ricardo Cano, Arizona man: 'I honestly fear for my life' after wife accused of poisoning him, azcentral.com, March 11, 2018.

69 Madison Fleck & Lucas Geiser, FBI claims Columbia man tried getting deadly chemicals without permission, abc17news.com, August 24, 2018.

70 Pat Pratt, Feds add new charges for man who tried to buy poison with Bitcoins, Columbia Daily Tribune, September 22, 2018.

71 Joshua Rhett Miller, Lehigh student Yukai Yang accused of poisoning roommate, New York Post, December 21, 2018.

72 Dalmeet Singh Chawla, Chemistry student to face trial for allegedly poisoning roommate with thallium, Chemical & Engineering News, February 18, 2019.

73 Jorge Branco & Amy Mitchell-Whittington, Gold Coast mother killed two adult children for financial gain, police allege, Brisbane Times, January 24, 2018.

Oxycodone, a morphine derivative used for the relief of severe pain, and then left her alone with access to additional Oxycodone. Her death led to a police investigation that remained open. In July 2017, the 26-year-old son was found dead in the family's new home. The two deaths were then linked and an investigation was renewed. According to the charges, the son had been murdered by the mother, who added Oxycodone to a drink she had brought home from a hamburger restaurant. The motive for both murders is believed to have been financial, as the multiple-child mother had over the years received close to AUD 1 million from insurance.[74] The daughter and son had both had various forms of disabilities; the mother is believed to have kept the two children and a sister in such a condition so that she could be continuously reimbursed for their nursing care, as well as receive compensation after their deaths.[75]

Canada

A PhD student in Kingston, Ontario, was arrested in January on suspicion of poisoning another graduate student's food and water.[76] They were both doing research at the Department of Chemistry at Queen's University, in Kingston. The victim became suspicious when he repeatedly felt that his food and drink tasted bitter and felt affected for several weeks. He reported his concerns and installed a surveillance camera, which revealed how his fellow student added a liquid to his food by pipette. This led to the fellow student's arrest.[77] The forensic analysis showed unusually high levels of ethanol and N-nitroso-dimethylamine (NDMA), a relatively volatile toxic liquid, which smells characteristically and which upon repeated exposure is carcinogenic. The substance is used, for example, to induce cancer in experimental animals. Two samples of the contaminated water contained 4.1 g and 5.8 g, respectively, of NDMA. The human LD_{50} dose for NDMA is 2 g. The graduate student pleaded guilty to the poisoning and was sentenced to seven years in prison.[78]

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74 Jorge Branco, The missing Sprite cup in the police case against an accused double murderer, Brisbane Times, January 26, 2018.

75 David Murray, Suspicions of accused mum Maree Crabtree go back 20 years, The Australian, January 30, 2018.

76 Alexandra Mazur, Kingston man arrested again after fellow Queen's student poisoned, Global News, April 13, 2018.

77 Raechel Huzinga & Iain Sherrif-Scott, Victim testifies in poisoning case, sentencing marked for December, The Queens Journal, November 2, 2018.

78 D. S. Chawia, Graduate student gets prison sentence for poisoning. Chemical & Engineering News, December 12, 2018.

Incidents with biological materials

There were no incidents, during 2018, in which the use of biological infectious agents can be linked to terrorist organisations. A couple of police interventions against jihadist supporters who have had access to ricin received attention during the year. In addition, envelopes with ricin were sent to high-ranking American officials; the perpetrator was a Navy veteran.

Ricin

Ricin is a highly potent plant toxin extracted from castor beans (*Ricinus communis*).[79] Extraction of ricin is a relatively simple chemical process, which is described in a large number of articles on the Internet, for example on Ibn Taymiyyah Media Center's (ITMC) Twitter account.[80] Ricin is a toxin that is often mentioned in discussions on jihadist web forums, as a means in the fight against nonbelievers, i.e. the West. Despite the apparent interest in the toxin, there are no recent cases of actual ricin use by any of the Middle Eastern-based terrorist organisations. However, for several years there have been a number of cases in the West where individuals have produced, possessed, and in some cases tried to poison other persons, sometimes officials in leading positions. The perpetrators often show some kind of psychopathological behaviour.

In 2018, two police interventions, in which violent Islamists were linked to the planning of terrorist attacks and rumours about production of ricin, were carried out in Europe. In May, a 20-year-old Egyptian student in Paris was arrested, suspected of having planned a terrorist attack with explosives and/or ricin. The student was in possession of manuals containing descriptions of ricin use in terrorist attacks. Neither ricin, castor beans, nor any other material for production or actual use of ricin was found among the student's possessions.

In June, a man of Tunisian origin was arrested in Köln (Cologne), Germany, for possession of 84.3 mg of pure ricin and 3,150 castor beans. In addition, material for manufacturing an explosive device was found. The man had on two occasions tried to enter Syria, via Turkey, and was also in communication with Daesh supporters there. The man's plans for using ricin and his targets are so far unknown. Ricin is a protein and

[79] Donald G. Barceloux, Medical toxicology of natural substances: foods, fungi, medicinal herbs, plants, and venomous animals, Wiley (2008).

[80] Magnus Normark, Anders Lindblad, Björn Sandström, Anna-Karin Tunemalm & Per Wikström, CBRN-hot från ickestatliga aktörer – Årsrapport 2014, FOI-R—4192—SE, 2016.

subsequently sensitive to heat. Dispersal of ricin with explosives therefore represents a major challenge for an attacker aiming to generate lethal effects by inhalation of the toxin.

In both these cases, the suspects linked to the use of ricin have been in close contact with advocates of violent Islamism. They have received support and information about ricin production, among other things. The circumstances show similarities to other cases, for example the case of the planned attack with hydrogen sulphide against Sydney Airport in the summer of 2017 (see this report's chapter on CBRN-related incidents linked to Daesh).

In October, a US Navy veteran sent letters containing ground ricin beans to a number of high-ranking US officials, including Defense Secretary James Mattis, CIA Chief Gina Haspel, and Admiral John Richardson.[81] In this case, the perpetrator, William Clyde Allen III, had not even tried to purify the toxin. He was content to send castor beans that had only been ground. The envelopes he used to send the ricin carried his home address, since he just wanted to 'send a message'. He risks imprisonment for life.

Powder letters

Since 2001,[82] a large number of so-called powder letters have been mailed all over the world. These are envelopes or packages containing white powder, intended to resemble anthrax spores or some other toxin. In most cases, the powder is a non-hazardous substance, which nevertheless requires that authorities take action, in the form of cordons, police investigations, and analyses, before the powder can be dismissed as harmless. Media information from 2015 indicates that since 2013, in Washington DC alone, local police had handled more than 2,500 such incidents.[83] Between 2004 and 2015, the US National Biodefense Analysis and Countermeasures Center (NBFAC) is reported to have handled about 14,000 evidence objects that were associated with criminal cases involving suspected biological agents such as anthrax and ricin. It is not publicly known how many of these powder letter items of evidence contain dangerous substances. It is clear, however, that this type of incident consumes large amounts of societal resources and creates fear in the general public, particularly for those who have been in direct contact

[81] Lindsay Whitehurst, More charges filed against Navy veteran in ricin-letter case, Associated Press, October 18, 2018.

[82] In the autumn of 2001, a number of letters, intentionally prepared with anthrax spores, were mailed to senators and news editors in the US. Five people died. This initiated a major investment, particularly in the US, to prevent and manage so-called bioterrorism.

[83] Scott MacFarlane, More than 2,500 suspicious packages, substances at U.S. Capitol since 2013, NBC Washington, Oct 13, 2015.

with the suspicious objects. Proper analysis of the powder always takes a certain time, which is usually extremely stressful for the victims. There are examples of incidents in which exposed persons have been asked to take antibiotics before the risk could be removed.[84] Two recent domestic examples of powder letter incidents follow. In both cases, the powder was deemed harmless.

- A letter with white powder was mailed to an address in central Stockholm in October 2018. In addition to powder, it contained a threat. Nine persons who were in the room where the delivery was opened were taken to hospital. Some showed diffuse breathing problems. Several nearby city blocks were shut down for several hours. Rapid on-site analysis showed that the contents of the letter were harmless.
- In November, a 42-year-old man was sentenced to 8 years imprisonment for attempted murder and several cases of threatening behaviour: in 2017, he had sent a letter bomb and about twenty powder letters to Swedish politicians. The powder letters, which also included written threats, were judged to be particularly serious, as they had spread fear, disturbed ongoing activities, and burdened societal resources.[85] Subsequent analysis showed that the powder was harmless.

Natural occurrence and availability of anthrax

Anthrax occurs endemically in many places around the world. None of the outbreaks during 2018 can be linked to antagonistic actors; all have natural causes. However, there is a risk that an antagonistic actor can come across bacteria by seeking out places where outbreaks naturally occur and collect bacteria from sick or dead animals. The Swedish National Veterinary Institute (SVA) conducted a survey in 2012 of Swedish farms with a history of anthrax cases.[86] It showed that between 1916 and 1961, 3,160 farms were shut down due to outbreaks of anthrax. Since 1961, only five known outbreaks have occurred in Sweden, the latest in 2016. However, there are countless examples of annual outbreaks in African countries, as well as in India, Indonesia, Pakistan, Central Asia, and the United States.[87] Mainly cattle are affected. Sometimes

[84] Bosse Nilsson, Pulverbrevet till Kalmar kommun var ofarligt, Sveriges Radio, January 17, 2015.

[85] Anders Hagström & Tobias Kjellberg, Åtta års fängelse efter brevhot mot ministrar, SVT, February, 11, 2019.

[86] Marianne Elvander & Bodil Persson, Källforskning i syfte att geografiskt kartlägga mjältbrandsgårdar i Sverige 1910 – 1957, SVA, 2012.

[87] ProMED, International Society for Infectious Diseases, http://www.promedmail.org/

people are infected by handling or ingesting infected animals or meat. An unusually major European outbreak occurred in France in the summer of 2018, when more than 50 cows, sheep, and horses fell ill and died. Some thirty farms in Hautes-Alpes, in south eastern France, were affected.[88]

Other outbreaks of contagious natural diseases linked to biological warfare

Outbreaks of Ebola and Nipah virus occurred during the year. In the spring, in an Ebola outbreak in Équateur Province of the Democratic Republic of Congo (D.R. Congo), 33 of 54 infected persons died.[89] There has been an even larger, and still ongoing, Ebola outbreak in the Kivu District of D.R. Congo. At time of writing, a total of 785 persons are reported to have been infected.[90] Mortality is estimated at about 60%.[91] The magnitude of this Ebola outbreak is second only to the outbreak in West Africa, from 2013-16.

The Nipah virus outbreak in Kerala province in southern India during the summer showed an even higher mortality rate. Of 19 infected people, 17 died. Several had been infected via the person-to-person route.[92] Nipah virus infection is a relatively rare, but emerging, zoonotic disease that poses a public health problem in Southeast Asia. A certain risk of person-to-person infection exists, mainly among unprotected family members and healthcare personnel. Bats are the natural reservoir for this virus. Possible pathways include consumption of fruit that has been contaminated by bat droppings, or direct contact with the bats and their droppings or saliva.

The above examples illustrate that there are natural outbreaks of serious infectious diseases in many parts of the world. There is a certain risk that a person or organisation with malicious intent, commitment, and means will be able to obtain infectious agents from such outbreaks.

88 The Local, Worst anthrax outbreak in 20 years sweeps French farms, August 20, 2018.

89 World Health Organization, Ebola virus disease – Democratic Republic of the Congo, July 25, 2018.

90 CIDRAP, Center for Infectious Disease Research and Policy, DRC Ebola cases surge to 785, February 4, 2019.

91 World Health Organization, Outbreaks and Emergencies Bulletin, Week 05: 26 January - 01 February 2019.

92 World Health Organization, Nipah virus – India. August 7, 2018.

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