ORIGINAL RESEARCH

Suicide Bombing of the Mineralnye Vody Train: Case Study in Using Open-Source Information for Open-Source Health Intelligence

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Abbreviations:
CBS = Columbia Broadcasting System
CNN = Cable News Network
CNS = Monterey Institute's Center for Nonproliferation Studies
ICT = International Policy Institute for Counter-Terrorism
MIPT = Memorial Institute for Prevention of Terrorism

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Abstract

Objective: Open-source information consists of a range of publicly available material, including various periodicals, news reports, journal publications, photographs, and maps. Although intelligence agencies regularly use open-source information in developing strategically important intelligence, the disaster community has yet to evaluate its use for planning or research purposes. This study examines how open-source information, in the form of Internet news reports and public access disaster databases, can be used to develop a rapid, 72-hour case report.

Methods: Open-source information was extrapolated from several news reports on a terrorist bombing that occurred in Russia on 05 December 2003, using a self-devised "data" collection sheet, and background information collected on the nature of similar disasters using three public access databases.

Results: The bulk of health-related information was collected in the first 13 hours after the event, including casualty demographics, immediate dead, total dead, admitted, and treated-and-released. The complex and prolonged rescue of casualties was identified, as well as the presence of unexploded ordnance. This incident also was identified as the first publicly reported suicide terrorist bombing of a commuter train.

Conclusions: Open-source information has the potential to be a helpful tool in reconstructing a chain of events and response. However, its use must be validated further and used appropriately. Standards for collection and analysis also must be developed.

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Introduction

Open-source information is a type of information that is used regularly by security and intelligence agencies, and is applied toward developing actionable intelligence of national security imperative. Open-source information includes any public-access data source such as peer-reviewed literature, scientific proceedings, academic dissertations, humanitarian alerts, white papers, governmental reports, and news and media reports. It is readily available following publicized disasters and "is generally more timely [than other information sources] and may be the only information available in the early stages of a crisis or emergency".[1] Due to the increased publication of open-source information on the Internet, leading to wider dissemination, readership, authorship, and contribution, it is likely that its availability will increase.

Since most disaster managers informally use open-source information (i.e., reading an Internet news report), they inadvertently may be influenced by the unofficial data reported by these references while decision-making. As a result, the authors proposed an inquiry into the use and merit of open-source information. The medical and public health communities have not yet investigated how open-source information could be evaluated and used for disaster management.

This study was developed to examine the value and limitations of two specific types of open-source information; public disaster databases and Internet-

based news reports. Methods by which open-source information can be applied to gather basic disaster information were explored.

Although open-source information is a non-traditional data source for public health, it is used routinely by security agencies to develop open-source intelligence. Author Richard Friedman quoted Lt. General Sam Wilson, former Director of the Defense Intelligence Agency as stating that "Ninety percent of intelligence comes from open sources".[2] Open-source intelligence is defined as "a general intelligence term for...source materials that are unclassified and may or may not be produced by the government...and often provide a valuable input to all source intelligence production", and "involves the use of materials available to the public by intelligence agencies and other adversaries".[1]

Almost unknowingly, many healthcare providers, disaster policy-makers, and emergency coordinators utilize open-source information regularly. This is illustrated best after a disaster, when personnel are clamoring for updated facts and news about the magnitude of the disaster, casualty statistics, and impediments to hospital response. They access news sources through various types of media, including radio, television, and the Internet. They weigh the substance of facts and witness testimonies, analyze photographs, watch online videos, and attempt to rationalize the validity, reliability, and accuracy of news statements. In essence, they participate in the open-source intelligence process.

Examples of open-source information analyses to develop public access open-source intelligence can be found in the Central Intelligence Agency (CIA) World Fact Book[3] and US State Department Consular Information Sheets.[4] One example is the State Department-issued travel warnings. It is not peer-reviewed and some of the information cannot be validated. However, the sources are updated continuously, based on open-source intelligence and are used by millions of people as a unique source of crucial health, safety, cultural, and economic information.

Methods

To explore how open-source information can be applied during a disaster, data reported in the aftermath of a terrorist train bombing in Russia that occurred on 05 December 2003 were analyzed. This study was designed prospectively, and was initiated within 10 hours following the event. Due to the publicity of this event, a swift survey of news reports was performed, using various Internet search engines, querying information through search strings "Russian train bombing December 2003", "suicide train bombing Russia", "suicide train bombing", "train bombing", and "Mineralnye Vody". The results included media accounts from various news desks including the British Broadcasting Corporation (BBC), *The Financial Times*, Hindu News, Islam Online, Pravda, Al-Jazeera, *The International Herald Tribune*, *The Guardian*©, *The Globe*, Turkish Press, *The Tehran Times*, China View, Channel News Asia, and *The Taipei Times*, reported by agencies such as the Associated Press (AP), Reuters, Cable News Network (CNN), *USA Today*, *The New York Times*, *The Washington Post*, the Public Broadcasting System (PBS), Columbia Broadcasting System (CBS) News, and Fox News.

Information from these news reports was gathered using an open-source information data collection sheet consisting of quantitative and qualitative elements (Figure 1). These included: (1) event location; (2) type of bomb; (3) placement of the bomb; (4) descriptive characteristics of the bomber(s); (5) observations of the immediate, surrounding post-disaster environment; (6) difficulties of rescue personnel; and (7) casualty demographics such as age distribution, number of dead, injured, hospitalized, descriptions of injury, and casualty outcomes.

The usefulness of public disaster databases also was investigated in order to gain background information that described similar disasters (terrorist train bombings). The databases reviewed included: (1) the Memorial Institute for Prevention of Terrorism (MIPT)[5] in Oklahoma City, Oklahoma (US); (2) the International Policy Institute for Counter-Terrorism (ICT)[6] in Herzilya (Israel); and (3) the Chemical and Biological Weapons Nonproliferation Program Conventional Terrorism Database[7] at the Monterey Institute's Center for Nonproliferation Studies (CNS) in Monterey, California (US).

Results

A large body of potentially useful information was available within the first 72 hours after the attack. However, the majority of original information was collected in the first 15 hours. News reports became less in-depth for health and rescue data after the first 15 hours and focused more on the bombing investigation and background material on the Russia-Chechnya political conflict. Open-source information data sources never were contradictory in substantive details, except for an evolving casualty count and varying estimates of bomb force (explained in TNT equivalence). In addition to the information collected on the open-source information "data" sheet, news reports also provided details on: (1) the distance of the train from the terminal; (2) features of the tactics of the attack and the accomplices of the bomber; (3) the magnitude of the explosion reported in TNT-equivalents; (4) characteristics of the passengers; and (5) a detailed map of the disaster area. News reports also provided quotes from government officials and agencies involved with the disaster investigation, including the Emergency Situations Minister, the Prosecutor's Office, Interior Minister, Health Minister, Chief of the Federal Security Service, the governor's spokesperson, the State Defense Committee, the European Commission President, and local police, firefighters, and rescue workers. Along with this additional information, the data sheet allowed for the reconstruction of the subsequent events and responses to the bombing.

On Friday, 05 December 2003, during the morning rush hour (07:40–08:00 hours), an explosion occurred inside the passenger compartment of a commuter train approximately 500 meters (1/3 mile) from the train station outside the town of Mineralnye Vody, Stravropol, southern Russia, close to the Chechen border. The force of the blast ejected some occupants and trapped many others inside and under the overturned train carriage. Rescue workers were encumbered for the next three hours by the snarl of electrical wires, cables, and overhead fires.

Time: _____ Date (MM/DD/YYYY): _____

Location: (Country, City, State/Province:

_____

Casualties' age distribution: _____

Number dead: _____

Number injured: _____

Number hospitalized: _____

Descriptions of injury:

Placement of bomb:

Description of bomber(s):

Observations post-disaster environment:

Rescue personnel difficulties:

Figure 1—Open-source information data collection sheet

The impacted car was occupied primarily by college students. The initial reports of dead varied from 36–42, but consistently was reported as 44 persons by the third day. Thirty-one of the 44 dead (70%) were declared dead-on-scene, up to 148 (75% of the initial survivors) were admitted, and another 50 were treated and released. No reports on behavioral, emotional, or psychological impact were identified during the 72-hour study period. The names of the dead were published, in addition to the ages of the victims ranged from 16–68 years old. The dead-on-scene represented 70% of all fatalities.

This bombing occurred two days before the Russian parliamentary elections. The bomb was detonated by one male suicide bomber, accompanied by three females who jumped off of the train just prior to the explosion. The bomber was found with multiple unexploded grenades strapped to his legs. Preliminary reports placed the explosive force of the bomb at 6–30 kg TNT-equivalence, with subsequent reports consistently ascribing the makeshift bomb with the explosive force of 10–11 kg TNT-equivalence.

Discussion

A review of data in the three public databases (MIPT, ICT, CNS)[5–7] revealed that the 05 December 2003 train bombing was a unique and previously unknown type of disaster. The train bombing at Mineralnye Vody was the first reported suicide bombing of any passenger train since 1968. Previous attacks predominantly were saboteur-like and involved bombs under tracks, train carriages, bridges, or in garbage canisters at railway stations, and seldom caused mass casualties. The previous highest casualty toll resulting from a terrorist train bombing occurred on an Algerian train in February 1998, killing 18 and injuring 25 (Figure 2; Table 1).

The usefulness and reliability of open-source information for health care has not been discussed widely, and minimum standards for its use have not been established. This may be because open-source information is a non-traditional medical and public health data source, due to a lack of understanding of its merit, reliability, and use. Ideally, the reliability of open-source information would be confirmed with the original writer, their sources, and/or dependable officials, prior to implementing program adjustments or changing preparedness strategies. However, open-source information is useful in supporting discussion and can provide initial, general details about a disaster to shape response. For example, Wax *et al* used open-source information as reference material in publishing their article to assist in determining the nature of the incapacitating agent used by the Russians against Chechen guerillas in the theater hostage crisis on 23 October 2003.[9] Among their references, 14 out of 33 (42%) consisted of open-source information articles stemming from CBS News, Global Security Newswire, *The New York Times*, CNN, Radio Free Europe, *The Washington Post*, Center for Defense Information, National Research Council, and commercial laboratory Websites.

Problems that might be encountered using solely open-source information in the form of news reports may include purposeful censorship and deception and disinformation campaigns.[1] In addition, open-source information news reports are prone to obvious problems such as questionable reliability, fidelity, objectivity, and professionalism of reporting and witness observations, none of which can be easily weighed or assessed by the average reader. As a result, intelligence communities emphasize the use of all sources of intelligence ("All Source") encompassing human, signals, imagery, science and technology, and open-source intelligence to reinforce information and to confirm key facts and data, thereby gaining a more comprehensive picture of the issue in question.[1] Although intelligence and public health are different fields, some similar concepts can be applied. For instance, investigators from the Epidemiologic Intelligence Service of the (US) Centers for Disease Control and Prevention, field officers from the United States Agency for International Development (USAID), and researchers and officers with the US Army, Navy, Air Force, and the Armed Forces Medical Intelligence Command, may provide a unique view of the disaster-stricken region and health effects with first-hand accounts. Linking their observations with open-source information could increase the validity of open-source intelligence as a health planning tool.

Furthermore, it is important to point out that this study only evaluated the use of news, media reports and a handful of public disaster databases as forms of open-source information. Other types demand a more methodical and systematic review. They include periodicals, pamphlets, manuscripts, maps, newspapers, music cores, microfilms, motion pictures, photographs, recordings, drawings, books, catalogues, brochures, pamphlets, advertisements, radio and television broadcasts, commercial databases like LEXIS/NEXIS,

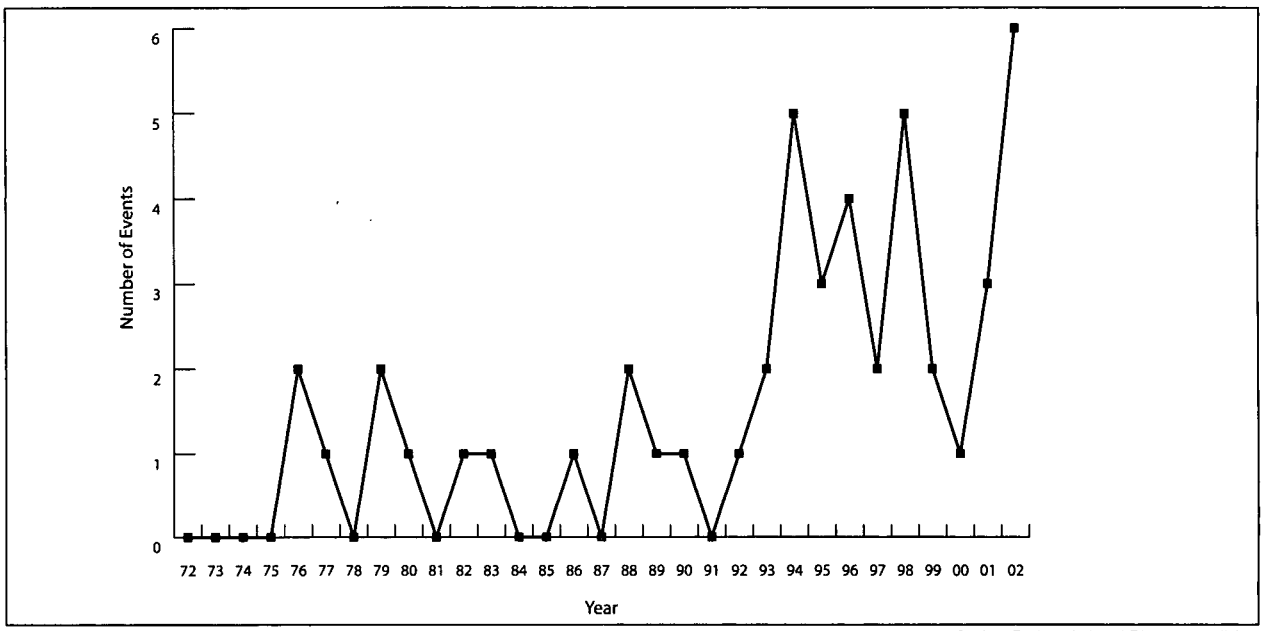

Figure 2—Terrorist bombings on commuter trains, railway lines, train stations, and subway stations, January 1972–July 2002[9–11]

Year	Number of Attacks	Killed	Injured	Locations (Number of Attacks)
1972	1	0	0	Austria (1)
1973	0	0	0	
1974	0	0	0	
1975	0	0	0	
1976	2	8	59	Egypt (1), England (1)
1977	1	0	0	Yugoslavia (1)
1978	0	0	0	
1979	2	0	0	Israel (1), Spain (1)
1980	1	0	0	Switzerland (1)
1981	0	0	0	
1982	1	5	27	France (1)
1983	1	2	88	France (1)
1984	0	0	0	
1985	0	0	0	
1986	1	0	10	France (1)
1987	0	0	0	
1988	2	5	16	Pakistan (2)
1989	1	0	0	Czechoslovakia (1)
1990	1	11	35	Pakistan (1)
1991	0	0	0	
1992	1	0	0	England (1)
1993	2	0	2	Ireland (1), England (1)
1994	5	17	75	Egypt (2), Azerbaijan (2), Israel (1)
1995	3	7	103	France (2), Switzerland (1)
1996	4	12	357	France (4)
1997	2	2	38	India (1), Colombia (1)
1998	5	33	78	Algeria (2), India (1), Pakistan (2)
1999	2	10	59	India (2)
2000	1	10	30	Pakistan (1)
2001	3	3	18	Italy (1), India (2)
2002	6	0	29	India (4), Colombia (1), Spain (1)

Table 1—Terrorist bombings on commuter trains, railway lines, train stations, and subway stations, January 1972–July 2002[9–11]

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Dialog, Reuters, and *The New York Times*, and information such as news media reports from the Internet.[1,2]

Furthermore, disasters vary in context and dimension. Information from terrorist attacks like this particular event will be more limited, and possibly easier to report than data from a longer lasting disaster that affects a greater number of people, such as an earthquake, drought, or tsunami. Therefore, open-source information offers varying sources, abundance, and quality of information depending on the type of disaster.

The 05 December 2003 attack at Mineralnye Vody was the first terrorist suicide bombing inside a commuter train. Just two months later on 06 February 2004, a second commuter train bombing (non-suicide) occurred in Moscow, also during morning rush hour (08:40 hours).[10] One month later, the Madrid train bombings occurred on 11 March 2004, with similar features as the 05 December train bombing, including the: (1) environment of the explosion (confined space, commuter train); (2) time of the bombing (morning rush hour); and (3) type of bomb.[11] Interestingly, it appears that through news reports of the Madrid bombing, rescue delayed access and transport because all of the bombings occurred several hundred meters from the train stations. The first published account of injury patterns and casualty outcomes appeared in the *Journal of Trauma* nearly one year later.[12] Ideally, open-source information reports that reconstructed the chain of disaster and response events like that reported in this study could be validated and used appropriately so that rapid case-reports for a system of disasters can be disseminated within the first 72 hours of the event creating an area of sentinel reporting labeled as Disaster Health Intelligence.

Conclusions

Open-source information should be recognized as potentially useful as a rapid, case-reporting tool, with longer-term implications reliant upon more extensive validation to identify current gaps in health-related training and response. Ultimately, the usefulness of open-source information to produce meaningful health intelligence requires more investigation, including the development of minimum standards for collection and analysis.

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