

A new challenge for midwives and medical doctors in time of the threat of a mass terrorist attack and a life-threatening mass disaster

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ABSTRACT

Purpose: To present the results of research and evaluation study of the legal regulations and rules directly linked and connected to midwives' scope of practice and provide a response on how the professional population of midwives can act as adequate and independent medical providers in the threat of a mass terrorist attack and/or a life-threatening mass disaster event.

Materials and methods: The data derives from the Supreme Chamber of Nurses and Midwives in Poland; National Council of Nurses and Midwives in Poland; Gazette of the Republic of Poland, Journal of Laws; curriculum outlines for professional midwifery higher education in Poland; scientific literature, scientific recommendations. The qualitative research method to the data sources in 2018 were used.

Results: In the event of a mass terrorist attack and/or a life-threatening mass disaster, the possibility of a

pregnant, birthing or postpartum woman and her newborn obtaining proper medical attention from a midwife is questionable.

Conclusions: The threat of terrorism in the European Union has grown. A new implications are necessary for policy and practice to keep midwives in their profession to provide adequate quality and quantity of health care in event of a mass terrorist attack and/or a life-threatening mass disaster. In our study we found: a terrorist threat as a gap in the teaching of obstetrics and midwifery; restricted availability of pharmacological agents for use by non-military midwives in event of a terrorist attack and/or a life-threatening mass disaster; lack of authorizations under a midwife license to perform PCD and /or PMCD.

Keywords: life-threatening mass disaster, terrorism, maternity care, PMCD, PCD, scope of practice

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IMPLICATIONS TO PRACTICE

In the event of a terrorist attack and/or a life-threatening mass disaster in the interests of the unborn child, newborn and its mother, as well as the interests and protection of public health, the following implication to practice are recommended:

- A midwife must be prepared for maternal sudden cardiac arrest and irreversible fatal injuries in a pregnant woman and be prepared to address the moral dilemma of delivering a fetus from a deceased mother's womb.
- Of crucial significance is theoretical and practical training of midwives focusing on the criteria and technique for performing postmortem Caesarean delivery (PCD). Acting as the first assistant during C-sections in a day-to-day practice can be the first step in the training of midwives to perform PCD in special situations.
- The extension of the statutory/legal rights and obligations of midwives to perform postmortem Caesarean deliveries (PCD) is essential.
- Under the threat of a terrorist attack and/or a life-threatening mass disaster event, a midwife should have the right and the duty to order, prescribe and administer pharmacological agents which, on a daily basis, are prescribed at the discretion of an OB/GYN specialist.
- The education of midwives is of high-priority to address the effects of a terrorist attack and/or a life-threatening mass disaster event, concerning the health of a pregnant woman and her fetus, the course of her pregnancy and delivery, the methods of prevention and treatment, and extending professional authorizations under the midwife license in the face of terrorism and/or mass disaster.
- A midwife should be prepared to provide medical services in case of bioterrorism when the following well known biological agents are used: *anthrax, botulism, brucellosis, hemorrhagic fevers, plague, Q fever, ricin, smallpox, staphylococcus enterotoxin B (SEB), and tularemia*. Pregnant women, newborns, infants and young children are particularly vulnerable.

INTRODUCTION

In Boyd's dissertation the U.S. State Department defines terrorism as premeditated, politically motivated violence perpetrated against non-combatant targets by subnational groups or clandestine agents, generally intended to influence an audience [1].

The terrorist threat has been present and

operating in Polish public space, particularly since the Polish accession to NATO and the European Union. The uncontrolled influx of foreigners crossing the European Union (EU) borders without any identification may arouse suspicions. This wave of migration is coming with the approval of some key EU representatives reaching its peak in the spring, summer and fall of 2015. It is possible that uncontrolled migration has contributed to the increased terrorist threat in the EU countries and may have caused the six coordinated simultaneous terrorist attacks in Paris and Saint Denis on November 12, 2015. In those attacks, 132 people died, and over 250 were wounded [2]: 99 of the wounded were in critical condition in the first 24 hours following the attacks. This act of terrorism was directed against people with no ties to political or military groups or with the media. The worldwide media reported the attack as crucial blow against France, often referred to as "the French 9/11", an allusion to the "9/11 WTC terrorist attack" in New York on September 11, 2001.

On March 22, 2016 horrific suicide attacks on the airport and the city's metro system in Brussels killed 35 people and injured more than 300. The attacks were claimed by the Islamic State (IS) militant group [3].

On July 24, 2016 Syrian refugee hacks 45-year-old Polish pregnant woman to death with machete and injures two others in Reutlingen, Germany [4-7].

As terrorist activities have become more varied, terrorism has become more difficult to predict [8]: terrorism is aimed primarily at civilians, including pregnant women.

In the terrorist attack of November 13, 2015 at the Bataclan Theatre in Paris, one pregnant woman was desperately clinging to a second floor window ledge outside the theatre, calling for help to escape gunmen [9,10,11].

To provider a visualization of the threat of terrorism [12], Figures 1 – 6 represent the rise of terrorism in the EU [13-18].

At present, almost every day the media reports about terrorist attacks or attempts in the European Union.

Between 2004 and 2016, the 28 European Union member states lost around €180 billion in G.D.P. terms due to terrorist attacks [19,20]. As per 2017 European Union Terrorism Report, data of 2016 confirms 142 failed, foiled and completed terrorist attacks, 1002 arrests and 142 victims died [21].

In 2017 the EU faced 205 terror attacks in United Kingdom (107 attacks), France (54 attacks), Spain (16 attacks), Italy (14 attacks), Greece (8 attacks), Belgium (2 attacks), Germany (2 attacks), Sweden (1 attack), Finland (1 attack) [22]. The

European Police Agency believes the terror threat remains high in the European Union [23].

The above data represent a high level of terror threat in the UE, and may serve as a background of argumentation, proposition, indeed necessity to advance coursework aimed to increase

midwives' scope of practice in time of the threat of a mass terrorist attack and/or a life-threatening mass disaster event. Thus, the mentioned advanced coursework represents an important attempt to protect public health, the health of pregnant women, fetuses and newborns.

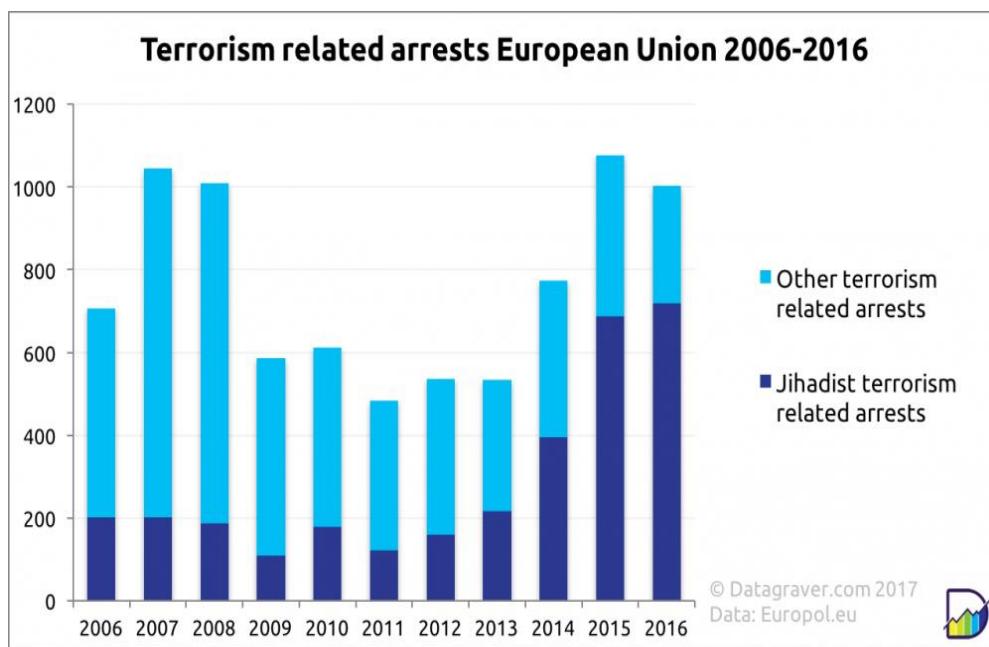


Figure 1. Terrorism related arrests European Union 2006-2016 [13]

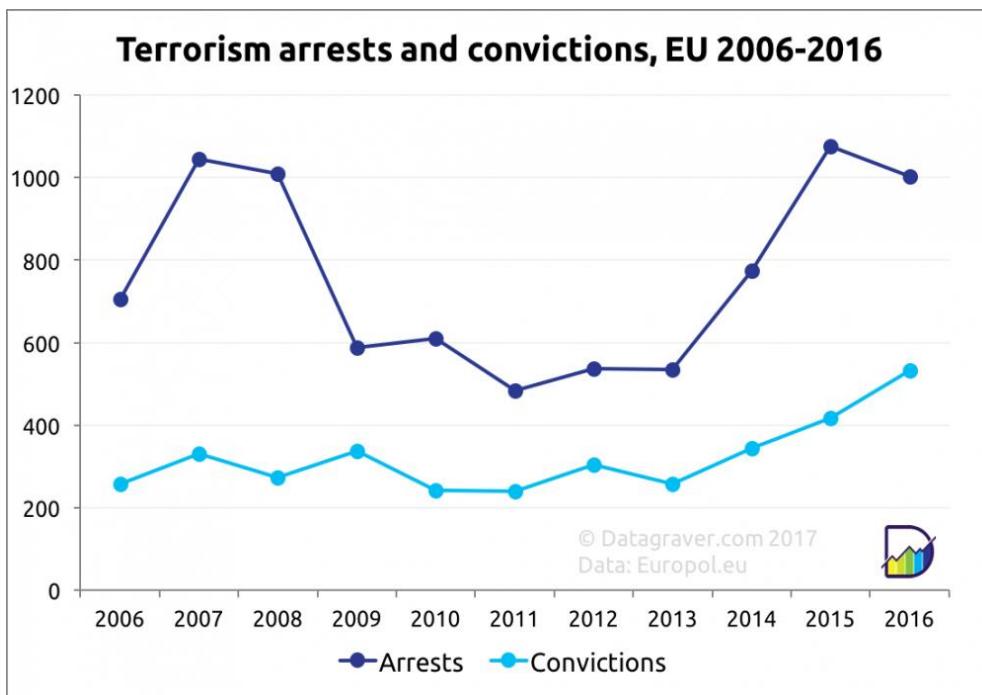


Figure 2. Terrorism arrests and convictions, European Union 2006-2016 [14]

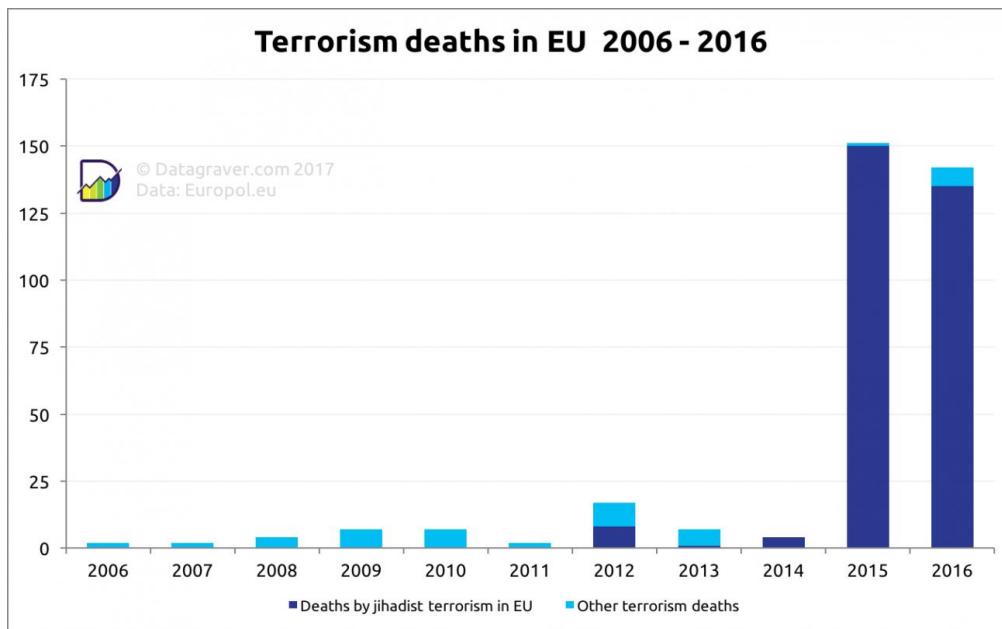


Figure 3. Terrorism death in European Union 2006 -2016 [15]

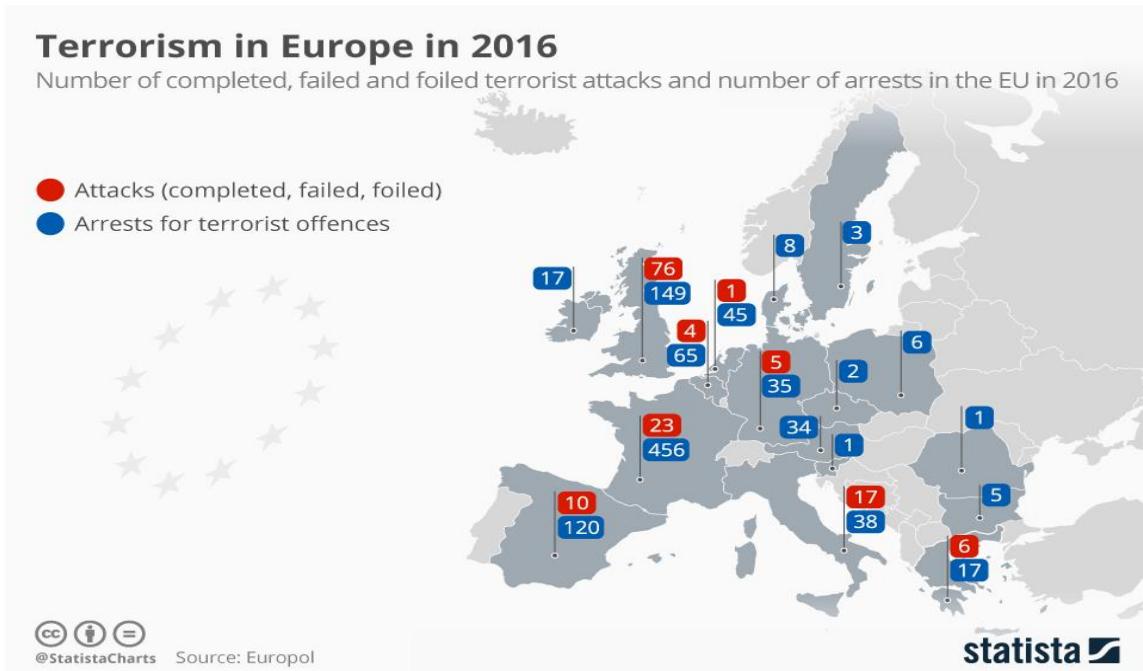


Figure 4. Terrorism in Europe in 2016. Number of completed, failed and foiled terrorist attacks and number of arrest in the European Union in 2016 [16]

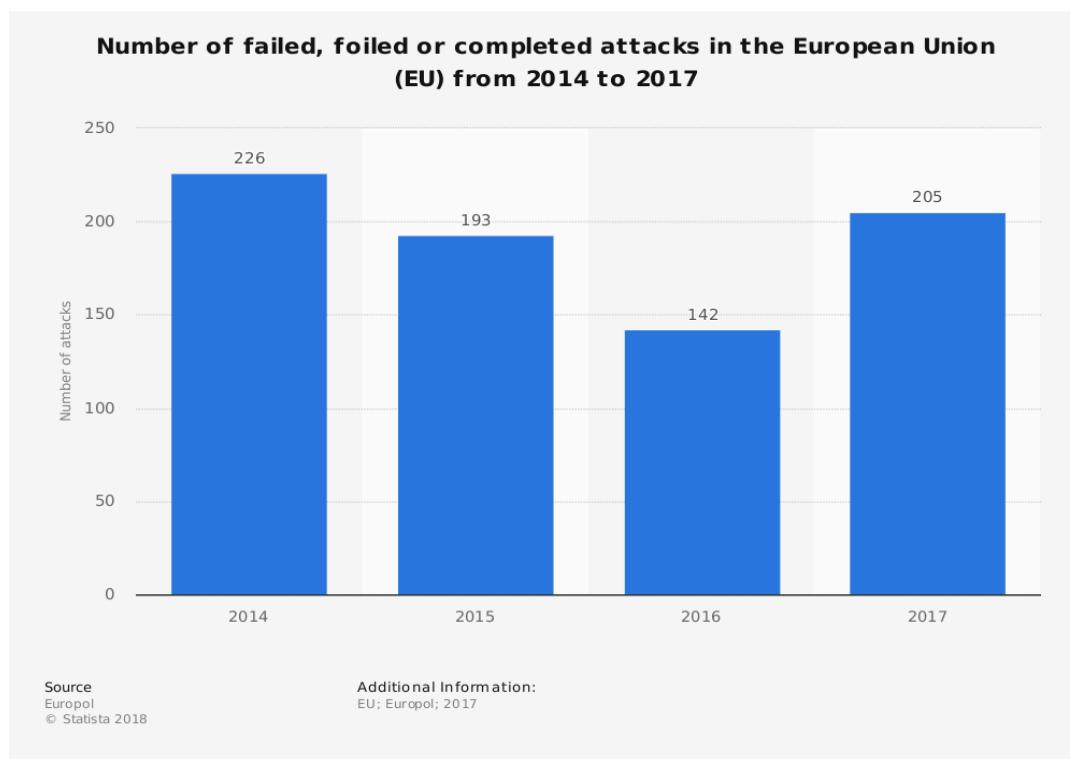


Figure 5. Number of failed, foiled or completed attacks in the European Union from 2014 to 2017 [17]

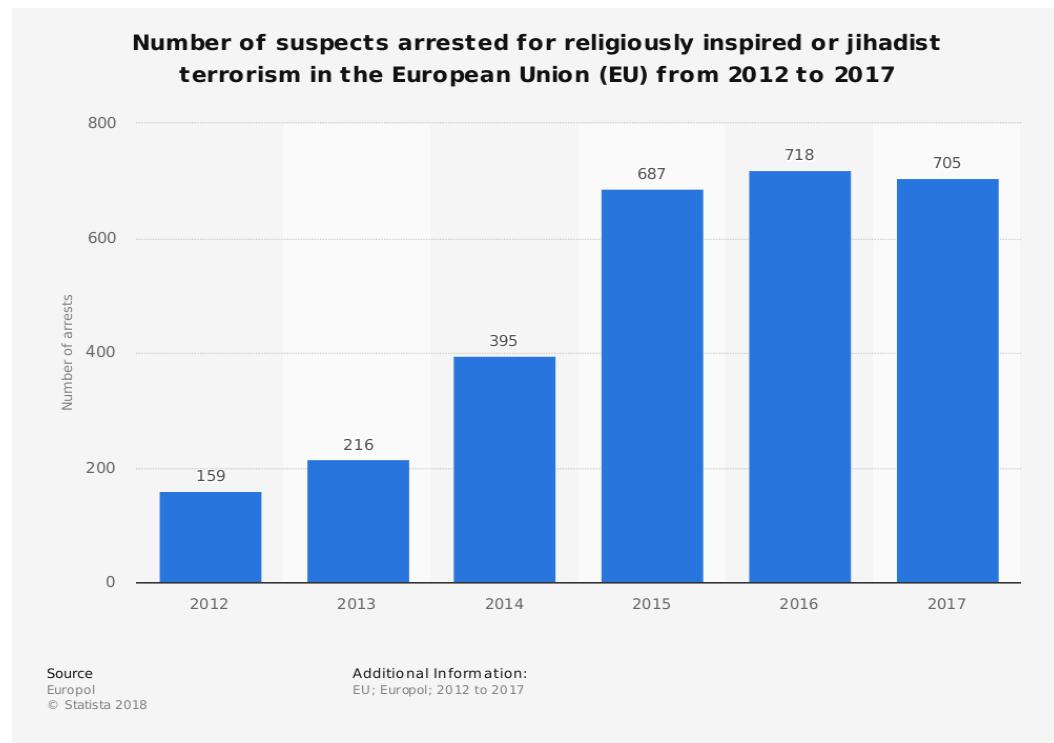


Figure 6. Number of suspects arrested for religiously inspired or jihadist terrorism in the European Union from 2012 to 2017 [18]

MATERIALS AND METHODS

Review of literature

The limited number of researches data on the subject topic in world scientific publications represents a gap in the teaching of obstetrics and midwifery, and the scope of knowledge unavailable to midwives. However, first and corresponding author of this article Mr. Dariusz Wojciech Mazurkiewicz, Ph.D. in Medical Sciences, made a several Keynote Presentations on following topics directly related and linked to main subject of this article, i.e. „Dilemmas of Medical and Legal Security in Providing Midwifery Healthcare in the Event of a Mass Terrorist Attack” (The Keynote Presentation delivered at Nursing World Congress and Health Care, November 19-20, 2018, Orlando, Florida, USA [24]), „Limitations and Risks in Providing Midwifery Healthcare in the Event of a Mass Terrorist Attack” (The Keynote Presentation delivered at EuroSciCon Event on Nursing Diagnosis & Midwifery, September 10-11, 2018, Prague, Czech Republic [25]), „Cooperation Between Midwives and Medical Doctors in the Face of a Terrorist Threat” (The Keynote Presentation delivered at 3rd International Conference Nursing and Midwifery, May 23-24, 2018, New York, USA [26]), “Psychological-psychiatric Consequences of a Terrorist Attack on the Human Body” (Presented at International Scientific Conference “Polish, European, Global Nursing”, October 9-10, 2017, Warsaw, Poland [27]), „The Impact of a Mass Terrorist Attack on the Health of an Expectant Mother and Her Fetus as well as the Course of Pregnancy and Delivery” (Presented at The 4th Polish National Congress of Midwives, November 21-22, 2014 Warsaw, Poland [28]).

In fact, the first study in two scientific publications in Poland note the need to examine the role of midwives in providing medical services before, during and after a terrorist attack [27,28].

With this in mind, it seemed crucial to conduct the current research and evaluation study of the legal regulations and rules directly linked and connected to midwives' scope of practice and provide a response on how the professional population of midwives can act as adequate and independent medical providers in the threat of a mass terrorist attack and/or a life-threatening mass disaster event.

For the purpose of this study and pursuant to the recommendations of the California Association of Neonatologists, a data contained in its Bioterrorism Treatment Response Guidelines [29] would allow midwives to differentiate among agents and determine the type of agent used in an act of

bioterrorism. Midwives would also be able to take indispensable steps to isolate the victim (if required) and initiate necessary treatment (using specific pharmacological agents), and to order necessary diagnostic, and laboratory tests to confirm or rule out the diagnosed type of agent used in the terrorist attack.

To the authors' knowledge, no regulatory agency nor medical institution has thus far addressed this article subject matter. The authors of this article are the first to raise the issue of this realistic and crucial challenge for midwives and medical doctors in the face of a threat of a mass terrorist attack and/or a life-threatening mass disaster event.

Design

Descriptive research design and evaluation of legal regulations, rules and scope directly linked and connected to the professional practice of midwives in the event of a mass terrorist attack and/or in the case of a life-threatening mass disaster.

Setting of authors

One medical and mental health clinic in Manhattan, New York (USA); three Medical universities and two public hospitals in territory of the European Union located in Poland.

Data sources

It was conducted research of the source materials consisting of the data derives from: Supreme Chamber of Nurses and Midwives in Poland; National Council of Nurses and Midwives in Poland; Gazette of the Republic of Poland, Journal of Laws of 20 October 2015, Pos. 1739, a regulation of the Minister of Health dated October 20, 2015 (Dz.U. z 2015 r., poz. 739); Gazette of the Republic of Poland, Journal of Laws of 05 June 2012, Pos. 631, a regulation of the Minister of Science and Higher Education dated May 09, 2012 (Dz.U. z 2012 r., poz. 631); the European Resuscitation Council Guidelines for Resuscitation 2015; the EU law in force in Poland (European Commission, DIRECTIVE 2005/36/EC National legislation: Law of 15 July 2011 on Nurse and Midwife Professions); curriculum outlines for professional midwifery higher education in Poland; scientific literature, scientific recommendations.

Measures

The qualitative research method of critical approaches, critical thinking and critical analyzes to the data sources collected and presented in 2018 were used.



Photo 1. Dr. Dariusz Wojciech Mazurkiewicz is delivering Keynote Presentation titled „*Dilemmas of Medical and Legal Security in Providing Midwifery Healthcare in the Event of a Mass Terrorist Attack*” at Nursing World Congress and Health Care, November 19-20, 2018, Orlando, Florida, USA

RESULTS

In our study we found: a terrorist threat as a gap in the teaching of obstetrics and midwifery; restricted availability of pharmacological agents for use by non-military midwives in event of a terrorist attack; lack of authorizations under a midwife license to perform postmortem Caesarean delivery (PCD) may badly affect mortality of infants, especially if midwife will be not prepared to saving a fetus living in a dead mother's womb; a new implications are necessary for policy and practice to keep midwives in their profession to provide adequate quality and quantity of health care in the event of a terrorist attack and/or in the case of a life-threatening mass disaster.

Therefore, curriculum areas shall be improved and must be included i.e.: theoretical and practical training of midwives focused on the criteria and technique for performing postmortem Cesarean delivery (PCD), acting as the first assistant during C-sections in a day-to-day practice can be the first step in the training of midwives to perform PCD in special situations.

The education of midwives is necessary to address the effects of a mass terrorist attack on the health of a pregnant woman and her fetus, the course of her pregnancy and delivery, methods of prevention and treatment, and extending professional authorizations under the midwife license in the face of terrorism. Improved curriculum must involve the inclusion of additional pharmaceutical agents to prevent pregnant women' and infant mortality and enhance their safety. Such education may guarantee a stable, high level of public health protection in the population of women and newborns.

DISCUSSION

Indisputably, a terrorist threat is a new challenge for midwives and physicians in Poland and the UE . The limited number of researches on this topic represents a gap in the teaching of obstetrics and midwifery, and the scope of knowledge unavailable to midwives. The obstetrics and midwifery curriculum in undergraduate and graduate programs must be updated and authorizations under a midwife license extended in a manner enabling midwives to extend their knowledge and awareness to develop the methods, expertise and confidence to provide medical services to a pregnant, birthing or postpartum woman and her newborn in precisely such a situation as acts of terrorism and/or a life-threatening mass disaster.

The controversy concerning the right of non-military midwives to prescribe medication

The ongoing argument in Poland and the controversy concerning the right of midwives to prescribe medication should not be delayed until after a terrorist act occurs, which may be at any time and any place. The Official Gazette of the Republic of Poland, Journal of Laws of 20 October 2015, Pos.1739 [30], establishes a list of active substances contained in medicines that Polish nurses and midwives are all owed to recommend. The following groups of medications were designated as drugs that midwives may prescribe on their own:

- anti-emetics,
- topical anti-infectives,
- gynecological anti-infectives,
- antianemics,
- general anti-infectives (in disorders invol-

- ving throat, ear, sinuses, urinary tracts, periodontium, periosteal tissue and skin),
- topical anesthetics,
 - analgesics,
 - anxiolytics,
 - antiparasitics,
 - bronchodilators,
 - vitamins and infusion fluids.

Unfortunately, the aforementioned group of drugs is quite limited and clearly insufficient to save the life of a pregnant woman, a woman in the perinatal period, a birthing woman, a woman in the postpartum period, or the endangered life of a fetus or a newborn before, during or after a mass terrorist attack. First, the list does not include antibiotics, or other pharmacological agents that are recommended by the U.S. Food and Drug Administration for administration in the case of a bioterrorist attack to be used by pregnant and lactating women [31].

These drugs include agents such as ciprofloxacin (Cipro), doxycycline (Vibramycin, Monodox, Doryx, Doxy, Atridox, Periodox, Vibra-Tabs), amoxicillin (Amoxil, Larotid, Trimox, Wymox); and other antibiotics that are not recommended as a first choice for use by pregnant and lactating women [29], such as levofloxacin, rifampin, streptomycin, gentamicin, trimethoprim-sulfamethoxazole, doxycycline and penicillin G procaine for inhalational anthrax (post-exposure), botulism immune globulin (BabyBIG) for treatment of infant botulism or vaccinia vaccine. In fact, improved curriculum must involve the inclusion of additional pharmaceutical agents to prevent pregnant women and infant mortality and enhance their safety. Such education may guarantee a stable, high level of public health protection in the population of women and newborns.

Terrorism demands that midwives provide medical services to women and their unborn and/or newborn children

Terrorism demands that midwives provide medical services to women and their unborn and/or newborn children, often in life-threatening conditions for the new mother, the child, the pregnant woman and her fetus when the presence of an OB/GYN specialist or an emergency medical team may be limited or even impossible. Therefore, morally and ethically, when living under a threat such as terrorism, a midwife's professionalism is crucial, a midwife should have the right and the duty to order, prescribe and administer pharmacological agents that, on a daily basis, are prescribed at the discretion of an OB/GYN specialist. It is logical that the Ministry of Health in Warsaw, Poland, as a legislator for medical providers including midwives, is obligated in

cooperation with the National Council of Nurses and Midwives to address this issue by determining all details related to the expansion of the list of life-saving medications and pharmacological agents that a midwife will be authorized to administer in crisis situations such as acts of terrorism.

The effects of a mass terrorist attack on the health of an expectant mother and her fetus as well as the course of her pregnancy and delivery

The negative effects of a mass terrorist attack on the health of an expectant mother and her fetus as well as the course of her pregnancy and delivery are related to numerous factors, including but not limited to the direct effect of toxins on a child's neurological development (e.g., the effect of Polybrominated diphenyl ethers in the 9/11 attack); endocrinological system disorders (e.g., cortisol level disorders); the incidence of post-traumatic stress disorders in the newborns of mothers who experience a terrorist attack during pregnancy; the risk of PTSD-diagnosed mothers bearing hyperactive children; physiological delays of the initiation of labor in full-term pregnancies; an increase in deliveries in weeks 33-36 with a birth weight below 1500g when conception coincided with the date of the terrorist attack; the distances between the pregnant woman and the epicenter of the strike (attack) may lead to a low birth weight and anomalies in the course of the pregnancy, fetus metrical disorders; an increase in the frequency IUGR (intrauterine growth restriction) [28].

The statutory extension of authorizations for midwives to perform procedures postmortem Caesarean deliveries in crisis situations

Providing obstetrical services in crisis situations must include the statutory extension of authorizations for midwives to perform procedures such as postmortem Caesarean deliveries (PCD). This issue is significant in itself beyond relieving OB/GYN doctors in their everyday practices or interfering with their competence. According to Sandler [32], terrorism is the premeditated use of or threat to use violence by individuals or subnational groups to obtain a political or social objective by the intimidation of a large audience beyond the immediate noncombatant victims.

Therefore, a midwife can face the drastic consequences of terrorism outside the hospital, in the street or at another atypical spot. A midwife must be prepared for a sudden cardiac arrest and irreversible fatal injuries in a pregnant woman, and be prepared to address the moral dilemma of saving a fetus living in a dead mother's womb. Such situations may lead to the paradox of midwives' lack of knowledge

regarding recommendations and techniques for performing a postmortem Caesarean delivery (PCD) and fear of criminal liability because of the need to perform the operation to save the baby's life.

Postmortem Caesarean is the delivery of a child by Caesarean section after the death of the mother [33]. Postmortem and perimortem Caesarean section are considered together because the two procedures occur in comparable situations and should optimally be performed at the site of the cardiac arrest [34].

The European Resuscitation Council Guidelines for Resuscitation and performing a perimortem delivery of a fetus by Caesarean section

Pursuant to the European Resuscitation Council Guidelines for Resuscitation 2015, performing a perimortem delivery of a fetus by Caesarean section is recommended in cases in which the fetus is more than 27 weeks of GA (gestational age), weighs approximately 1000 grams, and has audible heart tones (even singular) per one-minute time unit. Experts believed that a fetus's chances of survival are good after 24-25 weeks GA; if no more than 5 minutes have elapsed since the mother's cardiac arrest and if that cardiac arrest was preceded by advanced resuscitation. Fetuses 30-38 weeks GA extracted more than 5 minutes after the mother's sudden cardiac arrest have a good prognosis for survival [35].

Two cases of successful postmortem Caesarean section were reported, performed 45 and 15 minutes after maternal death in a 29-year-old pregnant woman at 37 weeks gestation with cardiopulmonary arrest following gunshot injuries to the head, and in a 28-year-old primigravida of 31 weeks gestation with cardiopulmonary arrest because of massive brain and thoracic hemorrhage after a traffic accident [34].

In January 2008, a description was published of the first case of a perimortem Caesarean section 30 minutes after the mother's death [36]. A woman in labor jumped from a fourth-floor window. Despite such a traumatic situation, the baby survived and was a normal at age 4. The best scheme to adopt is the 4+1 plan, in which after 4 minutes of intensive CPR (cardiopulmonary resuscitation) to a pregnant woman, her child is extracted within 1 minute [37].

The authors of this article have not encountered any publication in the world literature containing information on the perimortem or the postmortem delivery of a fetus by Caesarean section and on the survival rate; when such surgery has been performed as a consequence of a terrorist attack.

However, we cannot rule out a scenario, in which severe stress or other circumstances caused by terrorism and/or its consequences; lead to extreme,

uncontrolled and desperate behaviors in pregnant or even birthing women, such as suicide attempts similar to the one described in the 2008 publication.

In such circumstances, when a pregnant woman is pronounced dead, a midwife is obligated to make every effort to save the fetus living in the dead mother's womb. Scarcely any time is available to extract the fetus: 5 minutes from the mother's cardiac arrest, according to adopted standards. A successful extraction of the fetus from the dead mother's womb may be accomplished only by a midwife who has been properly trained in postmortem Caesarean delivery (PCD).

Lack of criteria allowing midwives to conduct a postmortem Caesarean delivery (PCD) and / or a perimortem Caesarean delivery (PMCD).

At the moment, the European Union law [38], education standards for faculties of midwifery [39], curriculum outlines for professional midwifery higher education, all of them, in force in Poland do not contain any criteria allowing midwives to conduct a postmortem Caesarean delivery (PCD) or a perimortem Caesarean delivery (PMCD). The current law should be changed because none of the 36,095 (in 2015) registered midwives in Poland [40], and none of 36,806 (in 2016) registered midwives in Poland [41], has the right to perform a PCD and / or a PMCD. The change should occur not only because of the real threat of terrorism in the European Union and in the modern world, but also in the spirit of the right to life, because the right to save any life is a priceless treasure, because of the spirit of humanitarianism in its broadest sense, and because of respect and concern for existence of the human race.

Acting as the first assistant during C-sections in a day-to-day practice can be the first step in the training of midwives to perform PCD in special situations.

Terrorism in the modern world and scope of practice in midwives profession

Terrorism in the modern world is not limited to sudden violence with firearms, bombs, or suicide bombings, causing immediate fatalities in the immediate strike area and shock, fear, PTSD and depression in the victims, their families and many other people.

Bioterrorism is a more insidious form of terrorism with a much larger striking distance if no effective treatment is applied. A disease may have a short or long incubation periods, depending on the type of biological agent used, the specific characteristics of its manner of penetration into the body, the type and speed of its destructive effect on specific organs and body systems and its level of

lethality.

What is essential is the midwives' knowledge of indicators of a possible bioterrorist event, such as large numbers of patients with similar symptoms of disease; large numbers of patients with unexplained symptoms, diseases, or deaths; higher than expected morbidity and mortality associated with a common disease and/or failure to respond to traditional therapy; a single case of a disease caused by an uncommon agent; multiple unusual or unexplained clinical syndromes in the same patient; disease with an unusual geographic or seasonal distribution; unusual typical patient distribution; unusual disease presentation; similar genetic types among pathogens from temporally or spatially distinct sources; unusual, atypical, genetically engineered, or antiquated strains of pathogens; endemic disease with a sudden unexplained increase in incidence; simultaneous clusters of similar illness in noncontiguous areas; pathogens or toxins transmitted by aerosol, food, or water contamination, suggestive of sabotage; ill persons presenting at nearly the same time from a point source (e.g., a tight cluster of patients meeting case definition), with a compressed epidemiologic curve (the rate of change of new cases significantly higher than predicted based on historical or modelling data); no illness in persons not exposed to common ventilation systems when illness is observed in people in proximity to those systems; death or illness among animals that may be unexplained or attributed to an agent of bioterrorism that precedes or accompanies illness or death in humans [42].

A midwife should be prepared to provide medical services in case of bioterrorism when the following best known biological agents may be used against people: anthrax, botulism, brucellosis, hemorrhagic fevers, plague, Q fever, ricin, smallpox, staphylococcus enterotoxin B (SEB), and tularemia. Pregnant women, newborns, infants and young children are particularly vulnerable.

According to the FDA, anthrax is one of the more likely agents to be used in a biological attack, primarily because its spores are quite stable and easy to disperse. The FDA announced on November 23, 2015 that it was adding a new indication to prevent anthrax after suspected or confirmed exposure to *Bacillus anthracis*, the disease-causing bacterium, in individuals 18 to 65 years of age. Clinicians should order the vaccine (BioThrax) in conjunction with recommended antibiotic treatment. Adverse reactions in the human study resembled reactions observed when the vaccine is used for pre-exposure protection against anthrax. Tenderness, pain, swelling, redness at the injection site, and limited arm movement compose the majority of localized adverse reactions. The most common systemic reactions were muscle ache,

headache, and fatigue. BioThrax is the first vaccine to receive approval based on the Animal Rule. The Animal Rule allows animal efficacy data to be used as a basis for approval when human efficacy studies are not ethical or feasible [43,44].

CONCLUSIONS

A midwife has a right and an obligation to be a qualified independent medical professional to assist a pregnant, birthing and postpartum woman, her unborn child and/or her newborn, in an extreme situation, such as a terrorist attack and/or a life-threatening disaster.

The Ministry of Health in Warsaw, Poland, as a legislator for medical providers including midwives, is obligated in cooperation with the National Council of Nurses and Midwives to determine all details related to a list of life-saving medications and pharmacological agents that a midwife will be authorized to prescribe and administer in crisis situations; such as acts of terrorism and/or a life-threatening disaster.

Updating and verification of the obstetrics curriculum for undergraduate and graduate programs are pivotal to address the gap in the teaching of obstetrics to include the active and professional provision of medical services by midwives: during and after various terrorist attacks, with a special focus on bioterrorism. Such programs must include theory classes on the criteria and techniques for performing postmortem Caesarean delivery (PCD) and practical improvement of PCD techniques in operating rooms.

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Conflicts of interest

The authors have declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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