

Interdisciplinary Disaster Preparedness: Study Abroad in St. Kitts and Nevis

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Milbrath G., Snyder, A. & Martin, M. (2020). Interdisciplinary Disaster Preparedness: Study Abroad in St. Kitts and Nevis. *Health Emergency and Disaster Nursing*, 7(1),55-62.
<http://doi.org/10.24298/hedn.2018-0008>.

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Aim: Disaster preparedness education is one approach to improving the preparedness of the health and public sector work force. The purpose of this report is to describe one approach to improving disaster preparedness for nurses and other health professionals through the unique opportunities available through academic study abroad. This report will describe the process of developing, approving, and implementing a disaster preparedness course in Saint Kitts and Nevis as a model for other programs. **Methods:** This case report was written based on the experiences of the authors who have together developed and implemented an interdisciplinary study abroad program in disaster preparedness and global health at three different institutions. Common strategies and barriers are described to model and encourage others to produce similar programs in other locations. **Results:** The major steps involved in creating a disaster preparedness study abroad program are selecting an international partner, developing course curriculum, writing a course program proposal, recruiting students, and maintaining international partnerships. As an example, the program in Saint Kitts and Nevis is described and incorporates learning strategies, including guest lectures, applied activities, service learning, cultural experiences, and simulation activities. **Conclusion:** This case report provides an example of how to propose, develop, and implement a study abroad course in disaster preparedness. As disaster preparedness, response, and management is a multidisciplinary field, early exposure to diverse training and knowledge in a new environment can prepare nurses and professionals from other disciplines to contribute to a culture of disaster preparedness both in their chosen communities and across the globe.

Keywords: study abroad | interdisciplinary education | Caribbean | disaster nursing

Article:

***Note: Full text of article below

PRACTICAL REPORT

Interdisciplinary disaster preparedness: Study abroad in Saint Kitts and Nevis

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Abstract

Aim: Disaster preparedness education is one approach to improving the preparedness of the health and public sector work force. The purpose of this report is to describe one approach to improving disaster preparedness for nurses and other health professionals through the unique opportunities available through academic study abroad. This report will describe the process of developing, approving, and implementing a disaster preparedness course in Saint Kitts and Nevis as a model for other programs.

Methods: This case report was written based on the experiences of the authors who have together developed and implemented an interdisciplinary study abroad program in disaster preparedness and global health at three different institutions. Common strategies and barriers are described to model and encourage others to produce similar programs in other locations.

Results: The major steps involved in creating a disaster preparedness study abroad program are selecting an international partner, developing course curriculum, writing a course program proposal, recruiting students, and maintaining international partnerships. As an example, the program in Saint Kitts and Nevis is described and incorporates learning strategies, including guest lectures, applied activities, service learning, cultural experiences, and simulation activities.

Conclusion: This case report provides an example of how to propose, develop, and implement a study abroad course in disaster preparedness. As disaster preparedness, response, and management is a multidisciplinary field, early exposure to diverse training and knowledge in a new environment can prepare nurses and professionals from other disciplines to contribute to a culture of disaster preparedness both in their chosen communities and across the globe.

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INTRODUCTION

Over the past decade, disasters have affected approximately 1.7 billion people worldwide, and can occur in any community, and at any time (United Nations Office for Disaster Risk Reduction, 2015). Local health and public sector employees are frequently the first to respond

to these disasters that can occur in any community; however, managing these various professionals can be challenging. As nurses make up the largest percentage of the health sector workforce, worldwide, it is important that nurses have basic competencies in disaster preparedness and response. Nurses are uniquely embedded within communities and hospitals to respond meaningfully to the acute and chronic needs of a population recovering from a disaster; however, nurses feel largely unprepared to respond to a disaster scenario (Labrague et al., 2018).

Disaster preparedness education is one approach to improving the preparedness of the health and public sector workforce. Computer-based disaster training is

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Received 6 July 2018; accepted 6 August 2019; J-STAGE advance published 31 October 2019.

available through a variety of American and international organizations; however, no consensus exists relating to the fundamental elements of the curriculum, how the content is best delivered, or how to ensure the content is retained and applicable to nurses practicing in a multitude of settings (Littleton-Kearney & Slepski, 2008). Nurse educators have used a variety of techniques, including simulation, disaster drills, online modules, and tabletop exercises (Alfred *et al.*, 2017). Other educators have leveraged community training programs through organizations such as the Red Cross to involve students in disaster preparedness education in the community, as part of a community health clinical course (Bowker & Tomlinson, 2017). Despite these attempts, nursing students in the USA continue to feel unprepared for disasters (Schmidt *et al.*, 2011). Interdisciplinary simulation in disaster training has been attempted, but has been limited to health professional students; in one example, nursing and radiology (Zapko *et al.*, 2015). This case report describes a novel approach using a combination of many of the methods described above to teach disaster education to nurses through interdisciplinary teamwork, in a new environment highly vulnerable to disasters.

A disaster education call to action in nursing has recommended the development of “evidence-based and competency-driven didactic and clinical learning opportunities using multiple delivery platforms that can be integrated into the undergraduate and/or graduate nursing curricula” (Veenema *et al.*, 2016). In 2009, the International Council of Nurses, as a part of the World Health Organization, developed disaster competencies for nurses using the disaster cycle (mitigation/prevention, preparedness, response, and recovery/rehabilitation) as a framework, which are in the process of being revised and updated (ICN & WHO, 2009).

The course titled “Disaster Preparedness and Global Health in the West Indies” was designed to meet these competencies for both nursing students and students from other disciplines. The purpose of this report is to describe one approach to improving disaster preparedness for nurses and other professionals through the unique opportunities available through faculty-led academic study abroad. This report will describe the process of developing, approving, and implementing a disaster preparedness course in Saint Kitts and Nevis as a model for other programs. Although relevant to nursing educators, this report can be helpful for all university faculty interested in leading an interdisciplinary study abroad course, or for those interested in creative and engaged pedagogy to teach disaster preparedness competencies.

SELECTING AN INTERNATIONAL PARTNER

When considering the development of a study abroad course, it is important to identify and develop international partnerships to ensure the proposed program aligns with in-country goals. The program should support local structures in place, respect the local culture, and augment the local economy (especially if working with small, isolated, or low-resource countries). In this case report, Saint Kitts and Nevis was chosen as the international partner through the development of partnerships with the national government and local businesses in the community.

Saint Kitts and Nevis is a small, two-island federation located in the West Indies. Small island developing states like Saint Kitts and Nevis are especially vulnerable to natural disasters, as seen by the catastrophic storms threatening and damaging this region during the 2017 Atlantic hurricane season, where 22 of the 29 island states in the region were affected. Saint Kitts and Nevis narrowly avoided landfall from Hurricane Irma, with wind speeds exceeding 156 miles per hour (251 kilometers per hour), which was only 64 miles (103 km) away (Shultz *et al.*, 2018). The extensive history of the occurrence of natural disasters such as volcanoes, earthquakes, tsunamis, floods, and hurricanes in the Caribbean provides multiple opportunities for students to learn about public health and disaster preparedness.

Saint Kitts and Nevis was initially chosen due to its vulnerability to natural disasters and an invitation from the Minister of Health, with an interest in collaborating with the University of Virginia on a healthcare education initiative. This partnership was seen as mutually beneficial, as it created opportunities to further diversify the cultural content of the undergraduate curriculum, to expand study abroad options, and it brought additional skilled resources in research, medicine, and public health to the small nation of Saint Kitts and Nevis through an academic–community partnership. Due to the small size of the country and personal relationships between faculty and government officials, students were able to access the expertise of the healthcare and disaster management leadership of Saint Kitts and Nevis as part of the curriculum.

STUDY ABROAD COURSE DEVELOPMENT AND PREPARATION

Developing and planning for a study abroad course involves additional considerations beyond a typical new

course. Consider a 12- to 18-month timeline for the development and marketing of a study abroad course. Once in-country contacts and the course theme are in place, garner institutional support at the department and university level. Gauge the interest and support from faculty in the sponsoring school and other schools that may have an interest in the topic. Depending upon the number of students the program can accommodate, the nature of the curriculum, and the expertise of faculty, a co-faculty member may be needed to support content development and the students while abroad.

The course in Saint Kitts and Nevis was developed in collaboration with multiple health and disaster management agencies within the government of Saint Kitts and Nevis and the University of Virginia (UVA). All three authors worked together as course faculty members for several years refining the program at UVA from 2009 to 2016. Two faculty members left UVA and recreated the course together at the University of Northern Colorado with a group of students in 2018, followed by one faculty member moving to the University of Illinois at Chicago and launching the course in the Summer of 2019. The course has been refined over time; however, the partnership with the government of Saint Kitts and Nevis and core content and objectives of the course have remained consistent throughout its transitions through various universities. Care was taken not to overburden or exploit local facilities or citizens to the advantage of students who were visitors.

The curriculum was updated and refocused yearly to remain relevant to our partnerships, faculty, students, and is based on the International Council of Nurses (ICN) Framework of Disaster Nursing Competencies (ICN, 2009). Careful attention was given to the evaluation of potential gaps in public health and disaster preparedness education among the curricula in nursing and pre-health programs. The ICN competencies were generalized to include nurses and other health or disaster management professionals, to make the course inclusive and relevant to a variety of students interested in diverse career opportunities. As no disaster course existed within the university, a disaster-focused study abroad course enhanced the cultural content in the curriculum, and provided an opportunity to expand upon the current curriculum by adding global public health and disaster preparedness content. Historically, nursing students (undergraduate and graduate) have contributed one-quarter to a half of the total enrollment in the course.

Travel to and study abroad in foreign countries in the Caribbean provided an opportunity for students to study facets of healthcare systems atypical to the United States,

in areas highly vulnerable to disasters. Based on the authors' combined experience of developing study abroad courses at multiple institutions around disaster preparedness, the key considerations for course development, approval, and marketing are outlined below.

Collaboration with university study abroad professionals

Work with the study abroad office/department at the institution to design the program. A good first step is to meet with a university study abroad representative to learn more about their process, requirements, and resources for students and faculty. Be sure to note institution-specific deadlines and requirements for course proposal and approval.

Course proposal

When proposing the course, include letters of support from international partners and all involved university parties. Course proposals vary by institution, but most proposals will address the timing, targeted student population, targeted enrollment (with maximum and minimum enrollment), estimated costs of the program, and include a draft syllabus. Consider the target student population's curriculum and plan of study schedule when determining the timing of the course; for example, courses can often be taught over a full semester, 2 weeks over winter break, as a summer course, or during the Spring semester with travel over spring break. Determine the number of students the program can support safely, with consideration of supervision requirements, accommodations and local transportation.

Budget

In order to be competitive and accessible to the most students possible, the proposed budget should provide an affordable option for students to study abroad. Develop the budget using university guidelines, and try to optimize the enrollment based upon the fixed versus variable cost per student for the program. Fixed costs often include study abroad fees, program partnership fees (if applicable), and faculty travel and salary costs. Variable costs will include lodging, transportation, travel insurance, and any miscellaneous costs for tours or events. Overall, the budget should be clear on cost for tuition and student expenses before travel and in country. Determine which of the costs will be covered by the program or will be charged in country directly to the student, including additional out-of-pocket costs such as passports, visas, meals, textbooks, spending money, etc.

Recruiting students

It is critical that the course be fully approved prior to publicizing the course or recruiting students. As disaster sciences are inherently interdisciplinary and diverse, ideally a diverse group of students from different backgrounds and areas of study are recruited. Recruitment strategies include flyers, study abroad fairs, targeted emails, faculty presentations, and word-of-mouth from other students. The development of a fair student selection process for the program is recommended prior to accepting applications. This ensures that traveling students will be safe, engaged, and responsible, and can help prioritize different students if there are more applicants than available spots.

Pre-departure meetings

Following student selection, it is important to remain in contact with the students to prepare for a successful trip and schedule at least one pre-departure meeting with students. This meeting should include a representative from the university's study abroad department to give students a general orientation about studying abroad and any institution- or country-specific policies or requirements. Faculty can provide an overview of the program, key concepts for being safe while traveling abroad, packing recommendations, emergency contact information while abroad, and student conduct expectations while traveling in a foreign country.

COURSE OVERVIEW

The following is an overview of an example of a disaster-focused study abroad course. The course, entitled "Disaster Preparedness and Health Care in the West Indies," was a 2-week January term course available to both undergraduate and graduate students. More recently, the class has been retitled "Disaster Preparedness and Global Health in the Caribbean" and has been offered over the summer. Objectives were designed broadly to ensure they could be met in a short timeframe by a diverse group of students, and to allow for variation in program field activities annually (Table 1). The objectives focus primarily on the public health aspects of disaster risk reduction, community preparedness, and healthcare systems over the provision of direct nursing care during disaster response or recovery. This was intentional in order to make the course more inclusive to students not studying nursing. This design reflects values of capacity-building and sustainability over providing clinical services, which is critical given the projected intensification of disasters due to climate change. While

Table 1 Course objectives

<ul style="list-style-type: none"> ● Describe the local culture and nuances of health care in Saint Kitts and Nevis, and its effect on health and disaster preparedness. ● Apply fundamentals of public health, personal preparedness, emergency care and the infrastructure for disaster preparedness to Saint Kitts and Nevis. ● Participate in community-engaged projects to improve community resiliency to disasters. ● Compare and contrast public health in the context of the diverse cultural values and traditions of Saint Kitts and Nevis compared to the USA. ● Discuss social justice and human rights principles related to community needs in disasters.

both aspects are critical to disaster management, the majority of disaster management activities are related to preparedness and mitigation rather than response and recovery.

The program incorporated a variety of learning strategies, including faculty lectures, local expert lectures, historical site visits, exploring significant areas of the island, community-engaged projects, and disaster simulations. The desirable climate allowed for most of the learning to be hands-on, experiential, and in the community, as opposed to classroom-based. Select journal articles, relevant national and international news media, local materials, and eventually a textbook were utilized in the course. The textbook describes health care and disaster preparedness in this region, and was edited by course faculty with contributions from students, faculty, local partners, and subject-matter experts (Martin, Snyder, Jones, & Walker, 2015).

The course developed in Saint Kitts and Nevis used an all-hazards approach to personal safety and disaster planning, fundamentals of emergency care, and public health. The history of natural disasters, such as volcanoes, earthquakes, floods, and hurricanes in the Caribbean provided opportunities for students to learn and apply concepts in disaster preparedness in conjunction with governmental partners. A sample of some of the curricular highlights are shown in Table 2. These were determined based on the course objectives and the ICN Framework of Disaster Nursing Competencies, as well as highlighting the expertise of university faculty and local speakers. Community projects changed each year based on the requests of local partnerships and the availability of meaningful, interactive experiences in-country to illustrate the required competencies.

Table 2 Curriculum highlights

Team survival activities ^b	Culture in Saint Kitts and Nevis ^a
All-hazards preparedness ^b	Disaster risk reduction ^a
Personal safety and disaster preparedness ^b	Advanced topics in disaster care ^c
Vulnerability assessment ^a	Rescuer resiliency ^{c,d}
Risk communication ^b	Responding to disasters ^{c,d}
START triage ^c	First aid/CPR training ^c
Disaster triage simulation ^{b,c}	Resilience in disasters ^{a,b}
Health care in Saint Kitts and Nevis ^{b,c}	Care for vulnerable populations during disasters ^c
Community-engaged projects ^{a,b}	Case studies of recent disasters ^{a,d}

CPR, cardiopulmonary resuscitation. Content that aligns with the suggested International Council of Nurses Framework of disaster competencies is noted, with each letter corresponding to different competencies within the framework as follows: (a) prevention/mitigation; (b) preparedness; (c) response competencies; (d) recovery/rehabilitation (ICN & WHO, 2009).

Interdisciplinary faculty and guest speakers brought a variety of perspectives and strengths in areas including local culture, medicine and global health. Local health officials including the Minister of Health, the Chief Medical Officer, the Chief of Staff, and Chief Nursing Staff Officers have been included as guest lecturers. As part of this partnership, the university faculty also gave lectures on various aspects of medicine in global health, public health, and disaster preparedness at the hospitals.

Community-engaged learning, especially around disasters, is a powerful teaching tool and a way to build relationships through community engagement. Each year, in collaboration with local community partners, a project related to disaster preparedness is planned and executed. Many of these projects have been mass casualty disaster drills and test the local emergency response systems. Examples in past years have included the collapse of a hotel, airplane crash, or a simulated fire in a hospital to test the fire response plan. Students may be standardized patients for the drill and are involved in the debriefing and evaluation of the simulation. Initiatives including mass casualty drills involving police, local emergency medical responders, and hospital personnel, were not only valuable experience for the students, but also for the education of the local providers. Also, a fire drill at a local hospital tested their policies and procedures, resulting in critical training for nurses relating to fire safety and changes in the hospital's evacuation procedures. In the Summer 2018 term, graduate nursing, public health, and medical students worked alongside local

disaster management staff and volunteers to complete a community disaster resiliency assessment throughout the country of Saint Kitts and Nevis.

Students also completed projects to assist with community disaster education. In collaboration with the Nevis Disaster Management Department, various projects have been collaboratively completed under the direction of the local partners with the assistance of the students. Students have participated in creating Public Service Announcements (PSAs) for local TV and radio, and designed grade school curriculum for disaster preparedness. Students developed the narrative for and recorded the PSAs. A Red Cross elementary school curriculum was modeled and adapted to the local culture and environment (with the help of disaster management staff) and taught to students in a local elementary school. Each year, an additional layer of interactive disaster preparedness education is added to the appropriate grade level and presented. The students are able to immediately adapt what they are learning in the disaster course and teach it to elementary school students on the island, with the ultimate goal that they will share this new knowledge with their families at home. The student evaluations report this as a highlight of their study abroad experience.

INTERDISCIPLINARY CULTURAL LEARNING FOR DISASTER EDUCATION

During the time spent in Saint Kitts and Nevis, students are engaged in various activities requiring team building, collaborative learning, and critical thinking. Activities designed for the first day abroad focus on team building, as the students come from across disciplines and include graduate and undergraduate students. Students form interdisciplinary teams and work together, fostering responsibility and accountability among students. For example, while exploring town, students are given a project to find and purchase items locals would need for a home disaster kit, which is then donated to a local church. While visiting the church, students can attend a service to learn and reflect on the importance of religious practice in the community, and how churches can play a role in education in the community about disasters.

Saint Kitts and Nevis are both dormant volcanic islands. Hikes to the top provide a view of the remaining crater following the last eruption hundreds of years ago. This physically challenging exercise is preceded by lectures about search and rescue and wilderness first-aid, to give students a first-hand experience of what it could

be like to try and provide care in difficult environments. Historical sites of disasters are visited with guided discussions of the disaster, including potential causes and lessons learned that can be applied to disaster preparedness and response today. Visits include Brimstone Hill, a UNESCO world heritage site, to understand the effect of colonialism on the health and economy of the islands, and the historical consequences of disputes between colonist nations on local populations today. Social and structural determinants of health are discussed within the context of vulnerability to disasters, and are applied to the local environment, as well as globally.

On Nevis, students visited “The Baths,” hot sulfur springs that the local residents use for healing, as well as the former home of Alexander Hamilton. Montpelier, a historic plantation and currently an Inn, provides insight to the tourism-based economy on the islands today and the effect disasters may have on the economy. Students were privileged to have guided tours of hospitals, community health centers and skilled nursing facilities, and had the opportunity to work closely with the island’s disaster management department. During and following the activities, students discussed the existing healthcare infrastructure and its response capacity for disasters so students could place their experience within a disaster-specific context. Further guided reflection was provided through large group discussions at the end of each day, as well as personal written reflections about how their experiences relate to the objectives of the course, and how culture and history influence health.

Although studying abroad can be an engaging, unique learning experience for students, there has been valid criticism of the way in which United States of America (USA) programs are taught and administered in other countries. Some of the most common issues in short-term study abroad programs are consumerism, postcolonialism, cultural tourism, and commodification of experiences (Kortegast & Kupo, 2017). This is especially relevant in Saint Kitts and Nevis, as their main economic industry is tourism, and students tend to have preconceived ideas about their experience abroad and the people living in the Caribbean region. To combat these issues, as part of the course, faculty and students discuss the historical context of the islands and the profound effects that colonialism and slavery have had on their history and cultural norms. Each evening, students debrief and prepare for the next day’s events, sharing reactions and questions with faculty and other students, and reflect on their own preconceptions and how these notions have been challenged by the various experiences.

When planning the program, faculty contract with local providers directly, and expose students to local hotels, restaurants, stores, and community organizations, rather than businesses imported from the USA or designed to cater specifically to tourists. Local content experts teach students about disaster management, health care, and culture in Saint Kitts and Nevis, while faculty and students lend resources to help meet needs identified by our partners, including teaching in hospitals, assisting with research projects, or providing services to the community. By modeling and instilling the notions of equity, humility, and graciousness to our hosts throughout the course, rather than novelty, entitlement, and paternalism, faculty can guide students through an appropriate learning experience abroad.

OUTCOMES

Over a period of 7 years, approximately 20–35 students participated each January between the fall and spring semesters. The summer program has been smaller, with nine and 12 students participating, respectively. Learning was evaluated through participation and implementation of community-engaged projects, group activities, group papers, individual written reflections, and group discussions. Teaching was evaluated through student course evaluations. Students, faculty, subject-matter experts and local partners collaborated to write an edited textbook (previously mentioned) designed specifically for future students participating in this course. Over several years of collaboration and delivery, the program was able to educate students, healthcare providers, and disaster preparedness personnel; conduct community-based research; and prepare reports for Saint Kitts and Nevis related to natural disasters, emergency preparedness, and public health.

LESSONS LEARNED

The following are some barriers faced in proposing and implementing this course, and some strategies to help overcome these barriers. As with any project, it is imperative that you have an appropriate timeline for course development, approval, marketing, and implementation. Study abroad courses often have to go through multiple approval processes with multiple departments prior to approval, and before the course can be advertised to students. Up to a year of promotion and marketing may be necessary to publicize the course and allow students and families time to secure funding through loans, scholarships, school funding, or personal savings.

Interested students should be encouraged to meet with both study abroad and financial aid staff members early in the process, to decrease financial barriers to participation and provide students with all possible resources for participation. The student's plan of study should be considered when proposing a course; for example, if you are targeting nursing students, some students may have required course work during the summer, or may be interested in local paid internship opportunities that can conflict with study abroad travel dates. Local factors, such as availability and cost of travel and lodging, local customs and holidays, and seasonal weather patterns should also be considered when selecting the optimal travel time for the course. Careful consideration should be given to how the curriculum is designed in order to facilitate authentic cultural learning and defend against exploitation of the host country.

CONCLUSION

This case report provides an example of how to propose, develop, and implement a study abroad course in disaster preparedness with a curriculum that is highly relevant and broadly applicable to a variety of students. As disaster preparedness, response, and management is a multidisciplinary field, early exposure to diverse training and knowledge in a foreign environment can help prepare nurses and others to meaningfully contribute to a culture of disaster preparedness both in their chosen communities and across the globe. This report highlights the strengths of partnerships, interdisciplinary learning, and community engagement when teaching about disaster preparedness and mitigation abroad.

The benefits of study abroad experiences for students include travel outside of the USA and immersion into another culture. It allows students to use principles learned in their course work to evaluate the state of disaster preparedness in a new environment. Seeing first-hand healthcare delivery in another country provides the opportunity for comparison and contrast of two cultures and two different healthcare systems. With diverse students, students learn from each other and contribute different perspectives to their learning experience. The opportunity to view the two-island nation as a microcosm for the study of disaster preparedness provides students with tools they can use for self and family disaster preparedness, as well as integrate their knowledge into nursing and other professions. Although this course was focused on Saint Kitts and Nevis, content of the course is certainly relevant to other regions of the Caribbean and may be of value to anyone interested in disaster

preparedness and public health.

ACKNOWLEDGMENTS

The authors would like to acknowledge the Federation of Saint Kitts and Nevis for their continued partnership, specifically Mr. Abdias Samuel of the National Emergency Management Agency and Mr. Brian Dyer of the Nevis Disaster Management Department.

AUTHORS' CONTRIBUTIONS

M.M. was the original creator of the course presented in the case study, and A.S and G.M. contributed to the development of the course and furthering partnerships. G.M and A.S. developed the idea to write the case study. G.M. developed the initial outline and G.M., A.S., and M.M. contributed to writing the manuscript.

DISCLOSURES

There was no funding received for this project, and the authors have no conflicts of interest to disclose.

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