ORIGINAL RESEARCH

From Leaders, For Leaders: Advice From the Lived Experience of Leaders in Community Health Sector Disaster Recovery After Hurricanes Irene and Sandy

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ABSTRACT

Objective: Hurricanes Sandy and Irene damaged and destroyed homes, businesses, and infrastructure, and recovery after these storms took years. The goal of this article was to learn from the lived experience of local-level decision-makers actively involved in the long-term disaster recovery process after Hurricanes Irene and Sandy. Respondents provided professional recommendations, based on their experience, to assist other organizations in preparing for, responding to, and recovering from disasters.

Methods: Semi-structured interviews were conducted with professionals actively involved in recovery from Hurricane Irene or Hurricane Sandy in 5 different communities. Transcripts were qualitatively analyzed.

Results: Respondents' advice fell into 5 main categories: planning and evaluation, education and training, fundraising and donations management, building relationships, and disaster behavioral health.

Conclusions: The lived experience of those in disaster recovery can provide guidance for planning, education, and training both within and outside their communities in order to better respond to and recover from future disasters. These data help to facilitate a community of practice by compiling and sharing the lived experience of leaders who experienced large-scale disasters, and the outcomes of this analysis help to show what areas of planning require special attention in the phases of preparedness, response, and recovery. (*Disaster Med Public Health Preparedness*. 2016;10:623-630)

Key Words: multi-agency coordination, disaster planning, emergency preparedness, local government, health care facilities, manpower, and services

Hurricane Sandy made landfall in coastal New Jersey on October 29, 2012, 14 months after Hurricane Irene impacted the Eastern Seaboard on August 27, 2011. Given the track of the 2 hurricanes, many areas of the East Coast were hit by both storms. Major disaster declarations were issued in 11 states for Hurricane Sandy and in 15 states for Hurricane Irene, and of those states, 10 issued the declaration for both storms.[1] The hurricanes damaged and destroyed homes, businesses, and infrastructure, and recovery is ongoing.[2-8]

The National Disaster Recovery Framework[9] describes *community recovery* as a "process by which communities can capitalize on opportunities to rebuild stronger, smarter and safer," and indicates that recovery is more than just rebuilding the community to its pre-disaster state. Despite this statement of recovery as an opportunity, long-term recovery and building ongoing community resilience was, until recently, an understudied aspect of disaster management. Long-term recovery has only recently been prioritized for research,[10-12] and some literature has started to focus more heavily on the planning that can be done before a disaster to expedite recovery.[13] Further research is needed to more fully understand the breadth and depth of health impacts on communities that may be evident years after an event,[14-16] including mental health conditions such as post-traumatic stress disorder, depression, and anxiety.[17]

Reflection on personal experiences and the sharing of experiences with others may also afford valuable learning opportunities about the long-term recovery process. This technique of "experiential learning" is well-supported in adult learning theory, and bringing peers together to learn from each other in "communities of practice" can help individuals process their own personal experiences while sharing their learned experience with others.[18]

The goal of this article was to learn from the lived experience of local-level decision-makers actively involved in the long-term disaster recovery process after Hurricanes Irene and Sandy. Respondents have provided professional recommendations, based upon their experience, to assist other organizations in preparing for, responding to, and recovering from

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https://doi.org/10.1017/dmp.2016.92 Published online by Cambridge University Press

disasters. By facilitating a community of practice among those involved in recovery after Hurricanes Irene and Sandy and those planning for recovery in their own communities, these lessons can be shared in the hopes of improving outcomes in future disasters.

METHODS

Identification of Case Study Locations

Two rounds of investigation focused on long-term recovery were conducted: one after Hurricane Irene (November 2012 to January 2013), and the other following Hurricane Sandy (October 2013 to January 2014). Hurricane Irene sites that were severely impacted by Hurricane Sandy were excluded as possible case study locations. All sites were selected by using a purposive sampling strategy that preferentially targeted communities where health care systems had been significantly damaged. Ultimately, 2 case study locations were chosen for Hurricane Irene (Vermont and North Carolina) and 3 case study locations were chosen for Hurricane Sandy (Rhode Island, New Jersey, and New York).

Identification of Research Subjects

Participants were recruited to the study on the basis of their job roles. The following job roles were targeted in each community: incident commander, emergency manager, public health director, mental health director, hospital emergency manager, the chiefs of fire and police, elected officials, and leaders of active volunteer organizations. Snowball sampling was used to identify additional leaders involved in long-term community disaster recovery. Research subjects were selected from the local and municipal levels, but, owing to research confidentiality agreements, specific individuals and communities are not disclosed.

Data Collection and Survey Instrument

Institutional Review Board approval was obtained from the Uniformed Services University of the Health Sciences Office of Research, under protocol numbers G12002 and 379122-6. Health care leaders were interviewed during the 12 to 16 months after either Hurricane Irene or Sandy, to conform to the definition of long-term recovery used in the National Disaster Recovery Framework.[9] Data were collected through semi-structured, in-person interviews, and major topical areas included potential education and training topics, essential relationships in the response and recovery phases, successes and challenges in long-term recovery, and any advice for others affected by disaster.

Data Analysis

Transcripts were qualitatively analyzed by using QSR NVivo 10 qualitative analysis software (QSR International, Doncaster, Australia). Two research personnel independently coded each interview, and a standard of 80% intercoder agreement[19] was followed. A third coder was utilized in instances where 80% coder agreement was not established. A structured approach to coding was utilized,[20] and a list of codes was determined prior to the analysis. Codes were then analyzed by hand to uncover and establish themes and trends from among the research sites. Both anticipated and emergent themes were considered.

This data analysis was limited to respondents' answers to the question, "after everything we have discussed, what advice would you offer to someone in your job role that is faced with a similar experience?"

RESULTS

Respondent Demographics

A total of 92 respondents were interviewed from a total of 5 communities located in the states of Vermont, North Carolina, New York, New Jersey, and Rhode Island. Respondents represented the 8 targeted functional roles, as well as human services, city housing authorities, Federal Emergency Management Agency (FEMA), public schools, and legal services. The respondents' advice fell into 5 main categories: planning and evaluation, education and training, fundraising and donations management, building relationships, and disaster behavioral health.

Planning and Evaluation

> *"Understand the expectations of recovery by thinking about this formula; every day that you are in response, multiply by 10 and that is the number of days you will be in relief; then multiply that by 10 and that is the number of days you are going to be in recovery."* – Local Volunteer Organization Leader

Plan for recovery

It was widely believed that successful disaster recovery can be supported by comprehensive pre-disaster planning inclusive of both response and recovery considerations. Preplan for the specific disaster types that are most likely to occur and then think about how medical, sheltering, and resource needs are likely to change as the weather and seasons change. Consider mapping areas of anticipated need before a disaster happens so you can make informed decisions about where to deploy assets, begin your canvassing efforts, and locate programs critical to successful recovery.

Plan for infrastructural failures

Understand potential infrastructural failures and think of ways to avoid relying on just one route, service provider, or essential resource. Consider what pieces of your infrastructure are critical. If a limited amount of electricity is available, for example, what gets plugged into emergency power? In urban and suburban areas, staff may rely on mass transit. Have an

https://doi.org/10.1017/dmp.2016.92 Published online by Cambridge University Press

alternate commuting plan in place or investigate opportunities for telework.

> *"And most important, is there must be a coffee pot on emergency power. The other hospital did not have one. So we did learn from them, and that was addressed almost immediately."* – Hospital Emergency Manager

Conduct regular needs assessments

Comprehensive needs assessments can systematically identify the needs of a recovering community. Anecdotal reports may not give an accurate assessment of the situation, and respondents found systematic, regularly administered needs assessments to be much more useful in identifying needs in different areas of the community.

Do a gap analysis and evaluate programs

Gap analyses during the recovery period can be helpful in identifying breakdowns and "sticking points" while the experience is still fresh. Document what happened and what was not anticipated and be honest about what the shortcomings were. Make the necessary changes to plans to reduce risk from future disasters during the current disaster's recovery phase. Program evaluation during recovery can help discern the impact of implementing interventions. Information from program evaluations can improve programs in advance of future disasters.

Education and Training

The shared education and training of individuals, organizations, and communities allows for realistic expectations of the people and programs that are available through disaster recovery, a broad understanding of roles and responsibilities in each disaster phase, and a heightened appreciation for the knowledge, skills, and abilities of others.

> *"We can do some general training that will prepare ourselves better for the emergency when it does arrive, but nothing is going to serve you better than a motivated employee. So if you can get them ready and willing to tackle any issue that may come around, we're all going to be better off. In the end, it's just men and women that have to get this done."* – Fire Chief

Train executives and elected officials

The importance of including executives and elected officials in disaster training was emphasized by many respondents, including the executives themselves. These individuals will be in a position to make decisions, allocate money, and engage state and federal resources throughout the recovery period. Including them in disaster training, including Incident Command System (ICS) training, can facilitate an understanding of how disasters are managed, help alleviate unknowns, reduce duplications of effort, and ease stress.

Practice and exercise

The value of regular practicing and exercising was made clear. Some respondents found it useful to activate their emergency operations center for small-scale events (eg, snowstorms) to give partners an opportunity to practice engaging in the system prior to a large event. Others suggested changing training scenarios so they stretch the boundaries of the plan and require "on the fly" changes. The inclusion of ICS was important, as understanding how ICS would be used in one's organization and community greatly facilitated the disaster response, which led to a more organized recovery.

Be inclusive

When providing education and training, consider public agencies not "traditionally" involved in disaster preparedness and response. Agencies such as parks and recreation, departments of transportation, local chambers of commerce, and housing authorities were identified as key resources in recovery that would benefit from training. Include staff members who are not typically part of response but who have crucial skill sets for recovery (eg, accountants may be able to help with budgeting).

Understand health impacts

Licensed health care provider or not, respondents found value in understanding what happens clinically after a disaster. They suggested, at a minimum, understanding what it takes to set up or surge a clinical area to care for more patients, and how to work with the local health care emergency manager to contribute to long-term community health recovery.

Be ready to communicate with the public

As local decision-makers, respondents were often formally and informally looked to as authorities on disaster recovery. Ready-made messages can reduce the stress of speaking on the fly and can be prepared to address many areas of concern, including building code, environmental health issues, inspection issues, and permitting. Consider including this information on a call line or website to reduce the amount of staff time needed to answer calls. For in-person communication, learn about the human aspects of disaster to better relate to the community. Be prepared to be on television, and consider taking a crisis and risk communication course to increase confidence and comfort.

Be familiar with available federal assets

Understand the federal response capabilities and what resources may be made available in recovery. In coordination with state-level officials, include the regional FEMA coordinator in the disaster recovery planning process to help support the quick and efficient utilization of resources. Identify one person to "shadow" colleagues currently applying for assistance to learn the process in order to better assist others who are referred.

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Learn from others
Look for already-made resources, as it is likely that other people and communities have had similar experiences. Networking with peers can be a source of information and resources. Read other communities' post-disaster plans for recovery to get ideas for what might work in your own community recovery plan.

Create a culture of preparedness
It was widely agreed that creating a "culture of preparedness" prior to an event was, or could have been, beneficial to recovery-phase outcomes. While there is no set definition to what creates a "culture of preparedness," many respondents suggested routine training, annual trainings on the anniversary of a previous disaster or during Preparedness Month (September), and promotion of personal preparedness of staff and citizens. By advocating for a "culture of preparedness," a community could potentially improve disaster recovery outcomes by strengthening pre-disaster preparedness, relationships, and the overall resilience of the community.

Fundraising and Donations Management

Emphasize financial preparedness
Quickly securing adequate amounts of funding is essential to long-term recovery. Learn to fundraise, make public requests for donations, and write proposals and grants to support disaster preparedness—or hire someone who can. If you live in a disaster-prone region, consider starting an emergency fund in advance. Set aside emergency funds from your organization's or community's annual budget. Donated or reimbursed funds may take a while to secure and be administratively burdensome to acquire, so having some cash on hand is helpful.

> *"At the end of the day…we definitely want to get reimbursed by FEMA. But it's not holding us up from cleaning up because we have the money. It was called the Rainy Day Fund."* – Elected Official

A donations management plan is essential from the beginning
After a major disaster, people want to help in any way they can. Having a donations management plan can help to effectively and efficiently handle donations logistics. It is common for material donations to be supplied by charitable organizations and concerned citizens, and in the midst of a disaster it can be challenging to sort, package, and distribute a large quantity of materials. Plan for a secure storage facility, a process to document and accept both monetary and material donations, a means to recruit paid or volunteer staff to assist in collecting and distributing materials, and a process to make monetary donations available to recipients without a lot of paperwork. Set up a 501(c)3 organization to establish legitimacy and to allow tax-deductible donations. To reduce fraud, recruit someone who knows the community well to assist in running the finances.

Document everything
Documentation is an important aspect of financial management, and it is important to plan a financial documentation process that begins immediately after the event and runs through the long-term recovery phase. Specific actions you can take to improve financial documentation include:

- Create template documents such as unmet needs forms, case management intake forms, and reimbursement forms, and save them in e-mail and on an external storage device so you always have access to them.
- Take photographs of property before a disaster.
- Know what documentation is needed to receive reimbursement under FEMA guidelines and your insurance policy.
- Document everything, including expenses, purchases, assets used, resources expended, and staff time.
- Consider having deployable laptops to facilitate documentation.
- Keep backup copies.

> *"In the middle of an emergency, nobody thinks to document—but unless you have the documentation, you don't get paid. And unless that documentation is presented in a certain fashion, you don't get paid—or you may get paid, and then you might get the money clawed back, taken away from you in an audit. I mean, it's very intense."* – Elected Official

Building Relationships

Successful recovery can be facilitated by building key relationships before, during, and after a disaster. When planning for long-term recovery, think through all possible failures that could occur and identify the relevant authorities you would need to work with. Build partnerships to gather and share resources, knowledge, and expertise regarding the issue. Include a complete list of professional contacts in your recovery plan.

> *"[Our partners] should be looking at [our plans] so that they understand what we're expecting from ourselves, and what we're expecting from them….Our plans are great if everybody else knows what they are. If they don't, then they are only our plans, and that's not really helpful."* – Other Leader

Relationship Building Before the Disaster
Establish and communicate realistic expectations of staff. Ensure that your current employees are aware of what will be expected of them in the case of an emergency or disaster, and consider including these responsibilities in their job descriptions. Ask your staff where they think they would be best utilized before assigning roles, as people's recovery

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skills may not be directly related to their day-to-day job duties but rather to life experience, previous work, or a relevant hobby. If possible, assign at least 2 people to each role so one person is not working around the clock. Remember that volunteers, while valuable, may need to leave to return to jobs and families, and your organization will need consistent staff support throughout the recovery period. Speak with someone in human resources about how to coordinate needed hiring.

> *"You're going to need to bring in staff because you cannot run a long-term recovery operation with volunteers. You may be able to do early response and then walk away from it, but you can't do long-term recovery."* – Local Volunteer Organization Leader

Develop relationships with public service organizations. Build relationships with leaders in public service and nongovernmental organizations (NGOs) and, when possible, include them in any local disaster exercises. Think about what different service organizations may have to offer in addition to personnel (eg, facilities, equipment, volunteers, monetary support, storage).

Build a volunteer management system. Volunteers can make a monumental difference in a community, but only if they are managed well. Create a mechanism to discern which volunteers are skilled, semi-skilled, or unskilled and to deploy them on the basis of their abilities. Target certain types of skilled volunteers and build relationships with them in advance of an event. Include in your recovery plan a facility for volunteers to sleep, cook their own meals, and relax.

Recruit both local and nonlocal volunteers. Use local volunteers to the extent possible, and try to incentivize them to stay for the long term or cycle them in and out so that their skills can be utilized over an extended period of time. Include local response volunteers (ie, American Red Cross, Community Emergency Response Team, Disaster Animal Response Team, and Medical Reserve Corps) in recovery planning. Be inclusive about preparedness and engage the community before a disaster so you already have interested, knowledgeable, and involved volunteers through the recovery process.

However, since local volunteers can be impacted by the disaster, network outside of the community. Consider drafting memorandums of understanding (MOUs) with neighboring municipalities to share volunteers and to ensure that, if an evacuation occurs, the receiving towns are supplied with additional staff and resources to support an influx of people. When outside volunteers come to assist, enable their effective integration by letting them know what is already happening, what has already been done, and where they can find the information they need.

Leverage the private sector. The private sector can provide access to critical commodities. Think about how restaurants, home repair stores, and gas stations, for example, could be of service in disaster recovery and establish MOUs with them in advance. Consider issues like disrupted cellular service and communications, for which you could work with local phone carriers to establish priority calling and texting for your response personnel. Incentivize businesses to work with you; remind them that such partnerships are often "win-win" situations for both parties. Consider creating a resource dashboard to help connect assets in the community with the individuals who need them.

Find a mentor. Discuss the nuances of long-term recovery with jurisdictions that have already experienced it. Bring in other disaster survivors to talk about their experience, what the identified gaps were, and how the disaster impacted their communities, jobs, and lives. Peer-to-peer mentorship can provide a source of both information and support. Build relationships with people in other states who have similar job responsibilities so you can share knowledge and experience and serve as a source of professional support should either of you experience another event.

> *"So there were a bunch of us that went to be trained to write a [FEMA Crisis Counseling Program] application. We'd talk about resilience, and we'd talk about impacts on the community, and we'd talk about how preparation supports that. And [when Hurricanes Irene and Sandy hit] we were also there for each other….Those [colleagues] were my best supports, and also people I could learn from."* – Public Health Director

Relationship Building After the Disaster

Convene a long-term recovery committee. A long-term recovery committee can be an excellent way to foster and maintain relationships to support recovery. Immediately hold regularly scheduled recovery-planning meetings that are open to the public, and serve food. Include interested citizens, existing support groups, local NGOs, area businesses, shelter staff, public health, and any FEMA representatives assigned to the area.

Maintain contact with vulnerable populations. Certain groups of people are particularly at risk after major disasters, and others may be put at exceptional risk by the nature of the event. Building relationships with local social service and health care providers can help to identify people who may need long-term assistance, so you can help them before the situation gets really desperate. Get better community-level information by working with:

- Block captain-training programs,
- Religious leaders,
- Parent and teacher coordinators,
- Local NGOs,
- Community and patient advocates.

Door-to-door canvassing is a good way to gather data on what needs are within the community, but it should be carefully

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planned and executed. Create a common canvassing schedule to avoid over-surveying the citizenry and let the community know who to expect at their door and what services are being offered.

> *"I think that one of the things that people were most tired of was so many surveys were happening and then they weren't getting solutions. So at this point if we start asking them about a certain thing, they're done, they'll just close the door."* – Local Volunteer Organization Leader

Plan for long-term case management. A strong case management system will help take care of your clients' needs and allocate resources where they are most needed. Plan for the transition between immediate and long-term disaster case management and work with people who provide nondisaster services to ensure continuity of services.

Planning for Disaster Behavioral Health

> *"[It's important] not to forget behavioral health. That's really, really important, and it often gets left out. The psychological portion of disaster is often buried in the bricks and mortar and the days of having to put everything together."* – Mental Health Director

Be sensitive to the psychological impacts of recovery

Respondents emphasized that recovery is more than just physical rebuilding and getting people back into housing. The rebuilding or relocating experience can be jarring, and many disaster survivors will experience a lasting feeling of loss. Some respondents suggested adding a personal touch, if possible, when moving people back into their homes or into a new home. Help families restore damaged photos, replace lost items that had significant sentimental value, or paint walls a favorite color. Consider holding a "welcome home" celebration in the weeks or months after a disaster that honors the people who assisted in the response and highlights the acts of compassion that took place throughout the effort. Continually acknowledge that people still have a lot of recovering to do, but they are not alone.

Plan for mental health care needs

Mental health is a major component of recovery, but it is often overlooked in the recovery planning process. Leaders should anticipate the needs of their employees, and understand that they may have been impacted by the disaster and may be struggling to balance work and family obligations. To the extent possible, workplaces should institute policies and practices that enable work-life balance so that employees may continue to work while recovering from the disaster.

The following advice was given regarding including mental health considerations in the disaster recovery planning process:

- Set aside funding for mental health programs and investigate state and federal programs that support mental health care needs following a disaster;
- Train local mental health professionals for disaster response and consider training local volunteers in psychological first aid;
- Provide access to mental health services immediately following a disaster;
- Investigate options for employees to seek care so they are more likely to continue to work;
- Prepare disaster recovery workers for working with emotionally distraught people; and
- Remove stigma around receiving mental health care services by using positive names for care facilities (eg, instead of "evacuation centers" use "care centers") and offering fun, community-building activities alongside health and mental health care services.

Promote self-care

Self-care is another aspect of mental health that is critical to response and recovery, and there are important things to remember both in the immediate and long-term phases. Key things to consider include:

- Build self-care into planning for recovery;
- Be in touch with your own personal limits and acknowledge that you may need help;
- Create a culture of understanding that allows people to step away from work obligations when they are overwhelmed or need to focus on family obligations;
- Take time to relax, even in the midst of the chaos, and do not feel guilty about relaxing or focusing on other things;
- Understand other people's emotional limitations, and do not take it personally if others lash out at you;
- Anticipate that the anniversary of the event may be difficult, but remember that you already have a success story behind you.

> *"I think psychosocial [support] for your employees is huge. Everybody talks about immediately after the storm, watching people, and we spent a lot of time doing that. But we're a year out, and I probably still have half a dozen or more employees that are out of their homes. So being attentive to their needs, it's critical. "* – Hospital Emergency Manager

DISCUSSION

Limitations

Given that the researchers were only able to interview respondents who both responded to the invitation and were available to meet during the allotted time frame, the respondents represent a convenience sample. Resource and time constraints also did not allow for full interview saturation to be reached. Therefore, there were likely additional professionals significantly involved in the long-term recovery process who were not sampled.

https://doi.org/10.1017/dmp.2016.92 Published online by Cambridge University Press

The primary limitation due to the study design was that, owing to the small sample size and primarily qualitative nature of the data, cross-site and cross-professional statistical comparisons could not be made.

CONCLUSIONS

As with physical rebuilding and mitigation, learning from the lived experience of those in the recovery phase is critical to building capacity in the disaster workforce. Their advice can provide guidance for planning, education, and training both within and outside their communities in order to better respond and recover from future disasters. Communities of practice are an excellent way to share information to help leaders and decision-makers plan for and respond to disasters. Planning for disaster response and recovery can be an overwhelming prospect, and sharing lived experience among a community of practice can alleviate that burden.

These data help facilitate that community by compiling and sharing the lived experience of leaders who experienced large-scale disasters, and the outcomes of this analysis help show what areas of planning require special attention in the phases of preparedness, response, and recovery. Those involved in disaster recovery are willing to share their lived experience to help others, as evidenced by the wealth of data that resulted from our request for advice to other leaders.

A key takeaway from these data is the focus on the transition from response to recovery. Specifically, respondents noted that it is important to acknowledge the cause and effect that occurs in the disaster continuum; the decisions made in preparedness and response carry into recovery. This is important for communities to consider when engaging in preparedness activities or planning for response, because their actions could have implications that stretch beyond the weeks following a disaster.

Another observation of note in this study was that similar themes of advice were obtained from a diverse set of communities and professional roles. This shows that some elements are held in common and can be planned for in advance. For example, disaster behavioral health was discussed among all types of organizations involved in recovery, not just mental and public health entities. These findings ultimately show why breaking down silos is important; if everyone has the same concerns and needs, then those can be more easily addressed when working together.

The recovery phase of a disaster is an opportunity to learn from challenges. Many communities have taken advantage of the opportunity to build back stronger. For example, in Joplin, Missouri, a local hospital that was destroyed by the 2011 EF-5 tornado was rebuilt with innovative techniques in order to provide safe shelter and continue treating patients in the event of another severe storm.[21] The City of Greensburg and Kiowa County, Kansas, developed a sustainable, green redevelopment plan after the EF-5 tornado that devastated the community in 2007.[22] Such efforts underscore the importance of early and lasting investment in long-term recovery, not only to "build back" but to "build back better." Through communities of practice, communities can share information to help each other recover.

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Funding

USU grant no. HU0001-11-1-0011.

Published online: June 20, 2016.

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https://doi.org/10.1017/dmp.2016.92 Published online by Cambridge University Press

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