Strong Medicine Interview with Dr. Paul Biddinger 3 March 2014

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Q: This is Miriam Rich and today is March 3, 2014. I'm here with Dr. Biddinger at the Landmark Center. We are going to record an interview as part of the Strong Medicine Oral History. So could you begin by telling me a bit about yourself, your training background, and your professional positions?

A: So my name is Paul Biddinger. I'm an emergency physician at Mass General Hospital and chief of the Division of Emergency Preparedness within the hospital and medical director for emergency preparedness for Mass General and for Partners Healthcare. Started my career in medicine way back in the '80s as an EMT going to some smaller scale multiple-casualty incidents. That stayed with me ultimately when I came on as faculty. I started at Mass General between 2000 and 2002 as the EMS director, but that was also the time of 9/11 and that's really when I started getting involved in disaster medicine as those events unfolded.

Q: What led you to be interested in this field?

A: Again, I started really early on in EMS and in the field with ambulances just because it had a draw to me. And in

the course of that work went to a number of bigger emergencies involving a good number of patients and I was very interested in how to make those events run smoother, since they're generally reasonably chaotic and disorganized. And again, as I've mentioned, I started originally with my career focus in the department on EMS systems, on ambulance systems and others, but when 9/11 happened there was a need in our department and in the hospital for folks who were focused a lot on domestic disaster preparedness as well. And so I started doing more research and teaching, began to be involved with a program over here at the Harvard School of Public Health that also looked at disaster preparedness and the role of public health, and it just continued ever since then.

Q: What does a typical workday look like for you?

A: There probably is no typical workday for me. Like a lot of people in emergency preparedness and response, I have a lot of other jobs as well. I'm currently the vice chair for clinical affairs in the emergency department so I have the day-to-day responsibility of looking after the emergency department in general on its ordinary function. So there's a lot to do with that in terms of meetings or phone calls or investigation of different issues. I practice clinically about twice a week, work a shift in the

emergency department. I lead a disaster preparedness center here at the Harvard School of Public Health which brings me over here to the Landmark at least once a week. Look at the hospitals' plans for preparedness, look at Partners, which is the system to which Mass General belongs, look at their plans for preparedness, do research and teaching. And I travel a fair amount. Probably depends on the month, but three to five times per month I travel different places to either speak or hear about emergency response and disaster preparedness.

Q: So before the events of the marathon day last year what were your disaster preparedness training and protocol like and how had they been developed?

A: We really, I think, began to revise the hospital's emergency operations plan, all of our disaster plans, after 9/11, and I think that's pretty common among hospitals in this country. We used to, I think, in American health care plan a lot for how disasters should happen as we thought. I mentioned I started as an EMT in the 1980s and I was taught that when a disaster happened the police, fire and EMS would go to the scene, they would secure the scene so no one ran away and no one got in, they would decontaminate any victims that needed decontamination, they would triage victims so everyone went in order of priority, they would

make sure they distributed patients among the hospitals so no one hospital got overloaded, and it turns out that essentially all those things that I was taught were wrong. And if you look at the research of disaster it's pretty clear that those things don't happen. That's an orderly way in which we like a disaster to happen but it's not the way they really unfold. And so the last 10, 12-plus years at our hospital, but certainly I think at most hospitals, have been an effort in going back and really looking at how disasters do happen. And looking at what we can do to be better ready for the reality of it is what a disaster looks like. So we rewrote the whole hospital emergency operations plan between 2002, 2003. It got much more streamlined, much more structured. We actually did a lot more training on it. Although we did have a good system, but we had some of the [05:00] challenges that a lot of people face with paper preparedness where it's a plan on the shelf but not that many people know about the details. Did a lot of training. In 2005 we actually brought a group of Israeli consultants over to our hospital to share their lessons. They lectured to us for a few days and then they actually watched us go through a full scale exercise where we pretended to have a big disaster and triage patients and take care of them. And they were, in a very nice way, very

critical of everything we were doing. They thought that our plans weren't up to the task and that we needed to change what we did, and that was the whole point, and so we did. We started learning how to triage patients faster, how to register them in the system faster, how to get them more quickly through the emergency department to the operating rooms, to the ICUs, to radiology. And so we really kept looking at our plans with the eye of the lessons we learned from the Israelis and retooled. A couple of years later, with the help of the CDC, we had a citywide symposium where we brought folks from London after their subway bombings, from Madrid after their train bombings, from Mumbai, from Israel again and, similarly, we worked as a city to look at the lessons of improvised explosive devices and urban terror. And again, worked on our plans, worked together as a city, and have been doing so pretty much continuously until the marathon bombings happened. I think that's a lot of the reason behind why we think lots of parts of our plans were successful is that we really did try to learn the lessons of those who went before us. And I can point to a number of specific things we did well that we would not have done well had we not learned those lessons.

Q: One of the things I'm struck by is the international scope that you're describing. Do you think that level of international cooperation and communication on these issues is new?

A: It's probably new. I think it's relatively less common for folks to reach across national borders, absolutely. I think the degree to which we're seeing explosive device terrorism in modern society is also changing a bit. It is unfortunately common in the Mideast but we're seeing it in all sorts of corners of the world and I think there's a growing realization that no matter where it happens we all have a responsibility to share the lessons and learn the lessons from what's out there. So Tokyo in 1995 had a doomsday cult that released a nerve agent, and though thankfully it's the only time in modern history that a chemical weapon has been used like that by a terror group everyone has felt obligated to try and learn as much from that incident as they could. I think thankfully urban terror events such as London, Madrid, Boston, are relatively rare in Western Europe and in the US. Not so much in other parts of the world, but I think we're all trying to learn our lessons because you don't get a second chance. It's not like normal medical care where you're doing it every day and you get a chance to really practice

with the situation again and again and again to make sure that you're as refined as you can be. You only, hopefully, get no chances but if you get a chance it's probably going to only be one.

Q: Let's shift to talking now about the day of the 2013 Boston Marathon. Can you start just by telling me how the day began for you?

A: So for the last several years I've been working on the race course itself at Heartbreak Hill. I work in a medical tent there and try and help runners with whatever they need. I work with a number of people that are actually on a federal disaster team with me that we all volunteer together for this race as private citizens. And it's a good experience. We enjoy working together, it's great to be part of the race, it's fun. That particular morning was pretty much like any other morning. The previous year had been very hot and so had produced an excess number of casualties from the race as compared to normal years. So we were thinking of the previous year and how hot it was. We were glad it wasn't so hot. It was a perfect day for racing. And I still very much remember in our briefing we were told, as we're told every year, that if there were to be a mass casualty event we would shift and execute a certain set of plans. And you know, you hear it and it doesn't much

register because you know it's the case, but I wouldn't say that it stuck out at the time though it's interesting how clearly I remember that in retrospect.

Q: When [10:00] did you first become aware that something had happened?

A: So again, I was on the race course in my tent and my pager went off first of several. Our tent actually had some representatives from the Massachusetts Department of Public Health and from Boston EMS. And so I looked at my pager and it said something to the effect of there was an explosion at the finish line, but that's all that it said. And you spend a moment in disbelief. You think something's not quite right, somebody sent out a page that's not understanding what's really going on. The two colleagues I had from the Department of Public Health and from EMS subsequently quickly got pages as well, but interestingly one of the first pieces of information they had was that maybe a manhole cover had exploded, and that obviously would have been a very different event than the one we went through at the marathon. It reinforced the lesson we had learned from many others, which is early on the information you get is likely to be incorrect, contradictory, confusing. And so while that was a piece of information that we got

all of us knew enough to not think that that was going to be the definitive truth.

Q: And so you were at Heartbreak Hill, you were at the scene of the marathon. Did you end up going into the hospital that day?

A: I did. So in my role professionally at the hospital my job is to help manage the emergency department and the hospital response, but it was hard because I also had responsibilities as the senior medical person in my tent. I talked with the commander for the tent who happens, again, to be the commander of my federal disaster medical team, and we quickly came to the agreement that I would be more useful if I went to the hospital. Thankfully our tent did not have very many acutely ill people at that time. There were a good number of medical professionals still there at the tent obviously. So I hopped in my car and I got to the hospital probably a little faster than I should have but got there very quickly, shortly after I think the first one or two just got to the hospital.

Q: You talked about that sort of initial skepticism of the information you were hearing. When did it sort of set in or when did you become fully aware of the details of what had happened?

A: The skepticism only lasts a second, and especially as others start to get notification it gets big very quickly. I pretty clearly remember standing next to one of the paramedics who was also near us at the time, and the paramedics, although she was working for a private ambulance service, all work on the same radio frequency for the race as Boston EMS does and so I could hear the paramedics at the incident scene talking on the radio through her radio and I could hear them yelling, I could hear people yelling in the background behind them, and that didn't take long to figure out this was a very big deal.

Q: So you mentioned early on being reminded of what your mass casualty training scenario was. How closely did that get followed in practice versus what it looks like on paper?

A: It's interesting. When I got into the emergency department -- I arrived, again, a few minutes after the first victims already arrived at the hospital -- we only had nine minutes between the first radio notification of any sort of incident at the marathon and the first patient coming to our ED. So as the Israelis and others had told us, it was expected to be a short interval, it was a very short interval. They arrived, I arrived shortly thereafter, and in some ways I was struck by how much the emergency department looked like one of our exercises. That all the

different people were standing where they're supposed to be standing, not just the doctors and nurses but environmental services, materials management, respiratory therapy, all the people we need, which is a very big number of people, to be part of our disaster response, they were where they needed to be. And to me I think that validates the importance of exercising. That these people had done it before, thankfully only in a fictional context, but they'd done it before so they knew where to go, they knew what to do, and in that nine-minute window between being notified of something potentially wrong and a lot of patients arriving quickly, a lot of chaos coming into the ED quickly, they knew what to do and they did it well. The emotional tone clearly did not feel like an exercise. It wasn't any question that it was a real event. And so that was very much different. And we knew from all of our different colleagues that overcrowding in the emergency department is a problem. That people will self-respond, they come down to the emergency department, they want [15:00] help, but they end up being almost part of the problem because we have too many bodies, too many people there. That was the case for us. We had far too many physicians, especially in the emergency department. And it took us a little while to get on top of that. We'd been trying to train our staff

and others to prevent against that, we didn't do as well as we could have, but within a relatively short period of time we got on top of it. And then the emergency department got back down to a more manageable noise level and more manageable body level in the hallways.

Q: Was there anything that was like completely unanticipated by the training scenarios you've been through?

A: I don't know completely unanticipated. I think there are a number of things that we didn't anticipate fully. We have disaster registration packs which are preassigned medical record numbers and cards and papers, all the normal things you need to take care of a patient, that are ready to go, but you only need the papers if the computer system is down. And so people started using those disaster packs and the paper because they were there and they forgot to use the computer like they would for any normal patient. So we didn't anticipate the confusion that that would cause by having that level of preparedness. We did experience a tragic problem with registration of disaster victims, that because so many people were coming in that were quite sick and there was a lot going on there was a mistake where one person was registered incorrectly and that caused significant challenges for the families and loved ones of

the victims as well as for the medical staff and the registration staff that were involved in that.

Q: To what extent were you aware of the intensive media coverage and also the social media activity that was happening as you were providing care that day?

A: So the social media is a fascinating issue for us that we still don't have a great handle on yet but is a really important one. It turns out that the formal disaster radio notification that we get from Boston EMS was probably not the first our hospital heard of the marathon bombing. One of our anesthesiologists knew someone who on Twitter apparently picked up early wind of the bombing even before we had formally been told. And that anesthesiologist in charge of the OR desk went and held a couple of the cases that were about to start in the operating rooms just -- again, he said, "Gosh, I don't know what's going on but I heard something, why don't you guys not start your case?" And that ended up being a lifesaving decision because we had operating room capacity we might not have had so quickly had he not done that. Really an amazing, amazing action on his part. Later in the day, as things were still going -- there was a lot of uncertainty again, rumors everywhere, it was very hard to know what was true, what was not -- over the citywide radio system they broadcast

that there was another explosion at the JFK Library. And I was standing next to a surgeon who on social media was very quickly able to say no, that wasn't an explosion, it was just an ordinary fire, it's not a big deal. And so it's interesting that rumors were being debunked pretty quickly on social media. Now, that being said, there's also a huge amount of media -- sorry, a huge number of rumors that are being started on social media. I have seen one paper, I don't know how true it is but that suggests that more than half of the information that was on Twitter and Facebook in the first day of the marathon bombing was actually either accidentally or intentionally incorrect. And so we're trying to figure out how to use good information, which really did help us with our response on that day, filter out bad information, and not get swamped in that information flow. So we're used to listening to the citywide radios with our public safety colleagues, we have some secure websites we use, but we haven't tried to use social media for what we call situational awareness before. That's the buzzword of really knowing what's going on is you've got good situational awareness. And so we're trying to figure out how to do that. First off you need somebody younger who has good skills with this that's pretty facile with social media. But secondly you need good ability to

filter out what's not correct. As far as the national media, the other media presence, our hospital is one that relatively commonly takes care of high profile cases, whether it's patients or scenes or incidents, and so it's not at all unusual for us to have a lot of media at the hospital. We took care of a number of the most critically burned patients from the Rhode Island nightclub fire, we've had, again, a good number of VIPs, so we're used to that [20:00] part, but I think the worldwide media interest and requests for information and interviews was quite something even for what we've been through previously.

Q: Were there particular privacy concerns also with specifically social media?

A: I think for that part, not quite as much. Again, I think on the medical side the physicians and others that spoke to the media were all pretty comfortable with what we can and can't say in terms of privacy concerns. I think the privacy concerns more that were hard for us were relating to trying to get information to families and loved ones. We still didn't have at that time a good enough system to be able to help anyone who's looking for their missing loved one or relative and they don't know if they're at a hospital or somewhere else, to let them if they're not at our hospital where else they might be. We didn't have a

system to share among the hospitals and the health departments the location or the condition of different victims, so that someone wouldn't have to go from hospital to hospital to hospital. And that's definitely a lesson that I think we've taken to heart. It's important to do that. You don't want someone to be doubly, triply traumatized having to go from place to place, just being told that their loved one's not there but they can't help otherwise. So that was one of the big privacy concerns because it really ended up being an obstacle to help out families. The other concern for privacy was just the difference in the way that medical personnel approach information gathering and patient protection and law enforcement do. You know, law enforcement did a phenomenal job investigating, finding, apprehending the suspects in this case and I think everyone who was involved in the medical response applauds and supports that, but the fact that the law enforcement officials really needed quick access to the victims to get information so they could go do their jobs, sometimes needing to take photographs in circumstances where we would not normally permit photographs, certainly for the family or others, it made medical providers uncomfortable. And while it was all legal and very helpful, I believe, or I'm told, to them as

they went to go find the people responsible, it was a cultural clash between medical providers and law enforcement responders that ultimately we ended up bridging well with some liaison officers from the Boston Police Department who helped both sides kind of come to a mutual conversation.

Q: Was that something that had been taken into account in training scenarios?

A: It hadn't. And again, it's not something with which we're completely unfamiliar. As a trauma center we get victims of shooting and stabbing and other violent activities on a reasonably regular basis, unfortunately. And so we're used to dealing with law enforcement and their evidence collection and what they need to do and law enforcement was always very, very good about making sure that medical care took a priority, so that if we were doing something to help the patient they wouldn't try and step in. But if there wasn't an immediate medical priority they needed to do their job and it was different than any other scene that we've been through, any other incident that I've been through. And so I think the type of information, the need for urgent collection of that information, that speed, was different than anything else that I've ever experienced.

Q: So you just touched on this a bit, but like how different and in what ways was sort of the setting at the hospital different than it is on a typical day?

A: Yeah, I think -- so a lot was different about the hospital. Again, I think the emotion was very different, the number of people was different, all of that. But and it's interesting you ask that, I was speaking about this with some other responders to the marathon just recently, last week, about this. There was really a tremendous uncertainty that we dominating all of our thoughts as we went through our normal medical care. As a trauma center, again, unfortunately we do deal with victims of very severe trauma who are severely injured and sometimes killed, but incredibly uncommon obviously to have a large number of victims like this. That was very different than what we would normally see. But the uncertainty of not knowing if there were more victims coming, were there more waves of bombings coming, what this meant for our own personal safety -- you know, everyone knew someone who was at the finish line or ran the marathon and was worried about that person that they knew of. [25:00] I think people worried about it for what it meant. Your mind quickly jumps to what this means for the future. What is Boston going to be like? What's it like to ride on the subway, what's it like

to walk on the street, how does this change the city that I live in? And in those early moments when we're being told there may be more attacks, there has been another attack after the marathon -- although that was untrue -- it shakes your sense of security. And I think the only thing that I can hearken back to is 9/11 when I felt when I was watching the TV and the second plane hit and then you hear of a third plane crashing and a fourth plane, that you just, you don't know when the shoe is going to drop. You don't know if or ever it's going to get back to normal. And I think it was interesting because you could see that in a lot of people's faces, that not just were there a lot of critically ill patients around, and again as a big hospital we can take care of a lot of critical patients, and I'm proud to say that we had far more medical capacity that day than we needed, but I think it was also the context in which we were worried about our friends and loved ones and families and even just what the next few days and months were going to look like.

Q: What is that like as a health care provider to have that kind of emotional uncertainty? I mean do you push that to the back of your mind, does it affect you?

A: I think everyone is different, honestly. I know of colleagues who had very real concern for their loved ones

being affected, again being right at the finish line or running the race, and they were very troubled, even in the moment but certainly afterwards, by those thoughts. Others I think just have a good ability to really focus on what's happening in front of them and compartmentalize it. I'd say personally I'm probably somewhere in the middle. I was lucky enough before the cell phone stopped working to be able to talk to my wife and know that she and my son were fine. I knew I was fine and it allowed me to focus a lot more on what was in front of me. But I would say I spent the whole day and probably that whole week quite unnerved by the experience, just changing my perception of the safety of the city around me.

Q: Did you have any communication with other hospitals in Boston? Was there collaboration between institutions?

A: Some. As I mentioned before, we share a secure web portal where we can chat back and forth to update information or make requests. Because the hospitals of the city of Boston were in pretty good shape that day -- again, the event happened just before a normal shift change in almost all emergency departments at 3:00, so most all emergency departments, most all operating rooms had about twice the staff they normally would have because of that factor. Again, Boston EMS did an amazing job at distributing

patients and so the hospitals weren't absolutely overwhelmed with critically ill or even moderately ill patients. So there wasn't as much need for us to chat as maybe there would have been if someone was underwater. One of the hospitals did ask for extra vascular kits, vascular surgical equipment, because they thought they might run out, and so that was broadcast to all the other hospitals and everyone stepped up very quickly and that was easy. Turns out it wasn't really needed. But the one thing that I think we could have done a better job as a hospital community but also with EMS communicating about was about the presence of hazards, whether it's chemical or radiation hazards or security hazards. There ended up being a bomb scare at one of the emergency departments in the city as all of this going on with an unattended bag and that emergency department essentially got evacuated very quickly. And as those rumors flew around -- again, this is what happens is rumors and challenging information flows happen -- it would have been good for those of us in relatively central positions within our institutions to be able to share and either confirm or debunk a lot of that information. Because each of us was kind of doing it on our own in terms of confirming that hazard information.

Q: How did just the week after the marathon unfold for you and for the hospital?

A: It was an incredibly tough week. You could see very quickly Tuesday and Wednesday everyone was just emotionally [30:00] spent. People were a little short with each other, they were just tired. And at the same time there was a lot of forgiveness for being short. People would be sort of curt with each other but then let it slide and not get upset. And everyone knew that it was just part of the fatigue of what we'd been through. Remember at that time, for most all of that week, we didn't know where the perpetrators were, and so there was still a persistent feeling of lack of safety and wondering whether these people would be caught or not. for our own hospital, by that Thursday, before the Thursday, we knew that the President was going to come and visit our hospital and that was a wonderful thing for the staff and for the victims that were at our hospital, but caused a number of planning challenges and created a whole new set of issues that we had to deal with. And then it got much harder actually starting over on that Thursday. So, as you might remember, the suspects shot and killed an MIT police officer, who was brought to our hospital in the middle of the night, and for our emergency department staff who were there, they were

very distraught by this. It was another very fresh wound, another real insult to everything that they had been through. Through the middle of the night, then there was the chase. There was a lot of gunfire, there were explosions, there was a lot of uncertainty going on and then by about 5:00 a.m. or so the T was shut down and all the roads were shut down. So as a hospital we were in a very tough spot. We had the night shift in the hospital, which is of course normal, but that's the number of people who needed to run the facility during daytime hours. We couldn't get the night shift home and we couldn't get the day shift in because the T was shut down and everyone was asked to stay off the roads. So we ended up with the problem of trying to run a 1,000 bed hospital was really a skeleton crew who had been up all night and didn't plan on staying up during the day. So we actually reactivated our disaster plan on that Friday morning just because of the staffing and operational challenges that we had. We had to let tens of thousands of outpatient clinic visits know that those visits wouldn't be happening. We had to figure out ways to create sleep rooms for our staff and let folks sleep in shifts, and we worked a lot with local and state emergency management authorities to try and explain to them why we needed to have some of our staff come in and some of

our staff go home. And over the course of the day it got better.

Q: And so then what were the next few months like? How long did it take for things to sort of get back to...?

A: I think very quickly, even in that first week, I think it was Wednesday although I might get that day wrong, very quickly we had a debriefing in the emergency department. I know the operating rooms did the same, other places throughout the hospital did. We wanted to hear those fresh kind of raw perspectives that people will forget very quickly, real push to get that information from all the people who were on the front lines so that we learned lessons. There was an awful lot of continuing media coverage obviously as well that we felt was our responsibility to let people know what had happened and let them know what we knew within the bounds of what we can share. As it went from weeks to months after the marathon I think that the most important things we did were trying to learn all the lessons we could, and that was at an institutional level. There was a consortium set up among the trauma surgeons and emergency physicians of the major trauma centers to try and collect medical data with institutional research board approval so that we can learn better how to take care of these trauma victims. One of

the things that was mentioned a lot in the care of trauma victims was tourniquets used in the field. We want to see if we can add the knowledge of what kind of tourniquets are helpful, when are they helpful, that sort of thing. So lots of study into the medical response, but also lots of study into the individual hospital and the system response. And so each of us tried to gather a lot of data, write up things called after action reports which are formal descriptions of what went well and what needs to improving. Some of those after action reports are still coming, they're not all done yet. And then the last thing, not in terms of importance but just the last thing I'll speak about really, is the mental [35:00] health side of it. Certainly obviously for the victims, for their families, there are tremendous mental health consequences, but also really for everyone who was involved in the response. It's really clear that you need a lot of different kinds of mental health resources and you need to offer them for a long time. Some people have kind of an urgent need to get involved and they may even just only want to sit down and talk with people who went through what they went through and get it out and they'll be OK. Some people want to do it in private and some people want to do it a couple weeks later, some people a couple months later, some people later

than that. And so I think it's been really important as we try to get back to normal to identify everyone who might need help. Some people will self-identify, some people it needs to be suggested a little bit more for them. get them what they would like, what they think they need, and so a one size fits all approach does not work for mental health, especially for responders, and then keep tabs on folks. We're getting now, we're almost within a month of the next marathon coming and I've heard it from some folks already that as they've seen the preparations, as they've seen the signs, it's triggering some memories for them and I expect as the anniversary comes we'll have some folks that will need to seek a little assistance again.

Q: Is your perspective on the incident now, almost a year out, different than it was maybe in the weeks following or in the months following?

A: I would say my perspective continues to evolve. I have spoken about the marathon a lot in a lot of different settings, traveling the country. Because I feel strongly that we improved our plans because other people were willing to share lessons with us, I feel strongly that we have a responsibility to share lessons with others. But as I do that I hear new facts, new perspectives, new thoughts from other people who were involved in the response, and

some outside. So I'd say my thoughts are always evolving on what to do. I think, again, we're very proud of the fact that no one who was transported to a hospital died in the city of Boston. But we also very clearly recognize there were a number of factors of this particular incident that worked in our favor that day. We are the city of Boston, we have a larger than normal number of trauma centers, the event itself was relatively equidistant among the trauma centers so transport distances were about equal. Again, it occurred at shift change, it was an outdoor blast, there were a number of things that really were very fortuitous for us. And I think what I've spent a lot of my time worrying about, and I know a lot of others around the city worry about, is what happens if those things don't go as well the next time? Are we still as well prepared, are we doing everything we can do? And it really gets to what emergency preparedness is. One of the cocktail party questions I'm always asked is, are we prepared? And there's not a yes or no answer to that question. Ideally we're a lot better than we were last year or the year before and we're not quite as good as we're going to be next year. And so we need to keep identifying those areas where we have weakness or need to improve, working on it, testing to make sure improvements work, and then going back

and reexamining and doing it all over again. So I think my perspective maybe shifts a little bit on the relative importance of certain of the issues that we noticed in our response, but my resolve to try and fix as much as of it as I possibly can certainly hasn't changed.

Q: And what kinds of changes are you or have you been making to the emergency preparedness protocol?

A: So for the hospital I think, again, in terms of early situational awareness we're trying to figure out how to process unusual or at least novel streams of information like social media. We're certainly, we looked at our registration processes to try and make sure that those are tight as they possibly can be so we know who the victims are that are coming to our hospital. We've tried to work on improving the organization of our trauma team response so that we end up with a little bit less crowding in the emergency department hallways and more dedicated teams. We're institutionalizing some things that happened spontaneously that day. Our internists came to the emergency department and helped us take care of the patients who were otherwise in the ED that needed to go somewhere else when the bomb happened. Our emergency department was very overcrowded when the bomb went off, like every emergency department is all the time. It's a

national feature of emergency medicine. We had 97 patients in a [40:00] 49 bed emergency department when the bomb went off. We had 25 patients in a 17 bed acute unit which is our sickest part of the emergency department. Internists came, they asked us a little bit of information on these patients, and then they helped us push the stretchers away and take over the care so that the emergency physicians and the trauma surgeons could focus on the incoming victims. It was incredibly helpful. It was an impromptu response that they made up but has now become, is becoming part of our hospital plan and is something we're very happy to formalize. We are still looking at ways to improve our psychosocial support. And then I hate to say it but we're looking at what happens with bigger numbers. Obviously with three people killed, probably a 40 plus critically injured, and more than 280 injured across the city this wasn't a small event, but unfortunately it could have been much, much bigger. And I think, again, we want to try and make sure that we're doing everything we can to be prepared in whatever circumstance we think we can reasonably expect.

Q: To what extent do you think you can generalize these insights to situations where there are either different circumstances or different areas of the country or even the

world that have a different profile of resources than Boston does and did that day?

A: It's a great question. I think some things are universal. Short notification intervals, poor early information, need to muster a lot of resources but need to organize and structure that resource use is going to be common no matter where you are, whether you have a couple of rooms in your emergency department or 40, whether you have a couple of doctors or 100. Some things are about scale and so certainly we're looking at how we can scale up our response. I think the principles of health emergency response, health emergency preparedness are the same. And a disaster really is defined as an event where the needs exceed your resources, so in some circumstance you would actually, at least from the health side, not have called the Boston Marathon a disaster. It was a mass casualty event, it was a tragedy, but the medical needs did not out strip our resources. And so I think where maybe a community hospital would be overwhelmed by the same numbers we weren't, but we could potentially face bigger numbers. And again, it's both of our responsibilities to plan to do the very best we can with the limited resources we have.

Q: And then in terms of those resources one of the things you had wanted to talk about was who should fund disaster preparedness programs and exercises.

A: Yeah, I think one of the most important things that we did for our program, and I would say this across the city, is we exercise, we test. And I think two people need to be funding emergency preparedness exercises and one is hospitals and organizations themselves. I think it is a cost of doing business. If you are needed in emergency response you have to see it as part of your mission that part of what your nurses, your doctors, your security staff, your blood bank staff, your respiratory therapists, your environmental services staff, what everybody does is practice disaster response. Because we've seen it again and again and again. We saw it in Joplin, Missouri with the hospital that was hit by a tornado, we saw it with the New York hospitals hit by Sandy, with the Gulf Coast hospitals constantly, we see that it's a whole hospital response and if people haven't practiced it before they're not going to do nearly as well as if they've practiced it. So it has to be part of the cost of doing business for a hospital. I don't think it's reasonable for a hospital to expect that people outside of the hospital are going to give them full funding to do that. That being said, I

think it's also really important that we work as communities together. We've been very fortunate that for more than 30 years in Boston we've had a health preparedness community that works together. We exercise every year, we know each other really well among the hospitals, health centers, EMS system, public health system. We know each other's names, we have each other's phone numbers, it's a tight group. And the reason that's the case is a lot because we test together, we practice together. And you're not going to successfully ask a hospital to fund a community preparedness exercise. That's bigger than their scope of business. And so this is where I think we still need federal funding to be increased for emergency preparedness exercises for health care. The funding has actually been decreasing for almost 10 years now. It ramped up after 9/11 and was very helpful in that circumstance and [45:00] now is starting to go away. I use the analogy of a football game. You've played one game, you're not going to stop practicing, because the season is certainly not over. We have to keep practicing and I think it's very shortsighted to take away community preparedness funding because otherwise there's no one else who can shoulder that burden. Local and state governments really are strapped beyond the breaking point, as most people know,

and I don't think they have the funding to be able to support this. I think we have to make it a national priority and something that we fund across the whole country.

Q: Can you talk a little bit about what the relationship between public health and medicine is and preparing for and enacting measures in these circumstances?

A: Sure. I think it's a partnership that is growing but probably continues to need to grow as well across the country. In the sort of most simplistic way of looking at it, medicine is taking care of a patient and public health is taking care of a community. And so public health in its role and its purview is there to help coordinate the overall medical response, make sure that the services that are offered by the hospitals, by the EMS systems, by the providers are adequate and are coordinated. And certainly there are plenty of parts of this country where the public health resources are small, individual health departments may not be very big or well-funded or have deep expertise, but regional or state agencies often do. And I think it's not the role of public health to tell health care providers or hospitals exactly how to respond but to tell them what capabilities they expect of them and then to coordinate the execution of those capabilities. It's impossible to ask

one hospital to automatically look out for everyone else in the system and for everyone to self-manage well. We need public health as that level of coordinating authority, but that also means that they need appropriate resources to be trained, to be expert, and to execute that function, and to ask them to do it with a half time health director is not sufficient.

Q: Another question that you had mentioned, what are the main barriers to effective emergency management and disaster preparedness in medicine?

A: I think one of the biggest problems from an emergency medical side is just the overall nature of the US health care system, which is we're beyond capacity all the time. If you take emergency departments which are crowded and always have more patients than they can possibly see and then tell them they need to take in another 20%, 30%, 40% of their volume in terms of patients, it's very hard to realistically plan for that to be successful. We've seen it in infectious disease outbreaks and in H1N1 when New York City emergency departments were seeing twice the number of people that they normally see. And for our response in the Boston Marathon, to have to create beds for more than 30 incoming victims when we have more than 50 patients beyond our ED capacity, it's not reasonable and I

think we have to rethink how the American model of health care and health care reimbursement supports disaster preparedness and how we can rapidly take an influx of patients into a system that's pretty crowded on a daily basis. That's a big one is the capacity is a challenge. And the other one, I think, is that people don't see it as actually their responsibility or something that's that important to them on a day-to-day basis. Maybe the Gulf Coast states because they do get more weather events than anyone else are a little bit different in this regard, but everyone has a not-me mentality. I don't really need to know about emergency preparedness because nothing's really going to happen to my hospital. You know, nothing has really happened here in a very long time is the mindset. And I don't think, again, anyone would have thought Aurora, Colorado was where there'd be a mass shooting or Joplin, Missouri is where a tornado would have a direct hit on a hospital, or even Boston would be a terrorist attack on a marathon event. I still remember I was flying on an airplane and was speaking to a woman about what I did and she looked at me almost dismissively wondering why I did medical emergency preparedness in Boston. And she asked, "How high-threat a target is Boston anyway?" Which wasn't a very nice kind of question, but that's the point is that

this can happen anywhere. And if we're lucky this will rarely, if ever, be needed but you cannot predict where it's going to be needed and I think we have to get over this mentality that it probably isn't [50:00] going to happen here, it's probably not me, and get people to assume it's my responsibility to learn about this, to know my systems, know how I'm going to respond, and for each hospital to keep striving to respond better each year. Because then I think with whatever the events are, whether they're weather related, terrorist related, accidental, other, we will have a much more robust response system.

Q: Going back to the first half of your answer, what sort of specific structural changes to how health care is funded and delivered do you think would need to happen in order to adequately practice emergency and disaster medicine?

A: So far really the only funding that most health institutions get for emergency preparedness is through the Assistant Secretary for Preparedness and Response out of HHS. And that funding is sort of complicated and passes through the state health departments. I don't like using the word tax but some portion of health care preparedness tied to the revenues of an institution makes sense, that bigger institutions get a little more funding, that smaller institutions still get funding but tied or linked in some

way to the revenue that they generate. That this becomes part of what we fund, whether it's through CMS or through private insurance as a requirement or others, ensuring that it's an ongoing stream not subject to the ups and downs of federal government cuts, which is where we are right now. That it's easy to cut a line item in a single budget but I think if this is more, again, thought of as a cost of doing business, that it's part of the payments for doing business, that that makes a lot of sense to me. And especially if you take that funding and earmark it, make sure that it must be used for preparedness as opposed to it's just funding that's given to hospitals but then not tracked, hopefully we'd end up in a better state. There are a lot of hospitals that don't fund a full time emergency management director because they don't have funding to do so, it's not a revenue generating position. And I think that that needs to change just given the importance of hospitals and health care in our overall disaster resilience in this country.

Q: And then given that this is, and specifically the Boston Marathon bombings are something you think about as a health care provider and administrator but also presumably a lay member of the Boston community, does your perspective on it differ depending on sort of which role?

A: I don't think so. I certainly am still sad and angry that the event happened at all. I'm still proud of the way that my hospital and my system and the city hospitals and EMS systems responded. And I'm still motivated to try and make what we do even better than where it is right now. I don't know that, wearing all the different hats that I wear, that those perspectives changed depending on which hat I feel like I'm wearing that day. And I would say I think most people in Boston certainly share the sadness and some anger about the events, but I think most people also understand the importance of why disaster planning is a vital part of the city, and unfortunately sometimes it takes a tragedy like that to get people to understand it. But I know within my own emergency department it's a lot easier to get people to participate in exercises than it was before the marathon.

Q: Any other notable changes like that in post marathon?

A: I think, yeah, not just the exercises but I think people take it more seriously. We have little thought experiments when the disaster radio goes off for a potential threat, which is not unheard of, we always ask our clinicians to mentally evacuate the ED and pretend as though they have to either send home people who don't need to stay or admit people who they can't decide otherwise if they could safely

send home. And people have always sort of grudgingly done that thought experiment with us, but now they're very enthusiastic. They understand the importance of it. I think everything having to do with emergency response, it feels much more real and I definitely get the number of rolled eyes that I used to get when I ask them for help.

Q: Were there any other topics you wanted to cover or stories you wanted to share?

A: I think [55:00] it is just really important to make the comment, I think, more broadly about emergency preparedness, that it's not just bombings but it really is everything. We used the same plan for H1N1 and for a big citywide snowstorm that was a year before that that we used for the Boston Marathon bombing. A lot of what you need to do well about hearing about an event for notification, verifying the information, getting good facts for activation of your system, turning on your system, leading your system, command and control of an organization, those things are common no matter what we do. And so rather than sometimes thinking of emergency preparedness as that thing that helped us do well for the marathon, I really like to try and get people to think of it as that thing that helps us do whatever the threat is. If the boiler goes out, if we have a terrible hurricane, if we have another infectious

disease, it's those same plans, those same skills that actually will really serve us well for a large majority of the things we need to respond to. And thankfully we're blessed here with a lot of creative and very smart people, but they exist everywhere in the country and if you give them a good system and structure to work within they can respond pretty quickly and solve the problem.

Q: Great. Thank you very much.

A: My pleasure. Thank you.

END OF AUDIO FILE