INTERVIEW WITH

Dr. STEVEN REDD

H1N1 ORAL HISTORY PROJECT

Interviewed By Sheena Morrison

February 1st, 2009

November 2010, National Library of Medicine Archives

Interview with Dr. Steven Redd
Interviewed at Dr. Redd's Office.
Atlanta, GA, U.S.A.
Interviewed on February 1st, 2009
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Dr. Steven Redd: SR
Sheena Morrison: SM

SM: The following interview was conducted with Dr. Steven Redd on behalf of the National Library of Medicine for the Making History: H1N1 Oral History Project. It took place on February 1st, 2010 at Dr. Redd's office in Atlanta, Georgia. The interviewer is Sheena Morrison.

So, Dr. Redd, may I call you Steve?

SR: Yes, you may.

SM: Okay, Steve. Can you tell me what your position here is at CDC, and how long have you held it?

SR: Okay. Since the response started, I have been in the role of Incident Commander, since April 22nd. For the three years before that, I worked on Pandemic Preparedness. Initially, as the Deputy Director of a unit called the Influenza Coordination Unit, and then, effectively starting

in September of ’06 - officially in November of ’06 - as the Director of that group, which was putting together all of the different response components, and interfacing with the different parts of HHS’ Office of the Secretary. First, with the Assistant Secretary for Health, and then with the ASPR in terms of reporting up to the White House on the work that CDC had to do to be prepared as part of the national plan. We were kind of coordinating all that within CDC with the budget, but since April, as leader of the response.

SM: Okay. So, can you tell me at what point you actually became involved in the response efforts?

SR: Well, probably that’s the same answer that I just gave. But the first case that we identified was on April 15th, and it was actually at a pandemic preparedness meeting on Wednesday morning, as part of the overall discussion. This one case from California was talked about. You probably have heard that, actually, the way the case was detected was in a clinical trial of a point of care diagnostic test for influenza that identified this influenza A virus that wasn’t H5. It wasn’t H1; it wasn’t H3; it wasn’t any of the seasonal viruses or bird flu. And

then the isolate or the specimen kind of wound its way through the system. And in a couple of weeks later, we identified it here as being something that had not been seen before. Two days later, a second case was identified in a different county. That was kinda when we knew something big was going on.

SM: Okay. What were you doing at that point when you realized that this thing was highly transmissible? Where were you, and what were you doing?

SR: Well, I think there was two different recognition points. The first one (really the irony is great here), I was actually in Galveston having dinner with the person who had been the original director of the unit. He left CDC to work at the University of Texas Medical Branch. I was giving a talk at a meeting that UTMB was hosting, so I was at dinner with him and his wife and some other ex-CDC people that were working at UTMB. My cell phone needed charging, and so I left it in my hotel room. And when I got back from dinner, I saw that there were some messages there, and I thought I missed my wife. It wasn't my wife that had called.

When that second case was identified the next day, I was visiting my sister in Houston, and there was a conference call that was scheduled to start at 5:00 PM Atlanta time, sorry, 7:00 PM Atlanta time. So, 6:00 PM in Houston. And I dropped the rental car. (Laugh. This is probably gonna take longer than it should.)

SM: No, no, please, go ahead.

SR: Anyway, I was dropping the rental car off. She picked me up. I got on the conference call. We drove to her house while the conference call was going on. I unloaded. We decided we would go to dinner. The conference call lasted about two and a half hours.

I think, really, the important - apart from all this kind of, you know, personal listening to a call and ordering dinner and that kind of thing - was that Tom Skinner insisted that we publish the information about the two cases in the MMWR soon. And we discussed. This was at the end of the call Monday or Tuesday. I think getting that information out really early got us a little bit ahead of things where, if we had waited even a day there would have been so much more information that I don't know when we

would have been able to write that up, because in the early part of the week, we learned about cases in Texas. We went to work full time in the Operations Center on Wednesday afternoon. And then on Thursday night, we found out about the cases in Mexico on the 23rd. So things started to kind of accelerate.

SM: Okay. So what were some of the issues that you immediately had to contend with once it was determined and you sent the MMWRs out? What was the next thing that you had to contend with?

SR: I think figuring out what everybody was supposed to be doing, and our rhythm. In the role that I had, I actually felt like my main job was to make it possible for everybody to be productive, and to be as unconfused as possible given that it was a really rapidly evolving, confusing situation. This is some of the things that we had exercised before this happened. We put into place the way that we briefed the director (who was Rich Besser then), adjusting our schedule to fit in with the requirements to brief Admiral Vanderwagen and Gerry Parker and the ASPR team, and then the department above them, and then the White House. The group that we'd worked with over the years of preparation,

everybody had a time that they needed. We needed to make ourselves available.

SM: I see.

SR: The other thing that was going on (it seems very vague, because there hasn't been, for me at least, that much interaction in the last five or six months with the World Health Organization that there were), I was the person that was named to be the liaison (I forget the exact title). But I was sort of a one-time nominee to be on the executive committee to kind of represent the United States as a place that had cases of this new virus, along with Mexico and Canada. And we presented what the situation was to that group. Then, and I'm not sure if we actually voted or not, but it was whether to change from phase 3 to phase 4 to phase 5. That was in the first week or so where we changed to phase 4, and a couple days later to phase 5.

SM: So what were some of the agencies that you were immediately in touch with?

SR: Mostly for me, it was probably (just thinking back on those early days), most was within the Department - Craig

Vanderwagen's group. In terms of who actually was in the Department, I'm not sure, but Dora Hughes was the person who was sort of playing that role. Also, the previous version was known as the Homeland Security Council, now known as the National Security Staff; the White House Domestic Preparedness and Response Group with Homeland Security and the Department of State - those were the main groups that I talked with. Outside of the department, I guess the White House people was pretty structured, but it seemed like the other ones were kind of - We had a call and respond to a certain kind of thing. It's the same thing with the group in Canada as well. There would be these kind of sudden requests for information and requests for coordination.

SM: And what kind of mechanisms were in place to communicate with everyone from the beginning?

SR: Yeah. A lot was built on the work that we'd done to prepare for the pandemic, the exercises that we'd had. A lot of it was just personal relationships and knowing the people through that work - either with the White House, with the ASPR group, and then within CDC - those weekly meetings that we'd been holding for 2 ½ years on

preparedness. So, I think initially, there was a lot of reorganizing those personal relationships into a way that you could actually do the thing that needed to be done in the time that was available. And it was, I mean, it really was the kind of thing where we had this rhythm, but it was highly variable. I would convince myself that, okay, you know at 8:15 we're gonna have a 30 minute briefing of the Director. At 9:00 O'clock, we have the hour call with the DRG, which was the White House group. And then at 11:00, there's the SFA call, and at 12:00, there's the HHS senior leader call. So there was this sort of rhythm of that, but in between, there was always these things that would come up.

SM: For instance?

SR: Someone from, let's see, the State Department calling and saying, "Please make sure we're coordinating with Canada and Mexico on notification of the outbreak in Mexico and recommendations for what level of notification we would make." And, or, I guess I got these things in my own mind too about what my job was, which there were three things. This is actually something that Rich Besser started out the first briefing of the response. He made us all sit there

and say, "What is it? What's the purpose of this response?" - which was to decrease illness and death, not to stop transmission of the virus. Because we already knew on the first day that we had cases in three different places that weren't related to each other, the connections had to go pretty far down in order for those cases to be connected to each other. So there had to be a lot more cases.

SM: Right.

SR: And we actually laid out three. I sort of kid people 'cause I usually can remember two of them. But there was decrease illness and death, decrease societal disruption, and we learned in the first few days of the response that there were things that we did that we knew would have disruptive effects. But some of those were more than we thought, like the effect of closing schools when a single case was in the schools. That turned out to be very disruptive, eventually we decided, out of proportion to the benefit. But decreasing societal disruption was the second aim, and the third was to put the greatest effort into the things that were gonna have the greatest impact. Those were things that we tried to keep in our head the whole time.

SM: How would you describe your job, your role in particular, in facilitating your position.

SR: Well, I had this thing that I said, that I also had three jobs, and one was to tell people what to do when that was needed. The second (this is where I'm gonna run into trouble), one of them. And this I think is the third one: to call people down when that was needed.

There were times when people got a phone call, somebody just really upset, and just to kind of ratchet down the emotions, so we could kind of move forward.

I also tried to provide the right amount of structure so that as much as possible, important decisions were decentralized, and that people felt like they could take initiative. And I think that was really important - the ability to execute an idea without having to get approval or to back that up the chain. I think that really helped us all along, especially early on, when there would be this, I think there could have been a sense of paralysis: well, I can't, we can't, make this change because we need approval all the way up.

The other part of it was, knowing actually what was going on was challenging because there was a lot of decentralized decision making. So, those were the things. A lot of it was very concrete things like, how long are meetings? How many meetings do we have? Do people know why they're going to the meetings, and what the purpose of them is? Are we capturing the things that we say need to be done from those meetings, and have a system for tracking those things? So, that was the kind of thing that I was doing.

SM: So how many meetings were going on?

SR: Well, it varied. I think that probably in the height of the response - not in the very first days, say in October - on an average day, there would be three or four leadership meetings. We would have a director's update three days a week with Dr. Friedan. We would have a morning report that was six days a week. We actually had a Sunday, beginning sometime probably in August. The first day that we didn't have it was last Sunday, up until a week or two ago. That Sunday meeting was a thirty minute meeting where we heard from all the task forces what was important that they were working on, and we were working on. And we aimed to, tried to look a little further for it (I'm not sure

that ever really happened), but just a way for people to hear there was a new meeting. That was intended to be preparation for an HHS chief of staff meeting that was at 1:30. So we had a thirty minute noon meeting, and then we had, at 3:30 everyday, a walk around each of the task forces to hear at an individual level what was going on, and what needed to be communicated to leadership here. Or, what things did I need to know that they weren't telling, relevant for the entire group?

We had a 4:00 O'clock strategy meeting, which was intended to be something that was not instantaneous: "need this information to make a decision immediately." But sometimes, there were decisions that were made at those meetings. One of them that I remember was a talk that Nancy Cox, the Division Director on influenza, gave on pandemics of the 20th century as a way of thinking about what we're likely to be seeing. That was in mid-October. Then there was a daily meeting with Dr. Friedan after that.

SM: Okay. I was part of the 12:30 meetings; I would call in or sit in. So, all of the meetings except for this 12:30 meeting were in place almost immediately after the-?

SR: Well, I'd say we changed. That wouldn't be true. I think that the only one that was really constant was the director's update that we had five days a week. We ratcheted back. I think we might have gone to two days a week, and then we upped it to three days a week. The new meeting was something that we put in place after the 12:30 meeting was started. Then it switched to 1:30, later on October 5th. I happen to remember that. But we were constantly tweaking things, and in particular, it was probably September or October where there was people pointing out that the morning report, the new meeting, and the strategy meeting seemed like the same meeting. And so, we really focused the new meeting only on the topic for the 12:30 meeting. We cancelled the strategy meeting if it was just another report from the task forces. We didn't wanna do that. So we would make sure there was a specific topic. For example, we have one today. I can't remember the specific issue. We actually have ratcheted those back to twice a week. So there's been a lot of tweaking to hit the right amount of interaction, so we know what's going on but not so much that we're just constantly in meetings. I think that actually, it's hard to get the right balance.

SM: I'm sure. So can you tell me, what was the first challenge that you faced after you got things up and running?

SR: Yeah. It's hard to think of the first one. I think some of these have been sort of ongoing, like, we have too many meetings or not enough.

And probably, I think one of the challenges in the early days was making sure that I was effectively communicating the things that we were learning in the response to Dr. Besser as he was communicating that upwards. So that was kind of an early recognition. And also, that we were, the very first days, having enough structure so that we actually identified the decisions that needed to be made, the recommendations that were needed, and had in place a structure to put the information together in a way that we could actually say, "Okay, here's our recommendation." And that was in the early days during the summer.

Beginning of June, a lot of the parts of government were kind of ratcheting down their response, and certainly, in a lot of ways, a lot of the important elements of the response were no longer needed, the daily reports up the

chain. I think we over-demobilized in June and July and reactivating the response was kind of a big challenge.

SM: In what way?

SR: Well, I think we had to get the attention of, particularly, the Center Directors and Division Directors of the agency and help people understand how high a priority this was for CDC, and that we would be judged as a group on the quality of the response. And so, everybody had a stake in it, and I think probably first week in August, that message came through loud and clear. And we started to get people, it was easier to recruit people into the response. So we ramped up very quickly in August.

SM: You mentioned that one important aspect of your job was to be able to communicate up the chain. Was it the content of the information, or was it the fact that people were engaged in other activities that made it difficult to communicate up?

SR: I think it was mainly the distilling all of the things that were going on into a digestible amount of information,

something that could be communicated as: here is the five main things that are going on right now.

I think that the other thing that actually happened pretty well was the 12:30 or 1:30 call. I think that that was really important to keep the Chief of Staff and the ASPR and the leadership of HHS all connected together. So I think that just having that meeting was hugely important. We had that same experience here, that talking and getting those things set up with an agenda. That was 90% of what needed to take place in order to be able to communicate the information.

SM: I mean it was pretty amazing to sit in and observe and witness the consensus and the intimacy in which all of the agencies worked together to respond. It was an amazing thing.

SR: I think that was a real tribute (I'm not even sure to whom) but to everybody that there was not - It was really different from our normal jobs: where we're all working together in a kind of very unified that I felt was unusual and was very positive in terms of getting the best ideas out there.

Let me say another thing too. Something about the intimacy and consensus that you said reminded me of something, which was how hard it was to hear voices from outside of the response and to get perspectives outside of the EOC. And I think that also was something in the early days was really important. I know Rich Besser was talking to various people around, and I kind of made list of people to talk to: "How do you think we're doing?" "What could we be doing differently." I think that also provided a little bit of triangulation for the things that are just really easy to miss in the heat of everything. And everybody almost in an unconscious or subconscious way would start to think the same way. And so, getting those outside voices was important.

In the early days of the response, if somebody was mad, that was a really helpful thing, because there was something that you could say, "Well, why is this person mad? Let's assume that the reason they're mad is something that we're doing that's not been helpful. If we can understand that and change it, let's do that." So really it helped us identify problems to solve.

SM: And so, you had these meetings and then you had things that happened after hours where you would work. I mean, you guys work constantly around the clock. So what determined when you would go beyond your normal-?

SR: Initially, say April, June, and May, that was kind of a standard thing that the first couple of weeks getting home at 9:00 to 10:00 was a pretty standard thing. We actually organized the work on those early weeks to have somebody come in early and leave early, and then another person come in midday to work late. So that there was somebody there working at all times. I'd say this was something that actually we didn't figure out in our exercises, and we assumed that we would be full scale 24 hours a day. We weren't. Probably initially, it was a 6:30 or 7:00 am to 11:00 or 12:00 with some work spilling over. That actually did change through the summer and fall. I think that I did a fair amount of work at home, but I usually would be home by 7:00 or 8:00. So there got to be a little bit more of a predictable pattern with some off-hours phone calls and document review but not the way it was in April or May.

SM: What was it like working under so much uncertainty? There was so much that was unknown. What did that mean for you?

SR: Well, I think that became the fact to hold on to, the uncertainty. And I guess the thing that made (try to hold on to that thought) that we actually don't know what's gonna happen in two weeks was that on successive nights, or even through the course of the day, my opinion of what was likely would shift so much, with no new information. And that indicated to me - it was kind of like a compass that wouldn't point north. It would be pointing northwest and then northeast, and that helped me realize that the thing that we know is that we don't know. And also, helping everybody realize that there's nothing we can do, or there's things that we need to do in order to decrease that uncertainty, but we can't. It's not possible to eliminate it based on - It's just gonna take, to some extent, time is gonna have to elapse before things would really, basically that compass would start to point north. And we needed actually to organize our work in order to resolve those uncertainties.

The other part of this that was an early day recognition that also persisted through the response was the concept of lag. So that somebody would get sick, and then two days later, three days later, they would see a doctor; they would be hospitalized; they would die (maybe not die), but all that information - there was a time from the event occurring and us learning about it. Or, lab tests would be done and would be a certain number of days before it would get to us. And that idea that the difference between the event occurring and us knowing about it, we wanted that to be as short as possible. But it's never gonna be zero. And it became really important to understand how far back that rear view mirror went, to say, "here's the information that we have," that it was really very dated. And three or four days could be dated, depending on the information.

And that actually played itself out for some of the decisions related to the vaccination program, and the time that a decision would need to be made that would actually be executed in six weeks or eight weeks or maybe three months. So that there's a lag on the other side too. But just this idea of where we were between understanding something, trying to implement change based on that information. That there'd be sometimes pretty long periods

of time between something happening and their reaction to that thing happening.

SM: Right. Because every action was supported by some scientific evidence, and if there was this lag then the action was delayed as well.

SR: I think that's something that people actually got used to: the need to make a decision even if the information wasn't complete. And as long as we knew or had made objective or (objective may not be the right word), but had specified what the thing was that was uncertain, then we knew that we needed to make a decision. We could kind of deal with that, which is something that for a scientific agency is pretty hard. Because really, there's this natural tendency to wait till it's over or want to wait till it's over to be sure we have the correct information, which was never the right answer in terms of getting a decision and changing the course of what occurred.

SM: Right. So early on, it was you, Anne, and someone else?

SR: Dan Jernigan, Toby Marland, Toby Crafton, Nancy Cox, Marty Cetron, and Rich Besser. Yeah.

SM: And so, when this thing hit, you guys just immediately came together?

SR: Well, we did. And we had actually - again, this goes back to the spring of 06' and working with our contractor's, the NPRI group - the operations plan; some seminars in the fall of '06 around the operations plan; a table top exercise in December of '06, and then the first functional exercise. We were in the operations center.

We had these mock briefings, mock precedents in January of '07, I think April of '07, August of '07. I just remember 3,2,1. So we had three in '07, two in '08. I guess we didn't have one in '09. We planned to have one in November of '09, and we sort of had the exercise in real life.

SM: Right. Now, what role did your office play in the decision to launch the vaccination campaign?

SR: Well, I think that was a group, that was a really pan-HHS decision. And so our office, we mainly were the

continuing structure of the response. Yeah, I think that that was a CDC recommendation. Well, it's hard to even say it was a recommendation. I think there was a lot of information gathered over the summer. Particularly the likely or the potential impact of the pandemic. The fact that there was still transmission in the U.S. and in the Southern hemisphere, that we early on made the decision to produce a test vaccine. The information that came in in August, more in September really, about the antibody responses: the lack of, in the small numbers of people who were tested, the lack of unusual adverse events. And by that time, we actually had transmission of disease in September. And so it was a call that you might have been on, to make the decision to vaccinate the first people on October 5th. It was on a Chief of Staff call. I think it was a couple of Fridays before that. That was the day that was picked as when there would be distribution of the vaccine and the first people could be vaccinated.

SM: And in your opinion, because everyone contributed, what support were you able to offer and feel confident, or as confident as one could, that this was the time to do it?

SR: Well, in fact, I wish it had been possible to start vaccinating earlier. I think all of us wish that. I think that my role really was to help structure the CDC input to that group discussion. That was something that evolved over - and I'm not sure exactly the day - between July and mid-August.

The way that we actually responded evolved from the four pillars of the White House: of surveillance, vaccination, kind of every other kind of public health intervention, and communications. We split that intervention into two parts: community measures and medical care, and counter measures. And then added a state and local task force. So we had six task forces from the four pillars. And providing that structure - not just providing, but helping trying to make sure we had the right person who knew he was in charge of the vaccination task force. And the person who's in charge of state and local readiness, empowering her to set that up in any way that she wanted, and helping make sure that it was the integrator of a lot of state and local work among the other task forces. So that was kind of my role, was to help make sure that that structure was clear to people.

SM: And as the person who structured it, were there points where you had to intervene in terms of support, not because of the individual, but because there were unforeseen barriers to getting, say, the state and local aspect of the plan implemented?

SR: Yeah, I mean, surprisingly few instances. And I say that from my position. I think that the people who are the leads of those task forces might have thought there was other support or a different kind of support that would have helped them do their jobs better.

I think that probably, the main parts of that were making sure that that there were human resources so that people that didn't normally work on flu were identified and made available. And that was something that took place - we set up a method to do that - in early August. That had been a huge problem in June and July. That was something we actually didn't have.

I'm just trying to think if there was ever any instance that one group said: "You know, this thing this other group is doing is something that we ought to be doing." We just didn't have that. The different task forces were - again,

from my view, the work was pretty - there was enough interaction at the leadership level that people knew what other groups were doing. And there wasn't so much that people couldn't actually lead their units. I've not known that anything is perfect.

I would imagine that you would hear from people that it was not good, and either it was too directive or not directive enough. But I think that that's probably okay too, because one thing I did learn is that different individuals - there are different ways to get things done depending on the person. There were some people that it was just much more effective to talk to them individually; other people, that wasn't necessary. In fact it helped to have other people hear that that thing was needed. And so, trying to adjust my style to that reality was something that I learned to do. I would say that it's always easier to just be able to say when the idea comes, "You do this tomorrow," but for some of the discussions, that was the wrong way to try to do it.

SM: And how were these things processed? Did you meet with your task force daily or weekly?

SR: We had a weekly. And it was kind of up to the task force lead how to configure this, but a roughly weekly opportunity to meet with the task forces and for me to say, "Here's some things we need to do. Is there anything you need from me?"

A lot more happened informally when something would come up either by email, or going and saying, "Here's an idea, can you guys do this? Or, can you include this is the next director's update?" This idea of tracking the work that needs to be accomplished is something that we had a couple of different ways of doing. And it depended on the setting when that work would be defined. So for the meetings with Dr. Friedan, this took a while to get to this point where we had somebody come who was basically a task tracker and would identify things that Dr. Friedan said we needed to do. And we had the same thing in the operations center for all the major meetings. A little bit less formally with the 12:30 call, but still, we had notes that would include: Redd said he would do this by next week.

SM: Well, what kept you up at night? From let's say April through September, what kept you up?

SR: I think that it was different things. And I would say in the early days, it was just knowing how many people were depending on us for understanding what the situation was, and making sure that we had that system working as effectively as it could.

I think after that, probably the biggest thing was the staffing situation over the summer, and really bringing the human resources of CDC to the response. And that was really mostly during July. That was the thing that we were needing to get up and running.

Also, through the summer, there were just lots of outside engagements to tell people the story of the spring, which was making it where we weren't doing things here. But it was also really necessary in order to get ready for the fall from an external standpoint. I think during the fall (this is probably colored by the current challenges), but I think that once we got things staffed up, we worked pretty well. There were things of, you know, the Secretary's testimony that needed to be reviewed, those sort of things. But really, from mid-August to mid-December, we had a pretty stable structure and set of relationships. So that kind of worked.

Now, we're in a period of needing to - there's less disease, still a lot of vaccine - figuring out what the next steps are, and planning that in a way that again, we don't get into a situation like we did in June where we had too few people for the work that's out there. And also making sure that we really do carry forward the things that need to be carried forward and do that in a deliberate way.

SM: The staffing issue, did you have to pull people from other jobs in order to-?

SR: We did. Yeah. Absolutely. And we had at one point probably 1800 people working on the response. A good portion of those not working full time, but probably, 900-1000 of full time equivalent level of effort at the height.

SM: While they were doing their normal jobs?

SR: No. They would leave their other job and come here. Or wherever they were, they would be working on the response. And so it was about 2000 people working - maybe 700 working full time, 150 working 50%, and then a bunch working not that much.

SM: So as you needed them.

SR: Yeah. There's always a little bit of, I mean, I think that was something that was hard to have to create. A resolution that would have been great: to know that all the people were fully occupied, and that this group had 200 people, this other group had 50, this group actually needed 75, and this group didn't need as many as they had. At the height, it was easier to get new people than it was to move them from one place to another. So I don't know that that was - again, that was not finely calibrated but got the job done.

SM: Right. What were some of the underlying assumptions that guided your decision making process during the spring and then later in the fall?

SR: Yeah. Boy. I think that one of the things was that for every either decision or change in the structure, we never really have enough information to make a perfect decision. And so knowing when the decision was needed was something that couldn't be - I guess that thing about that part of making a decision is just knowing when it needed to be

made. I thought that was an important thing that we managed to continue to remember as we were moving forward.

Some of the other things; if there's bad news, the sooner that it's out there the better, particularly within the response. And that idea that holding information back is only gonna make it worse. Related to that is the need to be proactive; that from a communication standpoint, if you're not constantly telling people what you're doing, there are gonna be assumptions. That no matter how bad things are going, there's assumptions that are gonna be worse than the truth is generally. So those were some of the guiding ideas. I think it was pretty challenging, on that communication side in particular, to kind of be aggressive enough with communicating to be able to dispel those false assumptions.

SM: And when you say communicating, communicating with the public as well as within the agency?

SR: Right. Right. Both areas. I think it was something that we knew was going to be the case with the public. And we all got to understand that that was true just among ourselves. That if we weren't meeting frequently

internally, intentions would be understood that really weren't true. I think at all levels, really.

SM: What were some of the expectations that, say, other agencies had of CDC, and the kinds of information that they would have liked to have that wasn't available?

SR: Well, I think that's something that in the early days, we provided the information that we had as rapidly as we had it internally. That actually helped a lot to not generate demands for information that were not possible to have. Actually, that was the kind of thing that people got to be very good about: "This is gonna be weekly", we would say. "Here's our plan for sharing information" It was weekly.

One of the things about the time of day - this was in the early days - the case counts: we would receive all the information from states by 9:00 PM. We would have it as part of the interim briefing at 8:00 AM in the morning, and then release it at 11:00 AM. Those kinds of things people just immediately understood why we had to do that. And so I think that we actually solved a lot of those problems by being proactive in describing what our capabilities were.

SM: And what about communication with the states? How did that work?

SR: I think it was something that worked well. And there were kind of two modes to do that. And I wouldn't just say states as a single entity, because one thing that we did learn is that if we talk to the state epidemiologists and the laboratorians, then the immunization program managers, the state health officers are not necessarily gonna get all that information. So actually, in the early days, we had daily calls with the State Health Officers, the laboratorians, and the state epidemiologists. And eventually, we morphed that into a weekly call with state health officers, a weekly call with local health officers. I'm not exactly sure about the state epidemiologists and laboratorians, but basically, multiple audiences out there. And if you say the same thing to all the groups, what we learned is that the assumption that if you tell one person in a state, that's gonna be broadcast throughout that organization is pretty much not true. And not to fault whatever group we were talking to that they were not sharing it, but it's dangerous to make that assumption. So, the more we could interface directly with those groups,

that was good. We had this established meetings that were different in the spring, much more frequent in the spring than later on.

But we also had a situation where we'd call state health officers. I mean, I would do that to just say (either on a particular question, and I would add), "Is there something that we could be doing that would be helping you?" So we tried to do the individual reach-out too.

SM: What were some of the things that states were interested in hearing? Because then, it was about messaging because we didn't have vaccine, right? And they wanted information?

SR: I think they just wanted to know what the situation was, and particularly, the severity of the disease and the risk factors. And so initially, it was the basic epidemiology of the disease - a little bit more, a little bit less - but also on other counter measures: was the virus sensitive to the antiviral drugs? Issues related to travel were another kind of a zone that was particularly important in the spring and less so in the fall. [The publicity? 50:19] of what was going on that was kind of the

main thing. And then working out some of the arrangements for how information would be shared.

SM: Well, what are some of the things that you're working on right now?

SR: Well, let's see. A lot has to do with capturing what worked well to put it into our seasonal flu control and also into preparing for other responses. For example, within a couple of days of the Haiti response starting, there were these things that, this list of about 8 or 10 kind of key things in any response: keeping track of personnel; knowing how many people we have working on a response; being proactive with the media (let me think of some of the other ones); keeping track of the tasks and having a system to monitor those; keeping track of emails. There's so many emails that [indistinct] to have a person who handles the emails and flags things for me that I need to respond to. So those were the sort of things. A little bit of how we structured - I'm not sure exactly how much of this carried over into the Haiti response - but the structure of the daily briefing.

One thing that I do is a little bit silly, but it started in the spring to help kind of focus the day with 'the day of whatever'. So the first day was the day of severity, meaning that we needed to really organize ourselves to be able to describe the severity of the illness, and the spectrum of illness, of the disease. So I've kind of kept doing that through the response. Though now, we're down to one briefing a week. So it's the week of - it's actually kind of appropriate, doing what we're doing now. Tomorrow would be the week of telling the story of H1N1 response. (Both laugh.)

SM: Okay. Well, in terms of right now, we're in the distribution phase for the states, right? In terms of vaccine?

SR: Well, we are, but we've gone through a couple of different phases of that work. So, beginning on October 5th, states began vaccinating. And from then until about late December, probably the week between Christmas and New Year's, all the vaccine that the manufacturers were producing was going to distributors and going out to all the states. We got a lot more vaccine in late December than there were orders for vaccine. So we switched that system

to one where states knew how much vaccine was available for them to order in the warehouses.

We also added a couple of things in December, that if states wanted more vaccine than their actual allocation, they could order in advance. We also made it possible for retailers to order from that quantity of vaccine so that there'd be more vaccine out there. So, that was kind of the distribution phase.

Right now, we're in a period where there's not a lot ordering, because we've kind of flooded the downstream distribution system. And so, some of the questions are: how long will the demand for vaccine persist? That we have such low disease and how much more vaccine, do we expect states to order for providers? And there's gonna be some leftover vaccine; what to do with that? What's the right amount to make available for international donations? When it expires, what are we gonna do with it? And how are we - when it's gonna need to be destroyed? And some of the communications around that too. Actually, it's appropriate that we have vaccine that would need to be destroyed because we can't perfectly calibrate. And these decisions have got to be made so far in advance, that at least six to

eight weeks before doses become available, we make the decision on 12:30 or 1:30 call how much fill and finish vaccine to order. So, those are sort of the things that are going on with the vaccination program.

And I would say that people are still wanting to get vaccinated, from the information that we have. It's lagged a couple of weeks, but it is really a good thing that people are continuing to see this as a problem. And until we get through normal flu season, we can't really be confident that we won't have flu. And even after that, given that this disease started in the spring, it's conceivable that we would have an April or a May wave. I don't think it's likely, because this virus seems to transmit the way flu normally does.

SM: I just got an email (I'm sure you did too,) about some activity in a senior home. There's increased activity among seniors for H1N1. Are you aware of that?

SR: Well, on Friday, there was an MMWR on outbreaks of H1N1 in nursing homes. A challenging part of explaining the epidemiology of H1N1, that the disease is much more common - and maybe this is something that will change in that

there haven't been that many seniors that have gotten it relative to younger age groups - getting the disease is almost inversely related to age. The older you are the less likely you are to get it.

On the other hand, the older you are if you get it, the more severe the illness seems to be in terms of the proportion of people - once they have it - who get hospitalized. So the hospitalization rate actually is fairly steady from the overall population. Even though, if you're twenty years old, you're a lot less likely to be hospitalized if you have it than if you're fifty years. So actually, the peak hospitalization rate is between 50 and 64, which I don't - It's holding two facts of overall infection rate and the severity rate in a fixed way. Those two things that are not in harmony with each other can be held at one time.

SM: Thank you. Okay. I'd like to ask you about - Well, this is related to earlier in the spring, and you made some mention of it, that many federal agencies were moving from a transitional leadership in the spring to its current leadership by the fall. What kind of impact did that have on CDC's efforts to respond to the potential threat?

SR: I think it probably put people in a position where they had to rely on CDC maybe in a greater way than would have been the case if the leadership structure had been in place all along. I think there were a lot of eyes looking at us in the spring that might have been different if there had been a more complete leadership team in place. I think it made it a little bit harder to coordinate across the interagency for things like guidance documents. As the summer wore on, there was a much more (this is gonna sound negative, but I think it's actually what should have happened), there was a more bureaucratic approach to clearance. So that, "Education needs to know about this", a lot of that stuff was being handled at staff level before, that probably wasn't really the right way to do it. So, I think that actually was something that needed to happen, and it's absence made things be quicker. But also, there were some vulnerabilities in terms of everybody being informed at the right level.

SM: Okay. So this was a new role for CDC, essentially being in the forefront of the response efforts?

SR: I think so. Although there have been a number of public health events in the last ten years where CDC played an important role, probably beginning with anthrax, and then SARS. Katrina, it was a much more component of a larger response. So we had significant amount of experience. I think each of those responses was different. I don't think there's ever been a response that's last as long as this current one, and has had as many different - it's almost like a kaleidoscope.

The initial response and the way we were structured is pretty different from what we've done in the fall. And if there's another wave, we might need to be different than the way we were in the fall also. So, I wouldn't say it's unique, but I think just from the responses that I'm most familiar with, which is really Katrina and anthrax, I think this one's gone much more smoothly than those. And we've been able to make changes to our internal structure to respond to the reality in a way that we didn't - At least from my standpoint here, it seems like we're on top of things. In those responses, I was in the field, so I don't really know fully what was going on internally. But I think we've been able to support states and people outside of the Atlanta hub better during this response than those.

SM: It seems that for many of the people that I spoke with, the fact that things were in transition meant that expertise was taken from within each agency, and developed a team rapidly to respond in the way emergency situations command.

SR: I guess I really know about that. I haven't been in this role in those other responses, so it's hard to say how that might have been different or the same. Also, the environment is different, too. The ASPR office didn't exist before Katrina, and there, I think that's a key relationship, the CDC/ASPR. I think that's worked well in this response. It didn't exist before. I think every situation is a little bit different, but I guess I would say that this response - and not everything in it, but the way that government worked together - is testament to those changes being effective, and also to the people who've been in the jobs. I've been talking a lot. (Laugh.)

SM: No, no, no. I mean I am scheduled to interview until 1:30, are you pressed for time?

SR: Probably if we go another 10 minutes or so that'd be good.

SM: Okay. Alright. So are there any documents that you think I should be reading that would give me further insight into your role and CDC's overall response effort?

SR: Boy. I'm not sure there are, honestly. I think that what we need to do is to kinda capture the job responsibilities so that the next person that does this in the next response understands what those are. I just would say that the person that plays this role is something that evolved during our exercise program, and that early on, it was intended to be someone with emergency response experience but not necessarily technical response experience, you know, the technical content. And I'm sort of a mixture of those but probably more on the technical side than the response side. And that was something we only added in October of '08 to that exercise. Up to that point, it had been an emergency response type person. But that's a long answer to your question. I don't think there's really a reconfigured "here's how we're gonna respond" kind of a document. The operations plan could help, but it's - It

might be worth looking at that, and that was, I think, January ’09 - the CDC Pan Flu Op Plan.

SM: It’s probably difficult to respond, but in your opinion, if there was a response person versus a technician, what would have been different?

SR: The thinking up to the point of the recommendation to make a technical person be the incident commander was that there was a kind of body of knowledge in running a response that was separate from knowledge of the illness or the condition. And making the operation center work required that kind of expertise. And I think our own experience - to some extent the experience during SARS, which I wasn’t involved in - that was one where (this may be a little hard,) but the science people ran the event. That was seen as something that was needed in order to be able to make the right decisions. And I think that combination of running it but also having sufficient knowledge to be respected on the scientific side was important. Because I think that’s probably something within government, being sure that the technical people, that their voices are being adequately heard is really important. And I think that’s something that through the response there’s this constant

refrain of, “What does the science tell us?” And making sure that even when it’s not complete, we at least know what part we can say, “This is what the science tells us.”

SM: Right. Right. Thank you.

SR: Okay.