



Using Geographic Information Systems (GIS) to Target Spay Neuter Efforts Video Transcript

July 2013

Large numbers of kittens entering shelters continue to be a major problem for many shelters. Geographic information systems (GIS) technology can be used to identify geographic areas that repeatedly are a source of kittens. Using shelter data regarding kitten intake from 2009-2011, GIS technology identified 16 statistically significant clusters in Tompkins County. Using this analysis, the shelter successfully applied for and received funding for targeted spay/neuter efforts. This presentation is given by Dr. Jan Scarlett, Professor of Epidemiology and Director of Maddie's[®] Shelter Medicine Program in the College of Veterinary Medicine at Cornell University, as part of the 2013 ASPCA/Maddie's[®] Shelter Medicine Conference.

Dr. Jan Scarlett: I have to tell you, I'm going to talk about GIS (geographic information systems) – well, I was asked to give a little bit of information about who I am. I am Jan Scarlett. I am an epidemiologist. I was the former director of the Shelter Medicine Program, which I have now handed the reins over to Dr. Berliner, who you may or may not have heard speak earlier. And I did that with great relief, but also great promise on her part to do a wonderful job. I've been in sheltering for a long time now, and one of my interests is spay/neuter and the effectiveness of spay/neuter programs.

I'm going to talk today about what we believe is a very promising “new” – it's actually been around for quite a while, but certainly new to shelter medicine – the use of geographic information systems to help us better target spay/neuter efforts. I'm going to explain a little bit about what GIS is in a minute, so just hang in there with me for a few minutes.

What I want to do first off, though, is give credit to Dr. Anna Reading. The bulk of what you're going to see is something that Anna has done. She came to me when she was a first year veterinary student. She said she was, in her former life, a GIS technician and that she was interested in shelter medicine, in homeless animals, and she thought that her skills could be utilized to help us better focus in on where our homeless animals were coming from. She said, "Do you think that would work, and could I work with you?" And I said, "Yes," because I do not have training in GIS. Of course, Dr. Berliner and I have been supervising Anna when she was here. She's now Dr. Reading and she's graduated and practicing in Arizona, so we lost her and her skills.

I also want to thank Jim Bouderau – for those of you who don't know, Jim is the Executive Director of the Tompkins County Shelter – and his staff, because most of the data I'm going to show you today are in fact from the Tompkins County Shelter. Incidentally, you are in Tompkins County, so the Tompkins County Shelter is the shelter that serves the community in which you are currently sitting. You all know this: we have lots of cats in the country. This most recent AVMA (American Veterinary Medical Association) survey suggests [there are] somewhere around 74.1 million owned cats. Interestingly – and I just highlight this – we don't really know for sure, because there's variability in the way that these surveys

have been done over time. They've now launched mostly into Internet based surveys, and whether you get the same information from Internet based surveys as from postcard mailed surveys is unclear.

It looks like there may have been a decline in cat ownership. That would be consistent potentially with the economic downturn that happened between the last two surveys – not clear yet. I think we're all waiting to see whether that really bears out to be true. But keep that in mind, because we're going to talk a little bit about some of the issues and problems of evaluating whether or not GIS is actually working. I think that may play into our – may help confound some of our – interpretation of the data.

The other thing that we have with cats that we don't have with dogs is a large free-roaming population, at least here in the United States. Nobody knows for sure how many of these there are. The estimates, that I think that come from the people who are most knowledgeable, put it somewhere around 35 million to 40 million – half again as many as there are owned cats. We really don't know. There are lots; there are millions of them. I think we can say that with 100% surety.

The other thing, that I think we have pretty good data on, is that the vast majority of these animals are not sterilized. Those of you who work with

cats, which is probably all of you, you know what reproductive machines they are. They are very fertile – incredibly able to reproduce themselves.

We have some data about what's happening on intake. I think it really does vary by the region of the country. Interestingly enough, some recent work done in all of, almost all of, the shelters in Colorado and many of, a very large proportion of, the animal control delivering shelters in Ohio would suggest that their intake in cats was increasing. Again, is that a reflection? I mean it certainly depends on the area of the country and how economically hit they were by our recent recession, depression, whatever you want to call it.

This also may – especially if you're using GIS and then want to see whether it has an effect if you've got increasing rates of cats coming in because of other factors, it may – mask or blunt the effect of your targeted spay/neuter efforts, if in fact they are really ineffective. Then, of course, you all know that we have much higher euthanasia rates across the country in cats than we do in dogs.

Effectiveness of our spay/neuter programs. In dogs we have seen, for the last three decades – two-and-a-half to three decades – in most parts of the country, a decline in dog intake throughout the country, with the exception of probably the Southeast. Then even there, more recent data would

suggest, at least in some communities, they're seeing a decline in dogs as well. We have been neutering dogs, and not necessarily just through – predominantly not just through – our shelter populations and spay/neuter clinics, but rather our veterinarians have been recommending and pushing spay/neuter in dogs for a long time.

They've been pushing it for cats. I think people view cats very often differently, although the neuter rates – if you actually look at neuter rates among dogs and cats, the neuter rates – in cats, owned cats, are higher than they are among dogs. So, in fact, it strongly suggests that it's this free-roaming population that are largely unneutered, that really contribute most predominantly to our cats in the shelters.

The cat intake, for whatever reason – and I think it's the one I just spoke about – has remained relatively stable, and in some communities has actually increased. There are certainly exceptions to that, and I was talking with somebody last night who was telling me about a community in Massachusetts where, in fact, they're seeing a fairly steep decline in cat intake. So, that's a good sign. I'm hoping that foretells a trend that will be more widely seen throughout the country.

There are several studies in communities that have had spay/neuter programs. Now I'm talking about not only the veterinarians doing

spay/neuter, but also the spay/neuter clinics and the shelters really ratcheting up their efforts to do spay/neuter. It is disappointing – and there aren't very many studies, and these studies aren't necessarily easy to do, so I'll preface my remarks by that – but the studies that are out there either suggest no effect after thousands of surgeries, or a very modest effect. [It is] much less than what we would like to believe should be happening given the number of animals that are often involved in these spay/neuter programs. I mean thousands. We're not talking about just 100 animals or 200. We're talking about thousands, in some cases tens of thousands of animals.

So, why is that? Why, despite all our efforts and the thousands of animals that we've done, why is it that we can't really demonstrate an effect on intake, or at least a very modest effect on intake? I don't think we know for sure why that's true. One of the contributing factors is this large free-roaming population, and tied to that is our data from simulation models. Again, simulation models have their place. They are valuable. They are only as good as the data you put into them and the assumptions on which they are based.

The couple of studies that have been done in cats suggest that you have to reach somewhere between 75% to 80% of the reproducing females in a population before you actually see a decline in the reproduction rate in that

population. If we have thousands of free-roaming cats, like we think we do in any community depending on size, of course, are we truly reaching that population at the level that we need to really stop the reproduction going on there? Certainly [it is] one of the stronger hypotheses to explain why we aren't seeing an effect.

The original TNR (Trap-Neuter-Return) programs were not just to go out, trap as many cats as possible, bring them in and neuter them. And, actually, TNR was not necessarily started for cats, but often was done with dogs in countries where we do have a lot of free-roaming dogs. The initial theory was that you would combine TNR with education, and with removal of food sources, so that you discourage them from reproducing and going on to keep multiplying.

The other part of it was that you would look at an area that you were going to do your TNR efforts, and you would carve out a doable piece. You would go in there and blanket that one area and do 80% to 90% of the animals in that area. Then, once you had that area pretty much done, you moved to the next area and you went after that area. Then you keep an eye on this area, because you have to go back periodically, because you're not going to get every single cat or dog. And, you would work your way slowly, over time, to encompass the whole area that you really wanted to work with. So we really – and I'm going to talk about this a little bit more,

that we really – haven't complied with that model in many or most of our programs.

Then are we really reaching the source? Are we going after, are we getting enough of these free-roaming animals, and are we really reaching, even among the owned animals, are we really reaching the people who end up surrendering their animals to the shelters?

Then, another question is have we had just not enough time? Have we not been doing the neutering long enough – like with the dogs intensively, now in this large free-roaming population – to really see an effect? So, I don't have the answer to what I think probably is some of, maybe all of, these things.

I do want to talk a moment about the approach of many of our U. S. spay/neuter programs. In most of them, the clients will self-identify themselves, for owned animals at least. In many cases, it's the people, the volunteers that are going out to get the stray animals that are self- kind of identifying themselves and going out and getting animals and bringing them in. And are these people, kind of the low? Somebody said to me earlier, you know, kind of the low-hanging fruit. We're going after the low-hanging fruit, the ones that are easy. They may have even gotten those animals neutered anyway. Or they're not the people who normally

come in to surrender animals to shelters; they're the ones that find homes for those kittens or whatever.

Perhaps we are just – even though we're doing lots of animals and we're doing good –I think there are two pieces of spay/neuter. One is to try to diminish intake into shelters. That's one goal. But, the other goal is to provide for a better life for that animal that is to reduce the risk of mammary tumors, to reduce the risks of having repeated litters, and to reduce the hormonal levels that frequently lead to the behaviors that cause relinquishment into shelters.

Please don't go away and think I'm not saying that spay/neuter isn't really important and that we're not doing something really positive by spay/neuter. But, if one of the goals is to diminish intake, maybe we're not doing it in the most efficient way and the way that will most likely lead to declines in intake. By going and getting just – and letting people self-identify, we aren't going in, blanketing this area, getting this area under control, moving on, and getting this area under control.

Now, why aren't we doing that? Because, it's very expensive and labor intensive. Many of the models that have been set up to sustain economically our spay/neuter programs can't afford to do that, or else their fees would be much, much higher and they wouldn't be able to

compete. So, again, I'm not being highly critical of them. I'm simply saying that they may not be serving the goal of diminishing intake into shelters.

So, certainly thinking about trying to identify who's coming into the shelter and how they might be contributing to overpopulation is not new. I mean people have thought of that before. And people have used zip codes. They've gone back to particular homes. And so this – using GIS, I think, is a variation on that. It's a refinement of that approach, of saying, "Well, you know what? We actually know where our animals are coming from."

It's very hard to think of a shelter that isn't collecting information, at least from the owner-surrendered animals, about where those people live. We get their name, their address, their zip code and their phone number. We have, or should have in most cases, pretty darn good information, at least for owner-surrendered animals. Maybe, if we thought more about it, we could get better – and tried harder, we might get better – information about where our strays are coming from. If we could have good information to localize where they came from, then we could use this geographic information system approach.

So what is it? This comes off the Esri website. Esri is a company that has been heavily invested in producing software. It's not the only one, but it's

probably one of the biggest, if not the biggest. They have a lovely website. I really, strongly encourage you to go to their website. Their definition – and I think it’s as good as any I’ve seen – is that the GIS integrates hardware, software and data for capturing, managing, analyzing and displaying all forms of geographically referenced or spatial data.

Essentially what it does is take data points and put them on a map. I mean that’s the simplest way to describe it. It takes data points and puts them on a map, so that you can see them, see the spatial distribution of the data that you’re looking at. I’ll show you some examples here in a minute, hopefully making this a little bit clearer.

The whole notion is, the whole reason to do this is, to better understand, to see, better understand, to ask questions about why we’re seeing particular patterns or relationships, such that – and it’s all done in the form of maps, globes, reports, charts, et cetera – that help us better, get a better handle on what’s going on and where are these animals coming from. The whole notion in our case, I think, is to then use that information to strategize protocols that will make us more effective in launching, in the case I’m talking about, spay/neuter programs.

But, you could think about a lot of different things. What if it was cruelty? What if you saw spatial patterns and clusters of where cruelty –

particular neighborhoods where most of, or a high number, a high density, of your cruelty cases – came from? Think about the potential for education, for intervention, there for early recognition of problems as they begin to develop. I think it's not just spay/neuter. I think this has potential for many other applications.

I want to make a mention here that the people that really have done the most work with this in sheltering are the people from the ASPCA.

Anybody from the A here? They probably – oh, yeah. There, good.

Anybody else from the A? Oh, Lila is there too. Good, good, good. The A really has done, for those of you who don't know, they – I don't know the formal name, but they – have a data gathering and analysis unit that Dr. Emily Weiss, for those of you who heard her earlier, actually heads up. They have been using GIS for some time.

In fact, I was talking with Emily a little bit. They got a grant from PetSmart to help them hire a couple of GIS technicians. And they have. Here is one of their maps. This is stray intake, and this is an SPCA. This is theirs. I stole it off the website. But, here, what they're doing is they are color coding the density of stray cats coming into – and I don't know if it's one shelter or several shelters in Cleveland that they're studying.

Audience: It's two. It's the private and the public.

Dr. Jan Scarlett: Private and the public. Thank you. I meant to ask Emily that and didn't get a chance to do that. What you can get a sense of is, by gosh, this is where a large number of their animals are coming from. Now that may also be the largest density of people there, too. What's lovely about GIS, and it's used by a lot of urban planners, is that you can superimpose census data. You can superimpose land-use data – that is how is the land being used. Is it residential, is it trailer parks, is it blah-blah-blah? You can overlay income data, and there's a whole bunch more. I don't even know all of the overlays that you can put on top of it.

So, you now can associate the density of stray intake or owner-surrendered intake with various factors that may well help you, again, design preventive programs. Lots of power in this, I think. You can do a lot of things with this. You can present it in many, many ways. Now here what they're showing you is how many owned cats came and how many stray cats came from each of these areas. It has now not only told you about intake, but they've broken it down by whether they were stray animals or owner-surrendered animals.

You could do this by age, which I'll show you in a few minutes, is what we did. It is a potentially extremely powerful tool and it's going to go into the tool box. I'm not suggesting this is an answer to all our issues or

problems or whatever, but it's one more tool. And, I think it's a fairly powerful tool. This was done, and you can display it in different ways. There are various techniques that enable you to display this and to learn various things from it. I just wanted to show you some examples.

I think we can think about a lot of things. We could localize sources of intake by age, by potentially bully breeds versus non-bully breeds or origin of cruelty cases. We could overlay that now with all this other information. I think the other – one of the advantages, especially in larger communities where there are numerous shelters, they can work together to put their data in and maybe it'll help build some cohesiveness where they have a common goal. They now have a common map that shows where these animals are coming from, because surely there's going to be some overlap. It's a rare city that has a shelter that's serving only this area and there's no overlap with the other shelter or the other – so maybe it's a way to kind of build coalitions. I don't know. I would like to believe that were so.

We're going to talk a little bit about Tompkins County, because the data I want to show you, in fact, comes from Tompkins County. For those of you who are not from Tompkins County, we have a population here of about 101,000 people. We're about 475 square miles, and we have an average annual intake, at least over the study period of 2009 through 2011,

of about 1500 cats. These cats represent about 73% of the intake, the other part being dogs, and then we have a few of the pocket pets and, every once in a while, a pig or a goat or something. Then, among the cats, 51% of our cats are kittens, and here we defined kittens as anything six months of age or younger.

So just to give you – we're very fortunate here at Tompkins County in that they've been collecting intake data for a long time. We've had PetPoint since, I think, late 2008, but in fact we had a FileMaker program. So, we've got pretty good data on intake. As you can see, this is very, very typical of many communities in terms of dogs; that our intake has been going down steadily in dogs. Up until maybe about 2009 or so, in fact, there was almost no change whatsoever. Yes, you get the blips, but no trend in cats. What I do want to point out is that this has now dropped even more in 2012. We now have some – already a decline in cats coming in. Just keep that in mind when we talk about how to evaluate what we're doing now with the GIS. Okay?

I like to use metrics, and I think this is a form of looking at metrics and data with goals in mind. I don't want to collect data for its own sake. I want to use that data, and I want to use it to answer some important question to the shelter. So, I think most of would agree that reducing

intake, and especially cat intake, which we're going to focus on here, is a goal of most of our shelters.

In Tompkins County, what we decided is that we really would look at kittens. The whole notion being if our spay/neuter – if we can figure out where our clusters of kitten [are], if there is clustering, if there are patterns to our kitten intake, if we could identify them and go in and target them, if it was a particular household, if it was a particular neighborhood we could go. And, “we” being Jim and his people. I’m using “we” very loosely here. Sorry about that, Jim. They could go and really even knock on [doors]. Write a grant and get money to really go in and blanket those areas to a much greater extent than other areas.

And, with that data, if we could demonstrate that, we thought – and I think it was borne out; we'll talk a little bit about that in a few minutes – that by having that data, that would enhance the likelihood of getting grants to further the spay/neuter program, such that it could actually do that kind. It is going to be more expensive to do targeted kinds of spay/neuter because now you've got to identify the clusters. You're going to do something more intensive in that area. You can choose a variety of different techniques, and we'll talk a little bit about what Tompkins County actually did in a minute.

So, our questions were: Is there a spatial distribution of entering kittens? Are there patterns in that spatial distribution that might be helpful to us? And, can we identify those areas and really think about strategies that we can implement?

Let's talk a little bit about how. I'm going to do this just from a very conceptual standpoint for two reasons. One, it gets a little bit complicated about how to do it; you really do need a GIS technician of some sort. Secondly, Jan doesn't know how to do it, so that's even a more important reason. But, it starts with having good information about location.

Because of that, we looked at the data we had for stray cats and said, "Ooh, we don't have good information from where our strays came from," so the study that we actually did targeted owner-surrendered kittens only. Okay. That's not necessarily ideal, but at this point, with the data that we had – because you want a fairly high proportion of good data, complete and accurate data in order to be able to do this.

We actually looked at two periods of time. We started out looking at 2007, '08 and '09. No. No, it was '06, '07 and '08. And then said, "But that's older data now. We're kind of working out the bugs of doing it. Could we do it? Did we have good enough data?" Then, [we] went to the more recent data. You want to get as recent data as possible, obviously.

Then, we looked at all the addresses. They were heavily edited. This takes some time. This is the tedious part about it, okay?

Data were what we call “geocoded.” There’s a special feature within the software that enables you to do this. Then, this geocoding puts coordinates on each of your addresses so that they can be overlaid on a map and put accurately onto the map. In our case, we had 93% of the original owner-surrendered records that had good enough data to be used. So, that’s pretty high. You’re striving to get as high a proportion as possible, because otherwise you’re quite likely to get misleading information. Okay?

Here is the distribution of the kittens in Tompkins County. Looking at that – now, obviously, some of these little triangles represent more than one kitten, okay? Looking at that, does it look like there are any patterns? Looks like there’s maybe more here, but that’s Ithaca. That’s where the people live. We’re probably about right here somewhere, down in here. We need something else because this [has] way too many spots. You wouldn’t want to try to say, “Well, I’m going to target all of those.”

You want to try to begin – and so what we had to do is really think about – oops, I guess I – think about how we could refine the question. I think what we were really, really after, as we began to talk about it more, were

the repeat offenders. Not the person that “Oops, my cat got out. I had one litter. I got her in. I got her spayed.” We were after locations that, year after year, contribute kittens.

So, what we did was we made an arbitrary decision. We said we want to look at locations where there were at least 12 kittens that originated from that location within that three-year time frame. That’s more than one litter. It’s probably more than two litters. I mean, yeah, I guess you could have two litters of six, but usually we don’t get six kittens in a litter. Probably, most of these places have at least three litters coming from them within a three-year time frame. We said we’re going to look for that. We’re going to look for clustering of kittens.

If you surrender just one kitten, two kittens, we’re not going to target you. We’re going to go after the repeat offenders, the ones that keep coming back. It’s not important to understand this, but just to know that there are various ways of identifying these clusters. Then the question is “Did they happen by chance? Is there a chance occurrence?” So, some of this actually removes chance occurrences as well.

Here, what you can see is this sort of – these aren’t the clusters – but this sort of tells you these were less than eight. These areas in white were less than, essentially, nine kittens. These areas in yellow had somewhere

greater than 9 but less than 16 kittens, if it's in yellow. Here, they had somewhere greater than 16, but less than 30 cats, et cetera. Okay? So you can see that. Now you begin to see what would be more manageable foci to really target.

Then, you can just overlay that politically. You can overlay that with roads. You can overlay that with socioeconomic status and all of that stuff, all right? So, now, what we found, using our definition of 12 kittens or more, was that we had 16 clusters for about – out of the 996 total kittens that we were able to map, 280 of those kittens were in clusters, and 716 were not in clusters. And I just – something that we probably should have recognized early on. One of these 16 clusters was the Tompkins County SPCA, not because we had kittens being born there, but because kittens were being dropped off there. We didn't really, fully recognize it right away, so we had to pull that out of any further analyses that we did on the data.

Okay. Here are now, if we look at – and we still have the colors here, but what I really want you to focus on are the circles. So, the bigger circles mean that somewhere between 20 and 28 kittens came to the shelter during that three-year period. The smaller circle shows somewhere between 16 and 19 kittens came from that location, and then 13 to 15. Now we have some much more manageable foci to work with.

The lovely thing – and then you could overlay the various towns. We have how many, fourteen towns? Sixteen? No. Fifteen towns? I don't know what it is. Jim, you'd know better than me. I should know. I don't. But, one of the things we wanted to look at, because the staff at the shelter said, "You know what? We think we get an awful lot of kittens from some of the trailer parks." We don't know which ones they are, necessarily, off the top of our head, but you certainly have that impression.

One of the things we did look at here was land use. These land use categories, in fact, come out of the census. They're definitions that we didn't establish, but that are by other censuses. We did it to get a sense of all of these. But, we were particularly interested in the residential park and the trailer parks. Also, as we looked at the map, you could tell – knowing the community, you could look at that – and if you knew where the trailer parks were, a number of those clusters actually overlay trailer parks.

What we did was, just as a quick first glance, we said, "Well, let's just look at the total number of kittens versus the clusters and see if we can see any difference here." And, lo and behold, one of the most, one of those that stood out the most – what we're looking for is the difference here, the difference between – and we should have used, and you'll see it in another analysis here. We really wanted to get the unclustered kittens and the

clustered kittens. This still tells the story here, that in fact we have a disproportionate number of these clusters coming from residential parks, or that is trailer parks, compared to non-trailer parks.

The other thing you can do with this – I mean you now can, depending on how finely you want to take this down – you can actually, and in some cases, we found literally a residence that was contributing kittens year after year. In other cases, it wasn't necessarily the residence, but rather an area. But, you can use this information. This is just one small part of Ithaca, but showing the distribution in this neighborhood of one, two, three, four, six different clusters. [This] happens to be also a relatively low income area in Ithaca.

Just to illustrate here that not all of these necessarily occur in urban areas. This is a sort of a – this is a – what is it? It's an agricultural area. So, this is an agricultural area. Probably – I didn't look it up – but I think [there] might be a residence there. Even though they're relatively rurally located, they are producing more kittens that fell within our definition. Then here's one, and this is just one of the trailer parks, but you can see that very definitely the trailer parks were at – in the next slide – they were at the highest risk.

What we're doing here is saying, "How much higher is the risk that you will have a cluster if you are in a residential park?" If you're in a residential park, compared to a low-density residential area, you're 16 times more likely to have a cluster of kittens. The rest of it kind of makes sense too. High-density residential area – you'd expect, with more people, you're more likely to find clusters where there are more kittens coming from that area.

I just wanted to point out that if you have data over time, you could begin – we actually did this, as I mentioned earlier, from 2006 to 2008. You can see they don't necessarily, because people move, things change. There are a number of areas where, in fact, over a six-year period the same thing was happening. If you happen to be lucky enough to have the data longer term, and if you start doing it now in your own shelters, you could build a long-term map that would help you see what kind of progress you're making and get a sense of what are perpetual sources of kittens and what are ones that just pop up and then disappear.

All right. So, the question, the \$64,000 question, is does it work, right? Does it do a better job? Can we demonstrate a decline? Part of the problem right now is that this hasn't been being used very long, so we have not much data. I can't really find a published piece of data in shelters, yet. That being said, Barbara Carr has two nice examples.

Barbara often doesn't – I mean she does these studies because she wants to work in her own community – want to publish it. I always try to [say,] “You could publish it, Barbara, because other communities could benefit from your experience.”

Barbara has two examples that she can show you data that certainly strongly suggest that she saw a fairly dramatic effect in just one year in intake from those areas where she did targeted neuter. Then what she was doing was comparing the before they did the targeted spay/neuter to the after in the same areas. Again, I wish that she would publish that, and I'm trying to get Emily to get some of that data. And she's got 1,000 other publications on her desk, as well.

But the A helped with that, incidentally. The A was involved in doing this, as in Portland. I don't know if Joyce is – Joyce here. She said she was going to pop back and forth. Joyce was talking to me a little bit about what the A had done in Portland. And, in Portland they had three control communities and a targeted community. She said they're not done yet. They haven't quite finished with their assessment there yet. But, she said one of the interesting things that they've seen is that all of the areas, the intake in all of the areas, have dropped – control and other.

Now, that's one of the problems of doing [this]. You say, "Oh, this must be easy to study. We can just go back and look at the effects." One of the things, Jim, that we've talked about doing, is looking at the effect after we have done this targeted effort. The problem is we already have a decline that's due to something, but that was taking place before we started this targeted spay/neuter. So, how do you distinguish what is happening in the community? There are lots of factors that could be affecting intake. How do you attribute that effect, cleanly, to your targeted spay/neuter efforts?

It reminded me, when Joyce was telling me about the Portland experience, of something that happened years ago with an intervention in humans. They went in – they had people that they went [in] and they evaluated their cholesterol levels, their blood pressure and their smoking habits. [They] took a bunch of – got thousands of people, very expensive, million-dollar study to look at if we intervene and really work with people, can we lower heart disease in these people, if we can give them smoking counseling, if we counsel them about diet, if we control their blood pressure with medication and what have you. It was a randomized trial, [the] pinnacle of our clinical trial, [with the] scientific evidence-gathering protocols in the real world.

Then they followed these people for years. Guess what they found? They had an intervention group and a non-intervention group. Sorry, I missed

that part of it. So, they had an intervention group and a non-intervention. Guess what they found? No difference. But, they both went down. The thought was that by, one, studying them – by bringing them in and doing that – that they changed their behavior. They made them more aware. And, secondly, that at the same time, over that time frame, there was smoking – they had ratcheted up, not they, the investigators, but society had ratcheted up all the messages about improving your health and doing more exercise.

So, their results –did it mean that their intervention did no good? I think probably it didn't mean that. It probably meant it did do good, but that other things were happening. I think that's something that's going to happen with these – trying to evaluate the effectiveness of these. Also, remember that we're getting more and more rescue groups, so they may be siphoning off some of the intake. They may be taking some of the intake from this shelter and are now doing it. That's why it would be nice to do it at a community level. It would be nice to get collaboration and do it at the community. Lynne.

Lynne Fridley: Something we know is Dr. Scarlett, is like in Alabama's big Fix, because there is so much advertising and so much going on with the project that it influences other people into thinking about getting their animals spayed and neutered. And, they see this all around and so it increases across the

board. It's not necessarily that they have to be for the projects started, but it's because of the project. I don't think you're ever going to separate that, but it's all good.

Dr. Jan Scarlett: Yeah, it's all good. It's all good. It's definitely good. It's just that people then point – people who are naysayers point – to the study and say, “You didn't find an effect.” It's true, yeah, but still a good thing. I just bring that. I don't think that's going to happen in every – like I say, Barbara has some pretty convincing data that would suggest that she really could demonstrate an effect. But, these things aren't – I just caution you that these things are not easy to study. There are lots of things that can affect why your intake may be going down. Okay? Yes.

Audience: Dr. Scarlett, why don't we at least study those targeted areas?

Dr. Jan Scarlett: Well, yeah. The problem, just from a study – yes. I mean the problem from a study design standpoint is that you get a relatively small sample size. You know, you've got two or three households there. You can demonstrate that they aren't contributing, but it's really important to say, “Has the intake at the shelter gone down?” if that's the goal. Yeah. I mean I'm not – I think that I'm not arguing that it's not doing good and that you can't demonstrate it perhaps in those areas.

Audience: But it doesn't mean it just hasn't moved to another area.

Dr. Jan Scarlett: Yeah. It doesn't mean it hasn't moved to another area. That's right. Or that, two years from now, it won't be the same in that area. So, this is a long-term project. You can't just do this once and then walk away. You've got to stay on top of it. Okay. So, anyway, I just wanted to make the point that we're already going down and this has already gone down, so we'll have to see. I mean, I'd like to see it really go down. We would have to look at the different rates at which it's declines, but whether we'll have enough data to really be able to demonstrate that statistically, I don't know.

All right. Is this possible in your shelter? Because you say, "Oh, this is fine and good. This sounds great, but I can't do that. We can't do that." I would like to suggest to you that, in many cases, some of you can do it. Now, what I think the big stumbling block may be is finding this GIS technician, but it's amazing how many people know GIS. Yeah. I was going to say – so we've got one in the community, one right here. Oh, she lives in Pennsylvania, but... *[Laughs]*

But the point is that we – I think you might find [one] among your volunteer staff. For those of you who – if any of you are in a municipal shelter, many cities have GIS technicians, not to do this, obviously, but

they're working with the city planning and all. I was talking with a group from Austin, Texas, who said, "You know what? We have those people on our municipal –." They were with the animal control, which was controlled by the city. "We could potentially use those people, and it might save the city money, because if the intake goes down, then they save money." Argue back to the government if "we could take some of your time, of your GIS technician."

They're very good at this. I mean they take less time to do this. Then, maybe you could actually save some money, and you know money talks. So looking for – universities often have people who are proficient in GIS. City planners. Even going in and making a plea to some of the GIS technicians that your city employs and saying, "Would you be willing to do this gratis or at some reduced fee?" I think that it's very doable.

Now, the thing is, you have to have good information to give them. So, if you're doing a sloppy job at the intake desk of entering that information and you're not doing it completely and accurately, this will not work for you. It requires good data. Bert?

Bert Troughton: And, on that note, I think probably all of us have not been doing a sloppy job. Other people are doing a good job. But some of the specific things that we run into is there's an address for every animal that comes in, but

then [we] dig into it a little bit. When a lot of the strays come in, the address listed is the shelter address, or the address listed is where the person lives who brought the animal in and not the street address where the animal was picked up. Officers often list a street but not a street address when they bring an animal in. And so it's that the decision in where exactly did this animal lift its feet off the ground. And that's the piece of it. And there's no going back and cleaning that up.

Dr. Jan Scarlett: No. No, I agree with you. So, if you have owned animals, you want to be sure that this isn't the son of the mother who lives someplace else. You want to be sure, among owned animals, that the animal – that you collect the address where the animal originated. Then for stray animals, Bert is absolutely [right]. You need to do exactly what Bert was saying. They can use coordinates and so say “At the corner of Blake and White Street” or “very close to the corner at Blake and White Street, we found this cat.” If you can even push people to do –you could even have a map of your community on the front desk and have people point out. Or they might not know the names. “Oh, I know where it is, but I can't remember the –.” I'm doing that all the time, even more as I get older. “It's that street that goes by the big, red building.” They might be able to locate it there. If you're really serious about doing it, and I really think this is going to be a very powerful tool, I really encourage you to think about doing it.

So, this kind of anticipates Bert, because the A – and please go to this site – the A has put together a number of resources for shelters. First of all, there’s a little quiz. Are you ready for GIS? So, you can sit and answer the questions for that. There is a checklist, sort of like “Are you ready for –?” It is kind of a repeat of this, only a little bit more extensive. Then, it actually talks to and gives you very clear information about what information you need to collect. \

And, I said addresses. Really, to be maximally effective, you want to have the source of the animal – that is “owner surrendered,” “transfer in.” Obviously, you’ve got transfers in. You’re going to get animals from out of your particular community right there. “Age,” so that you can [classify] the kitten, puppy or adult animal. You certainly want to – you might want to get “gender.” I mean the very basic demographic features of these animals, especially those that might play into preventive measures. And, I haven’t gone – that’s not an exhaustive list that I just gave you. It’s all in here. Then, if you’re really averse to doing the reading, there’s an online webinar that directs you. It’s very nice. The A has done a lovely job of putting that information together.

So, in summary – geez, I finished on time – the technology actually has been around a while, but it’s new to us, I think, in sheltering. I think it has wonderful potential, even though we don’t yet have published results that

it's effective. I think we've got enough anecdotal stories. There will shortly be some published results out there that Emily is going to put out.

It will require time and effort initially to get good data. It's going to require some retraining of people at the intake desk in some shelters. It's going to require some watching of those people and monitoring and looking at the data. It is going to be somewhat labor intensive. But think, if this really does work, the savings to you in the future as the intake of your animals goes down, or even if your intake remains relatively – you hopefully get a higher proportion of animals coming in pre-neutered, right? That saves you money because you don't have to pay to get them neutered. I think the payoff is really, potentially, very good.

There are resources that I've just directed you to. Type in "GIS" and you get all kind of resources on it. I like the ones on the A because they are targeting spay/neuter – or, I mean excuse me – shelters. I just have to make a plug for our shelter medicine program. We obviously don't do just data and stuff because that's a minor part of what we do; that's what I do. We also do consulting with shelters and welcome any of your questions. If any of you in the audience ever want help with any problems with a shelter, please contact us. If we for some reason cannot help you, we can direct you to who can.

And, this is a little plug for a book we're working on, on shelter metrics, a little self-serving stuff, you know. I really hope it will be helpful to you guys, that it will help you better. We are going to talk a little bit about GIS. Using metrics to let you know where you are now and whether or not, once you implement preventive measures, that in fact you can – are you affecting a real difference? Are you doing no harm, one, but secondly, hopefully, you're actually bringing down intake or increasing your spay/neuter, whatever it is. That hopefully will be out in 2015.

As always, we want to thank the Maddie's Fund[®] who has enabled this program to even exist, my colleagues, the Tompkins County Shelter, and then Dr. Reading for all her hard work in working on this. Thank you.

Questions?

[End of Audio]