



***Orphaned Kittens:  
How Saving the Tiniest Lives has the Biggest Impact***  
**Webcast Transcript**

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*Lynne Fridley:*

Good evening, everyone. I'm Lynne Fridley, Program Coordinator for Maddie's Institute<sup>SM</sup>. Welcome to our webcast, *Orphaned Kittens: How Saving the Tiniest Lives has the Biggest Impact*. We have an action-packed presentation for you tonight along with many resources that you can use to help save your orphaned kittens. Our speakers are Dr. Ellen Jefferson, Executive Director of Austin Pets Alive and Heidi Beyer, Certified Veterinary Technician.

Since 2008, Dr. Jefferson has led the Austin Animal Welfare Community into becoming the largest no-kill city in America. Contributing to this achievement is the Bottle Baby Nursery Program, which coupled with home-based kitten foster care saves hundreds of kittens' lives each year.

Heidi Beyer currently works full-time at a veterinary clinic. She has been fostering and saving orphaned kittens for over 20 years. Heidi is a self-sacrificing person who has an incredible heart for these precious babies. Her hope is that others will join her in her passion to give these little ones a fighting chance at survival by becoming a foster parent.

Now before we get started, there are a few housekeeping items that we need to cover. First, ten audience members will be chosen in a random drawing for a door prize. Each will receive one Snuggle Kittie<sup>TM</sup>, which acts as a virtual mom with a heartbeat and heat to comfort your orphaned kittens. Winners will be contacted via email, so good luck.

Next, take a look at the left-hand side of your screen where you'll see a Q&A window. That's where you will ask questions during the event. Dr. Jefferson and Ms. Beyer will answer as many as they can at the end of the presentation but please submit your questions early. Questions submitted in the last few minutes will not be processed in time for a response.

If you need help with your connection during the presentation, you can click on the question mark which is the help icon at the bottom of your screen. There are other little images along with the help button. These are called widgets. The three green file widgets will take you to the resources that our presenters wanted to share with you as well as some from Maddie's Institute. Don't worry if you don't get a chance to review them

during the event. The resources will also be available on our website after this presentation.

Before I turn things over to Dr. Jefferson and Heidi, I want to say a few words about Maddie's Fund<sup>®</sup>. We are the nation's leading funder of shelter medicine education and it is our goal to help save the lives of all of our nation's healthy and treatable shelter dogs and cats. The inspiration for that goal was a little dog named Maddie who shared her unconditional love with Dave and Cheryl Duffield. They promised her that they would honor that love by founding Maddie's Fund and by helping make this country a safe and loving place for all of her kind. Please use what you learn here tonight to make the dream she inspired a reality. We will start tonight's presentations with Dr. Jefferson. Thank you for being here tonight.

*Dr. Ellen Jefferson:* Thank you so much for having me. I'm really excited to be here. For the first part of the program, we'll be talking specifically about the Bottle Baby Program that we have started in Austin as a way to deal with incoming kittens. The second part is more about the individualized care of the kittens. I just wanted to clarify that from the beginning. The program that we started in Austin; we built it around the concept of not euthanizing animals that are coming into the shelter. Our city, in 2007, euthanized at least 1,200 bottle baby kittens. Those were classified as kittens that were under the age of about six weeks. We believe that between 1,200 and 2,000 come in every year. So, previous to 2008 all of those kittens were euthanized.

As we were trying to figure out how we could save this group of animals on a yearly basis, we looked at different strategies that we knew of in other places. I used to work as a veterinarian in a wildlife center and was pretty amazed at how they dealt with incoming baby wildlife. They would get all the baby squirrels that fell out of trees during storms, all of the baby skunks, baby raccoons—baby everything. Any wildlife you can think of. They would come in by the hundreds and the wildlife center didn't even consider euthanasia.

The system that they had created, because they are wildlife, was not really set up to be foster-based – which is how we have dealt with dogs and cats previously. They had a system in their building where they would set up the babies, as they came in, and put them by species in little containers. I'll show a picture later of some of the options. Then they would have an intern or a volunteer start at one side of the room and start feeding the entire roomful of babies. And so they would go from cage to cage to cage until they reached the end, and then they would start all over again and feed everybody again. They would do that all day long, every day, until

the babies were big enough to be moved to different parts of the wildlife center.

What we have tried to do with Austin Pets Alive is mimic that model and see if we could make it work for kittens. That's really the main way that this is different than a normal shelter program where animals come in, they get the individualized care through a foster and then get adopted from the foster home. This is more of a mass approach to trying to deal with the large numbers of bottle babies that come in.

We didn't have a building in 2008. When Austin Pets Alive started we didn't have a building. We didn't have any staff. We didn't really have any funds either. We started with trying to create spaces out of nothing and I think, hopefully, most organizations are a little bit further ahead than we were at that point. We created our first Bottle Baby Program out of this trailer that's on the picture, and it was actually only half of that. The front half, from the Austin Pets Alive [logo] forward, was the Bottle Baby ward and the back half was for cat adoptions. It didn't hold very much capacity at all, but it allowed us to get started and to have volunteers come to a central place. We had a key hidden and volunteers would come through the night and through the day to take care of the kittens.

So, it shows that you can actually do this anywhere. Again, I think a building is much better, but a trailer worked for us. We started with, like I said, no staff. We were really reliant on volunteers to run the program. As we were getting started, it became evident that we were putting all of our eggs in the basket of the ward or the nursery. We were working really hard on that and not necessarily pushing [volunteers] to foster. Ultimately, the goal is to push the bottle babies to foster and have that individualized home experience – not have them all in one place for their entire babyhood.

As we were putting all of this effort into the nursery, the fosters kind of got forgotten. I want to mention how important it is that the volunteer program part – where you're getting feeders lined up and you're having people help with scheduling and I'll go over the job positions in a minute – that's really important for the nursery, but ultimately moving them to foster is critical. You can save more lives by keeping the ward and the nursery as a safety net for the kittens that are coming in rather than as an end location for them. The goal should not be to [have kittens] stay there forever.

One of the big things is getting the nursery covered. Obviously that is a huge deal when you're talking about feeding lots of kittens every two hours throughout the evening. We started with all volunteers and shift leaders that would lead the volunteers that came in. So, there may be two

volunteers on a shift and the shift leader would help the new volunteer or the less experienced volunteer navigate the ward – to know where everything is, what documentation they need to fill out and how to follow disease control protocols. It helps to have leaders. But, the most important thing is the coverage, obviously.

We have a feeder board and log that we still use. It's a whiteboard on the wall and it lists every litter. As we got bigger we moved to multiple whiteboards. The concept is to help people understand where to start – to note which babies we're concerned about and to make sure that nobody gets forgotten. So, if you have a log and a board, then that's the system of checks and balances you can have in place to make sure that every kitten gets fed.

Then we have the lockbox, like I talked about. Volunteers have access to [the lockbox] and each kitten has a chart. The chart has the animal's identification information on it, the information from their intake examination and their feeding chart. We can monitor how much weight they are gaining every day, how much they are eating and if they have any preferences, like nipple style or how warm the milk is. That is all jotted down so that one person does not necessarily have to talk to the next person that is feeding. It's all logged on the chart, and if each person fills out the chart, then it is a communication device that keeps the babies' care constant.

We have several ways that we try to communicate. It is a lot of information. Obviously we have a lot of protocols. It is impossible for everybody to memorize every single thing, so we try really hard to create ways for people to be reminded about the most important things and also make it easy for people to communicate about their schedule, about issues they're having and then any notes about the babies.

We use the little calendar to sign up. People can log in and pick a shift. We have gone from a self-selecting calendar, where people add their own time, to one that is more managed. The manager is trying to get people to sign up for one shift a week – at least one shift a week in advance so that we're not constantly scrambling to try to cover the shifts. We also have a volunteer "scheduler" who helps remind people to sign up and remind people that if they already have signed up that they need to show up for their shift. Sometimes volunteers do not recall how important it is that they actually show up, so we try really hard to emphasize that their volunteer work is essential to making sure that these babies live.

We have a Bottle Baby Yahoo group, which is good and bad. The bad is that it is not moderated; sometimes there will be tangents or information that is not related at all to bottle baby care or to the ward that is

disseminated and then discussed. It veers everybody off the topic of taking care of the babies. That's the negative. The pro is that by having this central resource you can put files on it that anybody can access from anywhere. If somebody is actually at the nursery and is having trouble recalling something, they can pull it up on their smartphone. Also it keeps every conversation logged forever. So, if let's say a piece of paper gets lost, you can search for that kitten and find the information with this electronic communication device.

The whiteboard we already talked about. Sometimes we'll use little post-it notes to mark a specific animal. Also, we have a critical board which is not on this list now. The term "critical" is used as a very broad statement. It does not mean that the animal is actually critical and needs to be hospitalized. It means that we are concerned about them. So, they may have been losing weight or may not have been eating as well. They may just look a little bit off or have had diarrhea earlier in the day. They are the ones that we want to spend a little bit of extra time with – making sure that each shift checks in on them the first thing that they do.

The daily log is a way for volunteers to communicate with each other. It is not necessarily specifically animal related. It might be, "Hey, we're running low on paper towels," or "I just set up this new folding laundry system." Whatever it is, people can be proactively involved in the nursery and then communicate what they have done so that the next group understands and doesn't mess it up.

We have an organizational chart. This is an overview of it. Even though it looks like the kitten is in charge, the manager is actually in charge. Another volunteer position is that of data manager. This is the person that is responsible for getting information from the shelter that we are pulling the kittens from and then making sure that it is entered into our software. We use PetPoint, online software. It's nice because anybody can use it virtually. The data manager can be a volunteer that works from home or is even somebody that has a desk job and doesn't have a lot to do. This is an easy project for somebody to keep track of on a daily basis. They make sure that the kittens are well-documented in our system so that we can keep track of them throughout.

The nursing mom coordinator. We started the Nursing Mom Program two years ago and that really helped a lot. There were a lot of mom cats coming through the shelter that were either heavily pregnant or had just given birth and were lactating. We found that we can up that litter size to about six kittens total. By getting [mother cats] out of the shelter and saving their lives, they were able to go on and save more kittens' lives.

[The Nursing Mom Program] was really instrumental in getting our total numbers up, because it decreased the burden on people to do the actual feeding if the cat moms were there and able to do it. We would test [the moms] and the babies and would make sure that the litters were healthy before mixing. Then, we would make sure that the kittens [being introduced] are the same age as the mom's litter so the mom does not reject them. And they actually do really, really well. That's been a huge lifesaver.

We have a volunteer coordinator that works with the volunteers to make sure that they are signing up. [The coordinator] is recruiting at the volunteer orientations that Austin Pets Alive does as a whole and they are signing them up. They are putting them through – setting them up with a trainer who shows them exactly how to go through all the protocols, how to use the charts, how to weigh the kittens, how to do everything that needs to be done in a consistent fashion so each kitten gets the same care across the board. The volunteer coordinator also serves as a mentor. If volunteers are having trouble communicating with somebody on their team or if they are struggling in any way, then there is somebody to answer their questions who has been through the ropes. Sometimes if volunteering becomes difficult, people just stop. What we want, after all of our work in training them and recruiting them, is for them to stay. So, the volunteer coordinator and mentor is really important. They also manage volunteer appreciation.

We have a bottle baby foster coordinator. This person tries to move kittens from the nursery to foster homes as quickly as possible and manages a team of fosters. We also have a bottle baby rescue coordinator who is involved with communicating with the shelter from which we're taking the kittens. [The coordinator] accepts them if we have room, coordinates transport for them to get from that shelter to our nursery and then makes sure that paperwork gets to the data manager.

There are two positions that are external to that internal [Bottle Baby Program] organizational chart. The first is the cat adoption manager (slide 7). This is critical because we have a program where we are handling a specific problem that causes euthanasia in kittens. Once that problem gets fixed or resolved, then the kittens need to be adopted out. Obviously if you're taking in 2,000 kittens they have to go somewhere. The adoption process is critical to move them through the system and to get them into their adoptive homes as quickly as possible, so they do not end up backlogging or bottlenecking the system. It is important that as we are deciding how many kittens we can take as a whole, we make sure that we have a program that's big enough to deal with the adoptions also. That's just an important reminder of how the program itself cannot operate in a

silos. [The program] has to have an outlet for the kittens to get into their homes.

The other piece that is external [to the Bottle Baby Program organizational chart] is the veterinary team. We'll run through a few of the medical issues that [kittens] have. They do have a lot of issues and having a medical team that is accessible is really important. We didn't start out with an onsite medical team but it helped when over time these two became physically closer together. We now have the veterinary team on the same compound as the nursery, and that's a huge help compared to when the veterinary team would come and make visits to the nursery. That team is also really important. They have to be able to handle the volume.

Volunteers, like I mentioned, are really, really important. In fact, you can't do it without them. If you are trying to handle a large group of kittens, you have to think about how many times they get fed, how long it takes to feed each litter and how many people you need per two-hour shift to cover the number of litters that you have. That is how you figure out how many volunteers you need and it is pretty astronomical when you calculate it. It is important to work on strategies to get volunteers in the door but then also to keep them. We use positive messaging. We use social media, like Facebook. We use happy signs at orientation and at our shelter – now that we have a shelter – to try to draw people in and get them to sign up.

We do a presentation during the general volunteer orientation and we try to keep it fun. It's a lot of hard work. It can be heartbreaking but it's really important that when volunteers come in, they see that it is not only hard work but that it's also fun. You are building a community of fellow volunteers and they are part of a family. One of the motivating factors for people signing up to volunteer is that a lot of people want the social aspect. This is a great opportunity for that because you can work side-by-side in the nursery. It is a lot of hard work. I won't stop saying that. But it is a very rewarding process as well.

Keeping volunteers, training them well, giving them the ability to own the program, making changes as they are able to improve systems and letting them be part of decision making, those things are important to get people to buy-in and give the amount of time that we're looking for volunteers to give.

Managing expectations. A lot of people hear the words bottle baby and they think it's just gonna be adorable little kittens that they can play with all day. Then they get in there and are shocked at how much work it is. Make sure that people know in advance – before you spend a ton of time training them – that it is a lot of hard work, that this is not as cute and

cuddly as it looks. That helps weed out the people that are not really serious about getting involved.

We expect turnover. We want to keep every volunteer but that is not realistic. One of our goals is to keep about 50% of the people we train and I think that's actually a good goal. You know if you're losing 90% then probably something is not going right. If you are losing only 10% that is amazing and you are doing something really, really well. I think 50% is probably a decent expectation for how many volunteers stick with it after orientation, after the training, after they go through a shadowing process and then stay on as feeders. Some people change their minds or decide that they do not have as much time as they thought. Give people specific goals. That's the point of having a feeder – specific feeder roles and job description that goes along with being a feeder.

*Lynne Fridley:*

Oh, it looks like we have our first poll question of the evening: “Are you planning to start up a nursery utilizing more people than just yourself and your family to care for orphaned kittens?” This is your opportunity as the audience to chime in. So please select your choice here: “Yes, I want to start a nursery at my shelter,” “Yes, I want to start a nursery at my home,” “No, I don't have the resources to start a nursery,” “No, it's too much work” and “No, I'm not interested in starting a nursery.” So please submit your answers. We will go to the poll results in just a second. I'm gonna give you just a few more seconds to submit your answers. “Are you planning to start up a nursery?” So let's look at the poll results and Dr. Jefferson, what do you think of that?

*Dr. Ellen Jefferson:*

Oh, that's really interesting. So, it looks like a lot of people are interested in started a nursery at their shelter and I think that is great. I think this is a need that is probably everywhere in the country for these kittens and I'm excited to see that there is a lot of interest in this. Hopefully, this will be a helpful tool as we go through the rest of the presentation.

The typical course for a bottle baby is they are picked up – so their journey starts at the city shelter. The city gets them from the public. People find them in the world out there wherever, stumble across a litter of kittens and then they bring them to the city shelter. That is where in the past typically all bottle babies – almost all bottle babies – were euthanized. It's because they – most city shelters – do not have the resources to take care of this high needs group of animals and that makes sense. The goal of this program is to try to find an alternative route for them so that they do not end up being euthanized.

So, they get to the shelter. We generally have about two hours to pick them up. That's when the call or the email is placed to our rescue coordinator and then they figure out transport – find a volunteer to



transport them. One of the ways that we keep transporters engaged is by allowing them to name the kittens. We use a system for naming that follows the hurricane system – it starts at the beginning of the season with the A1 letter and then the B1 and then the C1 and so on. As soon as we get to Z, we start all over again with the A2, B2, C2. As people are going for transport we tell them what letter we're on and then every kitten in that group gets a letter – gets a name started with that letter. But it's up to the transporter to name them. That is a really great perk for people and they love it. They love it! So, we never have a problem with people going to pick up the kittens and bringing them over to the nursery.

As soon as they are brought to us, we test them for feline leukemia virus (FeLV), even if they are a day old. We have tests for feline leukemia that are separate from the feline immunodeficiency virus (FIV) tests for kittens under the age of four weeks. Research shows that there is a possibility that they will test differently later for FeLV, so we test once when they are very young – to make sure that they're not coming in already exposed to the virus or to hopefully, not be already exposed. Then, we test them again later in their process, when they're six weeks old, and make sure that they have not converted to positive if they were negative. At that point, we test them for FIV at the same time.

For the FeLV test, if they test positive and they are big enough, we will retest with serum. One of the things that I have learned through this that I did not know before was that the IDEXX tests will occasionally cross-react with red blood cells and you can get a false positive. So, spinning the blood down and doing a serum test with no red blood cells is critical to making sure that it is not a false positive result. If it is truly positive, then we set them up—we isolate them and we keep them in the nursery.

The actual spread of feline leukemia is very hard from cage to cage. It's more of the commingling – where they're living together in a nest – that can spread it. We will set them up but they will be somewhat isolated from the rest of the kittens. Then, we try to push them to foster. Again, we'll retest after four to six weeks. We actually have a very high conversion rate from negative to positive, which is exciting. We hope to get some real numbers around that soon to share with people. But, it's good because it shows that by giving them time a lot of them can actually fight off the disease. If they're negative then they proceed into the nursery. On intake they're treated for fleas with the teeniest little drop of Frontline® and given Strongid® orally for internal parasites.

We also give them a shot of penicillin. The purpose is that when they are switched from mother's milk to formula, a large number of the kittens will get diarrhea. We found that that diarrhea is responsive to antibiotics which means that it's a bacterial imbalance probably due to the diet change.

Each dose [of penicillin] lasts 48 hours. We give that dose at intake and then that helps prevent a large number of them from getting diarrhea from the diet change. We started that because it helps us to control the amount of time and energy we are spending on individual diarrhea cases. We treat all of them for diarrhea since a large number of them get it. They get charted. They get their charts, like I was telling you about earlier, and they all get fed, set up in their kennel and added to the whiteboard.

We have a lot of protocols because everything needs to be very clearly spelled out for each volunteer to keep it consistent. We have protocols for how we do intake. We have sanitation protocols. We have prevention protocols for how to prevent ringworm spread, how to prevent upper respiratory and diarrhea – illness protocols for all of those things. Feeding and recipes, those are important because most people that have had any experience with feeding kittens have different ways of making the food, different formulas to use. We need everything to be exactly the same so that we have a very consistent program and each kitten is getting the exact same treatment. That way we can reliably know what they have had in their past as we are evaluating anything that might go wrong in that kitten's future. It really helps to have everything nailed down and solidified and for the volunteers to sign off on it too, so they understand where we are coming from.

Outcome protocol. Sometimes kittens die and you need a protocol so you know which kittens are not still in the nursery and where they have gone – if they've gone to foster care or have been euthanized. You know what happened to them. We make sure that we do not lose kittens. It's crazy how easy it is to lose track of the data. That is why it is so critical to keep the program organized and to have protocols to make sure everybody gets vaccinated as soon as they're old enough and keeping parasites away.

This is an example of our chart. We actually use this from the Wildlife Center. It has the intake information, it has the – you can see in the second row after all the animal information there is an area that shows the date, the time and then how much food is being given to the animal, what type of food, the weight of the kitten before it eats and then the weight after it eats. That is really important because sometimes it's hard to know how much they have lost in between feedings. You need to know before and after so you can do a good comparison down the entire sheet as the day progresses. Also, note any eliminations that they have, if they've had stool or urine and any notes that might come in.

We have a form to keep track of medications and comments from the veterinarian, the manager or from anybody else that is taking care of the kittens. We have a full file with all the information in one place.

Some of the equipment that is necessary in the nursery is a fridge, a microwave for warming up formula but also warming up the Snuggle Safes<sup>TM</sup>. We use those almost exclusively. They are expensive, but they are so much better than heating pads. We really like them. There is no danger of them being burned as long as you take the precautions that they have listed. There is no danger of electrocution. They last for about eight hours at a time and they're great.

Blankets. We use a lot of the soft baby blankets. The kittens really love those. We have hamster cages that are good for up to a certain size and there are different sizes of hamster cages. We like these because you can easily see in there to see what the kittens are doing. We cover them with a sheet so that no cold air can come in. It also provides enough of a base for the Snuggle Safe to be fit in there, so they cannot get too far away from their heat. Sometimes kittens will crawl away from their heat, and if it's too big of a space, they can't find their way back. We want to make it so that they can get off the heat, but they are close enough to find it again if it was an accident that they got off.

Bowls are important. Make sure they are the type that do not spill water everywhere. We have a baby wipe warmer that helps with the eliminations and then the scale is probably the most critical piece. We have tons of scales. Every foster is required to have a scale because weighing before and after every meal is critical to making sure that these guys make it.

The nursery attire is not very fancy. We started with just smocks. The long-sleeve smocks are good because they cover a person's arms all the way down to their wrists. Every single cage of kittens – litter of kittens – has their own smock and that is put in the bin. They have their own bin. That's put in the bin with their chart and that helps to limit disease spread from cage to cage to cage. We use gloves as much as we can. We want to use them on every single kitten and change them in between every single kitten but that is sometimes difficult because of cost. Washing hands is as good, as long as people are diligent about being able to do that.

Closed toe shoes are important and then having your hair tied back. If people have long hair, if it's dangling in front of the kitten, that is just as disease spreading as your shirt. It's important that everything is kept away and the kittens really are only having contact with hands and then the smock that's individual for them.

We use KMR because we can get it from PetSmart overnight. If a volunteer takes kittens home or we run out, then anybody can run to the store and get it. We don't have to wait for it to be ordered and brought in. We can also order this through MWI which is our veterinary distributor

and that helps with consistency. We are never in a place where we have run out of milk and have to switch brands – which would cause a lot more diarrhea.

Cat litter. We use non-clumping cat litter to try to get them to start eliminating in the right place as soon as they are old enough. Cotton balls, hand sanitizer, all of these things are important. We love the Royal Canin baby cat kibble because it's so tiny and the kittens love it. Consistency is the most important thing.

Warmth, which I will talk about later, but is important enough to bring up again. It is one of the most important things you can provide to these kittens. They cannot maintain their own temperature, so they have to have an external source of heat that is even warmer than a person. A person is not warm enough to warm them up to where they need to be. Some people mistakenly think that if they just hold the kittens and snuggle them closely that they will stay warm. That's not enough. They need to actually have something that can warm them up to where they need to be which is closer to 102° Fahrenheit.

We don't ever place them directly on the heating source. One of the issues, that we ran into early, is that the nest can get pretty damp. Somebody spills water or sometimes they're moving around on the blanket and eliminate. You do not want them to end up in a situation where there is a wet patch that then is exposed to the heating pad that then can burn them. Kittens have to be warm when they are eating or they will not be able to absorb their food.

The one thing that we have started this year, as opposed to last year, is a model of all-in and all-out. The concept is that every kitten that comes in – every litter that comes in over a week at a time – goes into one room. We have the luxury of several rooms now that are in our new building. So, one week's worth of intake will go into one room and then once that week is over, intake is shut so new kittens can move into that room.

The foster team goal is to get all of those kittens removed as quickly as possible, so we can clean that entire room and start all over again. We have three of these rooms, so the goal is to have every room emptied by the end of three weeks. There will be cycling, so that every week we have a new room to work with. We are hoping that this will help limit disease and minimize risk.

If you have a whole bunch of kittens in one room and one breaks with disease, if you've got those rooms separated and different people handling different rooms, then that helps to decrease the amount of spread that that

disease can have. We are excited to try this. I think it's going to be better than everybody being in one room together.

Aspiration is important to prevent – we have a little protocol here that people follow if they accidentally get formula down the wrong pipe. The thing I like about this picture is that feeding them on their back is one of the main reasons they get this. We recommend that they feed upright or preferably on their stomach and then drinking from the bottle. Once they've aspirated, we start them on antibiotics immediately to prevent secondary bacterial infections.

Medical guide. There is a lot of information in the handouts that I have prepared. We have certain things that we consider urgent and certain things that we consider important but not necessarily an emergency. This goes over a little bit of the difference. We want to be on top of something that is life-threatening immediately and then the things that we want to watch closely are the ones that we want to prevent from become life-threatening. Those are important to deal with that day but not necessarily an emergency run over to the clinic.

Typical diseases. I will not go into a ton of detail here because we have a lot of that in the supporting materials. But, we have protocols that we use for everything and we have set these up for the sake of consistency and also based on a lot of experience trying to make different things work. These are the different protocols that we have for trying to deal with the really common diseases like upper respiratory infection, diarrhea, kittens that are both vomiting and have diarrhea. All of that should be listed in the supporting documentation.

Unfortunately almost every kitten gets sick with something, either diarrhea from food change or they come in with some illness. It is important to have a good grasp and a good protocol for how to deal with the diseases before they get out of control and before you run out of time to actually deal with it and save their lives.

Fading kitten syndrome. This is an important thing to recognize. There are many, many, many causes of feeding kitten syndrome and it is characterized by kittens that just sort of wind down. For example, they may be awake and active and hungry and meowing and then maybe the next time you check on them they are lethargic. Sometimes you can see that queuing up in advance – like if they have stopped growing, they are losing weight, they are not nursing quite right, they may be a little wobbly or they are inconsolably crying – and then the next time you check on them they have faded and become really lethargic, almost like they are fainting.

Usually it has an underlying cause of disease. Sometimes it just hits them so quickly that they cannot compensate for it like a normal cat would because they are so small and fragile. We have a protocol for dealing with that and trying to revive the kitten – get sugar into them, get their blood sugar up and get them warmed up. Those are the two main symptoms of fading kitten: hypoglycemia and hypothermia. Then it is just as important once they do get revived to get them on appropriate treatment for whatever might be wrong that caused them to do that in the first place. Sometimes that can be a little bit of diarrhea or sometimes it is upper respiratory.

*Lynne Fridley:* We have another poll question. “Have you experienced fading kitten syndrome?” Answer choices: “Yes,” “No” or “Not applicable.” Please answer whichever one applies to you and we’ll see what the audience says about this question. “Have you ever experienced fading kitten syndrome?” And here are the results. Wow.

*Dr. Ellen Jefferson:* Lots of people.

*Lynne Fridley:* Yes.

*Dr. Ellen Jefferson:* Yeah, it’s a pretty common problem. It’s not something every kitten goes through but it is common enough. I have read – and I don’t know how much research is behind this but I have read – that even in the wild, 20% of kittens will be lost, even from a good mother that has taken care of them well. I think that fading kitten syndrome takes the weaker ones and our goal, of course, is to save every single one of them. But, it is important to know that this is out there and that there needs to be a protocol in place to try to revive them. You can actually revive a huge number of them with the right care.

We have some videos that you can’t click on this screen, but you can find them after the presentation is over. They go over some basic points that Heidi is going to cover a lot of anyway, but it is nice to see a video for reference later. [The video] is for feeding and caring for bottle babies and gruel babies. We call them gruel babies once they have graduated from the bottle to starting to eat the watered down can food. [Gruel babies] are a little bit less intensive than the bottle babies.

The lessons learned. We have lots of lessons learned. We’ve been doing this for a while. There are lots of things that go wrong. We have learned a lot from issues, problems and obstacles and I hope that a lot of that comes through in our materials. Some of the big things that we have learned is that you cannot do too much training. People need to be shown exactly what to do. They need to see it multiple times before they feel comfortable. A lot of people get in there and are kind of overwhelmed with the amount of responsibility. Having at least three training sessions

seems to mitigate some of that and help people feel more comfortable to step in.

A video that people can reference, like I mentioned earlier – a video actually in the nursery – is a really good idea so that people can see it over and over and over again – where to find things and what to do in an emergency. Weighing kittens before and after they eat is critical. We talked about how important it is to keep track of their weight. Kittens are so small, you cannot visibly see with the naked eye if they're losing weight. So, if you're not weighing them with every meal, you can miss weight loss that is almost imperceptible. If the kitten fades, that is something that you could have prevented if you had known that they were starting to lose a little bit of weight.

Vaccinating at one pound. We vaccinate every kitten at one pound because we assume that they are at four weeks of age. We do that to prevent panleukopenia. We do that only for the kittens that are staying in the nursery. If they are in foster care we consider them safe and isolated and will wait until they're six weeks. But, if they are in the nursery and are at high risk of contracting something because of the density of kittens, then we do vaccinate everybody at one pound.

Another lesson learned is that it's easy to get overwhelmed. Setting capacity is really a difficult decision but you need to do it based on the volunteers and the staff that you have. You don't want to accidentally take in too many kittens and set them up for failure. We certainly have done before and it's not pretty. It is much better to have a capacity plan outlined so that everybody knows in advance what the cutoff is.

Fosters are critical to setting that capacity. If you can move kittens to foster care then you've increased your capacity in the ward in the nursery. Sometimes if you have a lot on your plate and you're trying to feed a whole bunch of hungry kittens and then you have a kitten that fades, sometimes you can't revive that kitten. It takes a long time. There are methods that we have been able to employ to keep those kittens going – getting them wrapped in the heating pad burrito, getting them warmed up and then getting a squirt of sugar water every few minutes while you're doing something else. The goal is to save everybody. But, it's important to set priorities as you're working through the whole room. Make sure that you are not losing the end goal – which is to save as many as possible. And that's about it for me.

*Lynne Fridley:*

Well thank you, Dr. Jefferson. That was really interesting and I'm sure the audience really appreciated the time you put into this presentation. We will take questions at the end of Heidi's presentation. We are having a few technical difficulties behind the scenes here. Heidi does not have her

internet connection but I think we can muddle through this next presentation. So I'd like to introduce Heidi Beyer. Heidi, the floor is yours.

*Heidi Beyer:*

Thank you very much. Thanks, Dr. Jefferson. What a great presentation and an impressive kitten program you have. I wish everybody could have a program like yours. I just wanted to let everybody know how excited I am to be giving this presentation. I have been caring for orphaned kittens for over 20 years. They are my passion, so I'm hoping to be able to share with you tips that will help you in your kitten care.

Here is the outline of topics I am going to cover. This is not going to be a comprehensive talk on each of these items. My focus is to share with you practical tips from my personal experience to hopefully encourage and help you in your fostering endeavors.

So, the first thing to do is to start off with a good examination of your kitten. There's a reference in your resources that goes through the exam which outlines aging. I also have a picture of sexing your kitten on the next slide.

*Lynne Fridley:*

Excuse me, Heidi. We have a poll question that came up.

*Heidi Beyer:*

Okay.

*Lynne Fridley:*

"How many of you have fostered orphan bottle-fed kittens?" Answer choices: "I've fostered many," "I've fostered a few," "I'm interested in fostering them," and "I'd consider fostering them if it wasn't too much work." Please, submit your answers. I think this has been on the screen for a few seconds so we'll go right to the poll results. Heidi, 41% have fostered many kittens.

*Heidi Beyer:*

Great.

*Lynne Fridley:*

Thirty-eight percent have fostered a few and 15% are interested in fostering them. Only 5% would consider fostering if it wasn't too much work. I think those are really good results.

*Heidi Beyer:*

That is very encouraging. To go ahead with the examination, you'll want to look for important birth defects such as cleft palates or hernias. Assess the kitten's attitude. Are they bright and responsive? I do three little things. I check their rooting reflex by making a fist and seeing if they root into my hand. I check their suckling reflex by putting my clean pinky finger in their mouth to see if they suck on it. I check their righting reflex by putting them on their back in my hand and see if they try and right themselves. These reflexes will diminish in fading or sick kittens. A



healthy kitten is gonna wiggle a bit, cry just a little bit, eat and sleep and gain weight. [A healthy kitten] sleeps a lot and gains weight. A sick kitten is inactive, cries a lot, doesn't eat much, feels limp, just doesn't look right and tends to get separated from the group.

You want to check their hydration status by looking at their gums and how moist and slipper they are. Pinching their skin is not as reliable in neonates as it is in adults. The gums should be pink; dark red gums may indicate dehydration or septicemia. You can also look at their urine. Concentrated urine may mean dehydration. [Urine] should be dilute yellow. Look their skin over for fleas or skin infections. Kittens can get anemia from fleas. The fur should be shiny and free of debris. Skin infections or any type of sore should be addressed by a veterinarian, especially in the case of ringworm. Make sure you develop a good relationship with a veterinarian to help you with your foster.

Taking the kitten's temperature is very important. Make sure you use lubricant and only insert the tip of the thermometer in. The kitten will be wiggly so be careful and move with the kitten so you don't hurt it. Pick a thermometer that reads quickly so it doesn't take long. I have listed the normal temperature ranges for your reference.

Never feed a chilled kitten. A kitten under 96° Fahrenheit is chilled and will need to be warmed up slowly before feeding. Warm them up about two degrees per hour. It is very important to weigh the kitten. Do this twice daily for neonates and use weight as a guide for feeding and for monitoring growth and health. Be sure to keep a written record of their daily weight. There is a sample of that also in the resources. A digital scale works real well. I have listed the normal weight and growth rates for your reference. They should gain about half an ounce per day or their birth weight each week and weigh about 21 ounces or one and a half pounds at six weeks.

Here is a picture of the umbilical stump. It usually falls off around day three to four after birth. You want to check around the stump for hernias and infection. You will see redness; there will be pain and swelling if it is infected. If you see anything like that it will be important to seek veterinary care as soon as possible.

So, do you have a boy or a girl? Here is a picture to help sex kittens. Males have two dots. They have a urethral dot and an anal opening. Females have a slit and a dot which are closer together on the female. It's always great when you have one of each in a litter; then it makes it pretty easy. You just pull them up next to each other.

Internal parasites are very common in kittens, so I treat all my kittens preventatively with pyrantel or Strongid<sup>®</sup> starting as early as two weeks and repeating every two weeks for at least three doses. I run fecals on all kittens, especially those with diarrhea and treat accordingly, as needed. I use ponazuril for coccidia or for unresponsive or bloody diarrhea and I use Panacur<sup>®</sup> for giardia.

Since my kittens are in foster care where there are a limited number of cats and the population is fairly stable, I start vaccinations at six weeks and then revaccinate every three to four weeks. If the kittens are in a higher risk environment, it would be recommended that they start their vaccinations as early as four weeks and with revaccinations every two weeks. If the kitten drank colostrum and the mom had antibodies to share, these temporary antibodies can provide protection to the kitten for around eight to twelve weeks. Then the antibodies fade away. These are great to have but they can interfere with vaccination so never assume that a vaccinated kitten is fully protected. Always be thoughtful about disease control with baby kittens, vaccinated or not.

Diarrhea is also very common. It may be from internal parasites or dietary issues from adjusting to formula. All of my foster kittens get once to twice daily probiotic, about 0.3 mls of Bene-Bac (Beneficial Bacteria) until they're three weeks old and then once a day until five weeks to help stabilize their intestinal flora and help prevent diarrhea. Make sure you keep good records. This is very important as it helps you to keep track of the kittens' growth and health and it helps you remember what you've done so you can share this with your veterinarian and the adopter.

Proper housing is critical for success. You will need to be thoughtful about temperature control and space. Listed are environmental temperatures for different stages of your kitten. A humidity level of 55% to 65% will help prevent dehydration and drying of the skin. Your sources of heat can include water bottles, heating pads, snuggle discs and Snuggle Kitties<sup>™</sup>. The Snuggle Kittie<sup>™</sup> is pictured here. It has heat and a heartbeat. Whatever source you use, you must have a layer of blanket or towel between the source and the kitten.

The snuggle discs, Snuggle Kitties<sup>™</sup> and water bottles will cool so you will need to check them often as they will pull heat from the baby. When using the heating pad, I leave it half under and half out of the crate or case. The kittens need enough space so they can move to a cooler area of the environment if wanted, but you want to make sure the space inside is small enough so that they cannot run around and get lost in their kennel.

Inspect the temperature of the environment with a thermometer or by placing the back of your hand on the bedding area for at least two minutes.

If it feels too hot for your hand, it will be too hot for the kitten. I always have extra supplies on hand for changing out such as towels. If possible, try not to mix litters as this may result in spreading disease from one litter of kittens to the next. Not all of the infected kittens are showing clinical signs, but they still may be shedding and be able to spread their infection to others.

Kittens cannot regulate their own body temperature for the first two weeks of their lives, so external heat will need to be provided. I like to use a heating pad set on low. I put it under half of the carrier. Make sure to double up on the blankets that are directly over the heating pad. Neonates cannot necessarily move away from the heat at their age. I provide soft blanketing or fleece free from holes or frayed edges with strings. Kittens can become entangled in holes and strings that are hanging from blankets. Check regularly if bedding becomes wet or soiled and change out immediately. Wet kittens can become chilled very quickly. Also, a growing kitten living in dirty conditions may not value a clean environment when they mature.

The size of the crate or cage the kitten resides in will need to be adjusted quite often until they are about six weeks of age. Up to two weeks of age the kittens can be in a very small crate and can remain covered until their eyes open. For a single kitten, you want to make sure they have a stuffed animal to snuggle.

At about two to four weeks the crate should be bigger. I uncover half of it to allow light in, as their eyes are starting to open and they are also beginning to hear. They can still have a warm covered side. A litter box is not necessarily needed yet as they are still dependent on assistance for elimination.

At around three to four weeks of age they may start to eliminate on their own. I get really excited when I start to see little pee spots on the blankets in between feedings. That means feeding them without needing the stimulate them is right around the corner. When I start seeing more than one spot in between feedings, I put the litter box in there.

At about four to six weeks – four to five or so – the kittens can have an open cage with small wires to avoid escape with room to walk and stretch their legs. There will be some overlap with their age as far as this housing goes and the food, water bowl and litter box need to be accessible. The size and location of the litter box does matter. You want keep the litter box as far away from the food and water, as possible. Keep in mind that kittens at this stage are very messy. They may climb the side of the cage and tip stuff over, so be sure to check them often and clean up.

For the litter box, I use a very small shallow box to start with, at about three to four weeks. This picture is of a drawer organizer that I got from an office supply store. You can start to stimulate the kittens over the box and use their front feet to paw at the litter after stimulating them. Earth raking is an instinctive behavior in cats and they catch on pretty quickly once they can go on their own. Do not panic if kittens are slow to use the box. They eventually get there. The type of litter matters. Newspaper pellet, wheat or corn litter should be used during weaning, as the kittens will sample or eat the litter during the learning process. I avoid clay and clay clumping litter. You can transition them to it when they are about 16 weeks of age.

As for feeding milk replacer, I use KMR brand formula. The powdered is convenient to mix as needed. There is less waste, and it is more economical. You can freeze opened unused powder for up to six months. The liquid requires no mixing but it is more expensive and in my experience I see more digestive upset with it. You only want to use homemade milk replacer in an emergency situation. I have included a few recipes in your references and if you know you are going to be bottle-feeding orphaned kittens, just keep a can of the KMR in the freezer and take it out as you need it.

Milk replacer is made from cow's milk. Kittens fed milk replacer, do not seem to grow quickly. This may be because milk replacer is lower in protein, calories and fat than queen's milk and it is hard to give them their recommended calories per day without overfeeding them. For the first few feedings, dilute the milk replacer 50/50 with water or an oral electrolyte potion low in sugar, like Pedialyte<sup>®</sup>, to help prevent diarrhea. They may not like the taste of it at first but they will eventually take to it.

Nipple selection is very important. You want to use a standard size but not longer than five-eighths of an inch to prevent aspiration of the milk. Cut tiny crosswise snips on the tip of the nipple so milk slowly drips out. You do not want a stream. I will show you a video of this in the next slide. Make sure to pre-sterilize the bottles, nipples and storage containers in boiling water or very hot soapy water ahead of time and wash thoroughly in between use.

As for preparing the milk, generally the instructions are to mix one scoop of powder with two scoops of water. I like to mix a stock bottle with enough for 24 hours and then refrigerate it. Also, I mark the stock bottle for easy mixing. I mark the bottle with the amount of water needed and add half the amount in scoops of powder; so, for instance, level 30 on the bottle would need 15 scoops of powder. That way you don't have to measure out 30 scoops of water every night when you are mixing up your stock bottle.

Here is the video showing us how to cut crosswise snips into the nipple. These scissors were a little on the blunt side and you'll want to keep the snips located toward the top of the nipple and not cut too far down the sides. This will allow the milk to drip out versus stream out and that's very important to prevent aspiration of the milk. Some people use a hot needle to make a hole, but I find this causes the milk to stream out if you're not careful. Plus it takes a lot of time to try to do that. It is really frustrating to get a hole in the nipple with a hot needle, so I use the scissors. This is how I warm the bottle.

*[Video Interruption]*

*Heidi Beyer:*

Okay. Here's how I warm the milk and how I measure out the appropriate volume to prepare the bottle. I don't allow my kittens to feed ad-lib to avoid overconsumption of the milk. I microwave water in a mug or microwave safe container and then I soak the milk in the warming container until the desired temperature of 100 degrees Fahrenheit. That is the momma cat's body temperature. I use a syringe to transfer the proper amount into the bottle. When you are feeding a litter of kittens, you can just re-warm the milk and test it each time. It is also very important to always use a water bath for warming milk. Never use the microwave to warm the milk. I will talk more about the importance of calculating the appropriate volume in the next slides.

Preventing diarrhea starts with the first few feedings. The first feeding should go slowly, volume-wise, over the first 24 hours. Changing from mom's milk to formula can upset the kittens' GI (gastrointestinal) system. I have diluted formula 50/50 with water to ease the transition and avoid dehydration. You can also dilute the milk replacer with an oral electrolyte solution, but make sure it's low in sugar, like Pedialyte<sup>®</sup>. I always give probiotics. A study done in 2006 showed that the use of probiotics improved the immunity of growing kittens. It is critical to understand stomach capacity and avoid overfeeding. It is better to feed less and feed more frequently than to overfeed and have diarrhea, regurgitation or aspiration.

The average stomach capacity in neonates is 4 mls per 100 grams of body weight. I have included a feeding chart in the resources and will show it to you in the next slide. You will want to take the recommended stomach volume for the kitten's weight, then divide it by the number of feedings. A one-week-old could be fed every three hours, even through the night. For a two-week-old you may be able to stretch out the feedings to every three to four hours and for a three to four-week-old you may be able to stretch out [the feedings] to every five hours during the day and then maybe every six hours at night. The key is to not overfeed and to space

the feedings out around the clock. Feeding small amounts frequently will decrease the risk of digestive problems.

Here is our chart. A study done by Lawler in 2008 determined that the daily energy requirement for kittens is between 20 to 26 kilocalories per 100 grams of kitten body weight. This study also determined that the comfortable stomach capacity for kittens is 4 mls per 100 grams of body weight. Most commercial milk replacers in the U.S. are 0.74 kilocalories per ml and deliver a little over 19 kilocalories per 100 grams of body weight. This table has calculated the daily volume to feed an orphaned kitten using the 20 kilocalorie per 100 grams of body weight ratio.

You can see, based on the comfortable stomach capacity, the kitten will need frequent feedings to meet its daily caloric need while not exceeding stomach capacity. This may be why bottle fed kittens grow slower than queen fed kittens. If the kitten is adjusting well to the feedings, you may be able to increase the volume for feeding to help reduce the frequency of the feedings but be aware that that will increase the risk of digestive upset as well. As the kitten starts to eat solid food, you can also reduce the frequency of the feedings. Again, this chart is in your references. It is a lot to look at at once, but if you just take the time it's really not that confusing.

Now will talk about feeding neonates between zero to two weeks of age. If kittens can stay with their mom, of course that's most ideal, especially to receive colostrum. We only want to bottle feed kittens if absolutely necessary. Remember kittens this old cannot regulate their own body temperature. Warmth is very important for proper ingestion and digestion. The food will sit and ferment inside a chilled stomach and cause bloating and discomfort as well as possible regurgitation, aspiration and even death.

You want to make sure your kitten is warm enough before attempting to feed it. Their body temperature should be between 96° and 99° Fahrenheit. If a kitten is not warm enough, warm them up slowly over several hours, about two degrees per hour before trying to feed. If they get warmed up too quickly they may go into organ failure. I don't actually routinely take a temperature on my kittens before every feeding. Instead I examine to see that they are alert and responsive to the nipple and make sure they feel warm and that the environment I took them out from was warm. If they are nonresponsive or seem dull, that is when I would pause and make sure they are warm enough.

Carefully pre-measure the amount of milk before feeding to avoid feeding them as much as they think they want which can cause regurgitation, aspiration and diarrhea. Feeding off the nipple is very different from

feeding off their mom. The flow of milk is different and nipple feeding is easier so they may consume more in a shorter period of feeding than as compared to nursing from the mom. If you do not pre-measure kittens they may consume more than needed which will result in digestive upset. In my opinion it is always better to feed smaller amounts more frequently than to overfeed and risk problems.

As far as frequency goes, for up to a one-week-old kitten, you should feed every three hours or seven feedings per day. For a one to two-week-old kitten you may be able to increase feedings to every three to four hours or six to seven feedings per day. For unresponsive feeders, I have used the stomach tube for feeding, but that is beyond the scope of this presentation. I did include a chart that goes through common feeding problems and solutions in the references. It is also important to remember to burp your kittens by gently rubbing up and down the kitten's back while holding it up against your chest. Now we are going to view some videos of feeding.

In this video, I insert the nipple on the tongue and a slow drip of milk stimulates the kitten to suckle. This kitten needs to be hungry for this to work. If they're not hungry, they will refuse to suckle and you should not try and force the feeding as they may aspirate the milk. As you can see this kitten is alert and responsive to the bottle and is warm enough to proceed with the feeding. Make sure the milk is warm enough too so that the milk doesn't chill the kitten.

For feeding pre-weaned babies, body temperature is not as much of an issue but I do not take it lightly either. The amount should be calculated as before. Take the total daily value and divide by the number of feedings. As for frequency with these guys, two to three-week-olds should be fed every four hours and three to four-week-olds fed every four to six hours. Sometimes only five times a day. These guys need burping too, so do not forget that. Growth spurts and energy expenditure will increase their appetites.

Of course sleeping through the night is the goal for the caregiver. By feeding them more frequently during the day to meet their caloric requirements, you may be able to get a few extra Zs. However, my experience is different. I have to give up my sleep overnight to enable the kittens to make it through my morning work schedule which is sometimes six and a half hours before I get my lunch break. I was able to make up for that lag time in other feedings.

Here is a video of feeding of three-week-old kittens. You can check the warmth of the milk by squeezing a few drops on your wrist. The warmth of the milk will sometimes make it drip out a little faster – from the pressure that builds up in the bottle – very effective, effective, neutral,

Ineffective, very ineffective, so just be aware of that. Make sure the kitten is sternal or upright and the neck slightly flexed and stretched out with the nipple at a slight angle, not straight up and down. Kittens are very wiggly so hold them gently and move with them watching that their feet don't knock the bottle away.

If you find that the kitten is just too squirmy, you can gently burrito it by wrapping it snugly in a baby blanket with just the head sticking out to keep it still while feeding. Try to keep the milk flowing through the nipple so the kitten doesn't ingest air. Again, if the kitten is not hungry, do not force the feeding as long as it is acting okay. Otherwise after a few attempts, just try again in a half hour or an hour. Be sure to keep a record each time of the amount the kitten actually drank.

I'll just summarize some helpful tips for bottle feeding. Ensure the milk is warm enough but not too hot. Kittens don't like cold milk and hot milk will burn them. Place the nipple on the center of the tongue, make sure the milk drips out and does not stream out. Do not squeeze the bottle. Position the kitten sternally which is a more natural position and less of an aspiration risk. The kitten's neck should naturally stretch out to reach the nipple which helps prevent aspiration of the milk. Do not crimp the kitten's neck. Angle the bottle to prevent consumption of air and continuous flow of the milk but not too high causing the kitten's neck to extend up. Do not use a nipple longer than five-eighths of an inch. You don't want the end of the nipple to be placed at the back of the kitten's tongue because of the aspiration risk.

This is a lot to think about all at once but be patient with yourself and with the kitten. I find that after the first few days the kitten gets the nursing down with no problem at all. You can start weaning kittens at about the age of four weeks. Milk should be provided during this time, especially since you will want it to go slowly with the amount of solid food, to allow for acclimation to the food and avoid digestive upset.

Here are the bowls I like to use for water and for solid food. They are little gerbil and hamster bowls. They do not tip over easily so the kitten is less likely to make a huge mess. You can start up with a gruel of slightly watered down canned food. I do not like to make my gruels too watery because the kittens can sniff in the fluid and possibly aspirate. Plus, it is a lot messier to clean up on the kitten and in the environment.

Here is a picture of a kitten eating. They will knead on the side of the bowl and as you can see this didn't turn out to be too messy. If the kitten isn't sure what to do with the food, you can encourage it by putting a small amount right in their mouth and then sometimes they latch right on. I like to leave out tiny dry food and let them explore. I have used Royal Canin



Baby or have crushed up kitten food myself. They are teething at this age and they may appreciate something to gnaw on.

As soon as they adjust to the dietary change, you can provide solid food and a bowl of water free choice. You can also water down dry food and use that instead of the canned, if the canned is causing diarrhea or dietary issues. Don't forget the probiotic to help prevent diarrhea in the first place during this dietary transition. Weaning is a stressful time on the GI system of tiny kittens. Do not be in a huge rush to wean your kitten onto solid food either. Dealing with diarrhea is not worth a few extra hours of sleep you may or may not get. Here is just a cute picture of some kittens eating. Do not forget to weigh them daily and record their weights in your records.

Neonates need stimulation for urination and defecation. Stimulate elimination by using the warm water from the milk baths on a cotton square or small piece of paper towel and gently rub the anal genital area to elicit urination and defecation. Do not rub hard. I like to stimulate over a garbage pail. You can move the kitten over the litter box at three weeks so they kind of start to make the connection. Neonatal kittens are reflex eliminators and cannot urinate or defecate on their own, so stimulate after each feeding for up to about three weeks of age. They should urinate every time and the urine should be clear with barely any color. The purple arrow is point to dilute yellow urine.

Kittens may not defecate every time. They usually defecate every 24 to 36 hours. The stool of a bottle fed kitten should be light brown, yellowish and toothpaste consistency. If the stools are liquid, green-yellow, they you may be going beyond the kitten's stomach capacity when feeding. For post-weaned kittens, you can start training them to use the litter box by stimulating them over the box and using their paws to grasp the litter. For grooming, I use a warm slightly damp cloth and groom the kitten daily as the mother would behind their ears, down their back, their belly, their faces, etc. I just don't soak them because that would chill the kitten.

Here is a video of stimulating urination. Keep stimulating until there is no more urine coming out. They need the stimulation to completely empty their bladders. When they are ready to defecate they will use abdominal effort and appear to strain. You need to be patient and gentle for that, because it may take a moment or two of consistent stimulation, even after they're done urinating for them to defecate. Then, always clean up the area when they are finished.

Cleaning and disinfection is important for all ages. Make sure you clean and disinfect the bottles and nipples between uses. Make sure your kitten is staying clean as well as its environment. Wash your hands between

handling. You can also wear disposable exam gloves and thoroughly clean and disinfect all appropriate items between litters to prevent the spread of infectious diseases.

You want to avoid the use of pine oils or phenols for cleaning and remember to wipe up cleaning agents because the residue and even the fumes can be toxic. Maddie's Institute<sup>SM</sup> recorded an excellent talk by Dr. Kate Hurley from UC Davis on Sanitation to Save Lives. You will find a link to it in your references and I highly recommend watching it.

As for socializing, up to two weeks of age kittens should be fed, stimulated and kept warm. You want to avoid a lot of handling by others or handling even in between feedings. Kittens need to eat, sleep and grow. Ninety percent of their time is eating or sleeping and over-handling causes chilling, stress and increasing their risk of infection.

At three to five weeks, kittens should start to be handled carefully in clean situations by all types of people in small increments of time. Children, adults, men, women, loud people, quiet people and do not feel guilty about asking someone to wash their hands before they handle your kitten. At six to eight weeks, that should be a time to allow kittens to run and play in different environments with different types of toys, boxes, scratching posts, etcetera.

I'll talk a little bit about the situations that you may encounter with your orphaned kittens. Kittens that are not nursing, you want to check that they are warm. If they are truly unresponsive, you can warm them up gradually and give them a little Karo syrup under their tongue. If that doesn't help, you need to get help from a veterinarian. Some kittens are poor doers and unfortunately die despite all your efforts. It has been reported that 20% to 40% of kittens die within the first seven days of life. This is also known as fading kitten syndrome.

Caring for kittens with upper respiratory infection involves symptomatic care. You want to keep them hydrated and keep their eyes and nose clean. Use a warm damp cloth to gently wipe each eye individually and clean the nose often. Consult your veterinarian if you feel like they need additional fluids or antibiotics and they can direct you with what to do with that.

If a kitten has dark yellow urine, it may not be drinking enough. You want to double check that they are getting the right volume of milk. If a kitten has diarrhea, make sure your milk was prepared properly and that you've ruled out parasitic and infectious causes. This is especially important if the kitten also is vomiting. Having a strong relationship with a veterinarian is essential.

Most kitten diarrhea is from dietary issues and with special care will resolve. Unfortunately, there are not a lot of options except cow-based milk replacement. To address diarrhea, I use probiotics. I sometimes will dilute the KMR and I will reduce the volume of the feeding while increasing the frequency so the kitten is getting a full volume for the day. Once in a while a kitten will need sub-Q (subcutaneous) fluids. Running a fecal to test for parasites is helpful. I prophylactically treat for some of the more common parasites, but occasionally a kitten will have coccidia and/or giardia.

Feline panleukopenia can also cause diarrhea and is life-threatening for that kitten and any others in the environment. Any kitten that is both vomiting and has diarrhea should be highly suspect for having [Feline] panleukopenia (FPV), should have veterinary care as soon as possible and be isolated from any other cats and kittens.

I rarely see kittens with constipation. They do sometimes have very firm stools but have always been able to defecate with patience. You want to make sure the kitten is not dehydrated. Do they have concentrated urine? Are their mucous membranes dark pink and tacky? If your kitten is straining it could be from colitis from diarrhea. If you are concerned you should seek veterinary advice.

I have a few pictures to share with you on the following issue in the next slide. Suckling on each other. Unfortunately kittens will sometimes suckle on one another, especially when the litter has been orphaned at about two weeks of age because they are used to pacifying off of their mother. You can tell they are sucking on each other because you will see wetness around the tail and they will have swollen genitals. It also happens to females, not just the males. The only solution is to separate them for a period of time.

You can usually return them together at around four weeks of age. Make sure you put a stuffed buddy to snuggle with as well as their individual heat source if you have to separate them out. During their time of separation it will be important they have supervised playtime with each other for social development. I usually let them play for 10 minutes or so after I feed them each time so they can remember who their buddies are and get some socialization.

Kittens with diarrhea may develop a sore rear end. It is important to keep this area clean so it doesn't get more irritated and painful. Do not hesitate to trim hair around the kitten's rear end and help it with cleanings. This will mostly be for long-haired cats and it will grow back, so it doesn't hurt to trim it. Warm water rinses help soothe the area and keep it clean. It may be a bit startling to the kitten, so make sure the water is not too hot

and do not douse the kitten with the water either. Just do a little butt bath and gently dab the kitten dry so it doesn't chill. You can apply some A&D ointment or Vaseline to protect the area from the diarrhea and soothe the skin. Do not use diaper rash ointment. Here is a copy of my references and they are also in your slide handout.

*Lynne Fridley:* And we have our last poll question here, Heidi.

*Heidi Beyer:* Awesome.

*Lynne Fridley:* We will ask the listeners out there: after listening to Heidi and Dr. Ellen Jefferson, "How many of you would foster orphaned bottle-fed kittens?" Answer choices: "I am already doing this but I will certainly continue to do so," "I have done some but I'm now more confident to do a lot more," "I have been inspired and will start fostering," "I would consider volunteering at a nursery program," "I am still not sure about fostering orphaned bottle-fed kittens." Please submit your answers and we will go to the results. We have almost 45% that are already doing this and they are going to continue to do so. Thirty-one and a half percent that have done some, but now they are confident to do more. Eight percent of the people have been inspired. So, Heidi, you've done a great job.

*Heidi Beyer:* Oh, those are good numbers.

*Lynne Fridley:* Yes, very good. We are getting to the point in the presentation, everybody, where we are going to take some questions. We'll take the first question for Dr. Jefferson. Here we go. We are going to push this one to the slide area and the first question is, "Dr. Jefferson, how do you treat fading kitten (e.g., diarrhea) but just fading for no obvious reason? Do you start on antibiotics just in case? How long do you keep them on the Karo syrup before they revive?"

*Dr. Ellen Jefferson:* We assume that there is an underlying problem and we do – if we can't find any evidence – we look at the tail for a sign of wet tail which is kind of the layman's term for diarrhea. Sometimes you will see evidence of diarrhea in their blankets or you will see it when you are stimulating them. Sometimes it is only evidenced as a wet tail around the anus region and that is a sign of diarrhea. If we see that then we will treat them for diarrhea. We will look them over and make sure that we do not see any nasal discharge or ocular discharge. If we really cannot find anything wrong, then we will give them – if it's been more than 48 hours since the first penicillin-G injection – we will give them another one plus some fluids under their skin to help hydrate them. Keep watching for further symptoms. At least we have something on board to treat an underlying bacterial issue. We assume that most of these are because of bacterial problems.

The question about how long to keep them on the Karo syrup – we do it as long as it takes. Sometimes that can be 10 minutes. Sometimes it can literally be an hour or longer or two. It just depends on how far gone they are and how good of a job you can do on keeping the sugar water going into their mouth constantly. They will metabolize the sugar within minutes of receiving it so you literally have to do a drop every couple minutes until they start moving around and swallowing. Once they start swallowing you can put food in their stomach and the food has longer lasting carbohydrates which will help increase their sugar level without it being used up immediately. So, the answer is it just kind of depends.

*Lynne Fridley:* Okay, thank you. The next question will be for Heidi and I'm trying to get that to the slide area. The question is: "How often should a formula fed kitten defecate?"

*Heidi Beyer:* I find about every 24 to 36 hours. Sometimes I don't even panic if it is two days. I just maybe increase their fluid a little, because I think they just might need a little more liquid to get their system going. Sometimes they will try to go but you just have to really be patient when you're stimulating because some of them take three to four minutes. But then they'll start to defecate and then they don't do it and you put them back and then you wait another four hours.

*Lynne Fridley:* Okay, back to Dr. Jefferson. Okay, "Regarding FeLV, if you have a litter where not all kittens test positive initially, do you keep that litter together until they are retested? And what is your policy regarding kittens that test positive again at six weeks?"

*Dr. Ellen Jefferson:* We have gone both ways. Keeping all the kittens together so if one in the litter tests positive; we want to keep track of that entire litter to make sure that they do not get lost in the system mixing with other litter mates or kittens in foster homes or in the nursery. Typically they are either kept together or they are tracked simultaneously. If it's a big litter we might split them up, the negatives and the positives, but we want to keep them on our radar to make sure that we are retesting exactly four weeks after the first test. Also, whoever has them there in foster is keeping them separated from their own cats and from anybody else. We want to make sure that we're doing good control regarding feline leukemia.

If they test positive again after they have tested positive once and then again four weeks later using serum not using whole blood, then we will look for a home to take them with feline leukemia. We have developed, at our shelter, a feline leukemia sanctuary now because they are so hard to find homes for. Interestingly enough we have found a lot of homes by having that sanctuary open to the public. It's basically a very – it's like a

big bedroom – and they have a homelike setting and they all live together in a group.

Because it is visible to the public who are coming in to adopt, we are actually getting quite a few of them adopted. I think that it has to do with educating people about what the disease is. Our shelter takes care of the cats, the feline leukemia related diseases, for their life and then we also raise them. We don't do anything heroic like blood transfusions or a lot of blood work or hospitalization but we will treat recurrent illnesses with feline leukemia and also provide euthanasia when they finally are ready to pass. That has worked really well. We have a good response from the public to take these animals home for long term commitment is what we call it and people respond and they've actually adopted out I think 18 since we moved here in June so that's pretty exciting. It is hard to find homes for them. Kittens are easier than adult cats and if they're positive, we are committed to that live outcome. We don't euthanize them.

*Lynne Fridley:* Okay, Heidi, the next question for you. “Why not use a microwave to warm the milk?”

*Heidi Beyer:* Because you could get hot spots. It can become really hot and you won't know plus I think it breaks down the protein in the milk. I think it's better to warm it up slowly with the warm water bath.

*Lynne Fridley:* Okay, great, back to Dr. Jefferson and the question is, “Do you only give one injection of Pen-G prophylactic dose?”

*Dr. Ellen Jefferson:* Yes, we do one injection at intake. If diarrhea has developed despite that injection, we will do a second one 48 hours later. Typically that one injection does the trick.

*Lynne Fridley:* Great. Heidi, another one for you, “What about using all species milk replacer?”

*Heidi Beyer:* I never have. I stick with the kitten's milk replacer. As we had talked about, nothing is ideal for kittens except for mom's milk. If I'm going to use anything other than mom's milk I go with the ones that have already been developed for kittens.

*Lynne Fridley:* Okay. We're getting down to the time that we are going to have to leave the air but we'll get one more question for Dr. Jefferson as soon as I can find a question. Here we go. “How much sugar water do you give to a fading kitten and for how long?”

*Dr. Ellen Jefferson:* Well, we kind of covered that at the first question but typically it is – we use different products like Pedialyte<sup>®</sup>, we will use Karo syrup. We will

use some of those that are over-the-counter already made products. If we do not have that the easiest thing to keep on the shelf is sugar and to mix it with warm water. That is why we default to sugar water. We mix a tablespoon of sugar and then maybe two to four tablespoons of warm water with that, just enough to make it into a liquid and not a sludge. Then we drip that in to be well-mixed so that it is not just water. We drip that in every couple minutes until they are swallowing and moving around and warming up.

*Lynne Fridley:*

Great. Well, thank you both. That's the end of our event tonight. We want to thank Dr. Jefferson, Heidi and all of you for your time tonight. Please click on the link to take our survey. It might have been blocked by your popup blocker or it may have appeared in a different window. Don't worry if you don't see it. We'll send the link to you and we would really appreciate it if you would take a few minutes to respond.

If you didn't get a chance to check out the resources and the widgets at the bottom of your screen, you can find them on our website at [www.maddiesinstitute.org](http://www.maddiesinstitute.org). The archived version of tonight's webcast will be available within one week and while you're visiting our website, sign up for our newsletter and our blog and please show your support for us by liking us on Facebook.

All of the references that the speakers talked about tonight will also be on our website after this event. Please make plans to join us on April 18<sup>th</sup> for the next webcast: *Update on FIV, What Every Shelter Needs to Know* with Dr. Annette Lister. We hope to see you there. Thanks again for being here and for sharing your evening with us. Good night.

*[End of Audio]*