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### Scratch That Itch\_Exterminating Bedbugs Through Partnerships With Private Enterprise

Welcome to the presentation Scratch That Itch: Exterminating Bedbugs Through Partnerships With Private Enterprise. To ask questions about this presentation, join the presenter for a chat hour in the networking lounge.

I would now like to introduce Michael Swoyer, Supervisor of Rat Control at the Kansas City, Missouri Health Department.

Good afternoon, everybody, and welcome. I'm Michael Swoyer, and I'm very pleased to be with you to talk today about Scratch That Itch: Exterminating Bedbugs Through Partnership With Private Enterprise. This is an interesting presentation, I feel, because we're talking about a program that actually works with private enterprise to not only help eliminate bedbugs or help people with bedbug problems out there, but also to help educate people about integrated pest management. And we're going to help to define integrated pest management later on in the presentation. We're also dealing with different pests like rodents and cockroaches as well, but bedbugs seems to be a big issue that kind of overwhelms – it's got a lot of media attention out there, so when you're out there talking to people about integrated pest management, people are naturally going to be asking you about bedbugs.

So that's seems to be the overwhelming thing. And without any further ado, let's talk about the program.

The objectives of this presentation include how to set up an integrated pest management class. Why you should. Who are the people that are going to be in your audience. And because you are going to be setting this up in some partnership with pest management companies, you're going to be asking yourself why should pest management companies – why will they want to be involved? Also, we're going to be explaining what the class is going to be like that you're going to be teaching to people. What the content of the class is like. What's going to be included in the class. Maybe some of the materials you're going to be handed out, some of the materials that are going to be involved in the teaching of the class. And also how the class is going to be (inaudible), and maybe even something about the exam that's going to be included in the class as well.

First of all we're going to talk a little bit about the history of the class. Back when we first got the idea for the class in 2014, we here at the Kansas City Health Department had been receiving more and more bedbug complaints over a period of about five years. Frankly they've been growing steadily. Here at the Health Department, we don't actually control bedbug complaints. It's actually handled through a different City department called Neighborhood and Community Services, and they actually handle the Housing Code. We do not do that. The Housing Code actually states that housing shall be maintained pest free, but it doesn't say who's responsible. So the Health Department actually has no authority over Housing to state that we could do anything about pests, including bedbugs, but also including rats, mice and cockroaches. And frankly the Housing Code doesn't say, again, who's responsible for that. So we are kind of unavailable to do anything about that.

In addition to bedbugs, other pests like cockroaches and mice had also been reported increasingly. Frankly, the City just didn't have money to deal with bedbugs and cockroaches and mice.

Now we do have a rat control program of which, of course, I am the Supervisor of. We can go out and deal with rats. But we don't have funding for doing anything about cockroaches, rats or mice.

Well, anyway, because we don't have that kind of money, a different alternative had to be found.

Frankly the complaints had been escalating quite a bit. Complaints had gone as far as going to letters to the editor, people calling in to radio stations, calls to public officials, they've just been – and the words have been getting quite heated. Now, it's not like we were sitting on our hands doing nothing. We had been making educational presentations to various public groups. We'd been going out and talking to schools, various civic organizations, interested neighborhood groups about bedbugs, but frankly, the public was not satisfied by this. They wanted action. They wanted some – they wanted more than information. They wanted something to be done.

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And just a brief summary of the problem. The people do expect that local health agencies will regulate bedbugs. Well frankly bedbugs don't spread disease. Bedbugs are considered a – they're not a health hazard. They don't spread any disease. Nobody has ever died from having bedbugs. Generally speaking, they're a nuisance. They're not a health hazard.

And, in addition to that, things that are health hazards, like cockroaches and mice, most people are not even aware of the health problems that are associated with cockroaches, mice, and other pests that are frequently found in the home. In addition to that, the public is generally unaware of the practice and benefits of integrated pest management, commonly referred to – and what will commonly be referred to in this presentation as IPM. Integrated pest management or IPM.

So, we sat around and thought about it, and thought, well, what would a solution do? What kind of solution would work? And we thought about this and came up with this solution. What if you gave a class that taught the general public about IPM, integrated pest management? It would cover the principles of IPM. It would cover the health effects of pests. It would also provide information about the common pests, mice, cockroaches and bedbugs. And – and this was the kicker – what if you could give pest management companies, what if you could get them to agree to give discounts – discounted pest control services to people who take the class and then pass a brief exam.

Now why would that be a sound solution? Well, first of all it costs virtually nothing. Now we make no guaranty as to the pest control companies coming in and doing this. We make absolutely no guaranties, so it costs us virtually nothing to do this, so we're not saying that the pest control companies are going to do that. And we say that right on the literature, we make no guaranties. It costs us virtually nothing to put on the class. We are just providing information. The pest control companies are actually providing the services, and we make no guaranty as to the services. But the pest control companies are agreeing to provide discounted pest control services under their normal fees. We are paying for us to come in and do the presentation and printing out certificates and coupons for the services. That's our costs, which are very minimal. And it does provide valuable information that does make the public's life better. It does provide valuable information. So it is a very sound solution.

In addition to that, it helps to counter the very – many, many myths that are out there about pests. One that I frequently get in my capacity as Supervisor of Rat Control is that mice will grow up to be rats, which is very much not true. It's like kittens growing up to become Great Danes. It just doesn't happen. Mice do not grow up to be rats.

Another common bedbug-related myth out there is that if you put a dryer sheet between your mattress and your box springs it will prevent bedbugs from getting into your bed. Not true. Very much not true. I've even had people report to me that experts – quote, unquote experts – have told them that. Not true.

One common item that has been sold online and on TV to this very day are the ultrasonic plug-in pest repellants. They have never worked against any pest ever. They don't work.

And these are common myths that are currently out there that are commonly being sold to the public as pest control alternatives that have never worked for anybody. Common myths that need to be overcome.

So, we decided to give this a try. We decided to give it a shot to see if it would work. We contacted pest control companies that we'd worked with in the past. You have pest control companies that you've worked with because you have pest control companies that service your buildings and your offices and your organizations as well that are under contract, so those could be the people that you start with to contact. People that come in and do your pest control. You can also go to look online and see who is in your local area who does pest control.

Explain to them what you're trying to do. Have them come in. Invite them to a planning meeting. Explain to them what you're doing. Ask them for their input. You're going to ask them for other things as well, which I'll explain later, but you're going to be asking them for their input into the presentation, into the

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planning, and everything else. You're going to be asking them for what they contribute to this effort. And you will find that you will have surprisingly a lot of people that are very interested in that.

And then do a dry run. Do a dry run. Because after you develop the presentation, you're going to want to test it out at least once on your staff. And not only your staff, but you're also going to want to test it on the pest control companies that you're going to be working with because they're going to be involved in this as well. Run it on your pest control companies. And this dry run should not only include the class you're doing, but include the test as well just to show what you've taught is reaching them so that they know they can pass the test based upon what you've taught.

So do the exam and then in addition to that do evaluations. And these evaluations should include what they liked about the class, what they didn't like, what they had a hard time understanding, everything that, and use that input to tweak the class so that people will have a good, informative class that they can use and take home because this information is important.

In addition to the people that are on your staff and the pest control companies, you might even try to invite members of the media as well. If you can get them interested in it, you've got a good, solid foundation for getting more people informed about the class so you'll get a lot of people interested in enrolling in the class. And then once all that's done, you've tweaked your class, you've made it fun, that's when you start scheduling classes and you start getting people coming to your class as well.

Now, the question is why should pest control companies agree to participate? Well, they're going to get customers. They're going to get – and more importantly, they're going to get educated customers. The goal here is to get kind of what we call turnkey customers, people coming in, people that they can go to that are essentially completely prepared to have them come in, do their thing and leave. We're going to give out preparation instructions at the end of each class for each individual pest. The ideal goal is that they will have done all the preparation work prior to the visit by the pest control company so that the pest control company comes in, does what they need to do, and the leaves without any further instructions or anything else. So that is a very short amount of time. The pest control company does not have to make the investment of time of coming in and telling the customer, well, you need to do this, that and the other thing, and we'll be back in a day or two to see that you've done that, and once you've done that, then we can do our treatment or whatever we need to do. No, that's already been done by the class. So we've done the job of educating the customer. It's an educated that they ideally have and have been trained by us. So we've done that work for them.

Also, the pest control company gets a little bit of prestige from the fact that they're recognized as being practitioners of the most effective form of pest control available today, which is integrated pest management. Now, we are not telling the pest control companies what level of discount that they have to perform. The level of initial fees that the pest control companies perform is not set by us. Neither is the level of discount. Just as a quick example, a 25% discount on a \$100.00 initial fee is better than a 50% discount on a \$200.00 initial fee. So that's just to give you an idea of what I'm talking about here.

We are giving these people a pool to compete out of, so we're giving them a pool of contractors, pest control operators, to compete out of. The pest control operators are still competing out of that, and not only are we talking about price, but we're also talking about what they offer and, in addition to that, convenience as well. Some pest control operators might not be able to make it out right away. Some people might say, for example, well, you know, I want to see you immediately, and I'm willing to pay a little bit more money to see somebody immediately versus somebody who says, well, I really want to save some money, so I'll wait a month to see you. And that's an important consideration to these pest control operators. It works out in the end. You still have a pool that they're working from. Right now we have five pest control operators, and they've all volunteered to come in and provide integrated pest control services to all these companies just based on the fact that they are competing in a prestigious pool and they are all providing integrated pest management services.

So who is your audience? Well, we found out – now we're – obviously I work for the City of Kansas City, Missouri in the Health Department. But actually the Kansas City, Missouri Metropolitan Area, the Kansas

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City Metropolitan Area, actually covers two states and covers 14 counties. And since the pest control companies don't recognize state lines, or county lines, or city boundaries, or anything like that, we didn't have to either. We can actually bring in people from all over the Metropolitan Area, and it doesn't matter. We will actually service people from all over the Metropolitan Area. You can do that, too. Your pest control companies will not – it doesn't matter to them who they're servicing, so you can bring in people from all over, and the pest control companies can do that as well.

Now it's up to you. If you want to restrict it to people from your metropolitan area, that's fine. You can do that. If you want to restrict it to people from your local state, city limits or what have you, that's fine, too. We decided not to. We decided to get the information out to everybody. So we've had people come from across the state line, from outside the city limits, everywhere. It doesn't matter to us. Anybody can participate.

Now the one thing that we have had an issue with, and we do continue to have an issue with, is the fact that because there are insurance issues involved, we have to restrict discounts given strictly to homeowners. We can't give discounts to apartment dwellers or rental units simply because the owners of apartment units and rental units already have contracts with other pest control operators, so we can't give them discounts for that. We can't have different pest control companies going into somebody who's already covered by another pest control operator that has insurance conflict as well.

One thing we did find out that when we were doing and setting up these classes was that when we set up weekend and evening classes is that the rate of no shows was very, very high for weekend and evening classes. Above 50%, as a matter of fact, in some cases. To the point where it was not worth it. Also the security due to the fact that the building is less secure at those times was also an issue. To the point it just wasn't worth it. We just didn't have – we had a high rate of no shows when we set up evening and weekend classes, and it seems very, very counterintuitive, but we had much higher rates of attendance when people would register for the classes when we set it during work hours on weekdays. I can't explain it, and your experience might be different. I can't explain this, but that seemed to be the case, and this is just a little bit of practical observation that we had while we were setting this up. We had people come in. We tried it. It just didn't work so now we're strictly speaking setting it up, and unless we get an overwhelming demand, we're not going to change it. But it just seems like when people make an effort to be here, have to make an effort to be here, they are going to show up. So that's what we've set it up for. We set it up on weekday mornings, and it goes from 10:00 in the morning until noon or thereabouts. Each of the classes takes roughly, with the exams, about two hours to occur.

However, if an organization agrees to have at least ten people on an offsite, or an off-premises site, we will agree to do presentations off site as well. It's got to be ten people. The only difference being that here on site we can do – we can print out certificates and coupons at the conclusion of the class. Off site we can't do that, so we've got to mail those presentations and certificates directly from off site. So that's the only difference between the two, we have to do mail outs afterward, so there's a little bit of a delay afterwards to getting those things off site.

A little bit about the mechanics of the class. One of the things we had to do to get it set up when we were starting up and when we didn't have classes scheduled and, in addition, we had classes scheduled or there was a little bit of delay between classes being scheduled is, you have to get a spreadsheet set up for a list of possible attendees, or a list of possible attendees if you don't want to do that. People need to be informed of upcoming classes.

Now what you should keep on that spreadsheet is a name of the possible attendee. A full address including street address, city, state, zip code so you can do mailings if that's necessary. Phone number and, if possible, an email address in case you want to do a mass email to let people know that there's an upcoming class. And as well as a list of dates and everything to let people know that you have informed them – or keep yourself reminded that you have informed them. Of course, once people do register for classes, you take them off that list and put them into the database, which I'm going to talk about right now.

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As far as the database goes, designing the database needs to be set up as well. Somebody obviously needs to set up a database. It keeps track of both people who have registered and people who have attended the class. People who have registered, the contents of the database includes everything that's on the spreadsheet, the name, the full address, and the email addresses, phone numbers and everything else, as well as who's attended the class – that could be just a check mark – who was passed the test, and as well as people who want to be updated as to future developments and attendance. Those people, the people who want to be updated on future developments, can serve as an audience for a podcast or possible newsletters and/or whatever, I mean, however you want to keep people updated on future developments in the world of pest management or integrated pest management, or whatever's available. As we all know, the Zika problem is going to be an upcoming problem that's coming out in the future, and people are going to want to be kept informed about that.

And then you're going to have to have somebody write and develop your class. PowerPoint presentation slides will have to be written. And somebody is going to have to deliver the class. I recommend somebody that is good at doing presentations. And if you've got somebody out there and educated them on integrated pest management, have somebody sit down with your pest management professionals and talk to them about what integrated pest management is. If they're not familiar with it, there are a couple of places they can go online to get information about integrated pest management. Talk to different people out there about integrated pest management.

They're going to have to go out and – after they design the presentation, they're going to have to go out and get some props. Frankly there's a number of props they're going to have to get. I'd recommend getting them from either their pest management professionals or going to hardware stores or feed stores or other places where they can get these props, but it's very important that they get several props including sticky traps, bait stations including cockroach and rat bait stations, gel baits. Get a flyswatter. Some steel wool. Silicone gel and caulk. Snap traps for both rat and mice. You'll want to get a T-Rex trap, which is another form of mouse or rat trap. It's another form of rat trap. Passive bedbug monitors. Active bedbug monitors. Mattress and box springs encasements for bedbugs.

You'll want to get vacuum cleaner parts and knee-high hosiery, which I know sounds weird, but I'll explain that here in a little bit.

And then some insecticidal dust like boric acid and Diatomaceous Earth. These are all things that you're going to be talking about and demonstrating during the class for your class's edification and information.

We're going to be talking about what's in the class somewhat, so we're going to be talking about, of course, what is integrated pest management? We're going to be talking about some of the basic principles, including exclusion, keeping pests out. We're going to be talking about the importance of identifying pests. You know, pests are different. Not all pests act alike. The difference between rats and mice are very important. The difference between German cockroaches and American cockroaches are very, very important.

Sanitation, you know, like what does clean smell like? A lot of people have no idea what clean smells like, and that's a very important issue to talk about.

The importance of food, water and shelter. A lot of people don't realize that working from specific and safe controls, you do that first as opposed to running around spraying something, running through the entire house spraying something with a can, and then putting the can down and realizing you've been spraying your entire house with ant spray. I mean, these are important factors that need to be considered when talking about integrated pest management.

And then you want to maybe start pounding in actual memes (sp) into their head. This is one of the memes that I try, when I'm teaching a class, try to kind of – pound into their head is probably a little bit brutal, sounds a little bit brutal when I'm talking about it, but, yeah, you want to kind of emphasize these memes somewhat. And that is – this is one of them: The less places pests have to hide, the easier they are to treat. This is very important to get into people's heads so that they can understand what's going on

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when we're talking about integrated pest management. The less places pests have to hide, the easier they are to treat.

Now the next couple of slides I'm going to talk about actually are slides from our class, so these are just kind of examples from the class that you might consider when you're talking about the class itself. And I'll just give you some examples of what I'm talking about to kind of give people an overview of what the class is like so they can get some understanding of what we talk about, what we're trying to get through people's – how we're trying to educate people, how we're trying to let people understand what's going on in the world of integrated pest management.

This will inform them in general about integrated pest management. These slides are just taken more or less not at random from the presentation, but these are some important key slides that help people understand the concepts behind integrated pest management, and feel free to kind of use these as examples that you can use yourself in your slides as well.

One of the things you might want to consider is integrated pest management. What is integrated pest management? Well, integrated pest management means using a variety of methods to control pests in the least expensive ways that cause the least amount of damage.

And here comes one of the memes that I sometimes throw in. Doing the mostest with the leastest, that's the safest and the cheapest.. Doing the mostest with the leastest, that's the safest and the cheapest. It's easy to remember. It's kind of catchy. I'm selling tee shirts and bumper stickers after the show.

So, anyway, it's a meme that you can throw in, and it helps people to remember the concept because you want to get them in their minds that we're trying to use safe methods, safe methods that harm people the least. So we're not like throwing huge amounts of spray up in the air that go everywhere, and it's safe to use, and it's also the least expensive as well.

Integrated – you define integrated meaning using a variety of methods.

Sanitation. Very important. You clean up things before you put out pest control. You repair things so you give pests less places to hide.

You keep pests from getting in by excluding them. You remove food. You use pesticides when necessary. We never exclude pesticides, they're not excluded, they are necessary actually, but we're just using them as part of the puzzle. That's what integrated means. It means using a variety of things.

Pest is anything that lives where you don't want it to be, and I sometimes use the example of a rose in a tulip garden is a pest. It's something where you don't want it to be.

And then management means – it means a lot of things, actually. Covers a lot of things. It's not just – management is the opposite of extermination. Extermination means kill, kill, kill. It means get rid of everything. And frankly, we have to be realistic. That's an impossible goal. You can't kill, kill, kill. It's just not going to work. Kill, kill, kill is not going to get rid of everything. You have to determine what's a tolerable level of a pest. You have to determine, what is this pest? You have to determine, how much do I really want to spend to get rid of it? You have to determine a lot of things about the pest. You have to determine what is it, how do I get rid of it, what do I want to do to get rid of it, what's tolerable – all of these things. Management covers a lot of things. It really means what is the most effective, least damaging action I can do to get rid of this pest, without hurting myself, without hurting the environment, without hurting a lot of different things, what can I do – what's going to be the most effective thing I can do to get rid of this pest. And what's not going to let this pest develop resistance, because that's also very important. What's not going to let this pest come back later on, stronger and better.

And we also talk about why use integrated pest management. Why use IPM? Well, number one because it works. The Boston Housing Authority started using IPM, and then they noticed after about a year that

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their pest control calls went down 68%. That's in a multifamily housing authority, not in a single family housing authority. That's where people are living cheek-by-jowl to each other. If you're living in a single family home, you can control your environment a lot better than they can. You don't have people next door that might not be following good sanitation or something like that. If you're living by yourself, you can reduce that a lot more because you've got a lot more control.

It's sustainable. One of the reasons why we started using IPM in the first place is because pests we found develop resistance. You know, they were spraying crops with sprays, and we found the first year they were very effective. The second not so much. And the third year they didn't work at all. That's because the first year they killed a whole bunch of pests except a few. Well, those few had babies. And those babies were, for the most part, resistant to the spray, so the next year when they sprayed, they didn't kill as many because most of those pests were resistance. And the third year, all the pests that were there were resistant. So that's why they didn't work. That's why they started to use a variety of techniques.

It's sustainable. Pests cannot develop resistance to a bunch of different ways of attacking them.

And also integrated pest management means it doesn't poison the environment or you. We are not using dangerous techniques like they used to. We're not spray, spray, spray, everywhere on everything.

Principles of IPM. You set action thresholds. You know, a single pest isn't always a problem. You don't spray your entire house, or you don't burn your entire house down just because a ladybug came in. Not all pests are harmful, like ladybugs are kind of nice. Just because they made their way in does not mean you want to spray everywhere.

Also, you monitor for pests because pests are different. Not all pests are the same. Rats and mice are very different in their control measures. Brown-banded cockroaches are different from German cockroaches. And American cockroaches are different from both of them. And you have to know the difference.

Prevention. You keep pests from getting in first. You stopped her from getting in by sealing up openings to the outside. You establish a no pest strip around your house. I know, if you're back from the sixties, you remember the old No Pest Strip. It's not the same thing, trust me.

You establish open areas around your house where pests don't find easy ways to dig burrows and things like that around your house.

You open up areas and you keep things clean so that you can see where pests might be and pests don't find easy food.

And then after control, if you do have to use control, you use safe methods that have the least risk. And you work from the most specific to the last resort of the general.

These are some of the principles of integrated pest management.

Pests are always attracted to food, water and shelter. They have to have those three things in order to survive, food, water and shelter. We say if you remove any one of those three things the pests cannot survive. Well, the facts of the matter is you can't remove any of those three things because there's always food, water and shelter. A single drop of grease – and by the way, when you're teaching about pests you need to learn these little factoids because it makes it more interesting for the audience. A single drop of grease is enough to feed 20 cockroaches. I can put my finger down and leave enough oil behind to feed a cockroach. I can put my finger on a desk and leave enough oil behind.

You'll have to learn things like a credit card is – putting your credit card in a crack gives enough space to allow bedbugs to live.

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A pregnant female cockroach can hide in the space the thickness of two nickels.

Rats can squeeze – any rat, no matter how big it is – can squeeze in a hole the size of a quarter because it can actually bend its skeleton. It can actually collapse its skeleton. It has hinges on its ribs that allows it to squeeze into holds the size of a quarter. And rats can, indeed, come right up through your toilet stool.

These are little factoids that make it interesting for your class. And, you know, be sure to talk about the bedbugs' ex life, too. People love that. They get grossed out.

These are all facts that make it interesting for your class. They love it. And it keeps them all interested about the – and keeps them engaged in your class as well.

You talk about carrying capacity. Carrying capacity is a very important slide. This is actually how you talk about – this is where you talk about, you know, if you've got enough food, water and shelter to support 500 cockroaches in your home, even if you kill all the cockroaches except for one pregnant female, just leave one pregnant female behind, pretty soon, after a little bit of time, you're going to have 500 cockroaches again. So if you do nothing but kill all the cockroaches except for that one, pretty soon 500 cockroaches again. That's why you have to remove the carrying capacity down to like ten cockroaches, and that's where you get it down to you're going to have pretty much ten cockroaches all the time. They can't survive where the carrying capacity won't support any more than ten cockroaches. You're not going to have that bad of an infestation.

So we have to talk about that. We have to kind of push this information. And people can understand this. It's not that hard to understand. If you can only support ten cockroaches, that's it. More than ten cockroaches won't survive. It's a key slide, but it's a good slide to let people know about. They can understand that concept and you can get it through to them.

And then you talk about lowering the carrying capacity by sanitation. You have to talk about using soap, water and elbow grease because that's important. You let them know things like elbow grease has never been prohibited by the EPA as an ingredient, it's always allowed. You have to let them know about the clean. Don't use strong, harsh chemicals to clean with because that can contaminate bait, which you also want to use.

Vacuuming cuts down on pest numbers. And this is where you talk to them about how to set up a vacuum properly. Set up a vacuuming by stuffing a knee-high hose down the nozzle of the vacuum cleaner hose and then sticking the crack-and-crevice attachment over it.

And then repair cracks and crevices and seal openings. Don't give them any place to get in, and don't give them any place to hide once they get in.

Don't dry dust or dry sweep. Always use the least toxic method of cleaning. And also remember, nothing smells like clean. Clean doesn't have a smell. That's important to emphasize to them. You know, we've always been fooled by these perfumes and everything smells like clean. Ask them the question, what does clean smell like? Ask them. Say, what does clean smell like? And you'll get all kinds of answers. Oh, smells like pine. It smells like bleach. It smells like ocean breeze, or whatever. They'll always tell you that. Just tell them, no, clean doesn't have a smell. If it's wood, it smells like wood if it's clean. If it's drywall, it smells like drywall. If it's countertop, it smells like countertop. That's what clean smells like. Let them know clean doesn't have a smell. That's what's clean.

So let them know these things beforehand. Keep them involved. Always ask open-ended questions. Ask them open-ended questions and move through your audience, and share with them and keep active while you're going through. This is good presentation skills that you can use while you're doing your class.

Then you also want to use like the clutter scale. Now we have three different clutter scales we use for the living room, the bedroom, and the kitchen. But this is just one example, the clutter scale for the living

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room. And you can use this as – we also use this as a handout – but you can say, this is a clutter scale, and point to number nine and say, by the way, if a pest management professional walks in and sees that your house is a number nine, they're just going to laugh and go to lunch because there is nothing that they can do. Nothing. So this is important to note when they're actually treating your home. There is nothing that people can do when they're actually treating your home. They have to have the clutter down to a bare minimum when treating your home.

The less places pests have to hide, the easier they are to treat.

Another important step is monitoring. Show the difference between the different types of monitors. Sticky traps work for cockroaches. For bedbugs, not so much. Show them the difference between a bedbug monitor and a sticky trap. Sticky traps work great for cockroaches. For bedbugs, not so much. The bedbugs work best with these type of (inaudible) monitors, and there are active monitors as well. And then explain to them what the deficiencies of the bedbug monitors are, particularly the active monitors, which you get to explain when you talk about the bedbugs' love life.

And explain what the difficulties of monitors are. For example, monitors are the early warning system of any pest management. They're not there to kill pests. They are there to let you know that you have pests. You have to explain that to people, and you have to explain the difference. Monitors are in place to let you know that pests are active in your home. They are not there to kill pests. So if you have monitors out, you check them to determine whether or not pests are there. That's the importance of the monitors. They're there just as an observation tool. But it is very important that you use the appropriate monitor during your use of integrated pest management.

Now we oftentimes talk about the specific pests. We do go into the specific pests here. We talk about, for example, cockroaches. We talk about the different types of cockroaches. We talk about the German, the brown-banded, the American, the Oriental cockroach. The American cockroach and the Oriental cockroach being invaders. They come out when conditions are not right outside. The American cockroach comes in when it's cold outside, he likes it hot. The Oriental cockroach comes in when it's warm outside, they like it cool. The German and the brown-banded cockroaches come in when it's – and they like to come in and stay. They're colonizers. They come in and have a lot of babies. They have a lot of babies. And you can start talking about how many babies they have and how they love to have babies, and the babies love to have babies and everything else. They lay egg cases. And you can also start talking about the health hazards. It's not well know, but cockroach moms, a female cockroach, produces about 1,500 units of allergens a day. It only takes eight units of allergens to cause an asthma attack. So every female cockroach out there, every single one, is a walking asthma factory. And if you've got hundreds of cockroaches in the home, no wonder kids are suffering from asthma out there.

But the fact of the matter is that not only are cockroaches producing allergens when they're alive, they produce them when they're dead as well. As well as the waste units called frass. That's cockroach poop and body parts, frass. Looks like pepper, by the way, scattered around cracks. You see it sometimes. Looks like pepper around cracks and crevices. Frass – F – R – A – S – S – that's your word of the day. They will be up against the wall. Those are allergens as well. So you have to clean up frass and the cockroaches even though they're dead, you have to keep cleaning them up. In addition the eggs can still hatch after the mom's dead, so it's important to clean up cockroaches alive and dead, they still have to be removed.

Then we do talk about the methods of control. You want to keep cockroaches from getting in, you want to keep them from getting in, and the cockroaches can come in through a number of ways. You know, keeping door sweeps on your doors. Watching your bags when you bring them in. Watching cardboard boxes. Cockroaches love cardboard boxes. They kind hide in the little corrugations between the cardboard boxes. They can eat the glue.

We talked about baiting. You talk about things that can interfere with baiting. We've already spoken about harsh cleaning chemicals, but smoking also interferes with baiting.

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Sanitation. Keeping things clean.

Vacuuming. I mentioned earlier setting up a vacuum cleaner. But vacuuming is a very important tool that our ancestors did not have, but you can use that to actually knock down a big cockroach infestation. Using a vacuum cleaner to suck up cockroaches alive and dead and then throwing them out well away from the building.

And then we also include instructions for preparing for the treatment. Alive and dead, it works great.

And then in addition to cockroaches we also talk about rats and mice. Now since we do have a rat control program, we also talk about – we only here talk about mice. You may need to talk about rats as well. You're going to be talking about what's the difference. Obviously, rats, much bigger, much more destructive than mice, but the control measures are different as well. Mice are curious. They come and investigate things. Rats are afraid of new things, so you have to control them very differently.

Mice you put out traps and you leave them out for one day, you pick them up for ten days, and then you put them back down again. Traps or baits, either one. Rats you have to leave them out until you see signs of the bait disappearing, and then you either set the traps, or in the case of bait, you have to put out food and when you see signs of the rats eating, that's when you put out baits. So just a real quick schooling in how they're different from each other.

Rodents are very important because it's estimated that rats and mice contaminate or eat up to one-third of all of the food produced in the world every day. And here's a little bit of trivia for you. Do you realize that rodents are one-third of all the mammal species? So they're very successful animals.

Rats and mice are very much health hazards. Not only are we talking about asthma, but they also don't wipe their feet before they walk on our food and on our food prep surfaces, so they spread all kinds of diseases. Cholera, Leptosperosis, salmonella, they're spreading them all out there. And they poop and pee everywhere they go.

So we talk about the different preparations, the preparation for treatment. We also include that in any handouts that we give out when we are setting out these classes as well. We give those preparation treatments as well. You might have to, again, set out – include rats in your treatments. We don't, but you may have to.

And then we also talk about bedbugs. Bedbugs, including what they are, what they eat, which in this case is blood. That's all they eat. Why anybody can get bedbugs. And this is something you may have to overcome because a lot of people – I still get phone calls – people call me up going, well, I'm clean, I don't understand why I get bedbugs. And you have to emphasize to people it does not matter. Anybody can get bedbugs. They're hitchhikers. They come in and all they want is your blood, so it doesn't matter how clean you are or how dirty you are. Anybody can get bedbugs.

The other thing is is you've got to emphasize to these people especially that are coming in for treatment that you have to find a live bedbug before treatment can be done. It doesn't matter if you've been bitten a thousand times, you have to find a live bedbug. Because a bite is a bite is a bite. A lot of things bite and they all look alike. Even doctors cannot look at a bite and tell that it's a bedbug bite. They have to find a live bedbug.

We talk about the advantages and disadvantages of heat and chemical treatments. And we also talk about vacuuming because, frankly, some of these people, even though they're getting a discount, can't afford the treatments. So they have to learn how to handle the treatment of bedbugs on their own. And vacuuming can be a real godsend as far as that goes, along with putting on mattress encasements, sealing up cracks and crevices, giving the bedbugs less places to hide. Like we talked about before, the less places they have to hide – see how putting that meme in there in your head – the less places they

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have to hide, the easier they are to treat. All those things. Putting on Diatomaceous Earth, which works on bedbugs to some degree.

And then preparing for heat and chemical treatment from your pest management professionals as well. These are all things that have to be distributed when giving your instructions to your class.

These are the list of class handouts that we give out to the classes as well. We give a general information sheet for integrated pest management, information sheet for every pest discussed. If you have pests that are bothering your class that I haven't discussed today, you're going to have to discuss those pests as well. Vacuum setup instructions. As I mentioned before, we're talking about vacuums with the hose, with hosiery stuffed down there to serve as a pocket to catch pests that you suck up.

Clutter scale photos for living room, bedroom and kitchen. I always include those.

Preparations, instructions as approved by your participating pest management. They're generic from all pest management companies. And then a list of pest management companies for those who pass their exams.

And then as far as the exam goes, it's an open book exam of about 20 to 25 questions, multiple choice. It's difficult to make the participants feel that they passed something but not so hard that the vast majority don't pass it. Frankly, I've never had anybody not pass. It's not an easy test, but it's not so hard, most people can pass it. And then I tend to go, by the way, this might be on the test, whenever – kind of underscoring it when I'm going to the test so that people know what's on the class.

As far as the lessons go, this is not a 100% solution to the problem. It's a start. As far as we go, we don't directly address the problem of rental units and apartment dwellers. The knowledge helps everybody, but no direct help is given to people due to the insurance issues. Because of that, direct treatment is going to have to come through a different route. The different route might be through legislation. For example, bedbug notification is a really simple bit of legislation that should be enacted, in my humble opinion, and probably something that you would recommend to your local legislators as well. I mean, just notifying people that bedbugs have been present in the unit as well.

And then rental unit inspection is something that we're working on here in Kansas City and I think should be enacted as much as possible. Again, my opinion. It's completely up to you. But this is something that can be enacted, and should be enacted as far as I'm concerned.

As far as that goes, this is my contact information. If you want to get in touch with me to ask further questions, please feel free to do so. This is my contact information right here. My name, again, is Michael Swoyer. I'm the Supervisor of Rat Control with the Kansas City, Missouri Health Department. And that's my phone number. And that's my email address.

Thank you very much for attending today. It was my pleasure speaking with you, and I hope you enjoyed this presentation. And I'll leave you with that. Have a great day, everybody.

Thank you, Michael. And thank you, everyone, for attending today's webinar, Scratch That Itch: Exterminating Bedbugs Through Partnerships With Private Enterprise. On behalf of the National Environmental Health Association and our presenter, thank you for joining us today.