

Making a Scientific Presentation: You Can do it!

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Stand Up and Make a Contribution

Non-traditional pet, wildlife and zoo veterinarians have a long and lustrous history of practitioner-driven research and dissemination of knowledge, the reason for this is that these fields of veterinary medicine were not quickly embraced by universities. As a result, the only way that practitioners could overcome the challenges associated with the vast array of new species they were seeing was to do their own research and grow the field by sharing their experiences. Circumstances have improved, but challenges remain. The medicine of non-traditional pet, wildlife and zoo animals, because of its immensity, the relatively small number of people practicing it, and limited research funding, still lags behind the medicine of more traditional pet and livestock species. Therefore there remains a need for private practitioners to publish and present their observations. Will you be one of these pioneers? You should be. There is no doubt that you have recognized new diseases or have developed new treatment approaches from which your colleagues would benefit, if they knew about them. Presenting this material at a meeting adds to the body of knowledge in our profession, and provides you an opportunity to grow your knowledge base (become an expert) in this field. It is the purpose of this manuscript to help the practitioner to write a manuscript for the proceedings of a conference and to assemble and give a presentation.

The Discovery (New Information)

The first critical element for a successful presentation is that it contains a previously unrecognized discovery. So you think that you have found something new. How do you know? Proving this requires that you become an expert in the field and to do this you will need to comprehensively review the relevant literature. A good way to start a review of the literature is to find a recent review on the topic. This review can be in a peer-reviewed journal, a journal that specialises in publishing reviews, or in some cases, a well written textbook. *Veterinary Clinics of North America*, *Exotic Animal Practice* is a good place to start for many topics. A good review will identify important papers and references that relate to the topic and will also help to identify other germane journals and proceedings

that need to be searched and authors who are publishing in this area. It is impossible in this day and age to do a comprehensive review without using electronic data bases. If you are not familiar with how to use them or do not have access to them, seek help. One of the great things about using electronic databases is that when an article is opened, often the database will provide a list of other similar articles that you might not have considered.

The second critical element for a successful presentation is that it contains sufficient evidence that conclusively proves that a discovery has been made. This means that case reports or series of cases must be logically and thoroughly investigated. This generally means going above and beyond what one would typically do in practice, requiring that you use some of your own resources to fully document the case. For instance, if you have a new treatment for a form of liver disease, a liver biopsy prior to treatment characterizing the lesion and another after treatment showing resolution of the lesions are necessary. Complete workups, including complete blood counts, biochemistry panels, and routine and possibly even advanced imaging are required for many case presentations. If an animal dies, a thorough, well documented (with images), gross post-mortem and histological examination is required. If you find yourself with a long list of things that you should have done diagnostically, then it is probably not the best case or series of cases to present.

To fully document your discovery, it may be necessary to work with another investigator. This other investigator might be a pathologist, virologist, microbiologist, surgeon or internal medicine specialist.. These investigators may assist you in your literature review and can often provide services such as molecular diagnostics, pathogen isolation, and imaging techniques that are otherwise not available to you. They may be able to work with you in exchange for co-authorship on the paper or they may help you on a fee for service basis. Remember while this is a partnership, you are still the lead investigator and you should be completely familiar with all aspects of the research and prepared to answer any question that might arise about your presentation.

The Manuscript

Type of manuscript

There are four types of manuscripts/presentations that are typically presented at conferences. From least to most complex, these are case reports, reports of a series of cases, experimentally-based research reports, and literature reviews. This manuscript will cover writing and presenting the first three. Writing a good literature review, while a noble cause, is an art form unto itself. It is best done by someone who is working in the field, but can be done by someone who wants to become an expert in a new field if they are willing to devote the time and effort required.

Style

Writing a manuscript for publication is not easy and if done properly takes more time than would first be imagined. It requires careful organisation and outlining before writing begins and critical self-assessment in all stages of writing. Inevitably good manuscripts go through multiple iterations before they are submitted. One of my best graduate students had 38 versions of one of their manuscripts before it was submitted.

For first-time or even highly experienced writers, there are two steps that make writing easier and outcomes more successful. The first is to go to the Instructions for Authors and follow them precisely. The guidelines for the Association of Avian Veterinarians Australasian Proceedings can be found [HERE](#). The second is to find one, or better, a few papers, that are well written. Dissect them, develop an understanding of how they were constructed, and shamelessly copy their style. There is nothing wrong in using a format that works. I find that most people who write a scientific manuscript for the first time think that they know what they are doing, but do not, and would benefit greatly by following the style of an experienced writer.

The next key to a successful manuscript is proper structuring of paragraphs and the ability to link one to the next. One cannot write a paper like an email. All paragraphs must have an introductory sentence, one that makes a bold statement, supporting sentences and a concluding sentence. No paragraph is an island unto itself and the next paragraph must link to the previous one. Anything less is unacceptable. This means that you will never use dot points in the body of a scientific publication. This also means that you cannot have a paragraph that consists of only one or two sentences

Given that a paragraph is composed of sentences, then proper sentence structure and grammar is essential for a quality paragraph. Short punchy sentences are better than long ones. Do not write in the first person. So instead of saying that “We undertook this study because ...,” say

the study was undertaken because ... Use plain English wherever you can. For example, new works just as well as novel and caused by human activity are just as good as anthropogenic. Do not make generalisations, instead be specific. For example instead of using words like many or a plethora of, provide the actual number. And never tell your audience what to think. Again as an example, do not tell someone that “it is important to remember that ...,” your readers will decide this and they might not agree with you. Lastly, remember that proofing your own work is hard. One way that works for me that helps in my own self-assessment is to set something that I have written aside and then to come back to it a day or two later. Having someone read what you have written who is honest and frank is even better.

Literature Review/Introduction

Somewhere in your manuscript you will have a review of the literature. It will be in the Introduction for a research article or case series. It will come near the beginning of the discussion in a case report. The purpose of the literature review is to bring the reader up to date with what is already known about the subject, identify the gaps in the knowledge of the material, and let the reader know how your work will address these gaps. A well written literature review will both inform the reader and convince them that the work that you have done is important.

Writing a literature review is challenging. A literature review is typically only four to six paragraphs long and is even shorter in a case report. This can be very frustrating, as after doing all the reading to prepare for a paper, there is an overwhelming desire to cram every bit of knowledge that has been acquired into it. Instead, a careful selection of the most important and relevant material is required.

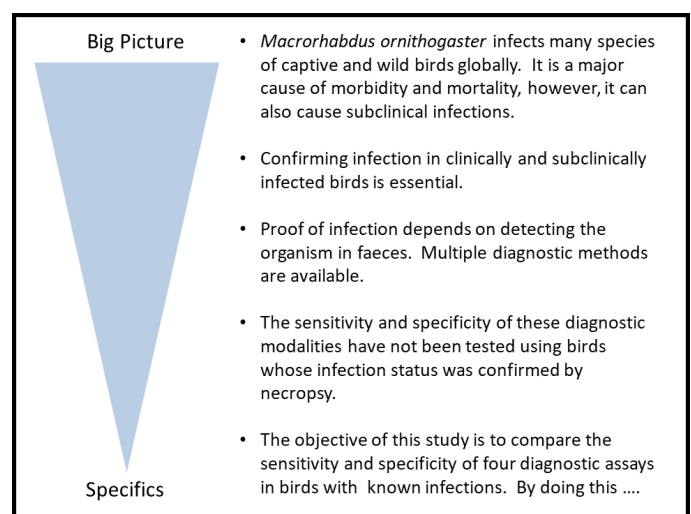


Table 1: Hypothetical outline for the Introduction of a manuscript on comparing diagnostic techniques for *Macrorhabdus ornithogaster*, demonstrating how the Introduction goes from big picture topics to specifics.

The literature review can be thought of as an inverted

pyramid. It begins with very general comments about the topic and then narrows down quickly to the material that is most relevant to your study and findings. Table 1 shows an example of an abbreviated outline of a literature review for a paper on assessing different diagnostic methods for determining infection of a bird with *Macrorhabdus ornithogaster*. It makes the case that the article is important because it immediately states that the pathogen being studied is a worldwide problem, it has a wide host range, and it causes disease. The focus quickly narrows to diagnosis of infection, providing information about how infection can be diagnosed and identifying gaps in knowledge about the sensitivity and specificity of these diagnostic assays. It ends with a short summary of the objectives of this research.

Perhaps equally important as to what is in the outline is what is not in this outline. It would be tempting to put in a history about *M. ornithogaster* and the fact that it was first recognized as a yeast, then thought to be a bacterium, before ultimately being proved to be a yeast. Also, it might be tempting to talk about treatment options or go into more detail about the kinds of disease that it causes. These points, however, are not necessary and are distracting given the focus of this article is on treatment. In consideration for the readers that might want to get a more detailed understanding of the topic, reviews can be included in the references in the introduction.

Materials and Methods

In a research-based manuscript and case series there will be a Materials and Methods section. Properly done, this section will allow a reader to go back and repeat the experiments done in the paper or understand how you assembled your data in a case-series manuscript. Balance between what is necessary and what is too much or not enough is paramount. Finding several manuscripts that have done similar types of investigations and that have been published in the same journal to which you will submit the manuscript will give the guidance needed to create this balance.

Organizing your Materials and Methods into sections that are in a logical order will make it easier to organise the Results and, sometimes the Discussion. Typically the titles of the subsections of the Materials and Methods are the same and in the same order as those of the Results. Table 2 is a hypothetical outline for a manuscript outlining the Materials and Methods for an investigation into a virus outbreak in an aviary.

Results

Your results will contain the same subsections as your Materials and Methods. Data can be presented in text, tables or figures. Van Wilson, one of my PhD advisors, once told me that in most manuscripts there will be one table or figure for each subsection of the results and this

1.	Case history	<ul style="list-style-type: none"> • When did the outbreak occur? • Where did it occur? • Relevant background of the collection, e.g., species composition, aviary design, diet, hygiene procedures, and movement of birds in and out of the collection.
2.	Antemortem diagnostics.	<ul style="list-style-type: none"> • Physical examination procedures • Haematology, biochemistries, imaging, and cytology.
3.	Postmortem diagnostics.	<ul style="list-style-type: none"> • Necropsy and histopathology • Electron microscopy • Attempts at bacterial and viral isolation.
4.	Molecular detection and characterization of the virus.	<ul style="list-style-type: none"> • PCR assay used to confirm that a virus was in the tissues • Sequencing of PCR amplicons and phylogenetic analysis of the viral DNA/RNA.

Table 2: Hypothetical outline for a Materials and Methods Section for an investigation into a virus outbreak in a collection of birds. The same headers for each section would be used to structure the Results.

has served me well. Whether you use a table or figure to show your results, each subsection contains some written material. A common error is to duplicate the data presented in tables or figures in the written section. Tables and figures contain analysed data and not raw data. As an example, it might be that packed cell volumes were obtained on multiple animals. It would not be appropriate to have a table with each animal's individual results. Instead, present the data as a graph showing the range of the packed cell volumes, or as part of a larger table looking at other haematological values where the mean and range of the packed cell volumes are recorded. Well-constructed tables and figures provide a big picture story to the reader at first glance.

It can be challenging to know what to include in the Results and what to omit. A good general rule is that the data should add something to the story that is being told. As an example, repeated complete blood counts and biochemical findings may be available for a case. If they show a trend that tells a story, then presenting them in a table or figure is appropriate. If not, briefly summarizing the findings in words would be better. If only one or a few analytes are relevant, again describing their changes in words would be better than confusing the reader with a lot of data that is not informative. Lastly, never discuss the implications of the findings in the results. Don't,

discussion is for the discussion.

The Discussion

I have found that the best way to organise the discussion is to start by reminding your readers about why you have undertaken this study. Remind them of the gaps in knowledge that you intend to fill and how important it is to fill them. This typically can be done in the first paragraph and the outline of the first paragraph then becomes the outline for the introductory sentences in the following paragraphs. Subsequent paragraphs highlight how your findings have filled one or more of the gaps that you have identified. This often means that you will discuss how your work supports or refutes what others have previously mentioned (Table 3).

- **Section 1 (Introduction):** Review of the importance of this work and its objectives, e.g., information gaps that are to be filled (One paragraph).
- **Section 2 (Convincing findings):** Interpret the findings, identify their significance, and explain how they relate to the findings of others (One or few paragraphs).
- **Section 3 (Findings with incomplete explanations):** If you have findings that are not fully explained, discuss them here (One or a few paragraphs).
- **Section 4 (Next steps):** Outline how the findings of this report should shape future investigations (One paragraph).
- **Section 5 (Conclusion):** This should be a precise and concise and insightful summary of the findings and significance

Table 3: A recommended outline for a discussion section for a research- or case-series manuscript.

Not all findings are unequivocal. As a result, the second section of the discussion can be used to focus on the multiple possible explanations for your findings. Often, at this point, it is realised that had more or different data been collected, some of these ambiguous findings would have been explained. Although it has been suggested by some, resist the temptation to have a section on the “limitations of the study.” If the paper contains sufficient findings to be meaningful to the reader, then a section on limitations only serves to distract from its significance. Instead, incorporate these so-called limitations into the next subsection on areas for future research directions.

Another important guideline is to stay within the data zone. It is always tempting to over interpret one’s findings and go out on a limb when stating their significance. It is better to stay conservative in the interpretation of your findings, than to have your paper rejected, or to face some hard questions at the meeting. This is also the case when discussing incompletely explained results. You are the expert in this field. Your audience is depending on you to sort out the wheat from the chaff. Provide your audience

with a short list of likely explanations for these findings. A common error for authors is to make an exhaustive list of possible reasons for incompletely explained results. Often these lists contain extremely unlikely explanations that do not reflect higher order thinking and diminish your credibility

Good research generates more questions than it answers and a good research paper, at the end of the Discussion, highlights the new questions that are raised by the study and suggests a way forward to answer them. Hopefully, this is work that you are already undertaking. This is also a place where you can address the things that you would have liked to have done, but did not think to do at the time or did not have the resources to do. So retrospectively, it might have been desirable to get CT images of your cases. Future investigators could be encouraged to do this.

The conclusion is the last section of the Discussion, or for some journals, it is a separate section. In either case, this is the final chance to summarise your findings. A good conclusion is short and sweet. It highlights the important findings, but it is not redundant. There is a tendency for novice writers to put new information in the conclusion or to bring up new issues that were not discussed earlier. Avoid these temptations.

Elements that are Specific to the Case Report

Most case reports have only two sections, the Case Report proper and the Discussion. The case report is written in much the same way a medical record is written. The Discussion will begin with a brief literature review and then follow the same structure, but with less detail, as the Discussion section of a research study or report on a series of cases.

The Case Report

The Case Report is a combination of Materials and Methods and Results. It is written like a good case record and is readily organised as it follows the time line of the case from presentation to resolution. It will largely be composed of text, but will also contain figures such as images of lesions, procedures, radiographs, cytologic findings or post-mortem findings. The major challenge of writing this section is sorting out what material needs to be included and how to present this material so it is most easily communicated to the reader. In general, present the significant and relevant findings. Do not list all the negative results. So, as an example, if a complete blood count was done, rather than have a table of normal results, it is better to highlight the abnormalities, e.g., a CBC was done and the bird was found to be hypoproteinaemic (17 mg/l, normal range 32 to 40 mg/ml) and anaemic (PCV 15%, normal range 40-45%). Uncommonly, there are occasions when highlighting the absence of a lesion or finding is relevant. For example, if a bird presents with blindness and you do a complete ophthalmologic examination and do not find structural defects, then

this should be noted. Another example is if you have a polyuric bird and glucose was not found in the urine, this is also data that the reader would consider important and should be emphasised.

In some instances, the treatment given to an animal is not appropriate based on the subsequent findings in the live animal or post-mortem findings and frankly this can be embarrassing. It can also be embarrassing if an important differential is not considered. If, however, the case is still worth publishing, then a detailed history of treatment and list of differentials can be left out leaving the focus on the other important findings.

Unlike the results section in a research article, there is room in the body of the case report for some discussion about the implications of the findings. Just like your case record, where you have an interpretation and a differential diagnosis section, including a paragraph on the interpretation of findings at any stage in the case report educates the reader and helps the reader to understand why additional diagnostics were done and why treatments were selected. Again, following the style of published, well written case reports is the best approach for the first time author.

Discussion

There appears to be as many ways to write a discussion for a case report as there are authors. One that seems to work is to use the first paragraph to highlight what you have just described and its importance. Subsequent paragraphs act as a literature review of the topic. Most authors then use the remainder of the discussion to relate their findings to the literature and discuss any unresolved issues that arose in the course of the management of their case. Conclusion sections are not often included in a case report, but a summary sentence or a few summary sentences highlighting the significance of the work are common at the end of the discussion. Overall typical discussions are between four and seven paragraphs long.

References (All Writings)

Typically a research paper and a case series paper have between 25 and 50 references. The number of references for a case report varies between 15 and 25, but can be more. A review paper will have a minimum of 75 references and often many more. Not all references are created equal. The bulk of the references (80% or more) in any publication are from peer-reviewed journals and represent original research. Articles from proceedings can be used, but with discretion and on a limited basis. Online material that might come from a government or private source, such as climate data or information on the number of cases of botulism reported in a year, is also an acceptable reference. Textbooks and most other online resources are generally not acceptable references. Reviews in peer-reviewed journals can be used but should be used with caution. If the review presents new insights

into a topic, then referencing the review is appropriate. If the review only describes what others have found, reference the original article and not the review. Many journals want their authors to focus on the most recent literature and expect that most references will have been published in the past 5 to 10 years. It is my opinion that if a paper reports on material that moves a field forward, it does not matter when it was published, if the information in it is relevant to your manuscript then it should be referenced.

Improper referencing and sloppiness in the reference section is a common problem with manuscripts and can reflect very poorly on the author. Common problems include too few references, too many references, and references that are not appropriate. If you are describing something that someone else discovered it must be referenced. If other people also report the same thing, pick the most relevant ones, but it is not important to include them all. Make sure that your reference is appropriate for the information that you are referencing. I recently reviewed a manuscript where avian endoscopy was said to be a risky procedure. The reference was a case report on endoscopy in a budgerigar. This was not an appropriate reference, however, a retrospective study on the prevalence of the complications of endoscopy in birds over a 10 year period with hundreds of cases would have been. Read your references critically. In the end, you might not agree with the conclusions of the author or authors and may choose not to reference them. Lastly, if times have changed and the current understanding of a topic is different now than it was, it is not necessary to go back and reference material related to the previous understanding. For instance, it was once postulated that Psittacine Beak and Feather Disease was caused by adrenal disease. That was fine then when we were still searching for a cause, but it would not be included in a paper now.

Getting the reference style correct in the reference section is challenging. The first step is to follow the guidelines for the journal precisely. If there is uncertainty about the specific style for an unusual type of reference, check recently published manuscripts and see how it was done in them. Proof read the references over and over again. It is very easy to make mistakes and very hard to find them. Reference managing programs are fantastic. However, they do not always get everything correct. So, if you are using one, it is still necessary to check and make sure your references meet the journal's style.

Abstract, Key Words and Title (All Writings)

The abstract is a shrunken down version of the paper. It starts with a single sentence, rarely two, that explains the importance of the study. Next a summary of the material and methods is provided, which is followed by results and a concluding sentence that highlights the importance of the findings. It is one paragraph. Depending on the

journal abstracts it can vary from 150 words to 500 words with 250 words being the common length.

The key words are there so others can find your work when they do an electronic search. Most manuscripts will have approximately eight key words. Think of the key words that you used when doing your electronic search for your literature review. Key words should be put in alphabetical order. So, for instance, if endoscopic desexing male emu is the focus of the research, then key words are: Efficacy, emu, endoscopic, desexing, *Dromaius novaehollandiae*, vasectomy.

After you have completed everything else, decide on the title of your paper. Most titles are around eight to 15 words long. The title does not have to be fancy and should be direct and to the point. There is a tendency for authors to create catchy titles, this is not necessary and is distracting and not recommended.

Authors and Acknowledgements (All Writings)

There are very specific guidelines as to who should be an author on a paper or presentation and who should not be an author. A discussion of what authorship is and its importance has been created by the [International Committee of Medical Journal Editors](#). Basically, an author must make “substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work.” All authors must contribute to the manuscript either in its writing or as part of its critical review. Those that contributed to the work, but do not meet the requirements of being an author should be recognized in the Acknowledgements at the end of the manuscript before the References. For instance, a person from a commercial laboratory might be consulted on the interpretation of laboratory findings, or friend might have been asked to proof read the manuscript for grammar and typos and both these would deserve acknowledgement.

The Presentation

Content

The content and organisation of the presentation is the same as the content and the organisation of the manuscript. It differs in that it is adjusted to the time that is allotted to the presentation and the material is presented in a manner that is easily visualized and assimilated by the audience. The presentation is only as long as the time allotted to it. Running over is not acceptable. Getting done with time to spare is OK and might even be appreciated by your moderator. A good rule of thumb is that the number of slides should be equal to the number of minutes that you have to present. Eight minutes equals eight slides.

The first slide is the title slide (Figure 1). It should contain the title of the presentation and all of the authors. It often contains the logo of the authors’ institutions.

Putting the logo here saves time as it means that the affiliations do not have to be read out allowing more time for the important parts of the presentation. A good moderator will introduce you and the title of the presentation. If they do, you do not need to repeat this and can move directly to your next slide.

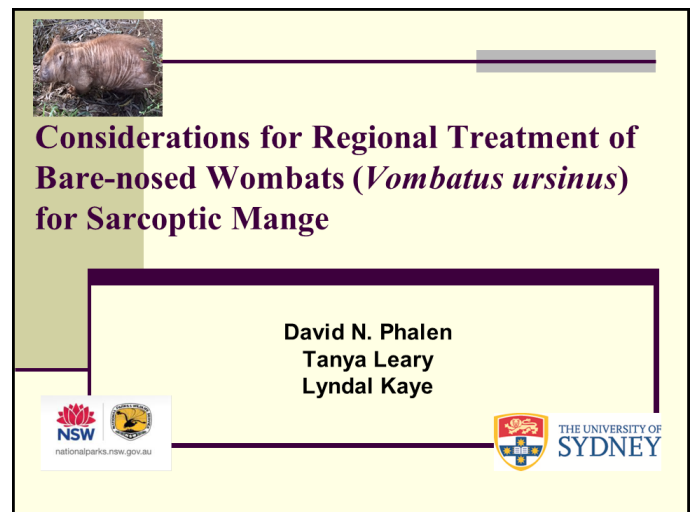


Figure 1. Example Title slide

What comes next will depend on whether it is a case presentation or a research article. Follow the outline of your manuscript. If it is a research article there will be an Introduction, Materials and Methods (Figure 2), Results (Figure 3) and Discussion (Figure 4). If it is a case report, there will only be two sections, the Case Report proper and the Discussion/Conclusion. Make sure that each slide has a title at the top that is relevant to rest of the slide. These titles in the body of the presentations are like the introductory sentence in the paragraph. For a clinical case, an example title might be, Case Report: Clinical Pathology Findings. For a Research Report a slide title might be: Adenovirus Associated Histological Changes. There will never be sufficient time and number of slides to include everything that could be included, so focus on brevity, succinctness, and level of importance.

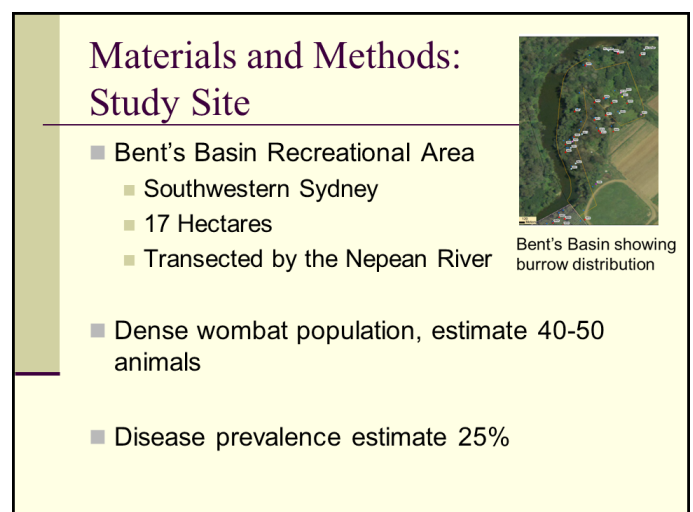
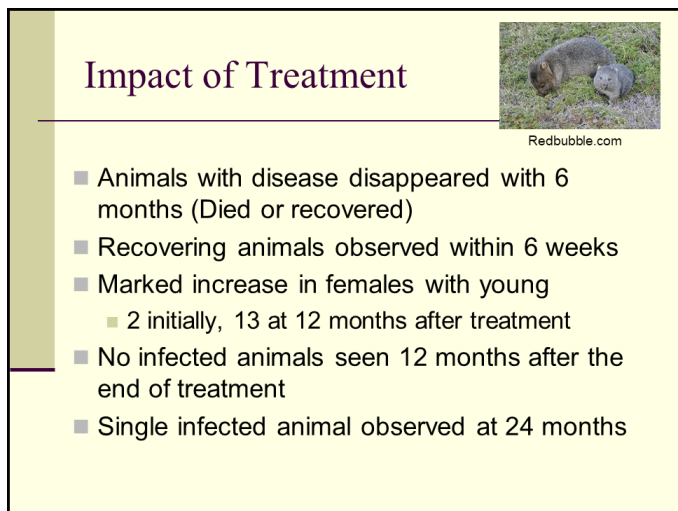


Figure 2. Example Materials and Methods slide

Ruthlessly cut out unnecessary material. In a case report, focus completely on the abnormal and relevant findings.

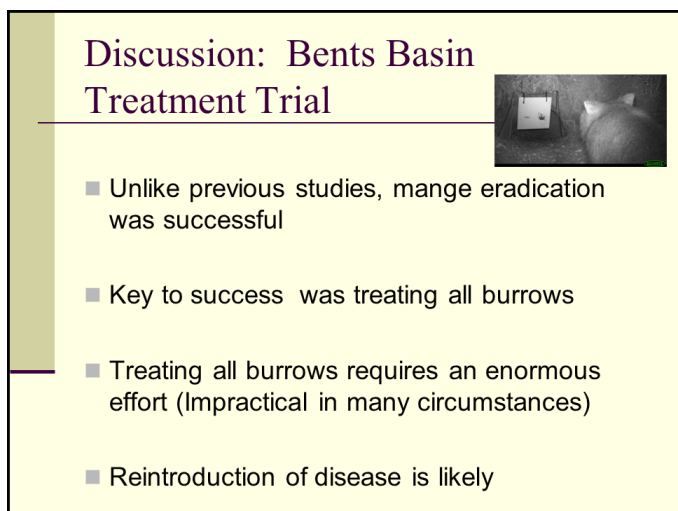
For research-based studies, only the absolutely most important elements of the background information are included. As an example, if the paper was about adenoviruses in parrots, general information about adenoviruses in other species of animals or even in other species of birds, for instance chickens, is likely to be too much to include. The Materials and Methods section will also be bare bones. As an example, rather than saying a complete set of tissues was collected, formalin-fixed, paraffin-embedded, sectioned at 4 μm and stained with haematoxylin and eosin, just say that tissues were examined microscopically. If the audience wants to know more, greater detail is present in the written manuscript and they can find it there.



Impact of Treatment

- Animals with disease disappeared with 6 months (Died or recovered)
- Recovering animals observed within 6 weeks
- Marked increase in females with young
 - 2 initially, 13 at 12 months after treatment
- No infected animals seen 12 months after the end of treatment
- Single infected animal observed at 24 months

Figure 3. Example Results slide



Discussion: Bents Basin Treatment Trial

- Unlike previous studies, mange eradication was successful
- Key to success was treating all burrows
- Treating all burrows requires an enormous effort (Impractical in many circumstances)
- Reintroduction of disease is likely

Figure 4. Example Discussion slide

The Results for a research article is most easily organized around the figures that are in the manuscript. Have one slide with a figure for each section of the results. Sometimes it will be necessary to have more than one slide per section, but not often. The best figures will allow the audience to immediately see what is being shown. If the message associated with the figure is not immediately evident and it requires a detailed explanation to interpret, modify it to make it easier to understand. Remember, there will only be one minute for the audience

to assimilate and interpret what the slide means and the lecturer's explanation of it. The best case reports are also designed to keep the audience's attention. They typically contain images of the patient, lesions, radiographs, ultrasounds, and surgical procedures. If the patient dies, then gross and microscopic lesions are included.

There will be places in a presentation where it is necessary to convey information using words rather than images and figures (Figures 2, 3, and 4). When using words, brevity and succinctness, again, are most important. The worst thing possible is to write out everything that is to be said on the slide. If you do this your audience will hate you. Instead, only include the highlights and now it is ok to use incomplete sentences and dot points to do this. Good presenters use the words on the slide as an aide that the audience can use to follow what the presenter is saying and see the bigger picture and important points of that section of the presentation. A good word slide is like a good figure or image; a glance at it will immediately provide the audience with the points that are being made.

The Discussion/Conclusion contains slides that will be mostly words (Figure 4). The contents will be the same as these same sections in your manuscripts. The difference is that each paragraph will likely be represented by one or possibly a couple of lines. The same rules apply here that have been discussed before. Focus on the positive, show how this work fills in previously identified gaps in knowledge, relate the findings to the literature, don't over interpret your data, and point the way to future investigations.

Just like the manuscript, if discoveries of others are described, you need to reference them. There are different ways of doing this. One way is to list all the references on a slide at the end of the talk. Typically when this is done there are several references, they are crammed into one slide in print that is too small to read, and there is no time for or interest by the audience to read them anyway. Do not do it this way. Instead, put the relevant references on the slide in an extremely abbreviated format, such as Carr, et al., 2009. These can be put at the end of a dot point or at the bottom of a slide in a separate textbook. Mentioning these authors' work during the presentation is a nice thing to do if you have time. As an example a sentence could read like this: The first case of this disease was originally described by Carr et al. (2009).

Aesthetics of the Slides

The design of the slide show (background, colour of the words, size of the words, use of motion) will greatly impact the quality of the presentation. PowerPoint[®] is the most commonly used program for making slide presentations, but there are others. All programs have many different options for backgrounds and colour combinations of words. Look through them and pick out the one that best appeals to you. Some simple rules provide guidance in slide design. The background and letter colour should create a bit of visual stimulation, but not distract from the

presentation. The addition of an image of an animal, virus particle or other image on the slide can also help to keep the audience's attention. These can be the same in each slide or change over the course of the presentation. Custom backgrounds can also be made. Some very effective ones are images of animals that are faded so that the image can be seen, but it does not distract from the lettering. If an image is used that is downloaded off the web, or provided by another person, then it must be acknowledged on the slide the first time that it is shown. There are many options for putting motion into the slide program. Words and images can be made to move across the screen or fade in and out. In general, motion is distracting from the presentation, so it is recommended that it not be used. If you are employed by an institution that is concerned about their brand, you may be required to use slide templates designed by that institution. Check with your institution before you begin making your slide presentation.

There are a number of common mistakes that people make when preparing a presentation. The most common is putting too many words on a slide and using a font that is too small. If too many dot points are put on a slide, the program shrinks the font to make sure that they fit on the slide. Each time that indent is used for subheadings the font also decreases. Therefore, it is best to maximally have 5 dot points per slide (Figure 2) and only indent once under each dot point. If there is a need for more dot points, then create another slide under the same heading. If these rules are followed then the audience will be able to read the slides. Another common mistake is to use images that are not related to the presentation. As an example, on several occasions I have been to scientific talks where the presenter put pictures of fish that they had recently caught in their presentations. This sort of thing distracts from the talk and focuses attention on the presenter and not the topic

Giving the Presentation

The next to the last element of a successful presentation is the delivery. In an ideal presentation, the presenter speaks in a normal voice, at an even pace, and makes eye contact with the audience. To achieve these goals, it is critical that the presentation be practiced over and over again in advance. Practice audiences can include the dog, spouse, partner, and/or colleagues. The more times that it is given and more the people who hear it provide feedback before it is given the better it will be. Presentation styles vary from memorizing the entire presentation to reading the entire presentation. The latter is not desirable, but is acceptable if nerves are a factor or if you are presenting in a language that is not your first language. The most common method of presentation is to have typed notes for each slide that remind the presenter of what to say next. In the bulk of venues, the presenter's slides will be on a computer that the presenter can see and the slides may be sufficient reminder to the presenter of what to say. Do not look at the big screen. That is there for the audience. Instead follow the talk from the computer screen, this allows the presenter to glance down as needed but to continue to keep eye contact with the audience. Laser pointers are

often provided and it is tempting to use them. Do not use them as it may mean that it will be necessary to step away from the podium and it will require turning your back on the audience. Instead use the mouse on the computer as a pointer.

Other things can help to ease stress and improve the presentation. Getting the presentation to the moderator early before the session starts and making sure that all of the aspects of the presentation work on the conference computer can prevent disasters. Also, use this time to become familiar with the podium, microphone and computer controls. Talk to the moderator about how the introduction will be done, so that you will know if you need to introduce yourself and your topic or can just launch into the presentation. Dress professionally; your audience will take you much more seriously if you are serious about your appearance. Lastly remember two things: you are the expert on this topic and secondly you are among friends and colleagues who are there to support you, not to judge or criticize you.

Questions

There will be questions. In the moment it can be difficult to answer them. To make answering questions easier, think about possible questions long before the presentation and develop answers in advance. One trick that allows presenters a moment to think before they answer is to repeat the question back before answering it. Another is to start off by saying, "Now that is a very good question and we have considered that point." By doing this, it allows some time to formulate an answer and makes the questioner feel important. In some instances the question may be way off the topic. In those situations, it is reasonable to ask the questioner to put the question in context or to explain why they thought to ask that question. Remember they are probably a bit nervous as well and giving them time to think may allow them to reformulate the question so it is easier to understand. If you cannot answer a question, it is fine to say that you do not know and that you will look it up, think about it, and get back to them. Also, if the question requires a complex answer, an extended discussion, or heads in a direction that might not interest the audience it is suitable to suggest that it be addressed out of session. In some venues, the entire audience will not be able to hear the question. In this situation be sure to repeat the question before providing an answer. In the end, remember, you are the expert and most familiar with your work, so in most instances, answering the questions should be straight forward and easily done.

Final Comments

Presenting at a meeting is challenging and requires hard work if it is to be a quality product. It is also rewarding and provides an opportunity to grow your knowledge and become an expert in a field, develop new ways of thinking, and improve your communication skills. Most importantly, you will be helping to build the profession, improving the health and welfare of animals worldwide. How many people can say that?