

100 Top Consultations
in Small Animal General Practice

PETER HILL, SHEENA WARMAN, GEOFF SHAWCROSS

WILEY-BLACKWELL

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WILEY-BLACKWELL
A John Wiley & Sons, Ltd., Publication

This edition first published 2011

Blackwell Publishing was acquired by John Wiley & Sons in February 2007. Blackwell's publishing programme has been merged with Wiley's global Scientific, Technical, and Medical business to form Wiley–Blackwell.

Registered office
John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, United Kingdom

Editorial offices
9600 Garsington Road, Oxford, OX4 2DQ, United Kingdom
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2121 State Avenue, Ames, Iowa 50014-8300, USA

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Library of Congress Cataloging-in-Publication Data

100 top consultations in small animal general practice / edited by Peter B. Hill, Sheena Warman, Geoff Shawcross.
p. ; cm.
One hundred top consultations in small animal general practice
Includes bibliographical references and index.
ISBN 978-1-4051-6949-3 (pbk. : alk. paper) 1. Pet medicine. I. Hill, Peter B. (Peter Barrie) II. Warman, Sheena. III. Shawcross, Geoff. IV. Title: One hundred top consultations in small animal general practice.
[DNLM: 1. Dog Diseases. 2. Cat Diseases. 3. Professional-Patient Relations. 4. Veterinary Medicine–methods. SF 991]
SF981.A55 2011
636.089–dc22
2010040961

A catalogue record for this book is available from the British Library.

This book is published in the following electronic formats: ePDF [ISBN 9781444393347]; ePub [ISBN 9781444393354]

Set in 9/11 pt Calibri by Toppan Best-set Premedia Limited
Printed in Singapore

1 2011

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Acknowledgements

Peter Hill would like to thank Sarah, his wife, for her constant support during the writing of this book.

Sheen Warman would like to thank her husband Adrian for his patience and support whilst this book has been written. She would also like to thank colleagues and students, past and present, who have provided inspiration and helpful suggestions.

Geoff Shawcross would like to take this opportunity to thank all the professional colleagues with whom he has had the pleasure to work during his career for their unstinting support and advice, without which his contribution to this book would not have been possible.

Dedication

This book is dedicated to all the animals we have treated over the course of our careers. Without them, we would have known nothing.

About this book

This multidisciplinary text begins with a comprehensive guide to the consultation process in small animal practice. Within this section, clinicians will find highly practical, invaluable tips about history taking, physical examination and diagnostic approaches.

The book then covers 100 of the most common scenarios that a small animal practitioner will have to deal with in the consulting room. These chapters are of three main types:

1) *Presenting-sign-based chapters* – These chapters, coloured blue, cover an important symptom, listing the common differential diagnoses, outlining the diagnostic approach for its investigation and indicating how the case should be treated. These chapters inform clinicians about what to tell clients before a diagnosis has been made.
2) *Diagnosis-based chapters* – These chapters, coloured purple, cover important diseases and describe how clinicians should diagnose and treat them. These chapters inform clinicians about what to tell clients after a diagnosis has been made.
3) *Miscellaneous chapters* – These chapters, coloured red, cover various topics that are rarely found in veterinary texts, such as annual health checks, neutering, oestrus control and euthanasia.

Within the first two types of chapter, there are three unique 'boxed' sections covering 'What if it doesn't get better?', 'The low-cost option' and 'When should I refer?', which can be quickly identified by their colour (red, orange and purple, respectively). This type of information is rarely taught at veterinary school and practitioners usually have to learn it the hard way, by trial and error.

There are then five appendices covering the use of antibiotics, glucocorticoids and non-steroidal anti-inflammatory drugs, as well as information on obesity control and the interpretation of laboratory tests.

Never before has such practical information been put together in a single text. When grouped together, these chapters provide a comprehensive guide to the vast majority of consultations undertaken in small animal general practice. It's like having an experienced or specialist clinician standing by your side in the consulting room.

This book will be invaluable to:

- Undergraduate veterinary students
- Newly graduated veterinarians
- Experienced veterinarians who are looking for an up-to-date refresher on small animal practice
- Veterinarians who are returning to the profession after a leave of absence
- Veterinarians who are converting from large animal to small animal practice, or for whom small animal consulting constitutes only a small part of their duties.

Introduction: Diagnostic and therapeutic approaches in small animal general practice

Peter Hill

In order to treat diseases of small animals, clinicians must adopt a systematic approach that leads to a diagnosis and specific treatment. This process typically involves the following steps:

1. Obtaining a history.
2. Performing a physical examination.
3. Making a diagnosis or generating a list of differential diagnoses.
4. If necessary, performing tests to rule in or out differential diagnoses.
5. Determining a prognosis.
6. Prescribing treatment.

In general practice, this whole process has to be orchestrated around a consultation that typically lasts around ten to fifteen minutes. In order to achieve this, clinicians have to develop and hone their skills so that they can deliver competent medicine without compromising patient care, as well as appearing unhurried in front of the client. The basic structure of a typical consultation is illustrated in Figure 0.1.

Prior to seeing a case, the clinician should know the signalment of the animal (age, breed and sex) and be aware of its vaccination and worming history. This information should be in the animal's medical records, but if it is a new client, it can be obtained by the reception staff. Other information that should be in the animal's records includes dietary, foreign travel and previous medical history.

History taking

Taking a history is a process in which a veterinarian listens to, and questions the owner of a pet, in order to determine what abnormalities or signs have been observed. Typically, the owner is first asked what the problem is, and then allowed to describe the problem in more detail. The clinician can supplement the information obtained by asking specific questions.

To be good at history-taking, clinicians must learn to get the right balance between listening and questioning. This is an important aspect of the veterinarian's 'bedside manner' and is essential if the appropriate information is to be gathered. Too much listening can lead to incomplete or confusing histories; too much questioning can come across as an interrogation. Mastering this important skill requires practice and students should observe a number of experienced practitioners to determine the optimal balance.

When asking questions, it is important that clinicians do not speak to clients using technical terminology that is not widely understood. Veterinarians must become 'bilingual', using plain language for clients, and veterinary terminology for professional colleagues and medical records. As an example, 'Is he pruritic on his ventral abdomen?' should become 'Is his tummy itchy?' Clinicians should also

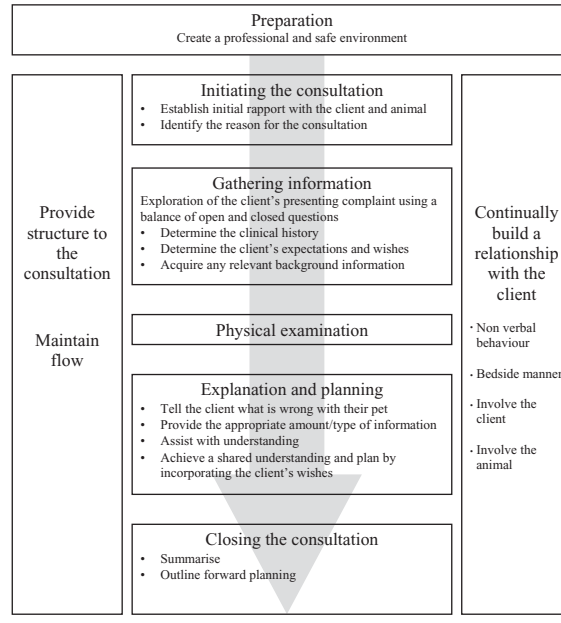

Figure 0.1 An overview of the consultation process, modified from a system known as the Calgary–Cambridge Model Framework. This approach is commonly taught in medical and veterinary schools. In general veterinary practice, some of the 'information gathering' may take place during, or after, the physical examination

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be aware of regional variation in the use of terminology (such as use of the term 'jags' to signify injections in Scotland) and the various terms that can be used by owners to describe symptoms.

In addition to keeping the questions simple, clinicians must be logical and objective when questioning clients. They need to extract information from the client that might not otherwise be forthcoming. Clients may not mention important facts because they are not aware of their relevance. They may also be embarrassed at disclosing information about previous home remedies or conditions involving neglect. If the clinician is not entirely convinced by a particular response, it is often helpful to repeat the question in a slightly different way to determine if the answers are consistent. Useful information can also be obtained by listening to other people in the examination room such as the client's partner or children.

When obtaining a history, clinicians should first ascertain what the owner's complaint is and how long it has been present. An immediate assessment should be made at this stage to determine if the animal looks well enough to continue with history taking. Seriously ill animals (e.g. road accidents, haemorrhage, collapse) may need urgent hospital treatment and should be admitted for physical assessment and stabilisation.

The length of time devoted to obtaining histories will depend on the nature and severity of the presenting problem. In some cases, the owner may provide very specific information that clearly refers to a single organ system and progression to a physical examination can occur after one or two answers. For example, 'I've found a lump on my dog's leg' or 'My dog was running around and suddenly started limping.' In such cases, further questioning is likely to arise during and after the examination, in order to find out if there are any related symptoms. In other cases, the owner may report a specific problem that warrants further questioning to clarify its nature. For example, if the owner says 'My dog has diarrhoea', the clinician should ask for further details about the nature of the stools, such as consistency, frequency, smell, colour, presence of blood or mucus and whether there are any associated signs of straining or difficulty defecating.

If animals are presented with non-specific problems, appear very unwell or clearly have a serious condition, it is necessary to obtain a more complete medical history. Four questions are particularly valuable in characterising an animal's general health:

- Any changes in appetite?
- Any changes in thirst?
- Any changes in weight?
- Any changes in behaviour or activity level?

If none of these parameters has altered, it can be assumed that the animal feels well in itself. If changes have been observed, an approach to investigating the problem can be found later in this book. Further questions that provide specific information about various organ systems include:

- Any vomiting or diarrhoea?
- Any coughing, sneezing, or changes in breathing?
- Any problems with urination?
- Any sign of lameness?
- Any problems with sexual activity or heat cycles?
- Any fits, seizures, 'funny turns' or strange behaviour?
- Any skin or coat problems?

Whether or not a clinician needs to ask all these questions will depend on how specific or vague the initial information is, and the index of suspicion for a multi-systemic disorder versus an organ-specific disorder.

During recheck examinations, it is not necessary to obtain the same type of history as in the initial consultation. The clinician should focus on the following aspects:

- Is the treatment working, i.e. is the animal better, worse or unchanged?
- Are there any new problems?
- Have there been any problems or adverse effects associated with the treatment?

Physical examination

The aim of the physical examination is to evaluate an abnormality that an owner has noticed, or to determine if there are any detectable abnormalities that may account for a problem revealed in the history. When performing a physical examination, a clinician can use the senses of vision (direct observation), hearing (listening or auscultation), touch (palpation) and smell. An ability to perform a physical examination requires knowledge of normal topographical and organ anatomy.

A physical examination can be partial or complete. A partial examination is when only a particular part of the body or one organ system is examined. Normally, this would be an area that the owner has identified as being abnormal, such as a limb or the skin. A complete examination involves examining the whole animal. However, an examination is rarely truly 'complete' because there would rarely be sufficient time to evaluate all the organ systems in detail. In reality, a routine 'complete' physical examination normally refers to examination of the head, chest, abdomen, lymph nodes, genitalia, legs and skin, and measuring the animal's temperature, pulse and respiratory rate (see Table 0.1).

The order in which a complete physical examination is performed is at the discretion of the clinician. Some clinicians like to record the temperature, pulse and respiratory rates first, followed by a systematic examination of the organ systems. Other clinicians (the author included)

Table 0.1 **The components of a routine 'complete' physical examination.**

	Normal findings	Abnormalities
General appearance	Bright Alert Responsive General symmetry	Lethargic Depressed Collapsed Hyperactive
Body weight and condition	Normal for breed	Too fat or thin
Eyes	Bright Clear Moist Normal pupil size	Discharge Redness Opacities Abnormal mucous membrane colour Anisocoria
Nose	Moist Cobblestone appearance	Discharge Lesions
Mouth	Clean teeth Healthy gums Pink mucous membranes CRT < 2 seconds Normal tongue and palate Normal pharynx	Tartar Periodontal disease Abnormal mucous membrane colour CRT > 2 seconds Inflammation Ulceration Foreign bodies Swollen tonsils
Ears	Clean	Inflammation Discharge Odour
Lymph nodes: submandibular, prescapular and popliteal	Normal size (prescapular may not be palpable in normal animals)	Enlarged Painful
Larynx and trachea	Normal shape on palpation Cough not induced by gentle palpation	Cough induced by gentle palpation
Thorax (assess by auscultation)	Normal heart sounds Normal heart rate (correlate with pulse rate) Normal heart rhythm Breathing pattern normal Normal respiratory rate Normal breath sounds	Murmurs Tachycardia Bradycardia Abnormal rhythm Laboured breathing Increased respiratory rate Increased lung sounds or audible crackles/wheezes
Abdomen (assess by palpation)	Normal size Liver not palpable Stomach not palpable Spleen not palpable Intestines feel like squelchy tubes Normal kidneys (easier to palpate in cats) Normal bladder No abnormal masses	Distended or pendulous abdomen Hepatomegaly Stomach enlarged with food or gas Splenomegaly Can palpate intestinal gas, thickening, foreign bodies, constipation, pain Enlarged or painful kidneys Bladder distended or painful Abnormal mass palpable

(*Continued*)

Table 0.1 (*Continued*)

	Normal findings	Abnormalities
Perineum/genitalia	Normal anus Normal vulva Normal/absent testicles Normal penis/prepuce	Masses or lesions Swelling Discharge (pus or blood)
Limbs	Normal musculature Normal joints	Lameness/abnormal gait Swollen or painful joints Limited range of movement Atrophy
Skin	Shiny coat Healthy skin Normal elasticity	Skin lesions Parasites Skin tenting (dehydration)
Rectal temperature	Normal	Elevated Decreased

CRT = capillary refill time.

prefer to conduct the examination from the front of the animal to the rear. The advantage of starting at the front end first is that the clinician can interact with the animal and put it at ease as the examination begins. Putting a thermometer into the rectum initially might not be the best way to make friends! Whichever way it is done, a skilled clinician should develop a routine that becomes second nature, allowing a complete examination to be performed in less than five minutes.

There has been a traditional view amongst educators in veterinary schools that a complete physical examination is mandatory in every case. The reality is that this is neither practicable (due to time constraints) nor necessary in order to deliver good quality medicine. Clinicians need to use their clinical skills and experience to determine what level of physical examination is required, based on the nature and severity of the illness that is presented. A partial examination can be appropriate for many problems seen in general practice such as lameness, skin problems, ocular problems, dental disease, minor external trauma or mild medical disorders. For example, a dog presenting with fleas does not need to have its abdomen or limbs palpated; a dog with a mild case of diarrhoea does not need a full dermatological or thoracic examination; a cat with ear mites does not need to have its temperature, pulse and respiration recorded.

In other situations, a detailed assessment of multiple parts of the animal would be indicated, without necessarily performing a full examination. For example, prior to general anaesthesia, an animal should have its temperature, hydration status and cardiac, respiratory and circulatory systems assessed in detail, but examination of the skin or limbs would not be necessary. Despite this, there are many situations where a complete examination should be considered essential, including:

- When a diagnosis is not obvious based on history and partial physical examination
- When an animal hasn't responded to treatment as expected
- When an animal presents with vague clinical signs such as lethargy, inappetence or weight loss
- When an animal presents with serious symptoms such as anaemia, jaundice, severe depression or collapse
- When an animal appears very unwell
- When an animal is pyrexic and there isn't an immediately obvious cause
- When an animal has symptoms that may indicate a systemic cause
- When a neoplastic disease is suspected or confirmed
- When puppies and kittens are checked prior to vaccinations
- When an animal is having an annual health check.

A complete examination may be initiated immediately after the history has been obtained, or it may follow on from a partial examination. If an owner has pointed out a particular area of concern, it is most appropriate to examine that part first. For example, if an animal is presented with a cutaneous mass or is limping on one leg, the owner will expect those areas to be examined first.

The clinician can then decide if a complete examination is warranted. If it is deemed necessary, the clinician can say 'We'll just check him all over to make sure there's nothing wrong anywhere else.' Some clinicians suggest that a complete examination should take place first, followed by a more focussed examination, but it may seem strange to a client when a veterinarian starts to examine the teeth of a dog that presents for lameness.

In addition to the partial and routine complete examinations described above, there are additional examination techniques that may be necessary in particular circumstances. These include ophthalmoscopic examination, otoscopic examination, detailed examination of the skin, in-depth orthopaedic palpation and assessment (e.g. flexing and extending every joint), thoracic percussion, neurological examination and behavioural assessment. Clinicians only need to employ these techniques when there is a specific clinical requirement.

Making a diagnosis or generating a list of differential diagnoses

Based on the history and physical examination, a clinician will arrive at one of four possible outcomes.

1. It may be possible to make a definitive diagnosis and recommend specific treatment. This ability is derived from clinical knowledge and experience and is known as ***pattern recognition***. This approach is based on the fact that many diseases produce a characteristic pattern of historical and clinical features that the clinician can recognise. Many common conditions in small animal practice can be diagnosed in this way (e.g. abscesses, flea allergy, dental disorders, some lameness, superficial ocular problems, traumatic injuries). Pattern recognition is a very cost-effective approach which can save the owners money and time, avoid unnecessary tests, and allow the animal to get the most appropriate treatment quickly. However, it takes time for new graduates to gain the necessary experience to be fully confident with this approach.
2. It may be possible to make a tentative diagnosis and provide empirical treatment. This approach is similar to pattern recognition but differs in that the history and physical examination do not allow a definitive diagnosis to be made. With this approach, the clinician is basing the diagnosis on ***probability***. Probability diagnosis requires the clinician to choose the most likely possibility for a set of clinical signs, based on the premise that 'common things occur commonly'. As with pattern recognition, this approach is used widely in small animal practice, and is appropriate for conditions such as gastritis, sarcoptic mange, kennel cough and certain forms of lameness. It is essential when using this approach that the animal is re-evaluated if the clinical signs do not respond to treatment as expected. By definition, this approach implies that other differential diagnoses could be causing the signs and these need to be investigated if the initial outcome is not satisfactory.
3. In some cases it is only possible to generate a list of differential diagnoses. This is the case in animals presenting with general signs of illness such as polydipsia, weight loss or jaundice, but also with many organ-specific signs that either do not allow a precise diagnosis to be made, or have not resolved following treatment based on pattern recognition or probability diagnosis. In order to differentiate between multiple possible causes of a condition, clinicians need to use a ***problem-oriented approach***. In this approach, the predominant problem is determined from the initial history and physical examination (e.g. pruritus, vomiting, diarrhoea, coughing, lameness, haematuria) allowing a list of prioritised differential diagnoses to be generated. If there is more than one problem, multiple differential lists can be generated. A diagnostic plan is then formulated which involves tests and investigations to rule in or out the conditions on the list(s). The tests may all be carried out at one time, or they may be staggered so that the most common or potentially serious conditions are investigated first (a sequence known as a diagnostic algorithm). In general practice, the tests are often staggered, but the final decision will be determined by the severity of the presenting problem, the likelihood of the various differentials, and the wishes and financial circumstances of the client. A fundamental principle of the problem-oriented approach is that only tests which relate to conditions on the differential list should be performed. Clinicians should not perform a standard set of tests (a 'workup') in the hope that a diagnosis will emerge from the laboratory. Failure to observe this principle will result in unnecessary tests being performed on a frequent basis. The only exception to this rule is the performance of haematological and biochemical tests, which are often more economical when run as a panel. However, clinicians should not use this as an excuse to avoid the initial thought processes that lead to a differential list.

   The problem-oriented approach can be used by students and new graduates for all cases before they have the necessary experience to utilise pattern recognition and probability diagnosis. However, it can lead to long differential lists and

excessive use of tests that might not be required. Experienced clinicians can also use this approach for complicated cases and those that are not responding to treatment as expected.

4. In some cases, clinicians may not be able to think of any differential diagnoses for the condition they are faced with. This can happen with recent graduates who lack experience, but it can also occur with experienced practitioners when uncommon or rare entities are presented. When this happens, clinicians should first seek a second opinion from someone else within the practice. If the condition still remains an enigma, the most appropriate option is to recommend referral to a specialist. Specialists can apply any of the three diagnostic approaches outlined above to conditions that may be rarely seen in general practice. In some cases, pattern recognition may be possible, saving the owner and animal a prolonged series of investigations. Unless enforced by the client, it is not appropriate to perform an extensive set of tests when the clinician does not know what they are looking for.

Throughout this book, the appropriate use of these various diagnostic approaches is highlighted.

Performing diagnostic tests

Diagnostic tests are an essential component of the investigation of many cases in small animal practice. As described above, they are an integral part of the problem-oriented approach. However, there has been a trend in veterinary medicine for tests to be over-used when not needed (e.g. running blood tests on young, healthy animals prior to anaesthesia for routine procedures), under-used when they are needed (e.g. not performing cytology on ear infections and cutaneous masses), or used to replace a sound clinical approach (e.g. performing skin biopsies on a chronically itchy dog).

It is crucial that clinicians do not transfer the responsibility for making a diagnosis onto laboratories and pathologists. The clinician has the benefit of a full history and the findings from a thorough physical examination, and these go a long way towards establishing a diagnosis. Sending small pieces of the animal away for analysis can be a very valuable adjunct to this clinical process, but it must never replace it. Some of the pitfalls in diagnostic testing that clinicians must be aware of are:

- *The meaning of a normal range:* Normal ranges are established to include 95% of the healthy population. This means that 5% of the population would be outside the normal range, and could be misdiagnosed as having a disease
- *Tests are rarely 100% sensitive:* This means that an animal could have a disease and the test would not detect it
- *Tests are rarely 100% specific:* This means that the test may say the animal has the disease when in fact it doesn't
- *Many tests have a grey zone:* This means that there can be overlap between what is considered normal and abnormal
- *Some tests require interpretation:* This means that the clinician has to employ clinical skills to determine if a test result is abnormal or not
- *Some tests require specialised skills to perform:* This would include procedures such as ultrasonography and endoscopy
- *Some tests require skilful sample collection:* This applies to samples such as skin biopsies, CSF collection or bone marrow aspirates. If good quality samples are not submitted, it will be impossible to obtain meaningful results.

To overcome these problems, the use of diagnostic tests must always be focussed and not indiscriminate. They must be based on a previously generated list of differential diagnoses, and 'standard workups' should be avoided. Each test must answer the specific question – will this test help me decide if the animal has this disease? Finally, the results of diagnostic tests must always be interpreted in the context of clinico-pathological correlation. This means that the results can only be interpreted in conjunction with the clinical findings, whether they are blood tests results or biopsy reports. As it is only the clinician that has access to all the clinical and laboratory data, it is the clinician who has to perform the clinico-pathological correlation and make the final diagnosis. If the case appears too complex for all these principles to be adhered to, referral to a specialist should be recommended.

Determining a prognosis

The prognosis is a critical factor in veterinary medicine. In humans, appropriate treatment is given regardless of the prognosis. However, in animals the cost of treatment, and a general desire to not see animals suffer, influences the decision as to how, and when, to treat. The prognosis may have a large bearing on this decision. Some owners desire treatment for their animal even if the outlook is bleak. Other owners may favour euthanasia for their pet if long-term management is required, even if a successful outcome is likely.

The prognosis is usually categorised as good, fair, guarded, poor or grave. A good prognosis indicates that the animal has a good chance of making a full recovery, or having its condition successfully managed. A fair prognosis indicates that the animal has a reasonable chance

of making a full recovery, or having its condition successfully managed. A guarded prognosis means that it is uncertain whether or not the animal will make a recovery. A poor prognosis means that the animal has little chance of making a full recovery, and a grave prognosis means that the animal is likely to die in the near future.

The prognosis is essentially determined by the diagnosis, but will be influenced by other factors such as the owner's commitment (both practical and financial) to the treatment regimes. The earlier a diagnosis is made, the earlier the owner can be informed about the prognosis. The majority of animals entering veterinary practices suffer from minor illnesses that have a good prognosis. In seriously ill animals, the prognosis should be determined as rapidly as possible so that the owner can make a decision about their pet. Some serious illnesses carry a good prognosis, but when the prognosis is poor or grave, euthanasia should always be considered as a potential option.

Prescribing treatment

Treatment of small animal patients can be specific or symptomatic. Specific treatments target the actual cause of the illness and can cure or control it (e.g. antibiotics for an infection, insulin for diabetes mellitus). Symptomatic treatments target the clinical signs associated with the illness. They cannot cure the underlying condition, but they can control it whilst the body heals itself or responds to a specific treatment. Symptomatic treatments can also be used to provide long-term control of incurable conditions such as atopic dermatitis or arthritis. However, symptomatic treatments should not be given in the absence of a tentative or specific diagnosis. For example, anti-emetics would be appropriate if a tentative diagnosis of gastritis had been made, but they should not be used indiscriminately to treat every animal that presents with vomiting. At best they will delay implementation of more specific therapy and at worst, they may actually harm the patient.

When treatment is prescribed, clinicians should ask themselves 'Why am I giving this specific medication and what do I hope to achieve?' The systematic review, appraisal and use of clinical research findings to ensure the delivery of optimum care for a particular condition is known as 'evidence-based medicine.' At the moment, evidence-based veterinary medicine is still in its infancy, and many drugs are prescribed on the basis of clinical and anecdotal experience. The ultimate aim is that the efficacy of all drugs and treatment regimes will have been determined on the basis of blinded, randomised, controlled trials that definitively prove their benefit. At the opposite end of the spectrum to evidence-based medicine are some old prescribing practices that appear to have survived into the modern era. One such practice is the false belief that it is beneficial to start a course of treatment by always giving an injection of a drug or vitamin solution. There is often no rationale to this approach and it has more to do with a clinician's perceived need to be seen to be doing something technical in front of the client in order to justify their fee.

Clinicians should always balance the potency or aggressiveness of a treatment regime against the severity of the disease. This follows the principle of 'First, do no harm'. An animal should never be placed in a situation where the effects of the treatment are worse than the original disease. For example, this can happen when long-term glucocorticoids are used inappropriately to treat pruritus, resulting in iatrogenic Cushing's syndrome. In addition to potential adverse effects, clinicians need to ensure that owners are aware of the cost of medications, and any associated monitoring, especially if they are required in the long term.

In most countries, the prescribing of drugs to animals is governed by law. In Europe, the process is regulated by asking veterinarians to follow a prescribing cascade. This states that drugs should be chosen in the following order:

- The first choice of drug should be a veterinary product that is licensed to treat a specific condition in a specific species
- If a specific product in this category is not available, clinicians should choose a veterinary product that is licensed in the species to treat a similar condition (e.g. the treatment of *Cheyletiella* mite infestation with selamectin)
- If no such product exists, a product licensed for use in other veterinary species to treat similar conditions should be considered (e.g. the use of ivermectin to treat refractory canine demodicosis)
- If there are no appropriate licensed veterinary products to treat the condition, clinicians can then consider using either human drugs (e.g. the use of azathioprine to treat immune-mediated diseases) or importing a veterinary drug from another country under license (e.g. the use of milbemycin to treat refractory canine demodicosis).

The treatment of animals with generic human drugs, where equivalent licensed veterinary products exist, is illegal. It is also illegal to progress down the prescribing cascade in order to save costs.

When prescribing treatment, clinicians should also consider the complexity of the treatment regime, and how it will fit in with the owner's lifestyle. Lack of owner compliance is common, both in human and veterinary medicine. The easier the treatment is to administer, the more likely that it will be done properly. In general, drugs that can be given once daily are more likely to be administered correctly than drugs requiring three times daily dosing.

Compliance is also more likely if time is taken (by the veterinary surgeon or nurse) to ensure that the owner is able to medicate their pet in an efficient manner.

Re-check examinations

Re-check examinations are not required if the owner can adequately assess the outcome of a treatment course. This is likely to be the case when the condition has an obvious clinical sign, such as vomiting or diarrhoea. However, a re-check will be necessary if the response to treatment can only be assessed by a trained clinician. This would be the case if further physical examination were required, such as abdominal palpation or auscultation of the chest. Re-checks should not be arranged just to see how the animal is 'doing'. There must be a specific purpose for the re-check and the clinician needs to decide in advance why the animal needs to come back, what milestones it should have reached, and what decisions will be made, based on how it has responded. If the animal is on long-term treatment, periodic re-checks may be necessary for monitoring, fine-tuning and to comply with local rules or legislation requiring animals to be under the veterinarian's care before prescribing drugs.

During a re-check, the diagnostic approaches outlined above can all be used, but usually in a truncated form. The history can be brief and the physical examination can focus on the abnormality being treated. However, if the animal is not responding as expected, it may be necessary to re-evaluate the whole diagnostic approach to ensure that nothing has been missed. For example, if the animal has been treated on the basis of a pattern or probability diagnosis, it may be necessary to consider a wider problem-oriented approach which brings in some other differential diagnoses. Additional testing may then be warranted. In the absence of a definitive diagnosis, it is not appropriate to just keep changing treatments to see if another drug would work better.

In some cases, it is necessary for a different clinician to see an animal for a re-check. Although this is not ideal in terms of continuity, it is sometimes unavoidable for practical or logistical reasons. In such cases, it is essential that the first clinician provides medical records that clearly indicate to the second clinician what the owner is expecting. An example might be 'If no response to nonsteroidal anti-inflammatory drugs (NSAIDs), advise radiography.' This ensures that the owner receives consistent advice. Accurate medical records, stating clearly what was observed during the first consultation, and consistent use of terminology, are also important so that clients realise the two clinicians are talking about the same thing.

Clinicians should not deliberately book cases in to see a different veterinarian in order to avoid seeing a difficult or frustrating case. If a second opinion is required, it should be discussed with the owner and second veterinary surgeon in advance.

Hospitalised patients

If an animal needs to be admitted into the veterinary clinic, it needs to be carefully monitored by the nursing staff and thoroughly examined on at least a daily basis so that the effects of any treatments can be assessed. One way of monitoring such patients is to use the 'SOAP' system (Subjective Objective Assessment Plan). The subjective parameters include such things as whether the dog looks brighter, has started to eat, or has stopped vomiting. The objective parameters include things such as the temperature, pulse rate, respiratory rate or volume of water drunk. Based on the subjective and objective parameters, the clinician can make an assessment. This might be something like 'The dog is brighter, the vomiting has stopped and the temperature is back to normal. Much improved from yesterday'. After the assessment, the clinician can make a plan. For example, in the above case the plan might be to 'introduce small amounts of food, monitor for vomiting and keep in until tomorrow'. The hospitalised animal is 'SOAPed' each day until the plan is to send it home.

The role of specialists

Within the first year of entering general practice, new graduates will have built up a wide portfolio of experience that covers many of the common conditions seen in small animals. By that stage, they should feel confident and competent in their abilities to handle routine cases. However, the explosion of knowledge in veterinary medicine has resulted in large numbers of rare diseases being described and the emergence of ever more advanced forms of diagnostic testing. It is no longer possible for general practitioners to be informed about all the advances in all disciplines, and to develop the technical expertise to conduct all the procedures. In addition, management of complex cases can require specialist experience and monitoring. It is no longer acceptable for a clinician to attempt to diagnose and manage a complex condition of which they have no previous experience, without having received further training in that discipline or having suggested referral to the owner. Veterinarians should, therefore, consider referral to a specialist as a normal extension of their everyday practice, as it is in the medical field. It is certainly not a sign of failure.

In general, referral should be recommended at the outset if an unfamiliar disease is encountered. It is far better for the animal and owner to see the specialist immediately than as a last resort after multiple consultations and a whole series of tests. In some cases, an initial specialist opinion can also save the owner money, because

it may be possible to avoid unnecessary tests. When it is not initially obvious that the case is going to be difficult to diagnose, the 'three-consultation rule' can be used as a general guide to determine if referral should be offered. This states that when an animal is seen for the same complaint, a clinician should have made a definitive diagnosis within three consultations. If at the end of the third consultation, the clinician is no nearer to establishing a definitive diagnosis than they were at the outset, the owner should be offered a referral. Referral should also be offered when a condition that requires specialist management is diagnosed. Examples of when cases should be referred are highlighted throughout this book.

Clinicians should be selective in their choice of a specialist. To develop specialist expertise in a specific discipline requires many years of advanced training, typically acquired during a residency under the close supervision of qualified specialists. At the end of this training period, the clinician should obtain a Diploma or become Board Certified in their speciality. Some veterinary clinicians offer referral services without having received such training or qualifications. In some countries, lesser qualifications (e.g. the certificate system in the UK) might be put forward as providing eligibility to provide a referral service. These qualifications were never intended to assess a candidate's ability to practice referral medicine and in no way compare to the level of knowledge and clinical training that is required to obtain a Diploma. Therefore, when offering a referral, clients should be made fully aware of the options available so that they can make an informed choice. They may decide to consider factors such as travel distance in preference to level of expertise, but that must remain their choice, and should not be imposed on them without prior discussion.

Section 1

Health checks and vaccinations

1 The new puppy or kitten

Geoff Shawcross

A new puppy or kitten will be presented either by an existing client who has acquired another pet, or by a new client who has never been to the practice before. The purpose of this consultation is to evaluate the clinical well-being of the pet, advise on diet and discuss preventative medicine. However, during this time, the client will also be forming their opinion of the expertise, compassion and efficiency of the whole practice team.

Pre-purchase advice

Clients may occasionally ask veterinarians for advice about choosing particular breeds. However, what appears to be a simple question can have a very complicated answer. Choosing a breed of dog or cat is a very personal matter, so the final decision can rest only with the purchaser. Potential owners should be advised to do some research into the breeds they are considering, and ensure that they have the time, facilities and financial resources to own the breed that they choose. Factors that need to be considered are the size of the animal, the amount of exercise it will need and its likely temperament. In particular, veterinarians need to be aware of the many breed predispositions to disease so that they can answer specific questions when asked. For example, potential owners may want to know if the breed they would like to buy is prone to joint disease, skin problems or cancer.

If there is the opportunity to advise the client before they actually purchase their new pet, it should be suggested that finalising the purchase should be dependent on a satisfactory report from a veterinary surgeon. If the clinician subsequently finds a problem that could be detrimental, or have long-term financial implications, the animal then can be returned. The clinician should appreciate, however, that the majority of clients 'bond' very quickly with their new pet and cancelling the purchase, even after an unsatisfactory veterinary surgeon's report, is rarely an option. Indeed, many owners will feel that they have 'rescued' their new pet if they felt that the breeder/supplier would not look after it properly were it to be returned, and are often prepared to invest the necessary care and finances to resolve the problems. If the animal is to be returned, treatment (especially surgical procedures) should not be instigated unless there are significant welfare issues.

The first consultation

The pet may be presented as soon as it has been acquired, but it is often better to see the animal after it has had the chance to settle in its new home for a few days and the owner has had the opportunity to observe its behaviour and demeanour. The owners can then describe any issues of concern and may describe signs that warrant further evaluation during the clinical examination. In most cases, puppies and kittens will be presented when they are 8–10 weeks of age, at which time they require their first vaccinations.

It is always helpful if reception or nursing staff can obtain the signalment (breed, age and sex) before the clinician sees the animal. It is permissible for them not to know that the dog is a Nova Scotia Duck-Tolling Retriever and not a mongrel but, unfortunately, not the veterinary surgeon!

Many owners are worried that their newly acquired pet will be exposed to infections at the practice and this concern should be appreciated. Practice policy may include keeping kittens and puppies contained within a pet carrier, or even waiting outside the building in the car, pending their appointment. At all times, the examination room, equipment and clinician should appear to be scrupulously clean. Owners of pedigree pets should be asked about the future use of the animal, whether it is for breeding, working or simply a family pet. Owners who wish to show their animals should be advised to seek the opinion of a recognised judge of the breed, if conformation is an absolute priority. The clinician's opinion should be confined to veterinary matters.

The clinician should check through any paperwork that the client has been given by the breeder/supplier. Often, they will have been given copies of the results of breed-related health schemes of the parents (e.g. hip scores, elbow scores, eye schemes) and this will introduce a discussion about diseases that will not be apparent at the time of the examination but may develop as that animal gets older (such as hip dysplasia, elbow dysplasia, cataracts, retinopathies, heart disease). In addition, the client

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is likely to have been given a diet sheet, together with advice about worming and vaccinations. This information should be checked, to make sure it is broadly consistent with practice policy. Any differences in advice should be explained to the client.

The clinical examination

Time taken to ensure the consultation is pleasurable for the pet will pay dividends later. Forceful restraint and painful manipulations may make the animal fearful at future visits.

The physical examination should be thorough and follow the general principles outlined in the Introduction. Particular attention should be focussed on signs of infectious and congenital disease. The limitations of the examination should be explained to the owner and the results of all parameters that have been checked (whether normal or not) must be recorded.

General findings

- Puppies and kittens should be alert, bold and inquisitive, but it should be appreciated that some individuals are naturally reserved in a strange environment. Young animals that are genuinely ill are invariably lethargic, disinterested in their surroundings and reluctant to eat
- Coughing (dogs) and sneezing (cats) initially should be considered as signs of an infectious disease
- Diarrhoea is common and often associated with a change in diet but if the animal has diarrhoea when purchased, this concern should be addressed as it could have an infectious cause. Diarrhoea in young cats can be frustrating to treat
- Neurological signs such as intention tremors, ataxia or dysmetria may or may not progress, but rarely improve
- Breeds that have extreme characteristics (e.g. dwarfism, hairlessness, excessive skin folds) have their own 'in-built' problems and these should be mentioned, so that the owner knows what to look out for/expect as the animal matures. However, it would be unwise to make disparaging remarks about the characteristics of a particular breed to the owner, because often it is the eccentricity that has attracted the owner to the breed in the first place.

The head

- The mucous membranes should be normal. Abnormalities, such as cyanosis or pallor, are serious and will be associated with other clinical signs
- The mouth should be checked for cleft palates and normal primary dentition. Acceptable dental occlusion varies with the breed standards, although in most breeds maxillary prognathism (overbite) is a fault. Although malocclusions are a serious show fault, they are rarely of clinical significance for the pet animal
- The eyes should be clear and bright, with no ocular discharges or epiphora. The eyelids should not show signs of entropion, which if present can lead to severe corneal damage. A degree of ectropion is a characteristic of certain breeds and would have to be deemed normal in such individuals. The nictitans should be in the correct position and there should be no deformity of its free edge. The globes and pupils should be of equal size, and there should be no signs of a strabismus or nystagmus. The identification of lens defects and retinopathies in very young animals requires considerable expertise, and it is often difficult to obtain the necessary restraint required for a thorough ophthalmoscopic examination. Rather than carry out a poor ophthalmoscopic examination, it may be preferable to outline the conditions that may exist (within the breed) and advise referral to a specialist at the appropriate age
- The ear canals should be clean and odour-free. Infestation with ear mites (*Otodectes cynotis*) is quite common and requires prompt treatment. The pinnae of most prick-eared dogs will not be erect until they are several months of age
- The nose should be free of discharges. The external nares are often small in brachycephalic breeds (both dogs and cats) and although this may accepted as part of the breed standard, extreme stenosis may result in respiratory problems as the animal matures.

Chest and abdomen

- Auscultation of the lungs should not reveal any abnormal sounds
- The heart should be carefully evaluated on both sides of the chest, over the entire cardiac area, listening for heart murmurs that would suggest a congenital heart defect (see Chapter 56). Some murmurs associated with congenital heart disease can be very focal. If there is any doubt about the origin or significance of a murmur, the opinion of a specialist should be sought
- The rib cage should be palpated for symmetry
- Abdominal palpation need not be exhaustive, especially if it is being resented, as it is rarely productive. In the absence of other gastro-intestinal signs, thickening of the intestines would suggest a significant worm burden

- Umbilical hernias are very common and some may warrant surgical correction. This, however, is rarely urgent and can usually be deferred until the vaccination course is complete. In bitches, it can often be corrected at the same time as neutering. Inguinal hernias are much less common and can be difficult to detect. They carry a higher risk of complications later in life and should be repaired when the animal is reasonably mature
- Cryptorchidism is common but the testicles of very small animals can be difficult to palpate. It is a serious defect in animals that are to be shown or used for breeding and the clinician must be confident before declaring both testicles are present. If there is any doubt, the clinician should defer making a decision.

Skeletal system

- Limbs of chondrodystrophic or giant breeds can be difficult to evaluate but should always appear symmetrical when viewed from the front and rear. Growth plate disorders are uncommon but can lead to limb deformity that develops at an alarming rate. If such a deformity is suspected, expert advice should be sought at an early stage.

Skin

- The coat should be clean and should not smell
- The skin should be examined carefully for evidence of parasites
- Pruritus is common and may even lead to areas of excoriation. Allergic skin disease (atopic dermatitis, dietary) is uncommon in the puppy or kitten, and pruritus is usually caused by ectoparasites (whether obvious or not).

Taking the temperature of puppies and kittens is not particularly helpful unless they appear unwell. If it is done, it should be left until the end of the clinical examination, as the procedure is often resented. Elevated temperatures are common, especially in nervous puppies, and should be interpreted with care and in the context of the animal's demeanour.

Vaccination

One of the main reasons for the puppy or kitten consultation is to start the vaccination programme. However, it is unwise to administer vaccines until the animal has had time to settle into its new environment in case it is incubating any infectious diseases. If the animal develops signs of illness shortly after being acquired, the clinician and owner will then know that it was not induced by the vaccine.

Dogs are typically vaccinated against distemper, parvovirus, infectious canine hepatitis (adenovirus-1) and leptospirosis. In some countries, rabies vaccination is also required. Protection can also be given against canine kennel cough organisms by vaccinating for canine parainfluenza and *Bordetella bronchiseptica*. The necessity for these latter vaccines should be based on a risk–benefit analysis. The clinical signs that can be seen with these diseases is summarised in Table 1.1.

Cats are typically vaccinated against feline viral rhinotracheitis (herpes virus, FHV), feline calicivirus (FCV), and feline panleukopenia (feline parvovirus). In some countries, rabies vaccination is also required. Protection against feline leukaemia virus (FeLV) should also be advised in cats that are at risk of contracting this infection (especially outdoor cats or in multi-cat households). Vaccination against feline immunodeficiency virus is

Table 1.1 Clinical signs of the infectious diseases that dogs are normally vaccinated against.

Disease	Signs and symptoms
Distemper	Oculo-nasal discharge, conjunctivitis, coughing, dyspnoea, vomiting, diarrhoea, lethargy, anorexia, fever followed by neurological signs (seizures, vestibular disease, cerebellar signs, paresis or involuntary twitching)
Parvovirus	Vomiting, diarrhoea (often haemorrhagic), lethargy, anorexia, fever, dehydration and shock
Infectious canine hepatitis	Corneal oedema (blue eye), vomiting, diarrhoea, abdominal pain, hepatomegaly, jaundice, coagulopathy, lethargy, anorexia and fever
Leptospirosis	Shivering, muscle tenderness, lumbar pain, vomiting, polydipsia, jaundice, petechial haemorrhages, lethargy, anorexia and fever
Rabies	Behaviour change, difficulty swallowing, ptyalism, bark change, dropped jaw, aggression, biting, ataxia, paralysis, seizures
'Kennel cough' Parainfluenza virus *Bordetella bronchiseptica*	'Hacking' cough, sensitive trachea, nasal discharge (see Chapter 54)

Table 1.2 Clinical signs of the infectious diseases that cats are normally vaccinated against.

Disease	Signs and symptoms
'Cat flu' Herpes virus Calicivirus *(Chlamydophila felis)* *(Bordetella bronchiseptica)*	Sneezing, nasal discharge, ocular discharge, ulcer on tongue, corneal ulcers, lethargy, anorexia, fever (see Chapter 55)
Panleukopenia	Abortion of dead kittens, 'fading kittens', sudden death, vomiting, diarrhoea, extreme lethargy, ataxia, intention tremors, seizures
FeLV	See Chapter 12
FIV	See Chapter 13
Rabies	Aggression, altered voice, biting, ptyalism, ataxia, paralysis, seizures

available in certain countries, but this can complicate subsequent diagnosis of the infection using immunological tests (see Chapter 13). The clinical signs that accompany these diseases are summarised in Table 1.2.

The recommended protocols and timing of vaccination varies between manufacturers and can change as new scientific information comes to light. Veterinarians should familiarise themselves with the type of vaccines used in their particular clinic and the requirements in specific geographic locations.

Antiparasitic treatment

The first consultation is also a good opportunity to continue deworming programmes and to initiate preventative treatment against other parasites. Puppies and kittens require continual protection against the development of intestinal roundworms (*Toxocara canis*, *Toxocara felis*, *Toxascaris leonina*). They should also be treated for tapeworms (*Dipylidium caninum*, *Taenia* spp.), hookworms (*Ancylostoma caninum*, *Uncinaria* spp.) and whipworms (*Trichuris vulpis*). In endemic areas, protection against *Angiostrongylus vasorum* is also advised. In some countries, year-round protection against heartworm (*Dirofilaria immitis*) is also required.

Many pets also require protection against ectoparasites (fleas, ticks). The nature of the control programme should be based on a risk–benefit analysis for the individual patient, as the requirement for such prophylactic treatment varies dramatically with geographic location and even microenvironment.

There are many products available for antiparasitic treatment in dogs and cats with differing active agents, spectrum of activity and routes of administration. However, as yet, there is no single product that will effectively treat and protect against all the parasites listed above. Clinicians must determine what level of protection is required for their patient against each of the parasites, bearing in mind that this requirement can change at various stages of the animal's life. In most clinics, there will be established protocols that are based on local conditions. Despite this, there is always an element of choice when selecting antiparasitic products and factors such as cost, and the ease and frequency of administration can be taken into account.

Further advice

Diet

Discussions about diet can be fraught if the clinician disagrees with the advice that the owner has received from the breeder. On this subject, the client is likely to favour the opinions of the breeder and want to continue with their recommendations. However, dietary faults, such as over-supplementation with vitamins and minerals, are common. In addition, the palatability of some diets may not suit the individual, and the quantity of food recommended by the breeder may be too much or too little. In such cases, it can be suggested to the owner that the breeder's diet should be used as a basis for a transition to an adult diet. Many practices have nursing staff who are competent at giving dietary advice but initially the veterinarian should be responsible for advising any dietary changes.

Neutering

The practice will have established its preferred times for routine neutering. Although this operation will not be carried out imminently, the subject should be broached, if only to obtain the client's views on the procedure. Neutering is not appropriate in all cases (see Chapter 3). If the animal is to be neutered, other procedures, such as hernia repair can be carried out at the same time.

Training and socialisation

Advising on this subject can be very time consuming. Many practices have lay-staff who are competent to advise on this subject, and run (or know of) suitable classes or puppy parties.

There has been a tradition in some countries to alter the appearance of some dog breeds by docking their tails,