GENERATING EVIDENCE IN PRIVATE PRACTICE

…the practitioner is an essential part of the total research effort undertaken by our profession and, further, that the barriers between academic and practice life should be lowered so as to integrate the various activities we often designate as "academic", and practice, research, teaching and clinical disciplines.

Rossdale, PD. Research in practice. Can Vet J. 1978;19(12):327-330.

Benefits of Research in Practice

- Better evidence
  - Quantity
  - Relevance
- Better clinicians
  - Scientific literacy
  - EBVM
- Personal satisfaction
- Client involvement

Challenges of Research in Practice

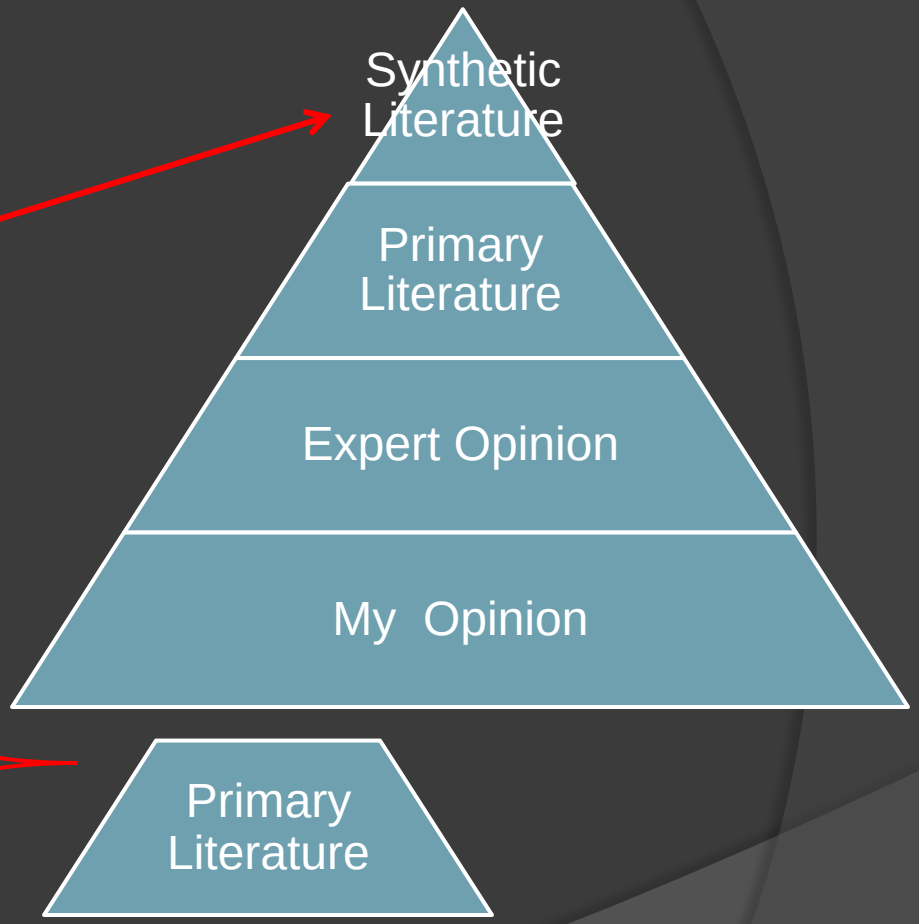
- Time
- Resources
  - Money
  - Equipment
  - Staff
- Knowledge and Skills
- Public Relations

Characteristics of Research in Practice

- Inexpensive
- Simple
- Pragmatic
- Safe

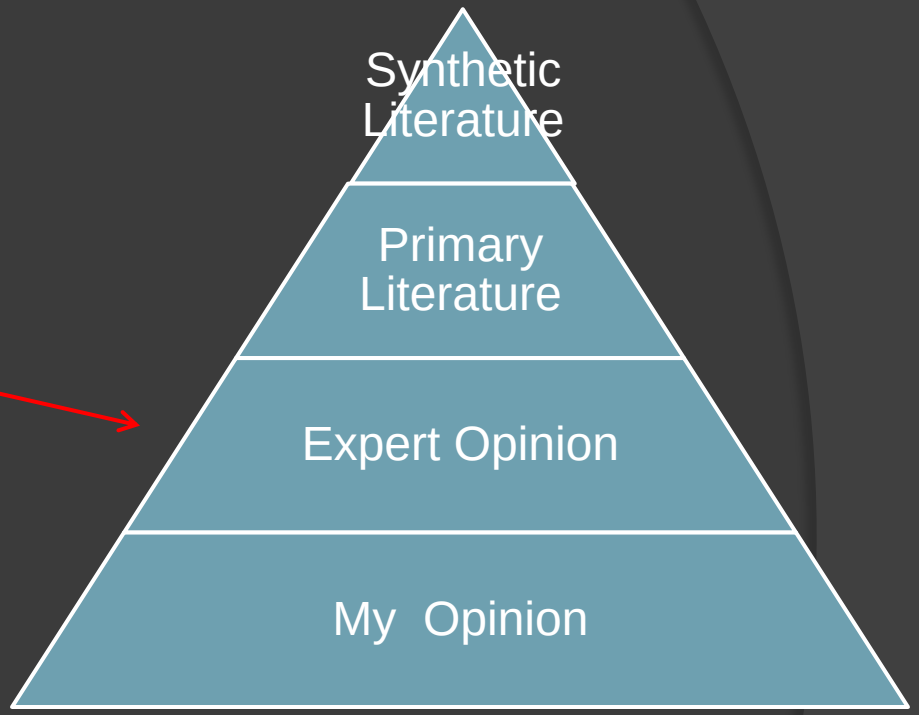
Types of Evidence Produced in Practice

- Synthetic evidence
- Clinical Audit
- Case reports/series
- Observational research
- Interventional research



Types of Evidence Produced in Practice

- Expert Opinion
  - Narrative Reviews



Evidence Synthesis

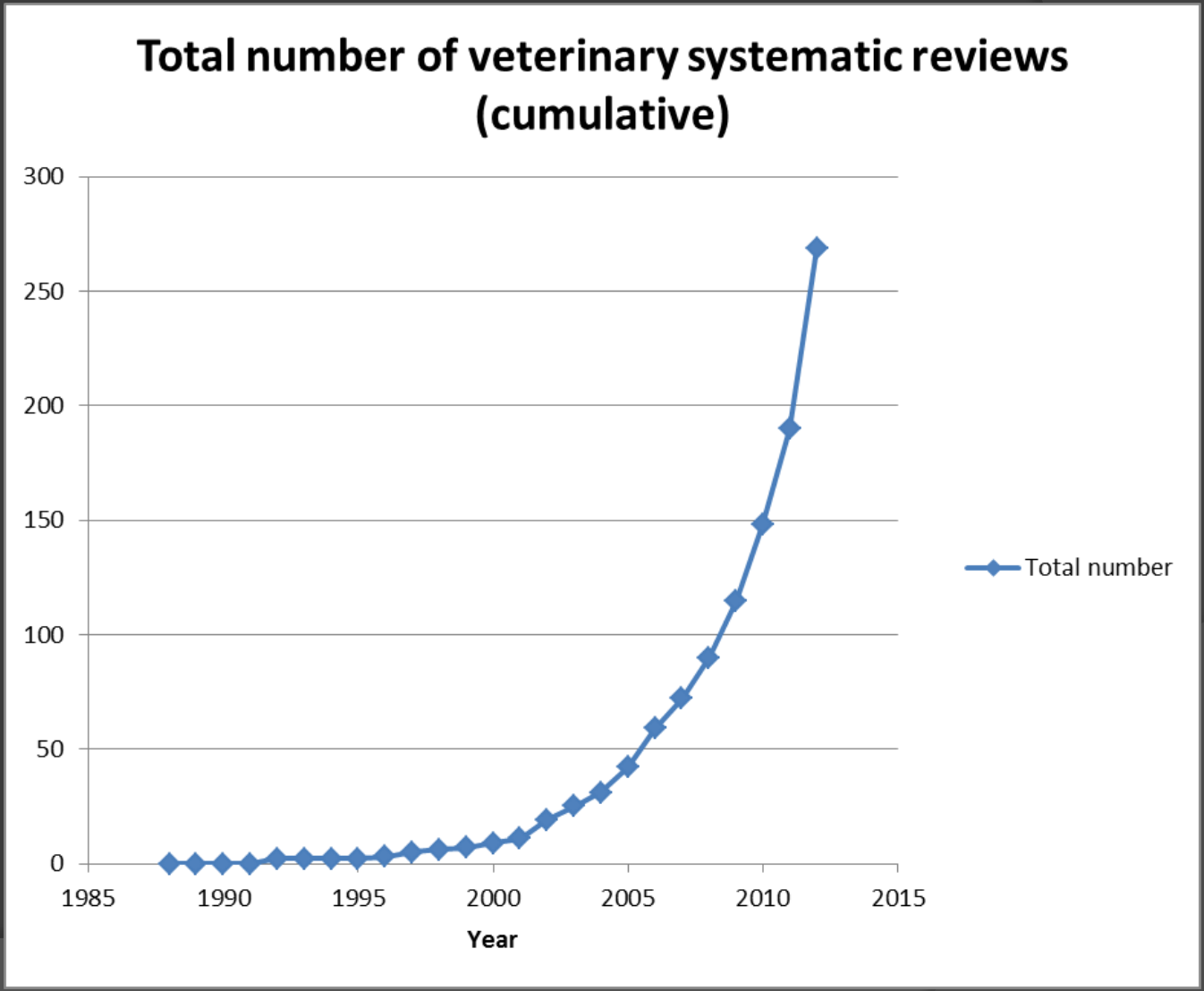
- Synthetic Evidence
  - Systematic Reviews
    - +/- meta-analysis
  - Critically Appraised Topics (CATs)
  - Clinical Practice Guidelines

Systematic Reviews

VetSRev

499 Systematic Reviews

(9/25/2015)



Systematic Reviews

SYSTEMATIC REVIEW

The effect of neutering on the risk of mammary tumours in dogs – a systematic review

W. Beauvais, J. M. Cardwell and D. C. Brodbelt

Veterinary Epidemiology and Public Health Group, Royal Veterinary College, Hawkshead Lane, North Mymms, Hatfield, Hertfordshire AL9 7TA

Systematic Reviews

SYSTEMATIC REVIEW

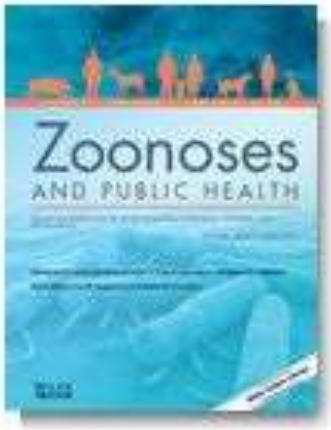
The effect of neutering on the risk of urinary incontinence in bitches – a systematic review

W. Beauvais, J. M. Cardwell and D. C. Brodbelt

Veterinary Epidemiology and Public Health Group, Royal Veterinary College, Hawkshead Lane, North Mymms, Hatfield, Hertfordshire AL9 7TA

Systematic Reviews

Systematic Reviews



Special Issue: Systematic Reviews and Meta-Analysis in Animal Agriculture and Veterinary Medicine

June 2014

Volume 61, Issue Supplement S1
Pages 1–63

- Conducting systematic reviews & meta-analyses

Critically Appraised Topics

- Smaller, more narrowly focused than systematic reviews
- Less comprehensive
- Includes some critical appraisal

Critically Appraised Topics

BestBETs for Vets

Supporting veterinary clinicians in making evidence-based decisions

RCVS KNOWLEDGE
evidence made clear

Knowledge Summaries

Veterinary teams need practical evidence-based tools to solve patient problems efficiently. That's why we are focusing on "Knowledge Summaries".

Banfield PET HOSPITAL

Critically Appraised Topics

BARK publishes critically appraised topics (CATs) for our veterinary professional audience. CATs are an appraisal of the literature related to a focused health topic, then summarized and packaged to deliver the best evidence and clinical "bottom line" in a concise report.

Critically Appraised Topics

BestBETs for Vets

Supporting veterinary clinicians in making evidence-based decisions

Browse

Cats | Cattle | Dogs | Sheep | Coming soon | Coming soon

Critically Appraised Topics

RCVS KNOWLEDGE
evidence made clear

Knowledge Summaries

Veterinary teams need practical evidence-based tools to solve patient problems efficiently. That's why we are focusing on "Knowledge Summaries".

EBVM Toolkit 12: Guidance on compiling a Knowledge Summary [PDF 93KB]

EBVM Toolkit 13: Sample Knowledge Summary [PDF 153KB] - Please note: this sample has not been peer-reviewed

Knowledge Summary Template [DOC 426KB]

Narrative Reviews

Systematic reviews vs. non-systematic

Feature	Systematic review	Narrative review
Question	Often a focused one question	Often broad in scope
Sources and search	Comprehensive sources and explicit search strategy	Not usually specified, potentially biased
Selection	Criterion-based selection, uniformly applied	Not usually specified, potentially biased
Appraisal	Rigorous critical appraisal	Variable
Synthesis	Qualitative summary that includes statistical synthesis (meta-analysis)	Often a qualitative summary
Inferences	Usually evidence-based	Sometimes evidence-based

Adapted from: Y Yuan and R H Hunt, Am J Gastroenterol 2009; 104:1086–1092; doi:10.1038/ajg.2009.118

Systematic Reviews

CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources 2010 5, No. 045

Review

Evaluating the benefits and risks of neutering dogs and cats

Brennen McKenzie*

Address: Adobe Animal Hospital, 4470 El Camino Real, Los Altos, CA 94022, USA.

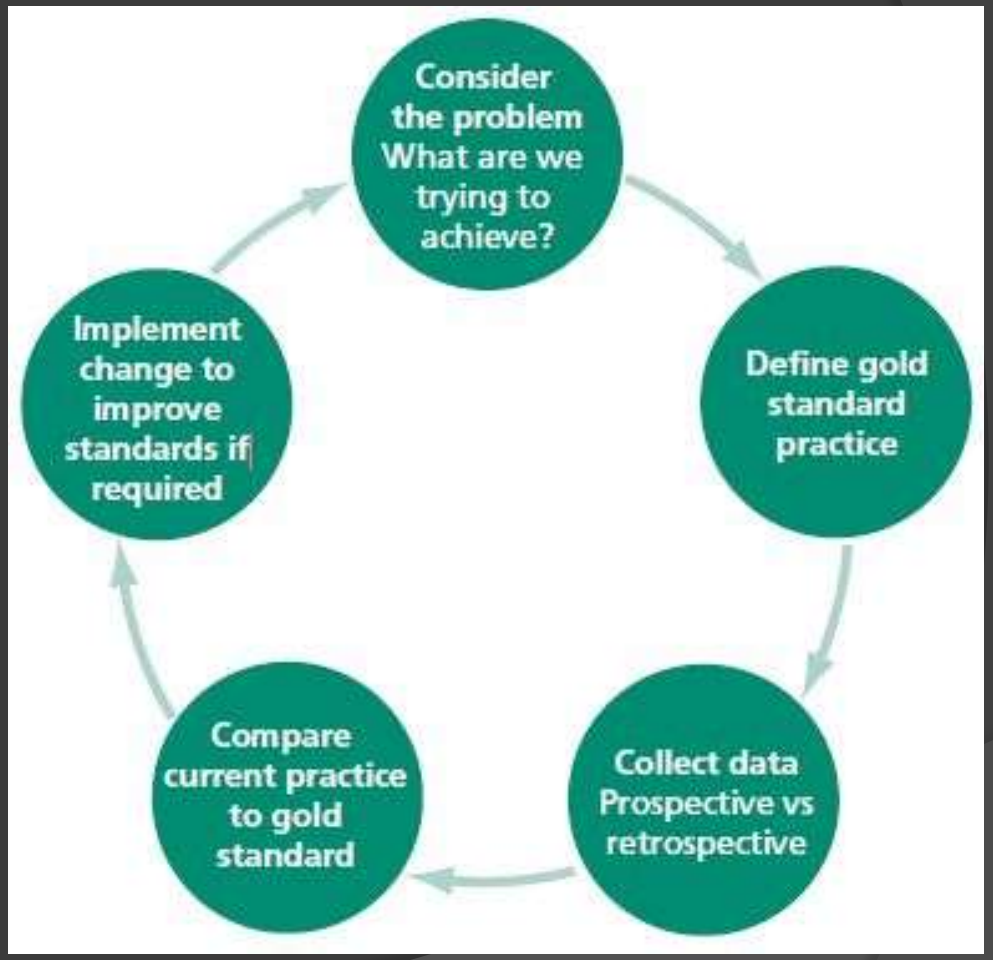
***Correspondence:** Email: mckenzievmd@gmail.com

Received: 25 January 2010
Accepted: 8 June 2010

doi: 10.1079/PAVSNNR20105045

Clinical Audit

The **systematic critical analysis** of the quality of veterinary care, including the **procedures used for diagnosis and treatment** and the resulting **outcome…for the patient**



Clinical Audit

Clinical Audit

- Initial Training Cost

Expense	Number	Hourly Cost	Hours Needed	Total
Tech (CPR)	40-50	$20	3	$2400-3000
Tech (Lead)	10-15	$22	2	$440-660
Vet (CPR)	27	$50	2	$2700
Vet (Lost Revenue)	27	$88	2	$4752
				$10-11k

Clinical Audit

Fewer Codes

- 37 in 6 months before RECOVER
- 17 in 6 months after RECOVER

Charging More/Consistently

Smoother Flow, Less Stressful/Wasteful

Outcomes?

Clinical Audit

Published Outcomes

- ROSC 35-45%
- STD 6-7%
  - 42-47% GA
  - 0-2% non-GA

	Number	Average Age	Average Length	ROSC	Discharged
2012-2013	54	8.90yr	11min (±8.3)	13 (24.1%)	2 (3.7%)
2013-2014	28	7.46yr	12.7min (±11.2)	12 (42.9%)	2 (7.1%)
Total	82	8.49yr	11.6min (±9.35)	25 (30.5%)	4 (4.9%)

Clinical Audit

RCVS KNOWLEDGE PRESENTS

EBVM

23-24 October 2014

1st INTERNATIONAL EBVM NETWORK CONFERENCE

IVECCS 2014

International Veterinary Emergency & Critical Care Symposium

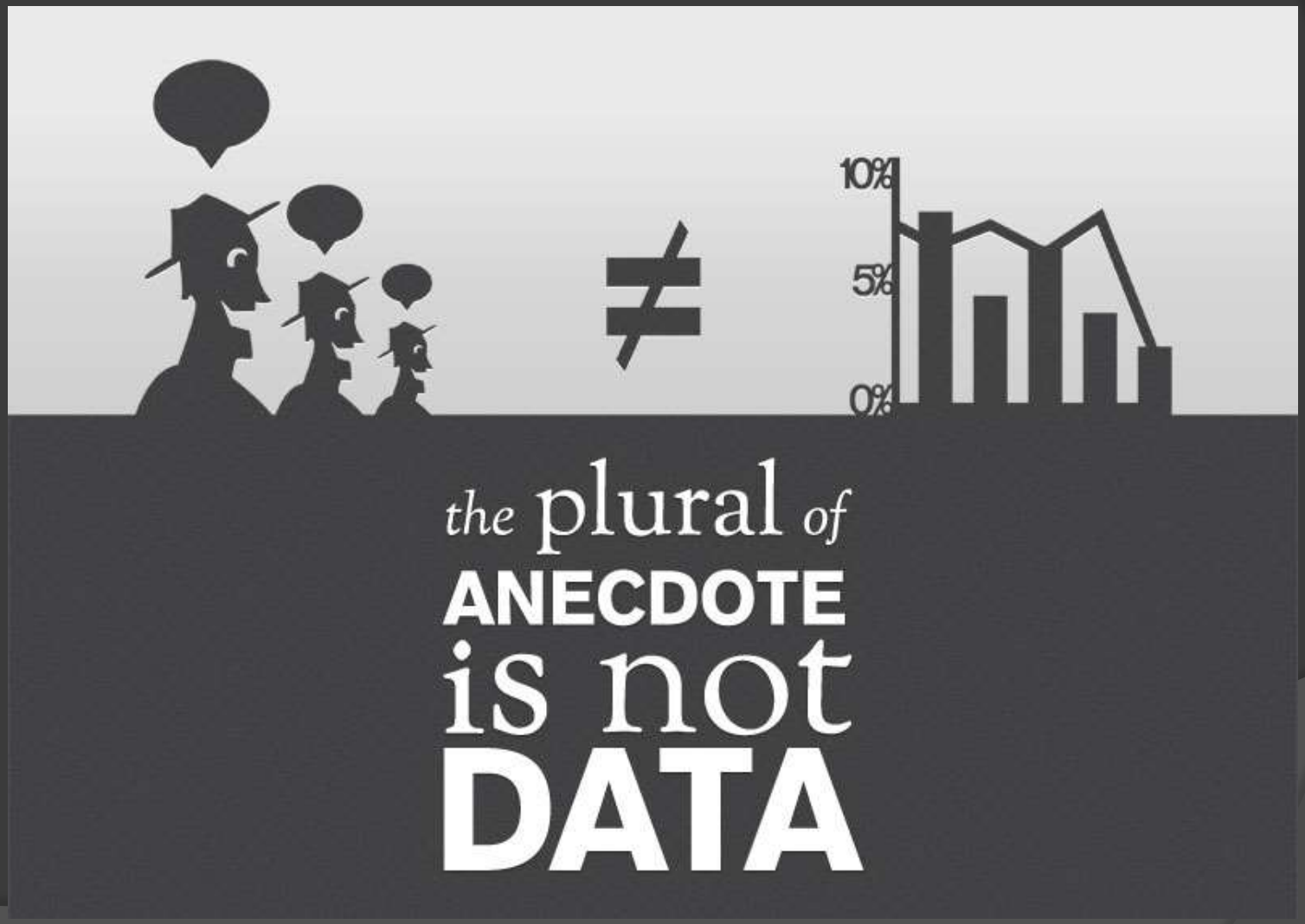
September 10-14, 2014
JW Marriott Indianapolis
Indianapolis, Indiana

Case Reports/Series

- Description of single case or group of similar cases
- Unique, new, or rare presentations
- No controls for bias

- Only useful for hypothesis generation!!!!!!

Case Reports/Series



Observational Research

- Advantages
  - More controls for bias/error than case reports/series
  - Sometimes allow conclusions about cause/effect relationships
  - Often less expensive/complex than interventional studies
  - No random assignment or placebos
    - Avoids ethical issues and risk of harm
    - Easier to obtain owner consent

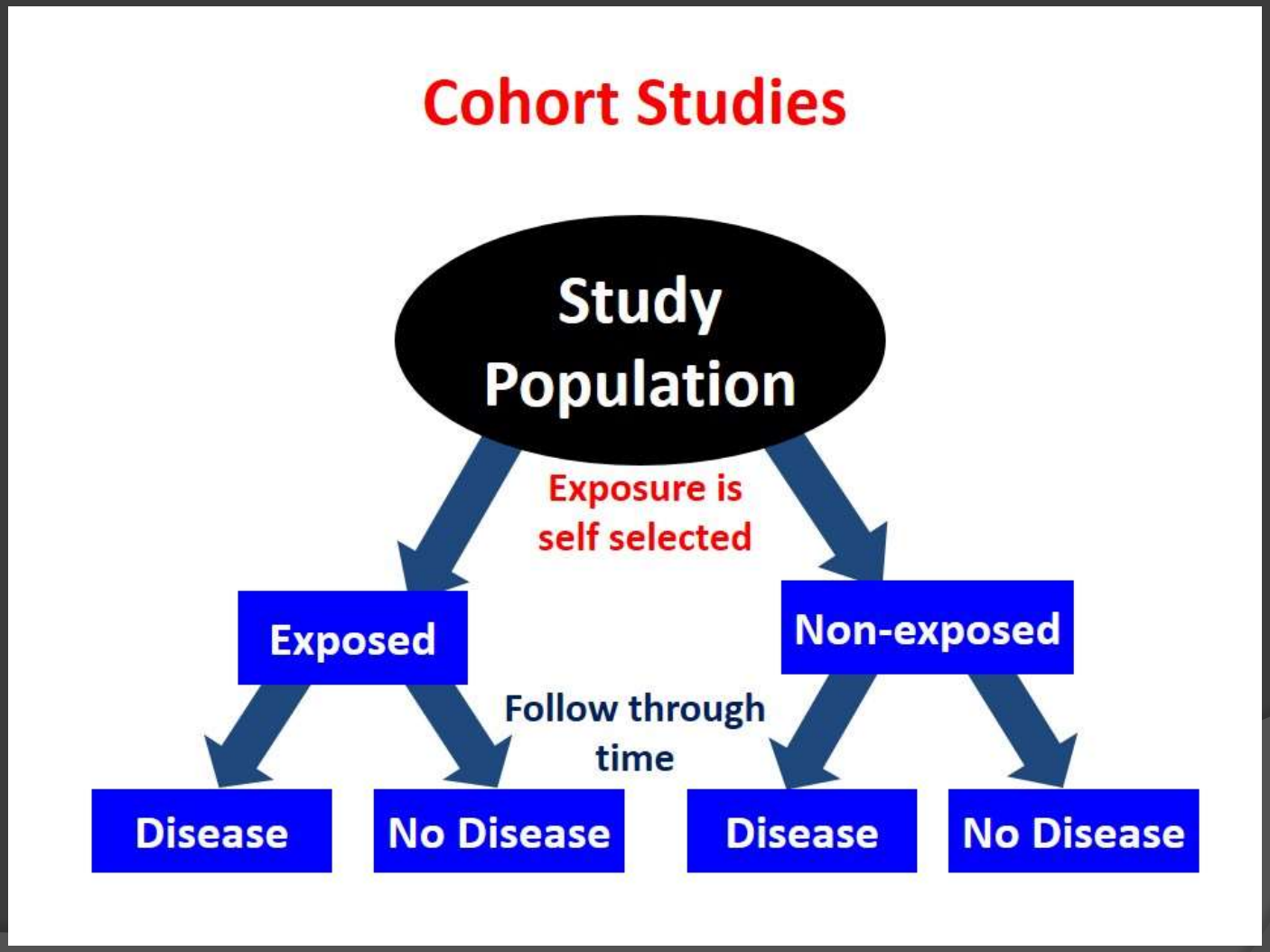
Observational Research

- Disadvantages
  - Require specialized expertise/training
    - If poorly done, effort is wasted
  - Require resources, sustained effort over time
  - Require client consent
  - Not as controlled/powerful as interventional studies

Observational Research

- Cohort Studies
- Case/Control Studies
- Cross-sectional Surveys

Cohort Studies



Cohort Studies

- Two groups similar except for some exposure
  - Risk factor
  - Treatment
- Compare outcomes between groups
  - Disease occurrence
  - Disease resolution/progression
- Can be prospective or retrospective

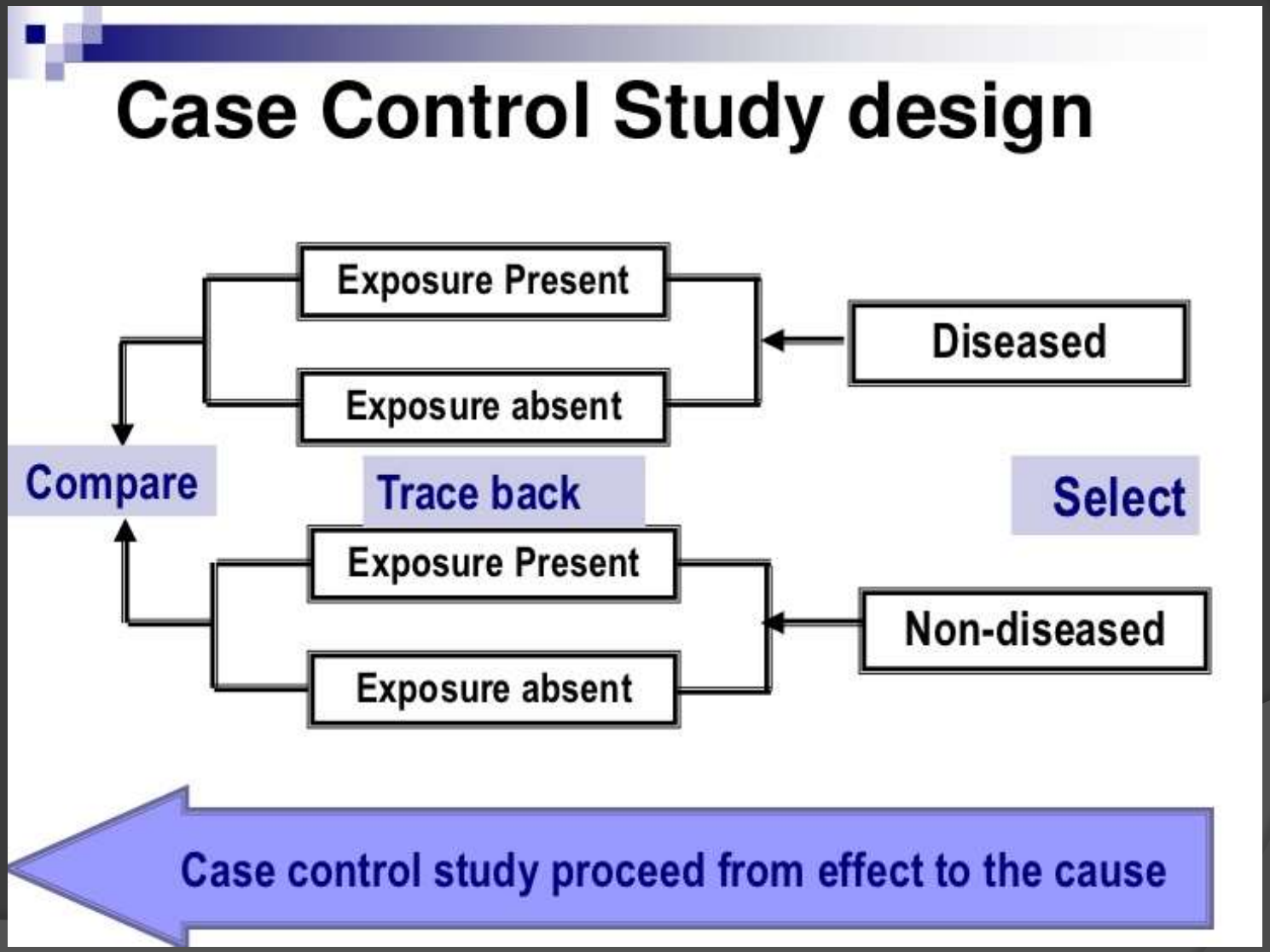
Cohort Studies

- Advantages
  - Statistically stronger than case/control
  - Can establish order of events, incidence, cause/effect relationships
  - Can study multiple variables at once
  - Can identify incidence

Cohort Studies

- Disadvantages
  - Difficult to blind
  - Can take a long time
    - Cost
    - Losses
    - Changes in exposure

Case-Control Studies



Case-Control Studies

- Two groups selected from population
  - With Outcome (Cases)
  - Without Outcome (Controls)
  - Should be similar except for outcome
- Compare outcomes between groups
  - Past exposures
- Retrospective

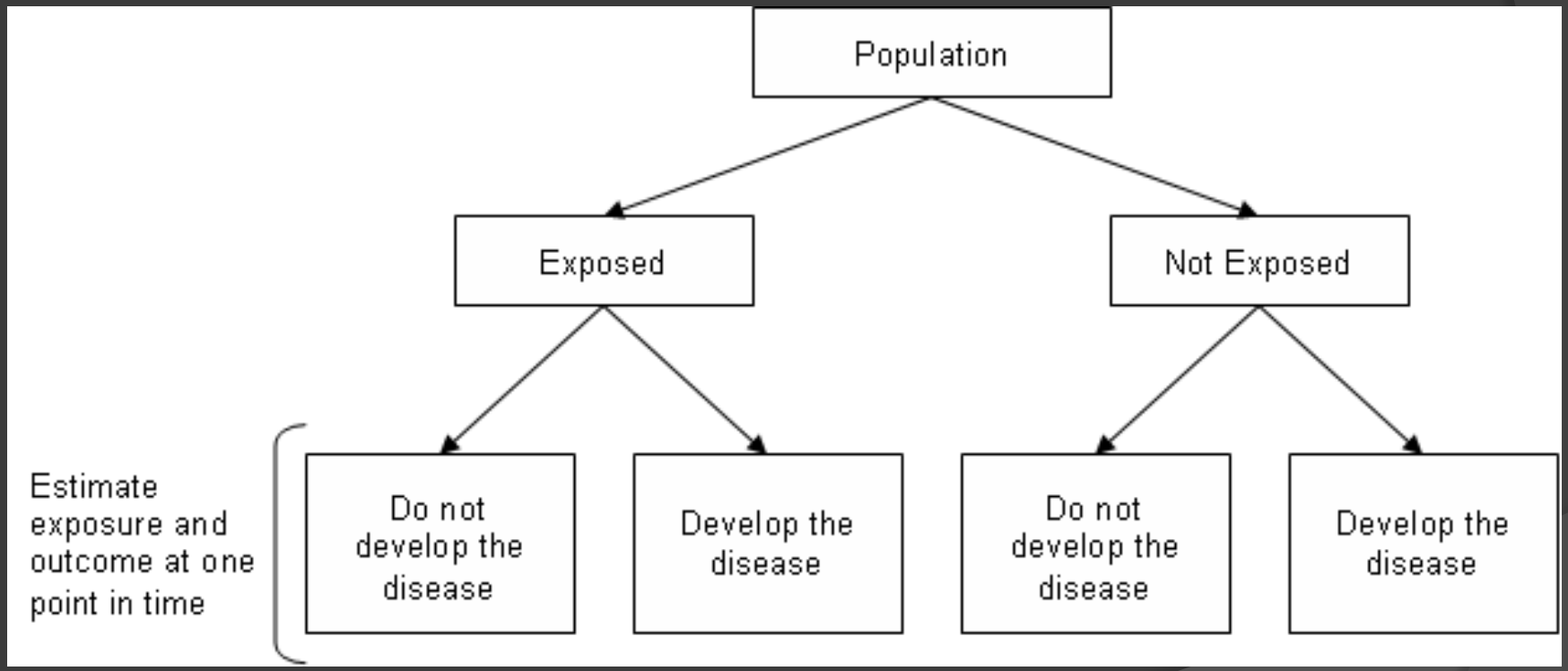
Case-Control Studies

- Advantages
  - Quick and inexpensive
  - Good for rare conditions
  - Can evaluate interventions, multiple risk factors

Case-Control Studies

- Disadvantages
  - Selection bias
    - Surviving cases
    - Controls
  - Error in historical exposure data
  - Association only, not causation
    - Hypothesis generating

Cross-sectional Surveys



Cross-sectional Surveys

- Select a representative sample of the population
  - With disease
  - Without disease
- Collect data on relevant factors all at once
- All done at one point in time (the present)

Cross-sectional Surveys

- Advantages
  - Quick and inexpensive
  - Can identify prevalence
  - Few ethical issues

Cross-sectional Surveys

- Disadvantages
  - Association only, not causation
  - Hypothesis generating

Interventional Research

- Clinical trials

Clinical Trials

- Advantages
  - Powerful at reducing bias, confounding
  - Can prove cause/effect
- Disadvantages
  - Complex
  - Expensive
  - Ethical challenges
- Academic or industry sponsor/support

Resources

VetCompass
Your Knowledge Hub

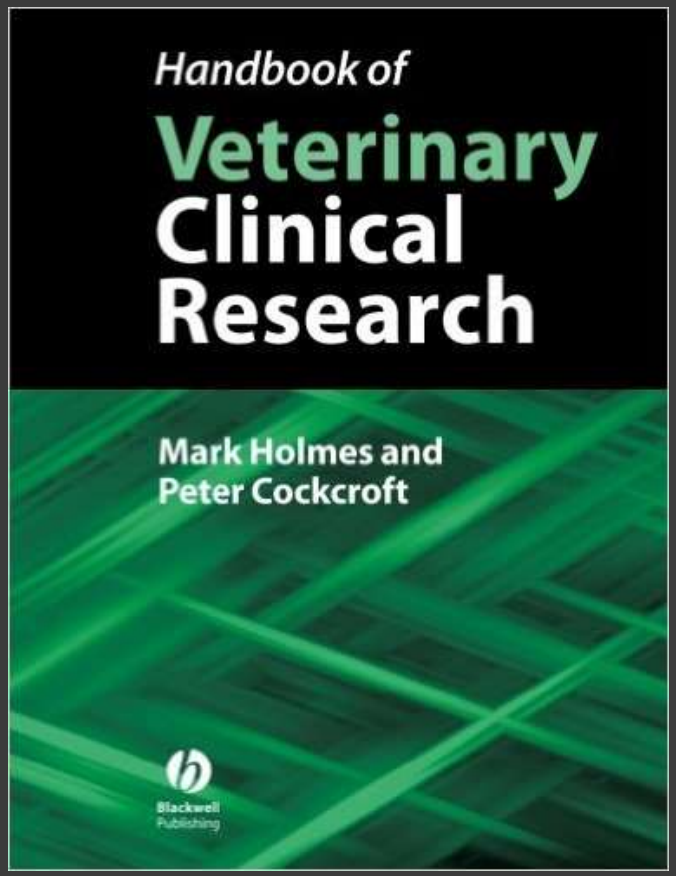
- Distributed research projects

CENTRE FOR EVIDENCE-BASED VETERINARY MEDICINE
Putting research into practice

SAVSNET
The Small Animal Veterinary Surveillance Network

Morris Animal FOUNDATION
Golden Retriever Lifetime Study

Resources


Handbook of
Veterinary
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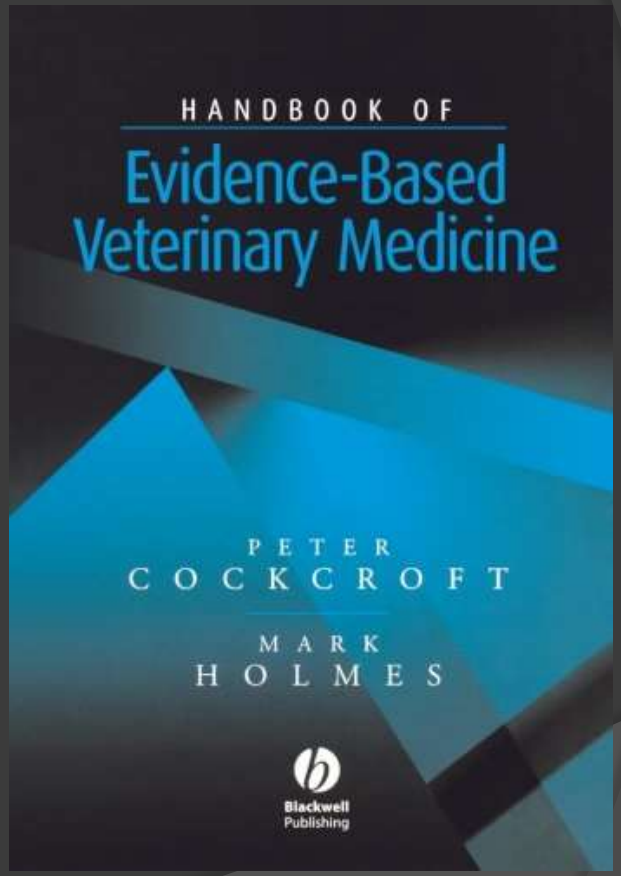
Research
Mark Holmes and
Peter Cockcroft
Blackwell
Publishing


HANDBOOK OF
Evidence-Based
Veterinary Medicine
PETER
COCKCROFT
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Resources

- Clinical Audit Toolkit
- EBVM Toolkit
  - Knowledge summaries (CATs)
  - Critical Appraisal (study design)
- EBVM Network
  - Knowledge groups

RCVS KNOWLEDGE
evidence made clear

RCVS KNOWLEDGE
evidence made clear

VETERINARY EVIDENCE
THE EBVM NETWORK JOURNAL

Resources

EBVMA

Evidence-Based Veterinary Medicine Association

I suggest that we must seek to elevate the status of the practitioner, not only…in the eyes of the academic but, more importantly, in the minds of practitioners themselves. Too often we hear that a practitioner cannot be expected to teach or to research. This is the philosophy of despair.

We are all academics in that we subscribe by our training and our aspirations to scientific objectivity; we are all teachers in that we are anxious to impart our knowledge…;we are all practitioners of the veterinary art. And each of us have a vested interest in research.

Peter Rossdale