What it sounds like on the surface…
Critical and Analytical Thinking
Objective analysis and evaluation of an issue in order to form a judgement

What it looks like in action...

Evidence
Assumptions
Beliefs
Experiences
Knowledge

Abilities
- Able to recognise assumptions
- Able to reason (analyse, evaluate and interpret)
- Make inferences based on evidence and reasoning
- Make deductions, draw together and arrive at logical conclusion

Dispositions
- Open-minded
- Fair and balanced view of own and others' work
- Search for truth
- Enquiring and...
Keys for Success

Organize...so you can analyze!
Evidence Table

- Provides a structure for analyzing a body of literature
- Assists with targeting similarities and differences
  - Methods
  - Populations
  - Outcomes
- Facilitates decision-making

<table>
<thead>
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Study Design Limitations

- None
- Non-Experimental/Observational Studies (case-control, cohort, cross-sectional, longitudinal, descriptive, epidemiologic, case study, series, survey)
  - Insufficient sample size
  - Sample not representative of patients in the population as a whole
  - Variables (confounders, exposures, predictors) were not described and accounted for
  - Outcomes criteria not objective or were not applied in blinded fashion
  - Insufficient follow-up, if applicable
  - Insufficiently studied, sample not defined at common point in course of disease condition
  - For diagnostic study, gold standard not applied to all patients
  - For prognostic study, no independent blind comparison between index test and gold standard

Study Limitations

- None
- Systematic Review
  - Review not designed to answer clinical question
  - Search not detailed or exhaustive
  - Quality of the studies was not appraised or studies were of low quality

RCT & Quasi-Experimental Studies
- Insufficient sample size
- Lack of randomization
- Lack of blinding
- Stopped early for benefit
- Lack of allocation concealment
- Selective reporting of measures
- Large losses to F/U

Non-Experimental/Observational Studies (case-control, cohort, cross-sectional, longitudinal, descriptive, epidemiologic, case study, series, survey)
The Research “Road Map”

- Abstract
- Introduction
- Methods
- Results
- Discussion
Abstract

Should you read the entire research article?

Includes a brief summary of the study:

• Purpose of study
• Basic study design
• Major findings
• Summary of conclusions
Evidence Table - Abstract

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**Study Design Limitations**

- Systematic Review
  - Review did not address focused clinical question
  - Search was not detailed or exhaustive
  - Quality of the studies was not appraised or studies were of low quality
  - Methods and/or results were inconsistent across studies
- RCT & Quasi-Experimental Studies
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- Non-Experimental/Observational Studies (case-control, cohort, cross sectional, longitudinal, descriptive, ...
Methods

- Patients
  - Sample size
  - Appropriate spectrum
  - Point in disease
- Randomization
- Blinding
- Allocation concealment
- Setting (single, multi-center)
To investigate the effect of animal assisted intervention (AAI) on pain and anxiety in pediatric patients in an acute-care hospital

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Study Limitations =
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Results

• Follow-up
  • Attrition
  • Intent-to-treat
• Outcomes
  • Size of effect
  • Statistical significance
  • P-values
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Discussion

• Limitations
• Confounders
• Conflict of interest
  • Authors
  • Funders
## Evidence Table – Design Limitations

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- Non-Experimental/Observational Studies (case-control, cohort, cross sectional, longitudinal, descriptive,
Systematic Reviews & Meta-Analyses

Remove studies in a systematic review from your evidence evaluation.
Confirming Validity

- Completeness
  - Focused clinical question
  - Exhaustive and detailed search

- Quality of studies
  - Publication bias (funnel plot)
  - Quality assessment
    - Cochrane
    - Ottawa scale
Understanding Importance

- Heterogeneity
- Study design
- Participants
- Outcomes
  - $I^2$ statistic (goal = 0%)
- Meta-analysis
  - Forest plots
  - “Pooled” estimates
Evidence-Based Decision Making

- Presents evidence in a transparent way
- Involves all appropriate stakeholders and content experts
- Integrates clinical expertise and patient preferences
- Results in a practice recommendation to DO or NOT DO something
Pet therapy is recommended as an alternative and/or adjunct to medication for alleviating pain and anxiety in hospitalized patients.