# Damning the research evidence cascade

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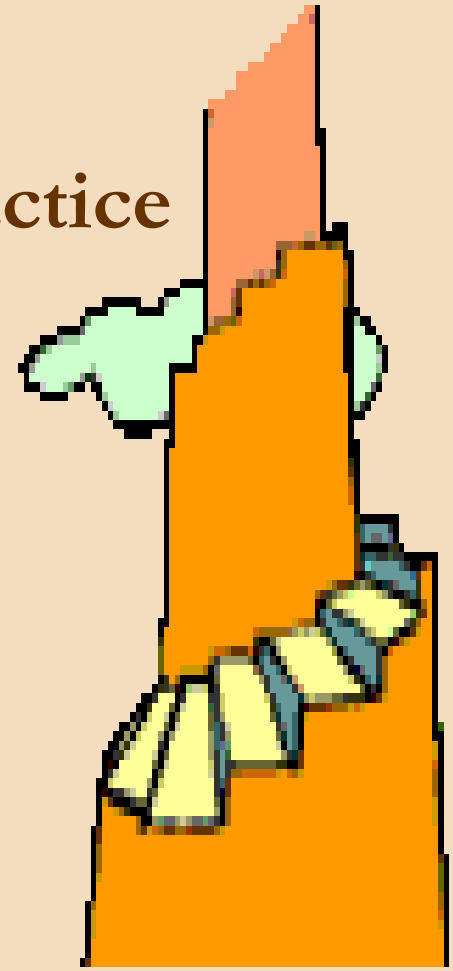
Practice Landscape
Quality Processes
Research Processes
Pool of Evidence

Returned to Practice



5 Steps

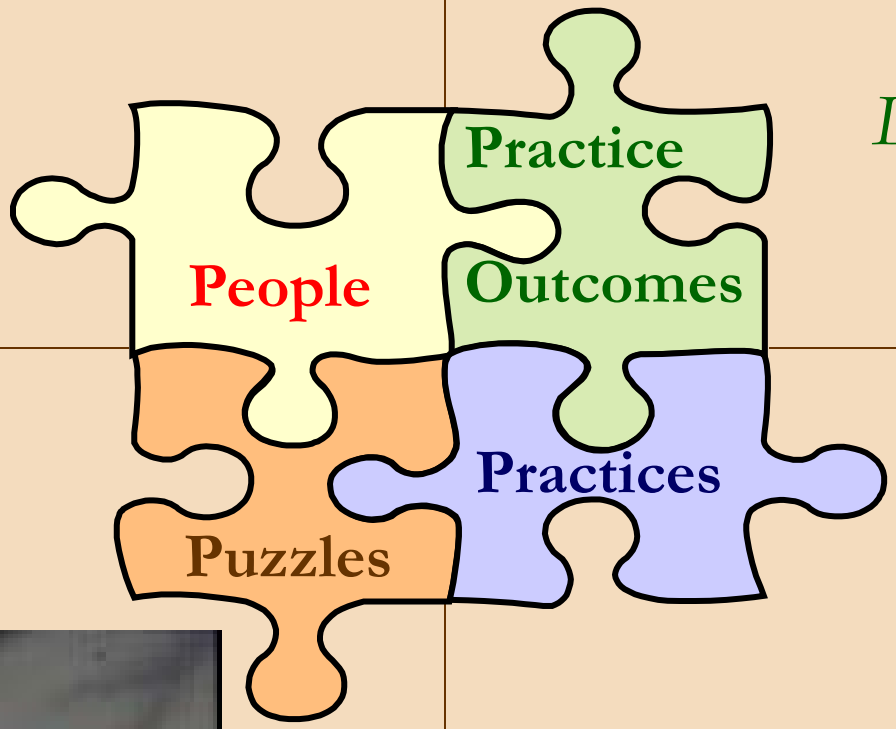
Grounded in practice

# Understanding & Considering

*Individual / group experiences & expectations*

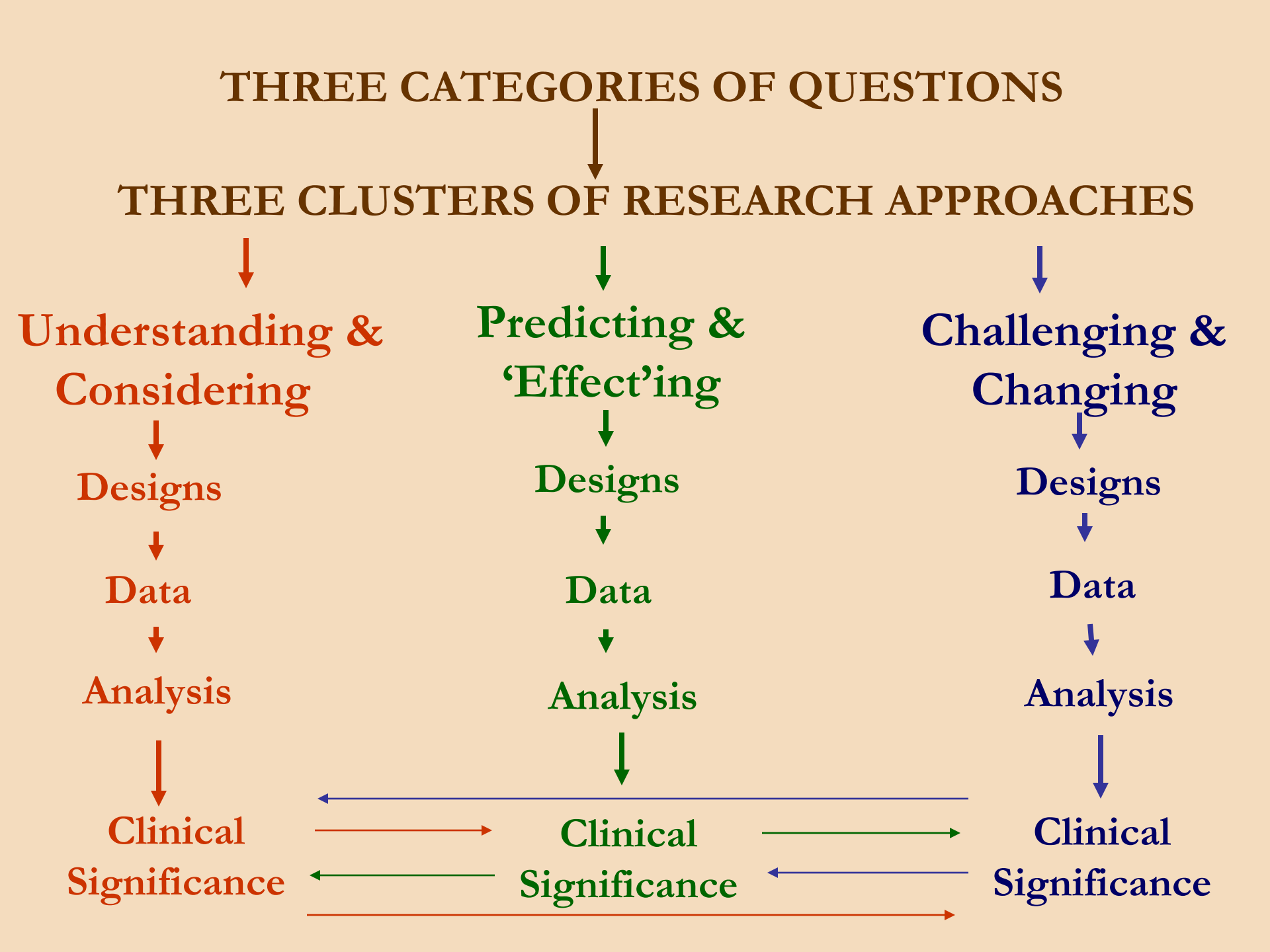
# Predicting & 'Effect'ing

*Local clinical practices and management systems*




*Local processes, capacity & desire for change*

# Challenging & Changing


THREE CATEGORIES OF QUESTIONS
THREE CLUSTERS OF RESEARCH APPROACHES
Understanding & Considering
Designs
Data
Analysis
Clinical Significance
Predicting & 'Effect'ing
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Challenging & Changing
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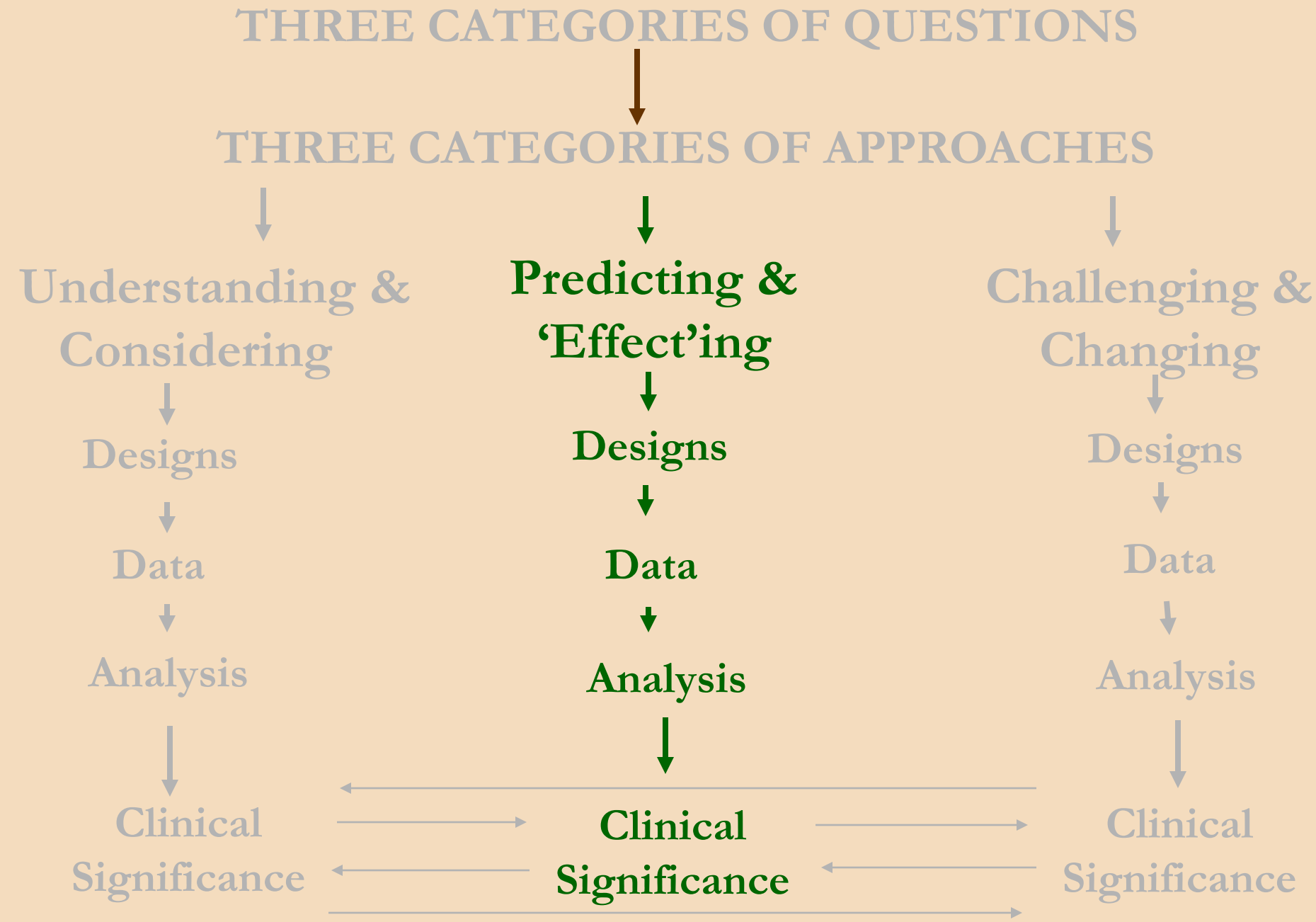
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# Designs

**Descriptive** — *What appears to be?*

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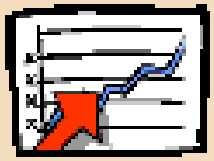
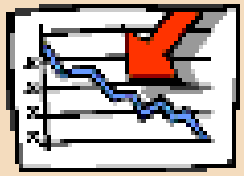
**Correlational –**

**'Relationships'** — *How related?*





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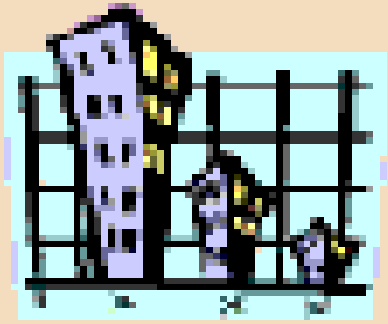
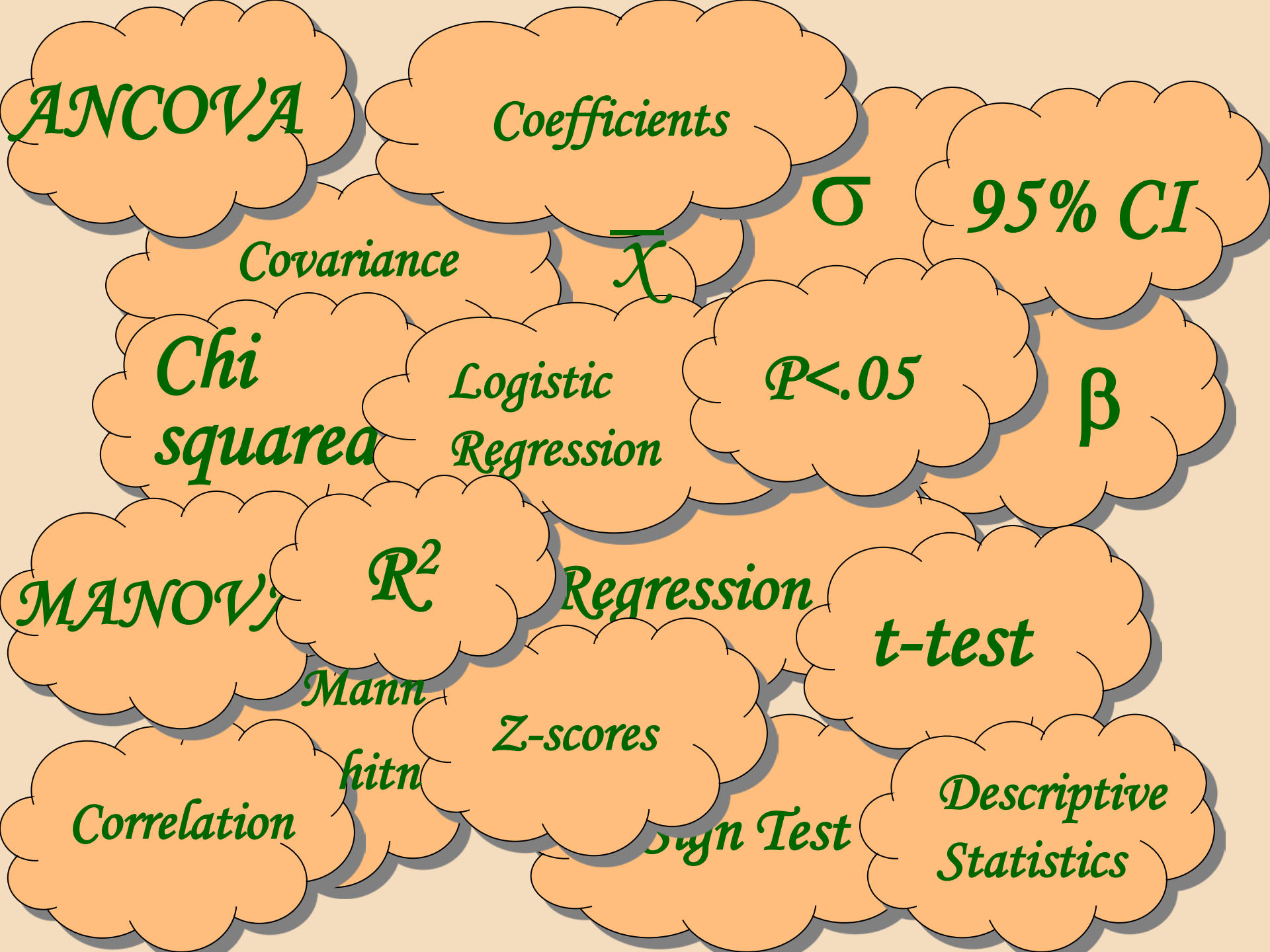
**RCT/Experimental –**

**'Group Differences'** — *What is best?*

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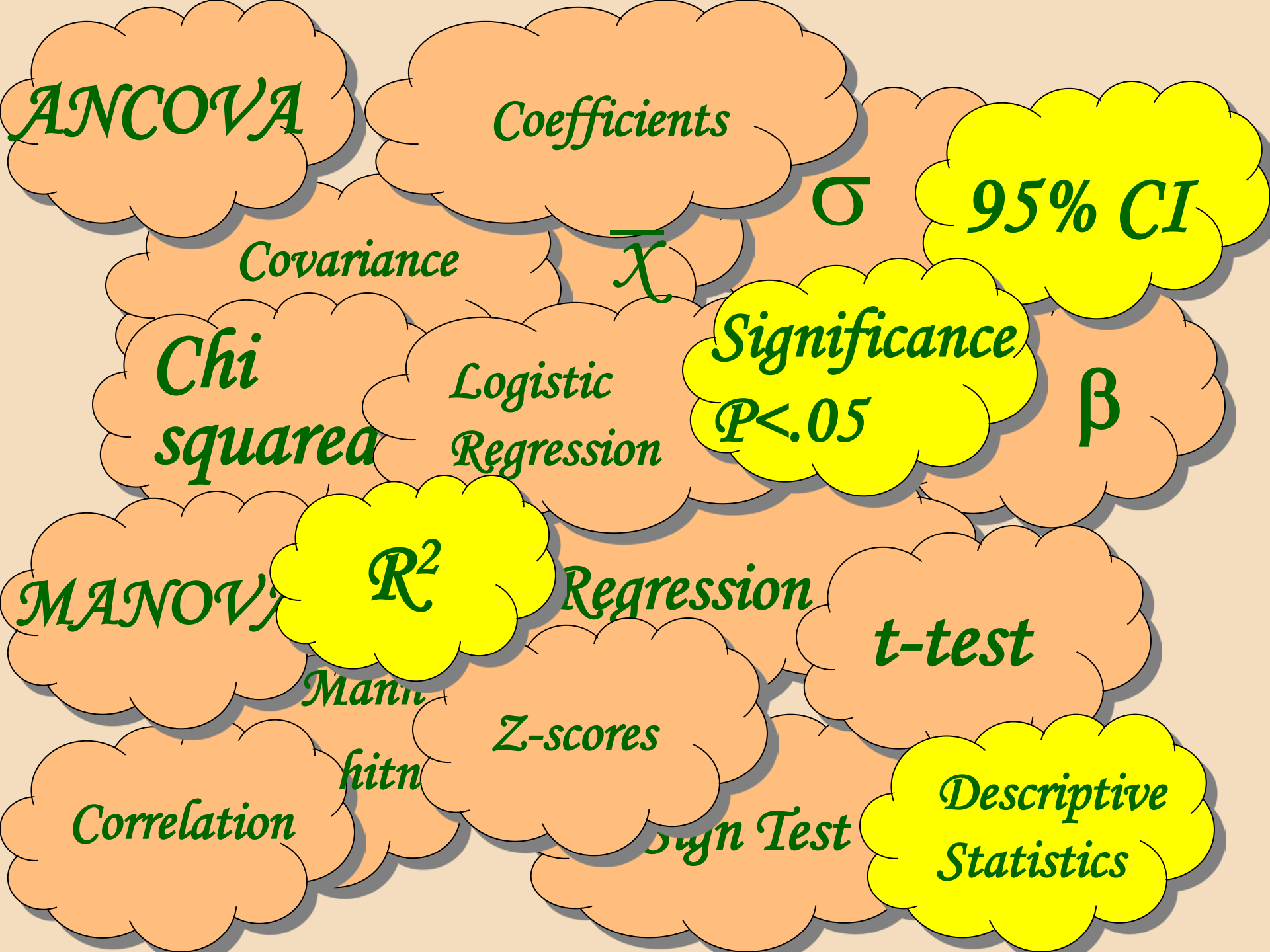
Coefficients
σ
95% CI
Covariance
$\overline{X}$
Chi squarea
Logistic Regression
P<.05
β
MANOVA
$R^2$
Regression
t-test
Mann
Z-scores
hitn
Correlation
Sign Test
Descriptive Statistics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Descriptive Statistics

| DATA | Descriptive Statistics | |
|---|---|---|
| | Central Tendency | Dispersion |
| Categorical, Nominal, Dichotomous | Mode | Frequencies % |
| Ordinal – low level | Median | Frequencies %<br>Inter-quartile range |
| Ordinal – high level | Mean | Standard Deviation |
| Interval | - if normal distribution | - if normal distribution |

Continuous

| DATA | Descriptive Statistics | |
|---|---|---|
| | Central Tendency | Dispersion |
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| Ordinal – high level | **Mean** | **Standard Deviation** |
| Interval | **- if normal distribution** | **- if normal distribution** |

Continuous

| DATA | Statistical Significance | |
|---|---|---|
| | Relationships | Group Differences |
| Categorical or Dichotomous | Fisher's exact<br>Phi<br>Logistic regression | Chi squared<br>Chi squared for trend analysis |
| Ordinal – low level | Spearman's cor<br>Kruskall-<br>Friedman's<br>repeated me | ney U<br>test for<br>data |
| Ordinal – high level | Pearson's correlation<br>Multiple linear regression | Student's t<br>Multiple regression |
| Interval | Discriminant Analysis<br>Factor Analysis | ANOVA/ANCOVA<br>MANOVA/MANCOVA |

Probability & Significance

Continuous

Descriptive Statistics + Outcomes

+

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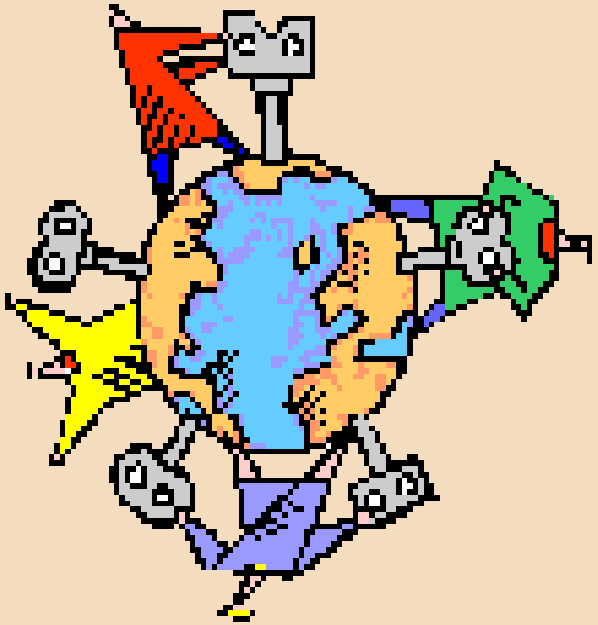


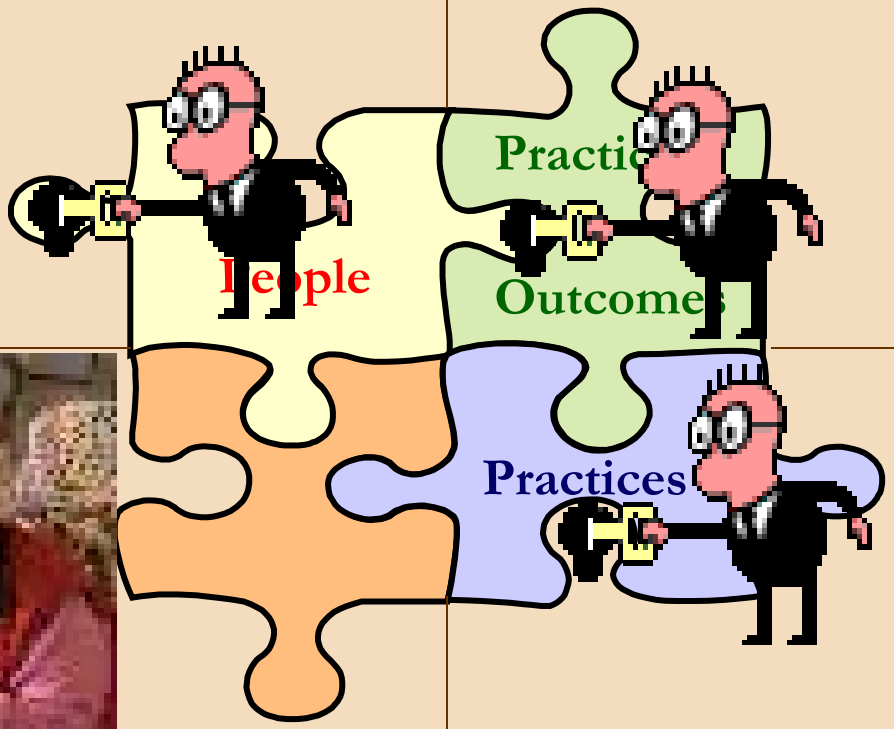
# Clinical Significance

| | |
|---|---|
| **Relationships** | **Coefficient of Determination ($R^2$)** |
| **Group Differences** | **<u>Dichotomous outcomes</u>**<br><br>**Absolute Risk/Benefit (AR/AB)**<br>**Relative Risk/Relative Benefit (RR/RB)**<br>**Odds Ratios (OR)**<br>**Numbers needed to treat/harm (NNT/NNH)**<br><br>**<u>Continuous outcomes</u>**<br>**Mean or Median Differences**<br><br>*** With 95% Confidence Intervals** |

## Understanding & Considering

## Predicting & 'Effect'ing

*Acceptability?*




*Efficacy, Safety & Cost?*

*Feasibility?*

## Challenging & Changing

Thank you