PRE-CONGRESS COURSE 9

Academic Authorship programme

The A to Z of research: Doing a study, presenting a poster, giving a talk, writing it up

The Editors of Human Reproduction Journals
Munich - Germany, 29 June 2014

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Academic Authorship programme - The A to Z of research: doing a study, presenting a poster, giving a talk, writing it up

Munich, Germany
29 June 2014

Organised by
The Editors of Human Reproduction Journals

Contents

Learning objectives

After attending the course the participant should be familiar with the principles of study design – including those for treatment and diagnostic test studies. Considerable focus will be directed to the key components of a manuscript, with practical exercises designed to equip participants with the knowledge required to prepare their work for publication, either as a poster or as an oral presentation, and finally as an original publication in a scientific journal.

Course format

There will be five traditional lectures; the rest of the day being devoted to three small-group exercises with feedback to all participants following each exercise.

Target audience

Young clinicians and scientists, people at the onset of the writing and presentation phase of their academic career, and all those who wish to familiarize themselves with present day ideas about designing a study and publishing its outcome.

Scientific programme

09:00 - 09:10	Introduction to the course ***Johannes Evers - The Netherlands***
09:10 - 09:40	Principles of study design, treatment ***Johannes Evers - The Netherlands***
09:40 - 09:50	Discussion
09:50 - 10:20	Principles of study design, diagnosis ***Madelon Van Wely - The Netherlands***
10:20 - 10:30	Discussion
10:30 - 11:00	Coffee break
11:00 - 11:30	Giving a talk ***Edgardo Somigliana - Italy***
11:30 - 12:30	Group work on oral presentation + report to group ***Edgardo Somigliana - Italy***
12:30 - 13:30	Lunch break
13:30 - 14:00	Writing a study up for a scientific journal ***Richard Sharpe - United Kingdom***
14:00 - 15:00	Group work on writing a manuscript + report to group ***Richard Sharpe - United Kingdom***
15:00 - 15:30	Coffee break
15:30 - 16:00	Presenting a poster ***Felice Petraglia - Italy***
16:00 - 17:00	Group work on poster presentation + report to group ***Felice Petraglia - Italy***
17:00 - 17:10	Conclusions, wrap-up and take-home messages ***Johannes Evers - The Netherlands***
17:10 - 17:20	Evaluation of the course

Principles of study design, treatment

Hans Evers

Maastricht, The Netherlands

1. Diagnosis: Diagnostic test

2. Treatment: Intervention

2 x 2 table diagnosis

	disease	no disease
abnormal test result	A	B
normal test result	C	D

2 x 2 table treatment

	outcome	no outcome
intervention	A	B
comparison	C	D

Principles of study design, treatment

Hans Evers

Maastricht, The Netherlands

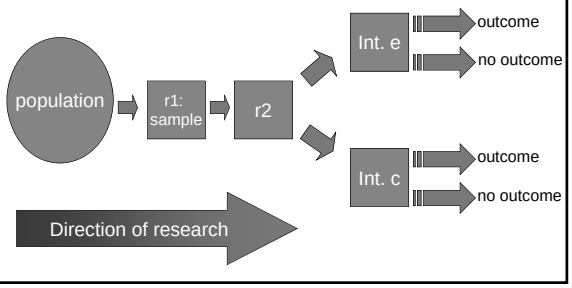
Question

Does surgery for a varicocele improve pregnancy chances in subfertile couples?

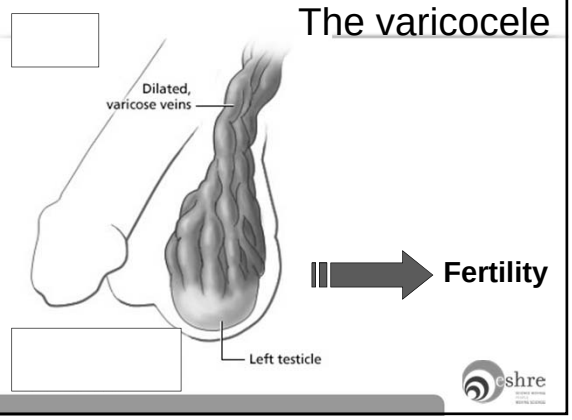
Types of study design

- Observational studies
  - Narrative
    - *case report*
    - *case series*
  - Analytical
    - *case-control*
    - *cross-sectional*
    - *cohort*
- Interventional studies
  - *RCT*

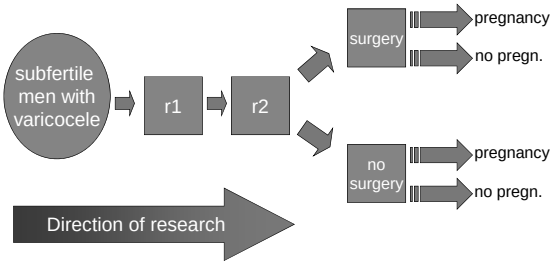
Randomized clinical trial



The varicocele



Randomized clinical trial: varicocele



2 x 2 table

	outcome	no outcome
intervention	A	B
comparison	C	D

2 x 2 table

	pregnancy	no pregnancy
varicocele surgery	18	44
no surgery	16	47

Nieschlag et al., 1996

2 x 2 table

	pregnant	not pregnant
varicocele surgery	18	44
no surgery	16	47

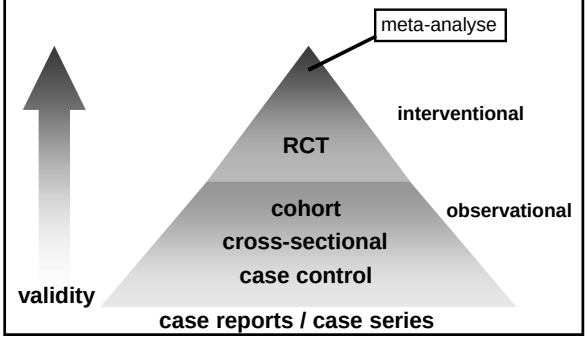
Pregnant 18/62=29%

Pregnant 16/63=25%

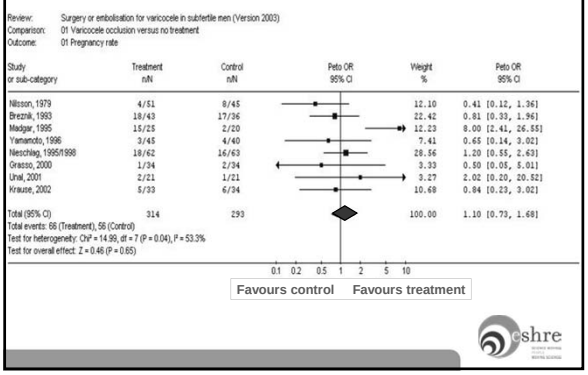
Difference 4%

Number Needed to Treat (NNT) = 100 / 4 = 25

Hierarchy of major study designs



Cochrane library:



Number Needed to Treat

	surgery	no surgery
pregnant	66	56
total patients	314	293
absolute risk (AR)	21.0 %	19.1 %
AR reduction	21.0 – 19.1 = 1.9 %	
NNT	100 / 1.9 = **53**	

Summary

- **2x2 table** works also in treatment studies
- **RCT** is the best quality treatment study
- **NNT** is easily understandable outcome
- Sometimes an RCT is **impossible** or unethical
- Then **observational studies** may help
- **Meta-analysis** summarizes RCT's

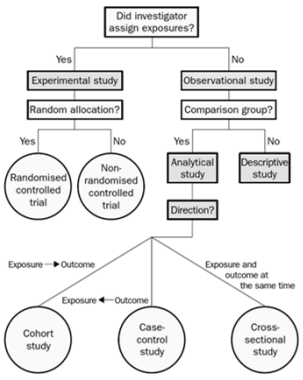
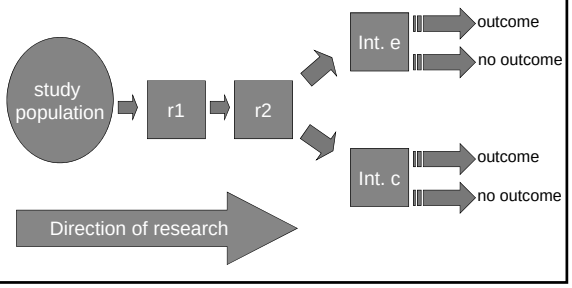


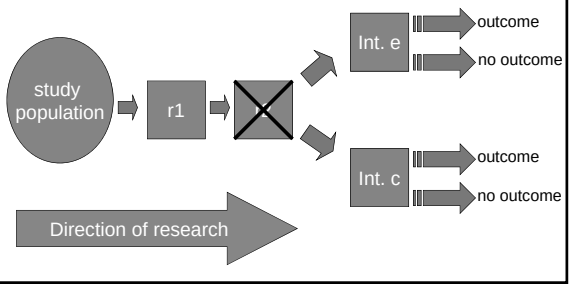
Figure 1: **Algorithm for classification of types of clinical research**

Grimes & Schultz, Lancet 2002

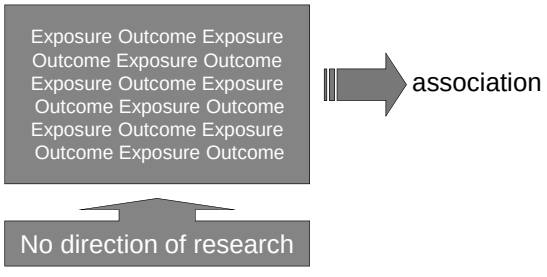
Randomized clinical trial



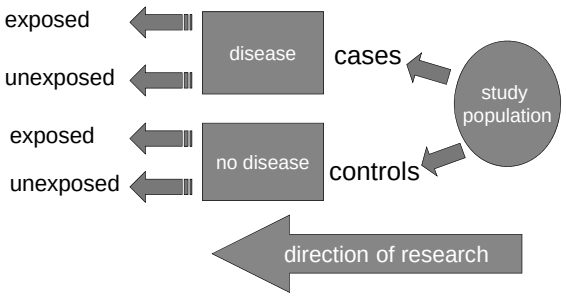
Prospective cohort study



Cross-sectional study



Case-control study



Types of study design

- Observational studies
  - Narrative
    - ***case report***
    - *case series*
  - Analytical
    - *case-control*
    - *cross-sectional*
    - *cohort*
- Interventional studies
  - *RCT*

Case report

The gonadotrophin resistant ovary syndrome: a curable disease?

Evers JL, Rolland R.
Clin Endocrinol (Oxf) 1981 Jan;14(1):99-103

A patient with the resistant ovary syndrome is reported. Feedback inhibition of pituitary gonadotrophin secretion was achieved by exogenously administered ovarian steroid hormones. All protein and steroid hormone levels returned to normal and spontaneous ovulatory cycles resumed after withdrawal of medication. It is concluded that the so-called "resistant ovary syndrome" is an ovarian feed-back inhibition defect.

Types of study design

- Observational studies
  - Narrative
    - *case report*
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    - *case-control*
    - *cross-sectional*
    - *cohort*
- Interventional studies
  - *RCT*

Case series

The resistant ovary syndrome is not irreversible.

Evers JL, Rolland R, Fransen J, Van Dis G, Lim TH, Verhoef A, Van Dooren AL, Smits PJ, Raymann E.
Clin Endocrinol (Oxf) 1982 Mar;15(3):245-248

Eleven patients with the resistant ovary syndrome are described. Hormone levels returned to normal in 8/11, and spontaneous ovulatory cycles returned in 2/8 during exogenous steroid administration, in 2/8 after withdrawal of exogenous steroids, and in 1/8 after a fall on the ice while skating. Two patients conceived. It is concluded that the so-called "resistant ovary syndrome" is not an irreversible process.

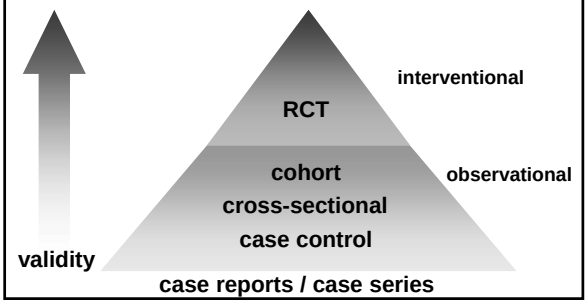
Narrative observational studies

Strength	Easy to write; fun to read
Weakness	Little or no rigour
Aim/goal	Hypothesis generation

Types of study design

- Observational studies
  - Narrative
    - *case report*
    - *case series*
  - Analytical
    - *case-control*
    - *cross-sectional*
    - *cohort*
- Interventional studies
  - *RCT*

Hierarchy of major study designs



Clinical scenario # 1

- Pat.: woman, 32 years
- Complaint: primary subfertility x 2 yrs
- Lab.: normal
- LS: blocked tubes
- Advise: IVF
- Question: Ovarian Ca risk?

PICO

- Patient
- Intervention
- Comparison
- Outcome

PICO

Patient	Subfertility patient with IVF indication
Intervention	Ovarian stimulation *plus* IVF
Comparison	*No* ovarian stimulation, *no* IVF
Outcome	Ovarian cancer

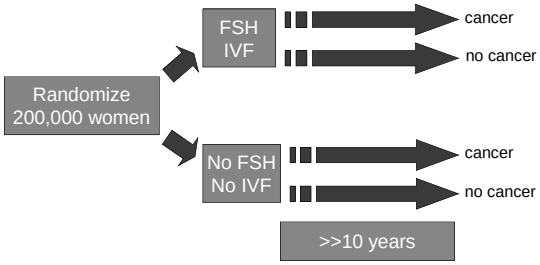
Ovarian Cancer at age 32 yrs

- Rare: <1 per 10,000 women per year
- Slow: lag time often >10 years

If RCT:

- Huge trial (thousands of women)
- Long follow-up (>10 years)
- Methodological, economical and ethical concerns
- Potential exposure to harm

Randomized clinical trial



Ovarian Ca and IVF: case-control study

	ovarian Ca N=622	no ovarian Ca N=2001
Fertility drugs	20 (3.3%)	11 (1.0%)
No fertility drugs	602	1090

Whittemore et al.: Characteristics relating to ovarian cancer risk. Am J Epidemiol 1992;136:1184-1203

Ovarian Ca and IVF: cohort study

	ovarian Ca	no ovarian Ca
IVF n=20,663	7 (0.03%)	20,656
No IVF n=9,050	6 (0.07%)	9,044

Venn et al., Lancet 354:1586-90, 1999: Risk of cancer after use of fertility drugs with IVF

Types of study design

- Observational studies
  - Narrative
    - *case report*
    - *case series*
  - Analytical
    - *case-control*
    - ***cross-sectional***
    - *cohort*
- Interventional studies
  - *RCT*

Clinical scenario # 2

- Pat.: woman, 36 years
- Complaint: primary subfertility
- H&Ph: uneventful history & physical
- LS: endometriosis
- Question:

  cause of subfertility?

PICO

Patient	Patient with unexplained subfertility
Intervention	LS: endometriosis
Comparison	LS: no endometriosis
Outcome	Fertility

Endometriosis and subfertility

	endometriosis n=23	no endometriosis n=275
subfertility	21 (91%)	79 (29%)
no subfertility	2 (9%)	196 (71%)

Endometriosis and infertility: a laparoscopic study of endometriosis among fertile and infertile women. Strathy JH et al.: Fertil Steril 1982 Dec;38(6):667-72

Endometriosis and subfertility

	endometriosis	no endometriosis
subfertility n=100	21 (21%)	79 (79%)
no subfertility n=198	2 (1%)	196 (99%)

Endometriosis and infertility: a laparoscopic study of endometriosis among fertile and infertile women. Strathy JH et al.: Fertil Steril 1982 Dec;38(6):667-72

Cross-sectional study

Endometriosis Subfertility Endometriosis Subfertility Endometriosis Subfertility Endometriosis Subfertility Endometriosis Subfertility Endometriosis Subfertility Endometriosis Subfertility Exposure Outcome

association

No direction of research

Bias & confounding

- Selection bias: subfertile patients compared with patients of proven fertility (i.e. having been pregnant)
- Surveillance bias: Look more carefully for a given outcome in one group
- Confounding factors: proven fertility, oral contraceptives, fewer menses, pregnancy and breast feeding

Types of study design

- Observational studies
  - Narrative
    - *case report*
    - *case series*
  - Analytical
    - ***case-control***
    - *cross-sectional*
    - *cohort*
- Interventional studies
  - *RCT*

Clinical scenario # 3

Doctors warn of possible new risk for IVF babies

LONDON (Reuters) – 24 Jan. Test tube babies have a sevenfold increased risk of developing retinoblastoma, a rare form of eye cancer, scientists warned on Friday.

The Times, London, 24/01/03

PICO

Patient	newborn
Intervention	IVF pregnancy
Comparison	spontaneous pregnancy
Outcome	retinoblastoma

The figures (Moll et al., 2003)

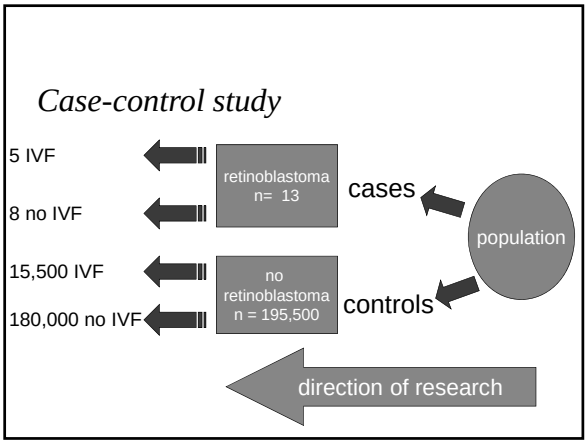
- 5 IVF children with retinoblastoma in 6 years (15,500 ongoing IVF pregnancies)
- 8 non-IVF children with retinoblastoma per year (180,000 spont. pregnancies)

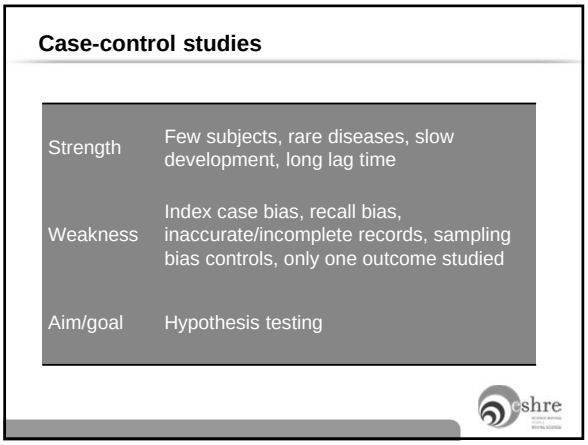
Moll AC et al.: Incidence of retinoblastoma in children born after in-vitro fertilisation. Lancet 2003 Jan 25;361(9354):309-10

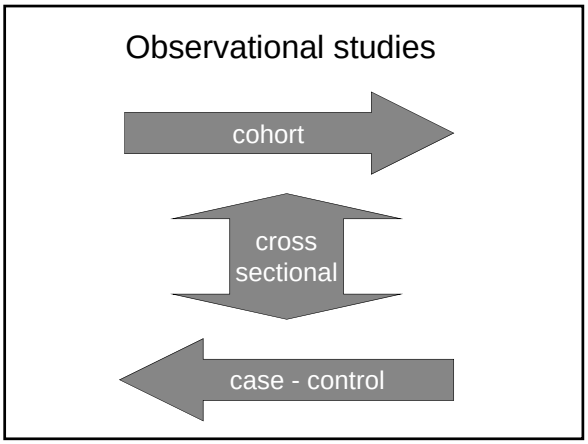
Retinoblastoma and IVF

	retinoblastoma n=13	no retinoblastoma n=195,500
IVF	5 (38%)	15,500 (8%)
no IVF	8	180,000

Moll AC et al.: Incidence of retinoblastoma in children born after in-vitro fertilisation. Lancet 2003 Jan 25;361(9354):309-10


Case-control study
5 IVF
8 no IVF
15,500 IVF
180,000 no IVF
retinoblastoma n= 13
no retinoblastoma n = 195,500
cases
controls
population
direction of research


Case-control studies
Strength
Few subjects, rare diseases, slow development, long lag time
Weakness
Index case bias, recall bias, inaccurate/incomplete records, sampling bias controls, only one outcome studied
Aim/goal
Hypothesis testing
eshre


Observational studies
cohort
cross sectional
case - control

Strengths & weaknesses of study design

Design	Start	Assessment	Strength	Weakness
RCT	Intervention ⟹	Outcome	Little bias	Feasibility, cost, generalisability
Cohort	Intervention ⟹	Outcome	Feasible when randomisation not possible	Bias, limited validity
Cross-sectional	Intervention & Outcome		Fast, cheap, prevalence	Bias, association, no causal relation
Case-control	Intervention ⟸	Outcome	Fast, small sample size	Bias, limited validity

Principles of study design: diagnostic test studies

Madelon van Wely, PhD

Center for reproductive medicine, AMC-UVA, Amsterdam

Financial/commercial disclosure: none

Learning objectives

- What is important when designing a diagnostic study
- How to use the results of diagnostic tests
- How to interpret the results in practice
- Pooling evidence using meta-analysis

What is diagnosis?

- Increase certainty about presence/absence of disease
- Disease severity
- Monitor clinical course
- Assess prognosis – risk/stage
- Plan treatment e.g., location
- Stall for time!

Importance of diagnosis

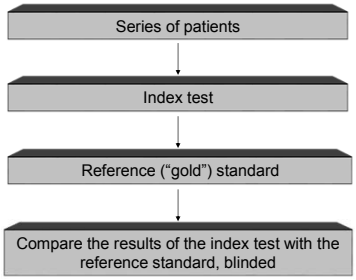
- 2/3 malpractice claims against GPs in UK
- 40,000-80,000 US hospital deaths from misdiagnosis per year
- Adverse events, negligence cases, serious disability more likely to be related to misdiagnosis than drug errors
- Diagnosis uses <5% of hospital costs, but influences 60% of decision making

Diagnostic Errors—The Next Frontier for Patient Safety

JAMA, 2009, vol 301 (10), pp 1060

Appropriate diagnostic studies needed

Basic structure of diagnostic studies



Dealing with diagnostic tests: 3 easy steps

1. Will the results be valid?	• Appropriate spectrum of patients? • Does everyone get the gold standard? • Is there an independent, blind or objective comparison with the gold standard?
2. Presentation of results?	• Sensitivity, specificity • Likelihood ratios • ROC curve
3. Will the study help me look after my patients?	• Can I do the test in my setting? • Do results apply to the patients I see? • Will the result change my management? • Costs to patient/health service?

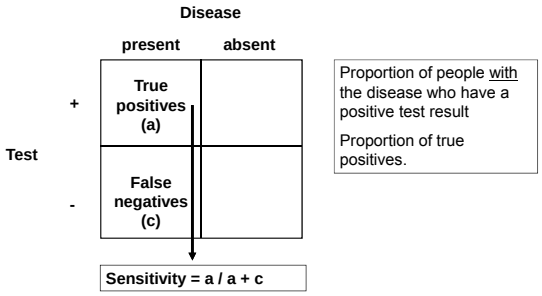
Valid results

- **A*ppropriate spectrum* of patients**
  - Ideally, test should be performed on group of patients in whom it will be applied in the real world clinical setting
- **A*ll* patients have the gold standard?**
  - Ideally all patients get the gold /reference standard test
- ***Comparison* with the gold standard**
  - Ideally, the gold standard is independent, blind and objective

Presentation of results: 2 by 2 table

		Disease: present	Disease: absent
Test	+	True positives (a)	False positives (b)
	-	False negatives (c)	True negatives (d)

Presentation of results: 2 by 2 table - sensitivity

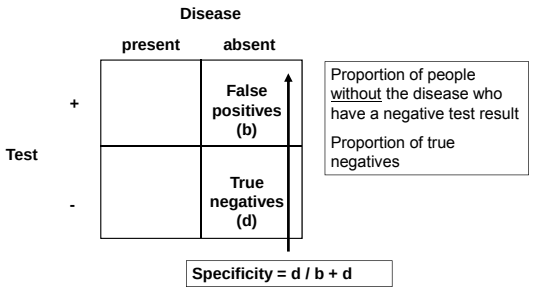


Proportion of people with the disease who have a positive test result

Proportion of true positives.

Sensitivity = a / a + c

Presentation of results: 2 by 2 table - specificity



Proportion of people without the disease who have a negative test result

Proportion of true negatives

Specificity = d / b + d

Presentation of results

- Sensitivity and specificity are not affected by prevalence
  - Beware of clinical differences!
    - Prevalence of gynecological diseases in general practice low
    - Prevalence in clinic is high, likely also greater disease burden

Presentation of results: Likelihood ratios

- Positive likelihood ratio (LR+)

  How much more likely is a positive test to be found in a person with the disease than in a person without it?

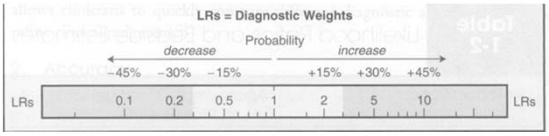
  LR+ = sens/(1-spec) = ratio of true positives to false positives

- Negative likelihood ratio (LR-)

  How much more likely is a negative test to be found in a person without the condition than in a person with it?

  LR- = (1-sens)/(spec) = ratio of true negatives to false negatives

How to interpret likelihood ratios?



LR<0.1 = strong negative test result

Decrease in likelihood

LR=1 no diagnostic value

No change in likelihood

LR>10 = strong positive test result

Increase in likelihood

Converting LR to post test probability

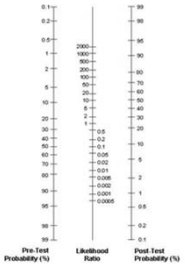
Presentation with a HCG of 3000 IU/L – LR = 15
Prevalence EUG: 5% in a non-symptomatic woman with a history of EUG
Prevalence EUG: 40% if the woman had abdominal pain

Pre test probability (prevalence)	Pre test odds	LR	Post test odds	Post test probability
5%	.05/.95	15	0.79	0.79/1.79 =44%
40%	.40/.60	15	10	10/11=91%

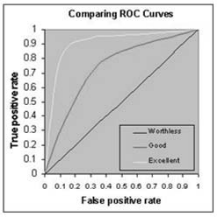
From Mol et al, Human Reprod 1999, 14

Usefulness of LR

- LR can help fine tune the risk of disease for an individual patient
- Can help decide on management



ROC curve



1. Tradeoff between sensitivity and specificity
2. The closer the curve follows the left-hand border and then the top border of the ROC space, the more accurate the test.
3. The closer the curve comes to the 45-degree diagonal of the ROC space, the less accurate the test.
4. The slope of the tangent line at a cut point gives the likelihood ratio (LR) for that value of the test.
5. The area under the curve is a measure of test accuracy.

Further from 0.50, (straight line, where LR =1), the better the test

Will the test apply in my setting?

- Reproducibility of the test and interpretation in my setting
- Do results apply to the mix of patients I see?
- Will the results change my management?
- Impact on outcomes that are important to patients?
- Where does the test fit into the diagnostic strategy?
- Costs to patient/health service?

Meta-analysis

of diagnostic studies

Pooling results from diagnostic studies: meta-analysis

- Multiple reviewers should independently extract the required information.
- Obtain data and construct the diagnostic 2 × 2 table:
- Absolute numbers in the four cells are needed.
- Obtain totals ‘diseased' and ‘non-diseased' to calculate prior probability (pre-test probability) from recalculated sensitivity, specificity, likelihood ratios, predictive values

Pooling results from diagnostic studies: meta-analysis

		Target condition (reference test result)		
		Present	Absent	Totals
Index test result	Abnormal	a	b	a+b
	Normal	c	d	c+d
	Totals	a+c	b+d	a+b+c+d

Sensitivity = a/(a+c)
Specificity = d/(b+d)
Positive Predictive value= a/(a+b)
Negative predictive value =d/(c+d)
Likelihood ratio abnormal test= Sensitivity/(1-Specificity)
Likelihood ratio normal test = (1-Sensitivity)/Specificity
Diagnostic Odds Ratio =(a×d)/(c×b)

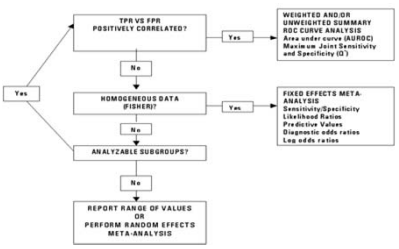
Diagnostic versus treatment trial

- Relative risk in experimental group {[a/(a + c)]/[b/(b+ d)]} =Likelihood Ratio for a Positive Test.
- Relative Risk in Control Group = Likelihood Ratio for a Negative Test.
- The Expression for the Odds Ratio (OR) Is (a x d)/(b x c).

Diagnostic meta-analysis: database

Study	TP	FN	FP	TN
A	19	2	3	13
B	7	2	4	17
C	11	1	0	10
D	20	2	3	19
E	20	4	3	49
F	16	4	1	12
G	25	3	1	83

Diagnostic meta-analysis: choose model for pooling

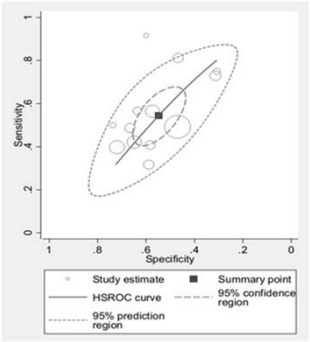


Example of a random-effects model used to diagnostic value of transvaginal sonography (TVS) for non-invasive, presurgical detection of bowel endometriosis

Variable	Estimate (95% CI)
Sensitivity (%)	91 (88–93)
Specificity (%)	98 (96–99)
LR+	30 (15–60)
LR−	0.09 (0.05–0.19)
DOR	394 (116–1336)
Prevalence (%)	47 (37–57)

Hudelist et al., Ultrasound Obstet Gynecol. 2011,

Example of a hierarchical summary ROC curve predicting violence in men with at least one Met allele



Singh et al., Plos one 2013

Accademic Authorship Programme

Giving a talk

Edgardo Somigliana M.D., Ph.D.
Deputy Editor – Human Reproduction

Conflicts of interest to declare: None

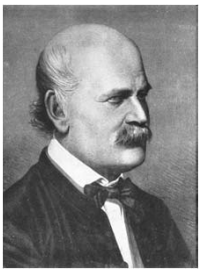
Conflicts of interest to declare:

None

Learning objectives

- *Importance of data presentation*
- *Logic of a presentation*
- *Practical advises*

More than just a talk….

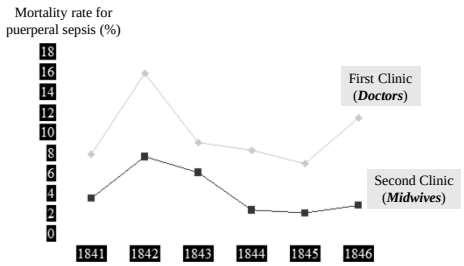


Dr. Ignaz Semmelweis 1818-1865

Ungharian physician, working at the Vienna general Hospital

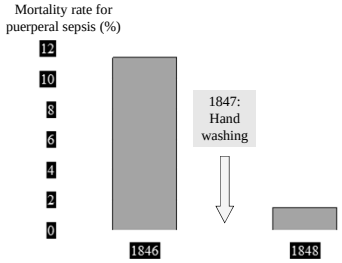
He discovered that the incidence of purperal fever could be drastically cut by the use of hand disinfection in obstetrical clinics.

More than just a talk….



Doctors' wards had ***three times*** the mortality of midwives wards.

More than just a talk….



More than just a talk….

Semmelweis's ideas were ***rejected by the medical community***.

In 1865, Semmelweis was ***committed to an asylum, where he died*** at age 47 after being beaten by the guards.

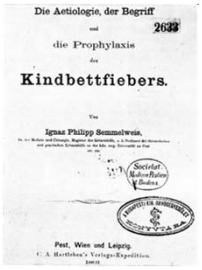
Semmelweis's practice earned ***widespread acceptance only years after his death***, when ***Louis Pasteur*** confirmed the ***germ theory*** and ***Joseph Lister*** using hygienic methods, practiced and operated with great success.

More than just a talk….

- ❖ The vision contrasted with established scientific opinion at this time
- ❖ He was unable to provide a scientific explanation for his findings
- ❖ Doctors were offended at the suggestion that they were the cause

- ❖ He *aggressively antagonized* te medical establishment
- ❖ He was *unable to clearly report his data*
- ❖ He frequently commited his students to talk and write on his behalf

More than just a talk….


Die Aetiologie, der Begriff
und
die Prophylaxis
des
Kindbettfiebers.
Von
Ignaz Philipp Semmelweis,
Pest, Wien und Leipzig.

The Etiology, Concept, and Prophylaxis of Childbed Fever (1861)

The treatise included ***543 pages***
Referred to as 'the ***often-quoted but seldom-read*** treatise of Semmelweis'.

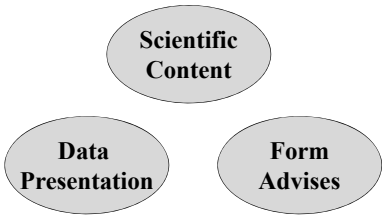
Irvine, 2002

More than just a talk….

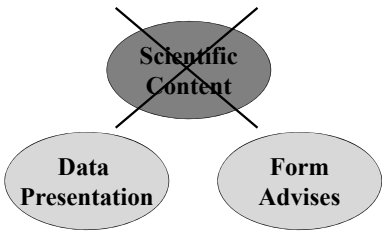
Vincent Van Gogh
Self-portrait (1889)

If possible, fame should not be posthumous…

Form and content



Form and content



Form and content

Data Presentation

Form Advises

Data Presentation

- Introduction - Background
- Materials and Methods
- Results
- Discussion
- Conclusions
- Questions

The clinical significance of calcium-signalling pathways mediating human sperm hyperactivation

Wardah Alasmari[1,4], Christopher L.R. Barratt[1,2,*], Stephen J. Publicover[3], Katherine M. Whalley[3], Erica Foster[1,5], Vanessa Kay[1], Sarah Martins da Silva[1,5], and Senga K. Oxenham[1]

Data Presentation

- Introduction - Background
- Materials and Methods
- Results
- Discussion
- Conclusions
- Questions

Explain the logic and the aims
1-2 slides
Simple statments (with citations)

Data Presentation

- Introduction - Background
- Materials and Methods
- Results
- Discussion
- Conclusions
- Questions

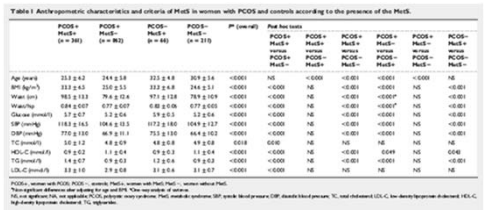
Explain the design
1 (maximum 2) slides
Study period and location
Selection criteria
Sample size justification

Data Presentation

- Introduction - Background
- Materials and Methods
- Results
- Discussion
- Conclusions
- Questions

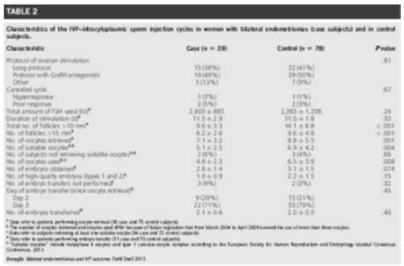
The *core* of the presentation
3-4 slides
Tables
Figures

Data Presentation: Tables



Tziomalos et al., 2013

Data Presentation: Tables



Benaglia et al., 2013

Danno alla riserva ovarica: FIVET

IVF outcome in unoperated women with bilateral endometriomas

Caracteristics	Cases (n=39)	Controls (n=78)	p
Cancelled cycles	3 (8%)	3 (4%)	0.67
Dosage of rFSH	227 ± 77	215 ± 110	0.24
N. Follicles > 15 mm	6.2 ± 2.6	9.6 ± 4.8	<0.001
N. Ooocytes retrieved	7.1 ± 3.2	9.8 ± 5.5	0.001
N. Embryos obtained	2.6 ± 1.4	3.1 ± 1.5	0.074
N. Transferred embryos	2.1 ± 0.6	2.0 ± 0.5	0.40
N. Pregnancies per cycle	12 (31%)	26 (33%)	0.84
Implantation rate	14 (22%)	32 (23%)	1.00
N. Deliveries per cycle	9 (23%)	23 (29%)	0.52

Benaglia et al., 2013

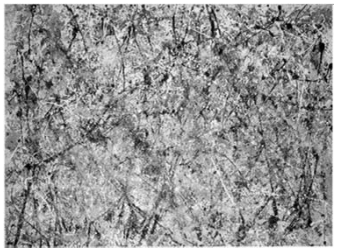
Data Presentation: Figures

Salvador Dalì,
Dream Caused by the Flight of a Bee around a Pomegranate a Second Before Awakening" (1944)

The interpretation of dreams is the royal road to a knowledge of the unconscious activities of the mind.

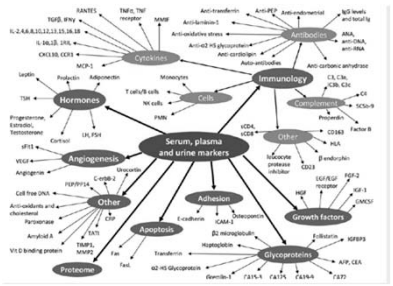
Sigmund Freud

Data Presentation: Figures



Jackson Pollock
Number 1, 1950

Data Presentation: Figures



May et al., 2010

Data Presentation

- Introduction - Background
- Materials and Methods
- Results
- Discussion
- Conclusions
- Questions

State limitations!
"Attacking is the best way to defend"
Cardoso, Brazilian soccer trainer

Data Presentation

- Introduction - Background
- Materials and Methods
- Results
- Discussion
- Conclusions
- Questions

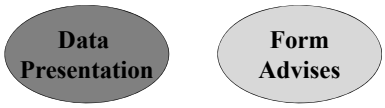
Final interpretation
Association ≠ Causality
Take home messages
Be cautious! (In general, "*may be*" "*might be*" should be preferred…)

Data Presentation

- Introduction - Background
- Materials and Methods
- Results
- Discussion
- Conclusions
- Questions

Don't be afraid!
It is the most challenging time!
(but be prepared...)

Form and content



Form advises

- Duration
- Contrast, framing and dimension
- Equilibrium
- Final advises

Form advises

- Duration
- Contrast, framing and dimension
- Equilibrium
- Final advises

The "one minute-one slide" rule

Form advises

- Duration
- Contrast, framing and dimension
- Equilibrium
- Final advises

Elliott Erwitt
Contrast

Form advises

- Duration
- Contrast, framing and dimension
- Equilibrium
- Final advises

Aldo Mondino
Balance (1975)

Form advises: Equilibrium

Lucio Fontana
Concetto spaziale - Attese (1968)

Giorgio De Chirico
Lonely Oreste (1974)

196

Form advises

- Duration
- Contrast, framing and dimension
- Equilibrium
- Final advises

John F. Kennedy
"Ich bin ein Berliner " (1961)

Final advises

- Slides are a support, not "*notes to remind*"
- Speak slowly, loudly, in the microphone and with emphasis. Try "*to convince*"
- Smile and look to the audience
- Explain tables and figures
- Read statments
- Practise at home (and monitor time!). Memorize the first 1-2 sentences and the pivotal ones
- Avoid coffees, spirits, anxiolitics… The physiological stress is the most appropriate help you can receive!

Writing a study up for a scientific journal
The golden rules/essentials by Richard Sharpe

- Storyline (and order) is all-important
- Presentation is next most important
- Ambiguity is a killer; complexity is another
- Do not confuse *interpretation* with *evidence (data)*; interpretation and speculation are fine, but always make it clear that this is what you are doing
- Cautious/balanced interpretation of your data is a winner – there is invariably more than one possible interpretation (not just the one you favour!)

When to write your MS (timing)

- Does it significantly advance understanding in the area?
- A brick in the wall is not enough; need a layer at least
- Need conclusive, cohesive data (that tells a story)
- Timeliness! Novelty!

Basic necessities for a paper

•Best if it is hypothesis-based

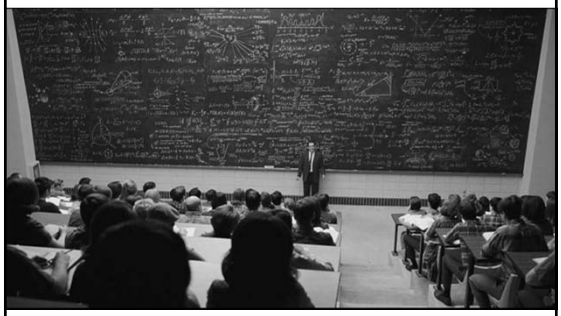
•Has to offer something concrete that advances understanding and best if it delivers a useable/useful outcome (eg a new treatment or methodology, disease mechanism or endpoint)

•Key is to convince the reader that 'your story' is rational and (biologically) plausible……..and novel

Planning/writing

- It's not just getting your ideas down on paper
- Storyline 'thread'
- The clearer and simpler (straightforward) the better
- Do not assume that readers will grasp complex mechanisms/concepts or understand nuances; if it's complex, simplify it!!
- Overall, there must be a step-wise simplicity that takes you through the story
- Any gaps have to be dealt with – they will be spotted!
- Do not assume anything!
- Don't start writing until you have a story and a plan!

Over-complexity is a killer!!



Planning/writing your paper
The first steps

- Decide your storyline – the most important decision; this is the foundations for your MS
- Sort out the results and their presentation; your story is built around them, so they come first
- Sometimes, even with our own data, we fail to see something important in the data that we missed; so run the story past colleagues to see if they are convinced
- This will uncover any data gaps/inconsistencies that you will need to deal with when telling your story

Order of manuscript writing

- Results and Figure legends
- Materials & Methods (optional)
- Introduction
- Discussion
- Abstract (HR extended abstract might be best written earlier)

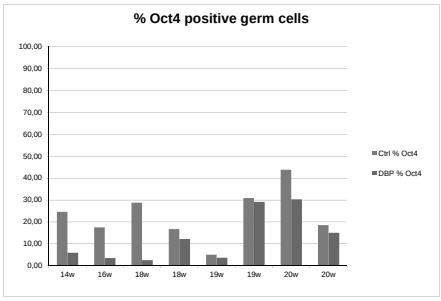
Planning/writing your paper
Results

- Use graphs/illustrations rather than Tables whenever possible
- If your illustrations look 'WOW' this will colour the opinion of reviewers (and converse). Make sure they match the results claimed

Tables versus Figures
You decide!

	Control	DBP	Control	DBP
Fetal age (weeks)	% Oct4	% Oct4	% Mage	% Mage
14	24.63	5.92	74.55	94.08
16	17.56	3.51	82.40	96.22
18	28.75	2.58	70.96	96.97
18	16.75	12.17	82.09	85.67
19	5.05	3.69	94.95	96.31
19	30.89	29.15	69.11	70.72
20	43.78	30.27	56.17	69.58
20	18.53	15.06	81.47	84.71

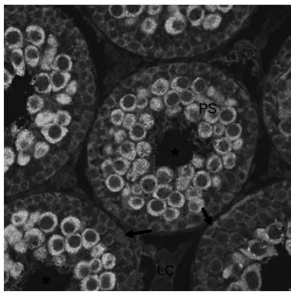
Tables versus Figures
You decide!



Eye-catching illustrations boost your paper
But make sure they are relevant

Also make sure they are well labelled with a clear legend

Each figure (+legend) should be understandable on its own



Espin (Sertoli cell cytoplasm); VASA (germ cells)

Make sure the figure shows what you claim
And nothing else that might distract!

Are the illustrations of good quality?

Are they easy to digest?

The purpose of a diagram is to make things simpler and easier to digest…... not to add complexity!

Planning/writing your paper

Results

- Use graphs/illustrations rather than Tables whenever possible
- If your illustrations look 'WOW' this will colour the opinion of reviewers (and converse). Make sure they match the results claimed
- Summarise ('predigest') the results, rather than going through every detail; subheadings are essential (beware using an interpretation)
- Each section needs an introductory sentence that says why/how it was done (in relation to the storyline)

Planning/writing your paper

Materials & Methods

- More rather than less detail (usually)
- Has to enable complete repetition by others
- Your opportunity to convince reviewers how rigorous is your planning, methodology and execution of the studies
- Statistics. Have you analysed your data correctly? Have you extracted all the useable information?

Planning/writing your paper
Introduction

- Sets up the storyline
- Start broad and work down rapidly to the 'level' of the manuscript. You must set the scene, both broad and specific
- Your storyline is why your study was needed and what it will therefore deliver for the field
- Should end with main aim and often good to finish with sentence that says what is delivered (sets the mind-set)

Planning/writing your paper
Discussion

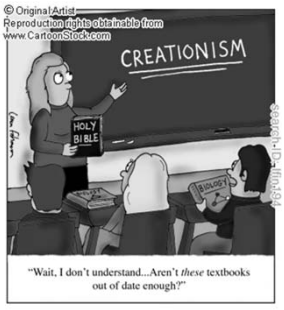
- Picks up from where the Introduction left off
- 1st paragraph (my preference); summarises main findings in relation to the literature and study aims and what this implies (in broad/general terms)
- Then deal with main results in detail, 'weigh' them for the reader and describe how they compare with, and relate to, the literature. Interpret the results. Include and assess alternative explanations/interpretations
- Emphasize the novelties and strengths of your study and then deal with its weaknesses
- Where to from here – wider implications

Writing your paper – throughout!
Are the conclusions based on evidence?

•Be sure to distinguish what is based on opinion (ie interpretation) and what is fact (evidence)

•It is amazing how often authors mix these two up

•Opinion is okay provided it is presented as such and the paper does not depend upon it



Planning/writing your paper
Abstract (in HR, extended abstract)

- Apart from title, will be the most widely read part when published, so deserves special attention and care
- Also this is the first bit the reviewer will read so is likely to determine his/her mindset (ie. your chance to get them on your side!)
- Must reflect the whole paper, but disproportionately the results
- Start long and then progressively cut down
- Stick to the storyline. Emphasize novelty
- Scene-setting intro, methods (how) and main results (those that determine the conclusions), what it all means

Manuscript refinement

- Get a number of colleagues to read and comment on your paper - they don't need to be experts
- They will spot weaknesses, gaps, poor/over-complex writing. Their input is invaluable and indispensible!
- Take all of their comments on board - treat them like a reviewer
- Be prepared to radically change any aspect - even the storyline if your readers are unconvinced. They are your best guide to how reviewers will react

Checks before submission

- A submitted manuscript should not contain typos, missing methods/references/poor figures; if it looks sloppy, reviewers WILL assume the same about your science
- It must be in the style appropriate for that journal!!
- Are all co-authors agreed and signed up on the paper?
- Do you have a list of potential reviewers?
- Upon submission, think about the weak spots in your study and consider if there are studies you might undertake in case reviewers ask about these

Your manuscript will be reviewed by 'experts' They must all understand and enjoy your MS!

MRC Human Reproductive Sciences Unit

- Expert reviewers will find holes in your MS (every study has holes)
- The issue is whether they think the MS significantly advances the field (and is not over-burdened with flaws)
- I have never had a MS of mine that was not improved as the direct result of reviewer comments!
- The reviewing process is not perfect! But overall it works – and you can always appeal

The moment of truth!

MRC Human Reproductive Sciences Unit

Planning/writing your paper
Response to Reviewers!!!!!!!!

MRC Human Reproductive Sciences Unit

- Read the reviewers comments when they first arrive, then file away and look again 2-3 days later; comments always look 'better' on second reading
- THE REVIEWER IS ALWAYS RIGHT!!!!!!!!!!!!!!!!!!!!!!!!
- Always respond positively (*not dismissively*)
- Be respectful (*they gave up their time to review*)
- Refute only with sound science and reasoning, nothing else will convince
- **Compromise is not a failure!**
- Remember: You are being given a second chance, an opportunity to improve your MS. Think of comments this way and you will respond positively

MRC Human Reproductive Sciences Unit

Extended abstract sub-headings

- STUDY QUESTION
- SUMMARY ANSWER
- WHAT IS KNOWN ALREADY
- STUDY DESIGN, SIZE, DURATION
- PARTICIPANTS/MATERIALS, SETTING, METHODS
- MAIN RESULTS AND THE ROLE OF CHANCE
- LIMITATIONS, REASONS FOR CAUTION
- WIDER IMPLICATIONS OF THE FINDINGS
- ~~STUDY FUNDING/COMPETIING INTERESTS~~

How to do a poster

Felice Petraglia
Editor-in-Chief HRU

Helpful things

http://colinpurrington.com/tips/academic/posterdesign

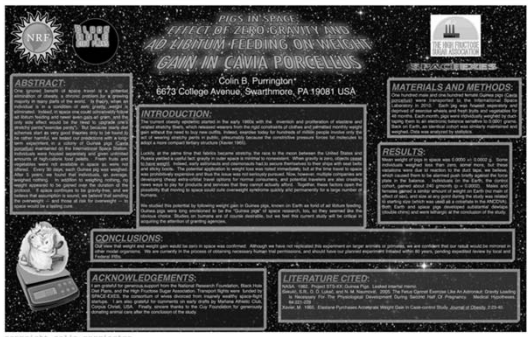
*www.cns.cornell.edu/documents/**ScientificPosters**.pdf*

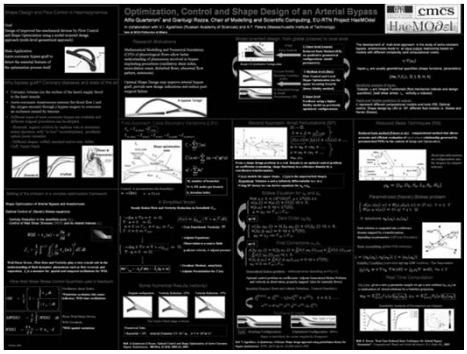
Lets play a game

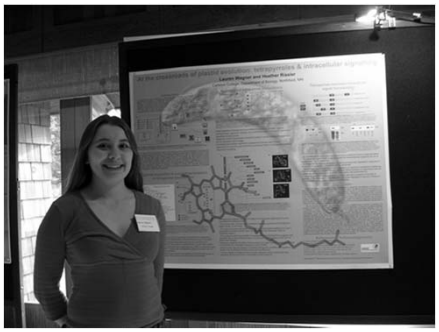
What's needed?

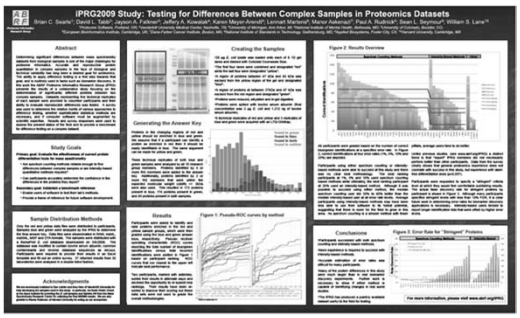
The list includes (write down)

A test ….









Basics

- Its an avert for your work
- An illustrated abstract
- Easy on the eye
- Get the reader interested
- Simplify it (not the intellectual bit..)
- Who is my audience?

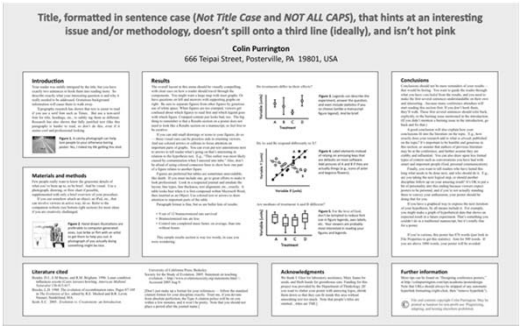
Basics

- Simple effective data displays
- Small blocks of supporting text (easy to read)
- Answer questions (e.g. HR long abstract)
- Big title
- Use only essential words
- Easy on eye
- Add relevant but helpful pics

Minor but important

- Have extended section as print out ready
- Ethical approval/acknowledgement/funding/collaborations.
- Pick good software program
- Try out on number of individuals
- Add contact information
- Prepare verbal explanation to go through with people.

So what's in our list???



Title, formatted in sentence case (*Not Title Case* and *NOT ALL CAPS*), that hints at an interesting issue and/or methodology, doesn't spill onto a third line (ideally), and isn't hot pink

Colin Purrington
666 Teipai Street, Posterville, PA 19801, USA

Introduction

Materials and methods

Results

Conclusions

Literature cited

Acknowledgments

Further information

UPCOMING ESHRE EVENTS

// ESHRE CAMPUS EVENTS

ESHRE's 30th Annual Meeting

www.eshre2014.eu

Munich, Germany
29 June - 2 July 2014

Epigenetics in reproduction

www.eshre.eu/lisbon

Lisbon, Portugal
26-27 September 2014

Endoscopy in reproductive medicine

www.eshre.eu/endoscopyoct

Leuven, Belgium
15-17 October 2014

Making OHSS a complication of the past: State-of-the-art use of GnRH agonist triggering

www.eshre.eu/thessaloniki

Thessaloniki, Greece
31 October-1 November 2014

From gametes to blastocysts – a continuous dialogue

www.eshre.eu/dundee

Dundee, United Kingdom
7-8 November 2014

Controversies in endometriosis and adenomyosis

www.eshre.eu/liege

Liège, Belgium
4-6 December 2014

Bringing evidence based early pregnancy care to your clinic

www.eshre.eu/copenhagen

Copenhagen, Denmark
11-12 December 2014

An update on preimplantation genetic screening (PGS)

www.eshre.eu/rome

Rome, Italy
12-13 March 2014

For information and registration: www.eshre.eu/calendar
or contact us at info@eshre.eu

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