Exercises 7 - 9

7. Working with titles
8. Working with abstracts
9. Working with tables and figures

7. Working with titles

Too long?

Establishment and characterization of baboon embryonic stem cell lines: An Old World Primate model for regeneration and transplantation research.

Too short?

Embryonic stem cell lines of non-human primates.

7. Working with titles

Sentence

Pedigreed primate embryonic stem cells express homogeneous familial gene profiles.

Question

Establishing the role of pre-implantation genetic diagnosis with human leucocyte antigen typing: what place do "saviour siblings" have in paediatric transplantation?

Box 6.3 Developing a title in four steps (after Lilleyman, 1998)[5]

1 An epidemiological geographically based study of the quantity and effects of ionising radiation received by male employees of a nuclear reprocessing plant and male residents working elsewhere in the same vicinity shows an increased risk of childhood leukaemia in the children of nuclear workers only

2 An epidemiological study of the links between the radiation received by male employees of a nuclear reprocessing plant and other local residents and childhood leukaemia

3 Relation between working at and living near a nuclear reprocessing plant and childhood leukaemia

4 **"Nuclear reprocessing, radiation exposure, and childhood leukaemia: an epidemiological study"**

7. Working with titles

Main title

- necessary entities
- connection

Subtitle

- study type
- sample size

7. Working with titles

Editorial check

- number of words
- no abbreviations

Author check

- concise: every word must add something
- precise: neither wide nor narrow

7. Working with titles

Neutral
- Comparison of A vs. B …

Affirmative
- A is better than B …

Interrogative
- Is A better than B?

"Non-medical" phrasing
- Apples and Bananas …

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7. Working with titles

- You are given three abstracts published recently in Human Reproduction

- Your task is to make an appropriate title for each of them according to the lecture and the introductory slides of the exercise

- Time: 30 min

Abstract

BACKGROUND. Ovarian function in Turner syndrome (TS) patients depends on the specific karyotype. This retrospective clinical study evaluates the pituitary–gonadal axis during infancy, childhood and adolescence in TS patients according to karyotype and ovarian function.

METHODS. A cohort of 70 TS patients (0–16 years) followed at a tertiary referral centre for paediatric endocrinology were included. Longitudinal measurements of reproductive hormones (FSH, LH, inhibin B and estradiol) prior to hormonal replacement treatment in 66 patients related to karyotype (A, 45,X; or B, miscellaneous karyotypes) and ovarian function (spontaneous puberty or absent spontaneous puberty) were compared with an age-matched reference range of 2406 healthy Danish females.

RESULTS. The prevalence of spontaneous puberty was 6% for 45,X and 54% for miscellaneous karyotypes, $P = 0.001$. In all TS patients, gonadotrophins were higher during infancy and at expected puberty compared with levels at mid-childhood, where 21/25 and 23/27 had FSH and LH levels, respectively, within the reference range. In patients with absent spontaneous puberty, 10/12 had FSH in the reference range during the mid-childhood nadir. 45,X-TS patients had undetectable inhibin B at 0–16 years. Ovarian failure was predicted in 20/20 patients with exclusively undetectable inhibin B, while 9/10 with detectable inhibin B entered puberty spontaneously. Estradiol levels were elevated from 4 to 8 years.

CONCLUSIONS. Ovarian function in TS patients is associated with the specific karyotype, and multiple undetectable inhibin B values during mid-childhood may predict absence of spontaneous puberty, although the specificity of the test is low. The biphasic age pattern of gonadotrophins was preserved in all patients, and spontaneous gonadotrophins are not useful as a diagnostic marker for TS in girls aged 6–10 years.

Abstract

BACKGROUND. This paper concerns the requirements of the EU Tissue and Cells Directives with regard to the biological screening of donors of reproductive cells which are to be used for partner donation.

METHODS. We review the evidence regarding the risks of transmission of blood-borne viruses [hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV)] in the assisted reproductive technology (ART) setting. We document the experience in seven Irish ART clinics since the introduction of the legislation.

RESULTS. Even among those known to be HBV-, HCV- or HIV-positive, when current best practice ART procedures are employed for gamete and embryo processing, cross-contamination in the ART facility or horizontal or vertical transmission to a partner or neonate has never been documented. When samples are processed and high-security straws are used for cryopreservation, transmission of virus and cross-contamination in storage have not been reported.

CONCLUSIONS. While initial screening of those about to embark on ART treatment is good practice, we can find no medical or scientific evidence to support re-screening prior to each treatment cycle for individuals undergoing partner donation in ART. It would seem more appropriate to focus on risk reduction using a combination of initial baseline screening (with a reduced frequency of re-testing), appropriate sample processing and best possible containment systems for cryostorage.

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Abstract

BACKGROUND. Elective single embryo transfer (eSET) in a selected group of patients (i.e. young patients with at least one good quality embryo) reduces the number of multiple pregnancies in an IVF programme. However, the reduced overall multiple pregnancy rate (PR) is still unacceptably high. Therefore, a randomized controlled trial (RCT) was conducted comparing eSET and double embryo transfer (DET) in an unselected group of patients (i.e. irrespective of the woman's age or embryo quality).

METHODS. Consenting unselected patients were randomized between eSET (RCT-eSET) (n = 154) or DET (RCT-DET) (n = 154). Randomization was performed just prior to the first embryo transfer, provided that at least two 2PN zygotes were available. Non-participants received our standard transfer policy [SP-eSET in a selected group of patients (n = 100), otherwise SP-DET (n = 122)].

RESULTS. The ongoing PR after RCT-eSET was significantly lower as compared with RCT-DET (21.4 versus 40.3%) and the twin PR was reduced from 21.0% after RCT-DET to 0% after RCT-eSET. The ongoing PRs after SP-eSET and SP-DET did not differ significantly (33.0 versus 30.3%), with an overall twin PR of 12.9%.

CONCLUSION. To avoid twin pregnancies resulting from an IVF treatment, eSET should be applied in all patients. The consequence would be a halving of the ongoing PR as compared with applying a DET policy in all patients. The transfer of one embryo in a selected group of good prognosis patients leads to a less drastic reduction in PR but maintains a twin PR of 12.9%.

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8. Working with abstracts

Who reads the whole paper?
1. Clinicians with current problems
2. Scientists interested in similar work

…and the youngest author's mother

8. Structured abstract: clinical paper

Background: State the setting, objective and **primary outcome,** use PICO question

Methods: study design, patients, setting, intervention, type of analysis.

Results: Give number of subjects & outcomes. Report measurements with confidence intervals. Use **absolute numbers** and rate differences with NNT.

Conclusions: focus on clinical implications of primary outcome, primary study weakness.

8. Example of a good abstract: 236 words

Objective: To compare the effectiveness of clomifene citrate and unstimulated intrauterine insemination with expectant management for the treatment of unexplained infertility.

Design: Three arm parallel group, pragmatic randomised controlled trial.

Setting: Four teaching hospitals and a district general hospital in Scotland.

Participants: Couples with infertility for over two years, confirmed ovulation, patent fallopian tubes, and motile sperm.

Intervention: Expectant management, oral clomifene citrate, and unstimulated intrauterine insemination.

Main outcome measures: The primary outcome was live birth. Secondary outcome measures included clinical pregnancy, multiple pregnancy, miscarriage, and acceptability.

Bhattacharya et al, 2008. BMJ 337:716-23.

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8. Example of a good abstract: 236 words

Results: 580 women were randomised to expectant management (n=193), oral clomifene citrate (n=194), or unstimulated intrauterine insemination (n=193) for six months. The three randomised groups were comparable in terms of age, body mass index, duration of infertility, sperm concentration, and motility. Live birth rates were 32/193 (17%), 26/192 (14%), and 43/191 (23%), respectively. Compared with expectant management, the odds ratio for a live birth was 0.79 (95% confidence interval 0.45 to 1.38) after clomifene citrate and 1.46 (0.88 to 2.43) after unstimulated intrauterine insemination. More women randomised to clomifene citrate (159/170, 94%) and unstimulated intrauterine insemination (155/162, 96%) found the process of treatment acceptable than those randomised to expectant management (123/153, 80%) ($P=0.001$ and $P<0.001$, respectively).

Conclusion: In couples with unexplained infertility existing treatments such as empirical clomifene and unstimulated intrauterine insemination are unlikely to offer superior live birth rates compared with expectant management.

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8. Working with abstracts

- You are given two abstracts as well as the corresponding full papers.

- Your task is to edit the abstracts, deciding what is missing or needed.

- The abstracts may have different faults: miss important information, be too long, or lack appropriate numbers.

- You may use the full papers, if necessary.

- Time: 30 min

Effect of acupuncture on the outcome of in vitro fertilization and intracytoplasmic sperm injection: a randomized, prospective, controlled clinical study.

Dieterle S, Ying G, Hatzmann W, Neuer A.

OBJECTIVE: To determine the effect of luteal-phase acupuncture on the outcome of IVF/intracytoplasmic sperm injection (ICSI).

DESIGN: Randomized, prospective, controlled clinical study.

SETTING: University IVF center.

PATIENT(S): Two hundred twenty-five infertile patients undergoing IVF/ICSI.

INTERVENTION(S): In group I, 116 patients received luteal-phase acupuncture according to the principles of traditional Chinese medicine. In group II, 109 patients received placebo acupuncture.

MAIN OUTCOME MEASURE(S): Clinical and ongoing pregnancy rates.

RESULT(S): In group I, the clinical pregnancy rate and ongoing pregnancy rate (33.6% and 28.4%, respectively) were significantly higher than in group II (15.6% and 13.8%).

CONCLUSION(S): Luteal-phase acupuncture has a positive effect on the outcome of IVF/ICSI.

Word count: 110.

The use of metformin for women with PCOS undergoing IVF treatment.

Tang T, Glanville J, Orsi N, Barth JH, Balen AH

BACKGROUND: Metformin appears to improve reproductive function in some women with polycystic ovary syndrome (PCOS). We wished to explore the effect of metformin in women with PCOS undergoing IVF.

METHODS: A randomized, placebo-controlled, double-blind study was carried out between 2001 and 2004. Patients with PCOS undergoing IVF/ICSI treatment using a long GnRH agonist protocol were randomized to receive metformin (MET), 850 mg, or placebo (PLA) tablets twice daily from the start of the down-regulation process until the day of oocyte collection. The primary outcome was to be an improvement in the overall fertilization rate.

RESULTS: One-hundred and one IVF/ICSI cycles were randomized to receive metformin (52) or to receive placebo (49). There was no difference in the total dose of rFSH required per cycle (median dose: MET = 1200 U, PLA = 1300 U; P = 0.937). The median number of oocytes retrieved per cycle (MET = 17.2, PLA = 16.2; P = 0.459) and the overall fertilization rates (MET = 52.9%, PLA = 54.9%; P = 0.641) did not differ. However, both the clinical pregnancy rates beyond 12 weeks gestation per cycle (MET = 38.5%, PLA = 16.3%; P = 0.023) and per embryo transfer (MET = 44.4%, PLA = 19.1%; P = 0.022) were significantly higher in those treated with metformin. Furthermore, a significant decrease in the incidence of severe ovarian hyperstimulation syndrome (OHSS) was observed (MET = 3.8%, PLA = 20.4%; P = 0.023), and this was still significant after adjustment for BMI, total rFSH dose and age (OR = 0.15; 95% CI: 0.03, 0.76; P = 0.022).

CONCLUSION: Short-term co-treatment with metformin for patients with PCOS undergoing IVF/ICSI cycles does not improve the response to stimulation but significantly improves the pregnancy outcome and reduces the risk of OHSS.

9. Working with tables and figures

Effective Tables and Figures

Should you use a table or a figure?

- More information can be summarized in a table
- Readers can abstract exact data from a table

But

- Tables do not portray trends
- Tables hide visual information

9. Working with tables and figures

Effective Tables

- Compact tables are easier to read

- Only one page: larger tables on web site

- Formulate in Excel, move to Word

- Try to have a single line in each row

- Use landscape orientation if necessary

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9. Effective table detail

Table 2. Percentages of Obstetric Complications by Maternal Age

Outcome	Age < 35 y (n = 28,398)	Age 35–39 y (n = 6,294)	Age ≥ 40 y (n = 1,364)	P
Threatened abortion	13.9	15.4	19.3	< .001
Miscarriage	0.8	1.5	2.2	< .001
Chromosomal abnormality	0.2	0.8	1.9	< .001
Congenital anomaly	1.7	2.8	2.9	< .001
Gestational hypertension	4.7	4.1	5.5	.034
Preeclampsia	2.4	2.3	3.0	.422
Gestational diabetes	2.9	5.3	7.3	< .001
Placenta previa	0.5	0.9	1.9	< .001
Placental abruption	0.7	0.8	1.6	< .001
Preterm labor	5.3	5.2	5.3	.883
PPROM	1.5	1.8	2.3	.238
Preterm delivery	7.8	8.6	11.8	.002
Low birth weight	5.2	5.1	7.5	< .001
Macrosomia > 4,500 g	1.1	1.8	1.2	< .001
Operative vaginal delivery	7.5	7.1	6.3	.111
Cesarean delivery	21.7	31.4	40.5	< .001
Perinatal loss	0.3	0.3	0.7	.079

PPROM, preterm premature rupture of membranes.
  Data are presented as percentage of cases.

Cleary-Goldman et al. Obstet Gynecol 2005; 105:983-90.

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9. Effective table detail

Table 2. Procedure Data and Adverse Events by Treatment Arm

	Paracervical (n=66)	Intracervical (n=66)	P
Dilation (cm)	9.5±1.8	9.5±1.7	.80*
Cannula (cm)	8.7±1.6	8.8±1.6	.83*
Estimated blood loss (mL)	26±8	27±7	.56*
Time (min)	6.6±2.9	7.2±2.6	.30*
Provider			.32†
Resident	3 (5)	7 (11)	
Attending	63 (95)	59 (89)	
Complications	1 (2)	1 (2)	1.00†

Data are mean±standard deviation or n (%).

* *t* test.

† Fisher exact test.

Mankowski et al, Obstet Gynecol 2009; 113:1052-1057

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9. Use a two-by-two table

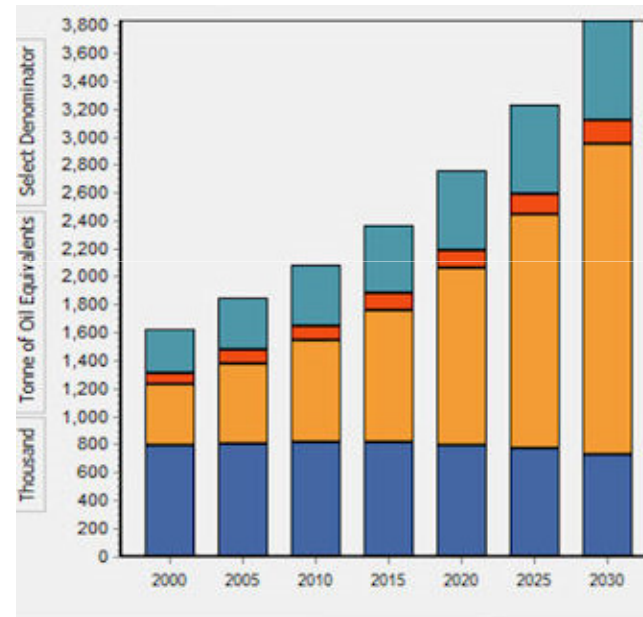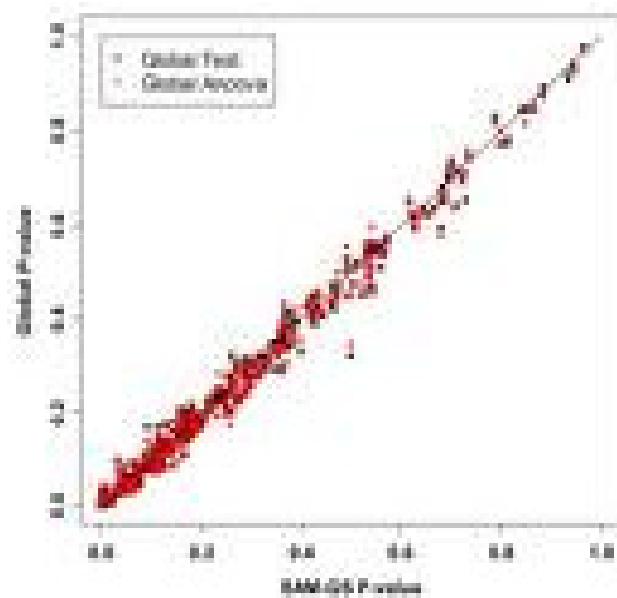|	Success	Failure	Total
Group 1	n_{11}	n_{12}	n_{1+}
Group 2	n_{21}	n_{22}	n_{2+}
Total	n_{+1}	n_{+2}	N

Diagnostic studies
Case control studies
Cohort studies
Randomized controlled trials

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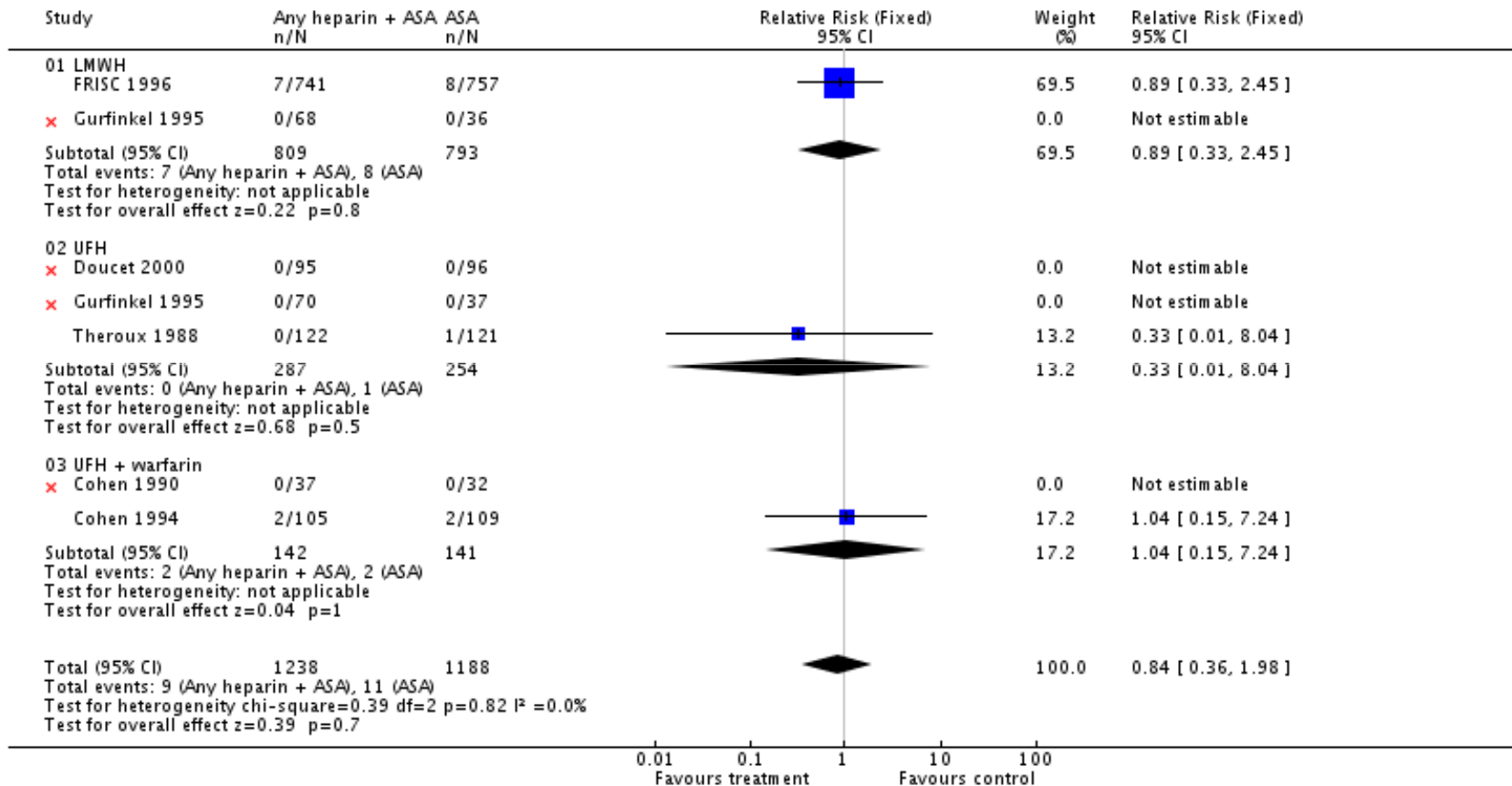# 9. Working with tables and figures

Effective figures

Edward R. Tufte. The Display of Quantitative Information,
2nd Ed. Graphics Press, Cheshire, Connecticut, 2001.

9. Forest plots

Review: Heparin versus placebo for acute coronary syndromes
Comparison: 01 Incidence of death over all time periods
Outcome: 01 Heparin + ASA vs ASA

Study	Any heparin + ASA n/N	ASA n/N	Relative Risk (Fixed) 95% CI	Weight (%)	Relative Risk (Fixed) 95% CI
01 LMWH					
FRISC 1996	7/741	8/757		69.5	0.89 [0.33, 2.45]
✗ Gurfinkel 1995	0/68	0/36		0.0	Not estimable
Subtotal (95% CI)	809	793		69.5	0.89 [0.33, 2.45]
Total events: 7 (Any heparin + ASA), 8 (ASA)					
Test for heterogeneity: not applicable					
Test for overall effect z=0.22 p=0.8					
02 UFH					
✗ Doucet 2000	0/95	0/96		0.0	Not estimable
✗ Gurfinkel 1995	0/70	0/37		0.0	Not estimable
Theroux 1988	0/122	1/121		13.2	0.33 [0.01, 8.04]
Subtotal (95% CI)	287	254		13.2	0.33 [0.01, 8.04]
Total events: 0 (Any heparin + ASA), 1 (ASA)					
Test for heterogeneity: not applicable					
Test for overall effect z=0.68 p=0.5					
03 UFH + warfarin					
✗ Cohen 1990	0/37	0/32		0.0	Not estimable
Cohen 1994	2/105	2/109		17.2	1.04 [0.15, 7.24]
Subtotal (95% CI)	142	141		17.2	1.04 [0.15, 7.24]
Total events: 2 (Any heparin + ASA), 2 (ASA)					
Test for heterogeneity: not applicable					
Test for overall effect z=0.04 p=1					
Total (95% CI)	1238	1188		100.0	0.84 [0.36, 1.98]
Total events: 9 (Any heparin + ASA), 11 (ASA)					
Test for heterogeneity chi-square=0.39 df=2 p=0.82 I² =0.0%					
Test for overall effect z=0.39 p=0.7					

0.01   0.1   1   10   100
Favours treatment   Favours control

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9. Aim for visibility

Authors	Pregnancy / Total		
	PGS	Control	
Staessen et al, 2004	22 / 148	29 / 141	
Maastenbroek et al, 2007	52 / 434	74 / 402	
DeBrock et al, 2007	4 / 37	6 / 24	
Hardarson et al, 2008	3 / 56	10 / 53	
Schoolcraft et al, 2008	21 / 32	21 / 30	
Average RR	102 / 707	140 / 650	

RR (95% CI)

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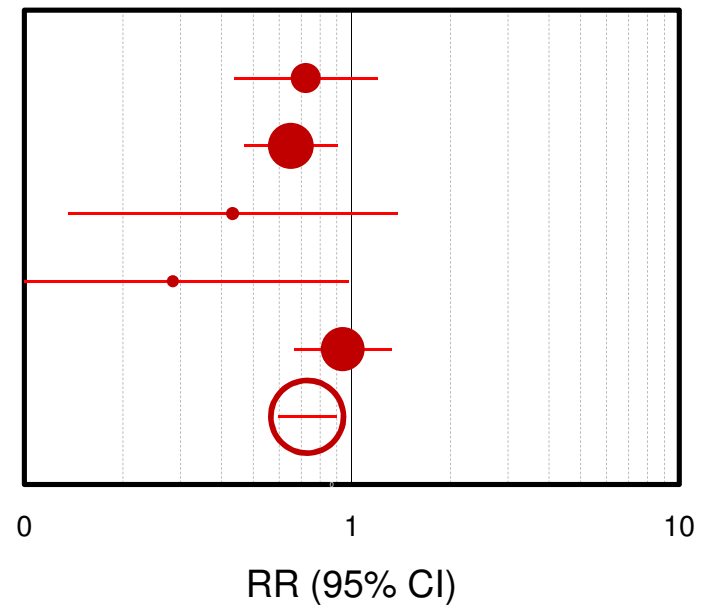
9. Aim for visibility
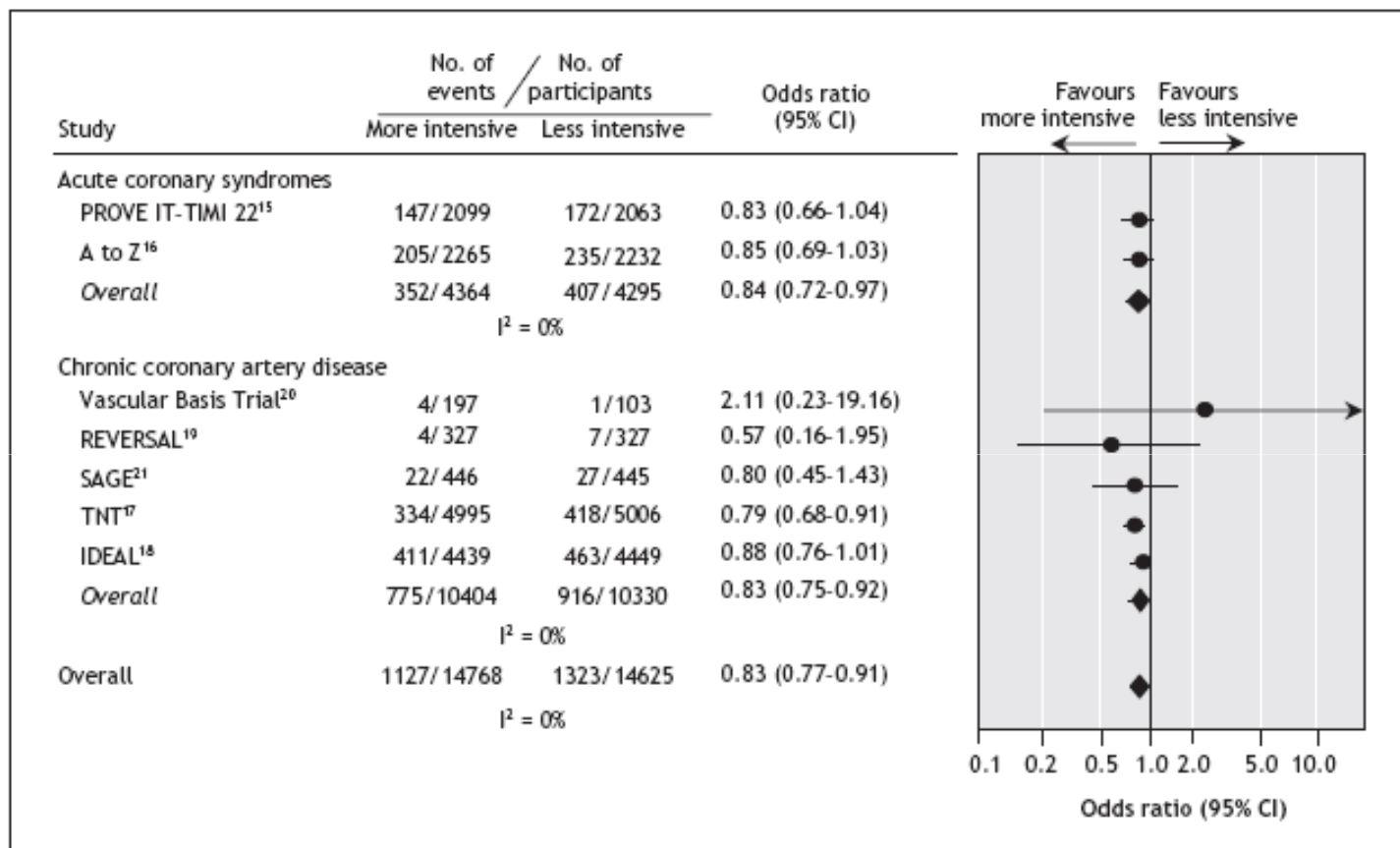
Figure 2: Risk of myocardial infarction or coronary death among patients with acute coronary syndromes or chronic coronary artery disease in 7 studies of statin therapy intensity.

Josan et al, 2008. The efficacy and safety of intensive statin therapy: a meta-analysis of randomized trials. CMAJ 2008;178(5):576-84.

9. Working with tables and figures

- You are given two examples of tables / figures.

- Your task is to improve their content and appearance according to the lecture and the introductory slides of the exercise.

- Time: 30 min

Estrogen receptor alpha gene polymorphisms are associated with idiopathic premature ovarian failure

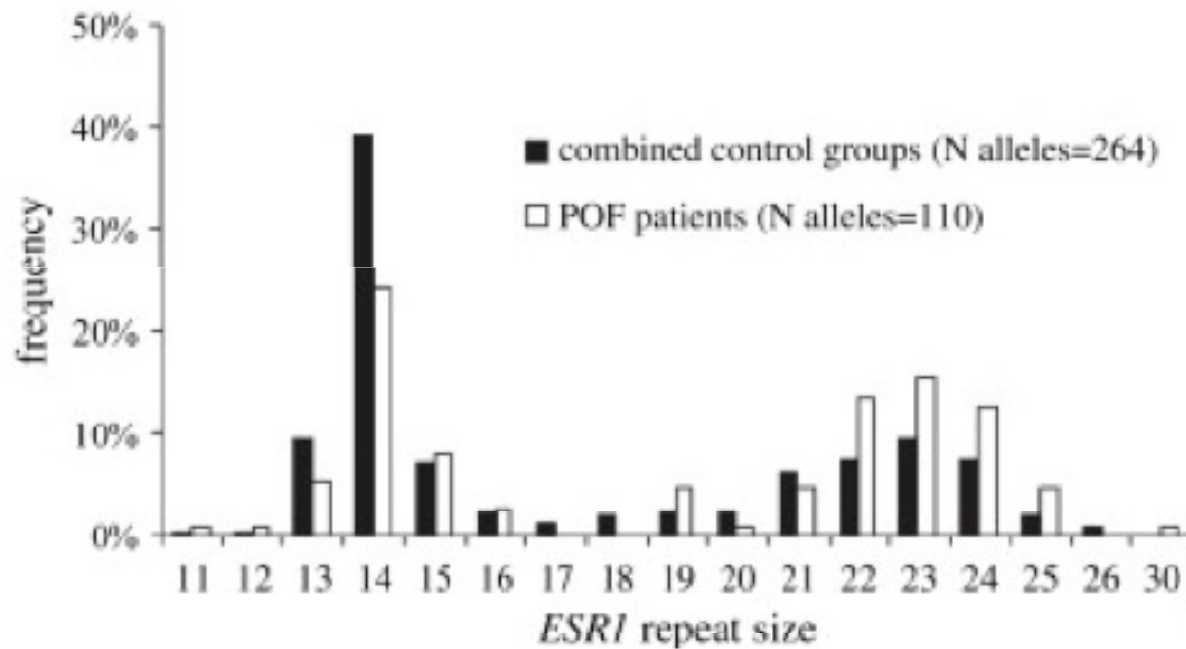Bretherick KL, Hanna CW, Currie LM, Fluker MR, Hammond GL, Robinson WP.

Figure 1. Distribution of *ESR1* (TA)n repeat alleles in POF patients and combined control groups 1 and 2.

Maternal reproductive and demographic characteristics as risk factors for hypospadias
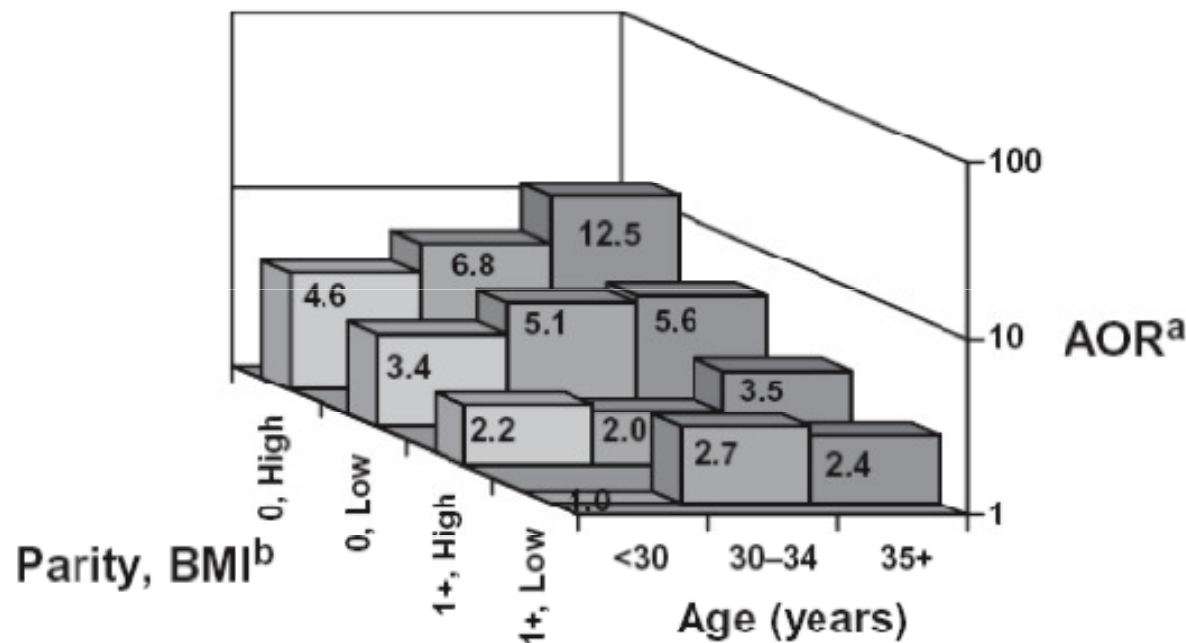
Carmichael SL, Shaw GM, Laurent C, Olney RS, Lammer EJ

Figure 1. Association of maternal parity, body mass index (BMI, kg/m^2) and age with risk of hypospadias. (a) AOR, adjusted odds ratio; adjusted for race-ethnicity, education, fertility treatments, nausea and vomiting of pregnancy and plurality; see Table 3 for 95% confidence intervals associated with the AORs. (b) Parity of 0 refers to women with no live birth previous to the index delivery. BMI 'Low' if <26.0, and 'High' if >26.0.

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