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Exercises 10 - 12

10. Working with abstracts
11. Working with tables and figures
12. Organization of a paper

10. 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

10. 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.

10. 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.

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

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

10. 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

J Assist Reprod Genet 2006;23(3):129-36.

The effect of extended culture of cumulus-oocyte complexes in follicular fluid during in vitro fertilisation cycles.

Wilding M, Singer M, Fehr P, Haeberlin F, Roth F, Lachat R, Di Matteo L, Capobianco C, Dale B.

PURPOSE: To assess the clinical and biological effect of the preincubation of oocytes in follicular fluid prior to IVF and ICSI cycles.
METHODS: A series of patients were treated by the preincubation of oocytes in the patients' follicular fluid for 3 h after oocyte retrieval followed by processing with standard protocols. Control oocytes were preincubated in normal IVF culture medium. Fluorescence techniques were used to examine oocyte mitochondrial membrane potential.
RESULTS: Fertilisation, pregnancy, and implantation rates were all significantly improved after the preincubation of oocytes in follicular fluid. Further tests suggested that differences in pH between follicular fluid and artificial culture medium may be critical to these differences.
CONCLUSIONS: Preincubation of human oocytes in follicular fluid improves the results after IVF. This may be partly due to the use of a non-"physiological" pH in artificial culture media during in vitro fertilisation procedures.

Word count: 143.

Am J Reprod Immunol 2006;56(5-6):364-70.

Controlled ovarian hyperstimulation changes the prevalence of serum autoantibodies in in vitro fertilization patients.

Haller K, Sarapik A, Talja I, Salumets A, Uibo R.

PROBLEM: Autoimmune mechanisms are involved in etiology of female infertility, the medical problem frequently treated by in vitro fertilization (IVF). Controlled ovarian hyperstimulation (COH) with supraphysiological levels of sex hormones is achieved by IVF.
METHODS OF STUDY: Anti-human-ovary and eight common autoantibodies [nuclear (ANA-H, ANA-R on human HEp-2 cell line and rodent antigen, respectively), smooth muscle (SMA), parietal cell, thyroid microsomal, mitochondrial, beta2-glycoprotein-I, cardiolipin antibodies] found in IVF patients (n = 129) were analyzed with regard to the number of previous IVF procedures and the age of the patient. The changes in autoimmune reactions caused by the COH were determined.
RESULTS: Endometriosis and polycystic ovary syndrome were associated with a higher number of common serum autoantibodies compared with the tubal factor infertility (Proportion test, $P < 0.05$). ANA-R was associated with unexplained infertility [adjusted odds ratio (aOR) 8.79, $P = 0.038$]. SMA correlated with endometriosis (aOR 37.29, $P = 0.008$), male factor infertility (aOR 20.45, $P = 0.018$) and with the previous IVF procedures (aOR 2.87, $P = 0.013$). There was an overall decrease in the number of detectible autoantibodies after COH (Proportion test, $P < 0.05$).
CONCLUSION: COH may have a suppressive effect on the humoral immunity by the time of embryo transfer but more conclusive studies are needed.

Word count: 206.

11. 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

11. 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

11. 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.

11. 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.

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

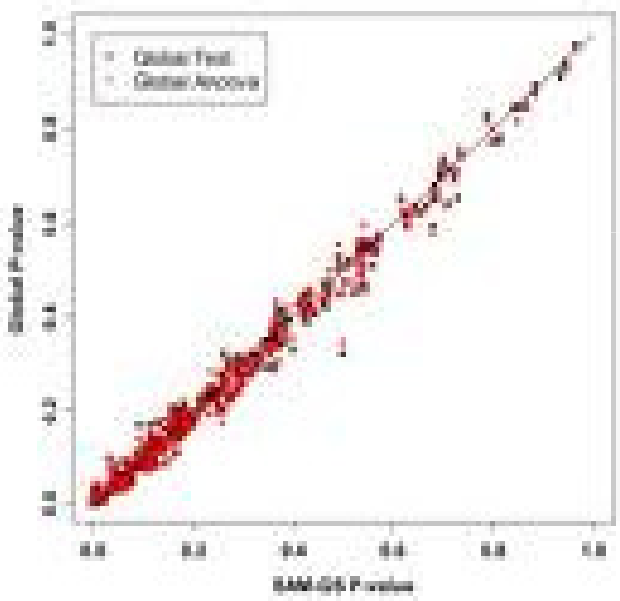
11. Use a two-by-two table

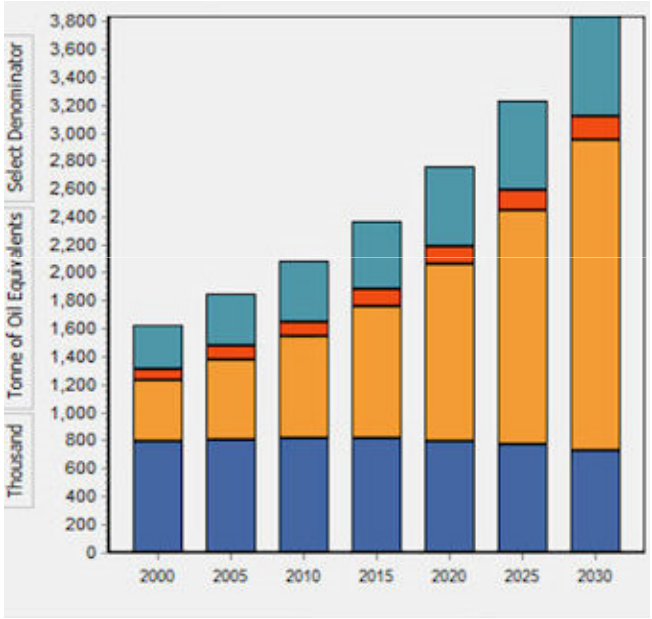
	Success	Failure	Total
Group 1	n_{11}	n_{12}	n_{1+}
Group 2	n_{21}	n_{22}	n_{2+}
Total	n_{+1}	n_{+2}	N

Diagnostic studies
Case control studies
Cohort studies
Randomized controlled trials

11. Working with tables and figures

Effective figures





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

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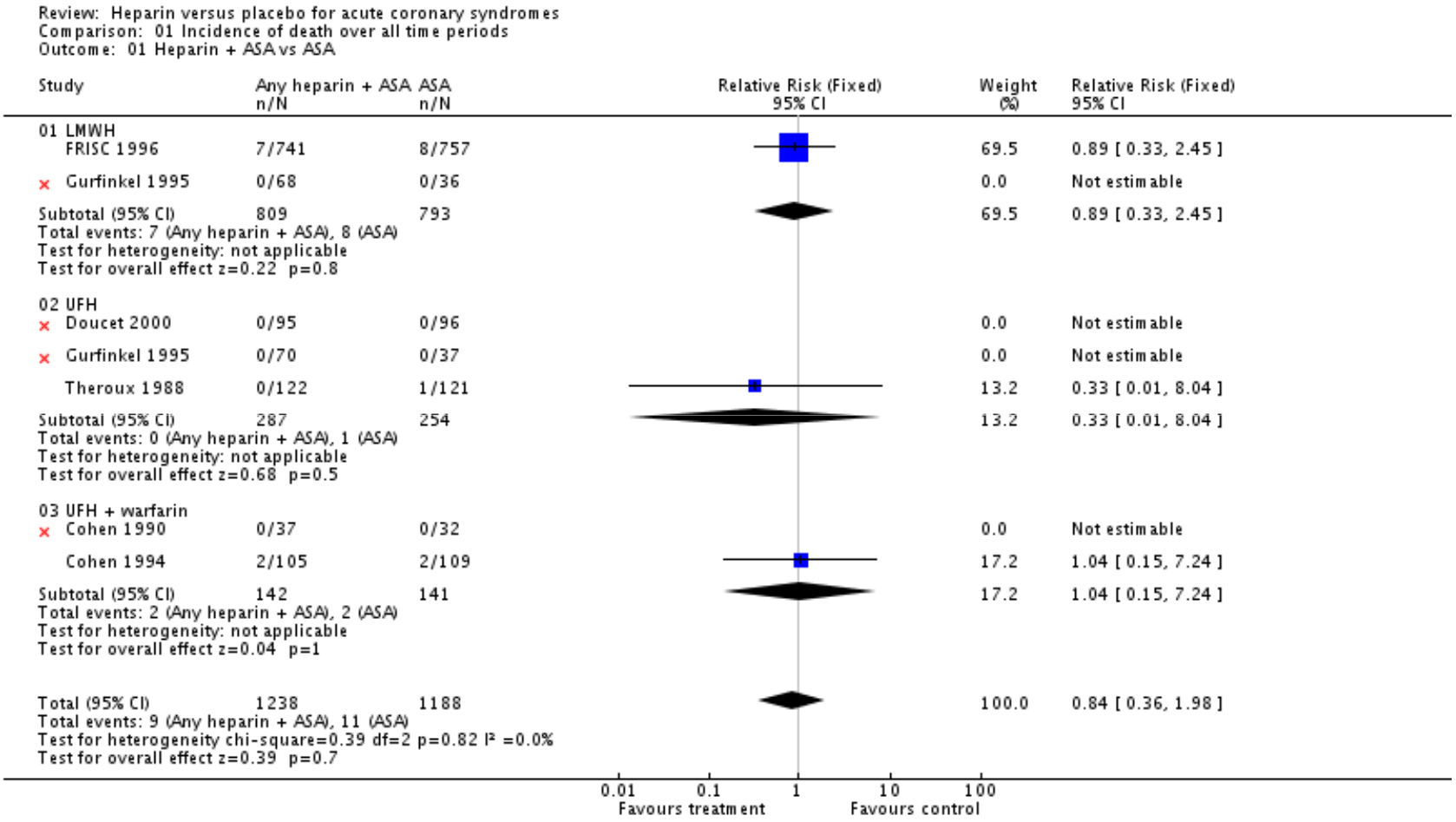
11. Forest plots



Magee et al. Heparin versus placebo for acute coronary syndromes. *Cochrane Database of Systematic Reviews* 2008, Issue 2. Art. No.: CD003462. DOI: 10.1002/14651858.CD003462.pub2.

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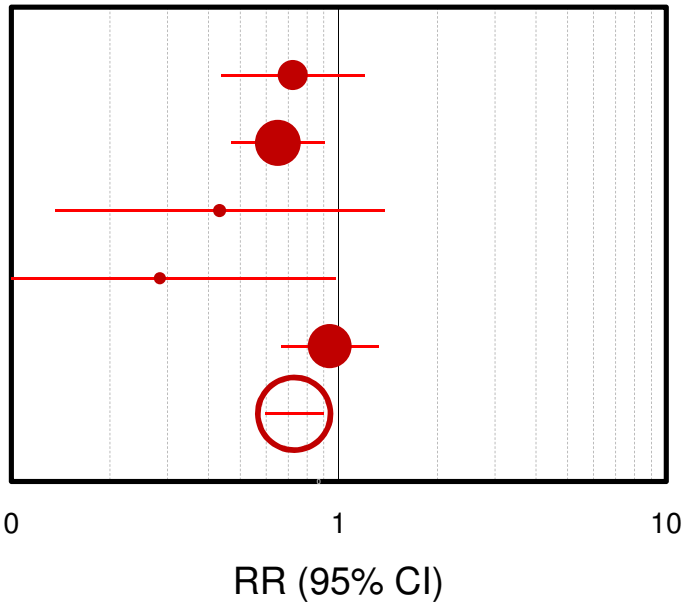
11. Aim for visibility

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



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11. Aim for visibility

Study	No. of events / No. of participants: More intensive	Less intensive	Odds ratio (95% CI)
Acute coronary syndromes			
PROVE IT-TIMI 22[15]	147/2099	172/2063	0.83 (0.66-1.04)
A to Z[16]	205/2265	235/2232	0.85 (0.69-1.03)
Overall	352/4364	407/4295	0.84 (0.72-0.97)
	I^2 = 0%		
Chronic coronary artery disease			
Vascular Basis Trial[20]	4/197	1/103	2.11 (0.23-19.16)
REVERSAL[19]	4/327	7/327	0.57 (0.16-1.95)
SAGE[21]	22/446	27/445	0.80 (0.45-1.43)
TNT[17]	334/4995	418/5006	0.79 (0.68-0.91)
IDEAL[18]	411/4439	463/4449	0.88 (0.76-1.01)
Overall	775/10404	916/10330	0.83 (0.75-0.92)
	I^2 = 0%		
Overall	1127/14768	1323/14625	0.83 (0.77-0.91)
	I^2 = 0%		

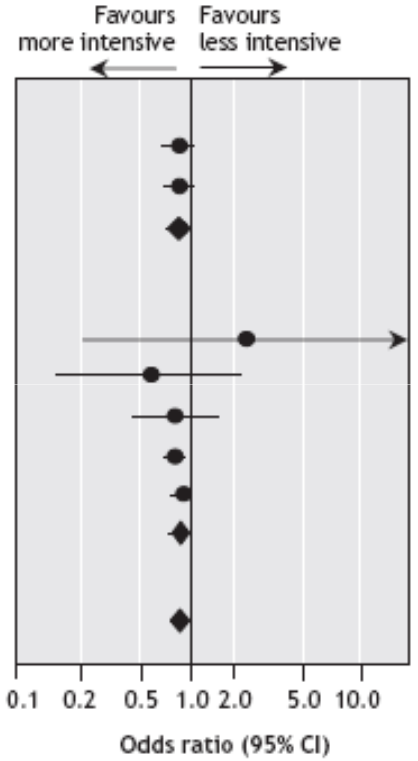

Figure 2: Risk of myocardial infarction or coronary death among patients with acute coronary syndromes or chronic coronary artery disease in 7 studies of statin therapy intensity.

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

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11. 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

Obstet Gynecol 2005;105:983–90.

Impact of Maternal Age on Obstetric Outcome.

Cleary-Goldman J, Malone FD, Vidaver J, Ball RH, Nyberg DA, Comstock CH, Saade GR, Eddleman KA, Klugman S, Dugoff L, Timor-Tritsch IE, Craigo SD, Carr SR, Wolfe HM, Bianchi DW, D'Alton M, for the FASTER Consortium*.

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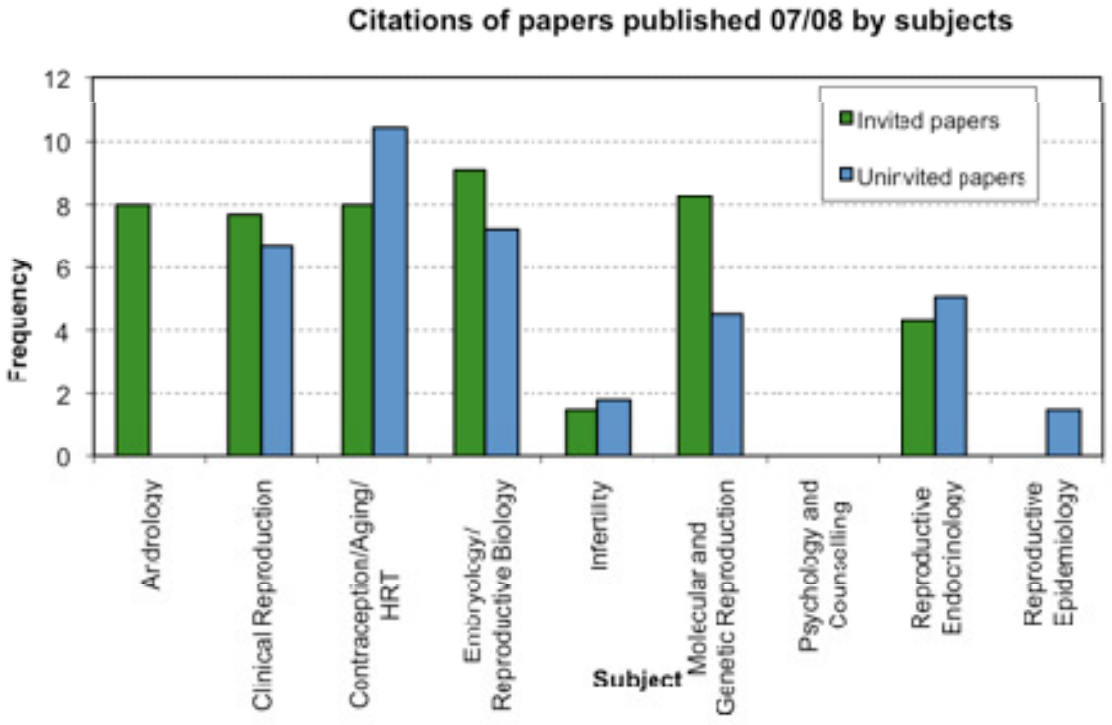
Perinatal loss	0.3	0.3	0.7	.079

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

Human Reporduction Update: all papers.

Subject	No. of papers	% of papers	Mean citations
Andrology	3	3.1%	8.00
Clinical Reproduction	21	21.9%	7.19
Contraception/Aging/HRT	7	7.3%	8.71
Embryology/Reproductive Biology	12	12.5%	8.50
Infertility	9	9.4%	1.67
Molecular and Genetic Reproduction	18	18.8%	6.77
Psychology and Counselling	2	2.1%	0.00
Reproductive Endocrinology	21	21.9%	4.71
Reproductive Epidemiology	3	3.1%	1.00
Total	96	100.0%	



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12. Organization of a paper

- You are given a series of paragraphs taken from a single paper.
- Your task is to re-order the paragraphs in a meaningful way, in order to reconstruct the paper.
- Specify which paragraphs belong to "Introduction", "Materials and Methods", "Results" and "Conclusions".
- Time: 30 min

A	Our trial has several limitations. The two antiseptics were different colors; this lack of blinding may have introduced bias. However, because these antiseptics were widely used in the three intensive care units before our study began, we do not believe that the nurses who obtained the cultures knew that one solution was more effective than the other. The relatively short period between application of the antiseptic and performance of the venipuncture may have been another source of bias. Although this practice is common in many institutions, it could have biased the results in favor of alcoholic chlorhexidine because it takes several minutes for aqueous povidone-iodine to provide its maximum antiseptic effect. Finally, the judgment of which isolates were considered to be contaminants may have biased our results, but our explicit definition of contaminant reduced this risk substantially.
B	Coagulase-negative staphylococci are the organisms most frequently found in normal skin flora and are also predominant among contaminants (X). Such gram-positive organisms tend to be resistant to multiple drugs and often remain susceptible only to glycopeptides. In critically ill patients who are predisposed to nosocomial infections, reflexive use of vancomycin after reports of gram-positive cocci in blood cultures is common, even when contamination is recognized (X). In an era of emerging vancomycin-resistant enterococci (X) and, more recently, vancomycin-intermediate Staphylococcus aureus (X), prudent use of vancomycin is necessary to limit the spread of vancomycin-resistant gram-positive cocci (X).
C	The primary end point was the number of blood cultures considered to be contaminated. Two independent reviewers who were blinded to the patients' study group assignment classified each blood culture isolate as a contaminant or a true pathogen. Contaminant isolates were defined as isolates of several organisms—coagulase-negative staphylococci, Propionibacterium acnes, Streptococcus viridans, Coryne-bacterium species (excluding group JK), Micrococcus species, or Bacillus species—that were obtained from one set of blood cultures and an identical organism (that is, an organism of the same species with the same antibiotic susceptibility and the same pulsed-field gel electrophoresis pattern [6]) that was not obtained from another potentially infected site (for example, blood culture, catheter tip, or urine) 5 days before or 5 days after blood culture collection. In all other cases, blood culture isolates were considered to be true pathogens.
D	Statistical analysis (odds ratio estimation) was performed by using generalized estimating equations that took into account a possible clustering effect of multiple cultures by patient (PROC GENMOD, SAS software, version 6.12, SAS Institute, Inc., Cary, North Carolina). All tests were two-tailed. A P value of 0.05 or less was considered statistically significant.
E	Our study was designed to determine whether skin preparation with alcoholic chlorhexidine reduced the risk for blood culture contamination. We computed the sample size necessary to detect a twofold decrease in the incidence of contaminated blood cultures. We assumed that the incidence of contaminated blood cultures in the povidone-iodine group would be 5%, therefore, 1900 blood cultures would be required to detect a difference of this magnitude (power, 0.8; type I error, 5%).
F	Our data suggest that alcoholic chlorhexidine as skin antisepsis is more effective than aqueous povidone-iodine in reducing the incidence of blood culture contamination. Further study will probably show that the resulting lower contamination rates lead to cost savings.
G	Contamination of blood cultures considerably increases the cost of patient care, particularly laboratory and pharmacy expenses and prolongs hospital stay (7–9). Lack of good skin preparation is the most common cause of contaminants in blood cultures (X). Povidone-iodine solutions have greater in vitro microbicidal activity than chlorhexidine solutions (X). However, in a randomized trial comparing 10% povidone-iodine, 2% aqueous chlorhexidine, and 70% isopropyl alcohol applied once for the prevention of infection associated with central venous and arterial catheters, substantially fewer infections occurred with chlorhexidine (X). The superiority of chlorhexidine over povidone-iodine for skin antisepsis in preventing catheter infection, even when the antiseptics were applied serially, was confirmed (X). Chlorhexidine is a potent, broad-spectrum germicide that is effective against all nosocomial pathogens (X). Primary bacterial resistance to chlorhexidine is rare (X), and acquired resistance is detected only when diluted aqueous solutions are used (X). In addition, although blood, fat, and other protein-rich biomaterials of the skin surface neutralize the germicidal activity of iodine-containing disinfectants, proteinaceous solutions have little effect on the antibacterial activity of chlorhexidine (X). Finally, the in vivo bactericidal effect of chlorhexidine on gram-positive cocci is dramatically improved by the addition of alcohol and is superior to that of aqueous povidone-iodine (X).
H	We assigned patients to one of two groups according to type of antiseptic solution used for skin preparation before blood culture. Computerized randomization lists were generated in blocks of four and were stratified by unit of hospitalization. We used an alcoholic solution of 0.5% chlorhexidine gluconate (Hibitane Champ, Zeneca Pharma, Cergy, France) or an aqueous solution of 10% povidone-iodine (Betadine, Asta Medica, Marignane, France).
I	We defined positive blood culture as a positive bacterial culture obtained from any aerobic or anaerobic vials; such a culture was considered to be contaminated when it yielded a contaminant and was considered to be truly positive when it yielded a true pathogen. In cases of polymicrobic cultures, the positive blood culture was considered to be a single contaminated or truly bacteremic culture when all bacteria were interpreted as contaminants or true pathogens. A positive blood culture was considered to be a single concomitantly contaminated and truly bacteremic culture when some isolates were interpreted as contaminants and others were interpreted as true pathogens.
J	Skin antisepsis was done by vigorously applying the assigned antiseptic solution once. Blood was obtained 15 to 30 seconds after the application. The 20-mL blood samples, which the nurses collected according to a previously determined procedure (dictated by the hospital), were inoculated simultaneously into aerobic and anaerobic vials of blood culture media (Vital, bioMerieux, Marcy-l'Etoile, France). Blood cultures were incubated at 37 °C and were monitored for 5 days. Isolated organisms and their susceptibilities to antibiotics were determined by using standard methods and criteria.
K	Contamination of blood cultures is common because microflora are usually present on the skin. The misinformation that results from contamination of blood cultures may have deleterious consequences. Therefore, it is important that blood cultures be collected by using a procedure that minimizes contamination (X). In general, preparation of the skin with one or more antiseptic agents should permit satisfactory antisepsis, provided that a suitable period (0.5 to 2 minutes) is allowed for the antiseptic to take effect (X). In many hospitals, however, the personnel collecting blood cultures do not carefully follow the