Recomendaciones estadísticas

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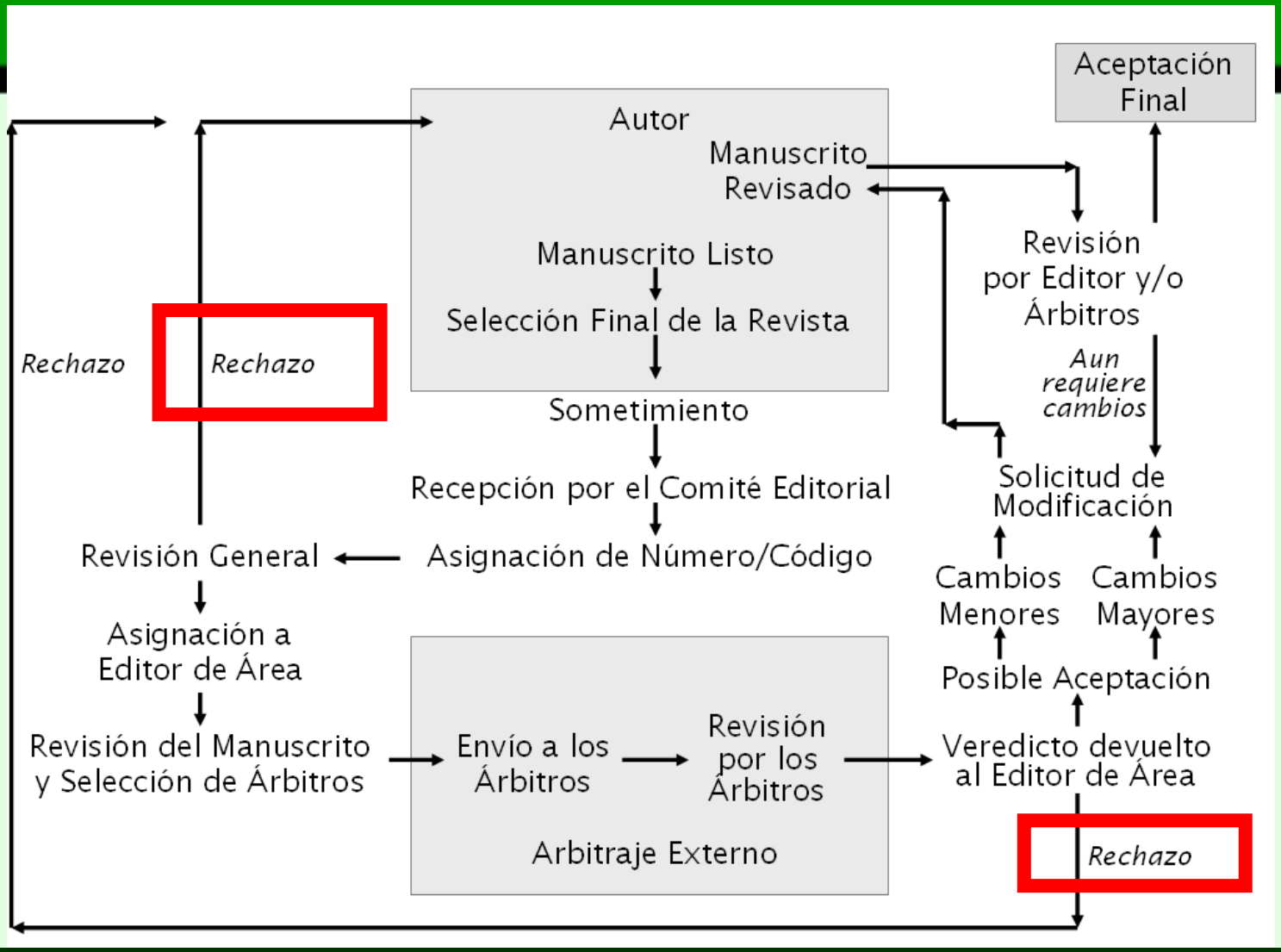
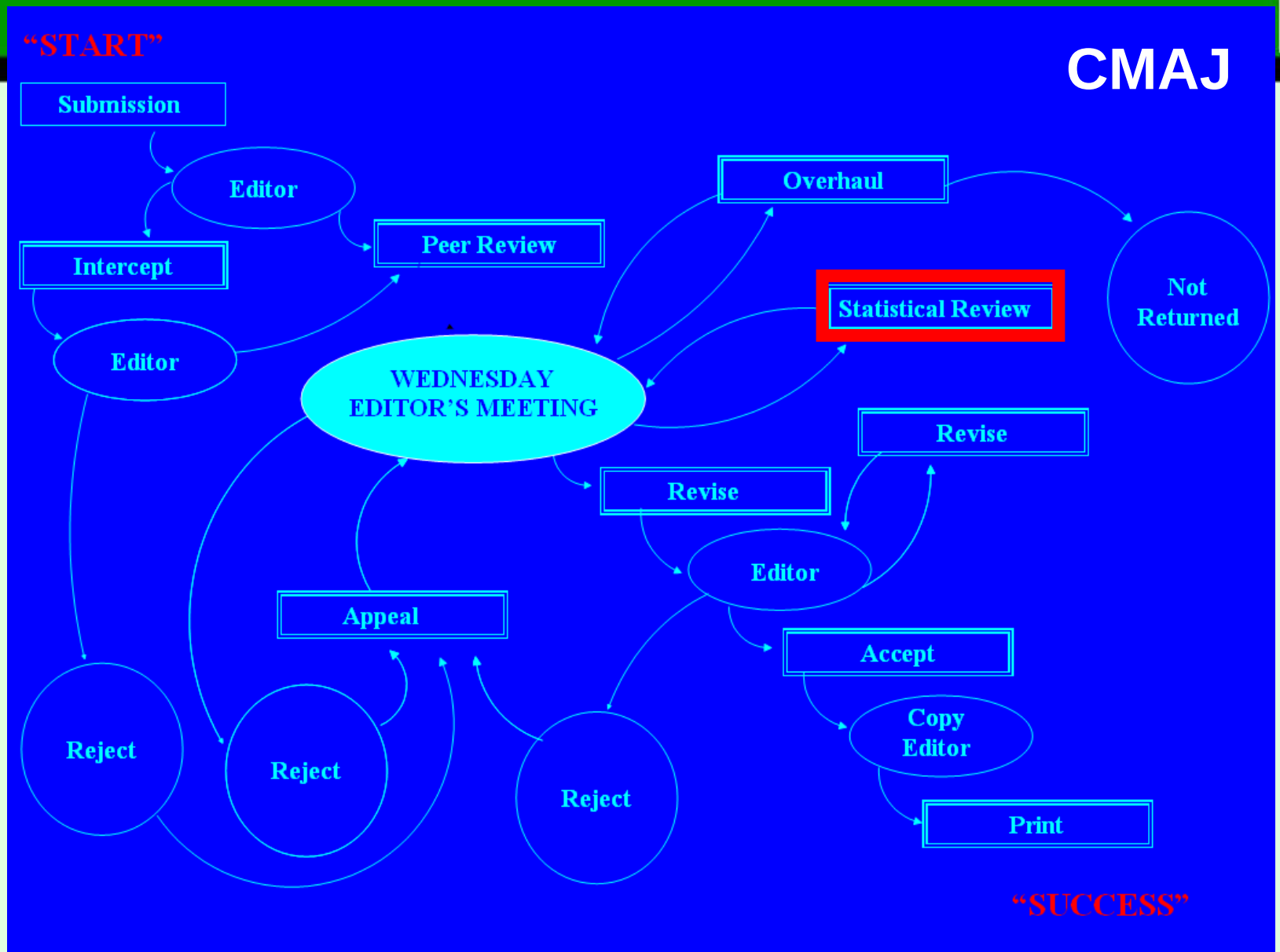
El Proceso Editorial



Franco-Ricart C, Rodríguez-Morales AJ. El Proceso Editorial.
Rev Soc Med Quir Hosp Emerg Perez de Leon 2009; 40(1):82-95.

El Proceso Editorial



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Generalidades del Arbitraje

- Este punto constituye la ***piedra angular del proceso editorial***, de la publicación científica y de la investigación de alto nivel internacional.
- Es el momento de demostración de la ***calidad de un trabajo de investigación***, pues es cuando el mismo es sometido a la ***revisión de expertos*** que evaluarán diferentes aspectos de la calidad del manuscrito como su
  - originalidad,
  - pertinencia en la revista,
  - metodología (incluyendo **el análisis de datos**),
  - presentación,
  - estilo y
  - en general redacción.

Rodriguez-Morales. Rev Soc Med Quir Hosp Emerg Perez de Leon 2009; 40(1): 82-95.

Generalidades del Arbitraje

- En cuanto a la metodología esta debe estar ***claramente descrita y ser apropiada*** para responder al ***problema planteado***.
- La ***estadística*** también es revisada, evaluando si el tamaño de la muestra es apropiado y si ésta es representativa.
- En el caso de los ensayos clínicos es fundamental el que los ***criterios de inclusión y exclusión*** de los sujetos estudiados estén bien descritos.

Rodriguez-Morales. Rev Soc Med Quir Hosp Emerg Perez de Leon 2009; 40(1): 82-95.

Generalidades del Arbitraje

- Los ***resultados*** deben estar presentados de una ***manera clara y concisa***, siendo entonces una parte crítica de la evaluación por los árbitros.
- Estos analizan allí si los ***resultados son consistentes*** según los métodos (*incluidos los estadísticos*) propuestos.

¿Importa en un manuscrito?

- Principales causas de aceptación de un manuscrito
  - Importante, problema prevalente
  - Bien redactado
  - **Buen diseño**
  - Buen sustento bibliográfico
  - **Muestra bien elegida y suficiente**
  - Utilidad práctica
  - Interpretación de las limitaciones del estudio
  - Buena formulación del problema
  - Muy original

Bordage G. Reasons reviewers reject and accept manuscript. Academic Medicine 2001; 76(9): 889-96

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¿Importa en un manuscrito?

- Principales causas de rechazo
  - **Sobreestimación de resultados**
  - **Estadística incompleta o inapropiada**
  - Mala revisión bibliográfica
  - **Mal diseño de estudio**
  - Elección incorrecta de instrumentos
  - Pobre redacción
  - **Muestra insuficiente o mal seleccionada**
  - **Mala presentación de datos**

Bordage G. Reasons reviewers reject and accept manuscript. Academic Medicine 2001; 76(9): 889-96

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Preface

Evidence-Based Veterinary Medicine

Sébastien Buczinski, Dr Vét, DÉS, MSc

Jean-Michel Vandeweerd, DMV, MS

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How Can Veterinarians Base Their Medical Decisions on the Best Available Scientific Evidence?

Jean-Michel Vandeweerd, DMV, MS[a,*], Peter Clegg, VetMB, MA, PhD[b], Sébastien Buczinski, Dr Vét, DÉS, MSc[c]

KEYWORDS

- Decision making • Evidence-based medicine
- Scientific evidence • Academic research • Education

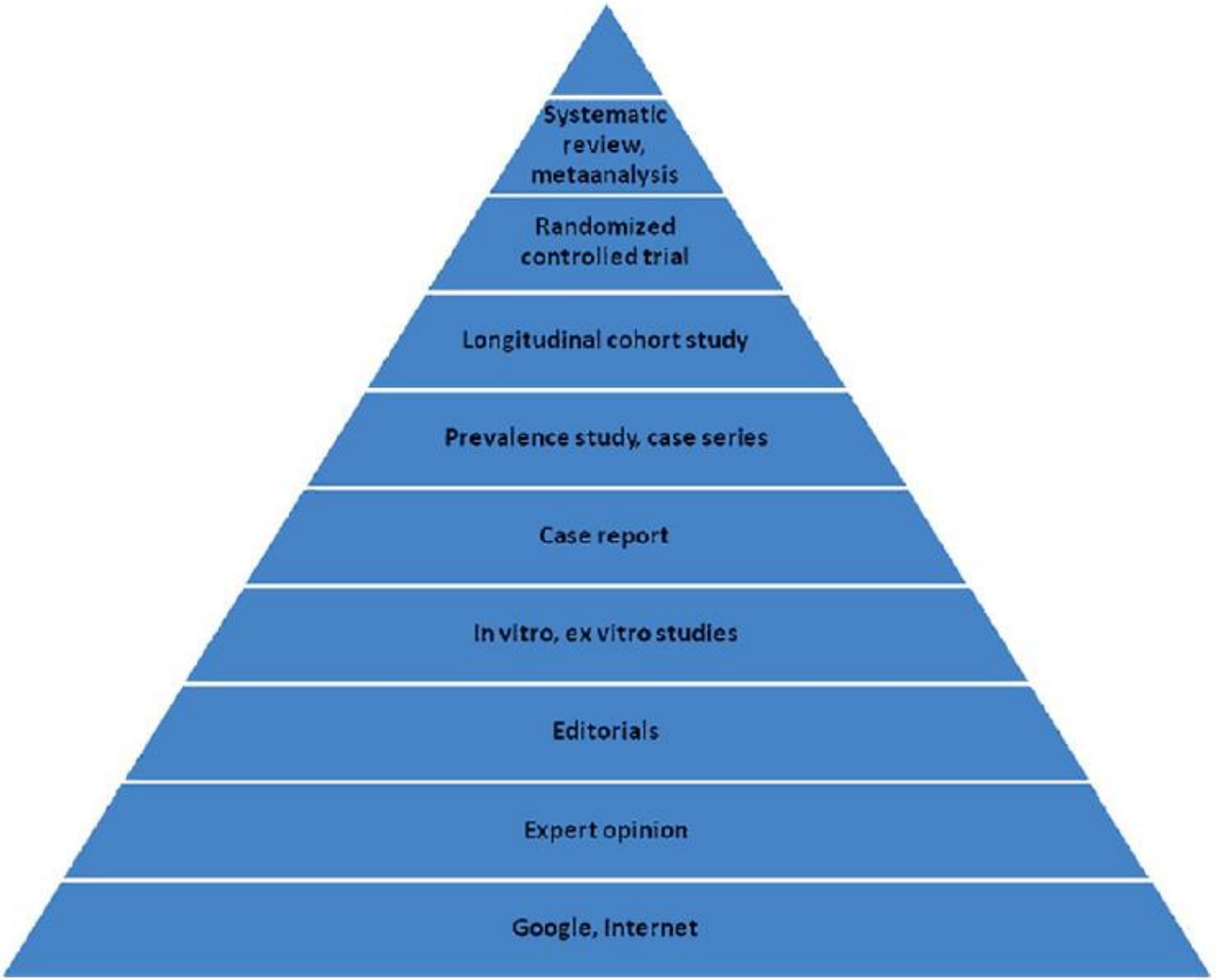

Fig. 1. Pyramid of evidence: designs at the top of the pyramid carry a higher level of evidence.

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Review

Is evidence-based medicine so evident in veterinary research and practice? History, obstacles and perspectives

Jean-Michel Vandeweerd [a,*], Nathalie Kirschvink [a], Peter Clegg [b], Sandrine Vandenput [c], Pascal Gustin [d], Claude Saegerman [e]

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Using Systematic Reviews to Critically Appraise the Scientific Information for the Bovine Veterinarian

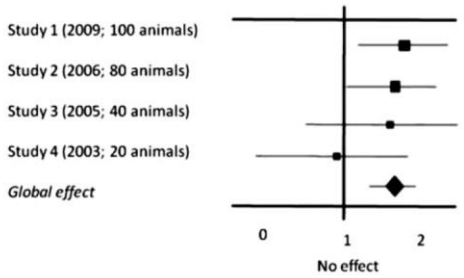

Fig. 2. Forest plot.

Jean-Michel Vandeweerd, DMV, MS[a,*], Peter Clegg, VetMB, MA, PhD[b], V. Hougardy, BSc[c], Sébastien Buczinski, Dr Vét, DÉS, MSc[d]

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ORIGINAL ARTICLE

The REFLECT Statement: Methods and Processes of Creating Reporting Guidelines for Randomized Controlled Trials for Livestock and Food Safety by Modifying the CONSORT Statement†

A. M. O'Connor, J. M. Sargeant, I. A. Gardner, J. S. Dickson, M. E. Torrence and Consensus Meeting Participants*: C. E. Dewey, I. R. Dohoo, R. B. Evans, J. T. Gray, M. Greiner, G. Keefe, S. L. Lefebvre, P. S. Morley, A. Ramirez, W. Sischo, D. R. Smith, K. Snedeker, J. Sofos, M. P. Ward and R. Wills

Zoonoses Public Health. 57 (2010) 95–104

Table 2. Checklist of items for the REFLECT statement: reporting guidelines for randomized control trials in livestock and food safety

Paper section and topic	Item	Descriptor of REFLECT statement item	Reported on page no.
Title & Abstract	1	How **study units** were allocated to interventions (eg, 'random allocation,' 'randomized,' or 'randomly assigned'). **Clearly state whether the outcome was the result of natural exposure or was the result of a deliberate agent challenge**	–
Introduction Background	2	Scientific background and explanation of rationale	–
Methods Participants	3	Eligibility criteria **for owner/managers and study units at each level of the organizational structure,** and the settings and locations where the data were collected	–
Interventions	4	Precise details of the interventions intended for each group, **the level at which the intervention was allocated** and how and when interventions were actually administered	–
	4b	**Precise details of the agent and the challenge model, if a challenge study design was used**	–
Objectives	5	Specific objectives and hypotheses. **Clearly state primary and secondary objectives (if applicable)**	–
Outcomes	6	Clearly defined primary and secondary outcome measures and the levels, at which they were measured and when applicable, any methods used to enhance the quality of measurements (e.g. multiple observations, training of assessors)	–
Sample size	7	How sample size was determined and when applicable, explanation of any interim analyses and stopping rules. **Sample-size considerations should include sample-size determinations at each level of the organizational structure and the assumptions used to account for any non-independence among groups or individuals within a group**	–
Randomization – Sequence generation	8	Method used to generate the random allocation sequence **at the relevant level of the organizational structure**, including details of any restrictions (e.g. blocking, stratification)	–
Randomization – Allocation concealment	9	Method used to implement the random allocation sequence **at the relevant level of the organizational structure** (e.g. numbered containers ~~**or central telephone**~~), clarifying whether the sequence was concealed until interventions were assigned	–
Randomization – Implementation	10	Who generated the allocation sequence, who enrolled **study units** and who assigned **study units** to their groups **at the relevant level of the organizational structure**	–
Blinding (masking)	11	Whether or not ~~**participants**~~ those administering the interventions, **caregivers** and those assessing the outcomes were blinded to group assignment. If done, how the success of blinding was evaluated. **Provide justification for not using blinding if it was not used**	–
Statistical methods	12	Statistical methods used to compare groups for all outcome(s); Clearly state the level of statistical analysis **and methods used to account for the organizational structure, where applicable;** methods for additional analyses, such as subgroup analyses and adjusted analyses	–
Results **Study** flow	13	Flow **of study units** through each stage **for each level of the organization structure of the study** (a diagram is strongly recommended). Specifically, for each group, report the numbers of **study units** randomly assigned, receiving intended treatment, completing the study protocol and analysed for the primary outcome. Describe protocol deviations from study as planned, together with reasons	–
Recruitment	14	Dates defining the periods of recruitment and follow up	–
Baseline data	15	Baseline demographic and clinical characteristics of each group, **explicitly providing information for each relevant level of the organizational structure. Data should be reported in such a way that secondary analysis, such as risk assessment, is possible**	–

Table 2. (Continued)

Paper section and topic	Item	Descriptor of REFLECT statement item	Reported on page no.
Numbers analysed	16	Number **of study units** (denominator) in each group included in each analysis and whether the analysis was by 'intention-to-treat.' State the results in absolute numbers when feasible (e.g. 10/20, not 50%)	–
Outcomes and estimation	17	For each primary and secondary outcome, a summary of results for each group, accounting for the hierarchy, and the estimated effect size and its precision (e.g. 95% confidence interval)	–
Ancillary analyses	18	Address multiplicity by reporting any other analyses performed, including subgroup analyses and adjusted analyses, indicating those pre-specified and those exploratory	–
Adverse events	19	All important adverse events or side effects in each intervention group	–
Discussion Interpretation	20	Interpretation of the results, taking into account study hypotheses, sources of potential bias or imprecision, and the dangers associated with multiplicity of analyses and outcomes. **Where relevant, a discussion of herd immunity should be included. If applicable, a discussion of the relevance of the disease challenge should be included**	–
Generalizability	21	Generalizability (external validity) of the trial findings	–
Overall evidence	22	General interpretation of the results in the context of current evidence	–

Text in bold are modifications from the original CONSORT description (Moher et al., 2001a,b,c,d).

Table 3. Definitions used in the checklist for reporting trials in livestock with production, health and food-safety outcomes

Checklist description	Definition
Participant	The owner/manager of the study facility who consented to participate in the trial
Allocation unit	The study unit allocated to receive the intervention. The allocation unit can occur at one level only of the organizational structure
Outcome unit	The study unit at which outcomes are measured. Common outcomes in livestock production include weight gain, disease occurrence and presence or absence of an infectious disease agent. The outcome unit can occur at one level only of the organizational structure, and may be at the same level of the organizational structure as the allocation unit, or at a lower level
Primary outcome	The primary outcome refers to the outcome measure used to determine the study sample size
Secondary outcome	Another outcome measure of interest, but which was not used to determine the sample size
Organizational structure	Organizational structure refers to the manner, in which the allocation and outcome units are organized within a production system. The structure may not always be hierarchical. Knowledge of the structure is important for understanding the internal validity of the study, particularly the appropriateness of the data analysis. Knowledge of the structure is also important for assessing the external validity/generalizability of the study

fied the original CONSORT item; in the other instances, this meant accepting no change in the wording from the original CONSORT item; and in one instance, the vote was to add one sub-item (Table 3). Four items (1, 5, 6 and 7) were tabled for further discussion before voting. Tabling involved returning to the item for further discussion later in the meeting. After this further discussion, the vote was taken for the modified wording for items 1, 5 and 7 (Table 2) and to retain the exact CONSORT item wording for item 6. The majority of changes were made to address the issue of clustering of animal populations (items 3, 7–13, 15). It was deemed critical that this information be conveyed correctly to ensure understanding of the study design and therefore must be part of the CONSORT statement rather than just be further clarified in the supporting documents. There is a need for clear identification of the unit of allocation of the intervention and the unit of assessment and inference. Interventions can be allocated at any level of the organizational structure and the outcome assessed at the same or lower level. A clear understanding of the level of allocation and outcome assessment is essential for assessing both the internal and external validity of a study.

Another issue was associated with the housing used for animals. In livestock trials, non-independence of

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ELSEVIER SAUNDERS

VETERINARY CLINICS Equine Practice

Vet Clin Equine 23 (2007) 191–200

An Introduction to Evidence-Based Veterinary Medicine

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What is evidence-based veterinary medicine?

Simply stated, evidence-based veterinary medicine (EBVM) is the conscientious, explicit, and judicious use of the current best evidence in making decisions about the care of individual patients [3,4]. The practice of EBVM integrates individual clinical expertise with the best available external clinical evidence from systematic research. EBVM is not a blind reliance on clinical research; rather, it attempts to incorporate the best information obtained from clinical research and the best clinical judgment of the practitioner (Fig. 3).

The main difference in emphasis of EBM from traditional approaches to learning is a move away from an emphasis on textbooks, lecture notes, and narrative reviews toward the use of primary clinical research. It is a change from our attempts to accumulate all the knowledge just in case we need it to an approach that enables us to find the information when we need it.

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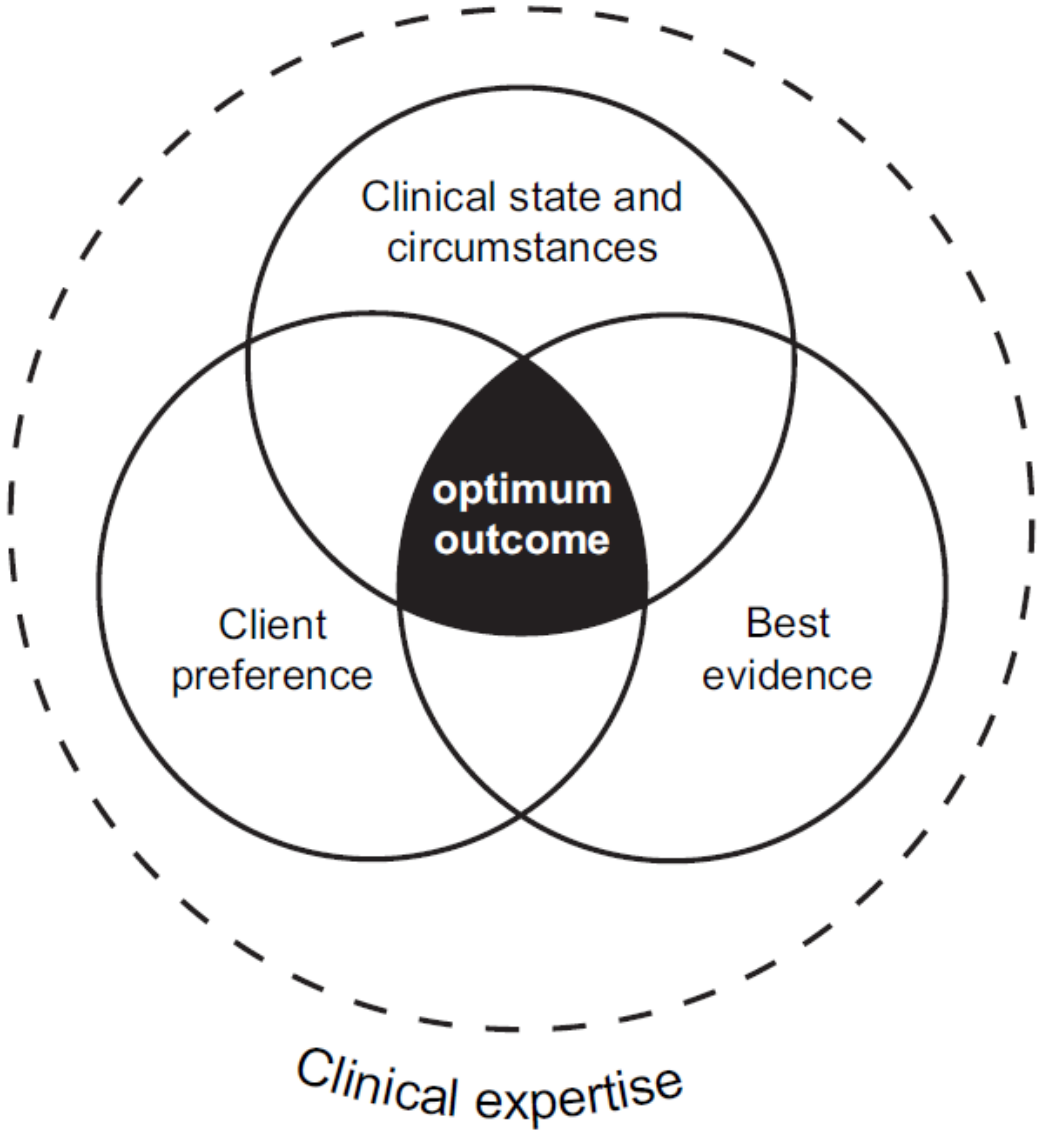

Fig. 3. Decision making in EBVM. The decision-making process in EBVM is represented in this Venn diagram. The optimal outcome depends on the clinical situation, best evidence, and wishes of the client (and patient). Veterinary clinical expertise is required for all aspects of the decision-making process.

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ELSEVIER SAUNDERS

Vet Clin Small Anim 37 (2007) 499–520

VETERINARY CLINICS
SMALL ANIMAL PRACTICE

Clinical Reasoning and Decision Analysis

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Review

J Vet Intern Med 2013;27:1011–1019

Systematic Review of Nonsteroidal Anti-Inflammatory Drug-Induced Adverse Effects in Dogs

B.P. Monteiro-Steagall, P.V.M. Steagall, and B.D.X. Lascelles

The aim of this systematic review was to identify, assess, and critically evaluate the quality of evidence of nonsteroidal anti-inflammatory drug (NSAID)-induced adverse effects in dogs. Original prospective studies published in peer-reviewed journals in English (1990–2012) that reported data on the safety of NSAIDs administration in dogs were searched. For each study, design type (I, II, III, or IV) and assessment of quality (+, Ø, −) were rated. For each drug, quantity and consistency rating (***, **, *) and strength of evidence (high, moderate, low, or extremely low) were identified and evaluated. The strength of evidence was defined in terms of how applicable and relevant the conclusions were to the target population. Sixty-four studies met the inclusion criteria. Thirty-five (55%) research studies and 29 (45%) clinical trials were identified. A high strength of evidence existed for carprofen, firocoxib, and meloxicam; moderate for deracoxib, ketoprofen, and robenacoxib; and low for etodolac. Quality and consistency rating were as follows: carprofen (***/***), deracoxib (**/***), etodolac (*/unable to rate), firocoxib (***/**), ketoprofen (**/***), meloxicam (***/***), and robenacoxib (**/**), respectively. Adverse effects were detected in 35 studies (55%) and commonly included vomiting, diarrhea, and anorexia. Three studies (5%) reported a power analysis related to adverse effects of ≥80%. In randomized, placebo-controlled, blinded studies (n = 25, 39%), the incidence of adverse effects was not statistically different between treated and control dogs. Finally, most studies were not appropriately designed to determine the safety of NSAIDs, and involved a healthy nongeriatric population of research dogs.

Key words: Analgesia; Canine; Evidence-based medicine; Osteoarthritis; Pain.

Table 4. Summary of the results of the review.

NSAID	Study Design Type	Assessment of Quality	Quantity Rating	Consistency Rating	Strength of Evidence	References
Carprofen	8 studies: type I 15 studies type II 1 study: type III 4 studies: type IV	17 studies: + 9 studies: Ø 2 studies: –	***	***	High	4,7,8,16–40
Deracoxib	1 study: type I 8 studies: type II 1 study: type IV	7 studies: + 3 studies: Ø	**	***	Moderate	9,17,20,21,23,24,41–44
Etodolac	3 studies: type II	2 studies: + 1 study: +	*	Unable to rate	Low	4,7,45
Firocoxib	2 studies: type I 5 studies: type II 3 studies: type IV	6 studies: + 4 studies: Ø	***	**	High	26,42,46–53
Flunixin meglumine	1 study: type II 2 studies: type III	1 study: + 1 study: Ø 1 study: –	*	Unable to rate	Extremely low	7,54,55
Ketoprofen	2 studies: type I 9 studies: type II 1 study: type III	7 studies: + 5 studies: Ø	**	***	Moderate	5,7,30,35,37,38,56–61
Ketorolac	1 study: type III	1 study: Ø	*	Unable to rate	Extremely low	37
Licofelone	1 study: type II	1 study: +	*	Unable to rate	Extremely low	10
Meloxicam	4 studies: type I 15 studies: type II 1 study: type III 1 study: type IV	15 studies: + 6 studies: Ø	***	***	High	7,17,20,23,29,31,38,42,50,56,59,60,62–70
Rofecoxib	1 study: type II	1 study: +	*	Unable to rate	Extremely low	10
Robenacoxib	3 studies: type I 1 study: type II	3 studies: + 1 study: Ø	**	**	Moderate	16,18,63,71
Tepoxalin	3 studies: type I	3 studies: +	*	Unable to rate	Extremely low	48,50,72
Tolfenamic acid	1 study: type I	1 study: +	*	Unable to rate	Extremely low	73
Vedaprofen	1 study: type IV	1 study: Ø	*	Unable to rate	Extremely low	69

Table 5. Prospective clinical investigations and reported incidence of dogs treated with an NSAID that developed at least 1 adverse drug experience.

NSAID Administered	Percentage of Dogs That Developed Outwardly Detectable Adverse Effects[†]	Total Number of Treated Dogs	Duration of NSAID Treatment (days)	Age of Dogs (range in years)	Reference
Firocoxib	2.9%	1002	40	0.5–16	53
Carprofen	3.8%	805	84	Adults[*]	8
Firocoxib or etodolac	2.4%	249	29	0.9–20	52
Firocoxib or carprofen	4.6%	218	30	0.6–19	26
Vedaprofen or meloxicam	16.8%	214	Up to 56	Unclear[*]	69
Robenacoxib or meloxicam	24.3%	140	15	0.5–7.5	63
Carprofen	4.5%	110	120	Mean of 9.3[*]	22
Carprofen or meloxicam	2.8%	71	60	1.5–12	31
Carprofen	8.6%	70	14	2.1–8.9	39
Meloxicam or ketoprofen	5%	60	1	0.3–12	59
Meloxicam	3.4%	59	84	6.3–12.6	62
Tolfenamic acid	0%	58	1	0.5–10	73
Carprofen or ketoprofen	0%	46	21	0.4–6.4	30
Firocoxib	36.6%	41	90	Elderly[*]	49
Meloxicam	25%	40	28	5.9–12.5	70
Ketorolac, ketoprofen or carprofen	0%	40	1	0.5–10	37
Meloxicam	0%	38	1–6	0.6–13	67
Deracoxib	23.5%	34	3	0.4–16	41
Robenacoxib or carprofen	9.4%	32	28	5.9–14.4	16
Carprofen or ketoprofen	0%	30	1	0.5–8	35
Carprofen	0%	26	5	0.25–13.5	28
Carprofen	18.2%	22	60	1–11	27
Ketoprofen	0%	22	1	0.5–3	5
Firocoxib	37.5%	16	90	Elderly[*]	47
Carprofen, deracoxib or meloxicam	0%	8	10	4–13	23
Carprofen	0%	6	30	0.6–12	33

*The range of the age was not specified.

[†]This percentage was calculated based on the available data retrieved from the papers. Therefore, bias might have been introduced attributable to any misinterpretation or unclear reporting of the results.

Valoración de la Evidencia

Overview of a simplified and traditional hierarchy for grading the quality of evidence and strength of recommendations

Levels of Evidence

Level I	Well conducted, suitably powered RCT
Level II	Well conducted, but small and under-powered RCT
Level III	Non-randomized observational studies
Level IV	Non-randomized study with historical controls
Level V	Case series without controls

Grades of recommendations

Grade A	Level I
Grade B	Level II
Grade C	Level III or lower

Levels of evidence are for an individual research investigation. Grading of recommendations is based on levels of evidence. Adapted from [1,2]. RCT, randomized controlled trial.

El Sistema GRADE

Grades of Recommendation Assessment, Development and Evaluation

Criterios para asignar el grado de evidencia

Criteria for assigning level of evidence	
Type of evidence	
Randomized trial	High
Observational study	Low
Any other type of research evidence	Very low
Increase level if:	
Strong association	(+1)
Very strong association	(+2)
Evidence of a dose response gradient	(+1)
Plausible confounders reduced the observed effect	(+1)
Decrease level if:	
Serious or very serious limitations to study quality	(−1) or (−2)
Important inconsistency	(−1)
Some or major uncertainty about directness	(−1) or (−2)
Imprecise or sparse data[a]	(−1)
High probability of reporting bias	(−1)

[a]Few outcome events or observations or wide confident limits around an effect estimate. Adapted from [10].

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Summary of components to consider when evaluating the quality of evidence from research

Study design	Randomized
	Allocation concealment
	Blinding (if possible)[a]
	Clinically important and objective primary outcome
	Beta-error[b]
	Multi-center
Study conduct	Intention-to-treat analysis
	Follow-up or attrition rate
	Completion to planned numbers
Study findings	Biological plausibility
	Strength of estimate of effect
	Precision of estimate of effect
	Observed event rate
Study applicability	Consistency across similar studies
	Reproducibility
	Generalizability

[a]Blinding may not be possible in device or protocol/process trials.
[b]Adequately powered, appropriate estimate of control event rate and relative or absolute reduction in clinically important primary outcome.

Preguntas sobre Diagnóstico

Grado de recomendación	Nivel de Evidencia	Estudios sobre los que se basa
A	1a	Revisión Sistemática (Sin heterogeneidad) de Estudios de Diagnóstico de alta calidad (Nivel 1)
	1b	Estudio de Test Diagnóstico de alta calidad
B	2a	Revisiones Sistemáticas (Sin heterogeneidad) de Estudios de DG de mediana calidad (nivel 2)
	2b	Estudio de Test Diagnóstico de mediana calidad (Problemas con espectro de pacientes)
	3	Estudio de Test Diagnóstico de mediana calidad (Estándar de Referencia no se aplicó a todos)
C	4	Estudio de Test Diagnóstico de mediana calidad (Estándar de Referencia no se aplicó enmascaradamente o independientemente)
D	5	Opinión de experto

Sección: Resultados

- Significado de la muestra estudiada
- Análisis básicos
  - Estadística descriptiva
  - Estadística analítica
- Relación entre las variables
- Explicación del objetivo planteado
- Variables que pudiesen confundir

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Fig. 6. Discrete points should not be connected with a line.

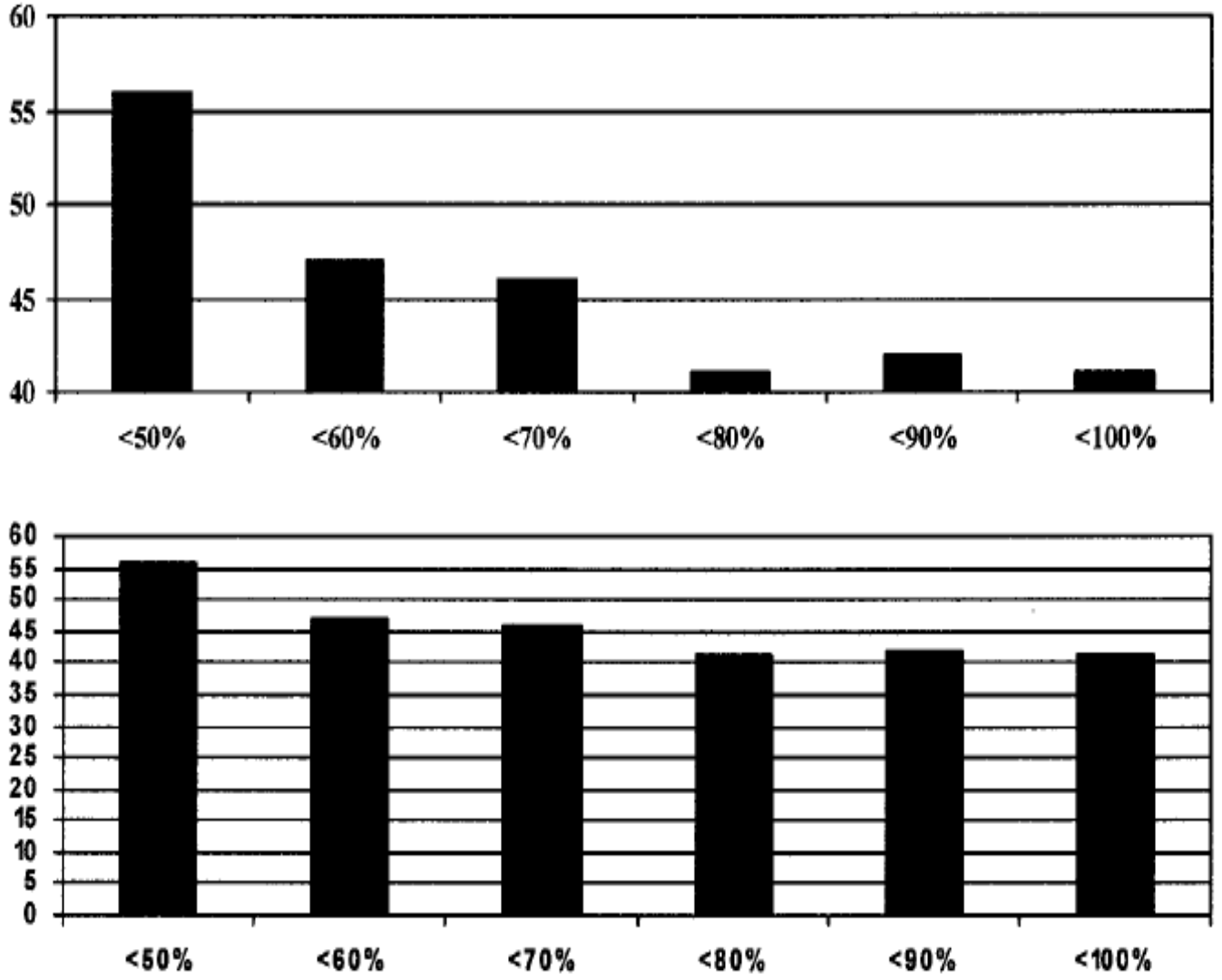

Fig. 7. Improper axis starting points and/or scale can give a misleading appearance that differences are statistically significant. The truncated ordinal axis (ie, zero–40 is missing) in the upper graph makes the differences appear large, whereas in the lower panel the ordinate values begin at zero and the graph is vertically compressed, which visually suggests that the differences are smaller.

Presentación apropiada de Resultados

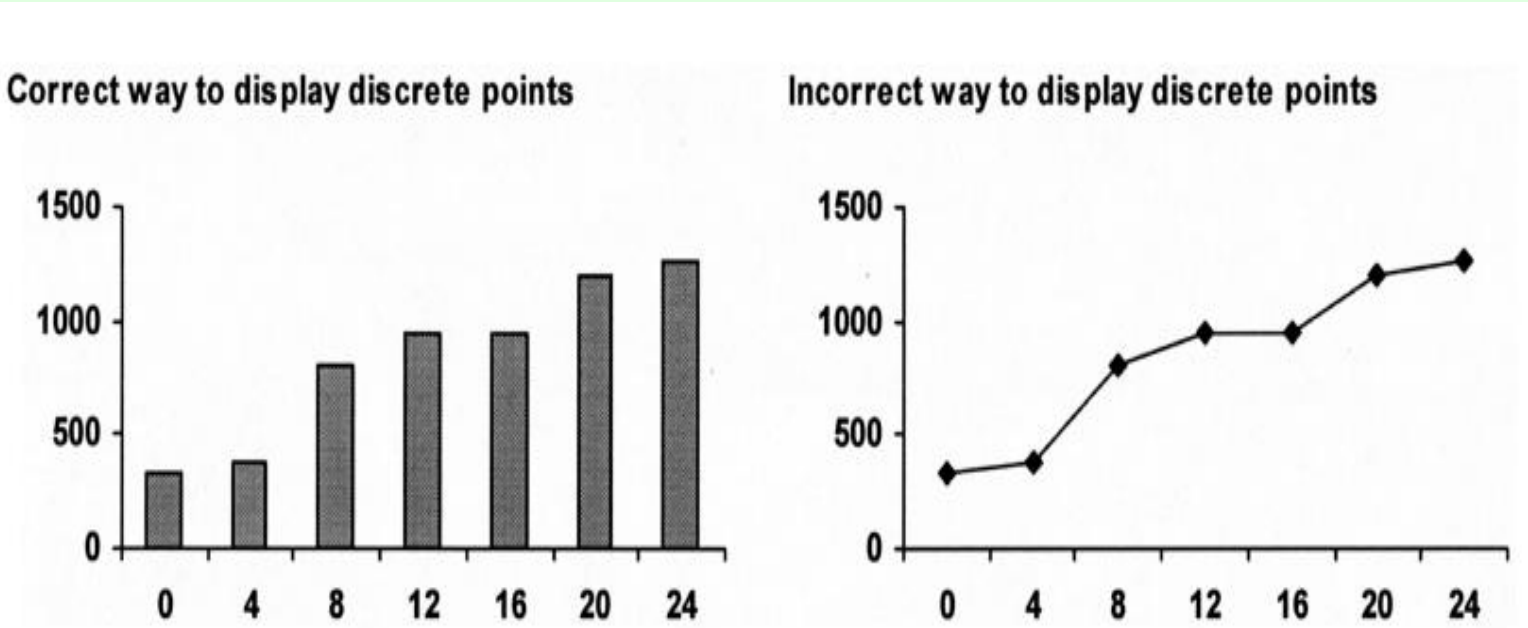

Fig. 6. Discrete points should not be connected with a line.

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Tabla N° 25

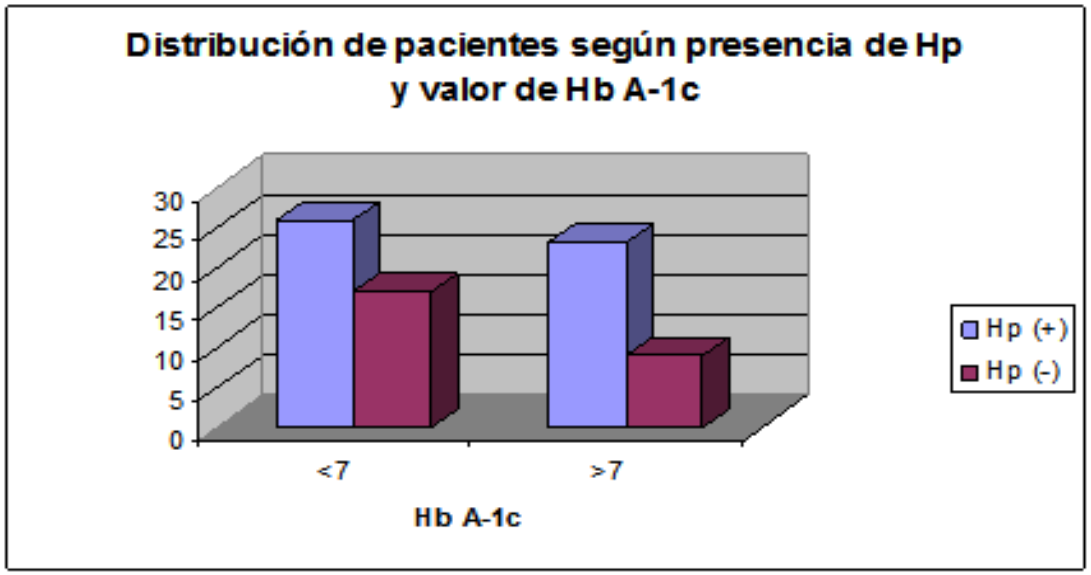
Relación según presencia de Helicobacter Pilory y HbA-1c en Diabéticos Tipo 2

Periodo Noviembre 2005- Febrero 2006

PRESENCIA DE HP	HbA-1c				TOTAL	
	<7		>7			
	n	%	n	%	n	%
POSITIVO	26	53.1	23	46.9	49	100
NEGATIVO	17	65.4	9	34.6	26	100
TOTAL	43	57.3	32	42.7	75	100

Fuente: Ficha de Recolección de Datos *Chi Cuadrada $p<0.05$*

La distribución de pacientes con Hp en ambos grupos fue semejante. Sin encontrarse diferencia estadística de la prevalencia de Hp en relación con los niveles de HbA-1c; siendo, p =1.054



Fuente : Tabla N°26

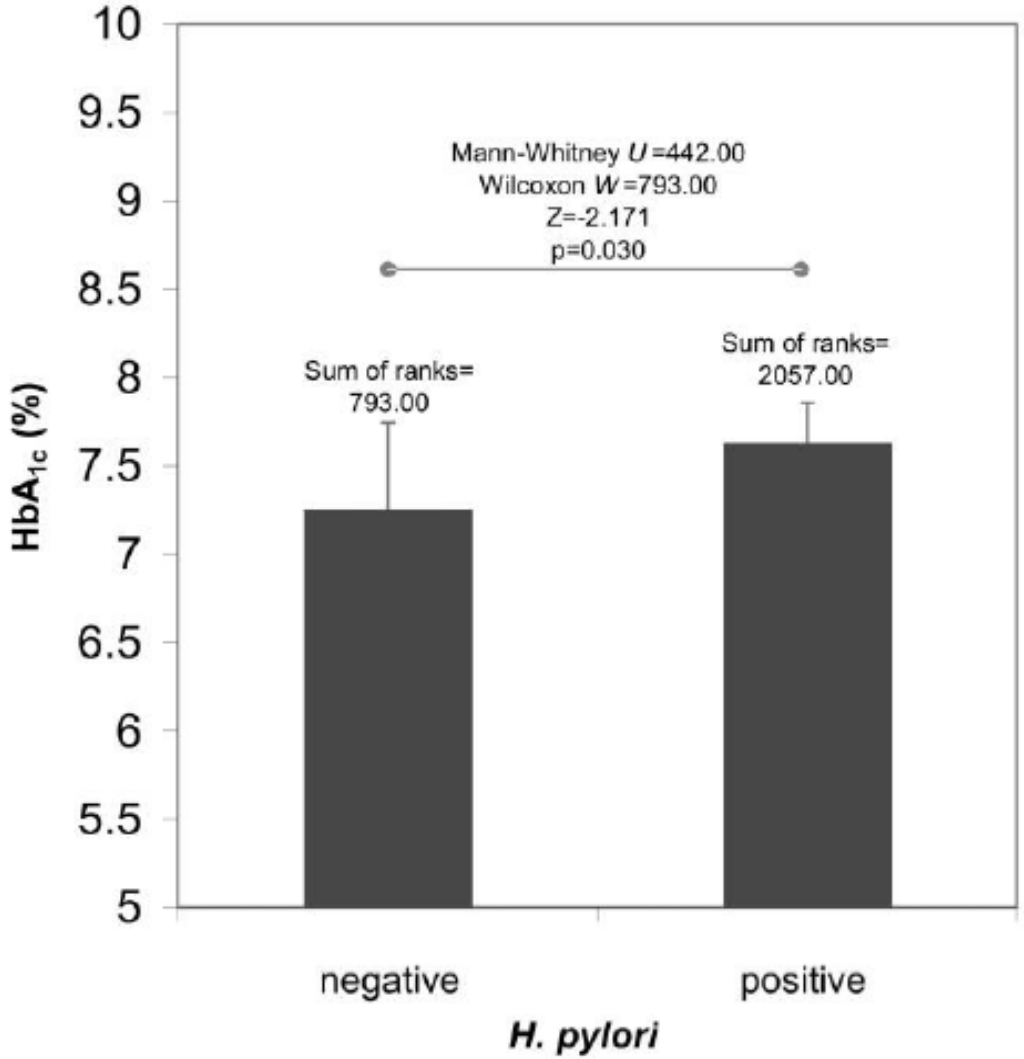


Figure 1. Comparative glycosylated hemoglobin levels among patients with type 2 diabetes mellitus, by status of *Helicobacter pylori* infection.

Fernandini-Paredes GG, Mezones-Holguin E, Vargas-Gonzales R, Pozo-Briceño E, Rodriguez-Morales AJ. In Patients with Type 2 Diabetes Mellitus, Are the Glycosylated Hemoglobin Levels Higher for Those with *Helicobacter pylori* Infection Than Those without Infection? **Clinical Infectious Diseases 2008** Jul 1; 47(1):144-146.

Las regresiones

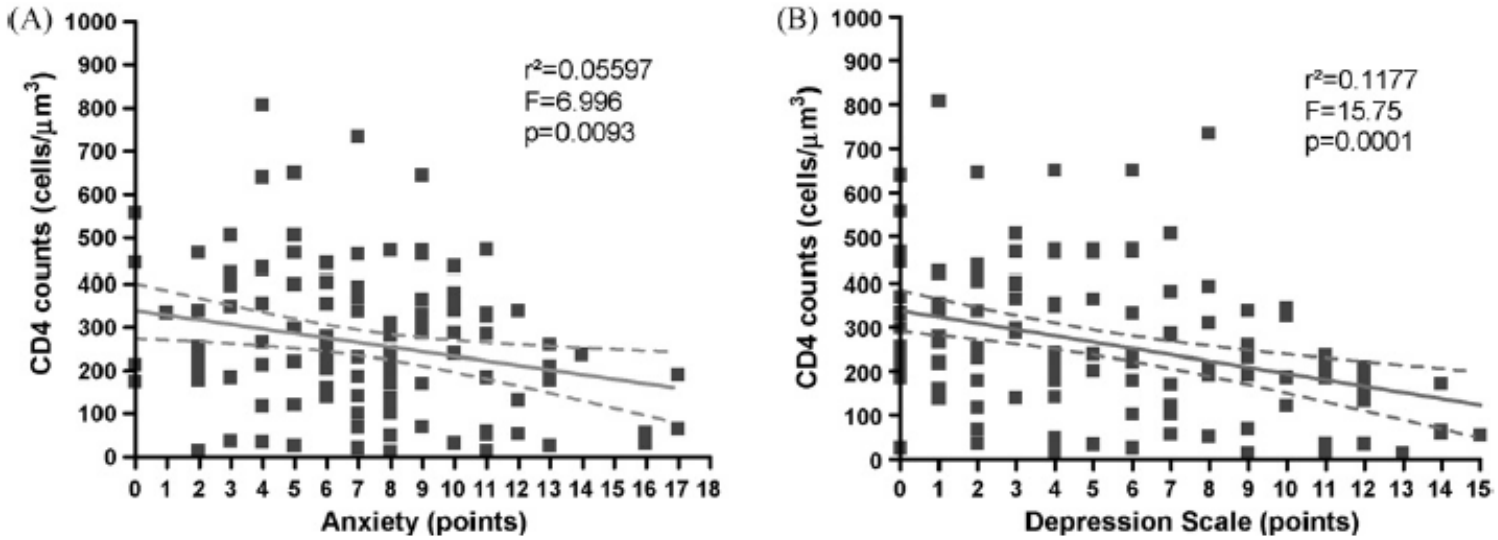


Figure 1 Linear regressions between (A) anxiety and (B) depression and the CD4 counts of naïve HIV/AIDS patients from Peru.

Zeña-Castillo D, Mezones-Holguin E, Valdiviezo-García G, La-Chira-Albán A, Rodriguez-Morales AJ, Dickson-Gonzalez S. Impact of Hospital-Associated Anxiety and Depression on the CD4 counts in Naïve HIV/AIDS Patients from Northern Peru Locations. **Int J Infect Dis** 2009 Mar; 13(2):e75-e76.

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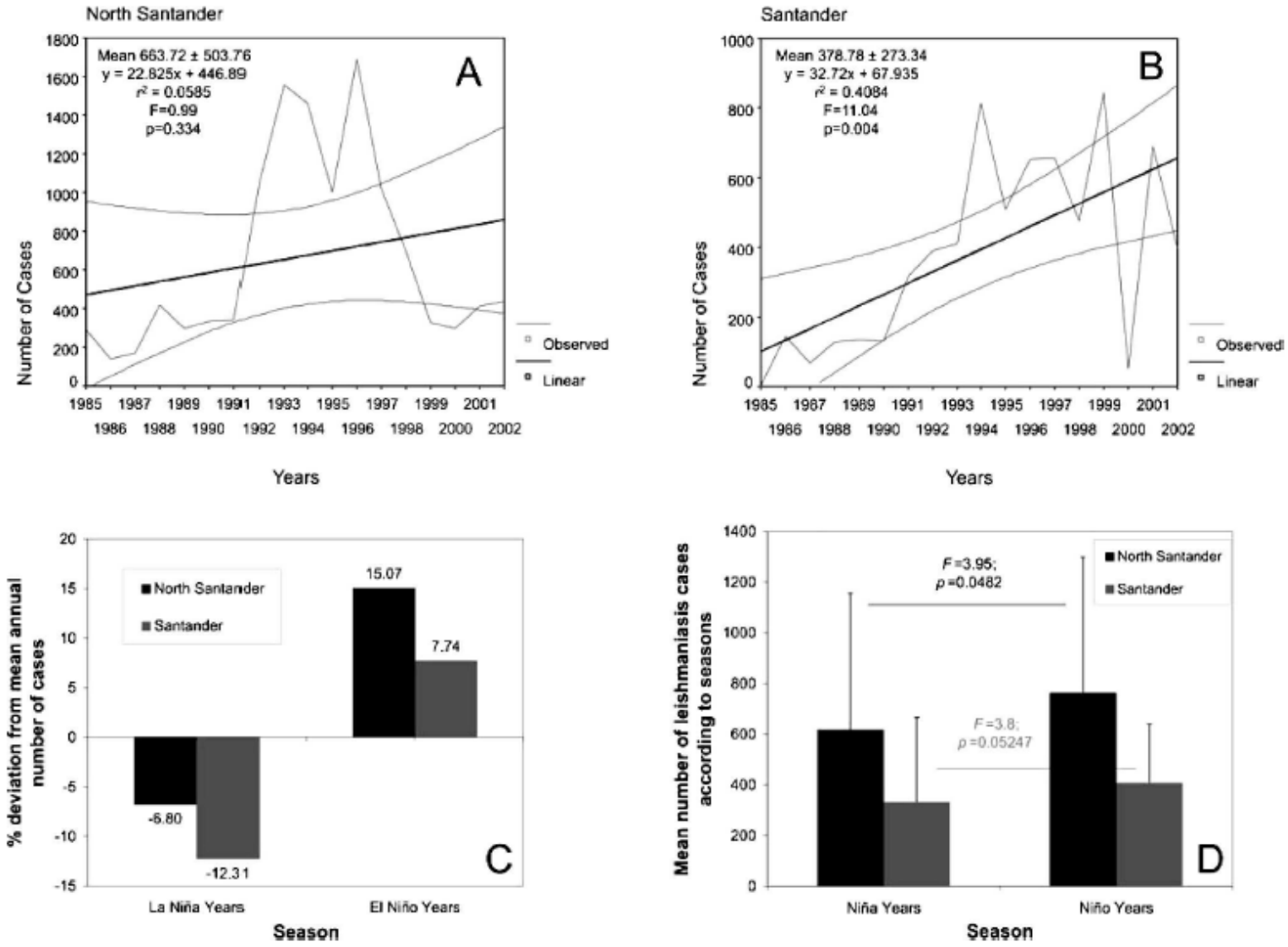


FIGURE 2. Leishmaniasis incidence in North Santander (**A**) and Santander (**B**) departments, northeastern Colombia; and possible impact of climatic variations according to different seasons in terms of deviation from annual mean number of cases (**C**) and in mean number of cases per season (**D**) for each department. El Niño years, 1987, 1992–1994, 1997, and 2002; La Niña years, 1988–1989, 1995–1996, and 1998–2001.

Las regresiones

Rodríguez-Morales AJ, Sánchez E, Arria M, Vargas M, Piccolo C, Colina R, Franco-Paredes C. Haemoglobin and haematocrit: the threefold conversion is also non valid for assessing anaemia in *Plasmodium vivax* malaria-endemic settings. **Malaria Journal** 2007 Dec 17; 6:166

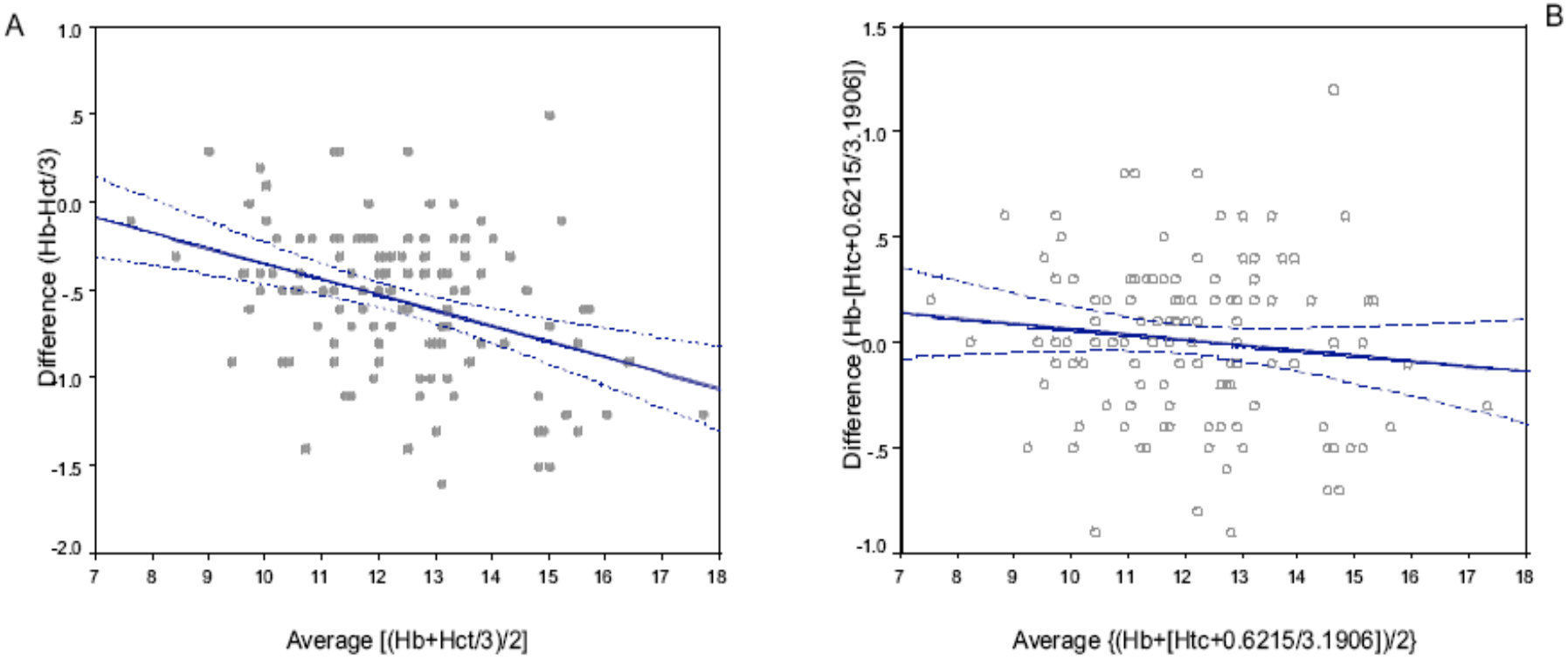


Figure 1

Scatter-plots of difference against average of haemoglobin and haematocrit/3 (A), as well after correction using (haematocrit+0.6215)/3.1906 (B). Scatter-plots of difference against average of haemoglobin and haematocrit/3 for paired measurements, and between average of haemoglobin and (haematocrit+0.6215)/3.1906. The line of best fit (blue) indicates the trend towards greater differences at higher haemoglobin values (significantly lower after correction). Both axes are in "grams of haemoglobin/dl".

Comparaciones

Rodríguez-Morales AJ, Sánchez E, Arria M, Vargas M, Piccolo C, Colina R, Franco-Paredes C. Haemoglobin and haematocrit: the threefold conversion is also non valid for assessing anaemia in *Plasmodium vivax* malaria-endemic settings. **Malaria Journal** 2007 Dec 17; 6:166

Table 1: Mean difference comparisons between observed haemoglobin and estimated haemoglobin (Haematocrit/3, expressed as "g of haemoglobin/dl")

	Observed Haemoglobin (n = 120)	Estimated Haemoglobin (Haematocrit/3) (n = 120)
Mean	12.06	12.62
Standard deviation	1.71	1.87
Standard error	0.16	0.17
One-sample test		
t	77.23	73.94
Mean difference	12.06	12.62
95% CI of the difference	11.75 to 12.37	12.28 to 12.95
P	<0.001	<0.001
Independent-sample test		
t	-	-2.399
Mean difference	-	-0.555
95% CI of the difference	-	-1.017 to -9.9328E-02
P	-	0.017
Paired-sample test		
t	-	-14.284
Mean difference	-	-0.555
95% CI of the difference	-	-0.6319 to -0.4781
P	-	<0.001

Table 2: Relative risk for anemia at pregnancy according to the presence of intestinal parasitosis.

Variable (risk for anemia)	Anemia	Normal Hb	RR	χ^2_{Yates}	P
Intestinal parasitosis at pregnancy					
Present	594	173	2.56	194.24	< .0001
Absent	82	189	—	—	—
Helminth infection at pregnancy					
Present	322	61	1.56	94.63	< .0001
Absent	354	301	—	—	—
Protozoan infection at pregnancy					
Present	179	23	1.49	59.65	< .0001
Absent	497	339	—	—	—
Ascaris lumbricoides infection					
Present	401	36	2.01	233.76	< .0001
Absent	275	326	—	—	—
Trichuris trichiura infection					
Present	203	73	1.18	11.25	.0008
Absent	473	289	—	—	—
Necator americanus infection					
Present	49	13	1.23	4.98	.0256
Absent	627	349	—	—	—
Dual helminth infection					
Present	347	13	1.99	235.08	< .0001
Absent	329	349	—	—	—
A lumbricoides + *T trichiura*					
Present	106	2	1.60	56.27	< .0001
Absent	570	360	—	—	—
Total	676	362	—	—	—

Rodríguez-Morales AJ, et al. **Infect Dis Obstet Gynecol** 2006 Jun; 14(2):2312

Estadística y Estándares

- Un aspecto de gran importancia que día tras día está cobrando mas fuerza es el relacionado a la revisión **estadística** durante el proceso editorial, esto quiere decir evaluar la calidad del análisis estadístico presentado en el trabajo.
- Para tal fin muchas revistas en la actualidad cuentan con **comités de estadísticos** (e.j. BMC Public Health, http://www.biomedcentral.com/bmcpublichealth/statisticians/) que se encargan de hacer una cuidadosa revisión de los manuscritos en cuanto a la descripción de las pruebas estadísticas empleadas, tanto a nivel de materiales y métodos, como en los resultados propiamente dichos.
- Incluyendo no solo la presentación textual, sino también su presentación gráfica en forma de **cuadros y figuras o gráficos.**

Rodriguez-Morales. Rev Soc Med Quir Hosp Emerg Perez de Leon 2009; 40(1): 82-95.

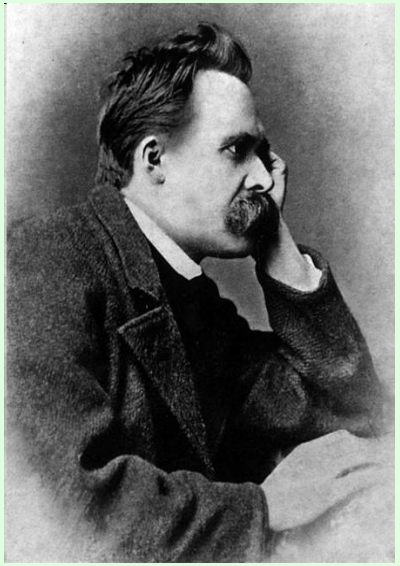
Estadística y Estándares

- En la redacción científica es importante considerar que actualmente existe toda una serie de normas internacionales para reportar diferentes tipos de datos de acuerdo al diseño de estudio realizado, tales como
  - CONSORT (CONsolidated Standards Of Reporting Trials, http://www.consort-statement.org/),
  - STARD (STAndards for Reporting of Diagnostic Accuracy, http://www.stard-statement.org/),
  - STROBE (STrengthening the Reporting of OBservational studies in Epidemiology, http://www.strobe-statement.org/), y
  - Sistema QUOROM (QUality Of Reporting Of Meta-analyses, http://www.consortstatement.org/QUOROM.pdf).
  - MOOSE (Meta-analysis Of Observational Studies in Epidemiology)
  - TREND (Transparent Reporting of Evaluations with Non-Randomized Designs)

Franco C, Rodríguez-Morales AJ. ***Gac Méd Caracas*** **2010 Ene-Mar; 118(1):69-73.**
Rodriguez-Morales. ***Rev Soc Med Quir Hosp Emerg Perez de Leon*** **2009; 40(1): 82-95.**

Estadistica Inferencial

"No hay verdades, sólo interpretaciones..."



Frederick Nietzsche

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¿Cual es la población?

¿A qué parte de la población puedes acceder?

Población en estudio

¿Quiénes forman parte de tu estudio ?

Muestra

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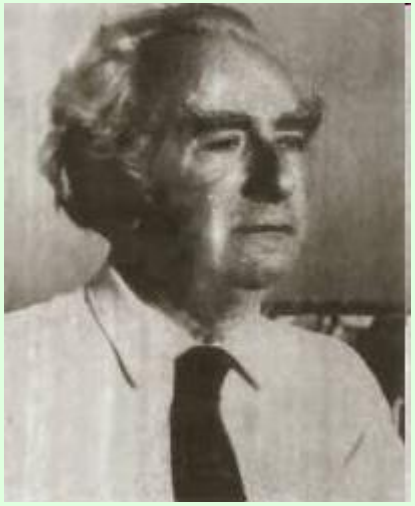
Estadistica Inferencial

"La estadística es una ciencia según la cual todas las mentiras se tornan cuadros."



Dino Segre (Pitigrilli)

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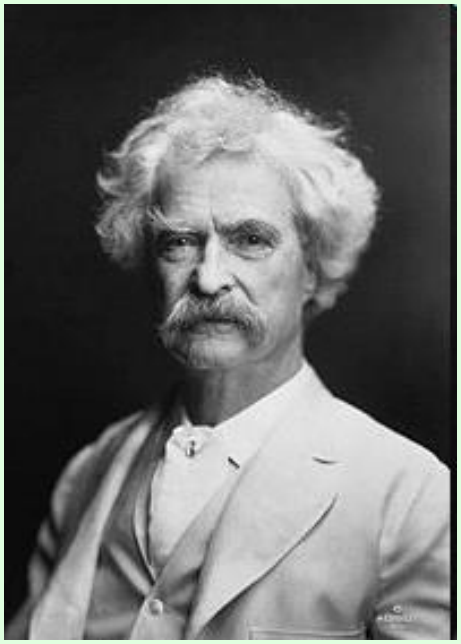
Estadistica Inferencial

"Hay tres clases de mentiras: mentiras, malditas mentiras y estadísticas"



Mark Twain

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*datos etiquetados.sav [DataSet1] — PSPPIRE Editor de Datos

Archivo Editar Vista Datos Transformar Analizar Utilidades Ventanas Ayuda

Abrir... Guardar Ir al Caso... Variables... Buscar... Insertar Casos Insertar Variable Dividir Archivo... Ponderar Casos... Etiquetas de Valor

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1	v1	Cadena	255	0	cod Sujeto	Ninguno	Ninguno	12	Izquierda	Nominal
2	nombreev	Cadena	255	0		Ninguno	Ninguno	6	Izquierda	Nominal
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4	nombresu	Cadena	255	0		Ninguno	Ninguno	5	Izquierda	Nominal
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6	estrato	Cadena	255	0		Ninguno	Ninguno	1	Izquierda	Nominal
7	colegio	Cadena	255	0		Ninguno	Ninguno	11	Izquierda	Nominal
8	ubicacio	Numérico	8	2		{1,00,`Urbana'}_	Ninguno	6	Derecha	Nominal
9	nombred	Cadena	255	0	Comunas o Correg	Ninguno	Ninguno	8	Izquierda	Nominal
10	barrioov	Cadena	255	0		Ninguno	Ninguno	15	Izquierda	Nominal
11	sector	Cadena	255	0		Ninguno	Ninguno	18	Izquierda	Nominal
12	zona	Numérico	8	2		Ninguno	Ninguno	8	Derecha	Nominal
13	telefono	Cadena	255	0		Ninguno	Ninguno	50	Izquierda	Nominal
14	codigo_v	Cadena	255	0	Codigo_Vivienda	Ninguno	Ninguno	50	Izquierda	Nominal
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19	talla	Numérico	8	2	TALLA	Ninguno	Ninguno	8	Derecha	Escala

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Resultado — PSPPIRE Visor de resultados

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⊞ REGRESSION

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Resumen del modelo

R	*R Cuadrada*	*R Cuadrada Ajustada*	*Error estándard del Estimador*
,66	,43	,43	1,61

ANOVA

	Suma de Cuadrados	*df*	*Cuadrado medio*	*F*	*Significatividad*
Regresión	2456,34	1	2456,34	950,45	,00
Residual	3240,83	1254	2,58		
Total	5697,16	1255			

Coeficientes

	B	*Error Estándar*	*Beta*	*t*	*Significatividad*
(Constant)	11,52	,15	,00	75,08	,00
PESO	,22	,01	,66	30,83	,00

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Epidat: programa para análisis epidemiológico de datos
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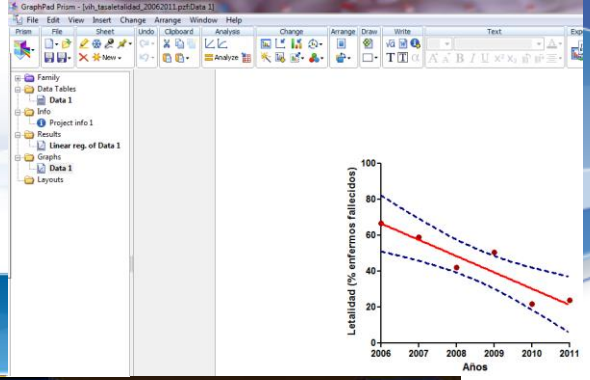
Dirección Xeral de Innovación e Xestión da Saúde Pública
Organización Panamericana de la Salud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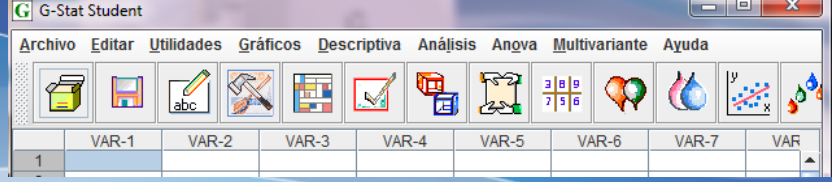
Años
2006
2007
2008
2009
2010
2011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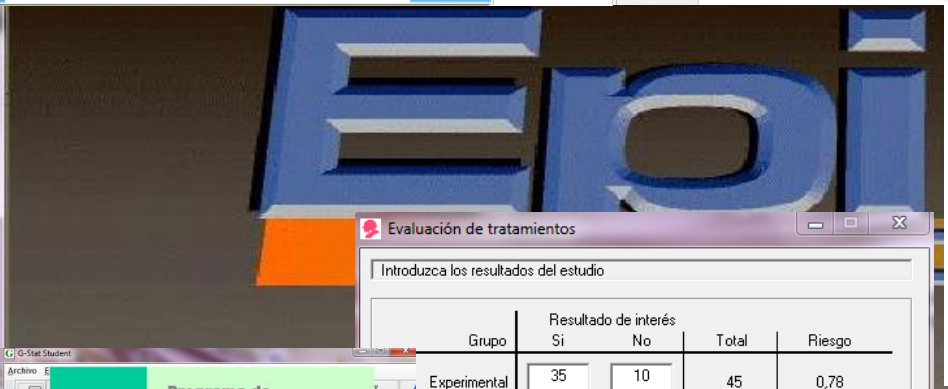
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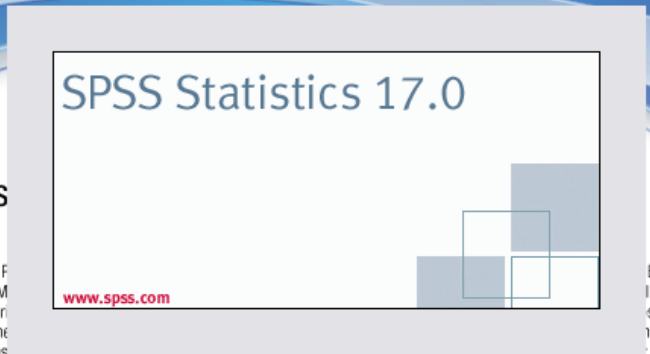
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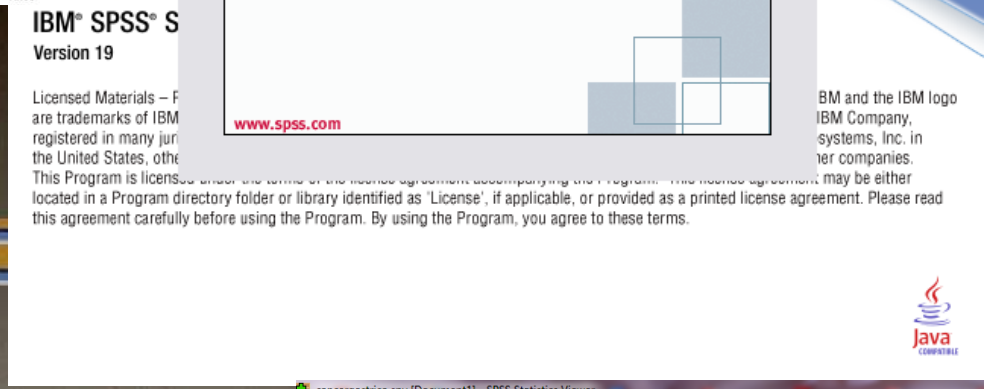
www.spss.com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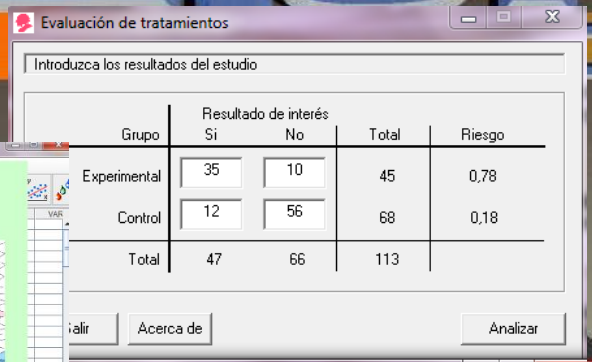
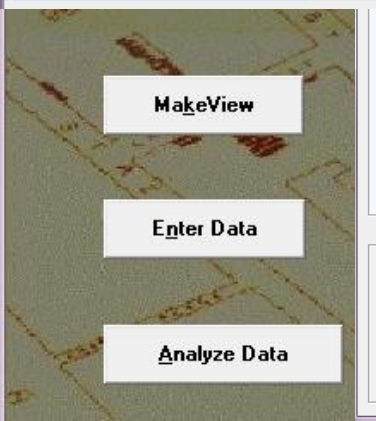
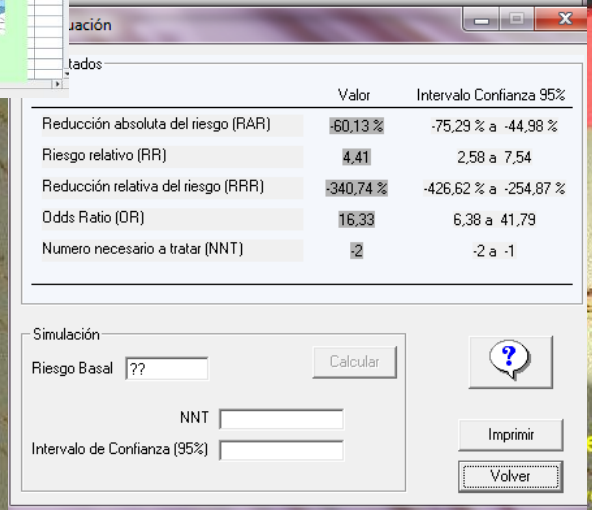

Evaluación de tratamientos
Introduzca los resultados del estudio
Resultado de interés
Grupo Si No Total Riesgo
Experimental 35 10 45 0,78
Control 12 56 68 0,18
Total 47 66 113
Salir
Acerca de
Analizar


G-Stat Student
Programa de Análisis Estadísticos
G-Stat
Student


MakeView
Enter Data
Analyze Data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Reducción absoluta del riesgo (RAR) -60,13 % -75,29 % a -44,98 %
Riesgo relativo (RR) 4,41 2,58 a 7,54
Reducción relativa del riesgo (RRR) -340,74 % -426,62 % a -254,87 %
Odds Ratio (OR) 16,33 6,38 a 41,79
Numero necesario a tratar (NNT) -2 -2 a -1
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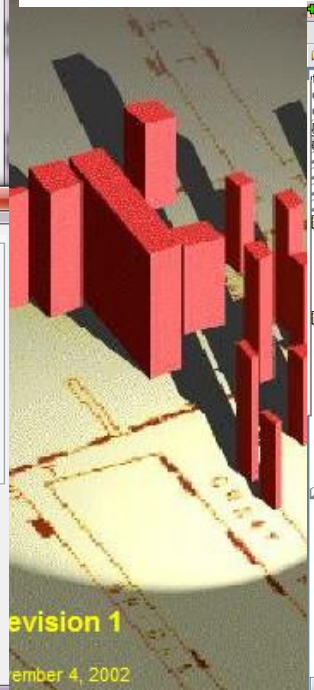
Riesgo Basal ??
Calcular
NNT
Intervalo de Confianza (95%)
Imprimir
Volver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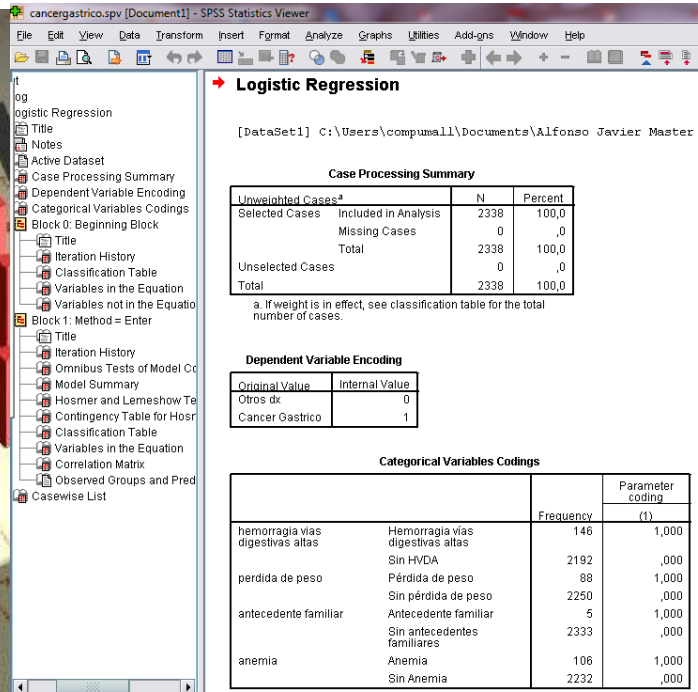
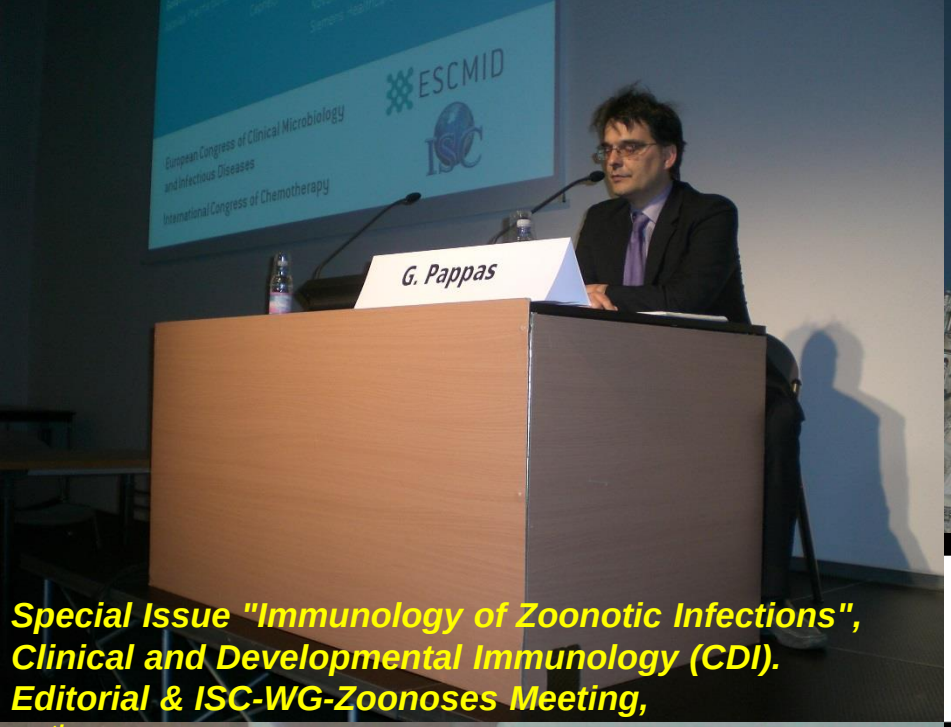

cancergastrico.spv [Document1] - SPSS Statistics Viewer
File Edit View Data Transform Insert Format Analyze Graphs Utilities Add-ons Window Help
Logistic Regression
Title
Notes
Active Dataset
Case Processing Summary
Dependent Variable Encoding
Categorical Variables Codings
Block 0: Beginning Block
Iteration History
Classification Table
Variables in the Equation
Variables not in the Equation
Block 1: Method = Enter
Omnibus Tests of Model Co
Model Summary
Hosmer and Lemeshow Te
Contingency Table for Hosm
Correlation Matrix
Observed Groups and Pred
Casewise List
Logistic Regression
[DataSet1] C:\Users\compumall\Documents\Alfonso Javier Master
Case Processing Summary
Unweighted Cases[a] N Percent
Selected Cases Included in Analysis 2338 100,0
Missing Cases 0 ,0
Total 2338 100,0
Unselected Cases 0 ,0
Total 2338 100,0
a. If weight is in effect, see classification table for the total number of cases.
Dependent Variable Encoding
Original Value Internal Value
Otros dx 0
Cancer Gastrico 1
Categorical Variables Codings
Frequency Parameter coding (1)
hemorragia vias digestivas altas Hemorragia vias digestivas altas 146 1,000
Sin HVDA 2192 ,000
perdida de peso Pérdida de peso 88 1,000
Sin pérdida de peso 2250 ,000
antecedente familiar Antecedente familiar 5 1,000
Sin antecedentes familiares 2333 ,000
anemia Anemia 106 1,000
Sin Anemia 2232 ,000



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