

PostScript

LETTERS

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Relation of rainfall pattern and epidemic leptospirosis in the Indian state of Kerala

Leptospirosis epidemics in tropical countries are often related to heavy rainfall and flooding.¹⁻⁴ The Indian state of Kerala has witnessed post-monsoon epidemics of leptospirosis in recent years. We investigated the relation between the pattern of daily rainfall and the incidence of disease in Calicut, North Kerala by plotting the number of confirmed cases having onset of illness on each day with the daily rainfall recorded for the district by the state meteorology department between July and October, 2002 (fig 1). The day of onset was calculated by subtracting the duration of fever from the day of admission. Disease confirmation was by positive microscopic agglutination test (titres above 1/100; 282 of the 340 suspected cases). IgM enzyme linked immunosorbent assay was also positive in 255 of the 282 cases.

The three peaks of disease onset were in August, September, and October. Each of these was preceded by heavy rainfall peaking about 7–10 days previously. Rainfall peaks were followed by rain cessation resulting in troughs in the graph. The baseline of the

troughs preceded the disease onset peak by five to six days. The patients did not have direct occupational exposure to animals. Some 62.9% of the patients had either fissures or wounds on the feet.

Thus, periods of heavy rain followed by days of little or no rain seemed to be the setting for leptospirosis epidemics in this part of the world. Most cases seemed to occur by cutaneous exposure of the legs while walking in stagnant water or moist soil. This implied that leptospira multiplied in the walking paths where water remained undrained for a period of two to three days after the rains was responsible for most cases. Most people in the state wore rubber chappals during the rainy season, which offered little protection against possible infection.

Climatic and environmental factors were probably responsible for epidemic leptospirosis seen in Kerala in the recent years. The pattern of rainfall has changed in the western ghats region of India—which includes Kerala—in the past century, with more rainless days during the monsoon months.⁵ There had also been rapid urbanisation and construction activities in the past two decades, resulting in blockage of natural drainage of rainwater and consequent water logging near human habitats.

If our hypothesis is correct, future epidemics of leptospirosis can be anticipated by studying daily rainfall patterns. The thrust of community action can then be oriented towards improved water drainage and if necessary by disinfection or salination of water logged walking paths and wearing of effective protective footwear.

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rainfall and human leptospirosis in Florianopolis, Brazil, 1991–1996. *Braz J Infect Dis* 2000;4:131–4.

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Qualia years (QY)—not years—should be the unit of measurement of QALYs, DALYs, life expectancy, and life

The complementary concepts QALYs and DALYs combine years of life and quality of life in a single measure.¹⁻³ In Arnesen and Nord's words: "QALYs are years of healthy life lived; DALYs are years of healthy life lost. Both approaches multiply the number of years (x axis) by the quality of those years (y axis). QALYs use "utility weights" of health states; DALYs use "disability weights" to reflect the burden of the same states. If the utility of deafness is 0.67, the disability weight of deafness is $1-0.67=0.33$. Disregarding age weighting and discounting, and assuming lifetime expectancy of 80 years, a deaf man living 50 years represents $0.67 \times 50 = 33.5$ QALYs gained and $0.33 \times 50 + 1.0 \times (80-50) = 46.5$ DALYs lost".² Note that $\text{QALYs} + \text{DALYs} = 33.5 + 46.5 = 80.0 = \text{lifetime expectancy (complementariness)}$.

More accurately, we had to put $\text{QALYs} = (0.67) \times (50y) = 33.5y$ and $\text{DALYs} = (0.33) \times (50y) + (1.0) \times (80y - 30y) = 46.5y$. This means that the unit of measurement of QALYs and DALYs is years (y). As y is the unit for lifetime, using the same unit for the product (lifetime) \times (lifequality) is confusing.

Saying that quality is rated on a scale from 0 to 1, we have implicitly transformed the real but unknown scale of quality into a standard scale, where 0 denotes no quality at all and 1 the 100% of quality expected (lifequality expectancy). Therefore QALYs and DALYs, combining actual years and dimensionless quality, are, in fact, semi-standardised measures. In a previous article we proposed the fully standardised measures SQALYs/SDALYs.⁴ This article, unstandardising lifequality as well, proposes the fully unstandardised measures UQALYs/UDALYs.

Let q be the unit of measurement of quality—qualio in singular, qualia in plural. Continuing the example above, let us assign lifequality expectancy $160q$ to dimensionless 1, and lifequality $107q$ to 0.67—in the same manner as dimensionless 1 was previously⁴ assigned to lifetime expectancy and 0.625 to 50y. Thus, fully unstandardised QALYs = $\text{UQALYs} = (107q) \times (50y) = 5350qy$, and fully unstandardised DALYs = $\text{UDALYs} = (160q - 107q) \times (50y) + (160q) \times (80y - 50y) = 7450qy$. That is, from the total expected life to be lived = $(160q) \times (80y) = 12800qy = \text{life expectancy}$, 5350qy were actually lived and

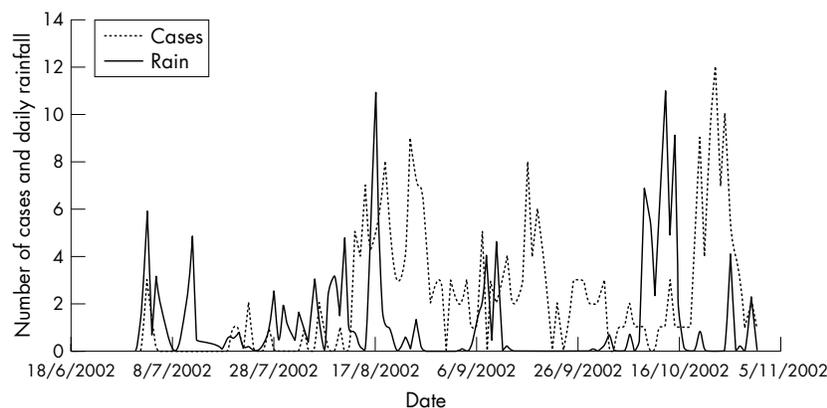


Figure 1 Daily rainfall and leptospirosis incidence (disease onset) for the months July–October 2002.

7450qy were lost: 42% and 58% respectively, the same as in fully standardised measures.⁴

These transformed to fully unstandardised measures do not measure life in years as if it was only lifetime, but, as it is the product (lifetime) × (lifequality), in qualia-years (qy); therefore UQALYs/UDALYs are not misleading. The idea is analogous to py (pack years) in smoking measuring.

Concluding, current semi-standardised QALYs/DALYs should be replaced by either fully unstandardised or fully standardised ones—the latter, in addition, are more understandable and comparable.⁴

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BOOK REVIEWS

Archie Cochrane: Back to the front

Edited by F X Bosch, R Molas. Barcelona: published privately, 2003.

In 1978 one of the authors of this book (the Catalan epidemiologist Xavier Bosch) and Archie Cochrane (probably one of the most influential personalities in the field of the health care) carried out a journey to the places that the latter knew during the Spanish civil war, as a member of the International Brigades that went to help the Spanish legitimate republican government.

This journey constitutes the starting point of this singular book, carefully edited and illustrated (including some of the legendary photographs of R Capa on the Spanish civil war). To a large extent, the book consists of a series of brief comments (not always laudatory) on the biography of A Cochrane, carried out by epidemiologists as Richard Doll, Peter Elwood, and Lester Breslow, among others. An important part of the text is formed by fragments of well known historians and writers as Gabriel Jackson, Hugh Thomas, and George Orwell, which help to understand the socio-political frame of the Spanish civil war and the second world war, during which he was imprisoned in a Nazi concentration camp (where he could carry out a nutritional clinical trial!). Especially interesting are the comments that connect these first professional experiences with the theoretical thesis that Archie Cochrane would defend later on. We mention, for example the following lines of his autobiography about his clinical

practice in the concentration camps, in which it is not difficult to recognise the desire of an evidence based clinical practice:

I remember at that time reading one of those pamphlets considered suitable for POW medical officers about clinical freedom and democracy. I found it impossible to understand. I had considerable freedom of clinical choice of therapy; my trouble was that I did not know which to use and when. I would gladly have sacrificed my freedom for a little knowledge.

The book is conceived as homage to A Cochrane, and does not intend to be either his complete biography, or a critical introduction to his thinking. The book, however, will be read with pleasure by the people that have been felt influenced by the ideas of A Cochrane. On the other hand, young epidemiologists will find in this book, impregnated with social commitment and with ethical values, a superb complement for their career education.

Jaime Latour-Pérez

Global AIDS: myths and facts

Edited by Alexander Irwin, Joyce Millen, Dorothy Fallows. MA: Cambridge, 2003, \$19.00, pp 296. ISBN 0-89608-673-9

The authors of *Global AIDS: myths and facts* subtitle their work, *Tools for fighting the AIDS pandemic*. Indeed, they argue that “informed, determined activism can make a difference” and urge their readers to “get involved in the ongoing effort” to end the AIDS pandemic (page 184). Given this raison d’être it comes as no surprise that much of their text is devoted to providing practical information that readers can use to educate themselves on a comprehensive array of AIDS issues ranging from vaccine development to drug pricing to organisational corruption as an impediment to expanding HIV prevention and treatment programmes.

At the heart of this volume is a sincere effort to debunk myths and misconceptions that interfere with efforts to systematically and comprehensively tackle the global AIDS epidemic. Readers who are knowledgeable about HIV/AIDS may have difficulty acclimating to the use of “myths” as the unifying construct of the text, as at times, they are, of necessity, overstated (for example, “A vaccine will soon be available to prevent HIV infection”, “AIDS is primarily an African problem,” etc). Also, one wishes that the editing might have been more careful—a few of the US statistics cited in chapter one are incorrect. For example, it is not accurate that “in 2001 for every AIDS case diagnosed among gay and bisexual men in the U.S. two were diagnosed among heterosexual men or women” (page 14).

In summary, this book provides an accessible overview of the important policy issues facing communities in their struggle to take collective action against AIDS. Readers are provided with informational resources and offered practical recommendations that can help them confront what is undoubtedly the single most important global health crisis of

our lifetime. Its message of continued effort in the face of adversity is particularly welcome.

Ronald O Valdiserri

Epidemiologic methods. Studying the occurrence of illness

Edited by Thomas D Koepsell, Noel S Weiss. Oxford: Oxford University Press, 2003, £39.95, pp 513. ISBN 0-19-515078-3

Several books introducing epidemiology are available. They usually follow the traditional layout: from initial definitions to the description and control of biases and measurement errors and it becomes challenging to offer something “different”.

Epidemiological Methods, by Koepsell and Weiss succeeds in presenting epidemiology in a different way. They nicely capture the readers’ interest right from the beginning by taking them through a “guided tour” to explore the “epidemic” of retrolental fibroplasia, and its epidemiological investigation that begun in the mid-1940s. The authors present frequency measures, treatments, and results from early studies in descriptive tables and figures, some of which seem contradictory and puzzling. They end up shedding light on the correct interpretation of several years of investigation and controversy. The names of these study designs (cohort, case control, clinical trials, etc) and the reasons why results sometimes seemed contradictory are briefly enumerated and at this point the reader’s appetite for more epidemiology increases! One perceives why epidemiology is such a relevant tool.

The classic epidemiological concepts are further on introduced and explained in a very didactic way with real but simple examples that are “beginner friendly” and pertaining mostly to studies that students, novel to this field, will certainly find interesting (AIDS, detection of drinking problems, smoking, etc). Each chapter uses real study examples and 75 figures and 89 tables to boost understanding of difficult issues. At the end of chapters, students can work on exercises that have correct answers and comments. A key asset of this book is that it originates from the teaching experience and materials of the authors. Furthermore, despite being an introductory text, the authors give the reader a flavor of more advanced issues such as residual confounding or interaction. In summary, a nice example of how epidemiology can help students “derive an almost esthetic pleasure from epidemiology”.

Jokin de Irala

CORRECTION

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An editorial error occurred in this paper by Professor Wiggins and others (2004;**58**:779–87). The keys to the symbols in figures 2, 3, and 4 were omitted. In figure 2 diamonds represent employed, squares unemployed, and triangles inactive. In figure 3 diamonds represent previous GHQ 0, crosses previous GHQ 3, and bars previous GHQ 6. In figure 4 diamonds represent previous GHQ 0, crosses previous GHQ 3, and bars previous GHQ 6.

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BOOK REVIEWS

La utilización de las evidencias en las decisiones de política sanitaria (The use of the evidence in health policy decisions)

Edited by E Regidor. Alicante: Alicante University, 2003, pp 270. ISBN 84-688-1893-3

This book is the result of a seminar held in April 2003 by the University of Alicante (Spain). The publisher and entire support team have made every effort to give the articles written by different authors a homogeneity rare in works of a similar origin.

For some years, the health system, both the professionals working in it and the users and those responsible for its management, have been debating whether the decisions taken have a scientific basis.

However, some fields seem to be outside this movement causing some perplexity in the observer. One of these fields is public health and, precisely, health management. As discussed in the first chapter of this book, it is a field in which the evidence is scarce and contradictory and, in that framework, little can be done by those with the task of decision taking to give support to evidence that, very often, is no such thing.

The book has 10 chapters, with the first one dedicated to giving the reader a general view of the matter in question—the use of evidence applied to public health measures. The other nine contributions consider different examples of public health problems with their characteristics and—why not say so?—with their contradictions.

We are given interesting material for a debate as the decisions in this field are influenced not only by the scientific evidence, in many cases arguable as mentioned previously, but also by other factors of a social, cultural, and economic nature that cannot be forgotten

Antonio Cueto Espinar

When food kills: BSE, *E coli* and disaster science

Edited by T H Pennington. Oxford: Oxford University Press, 2003, £25.00, pp 226. ISBN 0-198-52517-6

Pennington delivers serious messages in this discursive, thought provoking book by sharing his insight into the failings of food safety (and other) inspectorates. Few have forgotten the hysteria associated with the *Escherichia coli* 0157 outbreak in central Scotland (linked to Barr's butchers) or the salmonella in eggs scare when Edwina Currie was Parliamentary Under-Secretary for Health. The situations leading to these and other food poisoning and public health scares are eloquently described throughout, alongside a narrative on the apparent failures of government officials to learn from history

through subsequent presentation of new health scares. It is proposed that vCJD cases in humans and BSE cases in animals are a result of these failures. Details regarding the scientific uncertainties over cause, transmission, and scope of these diseases are discussed prior to the UK government's early assumption that BSE was not likely to be of risk to human health, the future risks to human health from vCJD, and the conclusions of the Phillips inquiry into methods used so far to eradicate BSE and vCJD.

The title indicates that food related incidents will be the principal subject of discussion; however this is not the case. Inferences are drawn throughout from events including the Aberfan tip mining disaster, the Piper Alpha North Sea oil disaster, and even the conditions within lunatic asylums since 1815. Repeated and detailed references to non-food disasters with catastrophic potential through high morbidity and mortality levels, as compared with the innocuous/unknown long term health problems associated with food scares like BSE somewhat trivialises the importance to public health of food safety scares, and renders the title misleading. Essentially, this is a non-technical book that describes (with reference to *E coli*, BSE, and other disasters) the history, the science, the politics, and most significantly, what went wrong. It may leave the reader concerned by the inspectorates' shortcomings in the mitigation of public health incidents, but delivers an important message: inclusiveness and openness are essential to help avert wide scale disasters in the future.

Claire E Robertson

Health and community design: the impact of the built environment on physical activity

Edited by L Frank, P Engelke, T Schmid. Washington, DC: 2003, \$30.00, pp 253. ISBN 1-55963-917-2

Sedentary behaviour is a major cause of poor health worldwide both through the direct effects of inactivity on health and indirectly via its contribution to obesity. *Health and Community Design* describes the role of the built environment as a potential contributor to physical inactivity and suggests ways in which communities could be structured to encourage or require physical activity, particularly walking and bicycling.

The "built environment" is defined broadly as "...the form and character of communities" encompassing land use patterns, urban design characteristics, and transportation systems. Frank *et al* emphasise the influence of the built environment on physical activity and they effectively describe its potential role as a determinant of obesity. However, obesity is likely to be influenced by factors in addition to physical activity, particularly diet. This book highlights the need for a comprehensive assessment of how the built environment influences diverse determinants

of energy balance, including diet, and other health behaviours. Occasionally, the authors neglect potential trade offs associated with choices concerning community design. For example, cul de sacs may decrease walking by adults but increase outdoor play of children. Understanding such trade offs is critical to improve planning and prioritisation among design choices.

All in all, we strongly recommend this book as an introduction to connections between urban planning and sedentary behaviour. The authors have done an outstanding job presenting arguments that can be made linking the built environment and physical activity and these arguments should be of great interest to public health, transportation and urban design researchers and planning professionals. The text is also accessible enough for community activists interested in understanding potential consequences of planning decisions and its maps and illustrations are particularly novel and effective for a public health audience.

Brooke Fischer, Sarah Dash, David Berrigan

Health measurement scales. A practical guide to their development and use, 3rd ed

Edited by David L Streiner, Geoffrey R Norman. Oxford: Oxford University Press, 2003, £26.50, pp 283. ISBN 0-19852-947-7

This is the third edition of a successful book whose previous two editions were published in 1989, and 1994. It is a practical guide about health measurement scales called as well "latent outcomes", such as cognitive abilities, attitudes, quality of life, etc, addressed to clinicians, users, and developers of health measurement scales.

In this third edition the authors have updated most of the chapters, mainly those related to cognitive requirements in answering questions, and include a more in depth chapter on item response theory.

The general content of the book follows the process of development and evaluation of health measurement scales. Chapters are devoted to the process of scale development, which includes basic concepts, how to devise and select items, and building scales. Chapters addressed to analyse attributes of the measures include reliability and validity, as well as measuring change. The chapter about ethical issues that researchers should take into account in their own fieldwork is also of valuable interest. Most chapters are accompanied by practical examples and a considerable number of tables and figures that make easy to understand and to interpret what authors want to explain. Appendices include commented bibliography and recommended reading, sources of developed scales, and a short introduction to exploratory and confirmatory factor analysis.

Through the whole book, authors also try to clarify their point of view on controversial

concepts and present issues that are in the centre of the debate in scientific literature.

In summary, it is a highly recommended book for those not psychometric experts but users or developers of questionnaires in the area of health sciences. It is an essential reading for those who start working in this area. I am sure that it will be as successful as the previous two editions.

Luis Rajmil

Community-based health research. Issues and methods

Edited by Daniel S Blumenthal, Ralph J Di Clemente. Springer Publishing, 2003, \$39.95 (USA), \$44.80 (other countries), pp 218. ISBN 0-8261-2025-3

This book is a very interesting referent document for those who work in the public health research field. In fact it is more appropriate for researchers with some experiences in doing public health research rather than junior students. The readers can find some actual examples with in depth analysis on each case, which is very useful for them. However these examples and illustrations are more focused on American and African countries, so that it weakens the global and international application of the book.

Strengths: one of the strengths of this book is to identify and synthesise the key issues and principles for working with communities. It can be used as a theoretical frame for training courses on community based research. The contribution of this book is to emphasise the importance of community based research, which sometimes is forgotten by traditional epidemiological study. It also brings the sight and attention to the involvement of the community to research, change their role from target group to co-researcher, and from positive to active involvement.

Weaknesses: the authors tried to prepare a comprehensive document on community based research, which included all the issues like introduction, principles, methods, and examples/experiences. But the readers, after looking at the title of the book, are more interested in learning more specific issues and methods for community based research, and in how to distinguish it from public health research in general. It would have been more interesting if the authors had clarified more clearly the differences in methodology applications in epidemiological and community based research.

Dao Lan Huong

Table 5 (corrected) Association of disease severity, standardised for age and sex, with socioeconomic position using individual and area level measures

Socioeconomic position	Social class		Educational attainment		Income category		ED level Townsend score quantile	
	n	mean (SE)	n	mean (SE)	n	mean (SE)	n	mean (SE)
1 (most deprived)	42	15.6 (2.5)	430	16.5 (2.8)	177	17.0 (3.1)	190	16.0 (3.0)
2	175	16.0 (3.0)	69	17.5 (2.8)	268	17.2 (2.5)	191	16.2 (3.0)
3	436	16.2 (2.9)	90	14.7 (5.6)	212	15.9 (2.8)	190	15.9 (2.8)
4	261	15.8 (2.9)	177	15.6 (2.7)	115	15.0 (2.6)	189	16.1 (2.8)
5 (most affluent)	40	15.7 (2.7)	188	15.3 (2.9)	182	14.0 (2.2)	194	15.8 (2.8)
Correlation coefficient† (p value)	-0.10 (<0.01)		-0.07 (0.03)		-0.09 (<0.01)		0.07 (0.03)	
SII	5.63 (2.23 to 9.04)		3.79 (0.41 to 7.18)		5.05 (1.78 to 8.32)		4.04 (-0.04 to 8.13)	
test for trend p value	<0.01		0.03		<0.01		0.05	

* p<0.05; **p<0.01. †Spearman's rank correlation.

CORRECTIONS

There were two author errors (one terminological and one relating to data) in this paper by Dr Eachus and others (1999;53:603-11). Firstly, the authors referred to the index relating socioeconomic position to New Zealand score of severity of hip disease as the relative index of inequality, whereas the statistic presented is actually the slope index of inequality. Secondly, a programming error led to miscalculation of the correlation coefficients and slope indices of inequality presented in table 5. A corrected table is presented here. The direction of associations is the same as for the incorrect results presented in the original paper, but the effect sizes and significance level are both substantially greater when the correct data are seen, in particular for the associations of social class and Townsend deprivation score with hip disease severity. In the light of the correct data the discussion that was included on why the social class association was weak is no longer applicable.

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The authors would like to clarify some points in this paper (2004;58:982-7). The results and conclusions presented in the box on page 985 are preliminary and based on earlier published reports in Dutch.[1-3] This information is merely intended to illustrate the information needs of healthcare providers after a disaster. Details of the health problems of the affected groups and their use of health care will be published in other papers.

1. **RIVM Project Team.** *Firework disaster Enschede: components in blood and urine (Dutch report)*. Bilthoven, Netherlands: National Institute of Public Health and the Environment (report no 630930003), 2001.
2. **van Kamp I, van der Velden PG.** *Vuurwerkkramp Enschede: Lichamelijke en geestelijke gezondheid en ervaringen met de ramp; rapportage van het gezondheidsonderzoek [Physical and mental health and experiences of the disaster]*. Bilthoven, Netherlands: National Institute of Public Health and the Environment (RIVM) and Institute for Psychotrauma (IVP), (report no RIVM 630930002/ IVP 9920012), 2001.
3. **van der Velden PG, Grievink L, Dusseldorp, et al.** *Gezondheid Getroffenen Vuurwerkkramp Enschede; rapportage gezondheidsonderzoek 18 maanden na de ramp. [Health (status) of the victims of the Enschede firework disaster 18 months after the disaster]*. Zaltbommel, Netherlands: Institute for Psychotrauma (IVP) and National Institute of Public Health and the Environment (RIVM), (report no RIVM 630930004/ IVP 9920023), 2002.

doi: 10.1136/jech.2004.022871corr1

There were two author errors in this letter by I D K Dimoliatis (2004;58:1054-5). The unit of measurement in the title should be in lower case (qy) [not (QY)]. Also, in line three of the second paragraph it should read (80y-50y) [not 80y-30y].