Sir Iain Chalmers
The James Lind Initiative
Esattezza/Exactitude

`Certainty and uncertainty in clinical practice and clinical research`

Iain Chalmers
James Lind Initiative, Oxford, UK

La Sanità tra Ragione e Passione
Da Alessandro Liberati, sei lezioni per I prossimi anni
Bologna, 14 dicembre 2012
Avoidable waste in the production and reporting of research evidence

Iain Chalmers, Paul Glasziou

Lancet 2009; 374: 86–89

85% Research waste = over $85 Billion / year

- Low priority questions addressed
- Important outcomes not assessed
- Clinicians and patients not involved in setting research agendas

- Over 50% studies designed without reference to systematic reviews of existing evidence
- Over 50% of studies fail to take adequate steps to reduce biases, e.g. unconcealed treatment allocation

- Over 50% of studies never published in full
- Biased under-reporting of studies with disappointing results

- Over 30% of trial interventions not sufficiently described
- Over 50% of planned study outcomes not reported
- Most new research not interpreted in the context of systematic assessment of other relevant evidence
Avoidable waste in the production and reporting of research evidence

Iain Chalmers, Paul Glasziou

Lancet 2009; 374: 86–89

Without accessible and usable reports, research cannot help patients and their clinicians. In a published Personal View, a medical researcher with myeloma reflected on the way that the results of four randomised trials relevant to his condition had still not been published, years after preliminary findings had been presented in meeting abstracts:

"Research results should be easily accessible to people who need to make decisions about their own health... Why was I forced to make my decision knowing that information was somewhere but not available? Was the delay because the results were less exciting than expected? Or because in the evolving field of myeloma research there are now new exciting hypotheses (or drugs) to look at? How far can we tolerate the butterfly behaviour of researchers, moving on to the next flower well before the previous one has been fully exploited?"
Patients have suffered and died unnecessarily and resources for health care and health research have been wasted because research results have not been made public.

Why is medical academia content to condone this scandal?
Dilemmas and balances

Certainty as an element of good and bad clinical practice

Uncertainty as a prerequisite for ethical clinical research
Certainty as an element of good clinical practice
Certainty about when NOT to offer unsolicited information to a patient

**Stevens-Johnson Syndrome**
A life-threatening skin condition
Cause is usually unknown
No accepted treatment
Certainty as an element of bad clinical practice

‘Don’t give antibiotics to people with viral illnesses (such as measles), because antibiotics don’t affect viruses.’
This do-gooder needs your help

It became clear to me when I worked in a Palestinian refugee camp in the Gaza Strip that ‘do gooders’ sometimes do more harm than good.
Some children developing measles in Gaza in 1969 and 1970 suffered and probably died unnecessarily because I withheld prophylactic antibiotics.
Measles - a horrible disease
Severe malnutrition following measles
**Certainty** about **not** giving antibiotics was **not** justified

**Six** controlled trials, all reported **before** I went to Gaza, showed that:

antibiotics prescribed for children with measles can reduce their risk of developing pneumonia
SULPHANILAMIDE IN THE TREATMENT OF MEASLES*

By

THOMAS ANDERSON, M.B., Ch.B., M.R.C.P.Ed.

Deputy Superintendent, Ruchill Hospital, Glasgow

The cases were allocated, in order of admission, alternately, to two groups. The first, or control group, received the usual nursing and expectant medical treatment. The second group received in addition sulphanilamide.

There is evidence that pro septasine is of value in reducing the incidence of complications due wholly or in part to secondary invasion by haemolytic streptococci, the best results being obtained in pure streptococcal complications such as otitis media.
1993

at a World Health Organization meeting convened in 1993 to decide on research priorities for the treatment of measles, highest priority was accorded to additional controlled trials of prophylactic antibiotics.

2002

Why We Need to Know Whether Prophylactic Antibiotics Can Reduce Measles-Related Morbidity

IAIN CHALMERS, MD
UK Cochrane Centre

312 PEDIATRICS Vol. 109 No. 2 February 2002
Prophylactic antibiotics to prevent pneumonia and other complications after measles: community based randomised double blind placebo controlled trial in Guinea-Bissau

May-Lill Garly, Carlitos Balé, Cesário Lourenco Martins, Hilton C Whittle, Jens Nielsen, Ida M Lisse, Peter Aaby

Conclusions The group that received prophylactic antibiotics had less pneumonia and conjunctivitis and had significantly higher weight gains in the month after inclusion. The results indicate that prophylactic antibiotics may have an important role in the management of measles infection in low income countries.

Trial registration Clinical trials NCT001168532.

Q: Why did it take so long to seek this evidence?
What my patients and I needed in 1969

Antibiotics for preventing complications in children with measles (Review)

Kabra SK, Lodha R, Hilton DJ

“a beneficial effect of antibiotics in preventing pneumonia, otitis media and tonsillitis.”
The importance of up-to-date, reliable systematic reviews of research evidence
Adjuvant Chemotherapy for Breast Cancer

A Pooled Estimate Based on Published Randomized Control Trials

Harvey N. Himmel, MD, MPH; Alessandro Liberati, MD; Richard D. Gelber, PhD; Thomas C. Chalmers, MD

The use of adjuvant chemotherapy for treating patients with operable breast cancer remains a worldwide controversy. Using the data from published randomized control trials with a minimum two-year follow-up, pooled estimates of relapse-free survival rates and overall survival rates were calculated. Relapse-free survival rates were improved by 12.5% (95% confidence interval [CI] ± 4.5%) at three years and by 8% (CI ± 6%) at five years, with studies using multiple agents showing a greater effect. A significant advantage was also present in overall survival rates at three years, but only for studies involving multiple agents (4% ± 3.5%). Results from combining data for other types of trials were inconclusive. The use of this method is presented to illustrate its value as an explicit and systematic one for combining data from several randomized control trials in assessing a therapeutic controversy.

(JAMA 1986;256:1148-1159)
Dear Ian,

I keep hearing about your new plans for the future and I’d be very eager to know more about them.

The enclosed reason of this fax is to explain your willingness to be part of a panel session at downloading the voice of communication. The sessions and highlights to be held in Siena, Italy on May 26, 1993, in the framework of the C.A. Meeting of the International Society for Technology in Assessment and Health Care. Other participants are: Prof. Armitage (Bristol), A. Orme (Salzburg), T. Kassner (US), R. Feld (US). Upon hearing you could accept in our talk, I would do about the workshop. Hope to hear from you soon.

From,
ALESSANDRO LERICA

SPECIAL INSTRUCTIONS: Dean Ian, I wish you a very happy and successful 1993. I hope we can see each other soon and look forward to start a more permanent collaboration upon my return to Italy in the late

TOTAL NUMBER OF PAGES INCLUDING COVER SHEET: 3 | 1993
THE COCHRANE COLLABORATION

To Iain

... the first non-english brochure of the Cochrane Collaboration

A. A. A. A.
The need for researchers to address questions of importance to patients and clinicians
Consumer participation in research and health care

Making it a reality

The Brussels conference clearly endorsed the status of breast cancer advocates as equal partners with health professionals, scientists, and policymakers in preventing the disease, improving treatment, and ensuring better quality of care. Without such a partnership—difficult though it may be—research is unlikely to become more productive or relevant. The challenge is now for the medical profession to accept this message and develop alliances with consumers to move forward toward a wider recognition of the uncertainty and weaknesses of medicine and the biases in the process of setting research priorities.6

Alessandro Liberati  Head
Laboratory of Clinical Epidemiology and the Italian Cochrane Centre,
Mario Negri Institute, 62-20157 Milan, Italy
liberati@irfmn.mnegri.it
Uncertainty as a prerequisite for ethical clinical research
What is the prior probability of a proposed new treatment being superior to established treatments?

Iain Chalmers  Director
UK Cochrane Centre, NHS Research and Development Programme, Oxford OX2 7LG

BMJ · VOLUME 314  4 JANUARY 1997
New treatments compared to established treatments in randomized trials (Review)

New treatments compared to established treatments in randomized trials
Maintaining and improving your performance

14 You must work with colleagues and patients to maintain and improve the quality of your work and promote patient safety. In particular, you must:

(f) help to resolve uncertainties about the effects of treatments
2003-
The James Lind Initiative

Funded by the National Institute of Health Research and the Medical Research Council

“to promote acknowledgement of uncertainties about the effects of treatments, and research to address them.”
The effects of many healthcare interventions remain uncertain. Furthermore, controlled trials are still too often done without first assessing what is known already; they are frequently designed and conducted in ways that yield little information relevant to patients, health professionals, and policy-makers;\(^3\) and it is usually impossible to assess the significance of individual controlled trials because the reports seldom indicate what difference the new results make in an updated systematic review of all the other relevant evidence.\(^4\)

Iain Chalmers

Editor, James Lind Library
Well informed uncertainties about the effects of treatments

How should clinicians and patients respond?

We need an alliance of clinicians, patients, researchers, and managers to discuss how best to deal with well informed uncertainties about the effects of treatments.

Iain Chalmers coordinator

James Lind Initiative, Oxford OX2 7LG
(ichalmers@jameslindlibrary.org)
Programme of work of The James Lind Initiative

1. Identifying and publishing uncertainties about the effects of treatments: **UK Database of Uncertainties about the Effects of Treatments**

2. Identifying patients’ and clinicians’ shared priorities for research about the effects of treatments: **James Lind Alliance**

3. Explaining and illustrating the development of fair tests of treatments in health care: **James Lind Library** and **Testing Treatments**
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The UK Database of Uncertainties about the Effects of Treatments

Established to publish uncertainties about the effects of treatments which cannot currently be answered by referring to relevant and reliable, up-to-date systematic reviews of existing research evidence
UK DUETs draws on three main sources

- *Patients', carers' and clinicians' unanswered questions* about the effects of treatments
- *Research recommendations* in reports of systematic reviews and clinical guidelines
- *Ongoing research*, both systematic reviews in preparation and new 'primary' studies
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To increase the focus of the therapeutic research agenda on questions and priorities shared by patients and clinicians.

To promote Priority Setting Partnerships involving patients and clinicians to identify and promote their shared priorities for therapeutic research.

To increase general awareness and understanding of the need to refocus the therapeutic research agenda.
Involving patients, carers and clinicians in research priority setting

The JLA’s principles

• Inclusive
  • Balance of perspectives
  • Accessible to all

• Supportive
  • Recognising a range of capacities and skills

• Transparent and democratic
  • Data sharing
  • Agreed protocol
  • Declaration of interests
  • Neutral facilitation
  • Communication and feedback
Identifying and prioritising uncertainties about the effects of treatment

Stage 1
Harvest ‘raw uncertainties’

Stage 2
Derive ‘indicative uncertainties’

Stage 3
Publish ‘indicative uncertainties’ in UK DUETs

Stage 4
Prioritize uncertainties
James Lind Alliance
Priority Setting Partnerships

Stage 5
Agree shortlist of highest priority uncertainties

Notify highest priority uncertainties to research funders
### JLA Priority Setting Partnerships

<table>
<thead>
<tr>
<th>Completed</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asthma</td>
<td>• Acne</td>
</tr>
<tr>
<td>• Urinary incontinence</td>
<td>• Childhood disability</td>
</tr>
<tr>
<td>• Vitiligo</td>
<td>• Dementia</td>
</tr>
<tr>
<td>• Prostate cancer</td>
<td>• Dialysis</td>
</tr>
<tr>
<td>• Schizophrenia</td>
<td>• Head and neck cancer</td>
</tr>
<tr>
<td>• Type 1 diabetes</td>
<td>• Inflammatory bowel disease</td>
</tr>
<tr>
<td>• ENT aspects of balance</td>
<td>• Lyme disease</td>
</tr>
<tr>
<td>• Life after stroke</td>
<td>• Multiple sclerosis</td>
</tr>
<tr>
<td>• Eczema</td>
<td>• Pressure ulcers</td>
</tr>
<tr>
<td>• Tinnitus</td>
<td>• Pre-term birth</td>
</tr>
<tr>
<td>• Cleft lip and palate</td>
<td>• Sight loss and vision</td>
</tr>
</tbody>
</table>
Research priority themes [across asthma, incontinence, vitiligo, eczema, stroke, prostate cancer, schizophrenia, aspects of balance, and type 1 diabetes]

- Assessment of **long-term effects** (wanted and unwanted) of treatments
- Assessment of **safety and adverse effects** of treatments
- Assessment of **complementary and non-prescribed treatments**
- Assessment of strategies to improve **early diagnosis and treatments**, and **harmonisation of practice**
- Assessment of the effectiveness and safety of **self-care**
Programme of work of
The James Lind Initiative

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www.jameslindlibrary.org

The James Lind Library has been created to help people understand fair tests of treatments in health care. The principles of fair tests are explained in essays containing many examples. These essays are available in Arabic, Chinese, English, French, Russian, Portuguese, and Spanish.

The text of 'Testing Treatments' - a 100-page book originally published by the British Library in 2006, now reissued by Pinter & Martin - is available here without charge, in the original English, and in Arabic, Chinese, and Spanish translations.

To illustrate the evolution of fair tests of treatments from 1550 BCE to the present, the James Lind Library contains key passages and images from manuscripts, books, and journal articles. The website also contains many commentaries, biographies, portraits, doctoral theses, and other relevant material about the history of fair tests.

The James Lind Library is dedicated to patients and professionals who have contributed evidence about the effects of treatments in health care. For a full description of the library, visit the website or email feedback@jameslindlibrary.org. Comments are welcome, and should be sent to feedback@jameslindlibrary.org.

This website has been created by The Library and Information Services Department of the Royal College of Physicians of Edinburgh.

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About the authors
Acknowledgements
Foreword by Ben Goldacre
Foreword to the first edition by Nick Ross
Preface
Introduction
New – but is it better?
Hoped-for effects that don’t materialize
More is not necessarily better
Earlier is not necessarily better
Dealing with uncertainty about the effects of treatments
Fair tests of treatments
Taking account of the play of chance
Assessing all the relevant, reliable evidence
Regulating tests of treatments: help or hindrance?
Research – good, bad, and unnecessary
Getting the right research done is everybody’s business
So what makes for better healthcare?
Research for the right reasons: blueprint for a better future

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AN ACTION PLAN – THINGS YOU CAN DO

Promote research on the effects of treatments...

Encourage and work with health professionals, researchers, research funders, and others who are trying to promote research addressing inadequately answered questions about the effects of treatment which you regard as important.
AN ACTION PLAN – THINGS YOU CAN DO

Promote research on the effects of treatments...

Encourage and work with health professionals, researchers, research funders, and others who are trying to promote research addressing inadequately answered questions about the effects of treatment which you regard as important.

...but only if it meets scientific and ethical principles

Agree to participate in a clinical trial only on condition (i) that the study protocol has been registered and made publicly available (ii) that the protocol refers to systematic reviews of existing evidence showing that the trial is justified; and (iii) that you receive a written assurance that the full study results will be published, and sent to all participants who indicate that they wish to receive them.
الصفحة الرئيسية

كيف نعرف ما إذا كان دواءً أو معالجة أو عملية جراحية مفيدة أم لا. وكيف نحدد مدى فائدة؟
ما مدى موثوقية البراهين؟
هل التجارب السريرية دقيقة غير منحازة؟
وهل تركيز البحث الراهن على احتياجات المرضى الحقيقي؟

تُبرَّه النسخة الإنجليزية وعملية الترجمة بطريقة صورية وفعالة للبحث السريرية الممكن. واند لتسجيل مدارسة
العلاقة ورعاية المرضى اليومية.

يستطيع هذا النسخة بناءً عليه، كنما يعتمد老虎، البحث السريرية في تقييمات من الإنتاج والكيمياوية
مباشرة. ولكن يمكن للجميع - مرضى وأطباء وبحث - أن يكون الكيمياوية المميزة والمعالجة الجراحية
مباشرة.

الطبعة الثانية

تحيى الطبعة الثانية الآن على موقع

مجلة ما هو الجديد في الطبعة الثانية

الطبعة الأولى
Wie können wir wissen, ob ein bestimmtes Medikament, Therapie oder Operation wirklich funktioniert und wie gut?

Wie zuverlässig sind die Beweise?
Sind klinische Studien wirklich frei von systematischen Fehlern?
Und ist die aktuelle Forschung auf die wirklichen Bedürfnisse der Patienten ausgerichtet?

Solche zeitgemäßen und drängende Fragen werden in dieser einzigartigen Untersuchung der modernen klinischen Forschung angesprochen mit weitreichenden Konsequenzen für die tägliche ärztliche Praxis und Patientenversorgung.
“Bad Science introduces the basic scientific principles to help everyone become a more effective bullshit detector.”
‘The Liberati Manifesto’, 2011

I have had the opportunity to consider from more than one perspective the mismatch between what clinical researchers do and what patients need. I am a researcher; I have responsibility for allocating funding for research; and I have had multiple myeloma for the past decade. A few years ago I stated publicly that several uncertainties I faced at the beginning of my disease were avoidable.

An essential component of any new governance strategy would be to bring together all the stakeholders, starting from an analysis of existing and ongoing research, produced independently of vested interests.

I thank Mariangela Taricco, Iain Chalmers, Gianni Ciccone, Michele Cavo, Nicola Magrini, and Roberto Satolli for useful comments in preparation of this letter. I declare that I have no conflicts of interest.

Alessandro Liberati
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Università di Modena and Reggio Emilia, Modena, Italy; and Agenzia Sanitaria e Sociale Regionale, Bologna, Italy
esatto dal lat. exactus p. p. di ex-igerre
resare, esaminare, che è comp. di ex fuori
igerre - p. p. actus - spingere, condurre,
puonere (v. agire e cfr. esame).

Propr. "esato. Di giusto peso, e quindi
Fatto con gran cura. Conforme al vero;
è detto di persona Puntuale, Diligente.

Dal “Vocabolario Etimologico della
Lingua Italiana” di Ottorino
Pianigiani.
saggio 1. proc. sabius, satges; fr. sage; ant. saive; sp. e port. sabio; cat. sabi:
dal lat. SAPIUS [osco sipus, volg. sēpu] — ant. SĀPIDUS da SĀPERE aver senno e
propr. aver sapore (→ Sapere).
Lo stesso che Savio, cioè Sapiente, Dotto, Prudente, Avveduto.
Deriv. Saggiamento; Saggiatore.
2. dal lat. EXÀGIUM (gr. oxēgión) poro e fig. valutazione, esperimento, o questo da
Lo esaminare una piccola parte di un tutto, per determinare il giusto valore di
questo, e dicasi specialmente delle materie d'oro e d'argento; e metaf. Piccola
quantità di un tutto destinata ad essere esaminata, o a servir di mostra.
Deriv. Saggiare; Saggiatore, trice; Saggio.
saggio 1. prov. sabis, satgos; fr. sage.
ant. saive; sp. e port. sabio; cat. sabi;
dal lat. sāpīus [uso sīpus, voce sēpu]
— ant. sāpīdus da sāpere aver senno e
propr. aver sapore (.. Sapere).
Lo stesso che Savio, cioè Sapiente, Dotto,
Prudente, Avveduto.
Deriv. Saggiamente; Saggèsa.

2. dal lat. exārium (gr. exāgion) peso
e fig. calulazione, esperimento, e questo da
exīgere pesare, esaminare (v. Esigere, e
cfr. Assaggio).
Lo esaminare una piccola parte di un
tutto, per determinare il giusto valore di
questo, e dicesi specialmente delle mate-
rie d'oro e d'argento; e metaf. Piccola
quantità di un tutto destinata ad essere
esaminata, o a servir di mostra.
Deriv. Saggiare; Saggiatore-trice; Saggietto.

Dal “Vocabolario Etimologico della
Lingua Italiana” di Ottorino Pianigiani.
META-ANALYSIS: STATISTICAL ALCHEMY FOR THE 21ST CENTURY

ALVAN R. FEINSTEIN*

Yale University School of Medicine, Clinical Epidemiology Unit, New Haven, CT 06510, U.S.A.
ANALOGY TO ALCHEMY

The idea of getting something for nothing, while simultaneously ignoring established scientific principles, produces an immediate analogy to the alchemy that existed before modern scientific chemistry. An advantage of alchemy was a principle that might be called the free lunch; the alchemists hoped to convert existing things into something better, such as changing base metals into gold. A scientific disadvantage of alchemy might be called the mixed salad principle. Before the reproducible precision of modern chemistry, the alchemists worked with substances that were heterogeneous, poorly identified mixtures.
Pharmaceutical companies, regulatory agencies, and public-policy makers may be satisfied to receive those average results, but practicing clinicians and patients are not. The clinicians and patients want to know the results in subgroups having a pertinent “clinical resemblance” to the current patient. They also want to know the effects of changes in the schedule of treatment and of pertinent co-therapy. In addition, they want to know about clinically important outcomes for relief of symptoms, changes in functional status, and effects on “quality of life”, not just death and duration of survival.
Perhaps another Potsdam conference might be called to do either a meta-analysis of the diverse statistical methods, or to get some agreement on what they should be.
"META-ANALYSIS: STATISTICAL ALCHEMY FOR THE 21st CENTURY": DISCUSSION. A PLEA FOR A MORE BALANCED VIEW OF META-ANALYSIS AND SYSTEMATIC OVERVIEWS OF THE EFFECT OF HEALTH CARE INTERVENTIONS

ALESSANDRO LIBERATI
Italian Cochrane Center, Laboratory of Clinical Epidemiology, Istituto Mario Negri, Via Eritrea 62, 20157 Milano, Italy
TERMS OF REFERENCE

The science of reviewing research in medicine [1, 2] is still very young and we must thus welcome every opportunity to discuss advantages and limitations of systematic reviews over the—unfortunately still prevalent use—of subjective, unstructured and often biased authoritative reviews [3]. Like all scientific disciplines, the conduct of systematic review of available studies can, in other words, benefit from constructive criticisms.

AREAS OF AGREEMENT

I do not see how we can disagree that progress should be made in three distinct areas of clinical research: (a) production; (b) use; (c) presentation/interpretation.
....to be even more explicit, I find that by presenting some well-known limitations of the way clinical trials (and, consequently, their systematic reviews) are planned, conducted and interpreted as if they were generally unrecognized or ignored by practitioners in the field, most of Professor Feinstein’s remarks may well end-up in a disservice to the development of the field itself. Most of the explicit criticisms that he uses against systematic reviews are, in fact, aspecific, some are out of date and some are frankly irrelevant.

I temi in gioco

Below, I will try to justify these statements focusing on five main issues: (a) Is lack of specificity a serious problem for meta-analyses? (b) How quality assessment is currently done and used in meta-analyses; (c) Does meta-analysis ignore consistency of results? (d) Meta-analysis unavoidably leads to untoward statistical combination of data; (e) Is meta-analysis prisoner of current statistical doctrine (i.e. the “intention to treat principle”)?
Web of Science

(Science; references with meta-analy* in title; N = 20.811)
Ho tentato di interpretare il punto di vista del paziente, non del medico.....

...I medici hanno il compito di organizzare la loro attività, ma devono tentare di partecipare attivamente al rapporto medico/paziente.

Senza questo l’organizzazione delle attività del medico è incompleta. Attualmente questa prassi è difficile da realizzare; eppure questo aspetto molto rilevante è in contraddizione con l’atteggiamento protocollare della raccolta di dati, che produce una sorta di anonimità, causando un’”atmosfera senza atmosfera” tra il paziente e il medico. E tutto ciò per entrambi è una perdita.
Il rischio è la falsa contrapposizione tra la definizione delle regole di comportamento e la umanizzazione del rapporto tra medico e paziente... Non giova ad un miglioramento dei benefici attribuibili alla medicina “contrapporre” scienza ed umanità... Ciò che deve migliorare è la comunicazione, l’informazione onesta, l’ammissione dei limiti di molti interventi e la disponibilità ad accettare l’idea che in molti casi è il paziente il migliore ed ultimo decisore di ciò che egli deve ricevere, sia questa una diagnosi o una terapia. Certo bisogna essere consapevoli che l’aderenza ad un protocollo di comportamento basato su rigorose evidenze scientifiche non basta da solo a definire un buon medico ed a garantire un rapporto positivo con il paziente. Bisogna dire altrettanto “forte e chiaro” che non basta l’umanità a fare un buon medico.
Le regole che esistevano nella “tradizione del dilettante”, adesso non sono più adeguate di fronte ad una vera e propria inondazione di informazione che riguarda sia il medico che il paziente. La conseguenza è che sono entrambi non liberi. Che fare contro questa situazione? Io, come filosofo, dico: l’unica forma sarà educare la gioventù a fare uso controllato e modesto di tutta questa inondazione di informazioni
...la consapevolezza dell'enorme quantità di informazioni cui il medico è oggi sottoposto rende parte integrante di una “etica del comportamento clinico” l’attenersi scrupolosamente a regole di evidenza scientifica nella definizione del proprio comportamento professionale....

...per dare umanità alla medicina scientifica è importante adoperarsi per avere utenti educati e consapevoli dei propri diritti. Un buon medico deve certo essere empatico con il proprio paziente ma deve soprattutto cercare di coinvolgerlo, dargli gli strumenti per capire e partecipare. Non solo nel momento in cui è malato ma soprattutto nel momento in cui, da sano, può contribuire alla formazione di una conoscenza medica più vicina ai veri bisogni di salute.

DIS 1995;2:15-16