

---

# RINCKSIDE

ISSN 2364-3889

VOLUME 25, 2014

---



---

# RINCKSIDE

ISSN 2364-3889 • VOLUME 25, 2014

## CONTENTS

---

Rinck PA. <b>Do we really need ethics in radiology?</b> Rinckside 2014; 25,1	1
Rinck PA. <b>A new paradigm for medical papers.</b> Rinckside 2014; 25,2	3
Rinck PA. <b>Screening mammography: the sequel.</b> Rinckside 2014; 25,3	5
Rinck PA. <b>ISMRM – Indignation in Milan.</b> Rinckside 2014; 25,4	7
Rinck PA. <b>Claustrophobia, MRI and the human factor.</b> Rinckside 2014; 25,5	9
Rinck PA. <b>Statistics plain and simple: Is there such a thing?</b> Rinckside 2014; 25,6	11
Rinck PA. <b>Have you read the best medical paper of the year?</b> Rinckside 2014; 25,7	13
Rinck PA. <b>What makes an imaging department tick: <i>Or: How to be loved.</i></b> Rinckside 2014; 25,8	15

# Do we really need ethics in radiology?

Peter A. Rinck



**E**thics are not a favorite topic of most radiologists and physicians at large. They avoid discussing and even thinking about moral reality. We all know that we are physicians, we are radiologists, and we do our patients good. We apply moral rules and judgments to our and our colleagues' practice of medicine and insist on playing by established ethics, don't we? Or is this self-delusion?

In an article entitled "The rise of the machines," I recently read:

---

## Is it too late to wake up? Or are we like the slumbering passengers of the Titanic?

---

"Is it too late to wake up? Are [we] like the slumbering passengers of the Titanic, on a huge vessel too committed and going too fast to avoid the huge iceberg, now visible against the night sky, just starting to block the stars in the ship's path? Tragically, in a morale climate still ruled by passion rather than morally aware reason, it may take the sounds of the crash itself [1]."

■ For many years, I have co-organized a biennial roundtable meeting on ethics in medicine, mostly focused on medical imaging. Commonly, the meeting deals with the foundations of medical ethics and, in general, unethical behavior. The definition is broad and doesn't necessarily follow any prescribed legal, religious, or philosophical code. The number of participants is small – not necessarily because the organizers don't want more attendees, rather because the interest in the topic seems to be limited. Thus, it's an "exclusive" meeting.

A former Spanish convent converted into a small hotel was last November's conference venue, which was very fitting, some people stated. The topic was: "Ethics in medical imaging – How can one re-implement ethical behavior?" For the first time, the meeting moved from theoretical ethics to applied morality. The question in the title must not be seen as

an incivility, claiming moral superiority and implying a division of the medical world into two camps: the good and ethical ones who might also be the victims, and the unethical villains. Rather, the subject was chosen because there was a general understanding that parts of medical ethics have been lost, or are completely unknown to physicians and other medical personnel in hospitals and private practice. Often, the terms "duty" or "obligation" seem to be forgotten.

What can we do about it?

The discussion went all the way back to the mere basics: "*Primum non nocere* – first, do no harm". Everybody seems to agree upon this maxim of medicine, a habit that should be the central thought of every physician. Beyond this we have to ask: What is a good habit and what is not, and can morals be objective?

Ethics and moral insights are not built on a foundation of steel-enforced concrete. We have to accept that ethical behavior is not final or absolute, and that it changes over time, across cultures, and due to people's insights. It improves in dialogue, not by diktat.

Is there an easy way to establish simple ethics? Ethical behavior refers to everybody in the department, not only to the head and the other radiologists. Are there incentives to strengthen behavioral and working morale?

■ I liked the solution of a Spanish department head: After every good year, he plants a tree close to the hospital, together with his entire staff. It's an action that acknowledges a sense of collective success, creating something positive in a group. It shows that everybody is proud of their achievements and, at the same time, to pragmatically enforce common ethics.

■ We should adapt such ideas to our own environment, wherever we work. Otherwise the prediction of an unhappy ending could be the same as in the article cited above: "Of course, by then, it would be far too late for Americans to alter their fate."

You could replace "Americans" with "radiologists." However, the article is not about radiology but about the impact and ethics of drone attacks on human life, published in – of all places – *Military Review*, a journal of the U.S. Army and the U.S. Department of Defense. You don't think the topics are comparable? Think twice. The paper is worthwhile reading. It would be enlightening to find such an opinionated article in a radiological journal.

## Reference

1. Pryer DA. The rise of the machines. *Military Review*. 2013; 93(2): 14-24.

---

Rinckside, ISSN 2364-3889

© 2014 by TRTF and Peter A. Rinck • [www.rinckside.org](http://www.rinckside.org)

**Citation:** Rinck PA. Do we really need ethics in radiology? *Rinckside* 2014; 25,1: 1-2.

---

---

## A new paradigm for medical papers

### *Why we need less trash and more substantial papers*

Peter A. Rinck



**W**e need a new paradigm for radiological and medical papers – how they should be planned, thought about, written, and published. We need at least an order of magnitude less publications, more substantial scientific papers, and more profound and more thorough review articles. We do not need the quantity of scientific trash with which we are confronted today in "high-impact" and lesser impact journals.

When I discussed this recently with some people, somebody told me: "There must be more tolerance." Why should one tolerate such foolish discourses, to say the least? The response was: "Because there is no other way. You won't change the world – anyhow nowadays all journals are digital; there is enough space for these publications on the Internet."

Before the discussion went the way of many discussions – changing the subject in order not to answer the question asked – I brought up the topic again: The question was not whether in the future we'll publish inferior papers digitally or in print, or whether the tools to transmit information and opinion (true print versus simulated, virtual print) are good or bad. This was irrelevant in this context.

---

#### **We must focus on quality, reliability, and applicability of content.**

---

The solution to our problem must focus on quality, reliability, and applicability of content. "Here today, gone tomorrow" might be the approach to life and profession for some, but must not apply to medicine or academic teaching, education, studies, and research.

■ The real problem is not necessarily getting on the gravy train – the real problem is the overall culture. But even worse is the craving for admiration with all the fuss of the alleged significance. If crookedness and dishonesty are inherent to the system, one has to change it radically – or wait for its implosion.

Peer reviewers, editors-in-chief, and publishers must be the ultimate arbitrators of the content of the papers they admit and publish. Perhaps some professional societies realize now that outsourcing their journals to one of the big publishing houses was not as clever as they thought. They have lost control of the editorial site and financial aspects have completely taken over.

I am completely aware that there are more factors to be taken into account than mentioned in this column. Still, those in charge, for instance in professional societies, should understand what we all are faced with. Otherwise they might lose their readers and authors – and their sinecure.

If somebody gets the right idea, motivation, and drive, he might clean up and take over the good scientific or educational publications of an entire medical discipline – perhaps even without turning it into a money-making enterprise – making a fool of all others.

---

Rinckside, ISSN 2364-3889

© 2014 by TRTF and Peter A. Rinck • [www.rinckside.org](http://www.rinckside.org)

**Citation:** Rinck PA. A new paradigm for medical papers.

Rinckside 2014; 25,2: 3.

---



## Screening mammography: the sequel

Peter A. Rinck



**A**fter two recent reports – one Canadian [1] and one Swiss [2] – screening mammography is in the news again. In fact, it's all over the media. The latter study clearly recommends the abolition of screening mammography in Switzerland.

The conclusion of the Canadian study, published in *BMJ*, is as follows:

"Annual mammography in women aged 40-59 does not reduce mortality from breast cancer beyond that of physical examination or usual care when adjuvant therapy for breast cancer is freely available. Overall, 22% (106/484) of screen-detected invasive breast cancers were over-diagnosed, representing one over-diagnosed breast cancer for every 424 women who received mammography screening in the trial."

---

### Is there an "acceptable loss" of more or less healthy persons, as it is in warfare?

---

But remember the saying, "Thou shall not write anything negative about mammography screening."

Shortly after the publication of this report, the "pope of screening mammography," Dr. László Tabár, thundered his response on AuntMinnieEurope.com [3]:

"The publication by Dr. Anthony Miller and colleagues in *BMJ* used substandard and outdated mammography technique to claim that mammography screening would add nothing beyond what physical examination can accomplish."

Of course, Tabár sets the standard and decides what is relevant and what not – ivory tower versus reality in medicine. Personally, I never liked x-ray mammography because it reminded me of searching for the truth on the bottom of a tea cup: You either see something in the leaves or you don't. You need permanent practice, tens of thousands of studies, and many years of experience until you reach a point where your judgment becomes adequate.

Still, the technique is elusive.

Reality is different, and sometimes in life reality passes one on the fast lane. It's not the pope and his cardinals who are reading these studies; it's the busy bees in the departments and private offices. Their work might be "substandard," but it's these results one has to look at and compare.

■ Let's look at the benefits and harms of breast cancer screening, as summarized in 2012 by the Independent U.K. Panel on Breast Cancer Screening for the U.K. [4]:

"For every 10,000 women aged 50 years invited to screening for the next 20 years, 43 deaths from breast cancer would be prevented and 129 cases of breast cancer, invasive and noninvasive, would be overdiagnosed; that is one breast cancer death prevented for about every three overdiagnosed cases identified and treated."

In a letter to the editor, Peter C. Gøtzsche and Karsten Juhl Jørgensen from the Nordic Cochrane Center in Copenhagen add their results [5]:

The estimate of overdiagnosis in the Cochrane review was 29%, and observational studies have found 33% overdiagnosis in Denmark (which has an ideal control group because 80% of the country was not screened for 17 years), and 52% in a systematic review of countries with organized screening programs.

Is it acceptable that a public health initiative each year converts thousands of healthy women into cancer patients unnecessarily, which is fatal for some of them?

■ I checked: Every six years I have written a column about screening mammography [6,7]. I still insist: *Primum non nocere* – first, do not harm. Tacitly or even explicitly accepting heavy collateral damage in medicine is bad medicine. If the damage is as high, or even higher than the success, one cannot recommend a procedure. Or is there an "acceptable loss" of more or less healthy persons, as it is in warfare?

Always keep in mind: These arguments are against screening mammography – not against mammography as such where it is due and indicated. This, however, should be decided by the referring physician on a one-by-one basis, and the patient should be informed about the risks of mammography.

## References

1. Miller AB, Wall C, Baines CJ, Sun P, To T, Narod SA. Twenty-five-year follow-up for breast cancer incidence and mortality of the Canadian National Breast Screening Study: Randomised screening trial. *BMJ*. 2014; 348: g366. [www.bmj.com/content/348/bmj.g366](http://www.bmj.com/content/348/bmj.g366).
2. Biller-Andorno N, Jüni P. Abolishing mammography screening programs? A view from the Swiss Medical Board [published online ahead of print April 16, 2014]. *NEJM*. 2014. [www.nejm.org/doi/full/10.1056/NEJMp1401875](http://www.nejm.org/doi/full/10.1056/NEJMp1401875).
3. Tabár L, Chen TH. We do not want to go back to the Dark Ages of breast screening. *AuntMinnieEurope.com*. 12 February 2014.
4. Independent U.K. Panel on Breast Cancer Screening. The benefits and harms of breast cancer screening: An independent review. *Lancet*. 2012; 380 (9855): 1778-1786.
5. Gøtzsche PC, Nielsen M. Screening for breast cancer with mammography. *Cochrane Database Syst Rev*. 2009; 4. CD001877; and Gøtzsche PC, Juhl Jørgensen K. The benefits and harms of breast cancer screening. Letter to the editor. *Lancet*. 2013; 381 (9869): 799.
6. Rinck PA. Rinckside. Screening programs must show clear benefits. *Diagnostic Imaging Europe*. 2002; 18 (5): 12-14.
7. Rinck PA. Rinckside. If it moves, radiologists will want to screen it. *Diagnostic Imaging Europe*. 2008; 24 (5): 12-13, 39.

---

Rinckside, ISSN 2364-3889

© 2014 by TRIF and Peter A. Rinck • [www.rinckside.org](http://www.rinckside.org)

**Citation:** Rinck PA. Screening mammography: the sequel. *Rinckside* 2014; 25,3: 5-6.

---



## Indignation in Milan

Peter A. Rinck



One sunny morning in mid-August 1982 I packed my suitcase, put it in the trunk of my car, and drove from Stony Brook on Long Island through New York City, then north to Boston. I was going to attend the first meeting of the Society of Magnetic Resonance in Medicine; my erstwhile boss, Paul C. Lauterbur, was the president of both the society and the conference. The new organization was meant to embrace scientists from all fields and rapidly developed into "The scientific MR society."

Following the Boston meeting, some European members of SMRM working in the U.S. decided to start an educational effort in Europe that later would be known as the European Magnetic Resonance Forum (EMRF) Foundation – today part of The Round Table Foundation (TRTF). EMRF also helped to build up and strengthen the European Society for Magnetic Resonance in Medicine and Biology (ESMRMB). Today, this society is run and managed as a daughter organization of the ECR in Vienna.

After its very successful first conference, SMRM went from strength to strength. Becoming a member required passing a strict vetting process; only people involved in research with a good track record were accepted. Mere users of MRI (i.e., radiologists) enrolled in a second society, the Society of Magnetic Resonance Imaging, (SMRI). After being marred by a financial scandal and pressured by companies, in 1994 SMRM and SMRI merged to form SMR, later renamed ISMRM, the International Society for Magnetic Resonance in Medicine.

■ This changed the original society completely. Gerald Pohost, founding member of SMRM, was disillusioned:

"In my opinion, the society ended at the time it merged with the other society." [1]

It wasn't a scientific society any more. The ISMRM office became one of the many big commercialized congress and course enterprises, well organized and run smoothly by a strong, financially oriented management.

Roberta A. Kravitz became its executive director in 1995. In an interview last year, she stated:

"People expect more for their money now. They are all under tight budgets. There are so many choices out there and you want to keep them with [your association]. You've got to constantly evaluate the benefits of membership and find ways to enhance them." [2]

### People expect more for their money. Or, perhaps simply lower fees?

Thirty-two years after the Boston meeting, this year's annual meeting of ISMRM was held last week in Milan – together with the European Society, which was nearly invisible.

In the commercial prospectus of the Milan conference the contents of the meeting are not mentioned at all ... nor are the names of any scientist, officer or even the president of the society.

"Scientific" officers and presidents of these societies are often mere figureheads. More so, for years the management of ISMRM suppresses scientific or educational announcements of its members – if they are not commercially integrated into the society's frame.

According to the prospectus, the commercial aim of the meeting is:

"Real-time exposure to decision-makers – unlimited networking opportunities with a growing international assembly of the world's largest community of MR scientists, clinicians, and technologists – an engaged, receptive, and qualified audience providing you with immediate and future suspects, prospects, leads, and confirmed business."

I wonder who are the "future suspects?"

■ During the last 35 years I have attended hundreds of meetings between New York and Tokyo, Berlin

and Moscow. I have been president of learned societies and conferences, but I have never seen so many frustrated and furious participants and would-be participants as at the meeting in Milan, ranging from old-timers to young scientists and company researchers.

There was no congress bag, and instead of a printed program, there was a USB dongle strangely depicting a car and containing the abstracts and a layout of the poster exhibition; easy and cheap, no doubt. However, the entrance fee was steep; the highest fee was close to US\$ 2,000.

A European member of the congress organizing committee regretted that he couldn't pay for junior members of his team; even the one-day fee would go beyond the limits of his budget.

Increasing consternation and anger was also voiced about the collection and sale of personal and professional data of the members and congress participants, research and scientific data, and background information on institutions.

All societies in this class enter the political arena and begin to cement their status by issuing diplomas and certificates, trying to monopolize the field and getting state backing. Science and education take a back seat to commerce.

I heard through the grapevine that a cardiological society has 70 million euros on its accounts – perhaps even *a little more*. I don't know whether this is true, but my imagination is racked: what for, where from? Who checks it? What about the accounting of other societies? "*Honi soit qui mal y pense*" – "Shame on him who thinks this evil."

■ At an *ad-hoc* meeting of some of the former officers and presidents of the organizing societies, discussion focused on the problems of the ISMRM and other societies and possible new ways of meeting organization, but no general consensus or solution was found. There is a strong wish for biennial conferences, and even five-year intervals were considered, which fits the major steps of progress in the field. An industry exhibition was considered unnecessary because there are major trade fairs at the annual meeting of the RSNA, the ECR, and Arab Health. Instead, small meetings of manageable size and cost on a national or regional basis were proposed where participants can have a real exchange of ideas and results.

A major worry is the ever increasing number of new congresses and societies in fashionable subdisciplines; this spring, for instance, every other week there was a conference dealing with contrast agent development, many of them trading under the name "molecular imaging."

One of the participants brought it down to: "This conference is quite expensive – too expensive just to attend and learn anything new, too expensive to be a social meeting. It's one of the many societies you don't identify with. It's just another supermarket. However, if I have to show relevant new data I will go. Use them as they use us."

In other words, if one knows and understands this background, these conferences can be helpful; but they do not replace independent and truly academic and scientific meetings – the old-style family meetings.

■ The ISMRM is not the only example of this negative development. Last year, the ECR was the target of a massive attack about fees – and this year again, indignation among the participants could be felt. There is nothing left from the look into the future in 1997:

"For a mere 500 Austrian schillings (approximately 70 Deutsch marks [€ 35]) per year, the conference fee of ECR members is substantially lowered. Ultimately it is expected that they will pay no fee at all. Members also receive a newsletter, the abstracts of the ECR (if they attend or not), and the journal *European Radiology*." [3]

Those were the days – but it seems to be too late to turn the wheel back.

## References

1. Dawson MJ. Paul Lauterbur and the invention of MRI. Cambridge, MA, U.S. and London: The MIT Press; 2013:151.
2. Russell M. An online platform that really resonates with members. Convene website. August 2013. [www.pcma.org](http://www.pcma.org).
3. Rinck PA. The European Congress of Radiology – A European success story. *Rinckside* 1997; 8,3: 9-11.

---

Rinckside, ISSN 2364-3889

© 2014 by TRTF and Peter A. Rinck • [www.rinckside.org](http://www.rinckside.org)

**Citation:** Rinck PA. ISMRM – Indignation in Milan.

*Rinckside* 2014; 25,4: 7-8.

---

# Claustrophobia, MRI and the human factor

Peter A. Rinck



**D**uring the four decades since MRI's invention, many problems connected with it could be solved thanks to the ingenuity of scientists and engineers, but one problem remains unchanged: the anxieties felt by patients. Claustrophobia is one concrete fear many people are haunted by. It is said that commonly at least three or four in 100 patients suffer from it severely enough to interrupt or terminate any MR examination.

Thus, dealing with claustrophobia was a task physicians faced from the very beginning of routine clinical MRI. One of the most pragmatic and down-to-earth studies on the topic was presented earlier this year by a group of radiographers from Trondheim, Norway. Some of them have nearly 30 years of experience, and have worked in MRI since the opening of their facility in 1986.

For one month, all patients (1,007) examined on six different MR systems were enrolled, actively involving 17 radiographers [1]. A total of 90% of patients underwent their examinations with only the information they received orally and in writing before their examination. The rest needed special attention. In the end, all patients completed their examinations; nobody terminated early due to claustrophobia. How did they – staff and patients – manage to fight claustrophobia and other anxieties?

---

## Claustrophobia isn't a technical problem that can be solved by technical means.

---

Claustrophobia isn't a technical problem that can be solved by technical means. Of course, one should avoid inadequate and noisy equipment that might boost anxieties. However, even the authors of a recent multicenter study with a strong bias toward recommending supposedly claustrophobia-reducing MR machines had to concede eventually [2,3]:

"The present study in high-risk patients demonstrated claustrophobia precluding MR imaging in more than 25% of examinations despite using equipment de-

signs expected to lower the rate of claustrophobic events. The most problematic phase of the scan procedure is during positioning, as well as on entry into the examination room. Thus, procedural modifications might also be influential for reduction of claustrophobic event rates."

■ What matters is the fear of the confinement in a tube, of having no escape. This human problem can be dealt with by human measures – in an exchange between the examiner and the patient. The contact, dialogue, and understanding between patient and radiographer are among the most important ingredients of a successful MRI examination. Communication leads to the choice of the right strategy for the individual patient, as the radiographer can act on the response of the patient. Most claustrophobic patients are able to complete their examination when some effort is made to support them, according to their individual needs.

Communication with the patient should include the following:

- General information;
- explanation of the strategy and handling of the examination;
- a debriefing.

Deciding which strategy to be used depends on the patient. When given some advice about how to handle stress inside the magnet, the patients included in the Norwegian study achieved the required feeling of self-control.

Particular considerations that proved helpful to patients in the Norwegian study are listed below:

- Whenever possible, patients should enter the machine feet first;
- a mirror to the head coil helped a quarter of the patients to feel more comfortable;
- an accompanying person, laying a hand on the patient's feet, made it easier for them to cope with the situation;
- patients in pain should be comforted with some-

thing such as an extra cushion, helping them to find a comfortable position that they can keep during the examination;

- to shorten the examination time when the patient is in pain or very uncomfortable inside the magnet, the application of preplanned "short" pulse sequences for the examinations proved helpful;
- use of a coil that might not be the optimal or most common for the kind of study but suits the patient;
- allow certain patients to come out of the magnet between sequences;
- talk between the scans.

■ These actions are simple, but very practical and helpful. They indicate a positive attitude toward the patients' problems and aid the patients in building up the confidence in themselves to manage the situation. The actions are, however, time-consuming and require well-trained radiographers with an understanding of psychology. They do not fit the trend to industrialized, assembly-line patient examinations.

Technology can be very helpful; many medical personnel, radiology professionals included, believe that state-of-the-art equipment is the most important facet of their job. However, working as a doctor, a radiographer, or a nurse concerns human relations – first and foremost. The physical well-being and mental relaxation of a sick person while being examined must always be on top of our priorities when trying to find a diagnosis in medical imaging, not the shareholder value of the owners of a commercial imaging center. So-called personalized imaging – not only of claustrophobic patients – means showing an interest in, and responding to, the worries, concerns, fears, and problems of the person who is to be examined and taking care of their individual needs.

■ Germany leads the worldwide use of MR examinations with close to 100 examinations per 1,000 inhabitants, and the greater Berlin area has the highest ratio worldwide at about 110 examinations per 1,000 inhabitants.

This is more than in the U.S. and 50% more than the number in France and Denmark [4]. Interestingly, claustrophobia seems to also depend on the structure of the society and its healthcare system. German data on claustrophobia show higher percentages than those of other countries.

Finally, a study on the topic from Malaysia points out:

"A recognized cause of incomplete or cancelled MRI examinations is anxiety and claustrophobic symptoms in patients undergoing MR scanning. This appears to be a problem in many MRI centers in Western Europe and North America, where it is said to be costly in terms of loss of valuable scan time. ... To determine the incidence of failed MRI examination among our patients and if there are any associations with a patient's sex, age, and education level, we studied claustrophobia that led to premature termination of the MRI examination. ... The incidence of failed MRI examinations due to claustrophobia ... was found to be only 0.54%. There are associations between claustrophobia in MRI with the patients' sex, age, and level of education. The majority of those affected were male patients and young patients in the 25-45-years age group. The patients' education level appears to be the strongest association with failed MRI examinations due to claustrophobia, where the majority of the affected were highly educated individuals. Claustrophobia in MRI is more of a problem among the educated individuals or patients from a higher socioeconomic group, which may explain the higher incidence in Western European and North American patients [5]."

It's for you to draw the conclusions.

## References

1. Landrø Svarliaunet AJ. Pasientkommunikasjon og gjennomføringsstrategi ved MR. *Hold Pusten*. 2014; 41: 24-28.
2. Enders J, Zimmermann E, Rief M, et al. Reduction of claustrophobia during magnetic resonance imaging: Methods and design of the "CLAUSTRO" randomized controlled trial. *BMC Medical Imaging*. 2011; 11(4): 1-15.
3. Enders J, Zimmermann E, Rief M, et al. Reduction of claustrophobia with short-bore versus open magnetic resonance imaging: A randomized controlled trial. *PLOS One*. 2011; 6(8): e23494.
4. Total magnetic resonance imaging (MRI) examinations per 1,000 population provided by OECD 2013 (data from 2011 and 2009); data for Germany provided by Barmer GEK, *Arztreport* 2009.
5. Sarji SA, Abdullah BJ, Kumar G, Tan AH, Narayanan P. Failed magnetic resonance imaging examinations due to claustrophobia. *Australas Radiol*. 1998; 42 (4): 293-295.

---

Rinckside, ISSN 2364-3889

© 2014 by TRTF and Peter A. Rinck • www.rinckside.org

**Citation:** Rinck PA. Claustrophobia, MRI and the human factor. *Rinckside* 2014; 25,5: 9-10.

---

## Statistics plain and simple: Is there such a thing?

Peter A. Rinck



**S**tatistics was never my favorite subject at university, but when my first head of department told me seven patients are enough for a statistically relevant "scientific" paper, I knew that I was in the wrong department.

Recently, when reading all the latest publications about screening mammography – scientific, popular, and plainly commercial – I started thinking about my knowledge of statistics. The reason was I didn't understand the statistics used or referred to in these articles. I only understood that annual or biennial breast screening is a benefit for women. It saves lives.

The question of why we need statistics has a simple answer: to predict what somebody's chances are to win. True statistics were developed for gambling in the 17th century, and then entered banking and the social sciences – and finally medicine.

Florence Nightingale supposedly once said: "To understand God's thoughts we must study statistics."

But – which statistics?

---

### **Applied statistics are mostly not understood, and thus used incorrectly to draw wrong conclusions.**

---

■ Let's look at a simple example, applied to a screening study. At the beginning of the study, an average of 1,000 patients is healed every year; in the year after the introduction of our new screening method, 500 were healed. The success rate has dropped by 50%. In year two, the number tripled to 1,500 healed patients, a great success of 200%; year three shows 1,000 healed patients, a drop of 50%. The arithmetic mean of the percentages is a success rate of 33.3% per year: what a beautiful screening method! We should use the new technique everywhere.

This is a typical statistical assessment found in publications and done by politicians, pharmaceutical mar-

keters, journalists in the infotainment industry, insurance and bank employees, and certain other people not to be named here. The statistical data is easily understood and sells the idea of screening (or a new drug, or anything you want to sell).

In reality, nothing has changed. Despite the ups and downs, after three years, the number of patients healed is the same as before: This kind of screening was not successful.

■ The statistical method to be used in this case is the geometric mean, which will give us a trend, a tendency of a set of  $n$  numbers by using the product of their values. The geometric mean is defined as the  $n$ th root (where  $n$  is the count of numbers) of the product of the numbers. In our case, we use the growth rates (or factors) of the three years. We take their product, the result's cube root, and subtract one:

$$(0.5 \times 3.0 \times 0.67)^{1/3} - 1.$$

The geometric mean of our example is zero. Getting there is slightly more complicated than an arithmetic mean, but now the result is correct.

■ I do not want to even suggest that the statistics in mammography screening are wrong or not fitting. I only know that statistics in many medical papers are wrong. Many authors draw general conclusions from a limited number of case studies. Often, correlation and causation are confused: A correlation between two variables does not necessarily mean that one causes the other.

Commonly, you can kill any radiological paper by proving that the wrong statistical approach has been used. Don't write to me to complain. This column is not "Statistics 101." However, strange statistics are common practice.

Statistics as a mathematical discipline might be connected to science and philosophy; applied statistics are mostly not understood, and thus used incorrectly to draw wrong conclusions, in particular if spreadsheet-like statistical software is applied. Then they

become a personal, ideological, or plain commercial marketing tool – and should be seen as such: The secret magic of numbers is rather mystical.

---

Rinckside, ISSN 2364-3889

© 2014 by TRTF and Peter A. Rinck • [www.rinckside.org](http://www.rinckside.org)

**Citation:** Rinck PA. Statistics plain and simple: Is there such a thing? Rinckside 2014; 25,6: 11-12.

---



## Have you read the best medical paper of the year?

Peter A. Rinck



**T**his year's best medical paper so far appeared at the end of January. It wasn't published in Radiology or another leading medical journal, but in the New York Review of Books.

The author is Dr. Arnold S. Relman, a succinctly articulate man and leading figure in U.S.-American internal and social medicine. In his paper, he revealed the final realization of his life. He learned the hard way about the deficits of *modern* medicine.

I have dealt with this topic over the years, but Relman was perhaps more suitable and qualified than me to reach a wide public and make a major impact on health politics. In this column, I will try to give a glimpse into his latest articles.

■ From 1977 to 1991, Relman was the editor of the New England Journal of Medicine. In the autumn of 1980, he introduced the term "medical-industrial complex" – coined from Dwight D. Eisenhower's "military-industrial complex."

---

**The most important healthcare development of the day is the recent, relatively unheralded rise of a huge new industry that supplies healthcare services for profit.**

---

"The most important healthcare development of the day is the recent, relatively unheralded rise of a huge new industry that supplies healthcare services for profit. Proprietary hospitals and nursing homes, diagnostic laboratories, home-care and emergency-room services, hemodialysis, and a wide variety of other services produced a gross income to this industry last year of about \$35 billion to \$40 billion.

"This new 'medical-industrial complex' may be more efficient than its nonprofit competition, but it creates the problems of overuse and fragmentation of services, overemphasis on technology, and 'cream-skimming,' and it may also exercise undue influence on national health policy [1]."

■ In an interview some years later, he went against vested interests and profiteering by colleagues:

"Many people think that doctors make their recommendations from a basis of scientific certainty, that the facts are very clear and there's only one way to diagnose or treat an illness. In reality, that's not always the case. Many things are a matter of conjecture, tradition, convenience, habit. In this gray area, where the facts are not clear and one has to make certain assumptions, it is unfortunately very easy to do things primarily because they are economically attractive [2]."

He took the topic up again several times, and gave an excellent overview of it in his Sherlock Lecture in 1991. [3]

■ Last year, shortly after his 90th birthday, he fell down the stairs in his home, broke his neck, and spent weeks in the surgical intensive care unit (ICU) of the Massachusetts General Hospital, as well as other hospitals in Boston. When in intensive care, he started scribbling – and this finally turned into one of the best articles I have read about hospitals and our health system, both in North America and in Europe.

The article begins like this: "I am a senior physician with over six decades of experience who has observed his share of critical illness – but only from the doctor's perspective." This thought is resumed further down: "Despite all [my] ailments, I had never needed more than a brief hospitalization [4]."

In his article, he stated that he learned about some aspects of the U.S. health system he had never thought of before: intensive care treatment and rehabilitation seen through the eyes of a patient.

"What did this experience teach me about the current state of medical care in the U.S.? Quite a lot, as it turns out. I always knew that the treatment of the critically ill in our best teaching hospitals was excellent. That was certainly confirmed by the life-saving treatment I received in the Massachusetts General emergency room ... But what I hadn't appreciated

was the extent to which, when there is no emergency, new technologies and electronic record-keeping affect how doctors do their work. Attention to the masses of data generated by laboratory and imaging studies has shifted their focus away from the patient. Doctors now spend more time with their computers than at the bedside...

"What personal care hospitalized patients now get is mostly from nurses ... I had never before understood how much good nursing care contributes to patients' safety and comfort, especially when they are very sick or disabled. This is a lesson all physicians and hospital administrators should learn. When nursing is not optimal, patient care is never good.

"Even in the best of hospitals, with the best of medical and nursing care, the ICU can be a devastating psychological experience for patients – as it was for me. Totally helpless, deprived of control over one's body, ICU patients desperately need the comforting presence of family and loved ones. I was fortunate to have that support, but some others in the MGH ICU were not. I can only hope they received extra attention from their nurses."

■ Applied to radiology, human quality in this discipline climbs and falls not only with a personal contact between physician and patient, but – perhaps even more so – with the guidance, information, and care given by radiographers.

In radiology, maybe more than in other disciplines, old medical skills have turned into electronic habits. Art and craftsmanship have been replaced by reliance on machines. And the more we rely on machines, the more we cede control of our craft to them, to those who manufacture them, and to those who administer us. Do we want to become puppets of the "medical-industrial complex"? Or are we already puppets on their strings?

Relman died on his 91st birthday of causes unrelated to his accident.

I highly recommend that you read this article.

## References

1. Relman AS. The new medical-industrial complex. *N Engl J Med*. 1980; 303(17): 963-970.
2. Confronting the crisis in health care: An interview with Arnold Relman. (MIT) *Technology Review*. 1989; 92(5): 30.
3. Relman AS. The health care industry: where is it taking us? *N Engl J Med* 1991; 325: 854-859
4. Relman AS. On breaking one's neck. *The New York Review of Books*. 2014; 61(2): 26-29.

---

Rinckside, ISSN 2364-3889

© 2014 by TRTF and Peter A. Rinck • [www.rinckside.org](http://www.rinckside.org)

**Citation:** Rinck PA. Have you read the best medical paper of the year? *Rinckside* 2014; 25,7: 13-14.

---



## What makes an imaging department tick? *Or: How to be loved*

Peter A. Rinck



It's the simple things in life that count and often improve our understanding of each other and foster living and working together. Many departments of radiology and private imaging offices have a problem: Their value, their performance, and their staff are not recognized for their contributions to patient care and to other medical disciplines, as well as to the overall financial success of the institution.

### **Radiologists usually perform backstage, as do pathologists, microbiologists, and clinical biochemists.**

Radiologists usually perform backstage, as do pathologists, microbiologists, and clinical biochemists. They are not in the limelight, like surgeons and cardiologists, for example.

Although it is increasingly claimed by the healthcare business, radiology is not a commodity delivering goods or products. Thus, it requires additional effort to be able to act and be seen on the same level as the ancient medical disciplines.

You don't have to study medicine or be a radiologist to realize this problem or to find a solution: Communication belongs to the pivotal professional qualities of radiologists, not only skillful and competent image-reading.

Communication begins in the department of radiology – between physicians working there, between physicians and technicians, basically between everybody. Being friendly and polite is the first step; a grumpy, greedy, old department head does not invite dialogue and exchange – nor does an obnoxious smartass.

The same holds for the receptionists, the head technician, and – to a lesser extent – everybody else. The fundamental issue of running a radiology department and being a radiologist is the human factor.

If the atmosphere at the radiological home is pleasing, it will have an impact on other departments, fellow doctors, nurses, technicians – and patients and their relatives. This has nothing to do with the quality of practice or the latest and perhaps even best equipment. Warm relations are the oil that smooth the way of interaction of radiologists with patients, colleagues, and management. Being cordial, available, kind, and understanding as well as possessing a sense of pleasant humor withstanding times of stress are helpful accessories.

However, the requirements for eventual and lasting success are most of the old virtues, among them productivity, collegiality, punctuality, reliability, credibility, honesty, and creativity. They have not lost their appeal and are still very much in demand – together with a united front against the metastatic cancer of bureaucracy.

But now comes the hard part: Be better in your field than others and, in addition, know as much about other medical disciplines as the specialists -- and advance yourself as the expert in diagnostic imaging options, share your knowledge without showing off, and make yourself indispensable for key decisions as an imaging specialist with detailed clinical understanding of certain organ systems or diseases.

Then you can focus on those additional sales factors everybody is talking about: value-added imaging – for instance, daily or weekly image-reading sessions with physicians of other specialties; radiology rounds where a physician visits patients on the wards together with a referring doctor showing and explaining patients their images on a tablet computer; meetings with the management presenting summaries of scientific conferences – you name it.

Because the changing nature of clinical practice does not alone change medical imaging, but all surgical and internal medicine subdisciplines, quarterly multidisciplinary team meetings might help to avoid local turf battles.

■ However, be careful. Communication isn't all. Don't try to be everybody's friend. People in your department, in other departments, and definitely in the healthcare management team might have intentions that differ from yours.

You may be asking: Why does he tell us this? Isn't it obvious?

People forget, and routine and grumpiness easily take over. A smile a day keeps trouble away: A smile at other people and, perhaps, a smile at yourself in the mirror. It changes wavelength from depression to good vibrations and makes communication easier. Try it.

---

Rinckside, ISSN 2364-3889

© 2014 by TRTF and Peter A. Rinck • [www.rinckside.org](http://www.rinckside.org)

**Citation:** Rinck PA. What makes an imaging department tick: Or: How to be loved. Rinckside 2014; 25,8: 15-16.

---



