

Wisdom is the meeting point of doubt and certainty

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Faculteit der Geneeskunde van de Universiteit Maastricht

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Oratie

In verkorte vorm uitgesproken bij de aanvaarding van het ambt van bijzonder hoogleraar Mondziekten en Kaakchirurgie aan de Faculteit der Geneeskunde van de Universiteit Maastricht.

Op 29 mei 2009

Door Prof. dr. dr. Peter Kessler

Honorable Rector Magnificus, honorable Deans of the Medical Faculty, dear colleagues from universities and clinics from within the Netherlands, Germany, Switzerland, Belgium and Austria, dear colleagues from the MUMC, honored guests, dear friends, my dear family

The title of this inauguration speech is:

Wisdom is the meeting point of doubt and certainty

I must disappoint those who expected me to talk about specific oral-maxillofacial items, such as the beauty of the face or how to improve, correct or restore it.

I must also disappoint those who expected a power-point slide show. You merely have to listen!

Sure, I was thinking about these matters in preparation of my inauguration speech today, but then I decided to choose another subject.

Why?

To be appointed as professor and university teacher, I thought, one should use this unique opportunity of an inauguration to look beyond our everyday business – may be in a critical or even provocative way – to start with teaching today – especially for those who will succeed.

Every highly developed medical system develops visional guidelines. What are the essentials of the Maastricht university clinic? The essential of this University Medical Centre is a strengthening of the cooperation between the clinic and the university to guarantee a balanced and integral process to improve teaching, training, research and patient care.

Another top item is the quality of the medical treatment. This was the number one goal of an initiative called 'az-move'.

If we read on we find the following statement about quality and safety and we learn:

Ensured correct treatment and safety are the most important aspects of medical treatment. Therefore a systematic, structural and transparent system must be installed to improve and guarantee these aspects.

All these system are based on evidence.

Evidence Based Medicine (EBM)

The best health practices are based on professional review of health outcomes, research and continuing education. This requires an openness to peer review and a culture of learning and growth.

Scrutiny by independent evaluators should be a normal and expected component of maintaining pace with current best practice in health care. Most health services see this as a cultural change requiring a shift from a culture of fear and blame to one of openness, trust and shared learning.

We are discovering that this new culture diminishes rather than increases the risks of litigation although it must be recognized that there are cultural variations between countries. Very often, an acknowledgment of human failing, saying sorry and a fair and open explanation for medical misadventure will ease a family's pain after unsuccessful treatment.

Definition of Evidence-based medicine:

EBM aims to apply evidence gained from the scientific method to certain parts of medical practice. It seeks to assess the quality of evidence relevant to the risks and benefits of treatments (including lack of treatment). According to the Centre for Evidence-Based Medicine, "Evidence-based medicine is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients."

However, EBM recognizes that many aspects of medical care depend on individual factors such as quality- and value-of-life judgments, which are only partially subject to scientific methods.

EBM seeks to clarify those parts of medical practice that are in principle subject to scientific methods and to apply these methods to ensure the best prediction of outcomes in medical treatment, even as the debate about which outcomes are desirable or not continues.

Using techniques from science, engineering, and statistics, such as meta-analyses of medical literature, risk-benefit analyses, and randomized

controlled trials, EBM aims for the ideal that healthcare professionals should make "conscientious, explicit, and judicious use of current best evidence" in their everyday practice.

Ex cathedra statements by the 'medical expert' are considered to be the least valid form of evidence. All 'experts' are now expected to reference their pronouncements to scientific studies.

Let's have a closer look at evidence-based medical systems:

Evidence-based medicine categorizes different types of clinical evidence and ranks them according to the strength of their freedom from the various biases that beset medical research. For example, the strongest evidence for therapeutic interventions is provided by systematic review of randomized, double-blind, placebo-controlled trials involving a homogeneous patient population and medical condition.

How to do that in a surgical specialty?

Systems to stratify evidence by quality have been developed, such as the one by the 'U.S. Preventive Services Task Force' for ranking evidence about the effectiveness of treatments or screening. There are five levels of different strength of evidence from:

- Evidence obtained from properly designed randomized controlled trials = level 1

down to the lowest level:

- Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

The 'UK National Health Service' uses a similar system with categories labelled A, B, C, and D. Different types of research are required for assessing diagnostic accuracy or natural history and prognosis, and hence different "levels" are required.

Based on these level-indices we have to qualify evidence-based knowledge

The development of a Scientific Method has made a significant contribution to our understanding of knowledge. To be termed scientific, a method of inquiry must be based on gathering observable, empirical and measurable evidence subject to specific principles of reasoning. A scientific method consists of the collection of data through observation and experimentation, and the formulation and testing of hypotheses. Science is the process used everyday to logically complete thoughts through inference of facts determined by calculated experiments

Until recent times, at least in the Western tradition, it was simply taken for granted that knowledge was something possessed by humans – or God alone – and probably adult humans at that.

Other biological domains where "knowledge" might be said to reside, include: the immune system, and in the DNA of the genetic code.

Such considerations seem to call for a separate definition of "knowledge" to cover the biological systems. For biologists, knowledge must be usefully available to a system, though that system needs not be conscious. Thus the criteria seem to be:

- The system – as e.g. human being – should apparently be dynamic and self-organizing.
- The knowledge must constitute some sort of representation of "the outside world" – as e.g. the DNA does as result of a long adaptation of the genetic code to the environment.
- There must be some way for the system to access this information quickly enough for it to be useful.

For a great deal the true knowledge in medicine is based on the results of biological experiments as well as clinical and experimental research.

But is science, is research trustworthy?

"Research is a wonderful thing, if one doesn't have to make a living from it". *Albert Einstein's* quote is less a reflection on the salaries presently paid by the university clinics, but rather an expression of a perceived or effective discrepancy between the value of scientific knowledge and the substantial demands of real life. Not infrequently is this context interpreted as such that research is not practice-suited and that acting

on scientific maxims in the practice may compromise its existence. This indisposition becomes particularly apparent, when it involves the much debated scientific standards in therapy or striving for another zestful word – guidelines. Depending on the specialty, personal opinions range from therapeutic validation over paternalism and restriction to an ideal approach for liability suits.

Mistrust and denial are sometimes deeply engrained and a mutual lack of understanding can lead to highly emotional conflicts.

Obviously there are cultural differences between scientific workers and practitioners, with distinctive personalities and temperaments. One doesn't even have to pit the absent-minded, explorative inhabitant of an ivory tower looking for the ultimate truth against the pragmatic, man of action with rolled up sleeves, in the front row of life. Even the research requirements of standardization and parameterization of treatment modalities are not very compatible with the individual diversity of daily practice life and displays the difficulties, which each party experiences in perceiving and conforming to the definition of a scientifically founded and simultaneously practically manageable therapy standard.

There is no doubt about it, the requirement for clarity and reliability in therapy and the demand for scientifically confirmed information have strongly increased. As a result the sections for comments and responses on the homepage of various associations have become one of the most visited pages.

It is possible that the controversy about the quality of management and reliability in the technical as well as administrative sectors, have also provoked a sensibility in the therapeutic field. Ultimately guidelines are nothing but quality of management and reliability in therapy – as long as one doesn't try to convey the character of a standard operating procedure (SOP) for operating a sterilization unit to the guidelines for patient treatment.

This may possibly be one of the strongest reserves against guidelines: the fear of a theory-burdened, subject extrinsic therapy restriction in favor of strictly assigned action, whose non-observance inevitably leads to liability. Amongst the usual suspects, who promote such concepts are health bureaucracy and scientific organizations, who with their escapist

conceptions and demands use their power to give the individual a hard time.

To this there are two important comments.

- Firstly – as the patient is not a technical machine – in contrast to the sterilization unit – and as a result the medical practice not a repair workshop, patients are not treatable with the aid of standard operation procedures. Guidelines therefore only describe a corridor of measures, whose application is determined by individual requirements in a particular situation.
- Secondly – as we are all intelligent individuals, whose medical action should be accounted for at least to one's 'own certain standard', then it must also be possible to describe this standard. For some this may be statistically supported results in strictly selected cohorts, others may base themselves on the cumulative experience of a long career.

To develop guidelines, both are important and requested. It is presumably a widespread misbelief that only those with greater dedication have academic access to the holy interior of the configuration of guidelines.

Quite the contrary: The process of developing guidelines is one of the most interactive and communicative processes in the health system. Evidence-based guidelines are not decreed, but are rather the result of a systematic consensus from experts in varying fields and work groups, as well as patient representatives and potential users.

Guidelines only make sense if they are implemented and carried out by all those involved. Therefore communication and cooperation is sought from all parties, as there is only one aim to be achieved: to make the treatment of our patients` more comprehensible and assured of success. Here one may allege that research has the same positive interest as all other parties concerned. Trust and faith in other peoples` good will are best gained in a frank dialogue within such a process.

Do we really gain knowledge and safety in the treatment of our patients by applying the concepts of evidence and guidelines?

The systematic review of published research studies is a major method used for evaluating particular treatments. The Cochrane Collaboration is one of the most well known and well respected examples of systematic reviews. A 2007 analysis of 1016 systematic reviews from all 50 Cochrane Collaboration Review Groups found that:

- 44% of the reviews concluded that the intervention was “likely to be beneficial”,
- 7% concluded that the intervention was "likely to be harmful", and
- 49% concluded that evidence "did not support either benefit or harm". 96% recommended further research.

Obviously there is a deficit in evidence and knowledge.

Then we must ask our selves: How to gain more knowledge?

Knowledge is defined by the Oxford English Dictionary as

- (i) expertise, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject,
- (ii) what is known in a particular field or in total; facts and information
or
- (iii) awareness or familiarity gained by experience of a fact or situation.

Philosophical debates in general start with Plato's formulation of knowledge as "justified true belief". There is however no single agreed definition of knowledge presently, nor any prospect of one, and there remain numerous competing theories.

Knowledge acquisition involves complex cognitive processes:
perception, learning, communication, association and reasoning.

The term knowledge is also used to mean the confident understanding of a subject with the ability to use it for a specific purpose if appropriate.

We suppose ourselves to possess unqualified scientific knowledge of a thing, as opposed to knowing it in the accidental way in which the sophist knows, when we think that we know the cause on which the fact depends, as the cause of that fact and of no other, and, further, that the fact could not be other than it is.

Now that scientific knowing must be something of this sort is evident – witness both those who falsely claim it and those who actually possess it, since the former merely imagine themselves to be, while the latter are also actually, in the condition described. Consequently the proper object of unqualified scientific knowledge is something which cannot be other than it is.

In most respects, this is accepted. We can not disregard the importance of objective knowledge.

Where the scientist finds certainty, however, it should be noted very accurately that results in science change as the tools of observation change. The tools of observation, however, are subjective to our own subjectivity.

The importance is that we can't escape our own subjectivity. As existing individuals, who must come to terms with everyday life, overcome its obstacles and setbacks, who must live and die, the single individual has a life that no one else will ever live. In dealing with what life brings his way, the individual must encounter them with all his psycho-physical resources.

In contrast:

Søren Kierkegaard wrote the following cryptic line: "Subjectivity is Truth". What is subjectivity? In very rough terms, subjectivity refers to what is personal to the individual – what makes the individual who he is in distinction from others. It is what is inside – what the individual can see, feel, think, imagine, dream, etc.

It is often opposed to objectivity – that which is outside the individual, which the individual and others around can feel, see, measure, and think about. As scientist we have to keep this important distinction always in our mind to control our subjectivity in the evaluation of objective facts. Evidence and doubt help to rule out subjectivity – based on sufficient

objective knowledge and self-criticism. Wisdom is a program of reasoning and applying intelligence in the complex context of evidence and knowledge.

Wisdom

Wisdom is an ideal that has been celebrated since antiquity as the knowledge needed to live a good life.

What this means exactly depends on the various wisdom schools and traditions claiming to help foster wisdom. In general, these schools have emphasized various combinations of the following:

knowledge, understanding, experience, discretion, and intuitive understanding, along with a capacity to apply these qualities well towards finding solutions to problems.

In many traditions, the terms wisdom and intelligence have somewhat overlapping meanings; in others they are arranged hierarchically, with intelligence being necessary but not sufficient for wisdom;

Platonists endorsed a 'docta ignorantia' in which the greatest wisdom was to recognize one's own ignorance.

So we should be at least critical, if not skeptical also in the evaluation of evident knowledge.

Will doubt help?

Doubt requires more courage than conviction does, and more energy; because conviction is a resting place and doubt is an infinite, passionate exercise.

Doubt is the core principle of scepticism to build knowledge not only on old foundations, but one should look for other fertile land to build knowledge on.

The '*Discourse on the Method*' published by *Rene Descartes* in 1637 is one of the most influential works in the history of modern science. It is a method which gives a solid platform from which all modern natural sciences could evolve. In this work, *Descartes* tackles the problem of skepticism. *Descartes* modified it to account for a truth that he found to be incontrovertible. *Descartes* started his line of reasoning by doubting everything, so as to assess the world from a fresh perspective, clear of any preconceived notions.

Descartes' 'Method of Science' is based on four precepts:

- The first is never to accept anything for true which is not clearly known to be such.
In medical terms: This means to adapt each guideline based on evident knowledge to the individual clinical situation. In extreme: not to apply the guideline!
- The second, to divide each of the difficulties under examination into as many parts as possible, and as might be necessary for its adequate solution.
In medical terms: Critical analysis of all facts and data in relation with the experience-based-evaluation of the clinical findings in an individual patient situation
- The third is to conduct one's thoughts in such order that, by commencing with objects which are the simplest and easiest to know.
In medical terms: To gain knowledge step-by-step – the classical concept of teaching and learning
- The fourth is in every case to make enumerations so complete, and reviews so general, that one might be assured that nothing was omitted.
In medical terms: Good documentation to prove the process of decision-making in a controllable way.

Let me conclude:

A suggestion for those open to critical learning and analysis:

"If a man begins with certainties, he shall end in doubts; but if he will be contingent to begin with doubts, he shall end in certainties." *Francis Bacon, 'The advancement of learning'*

I am sure that we owe almost all our knowledge not to those who have agreed but to those who have differed.

By clear and distinct one should suggest the evidence of the senses.

"Good sense is mankind's most equitably divided endowment. The differences of opinion are not due to difference in intelligence, but merely to the fact that we use different approaches and consider different things. For it is not enough to have a good mind: one must use it well."

This is one possible way to wisdom.

Considering this I believe one can find the key to knowledge at the meeting point of doubt and certainty.

I would like to express my thanks to my parents, my brother, my wife and family.

I want to thank those who accompanied me along my way in my professional career. Special thanks to Prof Steinhäuser, Dr Herold and Brüning, Dr Gottsauner, Prof Hardt, Dr Erbe and Prof Neukam.

Last but not least I want to thank my friends: Beat, Claudia and Rainer, Bernd, Frank, Andi, Frau Schmid, my Dutch and Belgium colleagues from the KLS Martin SORG-group who introduced me to Maastricht.

Thank you all very much!

