## Neuroethics and Stroke

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## What is medicine?

- A long hard grind
- A reliable way to get money and status
- Human biology — A science
- Using science to treat and prevent illness and injury — A branch of engineering

Stephen Pitts, MD, MPH
Emory University, 1998

## Some differences between science and medicine

Stephen Pitts, 1998

- Science
  - General hypotheses about truth in the universe
  - Decisions optional
  - Focus on **experiments**, usually animals or tissues
  - Practiced by pleasant, principled hard-working peopie mostly on weekdays
- Medicine
  - Specific hypotheses about individual patients
  - Decisions required
  - Focus on **systematic reviews** of scientific evidence
  - Practiced day and night by complaining grouches with big mortgages

## Definition of ethics

- **Ethics:** Part of philosophy dealing with morality
- **Moral** is search for an inner standard
- **Kant' s Categorical Imperativ:**
  The individual shall act in a way that this action can be regarded as general law

## Ethics

- Altruism
- Sense of Honour
- Justness
- Respect for others
- Solidarity
- Ability to forgive

## Occidental Ethics

Western ethical thinking, "Christian Ethics"

Founders:
- Socrates, Plato, Aristoteles
  - Greek philosophy: moral virtue
    - values are natural rather than conventional
    - ethics as science
- Saint Augustinus, Thomas Aquinas
  - Incorporation of Greek ethics
  - Attainment of happiness
  - God given natural order
- Immanuel Kant
  - Categorical imperative: the individual shall act in a way that his action can be regarded as general law
- Modern ethics
  - Different schools:
    - Value ethics, existentialistic ethics, American bioethics, Marxian ethics, theological ethics

**Non Western Ethics**
partly religious fixed

- Ethical rules in Buddhism
  end of rebirth cicle, Nirvana
- Ethical rules in Confucianism
  appreciation of well being of the community above the well being of the individual
- Ethical rules in Mosaic religion
- Ethical rules in Islamic religion
- Ethical rules of natural religions
  Massai religion, African religious communities, Schamanism, etc.

## Bioethical principles

Medical conduct, physicians obligations

(Belmont Criteria, 1979)

- Autonomy of the patient
- Beneficience
- Non-maleficiency
- Justice
- Trust

## Patient-Doctor Relationship

- Expectation of personal attention
- Trust
- Individualized treatment
- Best available of best care
- Best benefit to risk/ratio

## Hippocratic oath

Obligation to heal
Not do anything to harm the patient
No continuation of therapy in untreatable disease
No therapy in advanced physical and mental destruction
No continuation of life prolongation for hours or days
No prolongation of suffering during dying
Not to tell anyone the details of patients
No admitting of lethal poison, even as advice

Will to respect the teacher like own parents, sharing one's life support with teacher or successors of the teacher, treated as own brothers
Medical teaching to own sons and the sons of the teacher or to pupils bound on physicians rules and oath

**World Medical Association, Helsinki Declaration, 1964**
**Medical Research Involving Human Subjects**
**Ethical Principles**

- Medical progress is based on research which ultimately must rest in part on experimentation involving human subjects
- In medical research on human subject, considerations related to the well-being of the human subject should take precedence over the interest of science and society
- International Code of Medical Ethics : A physician shall act only in patient interest when providing medical care which might have the effect of weakening the physical and mental condition of the patient
- Ethical Principles to provide guidance for physicians and other participants in medical research involving human subjects
  Including identifiable material or identifiable data

## UNESCO-Declaration on Bioethics and Human Rights

Universal Draft, Paris, 24.6.2005

UNESCO

- SHS: Social and Human Sciences
- BIOETHICS

## UNESCO Bioethics Declaration on Human Rights

Paris, September 2005

Person's identity includes

- biological
- psychological
- social
- cultural and
- spiritual dimensions

## Informed consent in daily practice

... is based on:

- Domestic and international law in accordance with human rights law
- Declaration of Helsinki, 1964 (with amendments)
- Declaration on Bioethics and Human Rights, Paris, 2005

## Informed consent generally

... is necessary for each human being (patient and healthy volunteer):

- any preventive, diagnostic and/or therapeutic medical intervention
- scientific research (basic research, clinical studies) according to
  - ICH-GCP (Good Clinical Practice)
  - GMP (Good manufacturing practice)
  - Clinical trial for new diagnostic and therapeutic methods

## Declaration of Paris, 2005

Article 6a - Consent

Any preventive, diagnostic and therapeutic medical intervention is only to be carried out with the prior, free and informed consent of the person concerned, based on adequate information.

The consent should, where appropriate, be expressed and may be withdrawn by the person concerned at any time and for any reason without disadvantage or prejudice.

## Informed consent

patient able to consent

- Content of written information
  - Aims
  - Expected benefits for the subjects and/or others
  - References treatment/placebo
  - Risks and inconveniences
  - If applicable, an explanation of alternative standard medical therapy
- Consent must be documented by either the subject's dated signature or by the signature of an independent witness
- The signature confirms that the consent is based on information, that has been understood and that the subject has voluntary chosen to participate the treatment program

## Declaration of Paris, 2005

Article 6b – Consent I

clinical trial

Scientific research should only be carried out with the prior, free, express and informed consent of the person concerned. The information should be adequate, provided in a comprehensible form and should include the modalities for withdrawal of consent.

## Declaration of Paris, 2005

Article 6b – Consent II
clinical trial

The consent may be withdrawn by the person concerned at any time and for any reason without any disadvantage or prejudice.

Exceptions to this principle should be made only in accordance with ethical and legal standards, adopted by states, consistent with the principles and provisions set out in this Declaration, in particular in Article 27, and international human rights law.

## Declaration of Paris, 2005

Article 7
Persons **without** the capacity to consent
part I

In accordance with domestic law, special protections is to be given to persons who do not have the capacity to consent:

a) authorization for **research and medical practice** should be obtained in accordance with the best interest of the person concerned and in accordance with domestic law. However, the person concerned should be involved to the greatest extent possible in the decision-making process of consent, as well as that of withdrawing consent.

## Declaration of Paris, 2005

Article 7
Persons **without** the capacity to consent
part II

**b)** **Research** should only be carried out for his or her direct health benefit, subject to the authorization and the protective conditions prescribed by law, and if there is no research alternative of comparable effectiveness with research participants able to consent.

## Declaration of Paris 2005

Article 7
Persons **without** the capacity to consent
part III

**b)** **Research** which does not have potential to direct health benefit should only be undertaken by way of exception, with the utmost restraint, exposing the person only to a minimal risk and minimal burden and, if the research is expected to contribute to the health benefit of other persons in the same category, subject to the conditions prescribed by law and compatible with the protection of the individual's human rights. Refusal of such persons to take part in research should be respected.

## Patients unable to consent

Decision making on behalf of patients

- Presumed consent in emergency situations
- Proxy consent by an authorised person (legal representative)
- Living will
  - Advanced directives
  - Previously expressed wishes

## Patients unable to consent

(temporary – permanently)

Neurology-Psychiatry

Basic legal prerequisite for every medical intervention:
Informed consent – better „valid consent"

## Protection of vulnerable persons

Inability to consent in routine medical practice
(Reduced capacity)
Specific laws, rules and regulations

- Children (parents and guardians as proxy depending on maturity of minors
- Patients with cognitive impairments
- Apallic Syndrome/Vegetative State
- Patients with severe progressive or terminal disease
- Patients in intensive care units

## Patients unable to consent

Different responsibilities

- In clinical practice
  the treating and responsible physician
  - he is often the true protector of the incapacitated patient
- In research
  Conflicting interest of responsible physician in the clinical trial with the treatment obligation
  - Protecting the research subject
  - Advancing medical knowledge

## Informed consent

**patient incapable included in a clinical trial**
**according to Declaration of Paris, 2005**

- If the subject is incapable of giving personal consent (e.g. unconsciousness), the inclusion of such patients may be acceptable if
  - The Independent Ethics Committee (IEC) is in principle in agreement
  - Participation will promote the welfare and interest of the subject
  - If possible, written consent of a legally valid representative
- Consent in a non-therapeutic study the legal representative always has to be informed
- Any information becoming available during the trial which might be of relevance for the subject must be made known to the legal representative

## Rights and responsibilities

**Physician and patient**

- The treating physician has the individual responsibility for his patient. Highest level of his education and training is essential and necessary.
- The treating physician is guided by ethical principles, medical guidelines, declaration, domestic and international law and human rights law.
- "New ethics in medical treatment" are created.
- The personal responsibility of the physician to his patient can't be replaced.
- Patient's right is to accept or to refuse the recommendation of a treatment program.
- Patient's right is to interrupt a running treatment program
- The physician's obligation is to inform the patient about the danger for his health to refuse or to interrupt a treatment program.

## Quality of medical care

Three factors will determine the quality of medical care:

- individual clinical expertise
- Individual clinical experience
- scientific evidence

## Best available medical care & quality of scientific evidence - 1

Providing the best possible medical care of an individual patient depends on the doctor´s

- ability and willingness to
  - integrate individual clinical expertise
  - and the best external evidence
  - (true evidence-based medicine)

## Best available medical care & quality of scientific evidence – 2

**Sound scientific evidence is the basis for modern medicine**

- **prevention**
- **diagnosis**
- **treatment**
- **rehabilitation**
- **but also for <u>regulatory approval</u>**

## Best available medical care & quality of scientific evidence – 3

**<u>Conclusion:</u>**

The practice of contemporary medicine depends **crucially** on the quality of scientific evidence

## Best available medical care & quality of scientific evidence – 4

**<u>Scientific evidence</u>**

- is never static
- is subject to constant change and adjustment (new facts)
- can be flawed in many different ways
- can never be perfect

## Evidenced Based Medicine

- a cultural and methodological approach to clinical practice helping to make decisions based on clinical expertise and an intimate knowledge of the individual patient's situations, beliefs, and priorities
- considered to be the scientifically grounded art of medicine
- it de-emphasizes intuition and unsystematic clinical experience as grounds for medical decision-making

## Evidence Based Medicine Definition I

- Evidence based medicine involves integrating clinical expertise with the best available clinical evidence derived from systematic research.
- Individual clinical expertise is the proficiency and judgment that each clinician acquires through clinical experience and practice.

SE Straus, DL Sackett, 1998

## Evidence Based Medicine Definition II

The practice of EBM is a process of lifelong self directed learning in which caring for patients, creates a need for clinically important information about diagnoses, prognoses, treatment and other healthcare issues.

SE Straus, DL Sackett, 1998

## Evidence Based Medicine
## Definition III

- Best available clinical evidence is clinically relevant research which may be from the basic sciences of medicine, but especially that derived from clinical research
- patient centered
- evaluates the accuracy and precision of diagnostic tests and prognostic markers
- efficacy and safety of therapeutic, rehabilitative, and preventive regimens

SE Straus, DL Sackett, 1998

## Evidence Based Medicine
## Critics I

- Among internal biases, economic-based interest may influence the development and diffusion of research and its results.
- difficulty to convert EBM into clinical practice recommendations - it is nearly impossible to make recommendations that are appropriate in every situation.
- EBM cannot be evaluated as the scientific "totem" of the third millennium, neither as the clinical digest of medical literature.

## Evidence Based Medicine
## Critics II

- Cultural and methodological approach
- Converts the abstract exercise of reading and appraising the literature into a pragmatic process
- Internal biases
  - Economic-based interest
  - Inappropriately applied filters of literature
  - Only based on the positive results of evidence
- Epistemological approach identifies external bias
  - EBM can be changed or removed every time by relevant new or emerging evidence
  - Cannot be evaluated as the scientific "totem" of the third millennium

M Timio et al, 2000

## Evidence Based Medicine
## Critics III

- "Evidence" in EBM must be of high quality in order to be useful but is not always the case
- "Real world" trials often do not give the same results as these highly artificial controlled clinical studies.
- EBM may be unreliable, sometimes giving different results to subsequent large randomized trials
- Bias in the hypotheses tested in large trials usually covered by commercially interested companies
- Process of journal review and publication is capricious, slow, may have a selection bias towards positive studies (communication channels for evidence are often unsatisfactory)
- For many rarer conditions there is no "high level" evidence (pediatrics, sub-specialization surgeon, etc.)

DS Celermajer, 2001

- Usually no trials of old people who are on many pills

S Butterworth, 2004

## Evidence Based Medicine

- Clinicians are looking for new strategies to apply to diagnostic and therapeutic pathways and for the steps where EBM could be addressed when showing the full validity.

M. Timnio, D. Antiseri
Ital. Heart Journal (2000),1; 411-414

## Cochrane Library

- Reviews are more systemic and less biased than systematic reviews published in paper journals
- Cochrane Collaboration has taken steps to improve quality of reviews
- Readers of Cochrane reviews remain cautious, especially regarding conclusions that favour new interventions

**Critics:**

- Neurological diagnoses are based on meta analysis of in homogenous publications (phenomenologically and topically based)
- Experience based medicine gets more and more unessential

## What is the Cochrane library

- Unique source of reliable and up-to-date information on the effects of interventions in health care.
- Health care relies not only on individual medical skills but also on best information
- Best information is compiled using the technique of evidence-based medicine
- The aim of the Cochrane library is to provide EBM information

Cochrane Website, 2004

## Factors influencing European medicine

- Progress in research of biology and genetics
- Progress in basic research
- Progress in clinical medicine
- Increasing influence of ethical rules in clinical research
- Forced use of ICH-GCP in clinical trials
- Scarcity of resources
- Demographic developments
- Political changes in Europe
- Process of globalisation

- Trend to a predominance of Evidence Based Medicine
- Trend to the use of Cochrane library
- Loss of Experienced Based Medicine, loss of Traditional Medicine

## Guidelines - Definition

Statements developed through a specific process that are designed to assist health practitioners and patients in making appropriate health care decisions about a specific condition or treatment. Clinical guidelines are usually developed under the auspices of a medical association or government agency by a panel of experts, and are based on a thorough review of scientific studies on the topic being addressed.

## Guidelines - Criticisms

Practice guidelines are often extremely helpful because they are concise and don't contain extraneous information. However, some criticisms include:

1. Systematic reviews and meta-analyses present all the criteria used in arriving at their conclusion. By definition, any researcher should be able to duplicate findings based on the published criteria and methodology. Clinical guidelines often publish only the findings, and the criteria and methodology are not always available, forcing the user to accept the findings on faith or on the authority of the publishing body.
2. Clinical practice guidelines are often dependent on the politics of organizations involved in the treatment.
3. Because clinical guidelines are not always published as peer-reviewed articles in the medical literature, they are often difficult to locate.

http://healthlinks.washington.edu/howto/ebp/

## Ethical Issues For Stroke Teams Encountered In The Practice Of Stroke Medicine

Louw, S.J. and Keeble, J.A., 2002

- Resource allocation (distributive justice) in relation to all aspects of stroke services vs other services
- Validity of a binding duty to adhere to guidelines and protocols
- Informed consent in relation to interventions lacking sufficient evidence to be classed as ‚standard practice'
- Withholding and withdrawing life-sustaining therapies
- ‚Do not attempt cardio-pulmonary resuscitation' decisions
- Advance directives
- Patients-choice in relation to duration of hospital stay and institutionalization
- Research ethics in Stroke Medicine

## Advanced Directives for withholding and withdrawing life supportive therapy - Basic questions

Louw, S.J. and Keeble, J.A., 2002

i. What is the probability of death during the next month and next year (and what are the confidence intervals around that probability)?
ii. What are the likely causes of death during the first month and subsequently?
iii. If the patient survives, what level of disability and handicap will s/he suffer?
iv. What impact will the intervention (e.g. percutaneous endoscopic gastrostomy (PEG) feeding, antibiotics or IVI fluid therapy) have on survival and/or disability?
v. What is the probability of adverse consequences of using a PEG, antibiotics, or IVI fluids?
vi. If extant, what evidence is there that the Advance Directive is valid and applicable?

## Advanced Directives By Legal Decision Based On Living Will – NHS 1993 (UK)

Louw, S.J. and Keeble, J.A., 2002

i. In the case of an adult patient of full capacity, his refusal to consent to treatment or care must in law be observed.
ii. To this extent an advance indication of the wishes of a patient of full capacity and sound mind is effective, but care must be taken to ensure that anticipatory declarations of wishes still represent the wishes of the patient.
iii. The cessation of invasive ventilation by doctors does not amount in law to the taking of active steps to end life (on the contrary, the continuation of such treatment may be unlawful).
iv. It is necessary to be satisfied that the patient was of full capacity when the advance directive was made.

## Stroke medicine - ethical and legal considerations

Louw, S.J. and Keeble, J.A., 2002

- There is considerable overlap between the philosophy of law and medical ethics.
- Respect for individual human rights/autonomy features strongly in both.
- Stroke medicine poses broad-ranging challenges to ethics and the law.
- As in all aspects of medicine, ethical discourse cannot be had without a sound understanding of the prognosis of each clinical option.

## Determining the patient's wishes in case of interrupted communication for crucial medical intervention (UK)

Louw, S.J. and Keeble, J.A., 2002

i. Was she fearful of becoming totally dependent on others for personal care – and what is the likelihood that she may recover a reasonable level of independence following full rehabilitation?
ii. Was she afraid of being put in a nursing home, dreading the loss of her own home and all its associations – and what is the likelihood of nursing care being the outcome of the present stroke, following rehabilitation?

## Classification of neuro-rehabilitation WHO-Statement

F. Gerstenbrand, 1968

- Actual neuro-rehabilitation (stroke, traumatic brain injury, etc.)
- Temporary neuro-rehabilitation (Parkinson Disease, MS, etc.)
- Palliative neuro-rehabilitation (malignant brain tumor, ALS, etc.)

## NeuroRehabilitation

### Ethical demand

- Actual neuro-rehabilitation for all acute conditions of CNS & PNS, continued as long as improvement can be expected, even for years
- Temporary neuro-rehabilitation, an ethical obligation for patients with chronic conditions
- Palliative neuro-rehabilitation as a possibility according to clinical course and patient's condition
- Transfer of neuro-rehabilitation program to long term nursing home care according to prognostic values
- Obligation for amelioration of quality of life

## Palliative Care In Stroke (UK)

### National Clinical Guidelines for Stroke prepared by the Intercollegiate Stroke Working Party, 2004

Stroke may cause a range of distressing symptoms that need to be managed, once it is felt that death is inevitable. These may include pain, depression, confusion and agitation, and problems with nutrition and hydration.

*Recommendations*

a All staff providing palliative care for patients after stroke should be trained in the principles and practice of palliative care

b All stroke patients should have access to specialist palliative care expertise when needed

c End of life decisions to withhold or withdraw life-prolonging treatments (including artificial nutrition and hydration) should be in the best interests of the patient

**Decisions to make during the treatment of patients with severe stroke**

- Decide, whether an active rehabilitation program has to be continued in a special center, or the patient can be transferred to a nursing home with long term activating program
- Decide, whether to minimize special medical treatment
- Renunciation of MAXIMALTHERAPIE and continuation in nursing care

„End of life decision" realization in Austria and in some other European countries not possible, equal to active euthanasia, regulated by criminal law.

**End of life decision in patients with severe stroke**
**Willful neglect of medical care**

- Withdrawal of artificial nutrition and hydration (ANH)
- Ongoing
  - of all nursing care
  - application of analgetics
- Regulated in the most European countries as active euthanasia by criminal law

**Active, assisted, passive euthanasia**
**Forced euthanasia**
**(Zwangseuthanasie)**

- Regulated by criminal law in civilized countries
- Euthanasia in each form bioethically not acceptable
- Euthanasia not conform to Helsinki Declaration (1964), Declaration of Paris (2005)
- Principally incompatible with the Hippocratic Oath

Active euthanasia = homicide
§ 75 StGB (Austrian crime law)

assisted suicide, kill on request:
§ 77 und 78 StGB

renunciation of maximal therapy:
a medico-legal decision

**Regulations for stroke-patients with severe defects,**
**without prospect of further remission**

- Transfer in special nursing home only after medical solutions (council)
- Continuation of basic medication
- Continuation of nursing care
- Long term activating program
- Withholding of maximal therapy in case of complications possible

**Decision whether to withhold „maximal therapy"**

- Decision is made by treating physician considering certain facts:
  - Objective criteria: diagnosis and prognosis
  - Living will of the patient
  - How the patient himself would decide in this situation
  - Solicitor and family

## Different issues of neuro-sciences

Clinical neurology – lesions in CNS & PNS

- Acute neurology, diagnosis and treatment
- Neuro-rehabilitation: → re-socialization
- Neurological care in „End-of-treatment"-state, transfer to an institution for amelioration of quality of life, long-term care

Basic research in neurology

## Human research and subject protection (NIH, FDA)

basic rules

- Informed consent to the patient
- Education and training of investigator
- Appropriate training for investigator in bioethics and other issues related to research involving human subject
- Improved monitoring
- Conflicts of interests
- Civil monetary penalty for violation of research (investigator, research institute)

## Clinical Trials Proband-Initiated Proposal 1

Worrall, B.B. et al, 2001

1. Treating physician identifies potential proband
2. Treating physician discusses with the potential proband the possibility of participation in a research protocol and refers interested potential proband to an investigator.
3. Investigator approaches potential proband about participation in a pedigree research project.
4. Investigator determines if the proband has any living relatives with or without a shares phenotype, but the investigator does **not** obtain personal identifiers or any relative.
5. Proband provides written informed consent to personally participate in the protocol and to participate in contacting family members.

American Stroke Association
A Division of American Heart Association

## Clinical Trials Proband-Initiated Proposal – 2

Worrall, B.B, et al, 2001

6. Investigator provides the proband (or the proband's designate) with invitation letters and reply cards to be sent to all approachable family members.
7. The proband (or the proband's designate) forwards the invitation letters and reply cards to all approachable family members.
8. Interested family members indicate their willingness to participate by returning the reply card to an investigator.
9. Investigator contacts interested family members after receipts of the reply cards.
10. Interested family members provide written informed consent to participate in the protocol.

American Stroke Association
A Division of American Heart Association

## Clinical Trials in Medicine Basic Principles

- Patient changes to an examination object
- Physician changes to investigator

- Protocol of the trial, prepared in an exact form
- Protocol submission to the Independent Ethics Committee (IEC)
- Sponsor: industry, academic
- Investigator with exact training

- Procedure according to the principles of ICH – GCP
- Exact monitoring during the trial
- Audits and inspections procedure
- Strict anonymity of the trial results
- Careful archive of the results

## Principles of ICH-GCP for Clinical Trials

- In accordance with ethical principles
- Only if benefits justify the risks
- Rights, safety and well-being of trial subjects are most important
- Supported by adequate non-clinical and clinical information
- Scientifically sound with clear detailed protocol
- Compliance with protocol and after approval by ethics committee
- Physician responsible for medical care of subjects and medical decisions

## Good clinical practice (GCP)
**for trials on medical products**
International Conference on Harmonization (ICH-GCP)

- Protection of trial subject
  - Ethics Committee
  - Informed consent (voluntary, detailed information)
  - Insurance
- Responsibility of the
  - Sponsor
  - Investigator
  - Monitor
- Data handling
  - Investigator
  - Sponsor/monitor
    Safety reporting of serious adverse events (SAE)
  - Archive of data
- Statistics (experimental design, randominisation, statistical analyse)
- Quality assurance

## Bad Clinical Practice (1)

- Malevolence
  Sabotage of research, theft of data
- Fraud
  „Improvement" of data/results
  „Arbitrary" correction to meet inclusion criteria
  Totally or partially fabricated cases
- Violation of ethical principles
  Inadequate consequence
  Selection of subjects (inadequate exclusion of „high risk group")
  Dangerous or disturbing invasive procedures
  Distress by contact of study
  Dangerous treatment (inadequate safety information, withdrawal of the proved substance)
  Insufficient confidentiality
  Low insurance coverage

## Bad Clinical Practice (2)

- Protocol violations
  Insufficient knowledge/understanding
  Omissions (tests left out)
  Errors involving
    patient selection
    evaluation
    dates
    treatment (dose, concomitant medication, allocation)
    blindness
- Erroneous Values
  Work overload
  negligence
  incompetence

## Future outlook for clinical trials

- ICH-GCP provides widely accepted and scientific standard for clinical trials
  ICH-GCP guidelines facilitates acceptance of foreign data
- Sponsors will increase their research activities outside of high-industrialized countries (USA, EU, etc.)
- Compliance with GCP, protocol and regulatory requirements
  Assurance that the results are credible and accurate
  Rights and integrity of trial subjects are protected
  More efficient clinical development
  Reduced number of necessary trials
  Facilitates use of global dossier for regulatory submissions in EU, USA, Japan, etc.

## Summarizing I

- Every human being has the right to live (Paris Declaration, 2005).
- Every human being has the right to most modern medical treatment and best nursing care (Paris Declaration, 2005).
- A patient with stroke has to be cared for according to the base right, basic human rights and the medical principles.

## Summarizing II

- Economic consideration are not acceptable in treatment and life decision (Hippocratic principles and Universal Declaration on Human Rights (December 10th, 1948 ).
- According to Hippocratic principles patients with stroke have to be treated in dignity but not to be "over-treated" by all modern possibilities.
- In severe defect states of stroke-patients without hope of any improvement in upcoming severe complications maximal therapy can be renunciated.

## Summarizing III

- The renunciation of maximal therapy is acceptable according the Hippocratic principles.
- According to medical rules a decision for end of life also by legal institutions (Supreme court, etc.) is not acceptable in Austria.
- Such decision can not to be realized by a physician, even though legal (danger to be accused for active euthanasia).

When medical uncertainty leads to moral uncertainty, it seems preferable, albeit harder, to confront the dual ambiguities than to bury them under either statistical criteria or unrelenting moral certitude.

Rhoden NK, 1994

Wenn medizinische Unsicherheit zu moralischer Unsicherheit führt, ist es vorzuziehen, obgleich schwerer, die Widersprüche gegenüberzustellen als sie entweder unter statistischen Kriterien oder einer unverminderten moralischen Gewissheit zu verbergen.

Rhoden NK, 1994