SGBE-Seminar, Bigorio, 19.-21.1.2023

The Challenge of Health Care Professionals' Ethos by Personalised Medicine, Telemedicine, Artifical Intelligence and Robotics

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Medicine quo vadis?

Rapid technological developments in the past decades:

Personalised medicine:

Diagnosis and treatment tailored to individual patients; some genetic and malignant diseases; extremely expensive.

Adaptation of drug dosage stratified to patients genetic makeup; broadly feasible in principle; still much underused.

Prediction, prevention and treatment of common chronic diseases: feasability and utility still in doubt.

Telemedicine:

Treating physician – expert: highly useful

Patient – Health Care Professional: efficiency and utility still debated.

Artificial intelligence:

Information retrieval, image analysis, diagnostic and treatment algorithms

Bias against minority groups!

Robotics:

Operative procedures, benefits still debated

Robots with AI

in patient care, psychotherapy

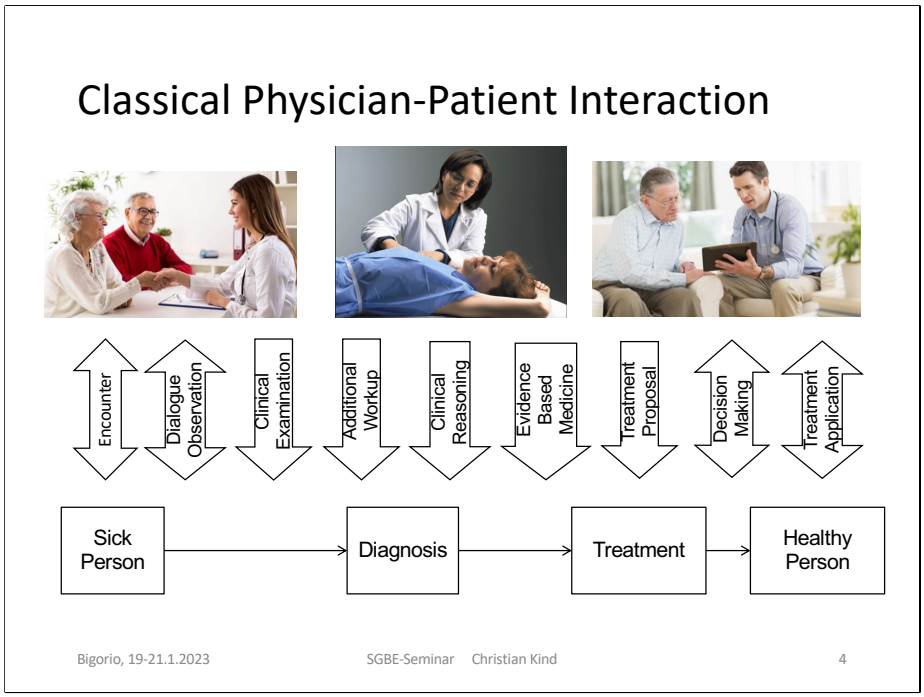
In diagnostic and treatment decisions?

Rapid Technological Progress

What can we gain?

- More effective diagnosis and treatment for some specific disorders
- More effective diagnosis and treatment for common diseases?
- More effective prevention??
- Economic growth!!

What could we lose?



Schematic depiction of the classical physician-patient relationship.

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Two kinds of arrows:

4 Bidirectional between patient and physician

5 Unidirectional from physician to patient

Two Kinds of Interaction

I - It
- Medical expert → patient
- Asymmetry, power imbalance
- Health care professional as medical expert
- Can provoke fear in the patient

I - You
- Human person ↔ human person
- Eye-level encounter
- Health care professional as a helper
- Should establish trust in the patient

According to the philosopher Martin Buber we can call them…..
…….
My thesis is, that technological development risks to near eliminate I-You interactions in much of medicine.

In the following I propose reasons why this must not happen.

Trust is an essential component of effective health-promoting interactions. It assures patient comfort, honesty and openness, as well as treatment adherence.

Trust is easily gained in a good I-You relationship. But much more difficult towards an intransparent expert system.

Trustworthiness

Trust needs trustworthiness.

This implies

- Competence
- Empathy
- Ethos

Medical Competence

Knowledge

Capabilities:

- Observation, Analysis, Reasoning
- Listening, Understanding, Communicating

Skills

Experience

Knowledge can be enhanced by AI information retrieval and analysis.
Also observation, analysis and reasoning
However results of AI can be biased and reasoning is completely opaque.

Listening, understanding and communication by chat algorithms: real or deception?

Skills of robots can be better than human in standardized inerventions.
Ractions to unexpected events??

Experience further explored in following slides

Personal Experience

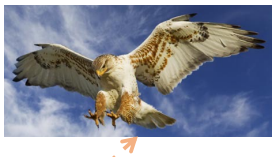
Clinical experience	Clinical intuition
Bodily and emotional experience	Empathy
Life experience	Compassion Love

During life HCPs have gathered personal experience on different levels.
I will first concentrate on clinical experience.
From the experience of multiple clinical situations HCP acquire the capability to intuitively grasp the significance of a clinical encounter and its possible implications.

Two Ways to Experience and Engage Reality

Analytic	Systemic
Isolation of subsystems	Perceiving the whole in context
Analytical reduction	Observation over time
Search of single causes	Dealing with complex systems
Chains and cascades of effects	Circular and network interactions
Targeted interventions from the outside	Interior transformation
Abstract, logical thinking	Insight, intuition
«Left hemisphere»	«Right hemisphere»

In Birds



Sweeping attention
Left eye
Right hemisphere

Focused attention
Right eye
Left hemisphere

In birds task division between hemispheres is strong, coupled to eyes on the sides of head.

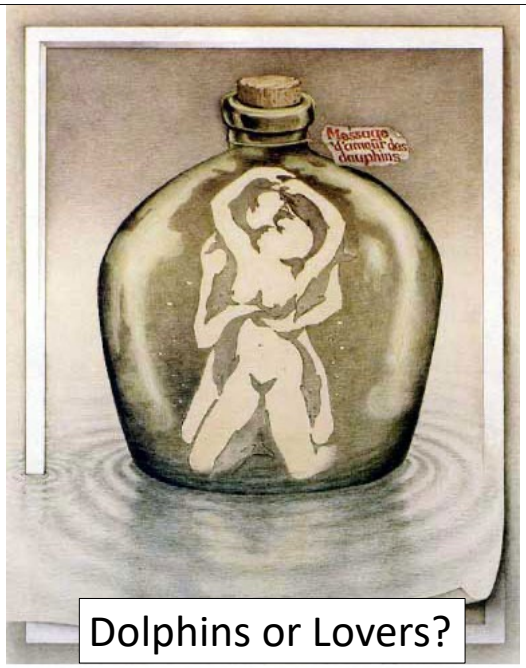
….

Clinical excellence needs both ways

Capability to change focus and integrate both pictures

Examination of details	Perception of surroundings and context
In depth analysis	Understanding the situation as a whole
Focused attention on problem at hand	Sweeping attention for the unexpected
Danger of missing important clues	Danger of premature conclusions

In contrast to birds mammals have high interhemispheric connectivity through the corpus callosum. This allows humans to integrate both ways of perceiving reality.
Will AI ever be capable of this kind of integration of logical reasoning and intuition?



Dolphins or Lovers?

Liebesbotschaft der Delphine, Copyright by Sandro Del-Prete

The fact that HCP have a human body themselves allows them to empathize with a patients symptoms. They know how it feels when some part of the body hurts. Especially for paediatricians bodily empathy can also be used diagnostically: it is possible to derive nonverbal clues by imagining to mirror the patients clinical signs.
Empathy is also needed to read the patients emotions, which have siginificant influence on the way how they present their symptoms and on their attitude towards treatment.

Emotions, Rationality and Reason

For reasonable decisions, emotions must not impair rationality, nor rationality neglect emotions.

"When emotion is entirely left out of the reasoning picture, as happens in certain neurological conditions, reason turns out to be even more flawed than when emotion plays bad tricks on our decisions."

A. Damasio (2006/1994) Descartes' error: emotion, reason and the human brain

Modern rationalistic thought sees emotions mainly as impediments for rational evaluation and decision making. But this is not reasonable, because for human beings emotions are at least as important as rationality.

Damasio

In dificult medicoethical situations most HCPs have initially highly emotional opinions about the right decision. This must not impair a rational analysis of the situation. But a decision can only be satisfactory if it is rationally sound and emotionally acceptable to the persons involved.

Empathy

Empathy is crucial for the perception of emotions in other persons → Guidance for social behaviour.

Young infants have already an empathic relationship with their parents and read their emotions.
This probably plays a role when the infant learns the emotional evaluation of ist own bodily sensations (eg pain).

Empathy as an evolutinary and ontogenetical basis for morality?

F. de Waal, The age of empathy (2009)

Young infants display intense grimacing while their bowels move. The facial expression does not indicate any specific emotion. The emotional reaction of parents to these unspecific facial distortions varies widely, from anxiety over compassion to amusement. Later, when infants are vaccinated their pain reaction is highly correlated to the emotional attitude of the accompanying parent.

Emotions and Empathy in the Health Care Relationship

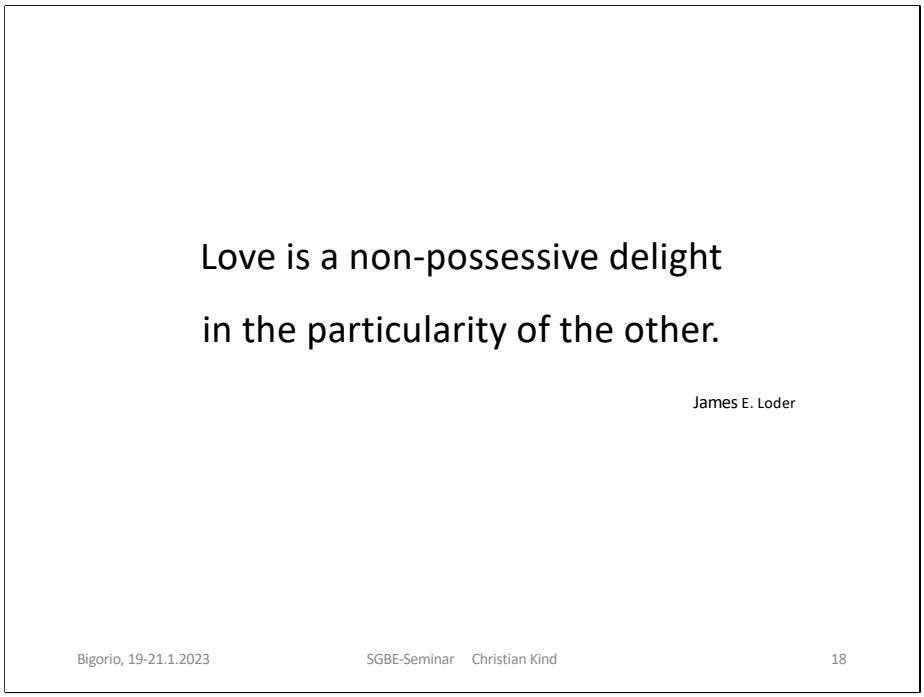
Empathic consideration of the patients emotional state is decisive to gain their trust.

Critical reflection of the health care professionals own emotions is necessary for ethically justifiable decisions.

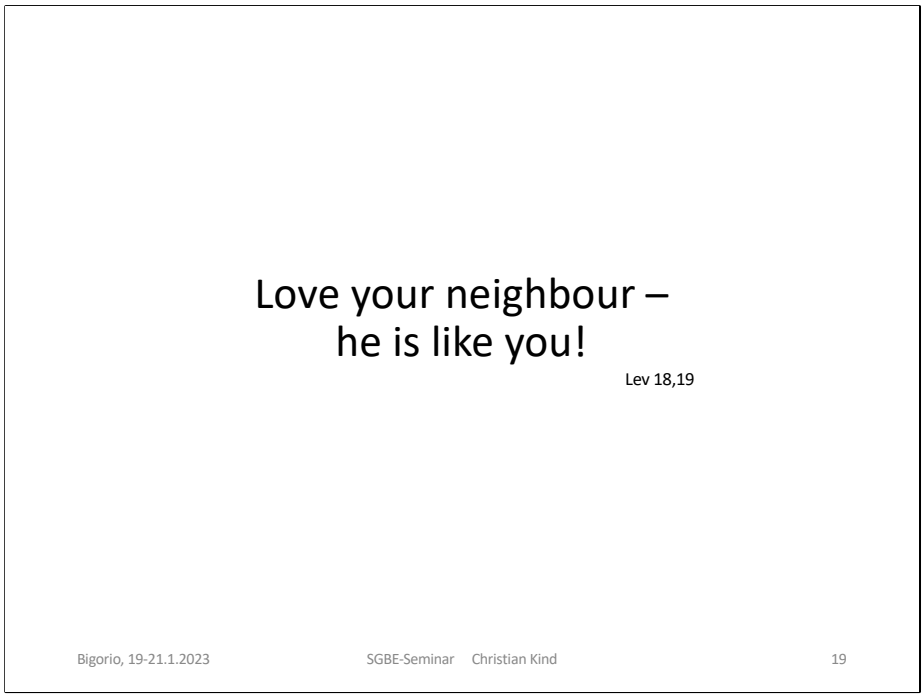
Personal Experience

Clinical experience	Clinical intuition
Bodily and emotional experience	Physiological empathy
Life experience	Compassion Love

HCP have also their own life history. Most of them know how significant life events can impact on a persons experience and behaviour. I have observed many times how young paediatricians changed their attitude towards the parents of their patients after the birth of their own children.
Personal experience can be an important motive to experience compassion or even love towards ones patients.
Love is a much misused word, so I will give you a definition, which expresses my interpretation of the concept quite well.



This citation from an american theologian was shared with me recently by a friend. It is admittedly a quite idealistic concept of love. In reality love is rather more often than not associated with possessiveness and pain. But the pain of love is usually caused by possessiveness.
Non-possessive love, however, is a powerful way to gain trust. From my professional experience I know that children and mothers trust you most willingly, when they feel that you love them. Of course professional competence and morally sound ethos are the other two factors that should assure the durability of trust.
The other thing I like in this defintion of love is, that it does not imply an idealized image of its object, but the real individual person with all their virtues and flaws.
In most spiritual traditions this kind of attitude towards other humans, other living beings and nature as a whole is highly praised.



It appears already in the more than two and a half thousand years old texts of the jewish Torah. Strangely it is placed in the midst of a list of horribly archaic commandements.

I have chosen an alternative translation of the better known version: «Love your neighbour as yourself», because it illustrates the possible justification of this commandement. The Torah justifies several commandements to treat foreigners and slaves with compassion by reminding the Isrealites that they have themselves been foreigners and slaves in Egypt.

The study of social animals has shown that reproductive success of their communities depends on a high degree of cooperation, which often implies a cost to the self-interest of the individual. To assure such cooperativeness, behaviours for reward and conflict resolution have developed. In social primates this is grooming, the picking of scabs and parasites from the back of others. In our closest relatives, the bonobos in addition sexual behaviours play a great role.

The human species owes its overwhelming reproductive success not only to the intelligence, creativeness and competitiveness of its individual members but at least to the same extent to their hypercooperative behaviour aka love.

This love originally was restricted to the individuals‘ own group. I assume that increased contact and commercial relationships on the one hand and the development of philosophical thought on the other, led people to the insight that members of other social groups were basically humans like themselves and merited the same benevolent approach. I think the same motivation is still the basis of compassionate behaviour of most HCPs.

I have pains to imagine that robots even with extremely advanced AI will be able to mimick this kind of love.

Ethos of Health Care Professionals

Placing the patients interests before self-interest
Respecting the patients autonomy
Integrity
Impartiality
Honesty
Openness
Diligence
Reliablility
Confidentiality

Besides competence and empathy, a morally sound ethos is the third ingredient that makes a trustworthy HCP.
I give you here an arbitrary list of principles and virtues belonging to my concept of the ethos of HCPs. For the first three I will give more detail in the next slide.

Impartiality is especially important to gain the trust of patients from vulnerable groups by making them feel treated like everybody else.

Lack of any of the other virtues like ……. is detrimental to a trustful relationship.

Patients Welfare, Patients Desire, and the Integrity of Health Care Professionals

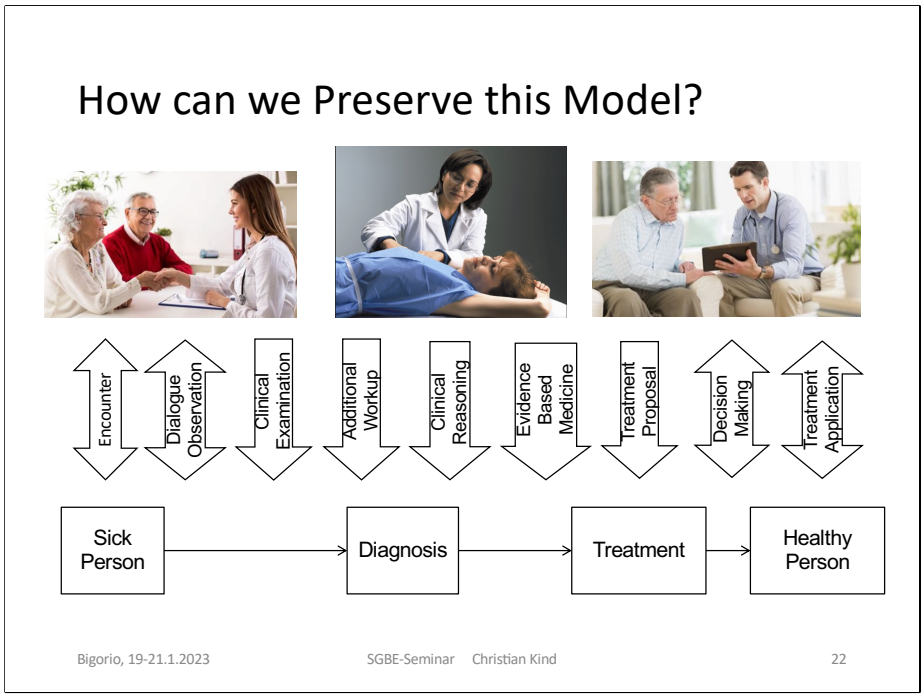
In order to be trustworthy health care professionals must convince patients by their acts, that they

- promote the patients welfare, unencumbered by their own self-interest.
- respect the will of the competent patient.
- do not compromise their own moral integrity.

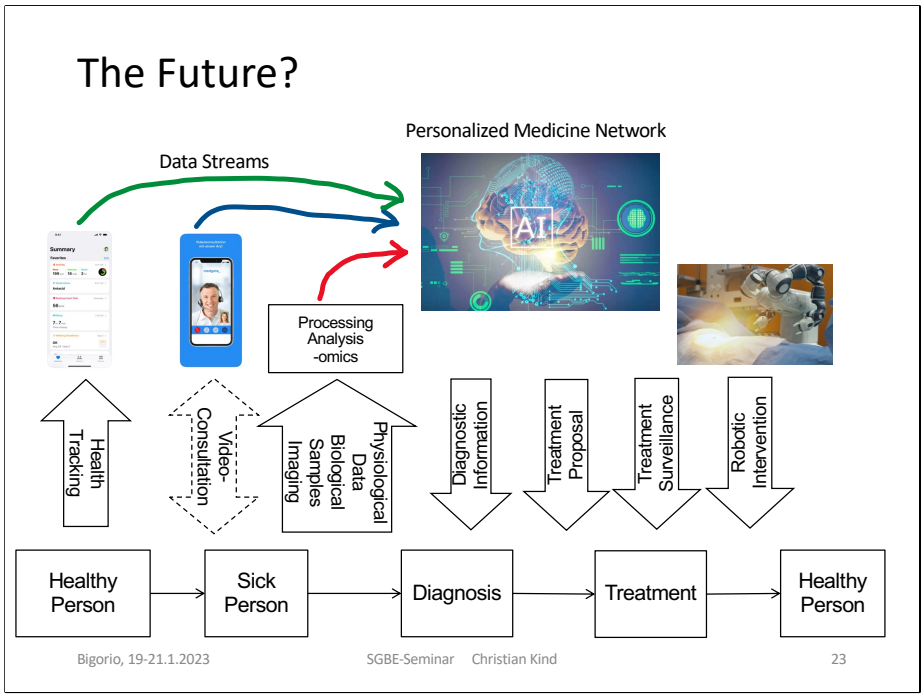
This three principles can often be in conflict among each other.
Of course HCPs also pursue their own interest with their practice. But this must never be to the detriment of the patients welfare. This also applies to the interests of third parties (eg state or commercial interests)

They must never treat a competent patient against their will, even if authorities demand it.
The treatment of incompetent patients is outside the scope of my talk.

Moral integrity and with this also trust can be damaged by performing medical interventions according to a competent patients wish, despite the conviction of the HCP that they are either detrimental to the patients welfare or morally unacceptable.

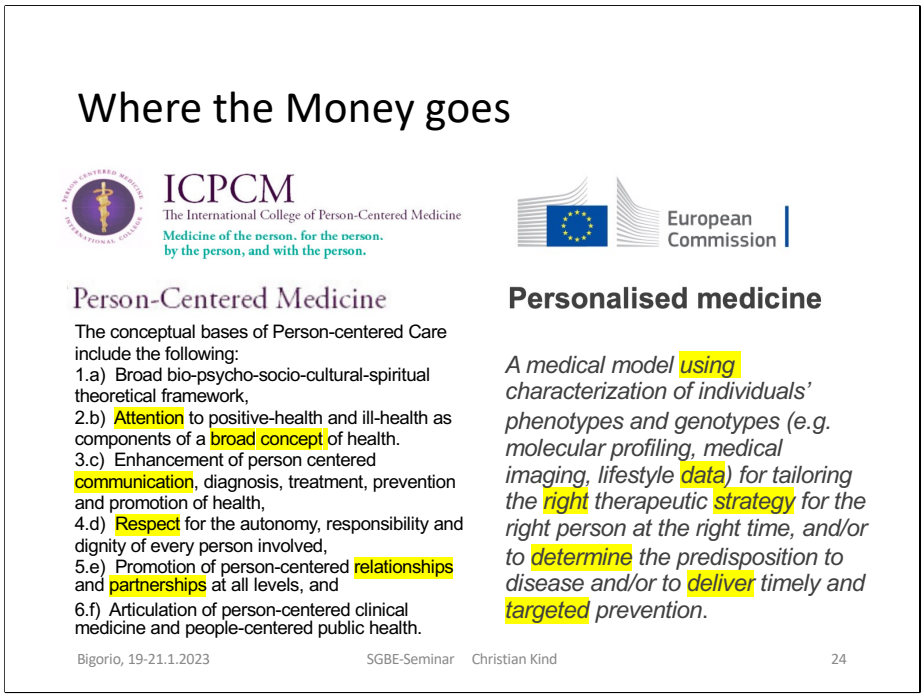


I have tried to demnostrate the virtues of this time honored model for interactions in medicine.
I am convinced that the qualities of this model of health care are so important that we should defend it resolutely against its replacement by what I want to show you on the next slide.



I have conjectured a model of health care where all the new technological possibilities (real or promised) are utilised to the max.
……
In this model the only bidirectional arrow is a video-consultation, not a real life encounter.

I doubt that this is what the majority of present and future patients would wish.
But how can we avoid it?



At present there is a large competition among countries to rapidely develop personalised medicine and related technologies. Huge amounts of money and workforce are poured into this.

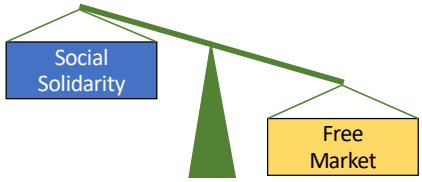
Activities to promote the alternative model can be found under the label person-centered medicine. In Switzerland there exists also an «Akademie für Menschenmedizin». But these organisations are neither well-known nor powerful.

If you compare the words used in the two statements, you see on the right side the language of technology and on the left of human relationships.

I think a well functioning health care system needs both.

Can we Correct the Imbalance?

Helper in existential distress	Two classical Roles of Health Care Providers	Service provider promoting health
Empathy		Medical competence
Free availability		Economic efficiency
Welfare		Respect for autonomy
Orientation towards the disadvantaged		Orientation towards the privileged
Care		Profit



HCPs have since antiquity operated according to two different roles.

……

The two roles mirror two different models for society: the welfare and the free market model.

At the beginning of my professional career I had the impression the two models were more or less well balanced in western Europe.

However, since then I see a rapidely increasing imbalance towards the right side fostered by neoliberalism, big tech and big pharma.

I hope it is still time to strengthen a corrective movement towards person-centered medicine and social solidarity.