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Guide to the Economy and Organisation of the Healthcare System

(Healthcare as a System)

1. Introduction.
2. Systems and models.
3. The costs and economics of the systems.
4. The *"System per se"*. The human being as a system. Healthcare as a system.
5. Conclusion.

Dear colleagues and friends,

In my lecture today I don't want to speak at length about the historical development of the social and healthcare systems, but rather I want to tell you about the **current situation** in various countries. We may or may not like these systems, we can more or less accept them – we will talk about them again later on – but we all need to know something about them, in order to better understand the state of the patients and medical practitioners. Also within the context of the Medicine of the Person, this can lead to a better understanding.

Ultimately, we are all citizens of Europe, whether in the official EU or from another country. Hence, it is desirable to become more familiar with the requirements in the individual countries.

Incidentally, I don't much like the word ***"lecture"***. Every time I do a ***"presentation"*** (mostly at my university in Prague), I prefer to talk, explain, comment on the slides and their keywords, catchwords and titles, start up a discussion, stimulate interest and pose questions.

However, as we among ourselves are accustomed to following our lectures word for word and archiving them, in order to be able to reflect upon them once more later on, today I want also to respect this unwritten rule and adhere to our custom. Incidentally, as the Latin proverb says: ***"Litera scripta manet"*** *("That which is written remains").* But for our English-speaking friends, I have prepared a slideshow, allowing them to follow everything and to reflect upon it directly.

1. Introduction.

I am not quite certain, whether the roots of today's current systems in health and social services can be traced back to our Christian history, although I would be delighted to say this. Surely, it was Jesus' disciples, who – following in their Master's footsteps – asked themselves the question: ***"Who is actually my neighbour?"*** (see Luke 10: 29-37), and later on, in the spirit of the Good Samaritan they looked after their *"neighbours".* Indeed, they have (until the present

day) cared for sick strangers, lepers, the poor, orphans and widows, but beyond their charitable works they have scarcely founded a universal systém (see, for example, Albert Schweitzer, Mother Theresa, and so on).

Our famous president and author Václav Havel described his no longer quite sober hero in the brewery saying: ***"These are paradoxes indeed"***, and in certain circumstances we Czechs gladly repeat this familiar turn of phrase.

If we want to discuss modern healthcare systems, we must cast our minds back about 130 years, to the period of 1881-1889. In those blessed times of the Industrial Revolution, though also at intervals of all kinds of wars in all the continents, there lived in Prussia the ***"Iron Chancellor"*** **Otto von Bismarck** (1815–1898). The nickname *"Iron Chancellor"* is more than appropriate – he was no philanthropist (friend of humankind), but rather a military leader, the great unifier of Germany – not with a dove of peace or laurel wreath, but with sword and canons, with *"iron and blood".* And it was this very fighter that came up with the idea of insurance in case of illness, old age and accident (social security system): ***"These are paradoxes indeed."***

We may search for his reasons (and many of us have already done this) or simply speculate; but we are surely not far from the truth, if we assume that one of the leading reasons was the need for backing. In the unsettled times of war, the shrewd military general and domestic politician wants and needs moral support. For example, for the wars with Denmark (1864), Austria (concerning leadership in the *"German Union"* in the year 1866, at the Battle of Königgrätz), or against France (the Battle at Sedan, 1870). Approximately in this way – and of course I am simplifying – a system came into being, which has not only survived till the present day in many civilised countries, but represents a very good and sustainable option, for providing well for the sick, the weak, and the poor.

2. The Systems and Models.

Let us now come to an overview of the current systems and to their core values and leitmotifs. We can count three and possibly up to five such systems in all kinds of variations:

a) **Medical insurance**
b) **National health service**
c) **Semaschko model**
d) **Market-driven healthcare systems**
e) **Variations of these Models**

a) Medical insurance – has become particularly widespread in central and southern Europe (thanks of course to the ***"Iron Chancellor"***). In the former EU-15, seven countries offered this system. We must also add Switzerland to this number. This system is a bit more expensive than for example the *"NHS"* in England, because the internal running costs of the health insurance funds swallow up 3-5% of their revenues. At the top are of course (as always) the numerous rich health insurance funds in Switzerland, which completely swallow a whole 13.7% (2006) of the premiums taken. By contrast, the Czech *"General Health Insurance fund"* uses about 3% and we all speak of its fraudulent behaviour. So the Czech Republic went back to its system before the war. Most of the so-called *"new countries"* of the EU have also done something similar. It may surprise some of us a bit that even in Asia, especially in the Far East (South Korea, Taiwan, and so on, butt also China) these systems prove very popular.

b) National Health Service: We find its origins in Great Britain between the two world wars. We may name the well known English economist Sir **William Beveridge** (1879–1963) as its founder, one of the founders of the British welfare state. In his reforms, he pledged himself to various contemporary liberal thinkers.

In the field of healthcare, he also worked with, among other things, the Czechoslovakian model from the time between the two world wars. In the year 1942, through his report *"Social Insurance and Allied Services",* he opened the door – in the middle of the War – for British reform. This is better known as ***"The Beveridge Report"***. In this way, English social reform could begin in 1948. Shortly thereafter, the Scandinavian states also joined the loyal allies along with Portugal on the Pyrenean peninsula. In total there were eight countries in the EU-15.
The state generally takes over the organisation and costs via the allocation of taxes for the healthcare system. The system works pretty well and the British are proud of it. The internal costs are easily regulated and are somewhat less than in the case of insurance. What causes concern, however, is the infamous waiting lists and health-tourism on the continent.

c) **Nikolai Alexejevitsch Semaschko** (1874-1949) was Lenin's close colleague and **People's Commissar for Public Health** in the Soviet Union. As a doctor – and in his youth before the October Revolution as a convinced Russian social democrat – he applied himself also to the social hygiene of backward Russia. In this neglected land, he was able to somewhat improve the people's condition of hygiene.
However, after the Second World War, what represented a step forward for Russia became a plague and the decline for the other more developed European *"Eastern Bloc Countries"*, for and upon whom the Soviet Union had - so-to-speak as an inappropriate drug - *"prescribed"* and forced this system.
The Semaschko-Model is often described as an extreme form of Beveridge's System – that is to say, strict state supervision, a central strategy and control (principally political rather than professional), no freedom for patients and doctors, a strong hierarchy and only those resources released by the state as tax components (as a rule, only left-overs and a few crumbs remaining after investments in heavy industry and armament). A typical *"deprivation model"*, which failed miserably. The afore-mentioned countries were only able to leave this model behind after the collapse of the Eastern Bloc; the bitter consequences still pursue them to the present day.

d) **Market-driven healthcare systems** – here we must look across the Atlantic to the United States, where this model is dominant (*Is it actually a system?* – we will see in what follows). Health and social care represent in the market economy – as any other business – nothing more than an ordinary *"commodity"* and a commonplace business.
The United States are a country of pioneers, people who were encouraged since their youth towards independence, where individualism and behavioral philosophy (thinking geared towards human-behaviour) are celebrated. Although there is an insurance option, this seems unreachable for most strata of society, being too expensive. Hence nearly 80 million of an approximate total of 300 million citizens remain uninsured. And most of those who are insured are frequently insufficiently insured and not covered for all areas.
Many finance groups and commercial insurance institutions are very actively involved in healthcare, building entire chains, and directing medical care almost exclusively towards their own infirmaries and physicians, so-called ***"managed care".*** The profits are legendary.
For us *"socially orientated"* Europeans, it is scarcely comprehensible as to why Obama's reform faces such monstrous opposition. I have no more rational explanation than this: that many local groupings are afraid that this golden era of big and comfortable profits might come to an end...
Seeing as local costs in healthcare already exceed 17% of the gross national product (compared with about 10% in the EU) and are soon even expected to reach 20%(!), this model counts as the most expensive in the world.
For this reason, Canada has left its mighty neighbour behind and recently has turned back towards Europe with its reform. The Latin states by contrast model themselves in this field on the United States and strive to imitate them. Unfortunately, however, they do not have as many resources available to implement this model as the USA. For this

reason, they have remained far more backward. Their healthcare reminds us more of developing countries.
They have probably not had the blessing of a classics education, otherwise they would know: **"Quod licet Jovi, non licet bovi"** (*"The gods may do what cattle may not."*) …

e) Variations of these Models – Of course, in every country we may find all kinds of deviations, specialties, transitional systems, specific details and other variants. These more or less approximate one or more of the abovementioned systems.

3. The costs and economy of the systems.

The question is: How expensive are these systems? How much do they cost? Are they economical, thrifty, and at the same time also efficient? Are they comparable? Various figures, indices and ratios serve economists in this field. These are as important for them as body temperature, blood pressure, biochemistry or the blood count for doctors. Through these, they establish whether the system (= our patient) is healthy or sick.

In general, how much is spent on healthcare in this or that country is considered important. It is measured and tested in various ways, though the most important figures – as already mentioned in the case of the USA – are the expenditures from the gross national product (as a percentage).

With a wide margin, we see the United States at the top with their market-driven model. These days (2011), their expenditures (costs) swallow up a whole **17.7 % of the gross national product !**

The socially orientated, austere Western Europeans have considerably smaller figures: Holland – 11.9%, France – 11.6%, Germany – 11.3%, Switzerland – 11%, Austria – 10.8%, Great Britain – 9.4%. The expenditures of the *"new countries"* are even more modest: Czech Republic – 7.5%, Slovakia – 7.9%, Hungary – 7.9%, Poland – 6.9%. This so-called **"Visegrád 4 Group"** (*"V-4"*) represents the midpoint between the richest and poorest Europeans. The Balkan states can only allow themselves approximately 5%, and the further East, the worse it gets.

In our media, we now hear quite often about the *"Visegrád Countries"*. For your information, this initiative is nothing new; quite the reverse - she is already an 'old lady', born in 1335. At that time, three kings met together about 30 kilometres north of the Hungarian town of Buda (now Budapest) on the *"high castle"* above the Danube, named *"Visegrád"*. This is a slavic word and means essentially *"a high castle"*. Incidentally, Prague also has its *"high castle"* (in Czech: *"Vyšehrad"*) on the rock above the River Moldova, where the history of Prague once began.

Now, the three kings – the Czech *John of Luxemburg*, the Polish *Casimir III the Great* and the Hungarian *Charles Robert* – allied themselves at this time against the greedy hawk-like Hapsburg, originally from Aarau (rather like the *"confederates"* William Tell…). Hence, a negative alliance, against someone.

Much later, in the year 1991, after the collapse of the Soviet *"Eastern Bloc"* the new freely chosen presidents of the newly democratic countries were able to meet, very symbolically. These were the Czech *Václav Havel*, the Hungarian *József Antal* and the Polish *Lech Walesa*. This time however it was a thoroughly positive alliance. The slogan was: *"Together into Europe!"*

And another couple of figures:

In absolute values, we can observe more of the differences between the individual states. In order to be able to compare the various national price levels, we use so-called *"Purchase Power Parity"*, known as the *"PPP index"*. This figure indicates within healthcare a country's consumption of money in one year per person (normally shown in US dollars).

Whereas the USA, in the *"PPP",* already use more than 7 thousand dollars, in Western Europe this figure is 4 to 5 thousand US dollars, and in the *"V-4"* countries about 1.5 - 2.5 thousand US dollars. In this way, one must take into account that the *"inputs"* into the system, that is to say, energy, medicines, apparatus, and so on, are being sold at world prices, though the physicians only earn a fraction of the western wage. (A conspicuous **imbalance** in the system: one gets what he asks for, the other only what remains!) In this way, the monthly wage of Czech doctors fluctuates between 1 - 2 thousand euros and that of nurses by about 0.8 – 1.2 thousand euros. In other *"V-4"* countries, it is even less (to say nothing of the Balkans).

The quality of the systems is measured by such data as morbidity, mortality, average life expectancy, and so on. Many years ago, I saw in a statistical brochure a comparison of the health situation between the residents of the American Pittsburg and the English Manchester. The figures at that time were very clearly in favour of the Britons.

In other words, this means that the British *"National Health Service"* (and similarly also the other European systems) is more successful, more efficient and more economical than the American system. With little money, more health. It is actually *"more systematic" or* ***"system-like"***. And I will now focus on this theme.

4. The *"system per se"* (*). The human being as a system. Healthcare as a system.

I ought to warn you at the start of this chapter that we will now be thinking somewhat theoretically, a bit more so than usual, for which my apologies.

What actually is a system? It is highly probable that each of us understands something slightly different by this word and imagines something slightly different.

The theory of systems is not too old. Its axiom was formulated by the American mathematician **Norbert Wiener** (1894-1964) not until the year 1948. To begin with, he concerned himself with philosophy, later with mathematics and control theory. He studied the **control processes in the living organism and in the human being**, which he later applied to other (particularly non-living) systems (machines, society, and so on). In 1948 he wrote his seminal work *"Cybernetics or Control and Communication in the Animal and the Machine"*.

He defined a system as a number of connected and hierarchically arranged elements with internal and external bonds. The whole is therefore more than a total (= merely a sum) of the elements.

For example, the human being. You could also say: *"The human being is three to four kilograms of minerals, a bit of carbon and some water added"*. Leastways after death, when he comes out of the crematorium. And yet, we sense that something doesn't make sense here: the human being is more than this ...(*"What is man, that thou art mindful of him?"* King David already asked three thousand years ago in Psalm 8, verse 5).

A good, correctly functioning system is characterised by an uninterrupted stream and a fluent exchange of information, both within the system as likewise between different systems (or system-to-environment bonds). Such a behaviour minimises the extent of the entropy (uncertainty, chaos) in the system, which then behaves **energetically as efficiently as possible** = economically. In other words, such behaviour saves the system energy, money, and so on, and gives it better chances of survival or *"steady development"*. These days, this counts as a very important global thesis for our planet Earth.

The uninterrupted exchange of information ultimately leads in the system to a state of balance, rather like the second law of thermodynamics states (confer also Boltzmann's constant). If we observe this sort of state in a human being, we say as a rule: ***"This human being (patient) is healthy"***. Of course, we don't need to know anything at all about the second law of thermodynamics, the old physicist Boltzmann, or the *"system per se",* and so on, in order to be good and successful doctors …

All systems are either open or closed, depending on the interaction with their surroundings. The human being is surely an open system. Healthcare is likewise also an open system. It is not isolated, *"it does not live on a lonely island";* it is and forms a part of society, of the national economy, and so on – in every country of the world – along with everything that goes with it.

What characterises a system?

The *"system per se"* is characterised by a solid **structure and function**. These determine the behavour of the system. They tell us what kind of system (or thing) it is, what it is suitable for, and what we may expect from this and that system.

Every system also has great need of energy or *"fuel"*, which in the case of the organism might be oxygen (oxidation processes) and in the case of healthcare might be such a dull, banale, mundane thing as ordinary money. But all in all, such things amount to *"information per se"*, whether or not they have an energetic (material) substance.

Today, in the computer age, we know (or is it better to say: we sense?) what is meant for example by *"hardware"* and *"software"*. In the case of the human being, we may speak of the anatomy, physiology or pathophysiology. In the case of healthcare, we work by analogy with such concepts as institutions (= hardware, anatomy) and set rules, laws, guidelines, warrants, and so on (= software, physiology). If something goes wrong in healthcare, if something fails, goes awry or even breaks down, it means that pathology and pathophysiology prevail and take over their roles. Just as in the human being (according to Norbert Wiener), as also in every arbitrary system, as, for example – to stick to our theme – in the case of healthcare.

Dependence is a fundamental regulatory mechanism or process in every system. It is either **positive** or **negative** and **always aims at optimisation** of the given system. This means that it is geared towards the energetic demands, or, better expressed, the savings (in the sense of calories or money, and so on). In other words, it inhibits pathology and leads to a sound, economical (energetically) thrifty behaviour of the system (for example, of the human being), in that it reduces the measure of entropy (that is to say, of chaos, of uncertainty).

In the case of a cancer (which has to do with, among other things, the failure of the immune system), uneconomical (= pathological) processes, which can lead to the breakdown and ultimately the death of the human being (a pathological, endogenous disintegration within a system). This happens if it is not properly treated; in other words, if the human organism is not *"guided onto the right track"*.

Healthcare is a complicated and complex system with many subsystems – hospitals, patients, physicians, doctors, with the pharmaceutical industry, other suppliers, and so on. Almost as complicated as a human being. Each subsystem has its own interests and priorities. Can they ever actually be unified and regulated?

Just as in the case of the human being, so in the case of healthcare, everything should be linked and administered with everything else via **auto-regulatory dependence**: input, output, response, control (so-called *"Biofeedback"*). This should all lead to an energetically (or financially) optimal behaviour of the system. Is this really the case? What if we apply this thesis (theory) to our aforementioned healthcare systems – for example, to the market-driven healthcare in the United States?

In all systems, the same analogy applies, which Norbert Wiener found in the human being :

1. **The same control principles** – the universe, the Earth, Nature, the organism, the town, the state, artificial intelligence (a robot), the factory, the computer, and so on.
2. **Firm hierarchy of structure** and *"intelligent"* dependence (*"Biofeedback"*) – a central control unit, a number of executive entities, as for example the central nervous system (CNS) in the human being, the afferent and efferent pathways, organs, and so on.
3. **A sufficient degree of autonomy** – not everything can be controlled from a central point. The human being has an autonomic nervous system for the purpose of controlling, regulating and monitoring our most essential, vital functions of its own accord.
4. **Subsidiarity** – a cooperation of the periphery with central functions. Everything should ideally be controlled from the lowest level or niveau, because this saves energy. This means, among other things, a fairly liberal setting, though with clear, firm and upheld rules and a fixed *"playground"* (= anatomy + physiology of the organism, unity in diversity).

And back to our healthcare. There are differing views on what healthcare actually is or should be :

1. Healthcare is first and foremost a public service (*"res publica"*).
2. Healthcare is a business like any other business.
3. Healthcare is a public asset (commodity).
4. Healthcare is a private commodity (a completely private affair of the individual).
5. The state should not interfere in healthcare.
6. The state needs to control and regulate healthcare.
7. The views of patients.
8. The views of physicians.

9. The view of health insurance funds (whether private or public) – or the payer, to remain on a completely general level.
10. The view of commerce in general, and so on.

Which of these and many other opinions best satisfy the criteria of the system?

Does this or that healthcare form a closed system with appropriate feedback, regulation and control?

Is the functionality and cooperation of its components guaranteed?

Are the right reactions to the bulk of information streams and their effect on the entropy of the system (energy conservation, money saving) guaranteed?

As mentioned previously, healthcare is an open system. How does it interact with other systems of the national economy (e.g. with the social system, with the finance system, and so on)?

How does it react to internal changes within its own system?

How does it react to external changes and influences (e.g. to demographic changes, financial difficulties, and so on)?

To what extent are the economic criteria taken into account?

To what extent are social, political and other criteria respected?

5. Conclusion

Norbert Wiener has observed that our organism is only alive, because it is and forms a system. We are almost a perfect system – we have a central control and an executive organ. We are guided by intelligent feedback mechanisms, and to some extent our organism controls itself. It also has an autonomous control system, to which our most vital functions are connected – from breathing, through cardiac activity and movement, to excretion.

Even our death is preprogrammed. Our cells replicate the DNA code for themselves only as far as it is possible, until the telommeres (= the DNA ends) are used up.

I believe that God in his wisdom made a right decision. Or did he? Why then the human beings' eternal longing for longevity or even immortality? Has something crept into our thoughts that does not belong there? Or does something deeper lie hidden in the words *"Thou hast made man a little lower than God…"*? (The old King David as the psalmist in Psalm 8, verse 6). Is there something of *"the spark of God"* in us (Friedrich Schiller, in the *"Ode to Joy"*)?

Our reflections are now at at end. But the search remains for such a system, which satisfies the above-mentioned criteria, the optimal behaviour, the ***"system per se"*** - similar, for example, to our human organism. Which is it? Does such a thing exist at all?

And one small appendix. **What has this to do with the Medicine of the Person?** What can it achieve in any case? What lies within our capabilities and what does not?

The questions have been posed. I look forward to our dabate to follow.

Thank you for listening.

*(*) By "something per se" **Immanuel Kant** (1724-1804, Königsberg, East Prussia, today Kaliningrad, Russia) understands a philosophical category; the reality, which exists in its own right, quite independently of our experiential capabilities.*
On the other hand, by "my" expression "system per se" I understand no abstract philosophical category that "hangs" somewhere in the universe, but rather always something concrete (a thing, a "system"), which however has a universal validity.

For literature and references, please consult the author.