The Empirical Object of Medical Informatics

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Medical informatics is the science of information processing and the creation of information processing systems in medicine and health care delivery. Its methodological approach is based on the area specific applicability of a multidisciplinary theory of engineering and managing computerized information systems related to its empirical object. This paper gives a systemic view of the health care system, representing the empirical object of medical informatics.

THE INSTITUTIONALIZED MEDICINE

"Medicine" in general is defined\(^{10}\) as

- the science of healthy and diseased organisms (biological system), of causes, phenomena and effects of illness, its detection, therapy and prevention (theoretical medicine, experimental medicine, clinical research);
- the practice of medical treatment by different professions and in the different institutions of health care delivery (practical medicine).

Human medicine contrary to veterinary or phyto medicine concerns itself with man and sees the individuum as the focus of its actions. Thus, the main goals of health care delivery may be formulated as follows:

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<th>Proposition 1</th>
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<td>The main goals of health care delivery are to promote, preserve and restore</td>
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<td>- individual health (individual medicine) and</td>
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<td>- collective health (social medicine).</td>
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As skills to realize these main goals of health care delivery depend upon knowledge and training, the development of medical science as well as the efforts to teach and develop skills are sub-objectives. They are partially be combined with the other goals, but may compete with these for existing resources.

Let us assume that in general terms,

- prevention are means and measures to avoid the incidence of a possible event damaging a biological system,
- treatment the action taken to exercise an influence on a pathologic process concerning the biological system (namely diagnosis, therapy),
- care all nursing activities focused on a human individuum and
- rehabilitation are measures to reintegrate individuals after life-events

we deduce the following main functions of health care delivery:

### Proposition 2

*The goals of health care delivery are realized by the functions of*

- health care (prevention) and
- medical care (treatment, care, rehabilitation) as well as
- medical research and education.

These functions financed from various sources (i.e., private and health plan insurance companies, public institutions, private means) are expected to be performed by the institutionalized medicine through institutions of ambulatory care, hospital care, public health care and social care which may be varied structured in different health care systems. According to von Ferber we therefore may define:

### Proposition 3

*Medicine is the institutionalized result to claim scientific well-founded and competent aid if health is disturbed or endangered.*

This brings us to the question what the structure of the institutionalized medicine is. When a system is defined as a conceptual set of interdependent units one can fundamentally distinguish between those, which work within the system of medicine (subject systems) and those which are object in the sense of the main goals of health care delivery (object systems). The economic terminology calls the former the providers, the latter the consumers of health care services. Accordingly we define: