Knowledge-based decision support for diagnosis and therapy has been and still is a major topic for medical informatics and for medicine and health care in general. Elaborating successful, widely used applications to support clinical decisions has a significant impact on health care and, as 'side effect', on better understanding and developing underlying theories in biomedicine.

Pioneering work on knowledge-based decision support started in the 1960ies ([9]), and even before. Progress in the 1970ies and 1980ies ([1], [15], see also [3], [4]) led to high expectations for contributions of this field to quality and efficiency in health care. On the other hand, we have to recognize that leading contributors of this field were in the 1990ies still asking about the field’s progress and impact ([14]). Today research on clinical decision support is still intensively done and regarded as a major part of medical informatics research ([2], [7], [10], [11]).

In parallel to the mentioned development we can observe significant progress during this time in related fields of medical informatics, such as hospital information systems, health information systems ('eHealth') ([8], [13], [14], [16], see also [12]) or biomedical imaging and signal processing. Computational powerful and functionally comprehensive computer-based tools as well as globally accessible Internet services are widely available and used by both health care professionals as well as health 'consumers'.

The aim of this talk is
1 To summarize and to comment on this development.
2 To point out lines of development during the last decades on health information systems (as in [5]).
3 To discuss from the viewpoint of (2) what has been achieved and what the (in my opinion historically unexpected) trends are.
4 Finally to discuss the current trends of decision-support for diagnosis and therapy beyond the boarders of health care institutions, but maybe still related to health care professionals in hospitals, in the context of health enabling technologies ([6]) and in order to maintain and extend independent living in our aging societies.

Progress in knowledge-based decision support in health care is probably strongly related to progress in elaborating appropriate architectures and infrastructures of health information systems. This may lead to conclusions on how to orient and adjust research in this field.

References


