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REVIEW ARTICLE

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The International Documentation and Evaluation System (IDES)—10-years experience

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In 1993 Sir Dennis Paterson wrote an editorial on the International Documentation and Evaluation System (IDES) [9]. He outlined the principles of IDES as consensus, hierarchical information, radiographic evaluation and acceptability. IDES was established by the International Society of Orthopaedic Surgery and Traumatology (SICOT) Standing Committee on Documentation and Evaluation, which was founded in 1990 with Prof. M.E. Müller as chairman, and presented at the American Association of Orthopedic Surgeons (AAOS) 61st annual meeting in 1994. The nomenclature used on the three IDES sheets for primary total hip arthroplasty (THA), revision THA and followup is based on the consensus paper by the Hip Society, the SICOT Commission on Documentation and Evaluation and the Task Force on Outcome Studies of the AAOS [6]. This consensus paper provided a terminology named CART (Clinical and Radiographic Terminology), in which each term, whether applying to a functional or radiographic parameter, was specifically defined to have a constant meaning. The initial impulse to create such a terminology was already given in 1985 when J. Galante [4] called for a uniform method of evaluating and reporting the results of hip-replacement surgery in order to compare the results on a common standardized basis.

In this article the authors report their 10-years experience with the IDES system, which has been the basis of a European-wide hip arthroplasty registry, and describe the influence of the initially stated axioms-consensus, hierarchical information, radiographic evaluation, and acceptability—on the documentation system and introduce the newly developed version of the IDES documentation system with Internet technology.

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– Consensus: The parameters of IDES represent the probably broadest consensus ever achieved in the discussion about documentation of hip arthroplasty. A global committee consisting of representatives of the major orthopaedic societies had agreed on the clinical, functional and radiographic parameters to be recorded. These parameters cover the three most important influential factors on the outcome of THA—the patient, the surgical measures and techniques, and the implanted components. When financial pressures and legal needs for postmarket implant surveillance, the principles of evidence-based medicine and the outcomes movement initiated a broader discussion about outcome documentation, not only were the earlier made efforts and agreements ignored but also the focus was significantly shifted towards a more patient-based assessment. This is in favor of the busy clinicians, since documentation burden is reduced and assigned to the patient. Unfortunately, the few parameters left for description of implants and details of intervention mostly represent a minimal data set, which is suitable for comparison of component survival but not for quality assessment of hospitals and treatment methods. As opposed to the achieved standardization of patient questionnaires like the Western Ontario and McMaster Universities Arthritis Index (WOMAC) [2] and the short form (SF) instruments [13], no uniform set of questions for surgical measures is in use, whereby establishing reference databases for benchmarking remains difficult. In addition, manual description of implants is error-prone and many changes in design during the lifetime of a prosthetic component are not properly recorded [1]. Therefore, the unique consensus found in establishing CART should be adopted by all other researchers interested in comparing their results with each other by using a common scientific terminology.

- Hierarchical information: The classification of data into three categories—essential, important, and of interest—is a valuable tool to satisfy the different needs, interests, and time constraints of the users. The essential questions can be considered as the minimal data set necessary to fulfill the basic pretensions of the IDES software. Essential questions are highlighted on the IDES sheets for easy recognition and handling. The completion of these essential questions was mandatory for the user in order to have a minimal and valid data set forming the common scientific basis for comparison of interventions and outcomes. Questions of importance and of interest represent optional information. There is strong evidence that the majority of the participating surgeons accepted the IDES essential questions for their day-to-day documentation, sharing the opinion that this minimal data set provided sufficient information about physical status of patients, implant characteristics and surgical measures. Consequently, statistical evaluation based on the essential questions showed highest reliability of results.
- Radiographic evaluation: Relevant X-rays were sent to the documentation center, digitized, linked with essential clinical information and printed on X-ray cards in slide format or stored electronically. The X-ray cards always existed in double version, of which one resided at the center and one was sent back to the respective hospital after it had been updated with new follow-up or revision images. That way all radiographs of a case were shown in consecutive order on an index card that was quickly and easily available in the orthopedic department independent of the X-ray department, and also at the central documentation office in Bern. Tools for digital picture manipulation are in place at the scanner station and in future, the hospitals will have direct access to the digital picture database via the Internet.
- Acceptability: Documentation is time consuming and expensive, but it is slowly being recognized as an important and essential part of clinical practice. In many countries—like Sweden [7], Germany, Canada [3], New Zealand [12], Norway [5], England and many eastern European countries—registries have been or are now being set up for documentation of THA, sponsored or mandated by governmental bodies for reasons of quality assurance. Features of the current—and to an even greater extent of the newly developed—IDES software increase the value and user acceptance of documentation significantly by offering automatically generated clinical reports, overviews of implant usage, statistics about patient demographics, number and type of interventions, possibilities of benchmarking of outcomes and performance and remote X-ray viewing and manipulation via the Internet. Consequently, time invested for documentation can be regained and data, though centrally stored, is available 24/7 from any computer with Web access.

Today, the International Documentation and Evaluation System represents one of the most valuable hip arthroplasty databases and documentation applications existing. During the past 4 decades, extensive information about 50,000 primary THA, 12,000 revision THA and 77,000 follow-ups was collected. In 2001, the new director of the Institute for Evaluative Research in Orthopaedic Surgery at the University of Bern initiated a consequent and detailed analysis of the IDES database. Within a short time, the first peer reviewed articles [8, 11] were published or awarded (Swiss Society of Orthopaedic Surgery: Marathon Award 2002; The Hip Society: Frank Stinchfield Award 2003). Originally initiated by the pioneering work of Prof. Maurice E. Müller, the IDES database provides clinically valuable and relevant information about treatment of hip disease and long-term results and will contribute substantially to a further improvement of hip surgery and outcome research.

Based on our experiences with the IDES application, a new generation documentation system with Internet technology was developed during the last 3 years. Data capture at source is possible for all users assigned to the documentation process, independent from each other and with different on-line and off-line data collection tools. These tools are interdependent, which means that all data is finally routed to the Web interface for final submission, querying and analysis. That way, the documentation process becomes highly flexible and dynamic and can be adapted to the workflow of the respective department. Even questionnaires can be customized and extended beyond the essentials data set, with an online question generator for individual research endeavors. An automated implant tracking and registration system with barcode technology (Secure Data Integration Concept; SEDICO) allows the direct identification of the implants used during surgery and offers an integrated order service for the implant manufacturers. This powerful application will ensure a further evolution of the IDES hip and knee registries and provides the interested orthopedic community with a platform that can also be used for setting up and conducting other orthopaedic or medical studies.

Several multicenter projects dealing with implant performance, children fracture treatment, spine trauma etc. are ongoing. Simultaneously, discussions with different orthopaedic societies were initiated to form a new European or multinational network based on the available Internet technology. In collaboration with the Spine Society of Europe (SSE), a similar effort is already established and was launched in 2002 (Spine Tango: a European Spine Registry) [10].

The authors think that in the “Bone and Joint Decade”, IDES and the newly developed documentation technology available under www.orthoglobe.ch can contribute significantly to improve collection and evaluation of clinical and implant data. By making use of the offered tools, the orthopaedic community is enabled to collect and compare data more easily and accurately, perform clinical studies more transparently and therefore finally improve the quality and efficiency of medical treatments.

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