Collaborative Research for New Generation Hospitals – Impact Statement

The Rambam hospital in Israel, the Technion – Israel institute of Technology, and IBM have partnered in a multi disciplinary project aimed at significant clinical, operational and financial improvement of hospital patient care processes. The impact of this wide-arching project encompasses all partners, and is both practical and foundational. In order to ensure quantifiable impact, initial steps in this project included detailed metrics definitions, and detailed baseline observations and measurements. Several improvement efforts already completed are expected to significantly improve metrics such as patient length of stay and number of clinical errors. Furthermore, one of the major long term goals of the project is to provide a system for comprehensive real time monitoring and control of the patient care processes, thereby potentially revolutionizing the design and management of these processes. While much work remains, significant progress towards this goal has already been made.
This project has also generated novel methods that can be applied to other service domains. Examples include: Generic model based data completion techniques, which can be used for monitoring and process improvements scenarios where only partial data is available in existing IT systems; and the creation of models combining quality (e.g. clinical) models and operational considerations, which can be applied to any service domain with sensitivity to response time.
Furthermore, this work has significant academic impact, resulting in publications, new course materials, creation of new courses, and being the basis for several graduate theses. Finally, this work may also impact IBM's healthcare offerings.