## The DaVinci Project – A patient-centered IT supported healthcare team clinical approach to improve the management and outcomes of patients with multiple chronic diseases in primary care

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The DaVinci project is a patient-centered, IT-supported, healthcare-team, clinical approach to improve the management and outcomes of patients with multiple chronic diseases. At the heart of DaVinci lies the CASE (for Convince, Action, Support, and Empower) clinical approach, which builds on the seminal work of Prochaska and DiClemente on readiness to change, a model many PC health professionals have used in the context of lifestyle-modification counseling. The PCIT members of the Cité de la Santé de Laval (CSL) FMU (family medicine unit)-FMG have adapted and simplified the framework so that it can be used to evaluate the readiness of patients to begin or intensify treatment of each of their chronic diseases. By identifying where a patient stands, the PCIT clarifies which clinical approach is best suited to the patient's readiness to actively engage in their treatment. The CASE classification is shared by all members of the PCIT and thus helps prioritize and coordinate individual team-member actions to reach explicit, patient-centered, guideline-consistent treatment goals. It allows all PCIT members actively involved in the care of such patients timely, flexible access to: (1) list of the patient's chronic problems ie. the "Patient Agenda"; (2) explicit patient-centered treatment goal setting for each of these problems; (3) the CASE framework; (4) the reason of the care gap when the treatment goal is not achieved; (5) checklists tailored to the problems identified in the agenda in order to better monitor and coordinate the provision of preventive and chronic care; (6) Evidence-based knowledge database; (7) decision support tools for goal setting; (8) regular clinical performance feedback to the group as well as to professionals individually; and (9) a secure communication channel between members of the PCIT and between them and the librarian. DaVinci is not just another electronic medical record. For all these reasons, DaVinci represents a true PC health management intervention. To our knowledge, PCITs in Quebec have no other comprehensive tool for managing these patients that integrates the functionalities identified in the areas of chronic-care management and health management. It has now been introduced in two FMGs for more than one year. We provide pilot data obtained from one site that illustrates the progressive uptake by family physicians and its sustained utilization by nurses and pharmacists. Implementation of such a project may encounter difficulties in terms of two issues: first, the adoption by healthcare professionals of a new clinical approach to chronic disease management; and second, the acceptance and subsequent use in daily practice of a new computer information system (CIS) by a healthcare team. Organization studies have examined the challenge posed by changing practice routines since the 1970s, and our project calls upon the literature on organizational learning, communities of practice and information management in particular. More specifically, the use of an electronic health record or a CIS during consultation has been shown to have cognitive and relational effects on both clinicians and patients and to influence instrumental aspects of care [22-26]. Introducing such a tool in daily practice may thus produce both intended and unintended consequences that must be monitored if implementation is to succeed. It is too often difficult to precisely measure and evaluate the impacts of CIS implementation on clinical practice and on quality of care. Information-system research has shown that IT investments do not always positively affect firm productivity as expected in a phenomenon labeled the "IT Productivity Paradox." Though this paradox has been comprehensively studied in business, this research stream has not been followed in the health sector. Consequently, very little is known about the added value of IT implementation and use in healthcare settings. Following Panko, we thus argue that "*How* one uses IT would seem to be far more important than simply *how much* one spends." Without a thorough understanding of how IT brings value to the individual, teams, and organization, it becomes virtually impossible to assess its impacts. The DaVinci project will provide the opportunity to better understand how IT brings value to clinical practices, collaborative work and resource utilization. Only then can its impacts be measured and managed. STUDY OBJECTIVES: (1) To describe the implementation process of the DaVinci IT-supported PCIT clinical approach in three FMGs, eg to better define the principal facilitators and barriers to adoption of the approach. And, on an exploratory basis: (2) to explore how the different functionalities of the DaVinci IT-supported PCIT clinical approach affect interprofessional team work; and (3) to explore how the different functionalities of the DaVinci IT-supported PCIT clinical approach affect the provision and outcomes of care.