

NYU Stern School of Business
Department of Information, Operations & Management Sciences
OPERATIONS MANAGEMENT RESEARCH SEMINAR

TOPIC: New Joints More Hip? Learning in the Use of New Components

SPEAKER: Kamalini Ramdas (London Business School)

DATE: Thursday, February 6, 2014

TIME: 1:00 PM-2:00PM

PLACE: KMC 2-80

ABSTRACT

There is a vast literature on experience curves. The measure of experience is typically product or service procedure volume, at the level of an organization, a facility, a team, or an individual. Yet most products and services involve a variety of components and sub-processes. We examine learning in hip replacement surgery as a function of a surgeon's experience at the very granular level of specific surgical component versions in addition to total experience, using a unique hand-collected dataset. In our study, five surgeons used over 1200 unique stock keeping units (236 distinct versions ignoring size variations) of four main component types, in a three year period. Experience accrued at the level of specific component versions has a significant impact on duration of surgery, which is well known to impact both quality of outcomes and cost. A single prior use of certain component versions can reduce duration of surgery by 25%. In addition, learning accrues very gradually for some component types and rapidly for others. Our findings suggest that hospitals may benefit from requiring minimum volumes for surgeons at the level of specific component versions. Further, we provide evidence of important heretofore unnoticed benefits from adopting new technologies such as surgical simulators, derived from the tremendous proliferation in devices today. We also draw important implications for the medical devices industry.

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