Restructuring a Military Medical Department Research Center

W.F. Lawless
Paine College, USA

Joseph Wood, LTC
Fort Gordon, USA

Hui-Lien Tung
Paine College, USA

INTRODUCTION

This case study is of a military medical department research center (MDRC) with access to advanced information systems (IS), yet struggling to determine the quality of its residents in training and their scholarly productivity (see the article on "Theory Driven Organizational Metrics" in this encyclopedia). Based on theory, this case study was guided by stories captured from MDRC in the collapse of four interdependent variables: planning, execution, resources, and time. Our primary goals for this case study were to: (1) Formulate recommendations to utilize the IS available to reduce the overall operational cost of MDRC; (2) increase the operational efficiency and growth of MDRC by enhancing its ability to attract new extramural funds; and (3) further explore the link between practice and theory. To the extent possible, all organizational names, references, and locations have been revised to fictitious ones.

Organizational Background[1]

The Medical Department Research Center (MDRC) is a regional military medical hospital located stateside in the USA. MDRC supports clinical and basic research for its staff and all hospital practitioners including family medicine, internal medicine, general and orthopaedic surgery, and dentistry (endodontics, peritonitis, oral maxillofacial, orthodontics, and nurse anaesthesiology). In addition to providing basic research support for the hospital, MDRC is responsible to teach the fundamentals of experimental research to the hospital's medical residents (residents working within a specialty, residents rotating among the hospital's different specialties, and interns in transition; in JWO, 2005, pp. 4), to provide continuing education for more experienced care providers, and to train dentists in research methods. One of the goals of the training provided by MDRC is to help the hospital's Graduate Medical Education (GME) candidates become certified by their respective American specialty boards. GME trainees are supervised by about 150 teaching staff members who are all board-certified in their respective specialties (JWO, 2005,p p. 4). MDRC's published goal is to provide the "best support possible for all research endeavours[…]by providing the facilities[…]and atmosphere of inquiry necessary to support and stimulate both basic and clinical medical investigations" (JWO, 2005, pp. 5).

The staffing level at MDRC is provided in Table 1. It is headed by a Chief and Assistant Chief, both military officers, with the staff separated into military (officers and enlisted) and civilian positions (full-time, part-time, and contractors) along functional lines (protocol coordination, veterinarians), and minimally by levels of education (Ph.D.).

Included among the responsibilities of MDRC are the certification and regulation of responsible practices in human and animal research. MDRC discharges its responsibility with mentors teaching residents about research, monthly Institutional Review Board (IRB) meetings for the approval of human clinical studies, and monthly meetings of the Institutional Animal and Care Use Committee (IACUC) for the approval of investigations with animals. Its IRB program has maintained "Federal Wide Assurance" certification that its training programs meet the strict federal guidelines approved by the National Institutes of Health (NIH). Its veterinary facility has maintained certification from the Association for Assessment of Laboratory Animal

Table 1. Staff

	2004[2]	2005[3]
MDRC Laboratory		
Full-Time Laboratory Staff, Stated[4]	15	15
Full-Time Laboratory Staff, Counted	19	16
Protocol Coordinators	2	2
N, Civilian Ph.D.'s	4	4
N, Military Ph.D.'s	1	1
N, Veterinarians	2	2
Specialized Contractors, Counted	3	1
Total *N* by Staff, Counted	22	17
Laboratory Staff by Rank		
Officers	5	4
Enlisted	5	4
Civilians	9	8
Contract	3	1
Total *N* by Rank, Stated & Counted	22	20

Table 2. Residents and protocols, stated

	2004[5]	2005[6]
Full-Time Residents Trained	74	72
Full-Time Residents and Fellows with approved protocols	25	14
Full-Time Resident Disciplines, listed	6[7]	5
NonMC officer Trainees with approved protocols, $N_{Trainees}$	13	11
Approved protocols for NonMC Trainees, $N_{Protocols}$	13	10
NonMC Trainee Disciplines	3	4
Hospital Staff with approved protocols, N_{Staff}	98	63
Approved protocols for Hospital Staff, $N_{Protocols}$	56	41

Care (AALAC, a nonfederal advisory group) that its animal investigations also meet strict federal guidelines (viz., AALAC conducts peer reviews, but it has no direct regulatory role). AALAC approval indicates a superior program, and that the institution meets all the rules and regulations of the USDA, Public Health Service (PHS), and other regulatory agencies. IRB and IACUC meet monthly to review research proposed in Protocols submitted by official documents along with email copies (DWA, 2004; JWO, 2005). Based on these meetings some of the trainee Protocols are rejected or are required to be revised and resubmitted (INC, 2006, pp. 10).

The Annual Reports state that GME has about 75 physicians and dentists in training in 2004 and 2005 (DWA, 2004, pp. 4; JWO, 2005, pp. 4); however, the actual counts provided in these reports were 74 and 72.

In 2005, MDRC continued to expand its support for GME scholarly activities and its search for extramural funds (JWO, 2005, pp. 4). MDRC conducts three types of research at its facility: basic, clinical, and case studies (INC, 2006). MDRC assists resident trainees by providing research assistants to help them with designing, executing, and tracking their research protocols. However, the current IS is not used in this process, nor is the process automated at any point.

The discretionary funds provided for research average about $140,000 per year (INC, 2006). Extramural grants are an additional source of funds, currently averaging $3–400,000 per year. In 2005, MDRC received $800,000 in extramural funding for laboratory-based research (JWO, 2005, pp. 4).[8]

Some of the research supported by MDRC is performed voluntarily, but a larger fraction is required to be performed: "[…]supporting clinical and basic research for all [hospital] personnel [is] now a requirement for matriculation in many training programs" (DWA, 2004, pp. 4; JWO, 2005, pp. 4). And, "Student nurse anesthetists are required to complete a research project for publication" (DWA, 2004, pp. 4). However, the impact of making research a requirement on the scholarly activities of trainees is unknown.

CASE DESCRIPTION[11]

In 2006, a new director assumed command of MDRC (INC, 2006). Over the remaining two years of his administration, the Chief of MDRC wants to establish MOE's (Metrics of Effectiveness) to measure his organization's success and to craft a plan with MOEs to improve the performance of scholarly activities (i.e., plan, strategy, or Business Model, (BM)). Some resident trainees start their research rotation prepared with a line of investigation derived from their own interests, collaboration with peers, or previous mentors. But if they are not presently working in research or have a research interest, a mentor is assigned to them by MDRC staff. One problem with using MOEs is that much of the research proposed in the MDRC protocols has lasted or may last for a number of years before scholarly products are published, whereas other research protocols may last much less than one year, giving the less complex Protocols an advantage in the generation of scholarly products (see Table 4). As the complexity of a Protocol increases, the time necessary