

PM WORLD TODAY – STUDENT PAPER – AUGUST 2010

Value of Project Management in Health Care Research

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*This paper was prepared for course: MGT 562 Healthcare Program Management
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Semester: Spring 2010 – Professor: Jeff Oltmann*

The purpose of health care research (HCR), whether basic science or clinical, is to advance our knowledge about health care and ultimately provide better patient care. Therefore it is important that HCR is conducted in a timely manner, and at the same time, in an accurate and organized way.

A HCR project team consists of the principal investigator (PI) and various team members, including technologists, nurses, statisticians, medical residents, clerks, etc, depending on the needs of the project. Including a project manager would add tremendous value to a HCR project team. The concept of including a project manager in HCR teams is a relatively new idea compared to its value in business and technology (2, 5).

I decided to do my health care research essay on this topic because I have been involved in research projects in the past but had never consciously applied project management (PM) tools or techniques. I was surprised to learn there is a lot of information available about this topic and that PM has recently become an important aspect of both basic science and health care research (2, 5, 12, 14, 16, and 17).

I also learned that in HCR, a term often used to discuss PM is “team science”. Team science is defined as: “the interdiscipline of the Science that promotes team-based research by empirically examining processes by which research teams organize, communicate, and conduct research. This includes understanding how teams connect and collaborate to achieve scientific breakthroughs that would not be attainable by either individual or additive efforts.” (12). Stokols describes team science as the “branch of science studies concerned especially with understanding and managing circumstances that facilitate or hinder team science initiatives” (5). In other words, team science is just another term for project management, but probably one that is more acceptable to scientists in the health care field.

In researching the value and use of PM in HCR, I interviewed (via email) two principal investigators (PI’s) at OHSU who have NIH grants, one is multi-departmental (18) and the other is multi-center at a national level (14). I have also talked to several others involved in applying PM to HCR (15, 16, 17, and 19). Finally, I interviewed a PI involved in a successful project (13) to learn what PM techniques/tools contributed to their success.

I have concluded that the following are the most valuable tools and techniques in managing HCR projects: team building, having a designated project manager for project coordination, leadership, communication, risk management, project planning and use of timelines/milestones.

One of the most important elements is team building. According to Kent Thornburg, PhD, “the project will only be successful if an outstanding team of scientists can be assembled to be leaders in the program. They need to have already demonstrated their expertise by outstanding publication record, a long list of accomplishments and national funding (18).” Verzuh mentions that it is important to have a team composed of the right skill set for a project. Not everyone on the team will have all the skills needed, but as a team it is important to have a complement of all the skills that will help accomplish the HCR project goal (8).

It is also important that in building the team, members know their stakeholders and understand their environment (16). Examples of stakeholders in HCR include the funding agency (NIH, Susan G. Komen, and Terry Fox Foundation), the patients on whom the clinical research trial is conducted, and the pharmaceutical company if the research involves testing a new drug. If the HCR team is aware of their environment from the beginning, this can save them a lot of work and repetitions of unnecessary work (16). As an example, at OHSU there are many resources available for HCR teams through the Oregon Clinical and Translational Research Institute – OCTRI (11).

The essence of a team is to have a common commitment by identifying specific performance goals (3). In this context it is extremely valuable to have a project manager as a team member. Good leadership and excellent communication between members are also essential components of team building.

A project manager (often known as a study coordinator in HCR) should be a requirement (2). He/she plays an important role in holding the project together. Responsibilities include establishing and maintaining ongoing communication between teams and across sites (in multi-center studies), monitoring and reporting progress and achievement of milestones, and identifying challenges and barriers for collaboration between principals. Two valuable qualities in a good project manager are that they are 1) organized to take care of details and, at the same time 2) flexible with a lot of different skills depending on the study, i.e. that they can do many different tasks depending on what is needed for the study (16).

A good, strong, motivated leader can be the power force driving the team forward. Much of the success or failure of a team is rooted in executive style. Is the leader decisive? Does he/she try to build consensus? Is the leader tuned in to the working styles of people other than herself? How do you know how to motivate or give feedback to someone of a different style than your own? (19)

Qualities of a strong leader include a good, open communicator, who is able to make decisions with confidence and stick with these decisions. A good leader takes time to understand the details and issues of a project and then is able to step back with confidence and let the team take

over (16). In other words, they do not micromanage, but give freedom and space to team members to do the job. A good leader needs to be a visionary who is thinking ahead of everyone else on the team, seeing the big pictures. He needs to be 10 steps ahead of everyone else on the team constantly anticipating new risks and challenges (17). For example, one research team has a project manager with a Master of Science in Management in Project Management and is a PMP (14). Another has an administrative assistant whose job is to coordinate activities of the grant, send out notices, oversees annual reports and keeps an eye on budgetary issues (18). Such members are invaluable because they allow the rest of the team to focus on other areas in which they are skilled.

According to Jo Anne Stamatiou (Associate Director of PM Operations at Novartis), there is a particular skill set to look for when interviewing a person to hire for a project manager position for a HCR project. These skills include an ability to communicate and work with people both within and outside of the immediate culture. They need to have a good understanding of timeline and budget management. In large organizations and multi-center HCR they will also need to effectively handle more than one project timeline at one time. Excellent organizational and multi-tasking abilities are therefore essential. (17)

Communication is the key to successful implementation of research objectives and budget (2). Communication includes both sharing of data across departments or teams as well as communication on how the project is to be conducted and about the progress of the project. “Every PM technique is a method of communicating.” (8) However, for the purpose of this essay I will focus on how these techniques can be communicated rather than what they are (i.e. the tools for communication).

In addition to email, useful tools include online programs and e-portals that all team members can access. Regular (weekly, monthly, or annually) meetings are also invaluable.

Communication starts even before the grant is submitted. One project required a number of telephone conferences and face to face meetings to coordinate the submission of the grant itself, in order to align their goal and provide a coherent detailed budget (14). Online meetings to assess the strengths and weaknesses of various team members and groups in different sites are important (16). At the beginning of a project it is vital that the language of communication is also established – usually English (17).

Data are best managed using a secure, centralized data platform that allows maintenance and linkage of large collaborative data sets. It is productive to meet using a combination of tele- and web conferencing where results can be presented and discussed with the team (2).

For HCR conducted locally (one center or several centers in one area, for example, several clinics/hospitals in Portland) regular (weekly) meetings and emails or conference calls are important. Monthly phone conferences with key players (project leaders) are also useful (14). In addition in multi-center research studies (involving several regions) a regular annual meeting is beneficial (2). Annual meetings are useful to bring all of the project and core leaders, advisors

and NIH program officer together to discuss the year's progress (14) Whatever method of meeting the project team decides on, it is vital that these meetings are conducted regularly and that they are worked into the project schedule (15). Particularly in a multi-site HCR project the timeline can easily slip if the team is not focused on the schedule and regular communication (15).

In addition to team building, one of the most challenging aspects in HCR projects is risk management. In HCR there are particular risks that need to be considered. Examples include risks related to patient care, project design, risks involving team members, data loss, and financial risks.

Protection of patients is very important. The IRB (Institutional Review Board) makes sure that the research project will not harm patients, but ultimately it is the PI's responsibility to make sure patients are safe. (15). Other risks that may particularly affect clinical research include the inability to recruit and /or retain subjects; delays in getting approvals from IRB or FDA; and adverse events requiring redesign or cessation of a trial (19).

In research it is often the case that the research project design is not good enough to get an answer or produces an unexpected answer. According to K. Thornburg, PhD, "In science we always expect that our hypothesis might be wrong and that outcomes will be different from what we predicted. That is part of the joy of science. Sometimes it means, however, extensive changes in direction that must be made on short notice." (18). As long as this is an anticipated risk that is considered at the beginning of the project, it can be dealt with and managed. Unanticipated results are discussed with the regular conference calls or via emails and addressed there (14). Some of the risks in project design can be mitigated by pilot testing, devising alternatives from the start, and so on. Others can totally blindside you (19).

Some of the risks involving team members are personnel leaving (18, 19), not coming through with their tasks or not following the project plan (15). Personnel may become unavailable for other issues such as illness or delay in visa issues (19). To manage these often unanticipated risks, it is important to have an administrative group that is good at problem solving and who will work together to solve the loss of personnel (18). In addition, in multi-center HCR some parties may be more productive and communicative than others, which can be a real problem if that group is involved in a critical path of a project. This requires a lot of time to be sure that any roadblocks are removed that can be removed and regular goal-checking to be sure what the expectations are (14).

Another important risk is loss of data, due to computer problems such as defective software or the server going down (17, 19). It is therefore essential that there is a mechanism for constant back-up of data, in case they are lost.

In addition to the areas discussed, financial and budget risk management, project planning (charters/grants) and using timelines/milestones to plan and follow progress are important

aspects of HCR project management. Due to space constraints for this essay, I decided to only mention them for completion without going into further details.

I asked Anne King where she sees PM in the future of HCR. Some of the major points were that grants which include project managers are more likely to get funding in the future because there may be more requirements for them in grant submissions. One of the main reasons is that there is more awareness, and therefore, less tolerance for waste (15).

Finally, I would like to briefly discuss a HCR project at OHSU which will be ending on June 30, 2010, that has been very successful in applying several PM tools/techniques, the "OHSU Knight Cancer Institute Personalized Cancer Medicine Registry" (13). The project team understood their environment and got help from OCTRI to handle IRB issues. They managed two major risks, one anticipated and one unexpected. The anticipated risk was setting up of a new instrument (Sequenom). To deal with this, the team read literature on the instrument, visited the company in San Diego, and sent a technologist to train in the San Diego facility. This provided an excellent ROI as they were able to get the instrument running much faster because of the experience gained by the technologist.

The unexpected risk was the team was misled in terms of time/money regarding establishing the database. Because the team understood their environment, they got help from OCTRI to assign a project manager to the task who: 1. understood what was needed and 2. filled in the details that the programmers needed to create the database. Lastly, by applying communication tools (emails, meetings, conference calls etc); there was excellent coordination between the different departments at OHSU. The project also had excellent leadership that understood the big picture.

In conclusion, I believe that because of the lack of awareness of the importance of PM in health care, academic medical centers, where much of HCR is conducted, need to start training researchers internally in PM tools and techniques. Medical students interested in a future academic career need to understand the value of PM in research.

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PERSONAL COMMUNICATIONS

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Rosemary Makar is an American Board of Pathology certified pathologist in anatomic/clinical pathology with a subspecialty in hematopathology. As an assistant professor in Pathology at Kuwait University School of Medicine, she was involved in pathology research. This included a research grant funded by the Terry Fox Foundation for Cancer Research. Realizing that health care is evolving and understanding the lack of experience MDs have in management, Dr. Makar joined the Health Care Management Certificate Program at OHSU School of Management. One of the requirements in the Health Care Program Management class was to write an essay applying project management to health care. Having experience in health care research, she decided to pursue this area for her research paper. Dr. Makar plans to continue exploring, learning, and applying management techniques in health care work.