

HOW TO JUDGE A SUCCESSFUL RESEARCH CAREER

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In the January 8th, 1990 issue of *McLean's* magazine (Burning, 1990, p.8), readers were informed that "Darryl Strawberry (a right fielder for the New York Mets) ... intends to renegotiate his terms of employment. Strawberry favours a four-year pact worth \$13.8 million ... that, or he will depart Shea Stadium at the earliest opportunity." During the 1990 baseball season, Darryl Strawberry's batting average was .277 (*The World Almanac and Book of Facts*, 1991). If we examine this average from a statistical perspective, we can see that he got a hit about two or three times out of every 10 that he got up to the plate (of course, this calculation ignores the times that he got onto base because of walks, etc.). This is a success rate of 20-30%. Alternatively, it represents a *failure* rate of 70-80%. Nevertheless, by baseball standards, this man is an achiever, commanding a salary that many of us will not make over our entire working careers. As a baseball fan, I know that any player who bats around .300 is going to have one of the highest, if not the highest, batting averages on his team and will command one of the largest salaries on the team. (*He* is used when referring to professional baseball players; 100% are male. *She* is used when referring to nurses; 97% are female).

However, when I started my research training, one of the things that I did not know was that an academic research career is judged by these same standards, i.e., a 20-30% success rate coupled with a 70-80% failure rate. These rates are clearly evident when one examines the statistics for the success of first time grant applications submitted to major funding bodies. For example, in November 1990 the Medical Research Council of Canada (MRC) reported a 30% success rate for its new applications (September 1989 competition) (Slotin & Hetenyi, 1990). This funding rate for new grants is not unique to Canada. During a recent invited symposium on U.S.

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federal funding for research on child development, the 1991 biennial meeting of the Society for Research in Child Development, it was reported that only 20% of NIH funds are awarded to first applications. Consequently, one of the most difficult but important changes for me when I began submitting grants and papers was to re-orient my standards of success to this criteria, not only to the 20-30% acceptance rate but especially to the 70-80% rejection rate.

This criterion for success was contrary to all of my academic training and clinical practice standards of evaluation. When I was a student, a letter grade of A was considered the standard of excellence and a marker of success. Whether in a diploma school of nursing, an American university where I obtained a Bachelor's and Master's in Nursing, or in a Canadian university where I did the equivalent of an honours B.A. and obtained a second M.A. and a Ph.D. in developmental and perceptual psychology, that A represented an 80-100%. The evaluation standards for nursing practice to which I have been conditioned are even higher. Nurses must strive for perfection in their practices. Any *one* negative incident can result in the College of Nurses of Ontario investigating a registered nurse member. All it takes is for *one* member of the public to file *one* written complaint about the nursing practice or conduct of that R.N. (*College of Nurses of Ontario College Communiqué*, 1991).

Clearly, neither formal academic training nor clinical practice prepared me for either the standards used to measure the success of a research career or the fierce competition which I would come up against in trying to establish a research program. The question remains then, "How did I learn these new standards?" The answer is, "from three sources". The first source was colleagues. Mentors and peers openly shared their experiences. The second source was information put out by the granting bodies, as noted above. Finally, the third source was from playing the game. In 1987-88 after finishing my Ph.D., I submitted three grants for career support (one national, one provincial, one university) and obtained one; a success rate of 33%. The next year, I submitted four operating grants. I received funding from the Natural Sciences and Engineering Research Council of Canada to establish a program of research examining fetal behaviour. This represents a 25% success rate. Over the next two years, I submitted a second grant in collaboration with Dr. J. A. Low to examine the use of fetal behavioural measures in the assessment of fetal well-being. It was submitted four times before it was

funded by the Hospital for Sick Children Foundation. This, again, represents a 25% success rate. Looking at articles submitted for publication to peer-reviewed journals, I saw the same rates. In the year that I submitted three grants for career support, I also submitted five articles for publication. One was accepted after revision; a 20% success rate. In the three years since their submission, three articles have been published (two were revised into one) and the fifth article is being revised for submission to a fourth journal. This represents ten submissions and six revisions for a total of three published articles for about a 19% success rate.

I am going to go back to the famous baseball player for one final comparison with the nurse researcher. We all know that, at one time or another during the season, our baseball hero is going to have a period known in baseball lingo as a "slump". Typically, no-one knows why (although the sports commentators do a great deal of speculating), he just will not be hitting the ball. During this time of "crisis" for the ballplayer, his owners, managers, coaches, and team-mates rally round to offer support and encouragement. He keeps on trying and eventually (after a shorter or longer period of time), his hitting prowess returns. Given that a new grant proposal takes the better part of a year to write, takes almost another year to go through the review process, and has about a 20-30% chance of being funded, "slumps" appear to be an inevitable part of a research career. Thus, the question for me, now that I have learned these new standards, is, "How do I survive when my batting average dips below .200?" For the present time, I seem to be protected. To maintain my Ontario Ministry of Health Career Scientist Award, I must hold an externally funded peer-reviewed grant-in-aid when I submit my annual report. If I do not, then I have another year to spend a minimum of 75% of my time in research-related activities and to continue to try to obtain an operating grant. In essence, because of my award, I am protected from increased University teaching and administrative responsibilities during a "slump." In two years when my award expires, I am still going to need this kind of protection. Is it there?

In summary, I have told the story of *How to Judge a Successful Research Career* because I think it is one of the most important lessons that a nurse must learn when she takes that path labelled "Research Lane". After being conditioned to an academic and clinical value system with much higher criteria for success, she has to re-orient her value system to know that she is a good researcher through a constant bombardment of rejections. I have

used the baseball analogy to demonstrate that these criteria for nurses are not different or special. The criteria in any arena depend upon the game being played.

As a caveat, I would like to point out that I may have made a "quantum" leap from the data when I assumed that nurse researchers, like other researchers, have a 20-30% success rate, especially for operating grants. In Canada, there is no national pot of money where a nurse may apply for funding for *Nursing* research. It may be, given that she must compete for someone else's pot, that the success rate is even lower.

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