Bloodlines - The Importance of Mentoring for the Future of Hematology

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Hematologists have an unprecedented opportunity to convert cutting edge knowledge of biomedicine into clinically useful diagnostic and prognostic algorithms and new preventative measures and therapies. A brief survey of the medical literature illustrates how hematologists have provided a paradigm for successful translation from bench to bedside. The development of allele specific PCR assays for the diagnosis of polycythemia vera (1), molecular analyses for the prenatal diagnosis of thalassemia (2), Imantinib for chronic myelogenous leukemia (3), and new drugs to prevent and treat thrombosis (4) serve as outstanding examples of this paradigm. These discoveries, and countless others that fill the pages of this journal and others, have come from the efforts of investigative hematologists trained in the past 30-40 years, the golden era of the NIH and several philanthropic medical foundations, such as the Howard Hughes Medical Institute, the Doris Duke Foundation, the Ludwig Institute for Cancer Research, and the Burroughs Wellcome Fund (5,6). But the cost of biomedical research has continued to grow, and in the face of recent downturns in financial support and other obstacles to a successful career in academic medicine some of our most promising new investigators have begun to turn away from careers in academic medicine (7). Nowadays, successful translational research often involves teams of investigators that include basic scientists and clinicians. However, in order to maintain and expand this effort in the coming decades, we must generate sufficient numbers of well-trained “bilingual” physician-scientists, individuals fluent in the languages of biological science and clinical medicine. Should we fail to do so, we risk returning to a former era in which clinical medicine all too often moved forward by reliance on serendipity rather than on the application of sound basic science principles to targeted diseases. Now is the time to focus on providing the best possible niche for our nascent, bilingual hematology trainees and faculty.

Many problems face developing physician-scientists. Much attention has been paid to funding (8), how the pay lines for NIH grants are in the low teens, or worse, how the median age of individuals receiving their first R01 award is where we wish the funding level was, in the forties, or how street wisdom dictates that you must apply early and often so your second revision can finally be funded. But there is an entirely different set of challenges that face our junior colleagues who strive for careers as physician-scientists, hurdles that can best be tackled by effective mentoring. Academic life seems more “complicated” now than when we were junior, with little support for the academic advancement of essential members of scientific teams. Such barriers can appear at the Divisional, Departmental, School and University levels, and we as caretakers of physician-scientist training must make cogent arguments to overcome the promotions committees that inappropriately measure success only in the number of first or senior authored papers in high impact journals. Another obstacle is the basic science/clinical chasm. The common quip “a physician-scientist is neither” illustrates the subtle or overt contempt often held by basic scientists and pure clinicians towards the bilingualists amongst our ranks. Lest our progeny begin to believe that derogatory quip, successful physician-scientists must be visible to our trainees (9). Those
who stand as shining examples of the impact made by translating a basic understanding of disease into novel clinical insights must be coaxed, prodded or forced from their laboratory cloisters to illustrate that it is of the utmost importance to walk in both worlds. But this quip also hints at an important lesson, that few single mentors have the skills to provide all that is needed to sprout and nurture the budding physician-scientist. Now, more than ever, we are in need of outstanding mentors, but here is where the next problem arises: mentoring may have a low priority for busy faculty. One reason for the disengaging mentor is that securing funding now consumes more time for our mid-level and senior faculty, and all too often institutions do not reward mentoring. This must change, our academic leaders must make mentoring a calling, and while certain ingredients of the successful mentor must be intrinsic, such as generosity (of time and praise) and objectivity (the mentor must judge if the trainee has “good hands” and the capacity for original thought), other skills, such as good listening and effective feedback techniques can be taught, and should. Another impediment to physician-scientist training is perpetrated by the “evil” Department Chair or Division Chief, expecting a pound of clinical flesh for an ounce of salary support. With hospital and medical group margins falling, and residency work rules forcing greater faculty participation in the clinical mission, junior faculty are being asked to spend “just one more month” on the inpatient leukemia service. Our senior faculty members who claim to support repopulating our ranks of physician-scientists need to take a step forward and provide the clinical coverage while our more junior colleagues develop investigational skills. Finally, if these issues were not enough, another difficulty our nascent physician-scientists face is the dominant-negative effect of faculty and editorialists who espouse gloom and doom (8). So rather than continue to promote how bad it all looks, we will provide a view of how inspired mentoring can enable favorable outcomes.

In the departments and divisions that consider mentoring essential to reproduction of the species, like any other mission critical aspect of academic life good mentoring is rewarded and bad mentoring is not tolerated. Mentoring is formalized and continually assessed in training curricula and junior faculty development programs. While effective mentors can exhibit different styles, the four pillars of successful mentoring are considered mantra; generosity, listening, objectivity and constructive feedback. New faculty members are oriented to the importance placed on mentoring by senior faculty, and junior faculty are taught to expect guidance, and what is expected of them. New faculty members of the department/division are welcomed by groups of faculty who share common interests; often, the most effective career guidance comes from one’s peers. But each junior faculty member and each interest group also need to meet regularly with the Chair and Division Head to approach the hurdles they face together. In addition to what is gained with one’s laboratory or clinical investigation mentor, the junior faculty member is encouraged to acquire additional skills in clinical research and common laboratory methods from others in the institution. This is intended to achieve what Joe Goldstein refers to as technical courage (10), allowing one to venture beyond the confines of prior experiences. The successful
mentoring program appreciates that one size does not fit all; specific trainee and junior faculty phenotypes are paired with the specific skills and credentials of their mentors. And successful mentors are rewarded academically for a job well done. Each of the challenges that face our junior faculty, achieving funding success, recognition of their critical contributions on a scientific team, gaining confidence in their role as a physician and scientist, achieving technical courage and protection from the demoralizing effects of doomsday chairpersons and editorialists can all be greatly aided by strong mentoring. If mentoring is an option, it is the only option. Future generations of physician-scientists and their patients deserve nothing less.
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References


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