PCI in transition from art to craft

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Since its inception in 1977, PCI has been learned by observing and copying master interventionists, first in less formal circumstances, later in formalized accredited programs and institutions. While, initially, teaching was entirely up to the personality and skills of the masters, later it became, starting in the mid-1980s, more structured and standardized.

Although I had my first experience with PCI as a fellow in cardiology at UCSF, the real insights came only after transferring to St. Vincent's Hospital in Indianapolis. There Cass Pinkerton (interventional cardiology) and Don Schwarten (interventional angiology), both exceptional master interventionists and role models, taught me to see what endovascular interventions are and should be all about. Their accomplished professionalism and unique excellence translated into *consistently* excellent results. While, in those days (late 1980s, early 1990s), 10% or more of conversion rates to coronary surgery were considered acceptable in emergency settings, interventionists would often keep busy „babysitting" their patients in the CCU after long and difficult procedures, finally to bring them back to the catheterization laboratories or, in cases of failure, delivering them to surgery. In contrast, Cass and Don would typically long be done and gone. You could see and recognize their „signatures" while reading angiograms without knowing who did the case. Their documentation was short, yet complete and precise. All decision points were well seen and visualized; the sequences of individual steps seemed to follow some internal, seemingly irreducible logic. The results appeared stent-like, although it was still the pre-stent-era. Collateral damage was rare and, if done, it was usually repaired; there was little room left for luck. Watching Cass or Don doing the cases it seemed that interventions were about instincts and some sort of magic. Despite the fact that cases were always prepared and discussed, the essence of their skills somehow seemed to be left out; too difficult to comprehend, it either was intuitively grasped or it remained hidden and tacit.

Even today, some 20 years later, the way the expert interventionists actually seem to do their cases, still, similar to production of art, appears largely by rather inexplicable mastery and occasionally even by some sort of magic. There are indicators that time has come to change this; that in order to preserve the art we must translate it into craft. What are these indicators? What does it mean and what needs to be done to translate PCI as an art into PCI as a craft?

First, given the increasing number of trainees and interventionists, the supply of gifted teachers is limited and far too low. Second, contrary to the conventional wisdom, performance of endovascular interventions is getting more difficult, despite steadily improving high-tech instrumentation. This is because we treat more disease in sicker and older patients. Third, the environment in which endovascular interventions are performed has dramatically changed due to persistently growing public expectations to achieve ever better results. Fourth, competition for resources is getting increasingly intense. Only stable, transparent, and efficient professional medical practice will serve the future patients and survive.

We all know that PCI is a highly complex activity involving a broad variety of skills. While it appears too complex to be described as a whole, we learned lately it can be studied and learned in a way similar to learning to perform surgery using x-ray or ultrasound instead of direct visual guidance. To this end, first, we need to develop precise and exacting language to allow for clear-cut, unambiguous communication. Thus, definition of PCI terms and standard nomenclature are required. An excellent example of this type of effort is the MEDINA/MADS nomenclature of classification of bifurcation lesions/interventions. Having established a means of communication, we need to extract palpably and precisely the knowledge of master interventionists. To do this, we need to establish a library of well-documented cases and to provide a forum to discuss procedural strategies and tactics in order to spread an understanding of procedural benefits and risks. Having established strategies and tactics for a sufficient number of typical cases, we will be able to develop generalized modules of good clinical practice by systematically redifining the state of PCI-practice.

Transition from art to craft shall establish accepted standards, improve the overall quality, and assure the future role of endovascular interventions in treatment of patients with cardiovascular disease. Concentration of knowledge relevant to progress in PCI and endovascular techniques in general is critical to this process and platforms such as CorVasa play a critical role in this process. It is a great pleasure and priviledge to introduce a series of critical reviews concerning a wide range of novel and time-confirmed diagnostic and therapeutic PCI techniques serving to improve not only the state-of-the-art but also the state-of-the-practice of a broad spectrum of endovascular interventions.