Why We Do Things Differently: Leaders and Followers

Ingemar Davidson[1], Bart Dolmatch[2], John Ross[3], Douglas Slakey[4]

[1] Department of Surgery, UT Southwestern Medical Center and Parkland Memorial Hospital, Dallas, TX - USA
[2] Department of Radiology, UT Southwestern Medical Center and Parkland Memorial Hospital, Dallas, TX - USA
[3] Dialysis Access Institute, Regional Medical Center, Orangeburg, SC - USA
[4] Department of Surgery, Tulane University, New Orleans, LA - USA

Leadership defined. There has been much written about the poorly defined concept of "leadership" ranging from highly scientific investigative work to popular publications and books often with an undertone of humor. In this biased and selective review, with reference to healthcare in general and dialysis access in specific, there is no attempt to even begin to cover the vast amount of literature. This article, instead, tackles new ways of thinking about leadership in general terms, and in particular some of the practical applications in the healthcare workplace hierarchy, specifically within the End Stage Renal Disease (ESRD) and dialysis access care profession. Understanding and applying basic human behavior in response to the leaders' and followers' interactions may improve your center's dialysis access outcomes (1-4).

Most of us are both leaders and followers. As we move between physical spaces - our office, the dialysis unit, the ESRD network facility, the operating room, the hospital, or even visit state and federal government institutions - we assume the leader's or follower's role depending on the specific circumstance in which we are present. In the healthcare environment providers (physicians and nurses) are mostly leaders while patients are mostly followers. To provide the best care for patients, the leaders in the healthcare workplace must demonstrate effective leadership qualities. Let us consider what characteristics people associate with leadership qualities (Tab. I).

Brain anatomy of leaders and followers. Daniel Goleman has written extensively about social intelligence formerly known as emotional intelligence (1,2). Things occur in the brain when people interact socially. There are brain cells that may help define effective and not so effective leaders and followers (2). First, **mirror** cells fire up and generate feedback on leaders' emotions and actions and prompt followers to mirror those feelings and deeds. This explains why the delivery often is more important than the message. A second set of social brain cells are neurons called **spindle** cells, because of their shape, widely dispersed and attached to other cells transmitting thoughts and feelings, guiding our social network system. Spindle cells fire when selecting the best response from several possibilities such as prioritizing a daily to-do list. They help gauge whether someone can be trusted. Within milliseconds they fire off information about how we feel about a person; such "blink" judgments can be very accurate, as follow up metrics reveal (5). Oscillating neurons, a third set of brain cells, coordinate people physically when their bodies move together, like dancing, or when two musicians play together.

How to Increase Your Social Intelligence. Self-conscious attempts to display a high social intelligence or to "look better" can backfire. Most people cannot hide their emotions (6). There is help for poor leaders and their followers. The best way is to identify areas of social weakness and strength and then begin the hard work of modifying behavior. People can be trained in specific areas of social intelligence and develop improved social skills that will have a positive impact on professional performance. Training can range from rehearsing better ways of interacting and trying them out at every opportunity, even being shadowed by a coach (2). In addition, many universities offer credit courses in conflict resolution management.

An effective leader must be able to communicate ideas, concepts and actions to the team they are responsible for. Communication is the very fabric of human interactions, effectiveness, and safety. In aviation, where safety is the bottom line (as it should be in healthcare), the importance of crisp, clear, concise, and timely exchange of information is

TABLE I - CHARACTERISTIC EXPRESSIONS THAT PEOPLE ASSOCIATE WITH EFFECTIVE (GOOD) VS. INEFFECTIVE (POOR) LEADERSHIP

Effective Leader	Ineffective Leader
Knowledgeable	Arrogant
Personable	Insecure
Nice yet firm	No rules
Knows when to draw the line	Moody
Engaging personality	Quick temper
Interdependent thinking (as a team member)	Blames others
	Selective in giving support
Service above self	Shows favoritism
Trustworthy	Self-centered
Good listener	Dishonest
Good sense of humor	Loud and dominating
Goes the extra mile	Poor listener
Does not dictate	

easy to understand. To improve communication educational and training programmes are used and mandated by all major airlines. These programmes are referred to as CRM (Crew Resource Management) or HF (Human Factors). CRM /HF education and training involves the entire team and has at least partially been responsible for the unprecedented safety record of North American aviation in recent years (Tab. II). Communication is about how you say it, when you say it, in what setting you choose to say it, and the words you use to say it (7). Facial expressions and body language influence how people perceive the meaning of the spoken word (6,7). In some cases, the delivery is more important than the actual words used. "Red talk "produces anger and dissent, while "green talk" increases people's connectiveness (1).

In this example of communication in a hospital where hierarchy rules the training programme, the house officer tells Dr. Dolman, "Mr. Smith's oxygen saturation has dropped again." There are several possible responses Dr. Dolman can deliver, each with a predictable effect on a trainee:

1. I am already aware of it. Don't you think I know my job? **(Punishes).**
2. I heard you the first time **(Challenges).**
3. I didn't know you are an instructor **(Embarrasses).**
4. Thanks for backing me up! **(Reinforces)**

The Chemistry of Stress. Even the best communication skills tend to break down under severe stress (7,8). Most people lose control of behavior and conduct when stakes are high (7). In severe stress, such as disasters, untrained individuals go through mental stages of denial, deliberation, even playing dead before taking action. In a medical setting, where people's lives are at stake, stress can reach extreme levels even during relatively routine patient care. To perform optimally when faced it is essential for the entire team to **plan, prepare, and train together to prevent poor performance** (8).

Organizational Culture. There are some common traits by which leadership and followers can be described. Some individuals are 'born' leaders. Self-belief is a fundamental trait of all leaders. A charismatic leader gathers followers with personality and charm, rather than any form of external power or authority. Others are self-proclaimed leaders (i.e. running for high offices), some of whom become elected to leadership roles. Some become military leaders or dictators who control or "lead" large populations. "Leaders" come in all shapes and forms, ranging from the worst or even evil (10) to the best or sainthood (3,8,11), hence there is not one single definition which fits all.

An organizational culture that fosters leadership has leaders with the ability to judge and manage the culture and values of the institution, and understand the unspoken norms and behavior. Who at your institution draws the line for expected behavior (9)? Do people (leaders and followers) mainly engage in self-interests, or are there **support systems** at work (both up and down in a hierarchy)? Is there a programme for **personal development**, such as the presence of mentoring and feedback where key individuals invest time and effort in professional development? Are team members **inspired?** Is there a written or implied mission statement to bring out the best in people and inspire them to do the right thing? Are leaders and followers proud of their company, and do they talk in a positive tone? Do people work as a **team** with shared responsibility and a feeling of ownership? Is **empathy and attunement** evident? Is there an understanding of what drives people to perform (12) and sensitivity for cultural differences? Are team members encouraged to listen attentively to others feelings, beliefs, and needs?

Culture as part of leadership is a poorly defined concept. In the context of this review, it represents unique values, assumptions, and a similar pattern of behavior by a group of people (i.e. a company or a criminal gang). Again, 'culture' and values are present between the extremes of evil and sainthood. (3,10). Modifying a group (company, country) culture can be extremely difficult and usually occurs slowly over time. In the hierarchic setting, change is rooted in the interconnectedness of group members and level of control exerted by its leaders. The reason some individuals, certain institutions and societies, and their projects are more successful than others was not well understood, until 2007,

TABLE II - THE UNPRECEDENTED SAFETY IN NORTH AMERICA COMMERCIAL AVIATION HAS BEEN, IN PART, THE RESULT OF MODIFYING (AND IMPROVING) COMMUNICATION AND MODIFYING AVIATION CULTURE OVER THE LAST FEW DECADES (9)

Turbulent Flights (Aviation "Center Effect")			
	# of Flights (Million Annually)	**Crashes/M Takeoffs 2006**	**Fatalities/M Passengers 2007**
Africa	1.3	2.73	2.49
Middle East	0.7	1.97	0.77
Latin America	2.6	1.02	1.04
Asia	5.0	0.53	0.22
Europe	8.6	0.27	0.28
North America	13.2	0.1	0.03
World	32.7	0.44	0.31

when the Nobel Prize in Economic Sciences was awarded to Hurwicz, Maskin, and Myerson. They shed light on achieving success in businesses, stating that ***"The (our) best intentions for public good will go astray if the Institutional Arrangements are not consistent with the personal self-interests of the decision makers."*** These complex interpersonal relationships are more likely to be subliminally present in large organizations, such as state and government institutions (18-20).

Undertake the hard work of modifying culture. Modifying culture is particularly difficult in academic centers where the tripartite missions of patient care, research, and education inevitably fosters the development of a culture dependent on the competence of highly trained individuals. This focus on individual competency minimizes the importance of providing an environment where teamwork can be practiced and the interconnectedness of quality and safety issues can be addressed. Institutions have tried to modify this culture by introducing methods of improvement and team building learned in high-risk industries where errors can be catastrophic and costly in terms of human life and suffering. These methods are now being taught in the formal training of healthcare professionals at academic health centers, such as the University of Texas System, and appear to have an impact in modifying the culture, improving outcomes, and decreasing sentinel events (Dr Gary Reed, Personal Communication). However, the teaching of healthcare groups, together with an emphasis on HF and CRM, is not yet widely accepted (9).

Modifying institutional culture and behavior entails managing human errors within a complex system. An effective, just, institutional culture must address the balance between safety and accountability, where mistakes or near misses are shared and the information and experiences used for improvement purposes, rather than being met with blame and punishment. There must be accountability and this is where the line is drawn for what is considered acceptable standards. Everybody must know who is drawing the line (Dekker). The importance is not where the line is drawn but who (trusted leader) draws the line (Dekker). How leaders and followers react to these factors will define the teams' effectiveness. Culture change is more likely to take place in mature institutions with an interdependent mindset, where the fundamental component of motivation is in the intrinsic rewards for the behavior, such as trust, in contrast to extrinsic rewards, such as higher pay (12).

Trust is the basic unit of social glue that enables people to interact with each other without fear. This is certainly the case in a hierarchic setting, for all kinds of institutions. Trust is built by a mutual existence with no episodes of intentional harm. However, that is not enough. In fact, trust requires that we actively seek to protect other people, demonstrating that we personally care. Second, trust entails managing commitments and keeping promises. This makes a person predictable. Finally, always telling the whole truth and always acting with integrity builds trust.

The Center Effect. One example of a culture in medical training, such as dialysis access, is the fact that various members of the delivery team are trained in isolation from each other, creating a detachment between the ESRD delivery system and the individual professional efforts. The team certainly never trains together with respect to deviations from expected defined outcomes. Therefore, faced with an actual dialysis access emergency, i.e. bleeding or other unexpected adverse outcome, the response of the dialysis access team is unpredictable and therefore an optimal outcome is unlikely.

Dialysis access level of success depends on every stakeholders individual efforts (**Leaders as Followers) making the Right Decisions.** Some people appear to be more effective and successful. Are these accomplished individuals just struck by good luck? What makes some individuals (professionals) more accomplished than others? In other words, what does it take to become a world-class expert? (13). There are certain professions or activities more easily recognized as having special or exceptional skills and hence referred to as "experts" such as professional athletes and musicians. Dialysis access surgery and interventional procedures including access needle puncturing, also require specific technical skills and knowledge. In addition, an individual can maximize personal and team effectiveness and outcomes by having an interdependent mindset backed up with a seamless, uninhibited flow of information between treating departments and the decision-making governing bodies (3-7,9). Once again, personal attributes defining team players and leaders have been linked to brain cell physiology (2). From this we may hypothesize that when several individuals work in concerted synergy as a team, safety and quality improve. The combined influence of having several individual "experts" creates a natural "Center of Excellence. Conversely, good spirited leadership may suffer negative consequences when organizations are dominated with legal-rational authority characterized by a "blame and shame" culture (9,14). True, expertise develops when professionals openly report and share mistakes that everyone can learn from without risk of punishment (9).

Many confounding factors come into play when promoting optimal outcome and maximize safety in the care of the challenging ESRD patients in general and specifically for dialysis access procedures. The timing and choice of dialysis modality will certainly impact longevity. The transplant community has long recognized the outcome variability between kidney transplant centers reported annually by UNOS (United Network for Organ Sharing) (15). This center difference phenomenon is known as the "Center Effect", a concept generally accepted in the transplant community, although it is difficult to pinpoint what specific factors make a center do better or worse. Dialysis practices and outcomes also vary greatly around the globe as well in the US (16).

The causes of the varying success rates from center to center are clearly multi-factorial (Tab. III). In fact, the synergy of multiple, carefully coordinated actions may reach a criti-

cal mass and represent the popular "Tipping Point" phenomenon as reported by Caldwell in his book with the same title (17). In this context, doing the right thing for the right patient at the right time in the right amount for the right reasons...In other words, every team member has to do many (small yet significant) "rights" for each and every patient to achieve a positive outcome.

The Dark Side of ESRD delivery. Regulations and laws mingled with complex interpersonal relationships are present at most workplaces but more so in large organizations, such as state and government institutions (14). In such institutions, hierarchy dominates the organizational structure and breeds miscommunication at the highest level. The ESRD workplace is a large, complex, organization with the local dialysis unit inextricably connected and responsible to corporations and complex government oversight. Medical training has traditionally emphasized methods in which various members of the team are trained in isolation: physicians with physicians, surgeons with surgeons, nurses with nurses, etc. Training to provide the various aspects of dialysis access follows this old, traditional method. This is an example of a paradigm that creates an adverse culture. Since the team never trains together, they never learn to deal as a group with deviations from expected defined, individual focused outcomes. In contrast, healthcare delivery in a less hierarchic structure, while still being able to respond to a coordinating body, enables the various leaders to move in and out of action more effectively and as needed. The work of each leader is coordinated with the team, enabling each individual to maintain autonomy, thus improving work efficiency and outcomes. An institution's maturity (intertwined with the team's knowledge, skills, and available resources), as well as current political and religious forces, contribute to the level of functionality a center can achieve. This multifactorial fabric is present in most institutions from family to state government.

An Organizational Culture that Fosters Leadership promotes leaders with the ability to judge and manage the culture and values of the institution, and understand the unspoken norms and behavior. Who at your institution determines expected behavior and sets limits (9)? Do people (leaders and followers) mainly engage in self-interests, or are there **support systems** at work (both up and down in a hierarchy) to encourage a team-oriented philosophy? Is there a programme for **personal development,** such as mentoring and feedback in which key individuals invest time and effort to ensure the development of leadership and communication skills? Are team members **inspired?** Is there a written or implied mission statement to bring out the best in people and inspire them to do the right thing? Are leaders and followers proud of their company, and do they speak positively? Do people work as a **team** with shared responsibility and a feeling of ownership? Is **empathy and attunement** evident? Is there an understanding of what drives people to perform (12) and sensitivity for cultural differences? Are team members encouraged to listen attentively to the feelings of others, and to understand other team members' beliefs and needs?

TABLE III - "CENTER EFFECT" FACTORS THAT MAY AFFECT ACCESS OUTCOME

- Leadership effectiveness, including hospital administrative support
- Reactive versus planned dialysis access management style
- Skill, knowledge, and attitude of the access team
- Policies and protocol sophistication and level of adherence
- Process for continuous quality improvement
- Pre-ESRD education programme
- Patient assessment algorithm for mode of dialysis and type of access
- Degree of interdependent thinking among team members and leadership
- Attitude and culture of the institution
- Communication skills between team members (personalities, character, trust level)

Confounding Factors in Competence and Leadership

First, culture in relation to decision-making leaders is poorly understood. In this context culture represents unique values, assumptions, and patterns of behavior maintained by a group of people (i.e. a company or a criminal gang). Modifying a group (company, country) culture can be extremely difficult and usually occurs slowly over time. In the hierarchic setting, change is rooted in the interconnectedness of group members and level of control exerted by its leaders. The reason some individuals, certain institutions and societies, and their projects are more successful than others was not well understood until 2007 when the Nobel Prize in Economic Sciences was awarded to Hurwicz, Maskin, and Myerson. They shed light on achieving success in businesses, stating that ***"The (our) best intentions for public good will go astray if the institutional arrangements are not consistent with the personal self-interests of the decision-makers."*** These complex interpersonal relationships are more likely to be subliminally present in large hierarchic organizations, such as state and government institutions (18-20).

Second, The Peter Principle states, "In a hierarchy every employee tends to rise to their level of incompetence." In other words, leaders and employees (followers) are promoted until they reach a level slightly above their competence and stay there, making them less able to lead or execute or follow orders. Over time, many positions in a hierarchy setting will be filled by someone not competent enough to carry out their new duties. In other words, the leaders and their followers have become independently incompetent. The real work is then accomplished by those employees who have not yet attained their level of incompetence. Perhaps the Peter Principle helps explain why some institutions, companies, and even countries stop thriving and even fail. The cure may involve culture change, less hierarchic structure, interdependent mindset, and self-imposed intrinsic rewards (12).

Third, the Dreyfus model of skill acquisition helps explain how we acquire skills through instruction and practicing. Two brothers, Stuart and Hubert Dreyfus, first proposed the model in 1980. It describes six distinct stages: novice, advanced beginner, competent, proficient, expert, and master. Below is a modified summary of the Dreyfus Scale of Professional and Mental Development (21).

1. **Novice.** This is the true beginner, such as a first year medical student. Plays by the rules, no situation awareness (SA), no discretionary judgment, obeys every rule.
2. **Advanced Beginner.** This individual follows guidelines, has some SA, cannot prioritize in a timely fashion, "all things appear to be equally important." This stage may represent a medical student at graduation and early in residency.
3. **Competent.** Some long-term vision, prepares and plans, accountable, can independently perform standard routine procedures. This level describes a top level house officer.
4. **Proficient.** Holistic views, sets priorities, decisions made easily, some intuition, perceives deviations, adapts to the situation at hand.
5. **Expert.** Intuitive grasp of situations, and analytic vision of what is possible, in control of their professional life. Best described by: "I don't follow rules, I make them." This level is described in detail by Malcolm Gladwell in his book Outliers (13). In general, it takes ten thousand hours of practice to reach the expert level.
6. **Master.** This person is the source of new knowledge, explores new ways, has own unique style, easily bored, likes surprises.

What drives us? Why do we do anything at all? Throughout medical training we were all encouraged by mentors, or leaders, whom we admired and respected. But what really motivated us to become good at our work? Does it matter if we try to teach our residents and fellows to be accessible and responsive, and to provide the best quality care? Will we encourage our trainees if we reassure them not to worry about the uncontrollable ebbs and flows of medicine during their career such as various "speed bumps" not easily controlled in the short term, such as case-by-case reimbursement, loss of certain procedures to other practitioners ("turf"), medicolegal fears, and complacency in the face of progress? How important is the profit motive in how we practice medicine? Of all these factors, what provides the "drive" for our trainees to move forward in their careers, adapt to change, and hopefully serve as mentors and leaders themselves?

Daniel Pink, in his book Drive, (12) reports three types of motivation-related structures, or "operating systems." The Motivation 1.0 operating system is based upon survival. The rule of three tells us: If you have no air, you can only live for three minutes. No water? Three days. No food? Thirty days. Our motivation to survive through Motivation 1.0 is very strong, although today most of us rarely call upon this system where it plays little role in our professional lives.

Motivation 1.0 has given rise to the next operating system, Motivation 2.0, which can be summarized as "reward or punishment" – the carrot or the stick. Do a better job and get something good – more money, maybe a better job, perhaps recognition by your peers or status in the community. But fall behind and there is less pay, or a demotion, or loss of respect.

Today, in the 21st century, Motivation 2.0 cannot adequately explain why we do what we do as physicians (or other professionals who work in deeply cognitive professions). Pink illustrates this with a hypothetical question (now no longer hypothetical) about how to create a major compendium of knowledge. In the first case, a large and deep-pocketed corporation hired many of the smartest people and paid them to research and write about all aspects of our current understanding of everything. Individuals who contribute will receive payment based upon the amount of work and its quality. The cost of this project would ultimately be paid for by the end-users who would be charged a modest amount to access this knowledge. All of this will hopefully serve to increase corporate income and push the project along to even greater acquisition of knowledge.

The second case is a free online encyclopedia where anyone can contribute. No one is paid for their time or effort - the work is completely volunteer-based. And no one has to pay to access any of this information – it is free to anyone who has access to the internet.

In fact, the first scenario was put in place and proved to be unsustainable (Microsoft Encarta was discontinued in 2009) while the second one resulted in Wikipedia, which is the most extensive and widely used encyclopedia on the planet. How could an entirely volunteer-based encyclopedia grow so enormous and important while a reward-based compendium of knowledge failed? Pink explains this with an operating system he calls Motivation 3.0.

While Motivation 2.0 usually works when the task is fairly repetitive or mundane, such as loading boxes into a truck, there is a large body of research showing that when the task requires a higher level of cognitive skill, then more reward may not only fail to get better results, it can lead to worse performance.

How can a reward lead to worse performance? It turns out that for many tasks that require cognitive and decision-making skills, performance is related to the individual's sense of autonomy, mastery, and purpose. These are the three fundamental components of the Motivation 3.0 operating system and they represent intrinsic rewards, not extrinsic rewards such as money or accolades. Wikipedia has become so vast because many very smart people use it as an outlet to express their autonomy, while it allows them to master a subject and provide them with purpose. But when an individual feels pressure to perform for extrinsic rewards, such as a situation where more output equates to more money, then the pressure to produce reduces creative cognitive function. The greater the reward, the more likely that the flow of creative thought will be impaired and performance will be degraded.

This is not just theory – it has been studied and proven repeatedly.

There are profound implications of Motivation 2.0 versus Motivation 3.0 in today's practice of medicine. It is not likely there will be more money for much of what we do, and working longer and harder seems to be endemic in most medical practices. Does that mean that healthcare providers will do a worse job in the future? Probably not, since most of our work is achieved under the Motivation 3.0 operating system, where we are intrinsically rewarded. However, physicians who face the greatest challenges are likely going to be those who are extrinsically motivated, since both money and status (both extrinsic rewards) are less now than ever.

What does this have to do with YOUR motivation? How does this apply to CiDA? Let's hope that your participation in CiDA is not based upon survival (Motivation 1.0). It's also unlikely that there is a reward or punishment associated with attending CiDA (Motivation 2.0). I suspect that most of the attendees and faculty enjoy the challenge of controversy, and want to participate in a way that demonstrates autonomy, mastery, and purpose (Motivation 3.0).

While most of you who attend this year's CiDA meeting will return home with knowledge that can lead to greater efficiency and outcomes, or perhaps even ways to earn a higher income, it is likely to be the pursuit of intrinsic rewards which brought you here. Therefore, in advance of the 8th Annual Controversies in Dialysis Access meeting, we commend you and the faculty for their passion over the pursuit of knowledge that will lead to better care of the thousands of people with end-stage renal disease in the US and around the world. You are a highly intrinsically motivated group!

Summary. Mission statement for leaders and followers: To do the right thing for your fellow man, at the right time, in the right amount, for the right reason; within the framework of your conscience, skills, and knowledge; modeled by the culture and societal laws in which you live.

REFERENCES

1. Goleman D. Social Intelligence: The New Science of Human Relationships 2006. Publ. Bantam Books. IBSN-13:978-0-553-80352-5.
2. Goleman D, Boyatzis B. Social Intelligence and the Biology of Leadership. Harvard Business Review September 2008
3. Covey Steve. The seven habit of highly effective people. 1989. Free Press New York, NY.
4. Davidson I, Dolmatch B, Gallieni M et al. Can your center improve dialysis access delivery? Endovascular today. 2010;73-79.
5. Gladwell Malcolm. Blink. The Power of Thinking Without Thinking. 2005. Little, Brown & Company.
6. Paul Ekman. Emotions revealed. Recognizing faces and feelings to improve communication and emotional life, 2007. Henry Holt and Company LLC.
7. Patterson K, Grenny J, McMillan R, Swizler A. Crucial conversations. Tools for talking when stakes are high. 2002. New York, NY: McGraw Hill
8. Ripley Amanda. The unthinkable. Who survive when disaster strikes - and why. 2008. New York, NY: Three Rivers Press.
9. Dekker S. Just Culture, Balancing Safety and Accountability. 2007 Ashgate Publishing Company.
10. Stone MH. The anatomy of evil. 2009 Prometheus Books
11. Victor Frankle. Men's Search for Meaning. 1959. Beacon Press
12. Daniel H. Pink. Drive New York: Riverhead Books, 2009
13. Malcolm Caldwell. Outliers: The story of Success. 2008 Publ: Little, Brown and Company, New York. HC ISBN 978-0-316-01792-3.
14. Vaughan D. The dark side of organizations: Mistake, misconduct, and disaster. Annu Rev Sociol. 1999:25:271-305.
15. UNOS Center specific report 2004 Annual Report of the U.S. Organ Procurement and Transplantation Network and the Scientific Registry of Transplant Recipients: Transplant Data 1994-2003. Department of Health and Human Services, Health Resources and Services Administration, Healthcare Systems Bureau, Division of Transplantation, Rockville, MD; United Network for Organ Sharing, Richmond, VA; University Renal Research and Education Association, Ann Arbor, MI.
16. Gallieni M, Saxena R, Davidson I. Dialysis Access in Europe and in North America: Are we on the same path? Semin Intervent Radiol. 2009;26:87-105.
17. Malcolm Caldwell, The Tipping Point: How Little Things Can Make a Big Difference; 2000; Little Brown and Company, New York, ISBN 0-316-31696-2
18. Maskin E. Nash equilibrium and welfare optimality. Paper presented at the summer workshop of the Econometric Society in Paris, June 1977. Published 1999 in the Review of Economic Studies 66, 23-38.
19. Myerson R. Optimal auction design. Mathematics of Operations Research 1981;6:58-73.
20. Hurwicz L. Optimality and informational efficiency in resource allocation processes. In: Arrow, Karlin and Suppes, eds. Mathematical Methods in the Social Sciences, Stanford University Press 1960.
21. USAF.http://stinet.dtic.mil/cgibin/GetTRDoc?AD=ADA084551&Location=U2&doc=GetTRDoc.pdf