EDITORIAL

Addressing the clinical microsystems and mesosystems for superior patient outcomes

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In a highly interesting book (published in 2002), "It's your ship,"[1] Captain D. Michael Abrashoff practically describes his experience as to how he transformed a poor performing merchant navy ship in to top of the line merchant navy ship, named 'Benfold.' Abrashoff, when assumed charge of this ship, instead of sitting in his office, went out daily to meet the crew at their working spot, made every effort to know each of the 300 crew members in person (building trust and rapport), asked them to explain their daily work (understanding the current process), asked them as to how this process could be improved (acknowledgement and inviting their creative potential). Abrashoff listened aggressively and discovered that his crew was smart, talented and packed with good ideas. As a result of his interaction with his front liners, Abrashoff developed respect for his crew enormously. In return he also earned the respect of his crew. He took this engagement to the next step but providing the means and resources to the process owners to implement their ideas (leadership and empowerment). Slowly but surely the entire merchant navy ship was transformed to the top slot as compared to all of its competitors. The key to this successful transformation was; 'to see the ship through the eyes of the crew'. The same concept as applied to healthcare will be; 'viewing the process of care through "the eyes of the internal customers (the process owners, i.e the healthcare workforce) and external customers (the patients, families and communities).'

One of the key principles in the philosophy of management, as stated by W. Edwards Deming, is that; "the pride of the workman is in his creation".[2] No worker whether be in healthcare sector, other service delivery sector or in production based sector wants to be associated with a poor performing process, output or outcome. When we relate it to the healthcare sector the performance of each process (microsystem) becomes crucial as the microsystems are supposed to be connected with each other to provide holistic, seamless, timely, safe and effective care to the patients.

The various processes in a ship must work well and support the other services and the leader of the ship must lead the ship with a clear vision and direction so that the ship may reach its destination at the designated time with safety of the ship, it's occupants and the valuables. Indistinct destination, imprecise decisions, defective processes, lack of process ownership, lack of drive among the process owners; may lead to delays, waste of resources including time, materials and human resource and a drift away from the destination. Healthcare set-up could be considered as one big ship. Therefore the same principles do apply to healthcare processes, connectivity between the processes, and interaction of all these with factors with the patients to produce favourable or un-favourable patient outcomes.

Clinical microsystems are the essential building blocks of larger organizations and of the health system (Figure 1).[3] They are the place where patients, families, and care teams meet. Clinical microsystems do the real, hands-on, value-added work within an organization. They are the living units and always have a patient (person with a health need) at their center.[3] Examples of clinical microsystems are the patient appointment seeking process, out-patients clinic processes, out-patient admission process, ER registration process, ER triage process, ER CPR process, ER observation room process, ER admission process, ER to other hospital referral process, ICU processes, lab processes, operation room processes, pharmacy processes, multi-disciplinary approach to patient processes, patient discharge process, primary health care processes, referral process from primary healthcare to secondary and tertiary healthcare centers and homecare processes.

Mesosystem is a healthcare delivery system composed of

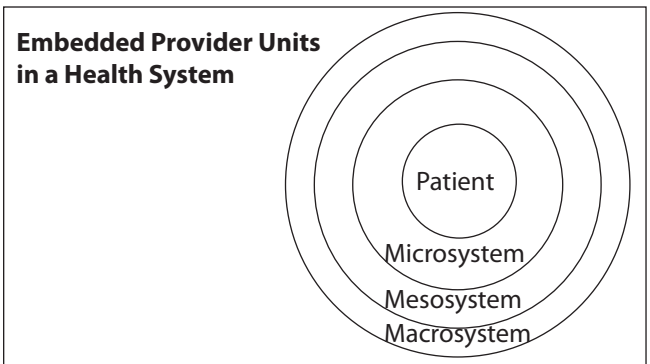

Figure-1: Clinical microsystems are embedded in larger systems and are by definition patient-centric.

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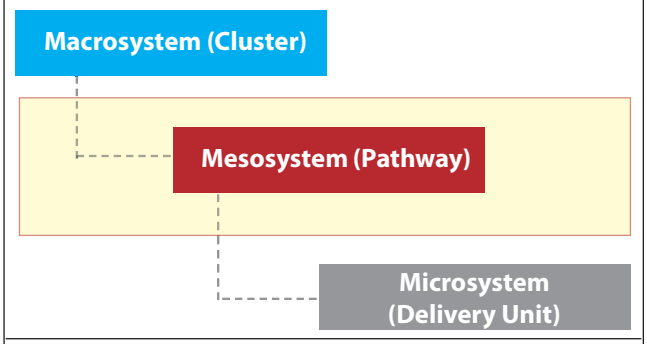

Figure-2: Overview of the microsystem, mesosystem and macrosystem in healthcare delivery and governance

various microsystems which are well-connected together to provide care that is seamless, timely, efficient as well as effective in terms of patient outcomes (Figure 2).[3] A mesosystem more importantly ensures continuity of care starting from the community (including promotive and preventive measures) to the primary health care centre to secondary and tertiary healthcare centers, emergency care and homecare needs of the patients.

Macrosystem is a healthcare management organization such as a hospital, a group of healthcare providers (cluster), healthcare administration, corporate agency, company, or a public sector organization such as ministry. The macrosystem governs the overall system and monitors and ensures that the care is being provided as planned. (Figure 2).[3]

In designing the microsystems and mesosystems we must pay attention to:[3]

1. Purpose: What is the objective of re-arranging the microsystem or creating the care pathway (mesosystem). The foremost objective should be to cut short the wastes (Muda[4] or Lean management), control the inconsistent process (Mura) and deal with an over-burdened process (Muri). In addition address the six domains of quality of care[5,6] which are; safe care, patient centered, timely, efficient, effective and equitable care. We could additionally aim to target the eight dimensions of patient centered care.[7]

2. Patients: What is the definition of our patient population for whom we want to improve the microsystem or create a new mesosystem.

3. Professionals: Who are the professionals associated with the microsystem or mesosystem. What is the competency level of the professionals involved.

4. Processes: What is the current microsystem or mesosystem and what should be the future state. For this

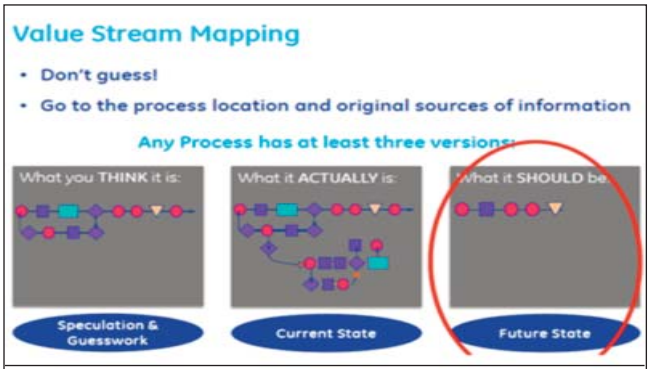

Figure-3: Value stream mapping after doing the Gemba walk

one needs to visit the Gemba.[8] Gemba is a Japanese term meaning "the real place." Talk to the frontline staff (the concept of 'it's your ship,' and 'pride of workman is in his creation,' and perform the value stream mapping[9] (Figure 3). The objective of Gemba Walk is to understand the value stream and its problems rather than review results or make superficial comments. The Gemba Walk, is an activity that takes management to the front lines to look for waste and opportunities to practice gemba kaizen. After value stream mapping enhance the steps what the patient values and minimize or eliminate the steps which the patient does not value. Value added steps are the ones for which the patient is willing to pay and these are the steps that enhance patient satisfaction.

5. Patterns: What patterns (KPI's: key performance indicators) do we need to design and monitor in order to know as to how well the newly designed microsystem or mesosystem is performing. They should cover aspects of inputs (such as; number of critical care nurses, number of ICU beds, number of cardiac surgeons, number of ambulances) activities (such as; waiting time for category 2 patients in ER, lead time in a one-stop clinic, cycle time of blood gases in lab, turn around time of lab test order by physician in ER to result on screen), outputs(such as; volume of category 1 patients in ER, number of cardiac revascularization procedures performed, CAT scans done in ER) and outcomes (such as; % patient survival after MERS Co-V, % complications after laparoscopic cholecystectomy, % patient satisfaction, % workforce satisfaction).

The whole idea is about transforming the way we perceive healthcare, viewing the process of care through the eyes of the internal customers (the process owners) and external customers (the patients), addressing the patients unmet needs, enhancing the value added steps and eliminating or minimizing non-value added steps from the microsystems and mesosystems. We should be the catalyst for change and be on a continuous guard to sustain the

change.

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