



## **TASK-SHIFTING - AN ALTERNATIVE SURVIVAL STRATEGY FOR HEALTH - CARE ORGANIZATIONS**

**Architha Aithal\* & P. S. Aithal\*\***

\* Third Year Doctor of Pharmacy, Srinivas College of Pharmacy, Mangalore, Karnataka

\*\* Srinivas Institute of Management Studies, Srinivas University, Mangalore, Karnataka

**Cite This Article:** Architha Aithal & P. S. Aithal, “Task-Shifting - An Alternative Survival Strategy for Health - Care Organizations”, International Journal of Scientific Research and Modern Education, Volume 2, Issue 2, Page Number 34-48, 2017.

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### **Abstract:**

There are many types of strategies to be followed by managers and leaders depending on the type of problems, objectives, circumstances, privileges, preferences, advantages, constraints and opportunities. Alternative strategy and survival strategy are two important strategies which are to be used in the strategic management of organizations depending on the constraints in availability of required resources and the intensity of problems in hand. These strategies can be effectively used in the healthcare sector to manage the acute shortage of professionally qualified healthcare workers in developing countries. Despite many trained healthcare professionals our healthcare system is struggling to provide optimum services to the patients. This shortage is further increased by a high burden of infectious diseases, emigration of trained professionals, difficult working conditions, and low motivation by country governments. Even though, the permanent solution to this problem is to create more professional doctors by increasing training courses, training facilities through modifying government policies and enhancing resources to do so, such actions and resultant solutions take a long time to realize in practice. Hence a quick optimum solution is needed for alternative survival to address the critical shortage of trained healthcare professionals. Out of many alternatives, the best alternative for healthcare executives in any hospital or primary health centre is the strategic decision of thinking and implementing an alternative survival management strategy called the strategy of task-shifting. Task-shifting and sharing is a management strategy in which the clinical care responsibilities are transferred from more specialized professionals to less specialized health workers or to parallel area professionals through proper delegation. In this paper, we have discussed the concept of Task-shifting in the healthcare sector as an alternative survival strategy used in strategic management subject. By means of reviewing the papers published in the concept of Task-shifting in the healthcare sectors in different countries between 2008 to 2017, and studying systematic review papers published during 2012 to 2017, we have analysed this strategy and concluded that it is acceptable and working as an alternative survival strategy in many countries. We have also discussed a basic model of Task-shifting by taking all stakeholders into account, skills required for Task-shifting, possible Task-shifting methods among different professionals in healthcare management, and other alternative solutions to solve the scarcity of qualified medical professionals. The opportunities and challenges of this alternative survival strategy are also discussed. Finally, based on the analysis of various systematic reviews on Task-shifting, some suggestions are proposed while using Task-shifting as an alternative survival strategy.

**Key Words:** Task-shifting, Healthcare system, Patient care, Alternative strategy, Alternative survival strategy, Task-shifting as working strategy & Role of paramedical professionals in Healthcare.

### **1. Introduction:**

Strategy in management is a process of identifying and realizing the both short term and long term goal while solving a problem by using optimum resources and efforts. It is a short-cut way of ensuring success in a given task. There are many types, methods of implementation of strategies by managers and leaders depending on the type of problems, objectives, circumstances, privileges, preferences, advantages, constraints and opportunities. Organizations have considered strategic management as an important part of decision making processes related to internal and external challenges as well as present and future challenges of them.

Various types of strategies are used in organizations to tackle operational challenges, tactical challenges, and executive planning & implementation challenges. They are competitive strategy or red ocean strategy [1], monopoly strategy or blue ocean strategy [2], sustainable strategy or green ocean strategy [3], and survival strategy or black ocean strategy [4]. Apart from these at different circumstances, business organizations also follow strategies which can be classified as operational level strategies [5], business level strategies [6], corporate level strategies [7], and international business strategies [8] to ensure long term sustainability in their business. Implementation of these strategies sometimes needs huge amount of resources and time. Due to organizational, business, or environmental constraints, many organizations may not be able to implement planned strategies to achieve their goal. In such cases, organizations can follow parallel strategy as a short term strategy to optimally achieve the goal at least for some time until a permanent solution to the problem is available. Such strategy is called “*Alternative Strategy*” and is finding attraction and followed by many managers & leaders to provide a temporary solution to an intensive problem. An alternative strategy is a strategy to achieve the

objectives of a problem when the constraints are very strong and difficult (sometimes impossible) to crack. Strategic management ideas can be used in different types of organizations for solving problems related to national and international business environment both manufacturing and service sectors optimally. Alternative strategy concept is not much proposed and used in business management but it is several times used in material preparations in material science [9] and in biological and medical sciences [10]. Alternative strategy concept is suggested in even social sciences where based on cost/benefit analysis one can follow alternative strategy than the suggested strategy to solve a problem [11].

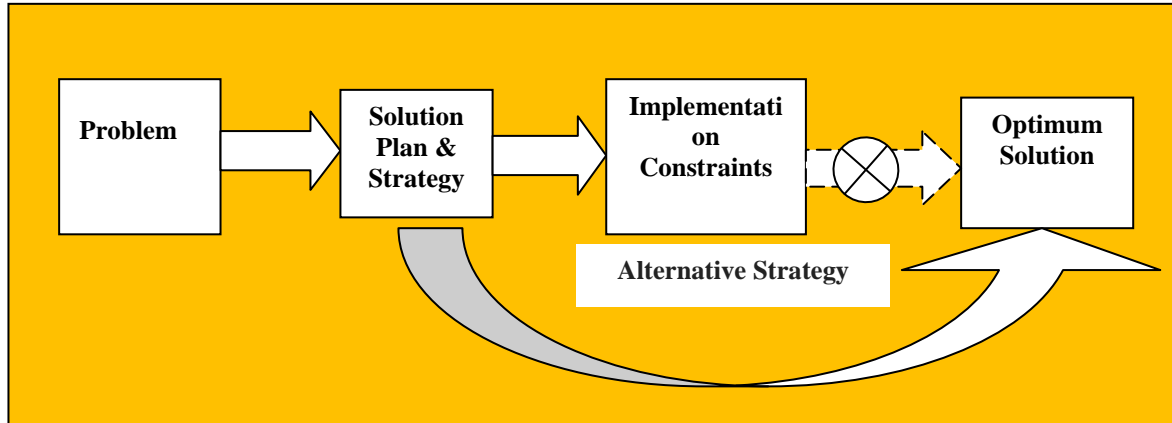


Figure 1: Block diagram to represent Alternative Strategy.

## 2. Task-Shifting as an Alternative Strategy of Healthcare Management:

The idea of using alternative strategy can be implemented in healthcare sector, to provide quick solutions to the shortage of trained healthcare professionals using a concept called Task-shifting. Task-shifting can be regarded as an Optimum Patient Survival Management Strategy for Health-care Organizations in Developing Countries where there is an acute shortage of trained professionals. The healthcare sector is facing the crisis in certified healthcare professionals due to a critical shortage of such trained people. This shortage is further intensified by a high burden of infectious diseases, emigration of qualified professionals, complex working conditions, and less motivational support by country governments. It will take a long time to get trained healthcare professionals as per society requirement due to many implementation constraints, especially in developing countries. As a result, there is a huge burden on Healthcare professionals due to an increased number of the patient load which leads to the improper patient care and finally leads to the degradation in the quality of healthcare services. The alternative strategy followed by many such cases is Task-shifting. Task-shifting is an innovative concept or an alternative survival strategy in the healthcare sector in many countries where the medical care task is shifting between healthcare workers. The idea of Task-shifting is developed to promote rapidly required human resource capability. Such process is also referred as the delegation of health and medical service responsibilities from upper to lower cadre or from one cadre to another cadre of health staff, and in some cases even to non-professionals [12-13]. The delegation of tasks from one cadre to another, previously often called substitution [14], is not a new concept. It has been used in many countries and for many decades, either as requirements to emergency needs or as a method to provide adequate healthcare service at primary and secondary levels, especially in rural and urban health centres with understaffed facilities, and also to enhance quality and reduce costs [15]. However, rapidly increasing the need of healthcare generated by the HIV/AIDS epidemic, accelerating trained human resource crises, and unrest in many African countries, which contribute to the collapse or near-collapse of public health systems and increasing health service inequalities to the needy patients within and between countries, have given the solution in the form of the concept and practice of Task-shifting as new prominence and urgency. Such Task-shifting strategy among suitable skilled /knowledgeable human resources (skilled people available in relative/paramedical areas) is observed to be an effective and efficient alternative strategy of healthcare management.

It is observed that the World Health Organization also advocated a quick solution to the problem of deficiency of health professionals by means of transferring clinical care responsibilities from more specialized professionals to less specialized professionals or parallel specialized professionals through proper delegation. This alternative strategy to realize the objective of providing healthcare to the needy people is one major objective of United Nations Sustainable Development Goals [13]. Thus in healthcare management, by shifting the task of providing healthcare services from one cadre of health staff to another cadre based on providing sufficient training to handle the situations, the organizations and the countries can find alternative optimum solutions to the shortage of health workers. More precisely, Task-shifting describes a situation where a patient care task normally carried out by a physician is transferred to a health professional with a different but related or lower level of education and training, or to a person trained specifically to perform a limited task only for a short period, without having a formal health education. Such innovative solutions in every sector not only

healthcare are therefore required through adopting alternative patient survival strategy to quickly expand the workforce in an emergency to meet the demand of another area within the organization without much training.

### **3. Literature Review:**

Task-shifting is officially accepted and further suggested by World Health Organization during 2007 and developed global recommendations and guidelines on its website on Task-shifting: rational redistribution of tasks among health workforce teams: global recommendations and guidelines [16]. Thereafter, a number of research papers have been published on Task-shifting in the healthcare sector. During the year 2008, McPake, et al [17] published an article on Task-shifting in Healthcare in resource-poor countries and Zimmerman, et al [18] have published an article on Task-shifting and innovative medical education--moving outside the box to serve rural Nepal. During the year 2009, Lehmann, et al worked on Task-shifting: the answer to the human resources crisis in Africa [19], Morris, et al studied Use of task-shifting to rapidly scale-up HIV treatment services: experiences from Lusaka [20], Shumbusho et al studied Task-shifting for scale-up of HIV care: evaluation of nurse-centered antiretroviral treatment at rural health centers in Rwanda [21], De Brouwere et al studied Task-shifting for emergency obstetric surgery in district hospitals in Senegal [22], and Chu et al studied surgical Task-shifting in sub-Saharan Africa [23]. During the year 2010, Lekoubou et al studied Hypertension, diabetes mellitus and Task-shifting in their management in sub-Saharan Africa [24], McCollum et al made a retrospective observational study on Task-shifting routine inpatient pediatric HIV testing improves program outcomes in urban Malawi [25], and Callaghan et al made a systematic review of task-shifting for HIV treatment and care in Africa [26]. During the year 2011, Ivers et al studied Task-shifting in HIV care: a case study of nurse-centered community-based care in rural Haiti [27], Gessesew et al [28] studied Task-shifting and sharing in Tigray, Ethiopia, to achieve comprehensive emergency obstetric care, and Nabudere et al studied Task-shifting in maternal and child Healthcare : an evidence brief for Uganda [29].

During the year 2012, Dambisya et al published a Case study on policy and programmatic implications of Task-shifting in Uganda [30], Ferrinho et al studied Task-shifting: experiences and opinions of health workers in Mozambique and Zambia [31], Ford et al made a systematic review and meta-analysis on Safety of task-shifting for male medical circumcision [32], Mdege et al [33] studied the effectiveness and cost implications of task-shifting in the delivery of antiretroviral therapy to HIV-infected patients, and Buttorff et al studied economic evaluation of a task-shifting intervention for common mental disorders in India [34]. During the year 2013, Dawson et al studied Task-shifting and sharing in maternal and reproductive health in low-income countries: a narrative synthesis of current evidence [35], Guilbert et al studied challenges of implementing task-shifting in contraceptive care—an experience in Quebec, Canada [36], and the FIGO Committee for the Ethical Aspects of Human Reproduction developed a policy for task-shifting in obstetric care [37]. Iwu et al [38] studied Task-shifting of HIV management from doctors to nurses in Africa: Clinical outcomes and evidence on nurse self-efficacy and job satisfaction, Joshi et al made a systematic review on Task-shifting for non-communicable disease management in low and middle income countries [39], Kredo et al made a study on Task-shifting from doctors to non-doctors for initiation and maintenance of antiretroviral therapy [40].

During the year 2015, Maier et al studied the role of governance in implementing task-shifting from physicians to nurses in advanced roles in Europe, US, Canada, New Zealand and Australia [41], Gichangi et al studied Task-shifting for eye care by giving responsibility to general nurses as trichiasis surgeons in Kenya, Malawi, and Tanzania [42], Crowley et al studied trends in Task-shifting in HIV treatment in Africa: Effectiveness, challenges, and acceptability to the health professions [43], Agyapong et al studied Task-shifting of mental Healthcare services in Ghana: ease of referral, perception, and concerns of stakeholders about quality of care [44], Jayasekera et al studied task-shifting as an approach to decentralized treatment of hepatitis C patients in medically underserved areas [45]. Gupta et al studied Task-shifting in surgery: lessons from an Indian Heart Hospital [46], Akinyemi et al studied task-shifting training improves stroke knowledge among Nigerian non-neurologist health workers [47], and Bhushan et al studied Task-shifting: A key strategy in the multipronged approach to reduce maternal mortality in India [48].

During the year 2016, Maier et al made a comparatively study on Task-shifting from physicians to nurses in primary care in 39 countries: a cross-country [49], Santos et al, published an overview of the mental health system in Mozambique: addressing the treatment gap with a task-shifting strategy in primary care [50], Jayasekera et al studied a case for Task-shifting on Hepatitis C treatment delivery mandates optimizing available Healthcare human resources [51], Some et al studied Task-shifting the management of non-communicable diseases to nurses in Kibera, Kenya [52], Hadorn et al studied task-shifting using a Pain Management Protocol in an Emergency Care Service: Nurses' Perception through the Eye of the Rogers's Diffusion of Innovation Theory [53], Yoo et al studied task-shifting-A practical strategy to improve the global access to treatment for chronic hepatitis C [54], and Kayingo et al studied Task-shifting and capacity building for non-communicable diseases in Uganda [55], Gyamfi et al studied a mixed-methods of training nurses in task-shifting strategies for the management and control of hypertension in Ghana [56], Bischoff et al studied the Experiences of Task-shifting to Reduce Mental Health Disparities in Underserved, Rural Communities [57], Magidson et al studied

Task-shifting and Delivery of Behavioral Medicine Interventions in Resource-Poor Global Settings: HIV/AIDS Treatment in sub-Saharan Africa [58], Iwelunmor et al exploring stakeholders' perceptions of a task-shifting strategy for hypertension control in Ghana: a qualitative study [59], Keller et al studied task-shifting impact of introducing a pilot community health worker cadre into Zambia's public sector health workforce [60], Sanyahumbi et al studied Task-shifting to clinical officer-led echocardiography screening for detecting rheumatic heart disease in Malawi, Africa [61], Landes et al studied Task-shifting of triage to peer expert informal care providers at a tertiary referral HIV clinic in Malawi: a cross-sectional operational evaluation [62], Kattakuzhy et al made a Nonrandomized Clinical Trial expansion of Treatment for Hepatitis C Virus Infection by Task-shifting to Community-based Nonspecialist Providers [63], Galárraga et al made a cost-benefit analysis of task-shifting alcohol interventions for HIV+ persons in Kenya [64], Okyere et al analysed task-shifting as a solution to the health workers' shortage in Northern Ghana [65], Aithal Architha et al made an Empirical Study on the Importance of Task-shifting in Current Healthcare System [66], Aithal Architha et al also made a study on Task-shifting: A Need for Current Healthcare System [67], Mumtaz et al analysed a question does Task-shifting among parts of a weak health system help? [68], Spies et al made an exploratory descriptive study on Task-shifting in East Africa [69], and Mbeye et al made a systematic review and meta-analysis on Shifting tasks from pharmacy to non-pharmacy personnel for providing antiretroviral therapy to people living with HIV [70].

#### **Task-Shifting Systematic Review:**

A systematic review on task-shifting is carried out for HIV treatment and care in Africa by Callaghan, M. Et al. during 2010 [71]. They reviewed 84 core articles out of 2960 articles falling into the related area, 51 reported outcomes, including research from 10 countries in sub-Saharan Africa and concluded that Task-shifting is an effective strategy for addressing shortages of human resource in HIV treatment and care. According to them, Task-shifting offers cost-effective, high-quality care to many patients than a physician-centered model. The major implementation challenges include availability of paramedical staff, adequate and sustainable training, support and pay for staff in new roles, the integration of new members into healthcare teams, and the compliance of local regulatory bodies. Thus their study suggested that careful implementation should be essential in Task-shifting where human resources shortages threaten the rollout programmes [71].

Fulton, B. D., et al reviewed the health workforce skill mix and Task-shifting in low income countries [72]. The review provides substantial evidence that Task-shifting is an important policy option to help acute workforce shortages and skill mix imbalances. It also suggested Task-shifting is promising, challenging and compare the results of the new cadre with the traditional cadre and concluded that Task-shifting is a promising policy option to increase the productive efficiency of the delivery of Healthcare services, increasing the number of services provided at a given quality and cost [72].

During 2012, Emdin, C. A., et al [73] carried out a systematic review evaluating the impact of Task-shifting on access to antiretroviral therapy (ART) in sub-Saharan Africa. They defined Task-shifting as the shifting of antiretroviral therapy initiation and management from physicians to nurses and proposed it as a possible method to increase access to HIV treatment in Sub-Saharan Africa. They identified 25 articles which evaluated the effect of Task-shifting and found that Task-shifting increases access, even though the studies were of low methodological quality. They concluded that Task-shifting appears to be most effective at increasing access when combined with other interventions and financial support [73].

A systematic review on the effectiveness and cost implications of task-shifting in the delivery of antiretroviral therapy to HIV-infected patients is also conducted by Mdege, N. D., et al during 2012 [74]. As per their study, Task-shifting resulted in substantial cost and physician time savings and concluded that task-shifting from doctors to nurses, or from healthcare professionals to lay health workers can potentially reduce costs of antiretroviral therapy provision without compromising health outcomes for patients. Task-shifting is, therefore, a potentially effective and cost-effective approach to address the human resource limitations to antiretroviral therapy rollout [74].

Another systematic review and meta-analysis is done on Safety of task-shifting for male medical circumcision by Ford, N., et al during 2012 [75]. By using the published data up to July 2012 and found ten suitable studies and concluded that Task-shifting of male medical circumcision to non-physician clinicians can be done safely, with reported rates of adverse events similar to doctors and specialists [75].

A systematic review of qualitative evidence on barriers and facilitators to the implementation of task-shifting in midwifery services is conducted by Colvin, C. J., et al during 2013 [76] by including thirty-seven studies to find (1) challenges in defining and defending the midwifery model of care during Task-shifting, (2) training, supervision and support challenges in midwifery Task-shifting, and (3) teamwork and Task-shifting and concluded that Task-shifting may serve as a powerful means to address the crisis in human resources for maternal and newborn health, it is also a complex intervention that generally requires careful planning, implementation and ongoing supervision and support to ensure optimal and safe impact [76].

In another review done during 2013, Padmanathan, et al [77] studied the acceptability and feasibility of task-sharing for mental healthcare in low and middle income countries both qualitative and quantitative data were extracted and reviewed using a comparative thematic analysis. In total, 21 studies were included, nine of



which were of strong or adequate quality and twelve of unknown quality. The review highlighted that task-sharing is not an outright solution for overcoming human resource shortages in low and middle income countries. A number of factors need to be considered in order for task-sharing to be acceptable and feasible, for example, the incidence of distress experienced by the task-sharing workforce, their self-perceived level of competence, the acceptance of the workforce by other Healthcare professionals and the incentives provided to ensure workforce retention [77].

A systematic review on Task-shifting for Non-Communicable Disease (NCD) Management in Low and Middle Income Countries is carried out by Joshi, R., et al during 2014 [39]. They reviewed 22 articles related to Task-shifting and found that tasks performed by nonphysician health workers (NPHWs) included screening for NCDs and providing primary healthcare. The majority of studies showed improved health outcomes when compared with usual healthcare, including reductions in blood pressure, increased uptake of medications and lower depression scores. Factors such as training of NPHWs, provision of algorithms and protocols for screening, treatment, and drug titration were the main enablers of the task-shifting intervention. The main constraints identified were restrictions on prescribing medications and availability of medicines. They also demonstrated that task-shifting was cost-effective [39]. They concluded that task-shifting from physicians to NPHWs, if accompanied by health system re-structuring is a potentially effective and affordable strategy for improving access to healthcare for NCDs.

Ogedegbe, G., et al during 2014 [78] reviewed randomised controlled trials of Task-shifting interventions for cardiovascular risk reduction in low-income and middle-income countries and concluded that effective task-shifting interventions targeted at reducing the global cardiovascular disease (CVD) epidemic in low-income and middle-income countries (LMICs) are urgently needed [78].

Another systematic review on Task-shifting for the delivery of pediatric antiretroviral treatment is published by Penazzato, M., et al during 2014 [79] on Task-shifting for the delivery of pediatric antiretroviral treatment. Five databases and two conferences were searched from inception till August 01, 2013. Eight observational studies provided outcome data for 11,828 children who received ART from nonphysician providers across 10 countries in sub-Saharan Africa. They suggested that Task-shifting of ART care can result in outcomes comparable to routine physician care, and this approach should be considered as part of a strategy to scale-up paediatric treatment. They also suggested that specialist care should remain important for management of sick patients and complicated cases [79].

A systematic review was conducted by Martínez-González, N. A., et al during 2015 [80] to compare resource utilization with task-shifting from physicians to nurses in primary care [80]. Literature searches yielded 4,589 citations. Twenty studies comprising 13,171 participants met the inclusion criteria. Meta-analyses showed nurses had more return consultations and longer consultations than physicians but were similar in their use of referrals, prescriptions, or investigations. The evidence has limitations but suggests that the effects may be influenced by the utilization of resources, context of care, available guidance, and supervision. Cost data suggest physician–nurse salary and physician’s time spent on supervision and delegation are important components of nurse-led care costs.

Another systematic review on the impact of physician–nurse Task-shifting in primary care on the course of a disease is published by Martínez-González, N. A., et al during 2015 [81]. In their study, they used twelve randomized controlled trials (RCTs) comprising 22,617 randomized patients conducted mainly in Europe. Nurse-led care was delivered mainly by nurse practitioners following structured protocols and validated instruments. 84 % of the result showed no significant differences between nurse-led care and physician-led care, nurses achieved better outcomes in the secondary prevention of heart disease and a greater positive effect in managing dyspepsia and at lowering cardiovascular risk in diabetic patients [81]. The review concluded that the trained nurses may have the ability to achieve outcome results that are at least similar to physicians’ for managing the course of disease.

Polus, S., et al published a review paper [82] during 2015, identified six randomized controlled trials published between 1977 and 1995 that assessed the safety and effectiveness of Task-shifting for the delivery of long-term contraceptives. Two studies assessed intrauterine devices (IUD) insertion by nurses compared to doctors, two assessed IUD insertion by auxiliary nurse-midwives compared to doctors, one assessed tubal ligation by midwives compared to doctors, and one assessed the delivery of vasectomy by medical students compared to doctors. They did not find any difference in contraceptive outcomes between cadres. The results showed that Task-shifting for the delivery of long-term contraceptives may be a safe and effective approach to increasing access to contraception [82].

Crowley, T., et al. [83] studied database on Task-shifting for HIV treatment between 2009 and 2014. Their evidence suggests that Task-shifting is an effective strategy for addressing human resource constraints in healthcare systems in many countries and provides a cost-effective approach without compromising patient outcomes. The strategy generally seems to be accepted by the health professions although several arguments against Task-shifting as a long-term approach have been raised. Based on their study, they concluded that Task-

shifting occurs in many settings other than HIV treatment programmes and is viewed as a key strategy for governing human resources for healthcare [83].

The review conducted by Federspiel et al [84], surgical Task-shifting occurred in 30 (33%) of 92 countries and interpreted that Task-shifting is used to augment the global surgical workforce across all geographical regions and income groups. Associate clinicians are ubiquitous among the global surgical workforce and should be considered in plans to scale up the surgical workforce in countries with workforce shortages.

During 2016, Lee et al [85] conducted a narrative review of published comparative clinical trials that evaluated efficacy or effectiveness of clinic-based cardiovascular disease (CVD) prevention and management quality improvement interventions in LMICs. From 847 articles identified in the electronic search, 49 met full inclusion criteria and were selected for review. Selected studies were performed in 19 different LMICs. There were 10 studies of system level quality improvement interventions, 38 studies of patient/provider interventions, and one study that fit both criteria and suggest that CVD care quality improvement can be successfully implemented in LMICs.

A Cross-country comparative research, based on an international expert survey, plus literature scoping review is made by Maier et al [86]. A total of 93 country experts participated, covering Europe, USA, Canada, Australia and New Zealand. Task-shifting, where nurses take up advanced roles from physicians, was implemented in two-thirds of countries. Many countries have implemented task-shifting reforms to maximise workforce capacity. Reforms have focused on removing regulatory and to a lower extent, financial barriers, yet were often lengthy and controversial.

The systematic review published by Seidman et al [87] investigates whether Task-shifting in low-income and middle-income countries (LMICs) results in efficiency improvements by achieving cost savings. The study identified 794 articles, of which 34 were included in their study. They found that substantial evidence exists for achieving cost savings and efficiency improvements from Task-shifting activities related to tuberculosis and HIV/AIDS, and additional evidence exists for the potential to achieve cost savings from activities related to malaria, NCDs, NTDs, childhood illness, and other disease areas, especially at the primary healthcare and community levels. The study concluded that Task-shifting presents a viable option for health system cost savings in LMICs and Task-shifting can improve population health and health systems efficiency in their countries [87].

During 2017, Mbeye et al [88] conducted comprehensive searches of peer-reviewed and gray literature. Three studies with 1993 participants met the inclusion criteria, including two cluster trials conducted in Kenya and Uganda and an individually randomised trial conducted in Brazil. They found very low certainty evidence regarding mortality due to the low number of events. Therefore, they are uncertain whether there is a true increase in mortality as the effect size suggests or a reduction in mortality between pharmacy and non-pharmacy models of dispensing ART.

The above elaborative review results on Task-shifting inspired to study the nature of strategy involved in Task-shifting of healthcare services in developing countries.

#### **4. Task-Shifting as an Alternative Survival Strategy:**

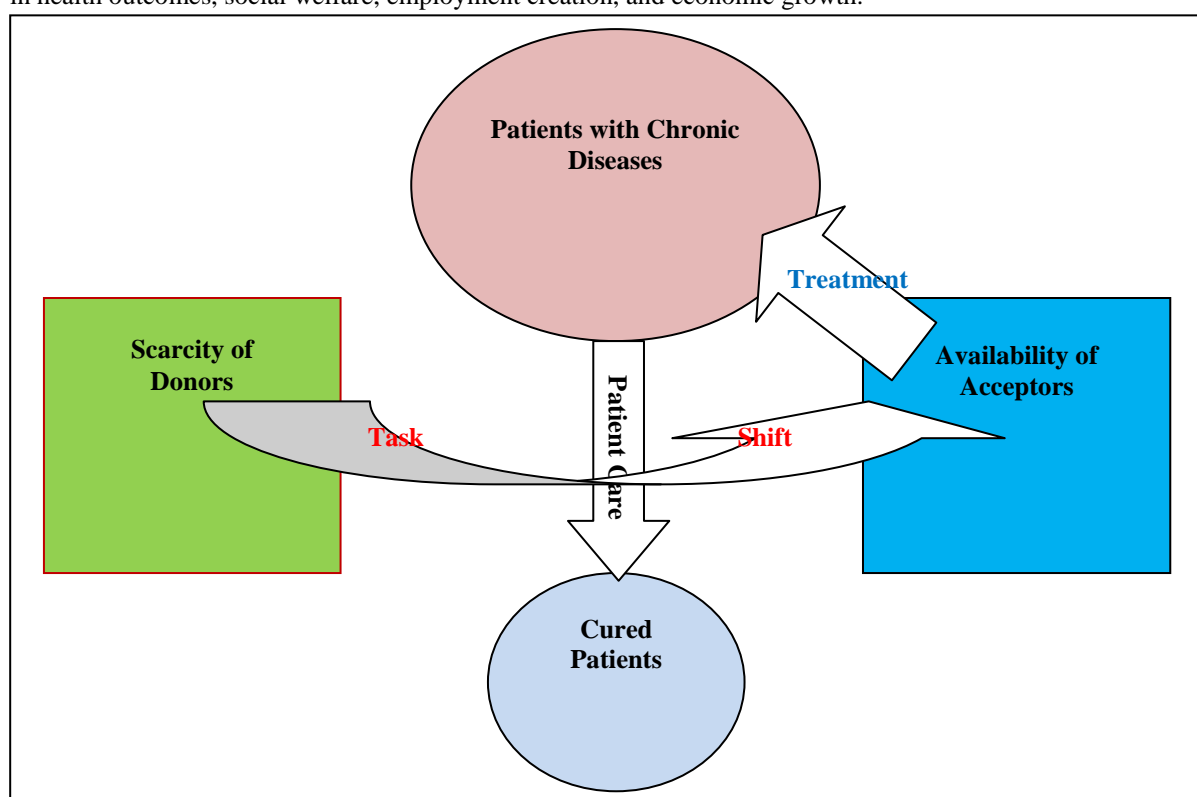
**4.1 Alternative Choices in Task-Shifting:** In order to handle acute shortage of academically qualified medical doctors, the countries and the organizations which are providing health services to the patients follow various alternative strategies which may be termed as survival strategies or black ocean strategies. These survival strategies are even though against the legal framework and legal ethics in healthcare profession, are essential in order to fulfill the urgent needs of patients who are suffering from chronic diseases. The various alternative survival strategies used in healthcare management through Task-shifting are listed in table 1. Here, the objective is to fulfill the urgent needs of patients who are suffering from chronic diseases through the alternative survival strategy of Task-shifting.

Table 1: Various alternative choices to be used in Task-shifting among healthcare professionals.

S.No	Actual Professionals Required	Alternative Professionals Planned/used
1	Specialized Doctors	General Doctors of Medicine & surgery, Ayurveda or Alternative medical doctors, Homeopathic Doctors.
2	General Doctors	Ayurveda or Alternative medical doctors, Homeopathic Doctors
3	Maternity Doctors	Qualified Nurses, Ayurveda or Alternative medical doctors, Community health workers.
4	Casualty Treatment Doctors	Ayurveda or Alternative medical doctors, Physiotherapists, Qualified Nurses
5	Follow-up Treatment for long-	Pharmacists

	time diseases by super specialized doctors	Nurses Physiotherapists Community health workers.
6	Doctors for patient diagnosis	Graduates and postgraduates of paramedical sciences
7	Doctors for patient medication monitoring	Pharmacists, Nurses
8	Doctors involved in Hospital Administration	Management graduates in Hospital Administration
9	Clinical & Casualty doctors	Pre-clinical & para-clinical doctors

**4.2 Basic Model of Task-Shifting:** The basic model of Task-shifting in the healthcare sector is shown in figure 2. The healthcare professionals of higher cadre, who are less in number in an organization and expected to donate some of their patient care responsibilities to the available parallel professionals of the same cadre or lower cadre and hence are called Task shift donors. The professionals in the same field but of lower cadre or of belonging to the related area in the same field are called Task shift acceptors. To make Task-shifting successful, by providing optimum care to the patients, both donor and acceptor should agree and work online in the form of a team in order to survive the patient from the chronic disease. This model will address the shortages of healthcare professionals and improve the distribution of health workers, so as to enable maximum improvements in health outcomes, social welfare, employment creation, and economic growth.



**4.3 Skills Required for Task-Shifting:** The acceptors of Task-shifting should have basic medical knowledge including knowledge on diseases, knowledge on medicines, area specialized skills, experience in that field of work even though at lower cadre, medication skills, commonsense, confidence in doing higher level job through self-motivation, time for sparing in task shifted job, and intention to learn. These skills are quite common in paramedical professionals and some amount in community workers. Through systematic and focussed quick training, acceptors can take-up such shifted job of patient care.

**4.4 Possible Task-Shifting Among Different Professionals in the Healthcare Management:** The possible Task-shifting among different professionals depends on the available alternative human resources in the organizations or in the country. Some of the possible Task-shifting responsibilities among different alternative professionals and the advantages of such decision are given in Table 2.

Table 2: Proposal for some of the possible alternative tasks along with basic qualifications of acceptors.

S.No	Qualification of Acceptors	Alternative Tasks
1	B.Sc. -Nursing	Physician, Maternity, Paediatrics, Community medicine
2	BDS -Dental Surgery	ENT, Ophthalmology,
3	BPT/MPT – Physiotherapy	Orthopaedics, General Medicine
4	BHT - Homeopathy	General Medicine, Medication for identified diseases.

5	B. Pharm.	Medication for identified diseases
6	B.Sc. Health Sciences	Casualty, Chronic diseases, Psychiatry
7	BAMS (Ayurveda)	General Medicine, Medication for identified diseases
8	Graduates in Naturopathy & Yogic Sciences	Follow up treatments,
9	Diploma/advanced Diploma in Health Sciences	ICU Care, Dermatology, Psychiatry
10	Community Workers	Maternity & Delivery cases, Community medicine

**4.5 Possible Strategies in Task-Shifting:** Steps to be followed for Increasing the Effectiveness of Task-shifting:

- ✓ Identify the demand.
- ✓ Auditing the organizations' Capability to fulfill demand.
- ✓ Analysing the actual professionals (Donors) availability & expected demand.
- ✓ Identify the alternative personnel (Acceptor) as per alternative survival strategy of Task-shifting.
- ✓ Studying skills & experiences of Acceptors.
- ✓ Studying legal consequences of Task-shifting for those kinds of diseases.
- ✓ Arranging short time training to the Acceptors to manage & handling the demand.
- ✓ Educating the patients and their relatives through counselling to accept such strategies.
- ✓ Actual patient care through alternative strategy.
- ✓ Studying the advantages, benefits, constraints, and disadvantages of Task-shifting.

**4.6 Other Alternative Solutions to Solve Scarcity of Medical Professionals:** Task-shifting is only alternative survival strategy when the number of available actual specialized health professionals is not adequate in a given organization or given country. The other strategies to solve scarcity of medical professionals are:

- ✓ Develop more qualified medical professionals in the area where there is a high demand in the society. But this is a time consuming process and not useful for immediate requirements.
- ✓ Outsourcing the job of patient care to other countries where skilled medical professionals are available. But this proposal is costly, time-consuming, and complex.

## 5. Challenges and Opportunities of Task-Shifting:

The deficiency in the current health system can be resolved using the Task-shifting proposal using paramedical practitioners. Task-shifting requires careful attention and evaluation to organization, structure, and resourcing of health services. Crucially, it requires the integration of the concept and roles of new cadres, into the mainstream health system, and integrated strategic reconfiguration of healthcare teams, particularly at primary care and community levels. It is observed from section 3, the review of literature that in several countries, Task-shifting has been enthusiastically and voluntarily taken up by non-governmental organizations (NGOs) with strong community links at the local level, but with limited opportunity and the potential for scaling-up to the national level, as their presence is often geographically.

**5.1 Challenges of Task-Shifting:** The new strategy - Task-shifting, observed in the healthcare sector in many developing countries due to a shortage of highly educated medical professionals is identified as an alternative survival strategy for healthcare organizations. Based on our observations and analysis of various cases of the Task-shifting, the prominent challenges of this strategy are:

- ✓ **Availability of Acceptors:** The organisation must be able to identify and recruit acceptors who are educated in related areas or working in the lower cadre. Such acceptors can be quickly trained by the donors to transfer the responsibility of curing the patients. The acceptors are usually paramedical graduates, graduates of Nursing sciences, graduates of Dental sciences, Homeopathy, Ayurveda, diploma holders in other areas of health sciences, trained community health workers etc. such acceptors should be trained quickly by organisation depending on the nature of diseases spread in that region of the country. The major challenge is the availability of alternatives acceptors for Task-shifting with the required basic qualifications within the organisation or in the neighbourhood for quick recruitment.
- ✓ **Willingness of Donors:** Donors are usually qualified doctors in the specialised area of health sciences. Usually, in developing country, there is a scarcity of such health professionals. In emergency situations of spreading of chronic diseases in the country, donors have a moral responsibility to treat the patient by means of supporting Task-shifting and training the identified acceptors to provide emergency critical cares even though they are against such responsibility shifting by giving legal and ethical reasons. The major challenge is changing the mindset of the donors to delegate their task to lower cadre or parallel cadre acceptors and convincing them to train such acceptors.
- ✓ **Acceptance/Resistance by Patients & their Parties:** The Task-shifting strategy is generally opposed by the patients and their family due to fear of predicted wrong medication. The damage of spreading of chronic diseases can be controlled by properly educating patients and their relatives through counselling. The challenge of this stage is how effectively the counsellor can counsel the patients and their party to accept this new strategy to solve the problem optimally.



- ✓ **Healthcare Organization's Ability to Convince:** The healthcare organisations have a responsibility to handle unexpected health hazard by providing required medical services. But due to the shortage of educated medical professionals, the organisation has to follow alternative survival strategy by identifying, appointing and training paramedical staff of related area as mentioned in table 1 and 2 for Task-shifting. The organisation can get certain benefits out of its decision on Task-shifting by designating alternative human resources who have basic training on patient care such as, timely providing health services along with cutting down the cost. The major challenge in this stage is the ability of the organisation to convince all stakeholders to understand the importance, urgency, and availability of faster health services through Task-shifting as its management strategy.
- ✓ **Training of Acceptors in Specific Areas:** After identifying acceptors for Task-shifting, the health service organizations should train them quickly to make them competent in systematic patient care. This will decrease the morbidity and mortality due to medication error. The challenge is lifting different cadre professionals to the same level to make them ready to cure such chronic diseases.
- ✓ **Supporting legal Regulations:** Even though Task-shifting in emergency cases are acceptable legally as per WHO recommendations [13], individual countries may have their own regulations through their medical councils. While implementing Task-shifting strategy, healthcare organisations should strictly abide such regulations to avoid legal controversy. The challenges include handling medical-legal cases and the responsibility to be taken by acceptors, donors and healthcare organisations.
- ✓ **Maintaining Quality and Safety of Services:** Through appropriate training to the acceptor for curing a specific type of chronic disease, the health service organisations/ hospitals can minimize the risk of ill-treatment to the patients. Thus systematic training in a focused area for Task-shifting is the primary requirement to make the strategy successfully workable. The challenges include lack of standardised policies and procedures to maintain quality, control cost, safety of services in a given country.
- ✓ **Safety to the Health Workers:** In case of treatment of communicable diseases, the health workers elevated as acceptors are at risk for spread of diseases so that basic knowledge on vaccination and prophylaxis has to be thought during training of acceptors. The challenges include safety of personnel working in the environment of infectious diseases and organisational policy towards compensation for such incidents.
- ✓ **Organizational Objectives and Ethics:** While deciding on Task-shifting, to enhance the organisational capability in providing mass treatment and the expected reduction in cost, due to the appointment of trained acceptors should not demoralise the organisation to compromise in quality of healthcare services. Task-shifting should be used only when there is an emergency or scarcity of specialised doctors. The challenge includes the organisational strategy of providing emergency health services to the needy people instead of encashing the opportunity for making a higher profit.
- ✓ **Maintaining Performance and Self-Motivation:** The acceptors once identified and trained have to be motivated continuously for their changed job by providing various incentives and appreciation, to be continued as a dedicated acceptor for long period, until the objectives are achieved. Keeping the acceptors motivated with dedication in serving is the major challenge until the patients are cured.

**5.2 Opportunities of Task-Shifting:** Being a new type of strategy in business & service organizations, Task-shifting has many opportunities. Using the observations and analysis of the basic model of Task-shifting, the some of the opportunities of this strategy are:

- ✓ **Better Patient Service Using Acceptors:** Since the scarcity of physicians (donors) is compensated by alternative acceptors through the survival strategy of Task-shifting, the best patient service can be provided by the health service organisation.
- ✓ **Use of Existing Alternative Skilled Professionals through Training:** The countries which have more number of alternative skilled professionals such as trained nurses, paramedical graduates, midwives, community health workers etc., Task-shifting creates job opportunity while solving the scarcity.
- ✓ **Cost Reduction and Hence Low Hospital Charges:** Since the Task-shifting allows to make use of alternative, abundant paramedical professionals to provide emergency medical services, the organisation can reduce the cost in patient care and hence costly medical bills to the patients. This will provide an opportunity for low cost medical treatments in the country.
- ✓ **Optimum Health Solutions to Needy People at the Right Time:** The major responsibility of any health service organisation is to provide optimum Healthcare at right time and at affordable price which can be fulfilled through the alternative survival strategy of Task-shifting.
- ✓ **Job Creation for Alternative Skilled Professionals:** The alternative survival strategy of Task-shifting also creates an opportunity of increased job offerings with a comparatively better salary in developing countries, through a quick training in curing identified diseases.
- ✓ **To Address the Acute Shortage of Health Workers:** Task-shifting is suggestible as an alternative survival strategy for health service organisations only in the countries and situations where there is an acute shortage of qualified physicians. Only in such cases, Task-shifting strategy is acceptable legally.

- ✓ **To Improve the Quality of the Healthcare:** The countries where there is a scarcity of qualified physicians, the concept of Task-shifting strategy provides alternative health professionals as acceptors to solve the problem optimally so that it improves the quality of healthcare services in the country even if there is an acute shortage of qualified physicians.
- ✓ **Positive Sum Game:** Since in Task-shifting strategy all the stakeholders like physicians, paramedical personnel who have interest to improve their skills through special training, the patients who are suffering from chronic diseases, the healthcare organisations who have objective of providing quality and affordable services to the needy patients, and the country as a whole or the winners by following alternative survival strategy of Task-shifting.
- ✓ **To Retain Healthcare Business Locally:** If a country fails to provide emergency healthcare services locally through possible alternative ways, the patients may die or they may migrate to other countries where such services are available. Even though, the permanent solution to such problem is developing qualified physicians in the country, which is not possible quickly. Hence the alternative survival strategy of Task-shifting may retain the healthcare businesses locally.
- ✓ **To Maximize the Efficient Use of Health Workers:** When the existing health workers get training to handle higher responsibility tasks with enhanced incentives, they will also show interest and commit themselves to such responsibilities which will maximize the efficiency of such workers.

#### **6. Suggestions:**

Based on the above observations, analysis, and discussions on various studies and systematic reviews on Task-shifting model, we propose following suggestions while using Task-shifting as an alternative survival strategy or health organizations which suffer due to a shortage of professionally qualified medical doctors to treat chronic and long intervention related diseases in their organizations.

- ✓ **Strategy for Patient Cure & Satisfaction:** With the concept of something is better than nothing, patients should get at least minimum care even if there is an acute shortage of qualified physicians, the alternative survival strategy of Task-shifting is suggested as an optimum solution to the problem.
- ✓ **Strategy of Organizational Sustainability:** Task-shifting is an optimum strategy for healthcare organizations to provide timely, low-cost, optimum quality healthcare services even though there is a scarcity of qualified physicians in the country so that they can sustain their business.
- ✓ **Used as an Alternative Survival Strategy for Shortage:** The Task-shifting strategy in healthcare organizations should be used only if there is an acute shortage of qualified health physicians so that the strategy should be positive sum game.
- ✓ **Quality & Timely Oriented Solution than Cost Reduction:** Even though the Task-shifting strategy reduces healthcare organizations cost, the objective should be providing timely and quality services through such survival strategy. Such strategy should be a short-term strategy for the organizations until the country develops abundantly qualified healthcare professionals.
- ✓ **Strict Procedures as Per Legal Guidance:** Task-shifting should not lead to poor quality of healthcare services and organizations should not consider it as an opportunity to make a huge profit by appointing parallel human resources as physicians. To control such attitudes of organizations, the country government should develop strict policies, procedures and legal guidance to the entire process of Task-shifting during emergency situations.
- ✓ **Proper Training to Ensure Quality Patient Care:** A quick but systematic training should be provided to Acceptors using qualified Donors and also continuous guidance should be provided/available either online or offline through oral or video communication system so that the medical service provided by Acceptors should be a high standard and the patients should not have fear or risk of wrong medication.
- ✓ **Focus on Patient Counselling and Continued Care after Core Treatment:** In Task-shifting strategy, to avoid misunderstanding and fear, patients should be educated on this concept and counselled so that the organization should get continued support by its patients and their relatives. The organization should also maintain a database and provide continuous care for the patients who have been treated using Task-shifting model.
- ✓ **An Effective Way of Handling Health Professionals Scarcity:** Task-shifting is considered as an optimum alternative survival strategy in crucial situations when many people of the region/country suffers in a major disease spontaneously and readymade qualified physicians are not available to tackle the situation. This strategy is also called black ocean strategy because here the survival is more important through timely medication that following systematic legal framework.
- ✓ **Acceptance of this Strategy through Educating & Counselling the Patients:** The important factor which decides the success of Task-shifting as an alternative strategy for healthcare organizations is obtaining the consent from patients and their relatives/caretakers. The strategy is risky for both Acceptors and the healthcare organizations if any unacceptable outcome results like morbidity or mortality of patients. Thus adopting proper method for counselling the patients and their relatives to

educate them about scarcity and alternatives is essential and is the responsibility of the healthcare organizations.

- ✓ **Importance to Ignored Pre- and Para-Medical Professionals:** The model of Task-shifting in healthcare industry during turbulence time gives importance to alternative experts like pre- and para-medical professionals who have basic knowledge on health sciences can take part in patient care with little additional focussed training.
- ✓ **Convincing the Society on this Alternative Strategy:** To make Task-shifting strategy successful, the healthcare organizations have to develop their expertise to convince the society on this alternative strategy and the need and necessity of such actions.

In previous studies it is also suggested that adequate education, training, and support should be imparted to optimize the effectiveness of Task-shifting so that the model of Task-shifting can be a successful alternative for the shortage of healthcare professionals by providing quality health services at minimal cost to satisfy all the stakeholders of the healthcare system in the society [66-67].

### **7. Conclusions:**

To solve the observed huge burden on healthcare professionals due to a high number of the patient load which leads to the improper patient care and finally leads to the degradation in the quality of healthcare services, we have observed a new alternative survival strategy called Task-shifting. In this discussion, it is found that the Task-shifting strategy is a promising management and government strategy in healthcare industry sector to increase the productive efficiency of the delivery of quality healthcare services. By means of reviewing the papers published in the concept of Task-shifting in the healthcare sectors in different countries between 2008 to 2017, and studying systematic review papers published during 2012 to 2017, we have analysed this strategy and concluded that it is acceptable and working alternative survival strategy in many countries. We have also discussed various alternatives in Task-shifting, Basic model of Task-shifting by taking all stakeholders into confidence, Skills Required for Task-shifting, Possible Task-shifting methods among different Professionals in Healthcare management, Possible Strategies in Task-shifting, and Other alternative solutions to solve scarcity of medical professionals. The opportunities and challenges of this alternative survival strategy in the development of new professional cadres or use of parallel cadres such as pharmacists, physiotherapists, Nursing professionals, or any other paramedical graduates that evolve with technology-specific and country-specific alternative human resources. Many suggestions are also given for effective implementation of Task-shifting as a positive sum game in optimization of this strategic outcome.

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