DCU BUSINESS SCHOOL

Process Improvement Report

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MT530 – Business Process Innovation

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Signed:_____

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1. *Description*

➢ *Summary*

Tuberculosis often referred as TB is a bacterial disease usually caused by an organism called Mycobacterium tuberculosis and worldwide it is among the top 10 killer infectious diseases, second only to HIV (Annabel, 2016). There are two levels of TB, Latent TB and TB disease. Latent TB is a state when the bacteria are present in the body but not active because they are kept under control by the body's immune system and does not cause any symptom. TB disease is a state when the bacteria in Latent TB becomes active, and the person fell sick and takes a form of sickness which deteriorates his lungs and major parts of the body (Annabel, 2016). Talking specifically about the TB disease in India, India has the highest number of TB patients in the world with 2.8 million in 2015 compared with 2.2 million in 2014 which is more than a quarter of the global total of 10.4 million (Anand, 2016). Also, the deaths caused due to TB in India last year was of 480,000 people (Anand, 2016). In the process of understanding why TB has become a cause of concern and a national threat for the people in India, it's critical to know the forms of TB.

There are nearly 13 medicines researched and available for the cure of TB in the world (Udwadia, 2016). The most potential anti-TB drugs are Isoniazid and Rifampicin is used on standard TB patients. When these two drugs don't work on patients, then its multi-drug resistant TB (MDR-TB). MDR-TB gets converted into Extensively drug-resistant TB (XDR-TB) when four drugs don't work. These types of TB don't react to the standard six-month treatment with first-line drugs and can take up to two or more years to treat with medications that are less intense, more dangerous and considerably more costly. Both MDR-TB and XDR-TB are the developing dangers to the achievement of anti-TB programs (Sandhu, 2011). This case is even worsening wherein any medications will not work on patients called TDR-TB i.e. Totally drug-resistant TB (Udwadia, 2016).

➢ *Perceived issues with the current process*

In 1997, the Revised National Tuberculosis Control Program (RNTCP) was launched, and a strategy called Directly Observed Treatment Short-course (DOTS) was recommended on the review of Government Of India, World health Organization (WHO) and Swedish International Development Agency (SIDA). These agencies concluded that National Tuberculosis Program suffered from administrative shortcomings, deficient financing, over-dependence on x-ray reports, non-standard treatment, lower rates of treatment completion, and absence of methodical data on treatment results. Even though there are several awareness programs and initiative taken by the government, the estimated TB prevalence in India is 2.5million. It is assessed that 40% of the Indian populace is infected with TB bacteria, most by far of whom have latent instead of active TB (Kanabus, 2016).

➢ *Boundaries*

DOTS Strategy entered in India through three phases through RNTCP program. The first that the nation saw was in 1993 as a pilot stage (Phase 1) included five territories (Delhi, Bombay, Calcutta, Bangalore and Mehsana region of Gujarat) covering a populace of 2.35 million including men, women, children and older age people. After the success and prosperity of Phase 1, it was reached out in 1995 (Phase 2) to incorporate a 14 million populace in 13 States. Once more, the outcomes were exceptionally promising and prompted to the formal propelling of RNTCP in the nation (Phase 3) in 1997. The program has accomplished no less than 80% of the cure rates, though some of the individual zones have reliably accomplished significantly higher cure rates. There was a rapid expansion of the strategy in late 1998, and mid-1999, a populace of 450 million was secured before the end of 2001. The Government covered half of the nation by 2002, 80% by 2004 and the whole country when attainable. It was found that 91% of the patients were re-enrolled within 2 years and the interval between proclaiming the treatment result and re-begin of therapy were 212 days for relapse patients (Azhar, 2012). The DOTS strategy covers more than 1 billion (1164 million) populaces across 632 districts in 35 states and Union territories and has instigated more than 12.8 million TB patients on treatment, sparing an extra 2.3 million lives (Ramesh Verma, 2013).

➢ *Value adding activities*

RNTCP in India which have covered the entire country is world's second largest program. The DOTS strategy program has built up a strategic vision for TB control in India, under which it expects to accomplish and keep up a cure rate of no less than 85% in new sputum-positive (NSP) pulmonary TB patients and achieve identification rates of such instances of no less than 70%. The RNTCP has managed the goals since 2007, by mutual focus for TB control. TB mortality and prevalence in the nation has diminished in contrast with 1990 figures, showing progress towards accomplishing TB-related targets of the United Nations Millennium Development Goals (MDGs) (Ramesh Verma, 2013).

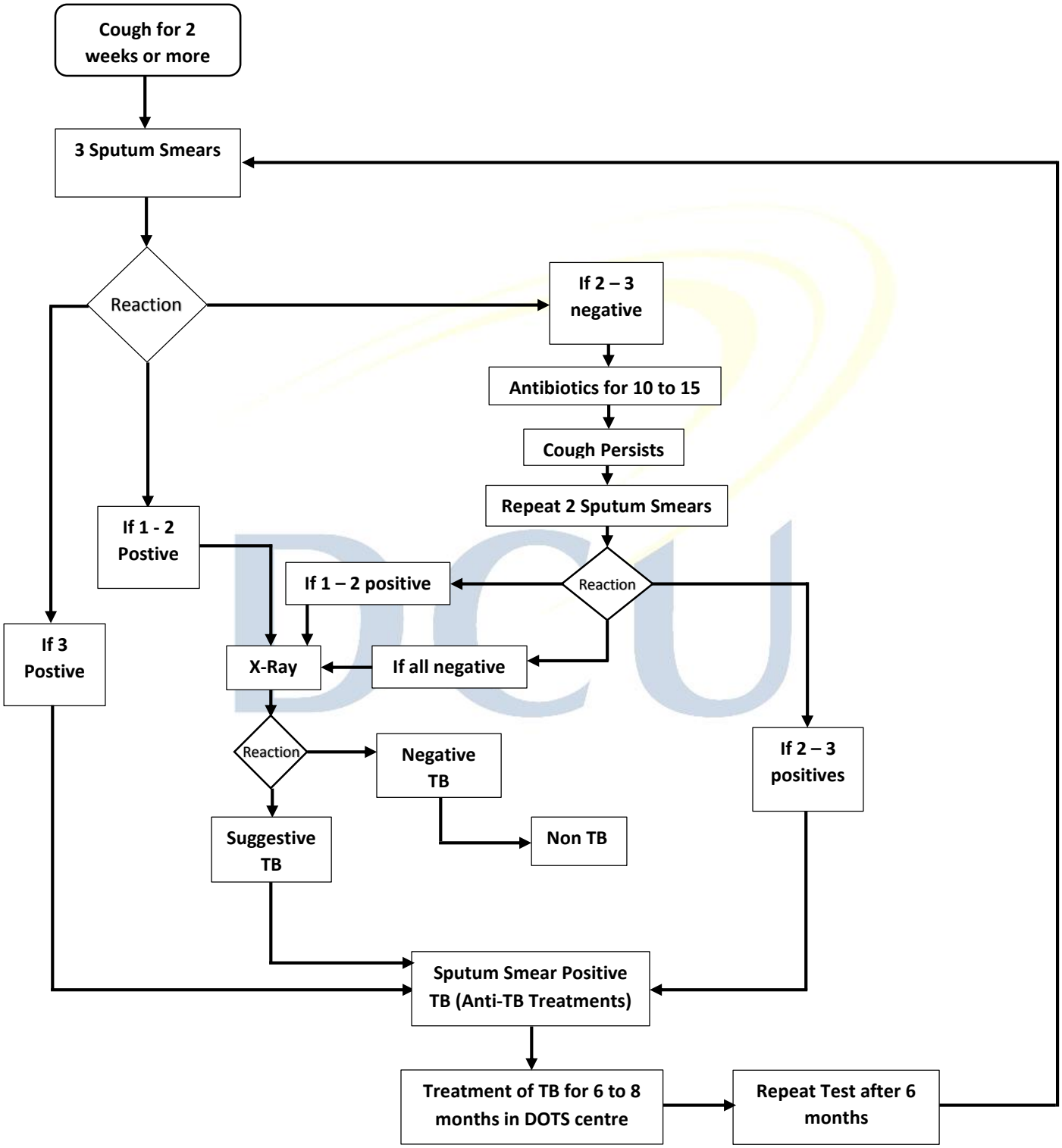
➢ *Problem & Goal Statement*

Problem Statement – Even though the TB programs have an allocated budget of $900 million from 2012-2017, the estimated TB prevalence in India is 2.5million which is a cause of concern for the India which is one of the fastest growing economies in the world.

Goal Statement – To attain and sustain TB detection and treatment success rate of at least 95% in India till 2022 by understanding the root cause of the problem.

2. *Analysis of the Process*

➢ *Ongoing Process Map for TB with current DOTS strategy in India*



➢ *Problem identification, Weaknesses and Scope for change*

International DOTS strategy was based on five pillars i.e. political responsibility and subsidies for TB control programs, diagnosis by sputum smear examinations, continuous supply of anti-TB drugs, drug intake under direct supervision and accurate reporting and recording of all enlisted cases of TB (Sandhu, 2011). But there are many limitations with the current strategy i.e. DOTS which is used to abolish TB in India. Even though many government agencies are working for the eradication of the TB, but then also they are not able to reach to the deep core roots of it, Some of the reasons for the failure of DOTS is,

- There is a lot of biases in the treatment of TB for the wealthy and the deprived, individuals who have the money go to private hospitals which is not affordable to middle-class person. Individuals who have got power will use their influence and make their treatment better and cheaper in spite of having lots of money, but the people who are in need are left alone and unassisted (Anande, 2016).
- Gene-Expert Test is used to know whether its regular-TB or MDR-TB and Culture Test is used to know which medicine will work on the TB patient amongst 13 medicine. Both this test is must because if an MDR-TB patient is treated like a regular-TB patient, he will not only inevitably die but also continue to transmit disease even if medications are in the process (Udwadia, 2016). But both this test are not included in the government's DOTS strategy which means government leave MDR-TB patients dying since they are treating them as regular-TB patients (Anand, 2016). Additional Deputy Director General for Health Services said that "Scientifically it is not advisable that new patients have their sputum positive in TB, MDR-TB rate is just 3%, so 97% are exposed unnecessarily." But he failed to explain the reason why and he did not justify his statement (Sachdeva, 2016).
- According to the International Union against TB & Lung Disease, The drug for TB should be on a daily basis, but DOTS centres are providing medicine on alternate days as recommended by government agencies (Dholika, 2016).
- Timings of DOTS centres are 9 am to 2 pm which is not according to the convenience of the people. If they want to take medicine, they have to leave their jobs which is not possible for poor people, and if they miss the medication, they miss the schedule which is a dangerous situation as a regular-TB can be converted to MDR-TB due to this.
- DOTS strategy which was run by the government itself was creating MDR-TB patients due to the lack of supply of medicine provided to DOTS centres (Shaffi, 2016).
- There was corruption in the free diagnosis and prescription of the TB patients. Research demonstrated that even after 10 years of RNTCP execution, there is still an absence of awareness among patients about the accessibility of free diagnostic and treatment facilities locally under RNTCP (Ramesh Verma, 2013).

- There was negligence in the monitoring of the people taking medication from the DOTS centre, and no supervision was involved in the program. Many a time it happened that a person dies and then also his card is being ticked that he is taking the medication from the DOTS centre (Shaffi, 2016).

3. Business Process Improvement Strategy

➢ *Based on Process Analysis*

- There should not be any biases between the treatment of the wealthy and the deprived, and if any person is using their power in a wrong way, then strict actions should be taken against that individual.
- If anyone is getting the symptoms of the TB, then there should be 3 Sputum Smear Test. If that person is diagnosed as a positive sign of TB then rather than directly entering into the process of treatment of TB, it is critical to understand whether the TB is regular-TB or MDR-TB. So, after the diagnosis of TB, there should be Gene-expert Test followed by Culture Test. Both this test are not involved in the government programs which should be added to the process of DOTS Strategy which can save thousands of lives that are dying due to MDR-TB. The government should increase the budget for health care concerns like TB as, "India's spending on health is one of the lowest in the world (Divya Rajagopal, 2015)."
- There should be regular medicines provided in the DOTS centre on the daily basis as recommended by the International Union against TB & Lung Disease, and the timings of the DOTS centre should be according to the convenience of the people i.e. timings of the DOTS centre should not be in the working hours. The government should also encourage volunteers who can provide medicines at home.
- There should be educational campaigns on a large scale by the Indian Government to make people aware of the free diagnostics and medications available in the DOTS centre.
- India being working in the field of advanced technology from last two decades, then also all the record keeping and tracking systems are on paper. Because of this people get an opportunity in the system and they find a loophole to do corruption. The solution for this problem can be an online application for record keeping and tracking which will work as follows,
  - **a.** DOTS centres should keep an update of all the medicines and inventory online that is required on the weekly or monthly basis so that there should not be any problem of the inventory in the centres, and also government officials can track the need of medicine and can supply on the urgent basis as needed.
  - **b.** The burden of supervision and monitoring will reduce significantly if each TB patients are provided with a Unique Identification number and fingerprints of the patient should be taken that is being treated at DOTS centre. This will help the

government to understand that TB patient is taking the medications or not because as soon as a patient take the medicine fingerprints will be taken as part of records and also follow up with the patient can be done who defaults the medications.

c. There will also be Progress chart generated online of the patient which will help officials to understand the progress of the patient's illness as DOTS centres will be entering all the details about the person.

d. There will be an online support system to track the person who is critical and needs extra support and care from the government.

e. A patient should also be educated about toll-free number wherein he can complain about the corrupt officials in DOTS centre and can also give feedbacks about the quality health support.

f. There should also be online training and assistance provided for the DOTS representative.

- ***Comparisons with other documented studies to indicate successes and potential magnitude of improvement***

In spite of the fact that the DOTS strategy points mostly to give free treatment to smear-positive patients, most DOTS projects likewise treat smear-negative patients without a fee (Jamison DT, 2006). Also, the countries like China, Indonesia, Bangladesh, Pakistan, etc. are providing free regular treatments to the TB patients under DOTS strategy except for India who is providing alternate day therapy due to the fear of large-scale implementation of the project (Sachdeva, 2016). Also, the Indian government is planning to implement and use online technology to established an online reporting system (Ranade, 2013). A small NGO called Operation Asha (an NGO enhancing TB care for slum populaces) is spearheading the utilisation of biometrics-fingerprints to screen the administration of medications to TB patients. This is critical as missing a dose of medicine or interruption with treatment can be extremely dangerous, for the individuals who default can build up the drug-resistant strain (Ranade, 2013). Even World health Organisation wants to standardise the treatment of TB and wants the countries to detect that whether the TB is regular-TB or MDR-TB (WHO, 2006).

- ***Potential process improvement tools/methods that could be utilised for this particular process and Recommendations***

After understanding all the process of the DOTS Strategy in the eradication of the TB according to my perspective, it will be good if we will use Six Sigma strategy. If we want to improve the process, six sigma will be the best tool to do so as the focus of six sigma is in improving the process. Also, there is a lot of waste activity involved in the process of DOTS strategy wherein patient have to face a lot of trouble to get treated, so six sigma will help in eliminating the wastes from the system. It is paramount to stop the TB prevalence in India which is estimated to be 2.5million. Six Sigma is known for increasing the performance, process viewing and rework if needed. Overall six sigma will be the best strategy to deal with and improve DOTS strategy in India.

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