Heart Failure

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# Abstract

The project titled “Heart Failure” supervised by ABC and affiliated with XYZ, aims to identify if in adults patients with heart failure, how effective is heart surgery compared to change of lifestyle in controlling heart valve problems during the perioperative and recovery time. For conducting this research a detailed review of literature was conducted along with the surveys to identify the impact of lifestyle change in comparison to the heart surgery. The study revealed that age is one of the most critical factors that determine the effectiveness of the intervention to prevent heart failure. Other factors include weight, gender, for instance, men are more likely to experience a heart attack as compared to women. For this reason, it raises the need of healthcare to draw much attention to this health issue, since it is manageable, provided people get provided with different medical education of the need to lead healthy kind of lifestyles, and also getting treatment on time before their minor diseases lead to heart failure. In order to implement the suggested changes, the IOWA change model was recommended. The Iowa model spotlights on affiliation and joint exertion merging conduct and usage of study, close by various sorts of information. Since its beginning stage in 1994, it has been continually referenced in nursing journal articles and extensively used in clinical study programs. This model empowers us to focus on learning and issue focused triggers, leading subordinates to address energy nursing practices and whether care can be improved utilizing stream investigate revelations. The overall research study revealed that the changes in health and lifestyle can help preventing the heart failure or surgery. However, there can be circumstances when surgery is inevitable. The reason for the investigation itself is to introduce extensive evidence with respect to the related hazard for cardiac complications. By arranging the different examinations and giving them a suitable vehicle for change practically speaking, the desire is for an expansion in acknowledgment of conditions related with heart surgery.

# Problem Statement

Heart failure is a condition where the heart fails to pump enough blood required by the body. We have cases where the heart fails to be filled with enough blood, and another case where there is insufficient pumping of blood (Ponikowski et al, 2016). This is a major health issue that currently affects most people, leading to serious consequences like death. For this reason, there is need to for healthcare services to pay much attention to this issue, in order to enable support those who are affected in their recovery process and also guide those who are not affected on things to avoid in order to avoid suffering from the same.

According to statistics, most people affected with heart failure are the old age, people of the age above 65 years. This means that the risks of having this issue is highly related to age. Apart from that, we also have other diseases that might lead to heart failure. This includes congenital effects and diseases, coronary artery diseases among others (Yancy et al, 2017). Other factors include weight, gender, for instance, men are more likely to experience a heart attack as compared to women. For this reason, it raises the need of healthcare to draw much attention to this health issue, since it is manageable, provided people get provided with different medical education of the need to lead healthy kind of lifestyles, and also getting treatment on time before their minor diseases lead to heart failure.

## Organizations Concerned

Organizations concerned with the matter of heart failure include Heart Failure Matters. This organization is concerned with proving information through the use of video clips which explain the causes and symptoms of heart failure (Cleland et al, 2005). It plays an important role in making people understand what they need to do as a way of avoiding being affected. You will find that there are certain causes which people might fail to understand their risks. Talking of things like exercise, minimizing salts and alcohol may appear to be very common, but then from the medical perspective, they are some of the important aspects that prevent people from being affected.

The approach of fighting heart attack by simply education people, and also putting in place various things that might be used in the treatment of heart attack will highly benefit society as a whole. If the medical healthcare takes the initiative to provide free screening as well as providing medication for free or at a lower cost, then it will be expected that the number of people with a Heart attack will greatly reduce. At the same time, it would enhance the health condition of the society since trough education people will be in a position to understand things they need to avoid in order to lead a healthy life.

##  PICOT Question

In adults patients with heart failure, how effective is heart surgery compared to change of lifestyle in controlling heart valve problems during the perioperative and recovery time?

## Objectives of the Problem

The main purpose of the project is to come up with different strategies that might be used in the effective treatment of heart failure. It is evident that the disease is now affecting most people, especially when it grows from another disease (Braunwald 1988). Although it has serious effects, looking at its causes like poor lifestyles, lack of exercise among others, you realize that they are all manageable. For this reason, the projects aim at education the society about what heart attack is all about its effects and how to prevent it from happening. The objective of the project is to ensure that there is the provision of treatment to the affected and educating the unaffected on ways to prevent being affected. It is the role of each and every person to ensure that we manage such diseases well, to avoid many consequences.

# Problem Description

The heart surgery methodology is demonstrated for the help of side effects lethargic to therapeutic treatment or percutaneous transluminal coronary angioplasty (PTCA), especially when all things considered, this task will defer ominous occasions longer than different types of treatment. For angina alleviation, surgery has regularly succeeded where therapeutic or interventional treatment has fizzled or isn't prescribed. For survival, the circumstance is progressively unpredictable. There is general understanding that HEART SURGERY improves forecast in the early post-surgical years in those patients with symptomatic left fundamental coronary course stenosis or stenosis of the three primary coronary vessels, in spite of the fact that this favorable position isn't believed to be noteworthy after 10– 12 years (Merritt et al. 2003). Be that as it may, for most of patients with less serious pathology, the forecast is great without surgery (Merritt et al. 2003). Besides, cardiac surgery has progressed to a point where death rates have declined significantly. Along these lines, with such low demise rates, determination among elective courses of cardiac treatment is progressively being founded on proportions of quality of life (QOL), including minimization of torment and incapacity.

The estimation of treatment result or QOL for the patient is the cornerstone of present-day logical prescription. The significance of treatment result is perceived all through clinical practice, especially when imaginative, obtrusive or exorbitant medicines are assessed, and the death rate is too low to even think about affecting basic leadership (van Dijk et al. 2000). Be that as it may, there is no general assention of the significance of QOL or how it ought to be estimated.

Following cardiac intercession, results have been assessed regarding mortality, and intricacies or repeat of side effects, as they are anything but difficult to gauge (Biancari & Rimpilainen, 2009). Nonetheless, these measures don't give a total evaluation of a person's abilities at home, at work, or in the network (Biancari & Rimpilainen, 2009). Subsequently, the investigation of results of cardiac mediation has been described by changes in the inquiries asked in assessment, changes in the advancements used to respond to these inquiries, and changes in the wellsprings of appraisal data. Results of heart surgery can be assembled into classes that mirror the normal objectives of heart surgery, for example, prolongation of life, decrease of manifestations, improvement in physical, mental and social working, and improvement in professional status (Biancari & Rimpilainen, 2009).

In general, the three early major randomized preliminaries and later investigations show that patients with narrowing of the left fundamental coronary supply route, or triple-vessel ailment and subnormal left ventricular working have an especially poor forecast when treated therapeutically, and advantage from heart surgery. Ongoing examinations propose that the utilization of the left interior thoracic vein to one side foremost diving coronary supply route, and possibly different blood vessel revascularization, improves survival and lessens late cardiac occasions after heart surgery (Miles et al. 2011). Besides, off-siphon heart surgery may offer less early intricacies, especially in those patients with huge comorbidity (Miles et al. 2011).

Coronary supply route sidestep surgery remains a set up type of treatment for coronary corridor infection, and most of coronary surgical methods are performed for different vessel malady. In general, the death rate of coronary vein surgery is low, despite the fact that this advantage is balanced by a confusion rate. Moreover, post-surgical neurocognitive disability is of concern. PCI has dramatically affected heart surgery, capturing the sensational development of surgery during the 1980s and moving the consideration of surgeons to patients with further developed coronary ailment and broad existing together conditions. This has persuaded surgeons to refine coronary revascularization systems so as to augment clinical adequacy, limit costs, and decrease obtrusiveness.

Results of heart surgery have generally been estimated regarding mortality and dismalness; anyway change in accordance with heart surgery is a multidimensional wonder that isn't completely clarified by therapeutic elements. When examining postoperative change in accordance with heart surgery, it is vital to survey different physical, mental and social factors too, which is progressively being perceived in ongoing investigations.

# Literature Support

## Description of the Search Method

In carrying out the research on heart failure, there are various search methods which were used in order to ensure that more accurate results are made. Most of them involved medical practices, which appeared to be more efficient in providing the medical output relevant in addressing the issue (Ziaeian & Fonarow 2016). When choosing a search method, there are a number of things which must be considered. One of them is the cost of the procedures involved. We also have the accuracy of the searches and availability.

One of the search method implemented was the Blood test, where the level of blood proteins in the bloodstream is measured. More than normal amount of proteins suggest higher chances of the victim having a heart attack. The method was important in identifying the group that is highly affected by heart failure, making it easier to make a more accurate conclusion. The keywords involved in this search include pulses, which refers to the bits made by the heart, we also have troponin, serum myoglobin test CK tests, which are also other forms of blood test, that are done repeatedly to check on the progress of the patient.

In carrying out the search, some of the inclusive criteria include first the use of reliable and well-functioning equipment, which include the screening gadgets, various medical tools that may be used in the practice among other things. This is to ensure that more accurate results are obtained. Another criterion is the range of people who are more expected to be affected by heart failure. This is actually looked at on the basis of age (Mehra et al 2017). This increases the chances of obtaining what the research needs to, rather than picking a large size of people that would simply increase the cost and reduce the accuracy.

There were also criteria for seclusion, one of them is the unwillingness of people under research to be tested. Since the research is simply a volunteering duty, then it eliminates the need for forcing people to be checked against their will. Insufficient electronic and medical equipment is also an exclusion criterion, simply to avoid causing more harm to the victims or even coming up with a different conclusion. The aim of all projects is basically come up with a representative image of a specific group of people within the society, which makes accuracy a vital requirement. For this reason, the search needs appropriate two studies, one of them which involves medical and the other psychological in order to be in a position to carry out the whole process well.

## Summarization of the Research Studies

In the research studies, the main focus is to first understand what heart failure is all about. There are different heart problems but heart failure is another issue. Having the ability to understand what it is, its effect on people is what controls the urgency of providing attention to the affected. Another aspect is to check on various factors that lead to heart failure. The related diseases and how they can be controlled to prevent heart failure. Other methods are also identified such as leading a healthy kind of lifestyle, avoiding much stress among other things. There are also various strategies which can be implemented in the treatment of heart failure. The research of the studies basically revolves around the cause, effect, treatment, and ways to avoid being affected with heart failure.

## Components of each study to be described

Looking at the Journal of the American College of Cardiology by Yancy and other authors, the journal explains different medical approaches which have been implemented in cubing the issue of heart failure in American society. This involves the provision of services like blood screening, educating people on the issue of heart failure and playing different roles in ensuring that the disease is well managed (Yancy et al, 2017). The advantage of this journal lies in educating people on heart failure. It actually forms the basis of its control. When people know the effects of a certain disease on their bodies and lives, then it becomes easier for them to consider living healthy king of lifestyles.

The European journal of heart failure by Ponikowski focuses on how heart failure is\treated, therefore providing information on what the victims and even the medical assistants should in case one is diagnosed with heart failure. Cleland, in the New England Journal of Medicine, checks the effect of cardiac resynchronization on morbidity and mortality in heart failure, which also provides essential information heart attack (Ponikowski et al, 2016). Basically, all the studies focus much on effects and the treatment of heart failure.

## The validity of internal and external research

External research, especially the reading of scholarly articles provide much information on various issues related to heart attack (Køber et al, 2016). Unlike in the internal sources where the focus is usually on the basic information, external sources tend to go into a much deeper elaboration of the same issue making it easier to understand the whole concept. Information provided on external research does not even contradict with the internal sources, but rather adds more and deeper information.

Internal information, on the other hand, involves the feedback gained during the research, through the use of a questionnaire or interview or even observation. Internal research gives a greater insight into heart failure in reality. Interaction with the victims and also other victims in the society makes one understand how it feels being affected, and the effects on the society can also be easily identified (Marrouche et al, 2018). Although this research focuses less on scientific background unlike the external sources, the effects on the society are also relevant in handling the disease. All the above research confirm that although heart failure treatment is effective on patients, change of lifestyle also play an important role in improving the health condition of the patients.

# Change Model

The Iowa model spotlights on affiliation and joint exertion merging conduct and usage of study, close by various sorts of information (Brown, 2014). Since its beginning stage in 1994, it has been continually referenced in nursing journal articles and extensively used in clinical study programs. This model empowers us to focus on learning and issue focused triggers, leading subordinates to address energy nursing practices and whether care can be improved utilizing stream investigate revelations.

1. Topic and Information Scope

In selection of the scope for EBP, a couple of parts ought to be considered. These consolidate the need and significance of the issue, its application to all domains of preparing, its responsibility to improving thought, the availability of information and information in the issue zone, the multidisciplinary thought of the issue, and the dedication of subordinates.

1. Framing a group

The group is accountable for development, utilization, and assessment (Ienaga et al. 1990). The structure of the group should be facilitated by the picked topic and consolidate each fascinated accomplice. The route toward changing a specific domain of preparing will be helped by ace subordinates group people, who can give information and support, and look at the presence of mind of guideline utilization. A base up approach to manage realizing EBP is central as change is logically productive when begun by cutting edge authorities, rather than constrained by management (Ienaga et al. 1990).

1. Information recuperation

From the group advancement and topic selection, a gathering to create new thoughts should be held to perceive available references and scope to control the search for information. Information should be recuperated through electronic informationbases (Gordon et al. 2008). Distinctive wellsprings of information should be counseled as for critical thought checks and guidelines.

1. Classifying the information

To classify the information, the group will address quality domains of the individual study and the quality of the gathering of information for the most part. There is a penchant to describe ask about as either quantitative or qualitative. The accentuation is on portrayal, perception, and fortifying. The theory is made subject to rationality and reasoning, and is grounded in fact as it is observed and experienced by the individuals included.

1. Building up an EBP standard

After an examine of the composition, group people get together to set proposition for preparing. The sort and quality of information used eventually ought to be clear and arranged in the consistency of copied thinks about (Gordon et al. 2008). The arrangement of the examinations and proposals made should be established on conspicuous focal points and perils to the patients.

1. Executing EBP

For utilization to occur, perspectives, for instance, made course of action, systems and standards that are EB ought to be considered (Gordon et al. 2008). There ought to be a quick joint effort between the prompt thought providers, the affiliation, and its leadership occupations to support these changes. The information furthermore ought to be diffused and should focus on its qualities and saw efficiencies, joining the manner in which it is passed on. This can be cultivated through in-organization preparing, review and analysis given by group people. Social and definitive components can impact execution and there ought to back and regard put on the mix of information into preparing and the usage of study revelations.

1. Analysis and Assessment

Examination is principal to seeing the regard and responsibility of the information into preparing. A baseline of the information before execution would be advantageous, as it would exhibit how the information has added to calm personality. Review and analysis through the strategy of use should be driven and accomplishment won't be practiced without assistance from front line leaders and the affiliation.

# Implementation Plan

## Scope and Setting

To implement the models for cardiac surgery focuses, the most essential component is the limit of cardiac surgeries that could be obliged at the middle. So as to proficiently use resources through scaling and improve the nature of cardiac surgery care, the inside must keep up a base limit of cardiac surgeries every year (Sodian et al. 2007). In this examination, the limit of cardiac surgeries is sorted into in excess of two hundred cases for every year and in excess of five hundred cases for every year. The reason the limit is set for in excess of two hundred cases for each year is on the grounds that it is the standard volume in which the connection between the volume of treatment and the results of treatment seems huge and on the grounds that it is the base limit with which to work an elite office for cardiac surgeries and furthermore manage staff with self-rule (Hermsen et al. 2017). The reason the limit is set for in excess of five hundred cases for every year is on the grounds that it is the base limit with a financially legitimate standard and with it, the inside couldn't just expect an improvement in the nature of medicinal services because of a conclusive connection between the volume of treatment and the results of treatment, yet additionally work a different, self-ruling office (Mottl et al. 2008).

## Resources and Management

The 'free regional cardiac surgery focus' models consider the region's current supply framework and qualities. This model will have a high probability of achievement if there is an intense demand for cardiac surgery inside the region and arrangements are sound for building a collaboration framework between the primary supply foundations. Contrasted with different models, this model all the more effectively secures authoritative self-sufficiency. Be that as it may, since the cardiac surgery treatment area will be worked as a different establishment, the capacity to construct an agreeable treatment framework between surgical treatment and inside drug treatment will be a vital achievement factor (Mahle et al. 2016).

## Monitoring the Implementation and Data Collection

The implementation success rate will be measured through surveys and close-ended questionnaires. These surveys will be distributed amongst the patients and their guardians. The score of the surveys will be reviewed to analyse quality of implementation.

The data will be collected through surveys and questionnaires. Quantitative statistics such as ANOVA will be used for evaluating the data.

Implementing the model can possibly expand case volume for the medical clinic just as improve quiet recuperation times and freely revealed measurements, for example, the scores for fulfillment and STS composite quality record.

## Accessibility

The institute will have a middle of the road dimension of self-governance yet is a structure that could keep up an abnormal state of breadth of various capacities, contingent upon the technique for management (Berry et al. 2009). This model is anticipated to prevail in cases where there is an intense demand for cardiac surgery inside the region and when one medicinal establishment has an unrivaled status for cardiac surgery in the region. On the off chance that capacities are suitably partitioned between the current therapeutic foundation and the regional cardiac surgery focus, the inside can incompletely use the framework of the current organization to expand proficiency and furthermore secure independence for budgeting and human resources.

## Limitations

Nonetheless, poor camaraderie and the threats of the expectation to absorb information are imperative dangers of change. Management choices before and after implementation can either draw out or quicken group learning. Bridling the benefits of this new strategy requires a clinic administration with a vital vision for advancement.

Cardiac surgery is a methodology essential to the accomplishment of cardiac health. Effective implementation will help make a foundation in which the components essential for future advancements will turn out to be completely coordinated.

# Evaluation

When conducting a research, it is extremely important and significant to develop a comprehensive monitory and evaluation plan that must ensure the reliability, verifiability and validity of the results. Inability to do so can lead to faulty research with lack of reliability of the research, and the entire study can go wasted even if the results are theoretically or precisely correct (LoBiondo-Wood & Haber, 2017). Therefore, following is a brief strategic plan and overview of how the efficiency, reliability and validity of the study can be ensured throughout the process.

## Rationale For The Strategies For Collecting The Data

The strategies used to collect the information and data are basically gotten from past investigations also, incorporate quantitative and qualitative approaches. This specific research consolidates both sorts of procedures with an end goal to triangulate the data. This process incorporates considers performed utilizing surveys, structured interviews just as factual examinations and comparative data (Sidhu et al. 2015).

Data for this study was collected with great care and specificity. In the specific examinations utilized, there were an assortment of multivariate examinations that included surveys, questionnaires, interviews and review data investigation. Different techniques were utilized for data collection including surveys, questionnaires, interviews and hospital records too as database investigations. So as to best catch substantial quantities of patients and to follow their advancement and data collection tools.

## Evidenced based Outcomes

The particular outcome for this venture will be estimated and assessed dependent on evidences regarding the effectiveness of heart surgery. Also, variables’ estimations will be required to follow the pervasiveness of cardiac issues in patients who are taking an interest in the arrangement plan. It would be crucial to incorporate a control gathering of patients who don't have related hazard factors to use as an examination so as to demonstrate the legitimacy and dependability of the data (Milinki, 2016).

## In case Outcome is not Favorable

In case the outcome of the research is not favorable or as planned, it is important that the actual and real results are described as post-experiment documentation. However, before finalizing the conclusion, it is important that the efficiency, reliability, validity and verifiability of the study is ensured (Leung, 2015). Only then the outcomes must be considered finalized. Following are some of the strategies that can be adopted:

1. Ensure the study has appropriate sample
2. Ensure reliability of the data collection method
3. Ensure precision in data analysis

## Overview of Evaluation

The particular PICOT question for this examination depends on etiology, in this way, making arrangements for also, executing a change isn't as simple to quantify as other measurable investigations. The measurable importance of the relationship amongst cardiac issues and surgery efficiency is overwhelmingly positive. Also, the concern will remain regardless of whether there will be of significance once the arrangement has been executed.

The reason for the investigation itself is to introduce extensive evidence with respect to the related hazard for cardiac complications. By arranging the different examinations and giving them a suitable vehicle for change practically speaking, the desire is for an expansion in acknowledgment of conditions related with heart surgery. Changing clinical rules for screening is the initial move toward affecting outcomes.

# References

Merritt, J. C., Niebauer, M., Tarakji, K., Hammer, D., & Mills, R. M. (2003). Comparison of effectiveness of carvedilol versus metoprolol or atenolol for atrial fibrillation appearing after coronary artery bypass grafting or cardiac valve operation. *The American journal of cardiology*, *92*(6), 735-736.

van Dijk, D., Nierich, A. P., Eefting, F. D., Buskens, E., Nathoe, H. M., Jansen, E. W., ... & Grobbee, D. E. (2000). The Octopus Study: rationale and design of two randomized trials on medical effectiveness, safety, and cost-effectiveness of bypass surgery on the beating heart. *Controlled clinical trials*, *21*(6), 595-609.

Biancari, F., & Rimpiläinen, R. (2009). Meta-analysis of randomised trials comparing the effectiveness of miniaturised versus conventional cardiopulmonary bypass in adult cardiac surgery. *Heart*, *95*(12), 964-969.

Miles, R. H., Passman, R., & Murdock, D. K. (2011). Comparison of effectiveness and safety of ranolazine versus amiodarone for preventing atrial fibrillation after coronary artery bypass grafting. *The American journal of cardiology*, *108*(5), 673-676.

Brown, C. G. (2014). The Iowa Model of Evidence-Based Practice to Promote Quality Care: An Illustrated Example in Oncology Nursing. *Clinical Journal of Oncology Nursing*, *18*(2).

Ienaga, T., Kimura, K., Hashimoto, K., Lee, S. C., Brakstad, M., & Soper, R. T. (1990). Isolated bowel segment (Iowa model 1): technique and histological studies. *Journal of pediatric surgery*, *25*(8), 902-904.

Gordon, M., Bartruff, L., Gordon, S., Lofgren, M., & Widness, J. A. (2008). How fast is too fast?: a practice change in umbilical arterial catheter blood sampling using the Iowa Model for Evidence-Based Practice. *Advances in neonatal care: official journal of the National Association of Neonatal Nurses*, *8*(4), 198.

Iowa Model Collaborative, Buckwalter, K. C., Cullen, L., Hanrahan, K., Kleiber, C., McCarthy, A. M., ... & Authored on behalf of the Iowa Model Collaborative. (2017). Iowa model of evidence‐based practice: Revisions and validation. *Worldviews on Evidence‐Based Nursing*, *14*(3), 175-182.

Sodian, R., Weber, S., Markert, M., Rassoulian, D., Kaczmarek, I., Lueth, T. C., ... & Daebritz, S. (2007). Stereolithographic models for surgical planning in congenital heart surgery. *The Annals of thoracic surgery*, *83*(5), 1854-1857.

Hermsen, J. L., Burke, T. M., Seslar, S. P., Owens, D. S., Ripley, B. A., Mokadam, N. A., & Verrier, E. D. (2017). Scan, plan, print, practice, perform: development and use of a patient-specific 3-dimensional printed model in adult cardiac surgery. *The Journal of thoracic and cardiovascular surgery*, *153*(1), 132-140.

Mottl-Link, S., Hübler, M., Kühne, T., Rietdorf, U., Krueger, J. J., Schnackenburg, B., ... & Karck, M. (2008). Physical models aiding in complex congenital heart surgery. *The Annals of thoracic surgery*, *86*(1), 273-277.

Mahle, W. T., Nicolson, S. C., Hollenbeck-Pringle, D., Gaies, M. G., Witte, M. K., Lee, E. K., ... & Cooper, D. S. (2016). Utilizing a collaborative learning model to promote early extubation following infant heart surgery. *Pediatric critical care medicine: a journal of the Society of Critical Care Medicine and the World Federation of Pediatric Intensive and Critical Care Societies*, *17*(10), 939.

Berry, S. A., Doll, M. C., McKinley, K. E., Casale, A. S., & Bothe, A. (2009). ProvenCare: quality improvement model for designing highly reliable care in cardiac surgery. *BMJ Quality & Safety*, *18*(5), 360-368.

LoBiondo-Wood, G., & Haber, J. (2017). *Nursing research: Methods and critical appraisal for evidence-based practice*. Elsevier Health Sciences.

Sidhu, M. S., Gale, N. K., Gill, P., Marshall, T., & Jolly, K. (2015). A critique of the design, implementation, and delivery of a culturally-tailored self-management education intervention: a qualitative evaluation. *BMC health services research*, *15*(1), 54.

Milinki, A. K. (2016). *Cases in qualitative research: Research reports for discussion and evaluation*. Routledge.

Leung, L. (2015). Validity, reliability, and generalizability in qualitative research. *Journal of family medicine and primary care*, *4*(3), 324.

Køber, L., Thune, J. J., Nielsen, J. C., Haarbo, J., Videbæk, L., Korup, E., ... & Eiskjær, H. (2016). Defibrillator implantation in patients with nonischemic systolic heart failure. *New England Journal of Medicine*, *375*(13), 1221-1230.

Marrouche, N. F., Brachmann, J., Andresen, D., Siebels, J., Boersma, L., Jordaens, L., ... & Schunkert, H. (2018). Catheter ablation for atrial fibrillation with heart failure. *New England Journal of Medicine*, *378*(5), 417-427.

Mehra, M. R., Naka, Y., Uriel, N., Goldstein, D. J., Cleveland Jr, J. C., Colombo, P. C., ... & Pagani, F. D. (2017). A fully magnetically levitated circulatory pump for advanced heart failure. *New England Journal of Medicine*, *376*(5), 440-450.

Ponikowski, P., Voors, A. A., Anker, S. D., Bueno, H., Cleland, J. G., Coats, A. J., ... & Jessup, M. (2016). 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure: The Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC). Developed with the special contribution of the Heart Failure Association (HFA) of the ESC. *European JOURNAL OF HEART FAILURE*, *18*(8), 891-975.

Yancy, C. W., Jessup, M., Bozkurt, B., Butler, J., Casey, D. E., Colvin, M. M., ... & Hollenberg, S. M. (2017). 2017 ACC/AHA/HFSA focused update of the 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Failure Society of America. *Journal of the American College of Cardiology*, *70*(6), 776-803.

Ziaeian, B., & Fonarow, G. C. (2016). Epidemiology and aetiology of heart failure. *Nature Reviews Cardiology*, *13*(6), 368.

Braunwald, E. (1988). Heart disease.

Cleland, J. G., Daubert, J. C., Erdmann, E., Freemantle, N., Gras, D., Kappenberger, L., & Tavazzi, L. (2005). The effect of cardiac resynchronization on morbidity and mortality in heart failure. *New England Journal of Medicine*, *352*(15), 1539-1549.

Ponikowski, P., Voors, A. A., Anker, S. D., Bueno, H., Cleland, J. G., Coats, A. J., ... & Jessup, M. (2016). 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure: The Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC). Developed with the special contribution of the Heart Failure Association (HFA) of the ESC. *European journal of heart failure*, *18*(8), 891-975.

Yancy, C. W., Jessup, M., Bozkurt, B., Butler, J., Casey, D. E., Colvin, M. M., ... & Hollenberg, S. M. (2017). 2017 ACC/AHA/HFSA focused update of the 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Failure Society of America. *Journal of the American College of Cardiology*, *70*(6), 776-803.

# Appendices

## Timeline

The application of the proposal will be completed in 3 phases. Phase 1 will be 1 year and will treat 100 patients; phase 2 will be one year and will treat 200 patients, and Phase will be third year with flexible capacity of at least 300 patients.

## Budget

The total implementation cost for the proposal will be $10 million with its 30% consumption in first year. However, if the project failed to delver the results after consumption of 50% of the budget, the project will be reversed.