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UNIVERSITI TEKNOLOGI MARA MALAYSIA

NPD TITLE : SMART TOURNIQUET

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Group Members :

NAME	STUDENT'S ID
JACQUELINE PATTIE EMAH	2016236002
MALATI MARZUKI	2016854436
NOR AZEAN MUSHID	2016692002
WAN NUR ASIKIN WAN OTHMAN	2016221804

Submitted to

PUAN HAJAH ZANARIAH ZAINAL ABIDIN

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EXECUTIVE SUMMARY

The development of new type of tourniquet is a great opportunity for healthcare unit to improve their services. In this case we can observe available tourniquet is less effective and time consuming in term of application. Longer time duration are needed in using the old tourniquet for treating their patients. The less effective tourniquet needed to be innovate in order to improve their services. Therefore, smart tourniquet is the best plan for replacing the old tourniquet. Smart tourniquet is developed with the latest technology for ease the health worker. It was build with an addition of infrared lamp that is used to detect the blood vein and this will reduce the time taken for detecting blood vein manually. Beside that, the invention of pressure or tension detector help to provide correct and accurate pressure for better access of vein. The product also argonomic and user-friendly since development measure the qualitative satisfaction of user in using the product and also portable. As conclusion, smart tourniquet can be used as new device in the process of treating patients.

INTRODUCTION

The product that we creat is a Smart tourniquet. This product is an innovation product to the commercialized surgical tourniquet available in the market. In hospitals, tourniquets are specifically used during orthopedic surgeries, where external hemorrhage cannot be controlled by direct pressure (Welling, Mckay, Rasmussen, Rich, & Houston, 2012). In addition, the device is also used during emergencies and life-threatening limb hemorrhages or limb amputation with multiple bleeding points, for immediate management of breathing & airway problems. However, restraints such as transmission of infection due to reusable cuffs might consequently increase the hospital costs and hinder the growth of market during the forecast period.

1.1 Problem statement

The idea of innovating the product comes when we see that surgical tourniquet is often not available in the hospital settings. Whenever there are some available in the hospital, it is broken and malfunction. Often we observe healthcare worker like doctors and nurses use latex glove or urine catheter in replacement of the tourniquet. A part from that, we also notice that venipuncture and insertion of intravenous line is a painful experience for the patient as well especially when the healthcare worker fail to get correct vein to prick. That lead to extra time needed for the procedure and indirectly delay some treatment in certain cases.

1.2 Methodology

The idea came out from our observation and verbal interview with the healthcare worker in hospital. Observation was made between August and September 2018. Interviews was carried out among staff nurses, housemen, and medical assistant from Unit Kesihatan UiTM Perlis, Sarawak General Hospital, Hospital Sungai Buloh and Unit Kesihatan UiTM Rembau.

1.3 Limitations

Each of the issues identified directly effects NPD; however the issue closest to the development process itself centred on establishing and maintaining clarity of design intent during the early stages of development.

NEW PRODUCT DEVELOPMENT

2.1 Definition

The new product development (NPD) literature emphasizes the importance of introducing new products on the market for continuing business success. In this case we are studying the opportunity to develop new product that can improve human daily life and establish new form of ways in treating patient.

2.2 Classification of NPD

There are a few classifications in entrepreneurship. One of the classifications that we assigned in this project is improvements and revisions of existing products. These are the new products that replace existing products by providing improved performance or greater perceived value. A product improvement is making one or more changes to an existing product that is already in the marketplace. The change may be minor or more significant and typically involves only one or two of the product features, in an attempt to either update the product or make it more competitive or offer a greater array of consumer benefits.

According to Grand View Research (2017), the global tourniquet systems market size was valued at USD 304.2 million in 2016 and is expected to grow with CAGR of 7.7% over the forecast period. High demand for tourniquets in military applications, increase in R&D activities, technological advancements such as sterile disposable tourniquets, rise in initiatives from governments, and growth in incidences of intestinal-related disorders drive the market (Allied Market Research, 2017). Tourniquet is one of a matured product in the market and has been increased in demand especialy in the medical line.

2.3 NEW PRODUCT DEVELOPMENT PROCESS

2.3.1 Research & Development

Research and development refer to the process that are directed towards discovering new knowledge, product, or process. In this case R&D has been used in order to create new product. This process are done to reduce the high rate of failure which commonly known among new product. R&D help in filling the gap of past product design and overcome the limited historical or preliminary data.