

Concept Proposal.

Title : Intra-Operative fluid warmer device.

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Main Objective:

To develop a cheap, user friendly and effective fluid warming device to be used intra-operatively.

Other objectives:

- To develop device with temperature regulator controller to keep the irrigation fluid warm during operative procedure.

Features of Negative Pressure Regulator Required.

1. Cheap
2. Small/light
3. Portable and washable with heat resistant detachable component for autoclave (sterilisation)
4. Has automated temperature regulator with digital temperature indicator to prevent excessive heat and burn injury to patient and staff.

Methodology/Design.

Fluid irrigation is used regularly in operative procedure various reason. Usually a mixture of warmed and cold fluid (eg. Normal saline) are used to get a desirable temperature gauge by the scrubbed nurse and the surgeon. This is important to prevent hypothermia if large amount of wound need to be washed or irrigated; the procedure done on children; and also to prevent blood vessels constriction in the case of vascular surgery or microsurgery.

Sometimes the warmed irrigation fluid is used in small amount and in frequent manner. From our experienced, the fluid can loss the heat/temperature fairly quickly due to lower room temperature in the operating theatre (air-condition). Therefore the fluid need to be discarded and replaced by a hot fluid (kept in hot press/cupboard). This can be costly and expensive especially if there will be additive such as heparin to the solution.

Therefore, we suggest that a portable, detachable and heat tolerable device to be invented for our own use and be marketed.

Suggested design.

Three separate components

1. Main unit - Heat generator with temperature regulator.
2. Silicone tubing.
3. Stainless steel pipe coiling - for heat transfer and maintenance.

Concept

Main unit to heat up liquid to a set temperature with a pump to circulate the heated fluid through the tubing to the coiling which can be placed outside/inside a pot, or can be placed inside a kidney dish.



The benefit of this project.

1. To produce a new easy to use fluid warmer device for intra-operative usage.
2. Safe cost and minimising waste.
3. New product invention by the university.
4. The product will be highly value in hospital set up and has potential for world wide marketing