MSF Newborn Warming Project
Market Survey: Warming Devices

Saige Sunier, Timothy Prestero - Design that Matters

Overall Summary

Hand-Held Transport Warming and CE Certified	Durable: No Fragile Connector Wires	Easy to Clean b/w Patients with Common Products	Limited Infrastructure Reqs; no risk of scalding	Limited Consumables	Device state is obvious
Ceratherm Radiant Warmer	Ceratherm Radiant Warmer	Ceratherm Radiant Warmer	Ceratherm Radiant Warmer	Ceratherm Radiant Warmer	Ceratherm Radiant Warmer
Ardo Amecosy	Ardo Amecosy	Ardo Amecosy	Ardo Amecosy	Ardo Amecosy	Ardo Amecosy
Mediprema Calibed	Mediprema Calibed	Mediprema Calibed	Mediprema Calibed	Mediprema Calibed	Mediprema Calibed
Warmilu: IncuBlanket	Warmilu: IncuBlanket	Warmilu: IncuBlanket	Warmilu: IncuBlanket	Warmilu: IncuBlanket	Warmilu: IncuBlanket
Warmilu: Wipeable	Warmilu: Wipeable	Warmilu: Wipeable	Warmilu: Wipeable	Warmilu: Wipeable	Warmilu: Wipeable
Embrace Nest Warmer	Embrace Nest Warmer	Embrace Nest Warmer	Embrace Nest Warmer	Embrace Nest Warmer	Embrace Nest Warmer
DreamWarmer	DreamWarmer	DreamWarmer	DreamWarmer	DreamWarmer	DreamWarmer
TransWarmer	TransWarmer	TransWarmer	TransWarmer	TransWarmer	TransWarmer
BabyPod II (w TransWarmer)	BabyPod II (w TransWarmer)	BabyPod II (w TransWarmer)	BabyPod II (w TransWarmer)	BabyPod II (w TransWarmer)	BabyPod II (w TransWarmer)
Transport Incubator	Transport Incubator	Transport Incubator	Transport Incubator	Transport Incubator	Transport Incubator
AstroPad Warming Blanket	AstroPad Warming Blanket	AstroPad Warming Blanket	AstroPad Warming Blanket	AstroPad Warming Blanket	AstroPad Warming Blanket
Kanmed BW3-001	Kanmed BW3-001	Kanmed BW3-001	Kanmed BW3-001	Kanmed BW3-001	Kanmed BW3-001
Thermocare Convenience	Thermocare Convenience	Thermocare Convenience	Thermocare Convenience	Thermocare Convenience	Thermocare Convenience
Ginevri Aquatherm	Ginevri Aquatherm	Ginevri Aquatherm	Ginevri Aquatherm	Ginevri Aquatherm	Ginevri Aquatherm
Medwarm IM-50M	Medwarm IM-50M	Medwarm IM-50M	Medwarm IM-50M	Medwarm IM-50M	Medwarm IM-50M
Ramonak-01	Ramonak-01	Ramonak-01	Ramonak-01	Ramonak-01	Ramonak-01
Inspiration CosyTherm[2]	Inspiration CosyTherm[2]	Inspiration CosyTherm[2]	Inspiration CosyTherm[2]	Inspiration CosyTherm[2]	Inspiration CosyTherm[2]

Product Requirements: Portability and CE Certification

Conductive Warming Mattresses

Ardo Amecosy

Mediprema Calibed

Medwarm IM-55M

AstroPad Warming Blanket

Kanmed BW3-001

Inspiration CosyTherm^2

Thermocare Convenience

Ginevri Aquatherm

Ramonak-01

Chemical-Thermal Batteries

Warmilu IncuBlanket

Warmilu Wipeable IncuBlanket

Embrace Nest Warmer

PASS

DreamWarmer

TransWarmer

**BabyPod II
(with TransWarmer)**

PASS

Other

Ceratherm Radiant Warmer

Transport Incubator*

*Portability requirement implies hand-carry rather than on wheels, given the need to transport patients up stairs, through narrow doorways and crowded wards, and outside over rough ground

Product Requirement: Context Appropriate (Durable and Rugged, Limited Maintenance)

Failure Mode (What/When)
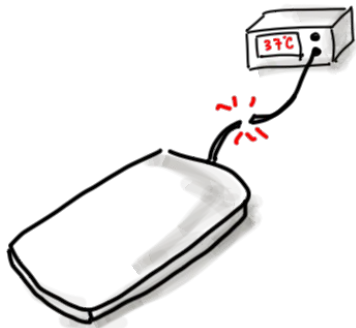
Fragile cable between heating source and control unit are prone to damage.

Evidence (Why/Who)

Goyalmara Field Staff: The cable between the Amecosy mattress and the control unit breaks easily and cannot be repaired or replaced.

Yemen Pediatric Staff: It is very difficult to get Biomed Staff into Yemen, it is important that the device requires minimum and easy maintenance.

Stakeholder Survey: 75% rank as a "Must Have"; 25% rank as a "Nice to Have"

Solutions (How)

1. Control unit and mattress are one unit with no connecting cords.

2. Connector cable is easily replaced by locally available consumables.

3. Product is installed in a bassinet or in one area and rarely moved.

Devices Affected

Ardo Amecosy	Mediprema Calibed	Medwarm IM-55M	AstroPad Warming Blanket	Warmilu IncuBlanket	Warmilu Wipeable IncuBlanket	Embrace Nest Warmer	Ceratherm Radiant Warmer

Ramonak-01	CosyTherm²	Kanmed BW3-001	Thermocare Convenience	Ginevri Aquatherm	DreamWarmer	TransWarmer	BabyPod II (with TransWarmer)	Transport Incubator

Product Requirement: Context Appropriate (IPC: Easy to clean between patients, with common cleaning products)

Failure Mode (What/When)

Difficult and/or extensive process to sterilize and clean product between patients. Is not compatible with common cleaning products.

Evidence (Why/Who)

Workshop Feedback: Some sites have a very high patient to staff ratio and the patient turnover is very rapid, making a quick easy IPC process important.

Workshop Feedback: Sites will use bleach and chlorine products to sterilize equipment.

Stakeholder Survey: 100% rank as "Must Have"

Solutions (How)

1. Choose a product that can be wiped down for sterilization between patients.

2. Product must have minimal creases and seams to reduce the risk of collecting dirt and infectious germs.

Devices Affected

| Ardo Amecosy | Mediprema Calibed | Medwarm IM-55M | AstroPad Warming Blanket | Warmilu IncuBlanket | Warmilu Wipeable IncuBlanket | Embrace Nest Warmer | Ceratherm Radiant Warmer |

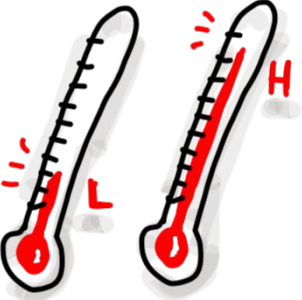| Ramonak-01 | CosyTherm² | Kanmed BW3-001 | Thermocare Convenience | Ginevri Aquatherm | DreamWarmer | TransWarmer | BabyPod II (with TransWarmer) | Transport Incubator |

Failure Mode (What/When)

Requires room temperature control (AC) for accurate and safe performance.

Evidence (Why/Who)

Yemen Pediatric Staff: The project site can exceed 40C.

Workshop Feedback: Devices in the catalog will be used in all MSF sites and should be usable in all climates.

Stakeholder Survey (1): 75% rank as a "Must Have"; 25% rank as a "Nice to Have"

Stakeholder Survey (2): 100% rank as "Must Have"

Solutions (How)

1. If the product is a warming mattress the temperature probe must read from the surface of the mattress and record real time temperature.

2. Operating the warmer (whether chemical-thermal battery or electrically-powered device) at an ambient temp >28C does not introduce a risk of scalding.

Devices Affected

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Product Requirements: Context Appropriate (Low Cost of Ownership, Limited Consumables)

Failure Mode (What/When)
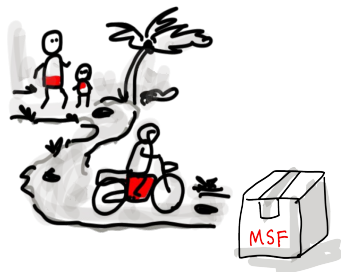
High consumable requirement cannot be maintained in all MSF project sites.

Evidence (Why/Who)

Yemen Pediatric Staff: It is very difficult to get Biomed staff, medical materials, and medical products into Yemen because of the political situation.

Kusisa, DRC Staff: The project site is very difficult to reach and any consumables will need to be hand carried or carried on a motorcycle. The political situation makes transport risky.

Working Group: While it is not MSF's priority, any device that relies on consumables is not sustainable once MSF leaves.

Stakeholder Survey: 25% rank as "Must Have"; 63% rank as "Nice to Have"; rank as 13% "Don't Know"
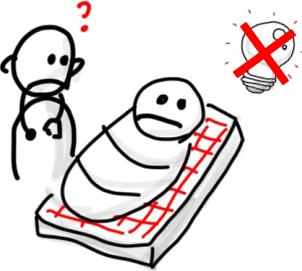
Solutions (How)

1. Choose a product that requires very little, if any, consumables.

2. If product requires consumables, the parts can be purchased locally.

3. Provide additional method of warming if choosing a consumable warming device.

Devices Affected

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Product Requirement: (1) User Friendly (Device state is obvious); (2) User Friendly (limited risk of scalding or hyperthermia)

Failure Mode (What/When)

Device state (on, off, broken) is not obvious. Device can break or temperature become too high/low without user knowing.

Evidence (Why/Who)

Working Group: Some MSF project sites have a high patient: staff ratio which makes it difficult to check device status when focusing on patient care.

Stakeholder Survey (1): 75% rank as "Must Have"; 25% rank as "Nice to Have"

Stakeholder Survey (2): 100% rank as "Must Have"

Solutions (How)

1. Device has auditory and visual alarms that notify user if device is not functioning as expected.

2. Temperature feedback control: device automatically monitors and adjusts temperature to maintain the appropriate range, or shuts off if ambient temperature is too high.

Devices Affected

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