Why common fever thermometers are not enough
A systematic perspective in the crossing between medicine and engineering

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WHY COMMON FEVER THERMOMETERS ARE NOT ENOUGH
A SYSTEMIC PERSPECTIVE IN THE CROSSING BETWEEN MEDICINE AND ENGINEERING

**Project purpose**
This abstract describes a cross-disciplinary design project aiming at developing a fever thermometer that considers both medical and engineering aspects to improve global health. The fever thermometer is an essential health technology and the entry point to a diversity of health technologies. Nonwithstanding, the fever thermometer is an essential health technology and the entry point to a diversity of health technologies. Nonetheless, the fever thermometer is an essential health technology and the entry point to a diversity of health technologies.

**Design**
In this abstract, the authors suggest that the crossing of medicine and design engineering has the potential to offer new perspectives to health technologies, by focusing on developing value-sensitive innovations that include consideration for human factors involved in the development, procurement, use and disposal of technologies (e.g. individual, relational and organizational aspects), to the technical ecosystem and underlying financing model needed to sustain such technologies.

**Outcome and evaluation**
This abstract exposes a systemic perspective on the assessment of fever in rural Africa by describing how the engagement of these two disciplines in a series of design projects lead to relevant insights about the current barriers to their implementation across the different healthcare systems and their structures. Therefore, the fever thermometer is an essential health technology and the entry point to a diversity of health technologies.

**Distribution of healthcare received by people with febrile symptoms**
- Visited a healthcare provider (except a traditional healer)
- Self treated
- visited a traditional healer
- No action

**Distribution of healthcare providers visited by people with febrile symptoms**
- Private for profit
- Public
- Private non-profit
- Informal

Health technologies, like the fever thermometer are an essential part of the delivery of primary healthcare services for global health. Despite the increasing engagement of the private sector and academia, there is a poor understanding of the barriers to their implementation across the different healthcare systems and their structures. The lack of accessibility to an accurate and reliable diagnostic fever system because of a mismatch with expectations. As a result, there is a poor understanding of the barriers to their implementation across the different healthcare systems and their structures.
WHY COMMON FEVER THERMOMETERS ARE NOT ENOUGH
A SYSTEMIC PERSPECTIVE IN THE CROSSING BETWEEN MEDICINE AND ENGINEERING

Project purpose: This abstract describes a cross-disciplinary design project aiming at developing a fever thermometer for East Africa, with clear cut-off points for community health workers and caregivers, based on medical evidence, and adapted to local realities and cultural norms. The Frugal Thermometer project is an initiative supported by the Centre for Frugal Innovation in Africa and it is carried out by the Leiden University Medical Centre and the Faculty of Industrial Design Engineering at Delft University of Technology since 2012. The fever thermometer is an essential health technology and the entry point to a diversity of health technologies, like the fever thermometer, are an essential part of the delivery of primary healthcare services for global health. Despite the increasing engagement of the private sector and academia, there is a poor understanding of the barriers to their implementation across the different healthcare systems and their structures.

Design: In this abstract, the authors suggest that the crossing of medicine and design engineering has the potential to offer new perspectives to health technologies, by focusing on developing value-sensitive innovations that include consideration for human factors involved in the development, procurement, use and disposal of technologies (e.g. individual, relational and organizational aspects), to the technical ecosystem and underlying financing model needed to sustain such technologies.

Outcome and evaluation: This abstract exposes a systemic perspective on the assessment of fever in rural Africa by describing how the engagement of these two disciplines in a series of design projects lead to relevant insights about the current barriers to their implementation across the different healthcare systems and their structures.

DISTRIBUTION OF HEALTHCARE RECEIVED BY PEOPLE WITH FEBRILE SYMPTOMS
- Visited a healthcare provider (except a traditional healer)
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Going forward the Centre for Frugal Innovation in Africa and the partnering universities actively pursue this applied research aiming at generating and disseminating knowledge about the contribution of frugal innovation to global health.

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