The jacket that detects pneumonia

Wrong diagnosis leads to death which is why tools that help tell the occurrence of a disease are essential.

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Six months of coughing and a debilitating fever was too much for Olivia Koburongo’s 86-year-old grandmother, whose body had been weakened by other age-related conditions. My grandmother, the 26-year-old says, died of pneumonia that could not easily be diagnosed because of a lack of proper diagnostic equipment. “For six months she kept taking wrong medicines. Several health workers in different health facilities had diagnosed her with malaria. Pneumonia was discovered after a postmortem was conducted when she died,” Koburongo reveals.

Killer ailment

Children and the elderly are especially vulnerable to pneumonia. According to Unicef, pneumonia accounts for almost one million child deaths worldwide every year; 922,000 in 2015 which is 16% of total deaths among children under five years of age. In Uganda, Unicef estimates that the disease kills up to 24,000 children under-five every year, many of whom were misdiagnosed with malaria. Uganda, like its neighbouring countries, lacks proper diagnostic equipment for many diseases such as pneumonia; therefore health workers rely on basic clinical examinations. It is in this context that in 2014, Koburongo and four others invented “Mama-Ope” (Mother’s Hope): a biomedical smart jacket that detects and analyses pneumonia symptoms among children, with the aim of providing more accurate diagnosis. Koburongo, a graduate of Telecom Engineering from Makerere University, says the team has developed a prototype that is three times faster than the standard diagnostic process in Uganda.

According to co-founder Brian Turyabagye, also a telecom engineer: “The jacket diagnoses, measures the extent to which the disease has affected the lungs and also tracks the progress of the disease since diagnostic information is sharable.”

Milestone

Mama-Ope won runner-up prize in the Big Ideas Innovation competition run by the University of California Berkeley in 2015. The $6,500 (about Shs 22.7m) prize provided seed money that the team used to develop a prototype, and sought guidance from Unicef. Or Namwase, a private medical researcher from Makerere University’s Disease Institute to test their prototypes, and sought guidance from Unicef. Dr Flavia Myanga Kagwaa, a Health Specialist at Uganda’s Ministry of Health.

According to Dr Flavia Myanga Kagwaa, a Health Specialist at Uganda’s Ministry of Health: “The jacket needs to be approved by a regulatory authority to have the possibility of commercial viability. Otherwise I think it would be a great addition to the tools used in diagnosing pneumonia.”

Once certification is secured, the team intends to do mass production and supply the jacket to countries in East Africa at a cost of about $80 (Shs 280,000).

In the meantime, Mama-Ope has been gaining supporters around the world – in March this year, Brian Turyabagye won the Pitch@Palace Africa event hosted by HRH The Duke of York in London, England.

“We plan to have the jacket also operate on solar energy which is more reliable for most East African countries,” Turyabagye says.

Mama-Ope’s inventors hope the smart jacket will help in saving diag-

nosis time and reduce the number of deaths due to pneumonia, which would be a great contribution to the country’s Sustainable Development Goals (SDGs) and save the government on waste of drugs.