



Impact Report 2020

—
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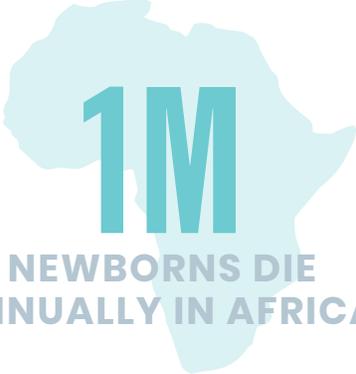
Ting Tsung and Wei Fong
Chao Foundation

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1M
NEWBORNS DIE
ANNUALLY IN AFRICA

80%
OF THESE DEATHS ARE
PREVENTABLE

NEONATAL CONDITIONS ARE THE LEADING CAUSE OF DEATH IN LOW INCOME COUNTRIES.

In Africa, most births are in hospitals, yet one million newborns die annually, mostly from preventable causes. A primary reason for this high rate of newborn mortality is that the hospitals where most mothers deliver their babies lack the life-saving technologies, equipment, and trained staff necessary to manage preterm babies and newborns in distress.

NEST360° (Newborn Essential Solutions and Technologies) is an international alliance of clinical, technical, and public health experts who have joined together to end preventable newborn deaths at hospitals across Africa. NEST360° established an evidenced-based, health-systems model to assess, implement, sustain, and scale affordable technologies and health services to improve the quality of hospital care for small and sick newborns. The NEST360° model enables countries to meet newborn survival targets by improving outcomes, saving newborn lives, and empowering the medical workforce of the future.



2020 Highlights

Significant progress was made, despite the challenges of a global pandemic.

In 2020, NEST360° faced the challenge of confronting and responding to a global pandemic, which demonstrated the resilience and commitment of the whole NEST team – a network of doers with enthusiasm and zest, who show up to do the work each day.

Working in partnership with UNICEF, NEST360° developed rigorous standards for newborn medical technologies, called **Target Product Profiles (TPPs)**, which are hosted online by UNICEF. Based on these TPPs, NEST360° qualified 16 newborn technologies and launched a new partner (**Hatch Technologies**) to deliver and sustain these essential qualified medical devices in hospitals in Africa.

A LOOK AT OUR ACCOMPLISHMENTS

- Strengthened newborn health systems by training more than 10,000 doctors, nurses, biomedical technicians, students, and faculty*.
- Developed a suite of **open-access educational resources** and technology job aids that are publicly available on the NEST360° website.
- Through collaboration with local Ministries of Health, NEST360° training materials were integrated into national newborn care guidelines, with the hands-on materials as a complement to existing resources across all four countries.

Teams shifted to virtual meetings and responded to the crisis by developing COVID resources. Students at NEST360° design studios prototyped, manufactured, and delivered personal protective equipment to hospitals in shortage. Together the team rose to the occasion with an amplified passion to improve newborn care.

*based on number of attendees at each training, including individuals who may have participated in multiple trainings

2020 Highlights



34

NEST360°-equipped Hospitals



8

Neonatal Care and Learning Hubs



16

Qualified Newborn Technologies

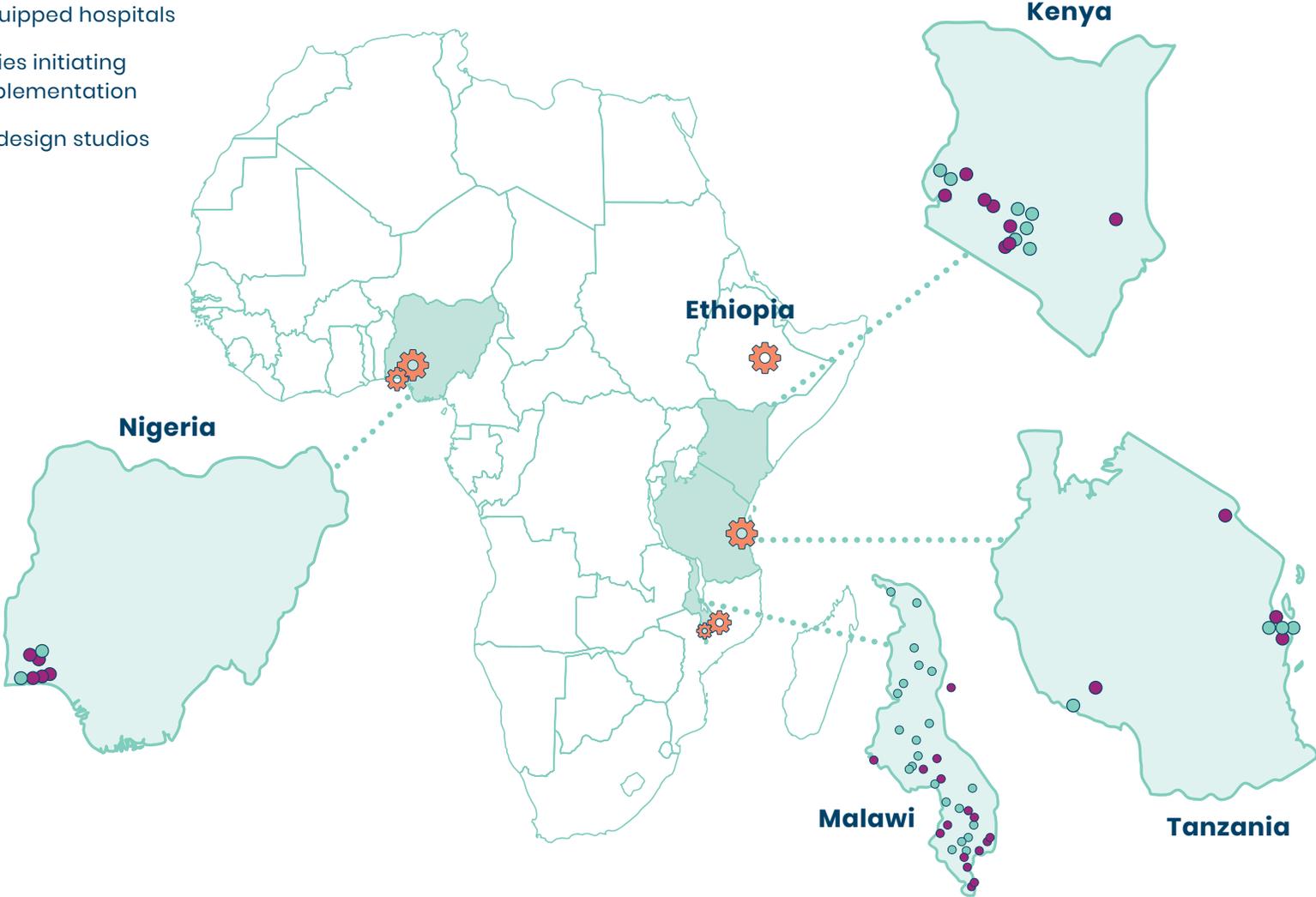


+ 10,000

Doctors, Nurses, Biomedical Technicians, Students & Faculty Trained*

NEST360° Implementation

- NEST360°-equipped hospitals
- Health facilities initiating NEST360° implementation
- ⚙️ Engineering design studios



+90,000 

Annual newborn admissions at health facilities where NEST360° is implemented

65 

Hospitals with NEST360° implementation initiated

34 

NEST360°-equipped hospitals

Technology Impact Milestones



2300

Newborn Technologies Delivered

Approved newborn essential technologies have been delivered and installed in hospitals across four countries.



98%

Device Functionality (Uptime)

The percentage of time an installed device is working and available.



15 Target Product Profiles Launched

We worked in partnership with [UNICEF](#) to develop target product profiles that provide guidance on newborn technologies that meet rigorous technical and environmental standards.



16 NEST360° Qualified Technologies Offered

We [qualified existing commercial devices](#) across eight product categories that meet the rigorous standards of the [Target Product Profiles](#) for hospitals in low-resource settings.



4 Innovative Newborn Products Developed

We identified technology gaps where no commercial products are available that meet the standards of the Target Product Profiles. The team worked to develop four new innovative technologies—two will be introduced in 2021 and two in 2022.



Hatch Technologies

We established a global non-profit distribution company ([Hatch Technologies](#)) and work with local distributors to sell, deliver, and maintain medical technologies.

7,248 

Nurses and clinicians trained to use newborn medical technologies*

2,008 

Engineering students and faculty trained in invention education*

786 

Biomedical technicians trained to innovate and repair newborn medical technologies*

Education Impact Milestones



Developed Modular Education Materials for In-service and Pre-service Training

Partnered with Ministries of Health and stakeholders across four countries to develop modular educational materials that emphasize practical, hands-on education regarding the use and management of newborn care equipment. Resources included device-specific clinical and technical training modules, training videos, and job aids, which are all made publicly available online.



Strengthened National Newborn Health Educational Courses in 4 Countries

Worked with Ministries of Health to design [NEST360° education materials](#) and integrate best practices into nationally approved Clinical Providers course in all four countries.



Established New Engineering Design Studios

NEST360°'s [invention education program](#) helped to establish additional innovation design studios at local universities, for a total of six design studios to date. There are now two studios in Nigeria, and one in Ethiopia, in addition to the existing two studios in Malawi and one in Tanzania. Studios are equipped with 3D printers and laser cutters for rapidly prototyping solutions to real world problems.

*based on number of attendees at each training, including individuals who may have participated in multiple trainings

Strengthening Health Systems



Developed Quality Improvement Dashboard

The quality improvement dashboard draws data from a NEST Neonatal Inpatient Dataset and weekly event logs. The dashboard provides an easily actionable summary of outcomes, clinical care process, and enabling environment at each NEST360° facility.



Piloted Quarterly Quality Improvement Review Process

Quality Improvement reviews are conducted on a quarterly basis by a multidisciplinary team of clinical, biomedical, information, and management staff from the hospital and the Ministry of Health to identify and respond to local priorities to improve newborn care. The Quality Improvement process and tools were piloted at eight NEST360° facilities in Malawi.



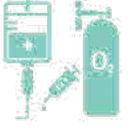
Collaborated with Global Stakeholders to Develop an Implementation Toolkit for Small and Sick Newborn Care

NEST360° worked with UNICEF and with input from stakeholders at WHO, USAID, Save the Children, PATH, and MNH Align to develop an open-access toolkit to guide the implementation of small and sick newborn care. The toolkit will be launched in 2021.



National Policy Impact for Small and Sick Newborn Care

NEST360° works with governments to develop or strengthen national policies, guidelines, standards, and training for comprehensive newborn care. In 2020, we made significant progress filling in gaps in national policy across four countries.

	 GOVERNANCE	 INFRASTRUCTURE		 HUMAN RESOURCES		 MEDICAL DEVICES	 INFORMATION SYSTEMS		 FINANCING
	Standardized Care Guidelines	Standardized Neonatal Unit Floorplans	Pre-NEST Checklist Inspired Renovations	NEST Embedded in In-Service Training Courses		Established Global Standards for Medical Devices	Established HR for Data Management	Strengthened Quality Improvement Process	Influenced Budgeting
				Clinicians	Biomedical Technicians				
MALAWI	✓	↗	✓	✓	✓	✓	✓	↗	→
KENYA	✓	✓	✓	✓	✓	✓	→	↗	→
TANZANIA	✓	✓	✓	✓	↗	✓	→	↗	→
NIGERIA	✓	→	↗	✓	↗	✓	→	↗	→

 Completed
  Forthcoming
  Progressing well

52,000 

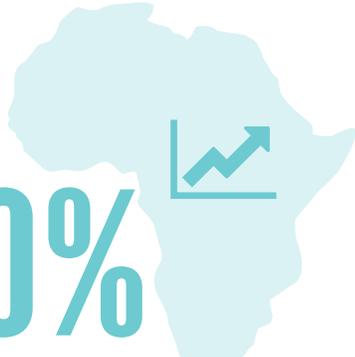
Faceshields Delivered

700 Essential Technologies
Delivered29 
Hospitals Impacted

Responding to COVID-19

Since December 2020, Africa has recorded the fastest rise in new COVID cases in the world. Infections rose by 50% on the continent in January 2021 compared to the month before.

Our team rose to the challenge posed by the COVID-19 pandemic and shortage in personal protective equipment. Students working in NEST360° design studios prototyped inventions including hand washing stations, contactless temperature monitors, and face shields, among other technologies. In Malawi, newly designed handwashing stations were distributed across Malawi with aid from the Ministry of Health, and the United Nations Development Programme (UNDP) purchased thousands of face shields. With generous support from ELMA Philanthropies, Hatch Technologies leveraged its current supply chain to deliver 715 pieces of technology for COVID-19 care to health care facilities in Kenya and Malawi. Finally, we expanded our scope of resource and now offer a compilation of [COVID-19 resources](#) on the NEST360° website to support newborn care while maintaining safety for providers, patients, and guardians.



50%
**INCREASE IN COVID-19
CASES IN AFRICA**

(from December 2020 to January 2021)



During the Pandemic, Kenya Team Trains Thousands for Better Newborn Care

Newborn care in Kenya is transforming rapidly for the better. This transformation can be attributed to a team of dedicated Kenyan neonatal nurses, pediatricians and neonatologists who have come together to form a strong clinical training team that travels across country to train other healthcare workers. The training is focused on evidenced-based comprehensive newborn care practices that intergrate the use of rugged robust technologies. The training also provides an opportunity for participants to work together and practice scenarios in simulations. After the training the participants are mentored through the implementation of these practices as real-life babies are admitted in the newborn units. This process has led to the creation of a network of newborn care champions in in hospitals across the country.

Then, in March of 2020, Kenya had its first cases of COVID-19. The team was suddenly faced with redesigning and adapting the training and mentorship approach due to the restrictions to avoid the spread of the COVID-19 virus. The clinical training team decided to host regular webinars using Zoom that were open to all healthcare workers in Kenya.

The first few webinars were attended mostly by senior healthcare workers who had access to internet and the Zoom app. However, frontline healthcare workers were not able to join because most did not have Zoom on their phones or know how to use Zoom although internet connectivity in Kenya is pretty good and affordable.

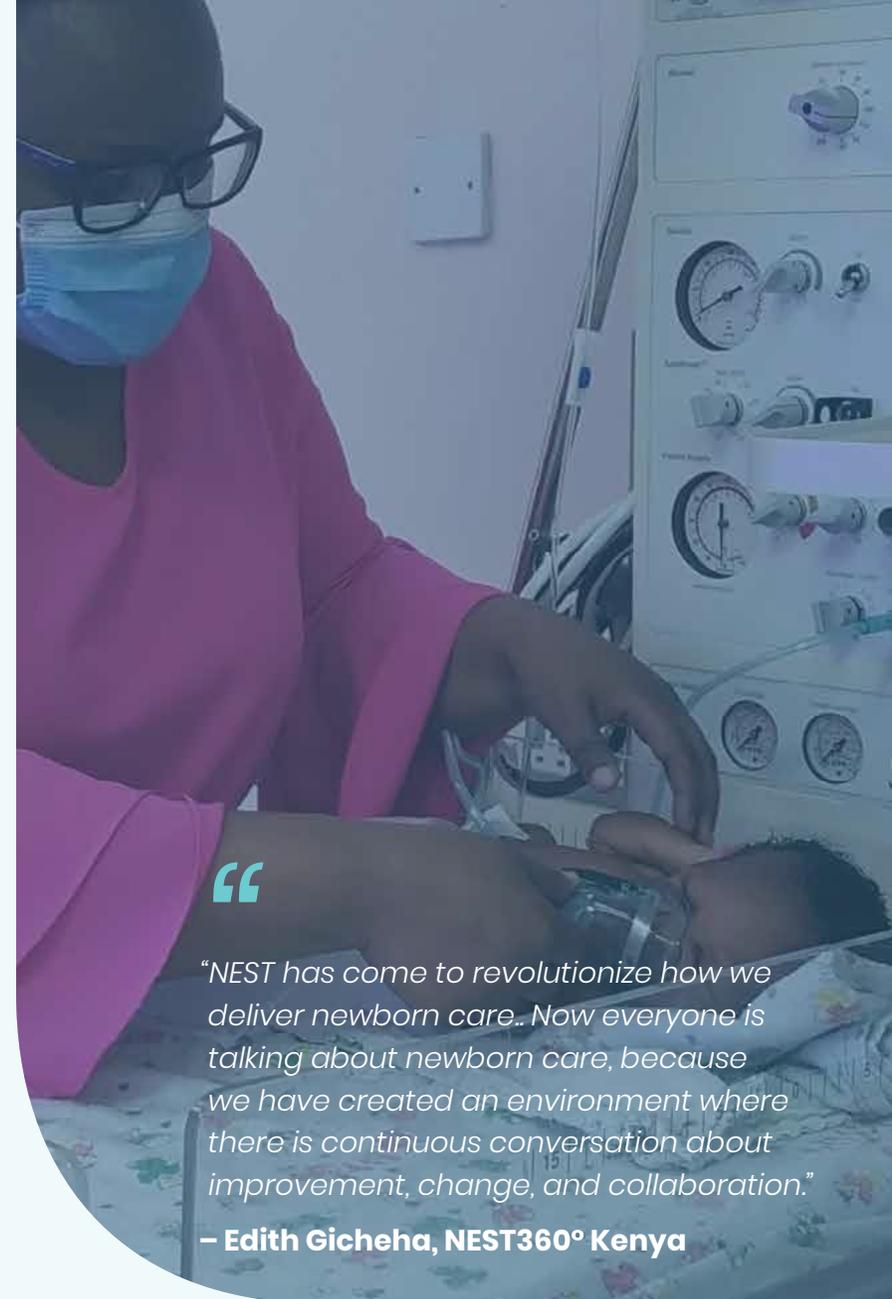
The clinical training team did not give up and went on a campaign to train everyone (especially nurses) how to download and use Zoom. Three nurses played a key role, using existing WhatsApp groups. They took time to list out the steps to download Zoom and then and explain how to use the software. This extra effort bore so much fruit, and it was evident with the number of people who wanted to join in the webinars.

The clinical team had to increase their Zoom account maximum capacity numbers from 100, to 300, then 500. Registrations for the webinars would go up to 2,000 sometimes. In addition, the audience evolved to not only Kenyan, but also health workers from Uganda, Nigeria, Cameroon, Ethiopia, Rwanda and Mauritius. The webinars were held from April to July 2020 every Friday evening and during this time, the clinical training team became masters of using Zoom to run trainings.

Building on this experience, the training team was able to transform the face-to-face newborn care trainings into a three-day virtual training for specific facilities, and sometimes they were able to combine up to three facilities at the same time.

**-Edith Gicheha, NEST360° Kenya,
Clinical Training and Evaluation Manager**

[Read more on our blog.](#)



“

“NEST has come to revolutionize how we deliver newborn care.. Now everyone is talking about newborn care, because we have created an environment where there is continuous conversation about improvement, change, and collaboration.”

- Edith Gicheha, NEST360° Kenya

NEST360°
IMPACT REPORT 2020



*“The NEST bundle was just arriving at the Mloganzila facility, not yet installed. We received a phone call asking to use the CPAP for these babies. Engineer Hazi rushed to the facility and installed this equipment, and these babies were saved. And currently they are **surviving** and **thriving**.”*

– Nahya Salim, NEST360° Tanzania