NEXLEAF
ANALYTICS

Impact Report 2020-2021

PHOTO: BLACK SWAN MEDIA

A Message from our CEO

I'll admit it: Even though we work in the vaccine space, and even though we recognize how much capacity-building is still required to fully vaccinate the world, I am nonetheless frustrated and saddened to be writing my *second* annual message of the Covid-19 era. With such effective vaccines now available, our grief at the growing human toll of this pandemic is even more intense. And, while we're doing everything we can to help countries and global entities roll out Covid vaccines, we've seen first-hand how persistent gaps have slowed these vital efforts.

But despite myriad challenges, there are nonetheless many positive updates to report.

Most importantly, we have seen a growing global awareness that **strong health systems are critical to the well-being of all people on our deeply interconnected planet**. It's clear that donors cannot simply drop thousands of vaccine doses off in a national capital and declare the problem solved. **Health systems strength requires capacity-building: trained personnel, equipment distribution, and data-driven information systems that support the successful utilization and maintenance of equipment.** In order to ensure that countries can assess their capacity, communicate their needs, and roll out basic health care to all of their citizens, it is essential that they have access to, control over, and ownership of reliable data. We must listen to countries and support their assessments of what they need to distribute Covid vaccines, and to ensure the world is ready for the next pandemic.

We at Nexleaf have thought long and hard about our role in the ecosystem of life-saving equipment distribution. We've embraced tension as necessary to achieve breakthroughs. And we've come out the other side with some exciting new ideas:

- Our **new mission statement** emphasizes the centrality of serving country decision-makers with our data, and always advocating for and insisting upon country ownership and control of data.

- Nexleaf is now – and will continue to be – **a fully remote workplace**. We view this shift as consistent with our commitment to equity. With well-resourced remote work in effect for everyone, all our team members around the world are now operating on a level playing field. Our commitment to country and partner support is also strengthened by

the flexibility and skillsets required of a fully remote team. We've already seen the benefits of this change for our team members across the globe –working together, apart– to support our unique mission, model, and approach.

- **We're getting louder.** As evidence for our approach continues to grow, we're taking bigger and bolder steps to advocate for objective data and local ownership. To that end, I was honored to present at the 2021 TED Conference in Monterey in August on how to keep life-saving equipment connected. The video of my talk is on our website and has been viewed over 800,000 times as of this writing.

From vaccine fridges to transport coolers to infant phototherapy units to improved cookstoves, health equity relies on well-functioning and locally maintained equipment. The only way to ensure this equipment is doing what it's meant to do is through feedback loops. Automating those loops with objective data removes the need for error-prone human reporting and creates mechanisms for successful maintenance and accountability in place of undetected failures and service requests that go nowhere.

Building systems that move data to the right people at the right time -- that provide for the interplay of human feedback and objective information -- is the key to strength and long-term resilience. Once the status of broken equipment is displayed on a dashboard or in an app, personnel at all levels can take responsive action until the problem is resolved.

It can be **as simple as a status indicator that turns from green to red**. With our ColdTrace system, we've seen time and time again how motivated people are to do whatever is necessary to get that fridge's status back to green again, to protect the vaccines stored inside.

This report includes updates and highlights from both 2020 as well as the first half of 2021. We at Nexleaf continue to design and deploy automated data-gathering systems, push for embedded sensors on all life-saving equipment, and advocate for data policies that put countries and local people in the driver's seat.

Thank you, as always, for your support.

Sincerely,

Nithya Ramanathan, Ph.D.
CEO & Co-founder

Contents

Our Mission

In the 12 years since Nexleaf first launched, the nature and focus of our work have changed significantly.

We've entered new sectors, established new partnerships—particularly with national governments—and expanded our global team to maximize the usefulness of the data we gather and operationalize. In light of these developments, we wanted to make sure our mission statement aligned with our latest organizational ideals and objectives.

We felt strongly about getting input from everyone on the team, so we conducted brainstorming sessions, meetings, and workshops designed to gather all points of view. It didn't take long for some core shared ideas to emerge:

The Problem:

Public health systems in low- and middle-income countries continue to lag behind, and countries are often left out of the decision-making processes that should align funding opportunities with the local context and public health priorities.

The Solution:

Data-driven, effective health solutions that are country-led and sustained over time.

Nexleaf's Innovative Role:

Provide technology and tools to equip countries with the data they need—and the ability to utilize it—as they build sustainable solutions for their health systems.

Our Why:

To improve the health of people.

We recognize key principles in understanding data as a resource and in recognizing the central role of health personnel who take action based on data:

- Countries always **own their data**.
- In-country personnel—the users of the data—are the **doers** and the **heroes**.

We are excited that our new mission statement articulates our purpose, who we serve, and how we achieve our goals.

Nexleaf's mission is to **partner with countries** to ensure they have the **data they need** to build lasting solutions that improve the health of people.

Our humble beginnings in the back of Nithya's garage!

Bringing End-to-End Visibility to the Vaccine Cold Chain

Vaccines need to be kept at certain temperatures for every step of their journey from national storage to the last mile. Making real-time data available throughout this process allows country decision-makers to pinpoint strengths and weaknesses in their vaccine cold chain. This visibility translates to more effective management of equipment, vaccines, and human resources, resulting in reduced costs, improved efficiency, and fewer wasted vaccines.

Our vaccine program brings together Nexleaf technologies such as ColdTrace, our remote temperature monitoring devices, and partnerships with ministries of health and other in-country stakeholders to ensure the data is understandable, actionable, and useful. At the time of writing this report, **our technology protects the vaccine supply for 1 in 10 babies born on Earth each year**. As the pandemic continues, we're working with global partners to ensure that countries have the data they need to not only drive their Covid vaccine rollout, but also to maximize this surge in attention—and in some cases, resources—to build stronger vaccine systems for future routine immunization.

We're fortunate to partner with Kenya's Ministry of Health to monitor vaccines in nearly 900 pieces of cold chain equipment. Recently, we've begun tracking the transportation of

" The Covid-19 pandemic has highlighted how valuable it is to work shoulder to shoulder with in-country partners to better understand their needs and current gaps in achieving their immunization goals. At Nexleaf, we are so fortunate to be able to contribute to the world's largest vaccination campaign while constantly iterating, learning, and improving the value we can deliver to our partners.
- Amy Fowler, Director for Vaccine Programs

Covid vaccines from the national cold room to county facilities using our new device, Trek, designed to travel with vaccines and wirelessly send real-time cold chain data during transit. In Tanzania, we're collaborating with the Ministry of Health to achieve end-to-end visibility into their country-wide cold chain. So far, more than 4,000 ColdTrace devices have been installed across the country. On the following page, see what end-to-end visibility looks like in action and hear from our Tanzania country partners on the value this brings to the country's vaccine management system by putting the right data in the hands of the right people at the right time.
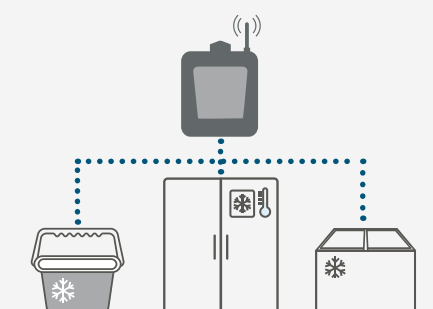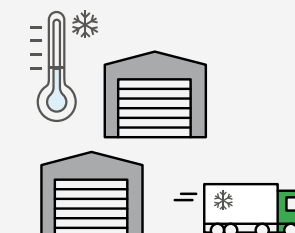
Using continuous data to improve cold chain performance

Generate & operationalize vaccine cold chain data in
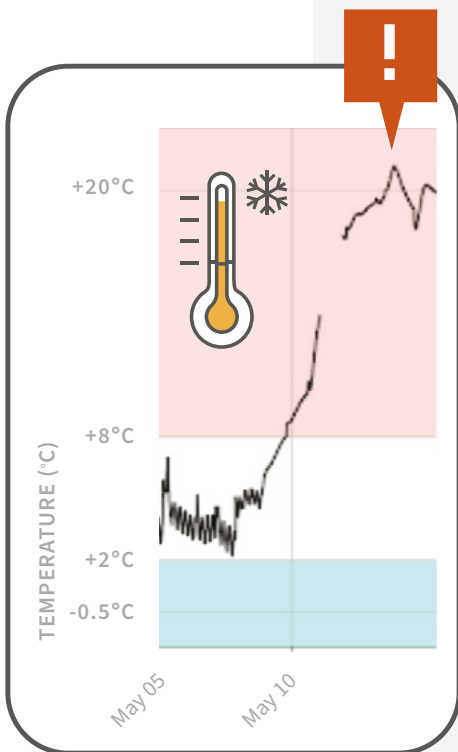
27 COUNTRIES

2,953 YEARS of cumulative data collected

2,414 YEARS of cumulative fridge uptime

End-to-end visibility across Tanzania

MAY 2021: A vaccine refrigerator equipped with a ColdTrace sensor got too hot, triggering an alert

" My day-to-day routine keeps me away from the cold chain equipment most of my working hours, and I have time only in the morning and evening to record the daily temperature. There used to be events when the cold chain equipment went off without me noticing.

Remote temperature monitoring has been helpful to me since I get alert SMS whenever there is a power issue, as well as the alarm sound from the sensor will tell me there is something that needs to be addressed so it is easy to notice a problem amid my busy schedule."

- Rabiya Omari
Reproductive Child Health Nurse in Charge,
Chikuyu Dispensary, Manyoni District Council

TECHNICIAN

The temperature remains too hot despite their efforts, so they seek assistance from the district technician.

Using the real-time, objective data available, the RIVO and health care workers can quickly and easily show the technician what's going on and demonstrate the importance of resolving the issue as soon as possible to protect all the vaccines in the fridge.

" Before remote temperature monitoring installations, I had no way of knowing what was happening with cold chain management at the facility level, there were only two options available for me: make a visit to the facility or wait for a monthly vaccination report. RTMs have helped me to access cold chain equipment performance remotely anytime. If I notice an alarm, I simply make a phone call, and if possible, help them remotely to resolve the problem. In short, solving cold chain equipment challenges takes a shorter time and we have been able to increase service availability to our clients."

- Emmanuel Mawi
District Immunization Officer (DIVO),
Singida District Council

REGIONAL IMMUNIZATION OFFICER (RIVO)

sees the alert and logs into the ColdTrace dashboard to evaluate the data and troubleshoot with the health care workers.

" With ColdTrace I am able to see what is happening not only in the District Vaccine Store but the situation at every facility and can make decisions. For example, I am able to facilitate cold chain equipment repair and maintenance at various facilities and assist the transfer of vaccines to other nearby facilities when a quick solution is not available. I have noticed that most cold chain problems are simple and easy to resolve, but they have the potential to affect vaccines quality if left unsolved for a longer time. Therefore, ColdTrace has helped me quickly resolve problems before the quality of vaccines is impacted."

- Jadili Mhanginonya
Regional Immunization and Vaccines Officer
(RIVO) for Singida Region
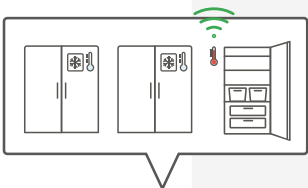
When the technician visits the site, he discovers a faulty electrical connection in the cold chain equipment system that he was able to fix on the spot. Within just 5 days of the initial alert, the fridge temperature was back to a steady, safe range and all of the vaccines were saved.

" We are currently monitoring about 4,500 pieces of cold chain equipment and now more than ever, we have started to understand individual behaviors of some of the cold chain equipment that we have and over time this will give us a very clear view of how to manage each piece of equipment and ultimately how to strengthen our cold chain system overall."

- Bonaventura Nestory Muhindi
National Officer, Cold Chain and Vaccine Logistics
Immunization and Vaccine Development Program,
Tanzania Ministry of Health
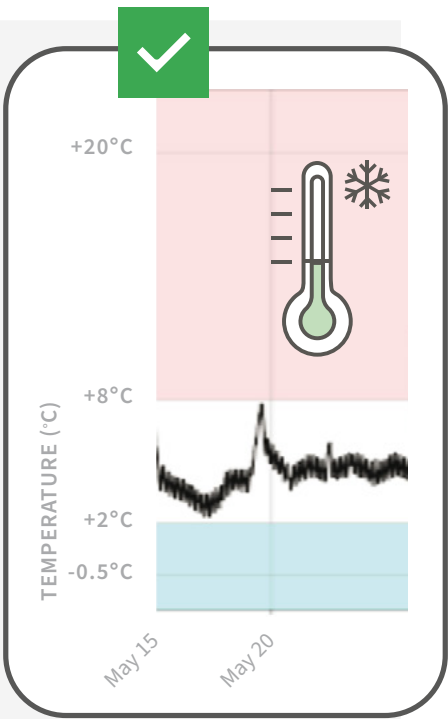
Building Capacity for Data-Driven Vaccine Distribution

A Conversation with the Regional Centre of Excellence for Vaccines, Immunisation and Health Supply Chain Management (RCE)

Dr. Stephen Karengera
Director, RCE

Dr. Domina Asingizwe
Research, Innovation, and Technical Assistance Coordinator, RCE

Stany Banzimana
Professional Training Specialist, RCE

Nelima Otipa
Data and Project Manager, Nexleaf

At Nexleaf, we are always looking for opportunities to support capacity-building for countries as they gather, own, access, and act upon the best and most useful data available to advance their national health priorities.

Since 2019, Nexleaf and the Regional Centre of Excellence for Vaccines, Immunisation and Health Supply Chain Management (RCE) at the University of Rwanda have collaborated to promote vaccine monitoring in the East African Community (EAC) through workshops and dissemination events. RCE is a thought leader in the health supply chain management system in the EAC region and has worked hand-in-hand with member countries and Nexleaf to solve existing challenges in the vaccine supply chain through research, policy, and practice.

Nelima: What do you see as the biggest challenges that countries in the EAC Region face in rolling out Covid vaccines?

RCE: EAC countries face two types of challenges in rolling out Covid-19 vaccines: internal and external. Internal challenges include lack of infrastructure capacity (not enough cold chain equipment), human resource constraints, financial limitations (especially with limited health budgets already stretched by the pandemic), vaccine hesitancy, and fragile health systems. External factors, such as inadequate vaccine supplies (especially earlier in the rollout, and for more temperature-stable vaccine types), vaccine nationalism, and funding gaps due to donor fatigue and the pandemic's impact on donor countries, also pose significant challenges.

Nelima: The pandemic has certainly underscored the importance of effective immunization systems, not only in the East Africa Community but across the globe. How do you think RCE and Nexleaf's collaborative work can address those challenges and strengthen systems for the long run?

RCE: The pandemic has shown all of us how countries with strong immunization systems managed to cope with this mass vaccination campaign and get new vaccines introduced and effectively used in a short period of time. The RCE-Nexleaf collaboration will help the EAC Region to address some of the internal challenges indicated above and start to close the gap. Technologies and tools that support effective mass vaccination, like remote temperature monitoring and other innovations, will also be disseminated through this collaboration.

Nelima: It has been a privilege for us at Nexleaf to work closely with you and the RCE team on various efforts to share existing knowledge and lessons learned from public health professionals in the EAC region. What key lesson from the pandemic do you hope the larger immunization community will take away moving forward?

RCE: A few key take-aways:

- Agile and flexible supply chains for immunization must be put in place to respond to future outbreaks and pandemics.

- Health supply chain and expanded programme on immunization workers workers need to be trained to handle immunization supply chain-related activities during humanitarian emergencies like outbreaks.

- Regional coordination is key to tackling pandemic and epidemic outbreaks, including information sharing between countries.

- We must build resilient health subsystems long before a pandemic breaks out. The time to prepare for the next pandemic is now.

- EAC countries and all of Africa must shorten the supply chains by manufacturing pandemic health supplies – like PPEs, vaccines, essential medicines, and commodities – locally.

- EAC governments need to ramp up health care financing (as pledged in the Abuja Declaration).

- We are a global community. No one is safe until all of us are safe.

Nelima: Can you share your thoughts on the role of local, regional, and international collaboration in achieving meaningful impact on immunization systems at scale?

RCE: Collaboration is key. A collaborative effort involving stakeholders from the local to the global level can support the timely procurement and delivery of vaccines, especially in low- and middle-income countries. COVAX is one example of this. In the current climate, all key stakeholders of immunization programs must be actively involved in mass vaccination campaigns–supported by funding–to get vaccines delivered to remote areas, and to provide the necessary human resources.

The world must remember this: It is much cheaper to build robust immunization systems and make vaccines and disease-related intellectual property widely available than to pay for the cost of a global pandemic.

Nelima: As we look ahead to 2022 and continue working to strengthen systems, what role do you see policymakers playing?

RCE: From our perspective, policymakers must play a major role in redesigning immunization systems, increasing vaccine storage capacity at the health facility level (including ultra cold chain freezers not currently supported by COVAX), building up vaccine manufacturing within Africa, increasing human resources for vaccination, advocating for the TRIPS waiver, and combating anti-vax messages through research and innovation.

Scaling Our Technology Worldwide

We are committed to scaling our proven, data-driven cold chain management technologies around the world. Our market-sustainable approach builds on learnings from our philanthropically funded programs to sell remote temperature monitoring devices to countries and global partners at an affordable cost. In 2020, we launched a brand new department: the Nexleaf Business Office (NBO). NBO provides reliable, sustainable, high-quality support to our country partners and systematizes the sales, production, delivery, installation, and ongoing support of our ColdTrace devices. The NBO team partners with country decision-makers to understand their needs and ensure our products are accessible and exceed their expectations. With our goal of bringing continuous data to immunization systems worldwide, NBO is our latest effort to work shoulder to shoulder with countries, increase the scale of our technologies, and ultimately increase Nexleaf's impact in monitoring vaccine systems around the world.

Streamlining the sales and delivery of devices is key to scaling our solutions. In April 2021, we signed a long-term agreement with UNICEF to
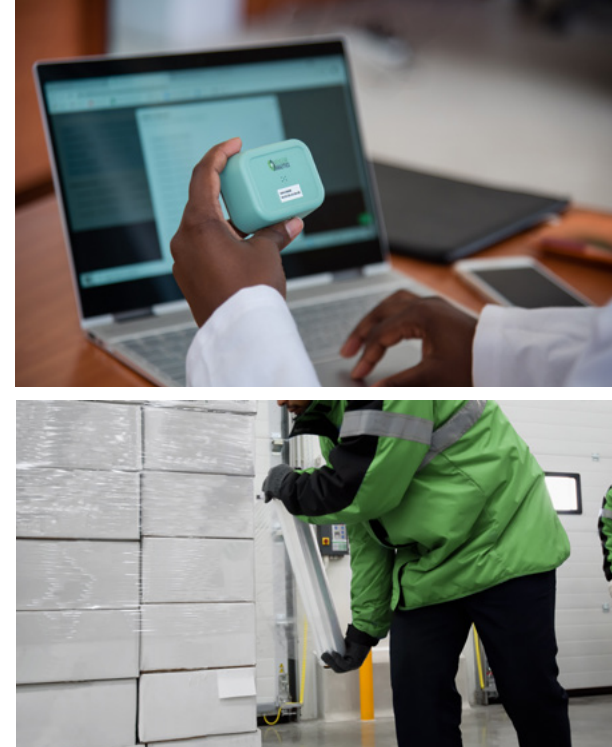
shorten and simplify the purchasing process for countries. Since January 2020, we have received 17 purchase orders for RTM devices from countries including Malawi, Pakistan, and Myanmar. We're excited to increase our capacity to deliver, implement, and help build a culture of data alongside all of our partner countries. We look forward to NBO creating more opportunities for Nexleaf to partner with countries around the world, and contributing to our understanding of the value of remote temperature monitoring as well as future Nexleaf innovations that prove ready for scale, all around the world. In the coming years, as earned revenue increases, this growth will supplement philanthropic investments for Nexleaf to continue exploring new opportunities to add value for countries.
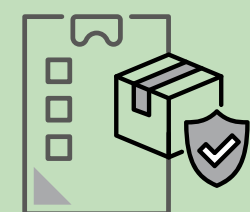
17 PURCHASE ORDERS
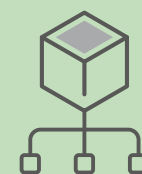for our devices from countries across the globe

2,700+ DEVICES EXPECTED TO BE DELIVERED
throughout 2021

3 NEW LARGE-SCALE DEPLOYMENTS
in Malawi, Pakistan, Myanmar

Working Towards Vaccine Equity: Partnering with the International Organization for Migration

We know that to improve equitable access to vaccines, and reach those that are historically underserved, we need to focus on vulnerable populations like migrants and internally displaced people. Covid-19 has made this even more apparent. We're proud to work alongside the International Organization for Migration (IOM) to support vaccination efforts in migration settlements that shelter refugees as well as internally displaced people. In partnership with IOM, we deliver RTM devices that monitor vaccine storage in 27 countries that specifically target a hard-to-reach population that is critical in addressing underserved children.

PHOTO: IOM / ANDREA EMPAMANO

ABOVE: Women participating in stove monitoring project in Nigeria with an LPG stove.

Clean Cooking Program

A Conversation with Access to Energy Institute (A2EI)

Nora Schuerhoff
Technical Project Manager, Clean Cooking, A2EI

Ansila Kweka
Senior Research Associate in Tanzania, A2EI

Megan Bomba
Senior Program Manager, Clean Cooking, Nexleaf

Since beginning our work in the clean cooking sector over a decade ago, Nexleaf has been committed to tackling complex questions, testing new solutions, and working alongside our partners to provide people everywhere with cleaner, less harmful cooking technologies. Integrating efforts to improve clean cooking and electricity access is central to accelerating the energy transition for everyone. Nexleaf is excited to be exploring the possibilities of electric cooking to meet various performance metrics—from durability to usability to affordability. We had the privilege to work alongside Access to Energy Institute (A2EI) on a pilot to understand electric cooking use in Tanzania and the potential for electric cooking adoption at scale. In collaboration with Modern Energy Cooking Services and PowerGen, 100 households in 6 different villages were supplied with electric pressure cookers (EPCs), a smart meter to monitor the usage of their EPC, and a Nexleaf sensor to monitor the use of 30 biomass stoves. By collecting data on how the participants used both stoves, we were able to unlock insights on the potential for electric cooking in rural Tanzania.

Megan: What did you find most surprising about the findings from all of the data?

Nora: I found 2 things really interesting. At the end of the project, 24 households purchased the EPC which I didn't expect. Considering the various barriers that the participating women faced, it was amazing to see that high of a number.

I also found it fascinating that we were able to combine the two datasets on traditional stove usage data and data on electric cooking activity and really see if people cooked more with EPC or with the traditional stove. To me, that's what makes this project really special, because you often have the data on one or the other, and here we were able to evaluate both side by side.

Ansila: For me, the most interesting

Traditional three stone fire used for daily cooking.   LPG stove with Nexleaf's remote temperature monitoring sensor attached in Nigeria.

finding was seeing how some users who didn't actively use their EPC when fuel prices were high become the highest users when electricity prices were reduced. At the same time, it was surprising to see a group of households who didn't use their EPC even at much lower prices. This implies there are other obstacles for users that should be investigated in addition to the price barrier.

It was also interesting to see that the biomass stove continued to remain dominant even when households were using their new EPCs. These homes stacked their EPC with a biomass stove for the majority of the recorded cooking time - 57% of the time to be accurate.

Megan: We see from the temperature sensor data that households continue to use their charcoal stoves, "stacking" dirty fuel with clean cookers. The clean cooking sector is starting to acknowledge that "stacking" is to be expected. What do you think the "clean stack" would look like for the households in this pilot? What other information do you think we need in order to get the right mix of clean energy to households?

Ansila: We saw that our users still relied heavily on traditional and biomass stoves. For a clean stack here, several factors would need to be considered. One is reliable energy access. Another factor is the availability of improved cookstoves. A very small percentage of households in these communities already have access to an improved cookstove.

Megan: One of the things we talk about a lot at Nexleaf is how technology like smartmeters and sensors can get "ground truth" data about cooking:

we get insight into how households are using cooking solutions that we simply can't get any other way. But this technology is also expensive and requires a lot of hands-on work. What do you think the future is for this type of data? Do you think that smartmeters will have a role beyond research studies and pilots?

Ansila: I think this data is very beneficial for end-users when deciding what cookstove they want to use. If this type of data could be translated into simplified, straightforward terms, such as how much energy you can expect to use and how much that will cost you, then the perception that electric cooking is too expensive can be addressed.

Nora: Exactly. It's really important that in the future, this data and knowledge doesn't belong to some company but is a public good and provides a benefit to the people cooking who generate the data.

Megan: A2EI also works in clean and renewable energy more broadly. What kind of synergy do you think could happen between clean cooking and clean energy?

Nora: A2EI really tries to integrate our various projects and teams together - whether we're working on fuel generators, solar systems, or electric cooking - to allow us to all learn from each other.

Ansila: Clean cooking is dependent on access to energy. There must be affordable and reliable energy available for clean cooking solutions like electric cooking to be widely adopted.

Advancing Clean Cooking with Ground Truth Data

From our earliest days, Nexleaf has advocated for better data and greater transparency in the clean cooking sector. Nexleaf focuses on clean cooking because we know that traditional cooking methods result in negative health impacts for women and their families, and that programs designed address this issue have historically ignored household needs. In order to identify cooking solutions that meet the needs of end-users, we must listen to the women who cook and heed the data gathered in the field.

Our Clean Cooking Program team has worked on a diverse set of initiatives with partners from around the world over the last two years, and we're pleased to share some recent noteworthy accomplishments:

We implemented a sensor-based climate financing pilot in partnership with the Rural Women's Energy Security (RUWES) and with support from the Climate and Clean Air Coalition (CCAC) to address the clean cooking challenge in Nigeria. Our findings from the project are shared in two new data reports: Responsible Scale and Data-Driven Stove Evaluation and Sensor Technology for End-User Financing.

We conducted stove monitoring projects in India and Bangladesh to assess how different clean stoves fit end-user needs. Thank you to our project partners and collaborators at the Tata Trusts, Sambodhi Research Group, Self-Employed Women's Association (SEWA), The Energy and Resources Institute (TERI), Dharmalife, Community Partners International (CPI), and The Sustainable Renewable Energy Development Authority (SREDA).

We supported Sustainable Energy Services Company (SESCOM), as part of the MECS ECO program, to assess the viability of EPCs among electric grid customers in rural Tanzania and how EPC use impacts the area's electricity supply.

We're thrilled to announce a new project in collaboration with Sustainable Energy for All and the Government of Rwanda, funded by the Swedish Postcode Foundation expand the use of objective data in country decision-making and planning. These efforts will lay the groundwork for integrating objective data to tackle the global clean energy challenge. In the coming year, we will launch this work by rolling out a pilot in Rwanda.

We also want to thank the Autodesk Foundation for their ongoing support of our clean cooking initiatives and innovation across numerous countries and projects.
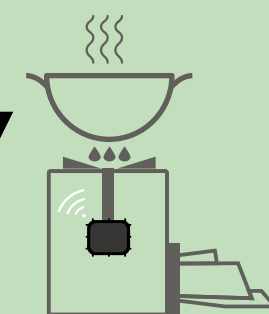

Generated measurable impact data from

677 HOUSEHOLDS

987 cookstoves sending usage data

139,158 days of cooking captured

PHOTO: WORLD BANK / VINCENT TREMEAU

PHOTO: DOMINIC CHAVEZ/ WORLD BANK

Medical Equipment Program

Nexleaf technology taps into objective data – temperature and power availability – to protect the vaccine cold chain in low-infrastructure environments. Can this same approach be adapted to safeguard other lifesaving medical equipment, deployed in under-resourced facillities?

In recent years, Nexleaf has expanded the scope of our work to answer that question. We began by monitoring essential equipment such as radiant warmers, phototherapy lights, and oxygen concentrators in neonatal care units in India. Continuously monitoring the power availability and utilization of medical equipment enabled us to uncover both context and practices around health care delivery in these settings that were previously unknown. For instance, sensor data showed that while some equipment was used almost constantly, others were not used at all. By

following up with facility personnel, we learned that one such unit was not clinically needed during the monitoring period, whereas another unit was broken and never received necessary repairs.

This work was an eye-opening experience for our team. One thing is very clear: more work needs to be done to understand how data on power availability and utilization of medical equipment can improve equipment maintenance, equipment longevity, and patient outcomes in low-resource settings.

In light of this, we launched our new Medical Equipment Program in early 2020. This program aims to uncover the ground truth around the context and performance of lifesaving medical equipment in clinical settings with limited traditional infrastructure (including unreliable or non-existent grid power). As the global

development community bands together in response to Covid-19 and medical equipment – sometimes used and donated – streams into low- and middle-income countries, there is an urgent need to ensure these investments yield long-term benefits—in terms of both equipment performance and health impacts. In September 2020, we launched our collaboration with PagerDuty to bring better data on power availability to 13 health clinics in Kenya by designing and deploying real-time power outage alerts. At the start of 2021, we announced our partnership with Global Health Labs, Inc, a nonprofit organization created by Gates Ventures (the private office of Bill Gates) and the Bill & Melinda Gates Foundation, to expand this important work. GH Labs builds tools and technologies that address unmet needs in primary healthcare centers and last-mile service delivery in low- and middle-income countries around the world.

Through their support and collaboration, we are working with the Center for Public Health and Development (CPHD), a Kenya-based NGO that implements health system innovations to solve East Africa's most neglected public health challenges. Alongside CPHD, we are exploring how visibility into real-time functional availability of equipment and power quality in health clinics in Kenya can reveal barriers to use and provide insights on how to best address these challenges.

A Conversation with Center for Public Health and Development (CPHD)

Dr. Bernard Olayo
Founder and Executive Chair, CPHD

Marym Mohammady
Program Manager, Medical Equipment, Nexleaf

Marym: It's been an honor to collaborate with you and the CPHD team on gathering data in health facilities across Kenya. A central focus of our work has been monitoring power availability and quality. Can you speak to the importance of reliable power in delivering quality care?

Bernard: From the last 10 years that we've been working at CPHD to solve technical challenges in health facilities and throughout my prior work in this health system, there are two things I see happen every day: 1. You have a power

PHOTO: HUSH NAIDOO

PHOTO: AUDE GUERRUCI

PHOTO: WE CARE SOLAR

interruption, especially in rural facilities. And 2. There's a child who really needed that piece of equipment affected by the interruption, like an oxygen generator. For most of the world, these problems don't happen often. But in our settings, these problems are a daily occurrence.

So we've come to realize there are three main reasons why equipment doesn't function well in our settings: Quality of power, user training, and lack of maintenance.

Power is central to the functionality of medical equipment. Knowing its availability and quality is really critical for proper planning and for providing feedback to different key players in the system to improve equipment functionality. For example, if we actually know the duration of power outages, we can ensure we have backup systems available that can meet those needs.

Marym: Absolutely. You can't fix what you don't measure. How do you think the findings from our current work in Kenya around not only power availability but also equipment usage can help inform the distribution of medical equipment being shipped to low-resource settings in response to Covid-19?

Bernard: With the Covid-19 pandemic spreading, the natural response from the world is to try to help. Governments, bilateral partners, donors,

NGOs - everyone is trying to help. Most of the equipment being sent is quite sophisticated - ventilators, monitors, and oxygen production solutions - that typically can be used for other diseases. My worry is that after Covid-19, this valuable equipment will lie idle, so tracking how they're used as the pandemic evolves will be really critical for policymakers. As the outbreak wanes, this equipment can be redistributed to serve facilities with greater needs where it could make all the difference.

Marym: As a public health specialist focused on health systems management, the leader of your own NGO, and an advisor to various ministries of health, how do you think better data can help strengthen health systems?

Bernard: I think of our health systems as a body of a diabetic patient. In biology, we call it starvation in the midst of plenty. While we have widespread equipment shortages, at the same time we also have a lot of equipment that is inappropriately located and underutilized, which means the life we get out of that equipment is very short. For example, a piece of equipment that should last for 15-20 years in most public health settings will only work for 3-4 years max in our settings. So by collecting this data, it will help us reduce waste which exists quite substantially in our system. By knowing the actual utilization and understanding

that, for example, do we really need to send another CT scanner there if they've only done 4 scans in the last year? Can we instead send it to another location where it will be used more?

This is the information age – we should not just procure things for the sake of it but make procurement decisions based on objective information.

This type of data we're collecting doesn't currently exist in most of our health systems. I'm confident it will be very useful to any decision-maker once they know what's really happening.

Marym: While the pandemic didn't reveal the inequities that we know exist in global health, it did exacerbate them. Can you speak to how the pandemic can be leveraged to accelerate meaningful systems change in global health moving forward?

Bernard: The global demand for oxygen has been unprecedented during the pandemic and affected all countries. But, unsurprisingly, low-income countries had more of a challenge in getting the oxygen supplies that they needed. And with oxygen, it's not that the previous cases disappeared - the children with pneumonia didn't disappear. My hypothesis is that those children were not getting the quality of care they needed and therefore worsening the gap.
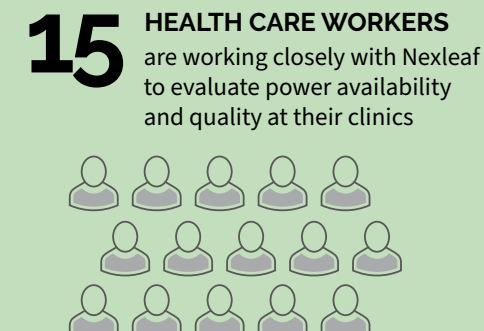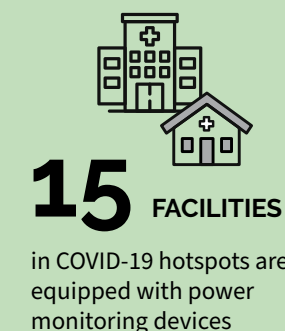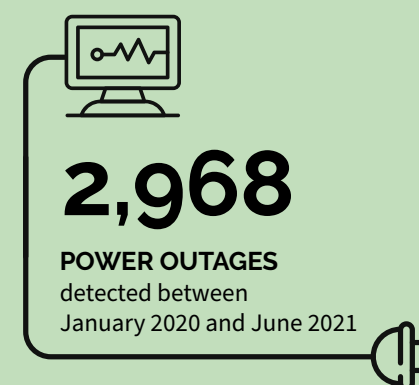
This is where our work can be instrumental. Having objective, credible data can allow us to bring these conversations forward. It's very hard to have these types of discussions when you don't have the data.

Data is really a tool that allows you to advocate for policy changes instead of just talking about issues purely at a hypothetical level.

Marym: Exactly, data is a blueprint that all stakeholders can align on. Given the additional challenges the public health community in Kenya and across Africa are facing as the fight against Covid-19 continues, I'd love to hear what keeps you motivated to do the work that you do?

Bernard: The hospitals we are currently providing oxygen to, most of them are getting oxygen for the first time. So without our interventions, patients going to those facilities would not be getting that service. The knowledge that I'm reaching people who would otherwise not be reached is what keeps me going on a day-to-day basis. The work is never done - people need this care and need it urgently. That's what keeps me continuing to do this work.

Medical Equipment Program Impact

2,968
POWER OUTAGES
detected between January 2020 and June 2021

15 FACILITIES
in COVID-19 hotspots are equipped with power monitoring devices

15 HEALTH CARE WORKERS
are working closely with Nexleaf to evaluate power availability and quality at their clinics

Expanding Our Global Team

Since March 2020, we have embraced the increased flexibility, inclusivity, and cross-functional collaboration that comes with being a fully remote global team. One of the most gratifying outcomes of this shift has been the growth of our team to include talented and purpose-driven people from even more cities and countries across the globe. Meet some of the new Nexleafers!

Mariam Johari TANZANIA
Project Manager for Vaccine Systems Transport

Why Nexleaf? I was drawn to Nexleaf because I resonated tremendously with its values, both personally and professionally. The icing on the cake for me was Nexleaf's stance on data in that all data belongs to the respective country.

Which Nexleaf core value speaks to you the most?
Working shoulder-to-shoulder together means a lot to me because I feel it really cultivates knowledge sharing within and across teams, allowing for everyone to share ideas openly -where everyone's voice is heard, to attain goals and achieve lasting impact. I truly believe that ideas and discussions derived from collaboration are more innovative and successful!

Amos Momanyi KENYA
Project Manager, Medical Equipment Program

Why Nexleaf? I am passionate about user-centered design and data use which is also at the heart of Nexleaf's program approaches. I see this as an opportunity to contribute to the exciting Medical Equipment Program, and I feel I can do so by using data to uncover the needs of our target users at healthcare facilities and co-create solutions that suit them.

Which Nexleaf core value speaks to you the most?
We iterate. For the last seven months, I have been involved in user-centered research, looking at how real-time data can bring visibility and shine a light on the challenges and barriers to equipment use. Our current approach has allowed us to engage with the users that are closest to these challenges to participate and share their insights on what they think their biggest problems are and how they would like these problems to be solved. We are applying an adaptive learning approach whereby learnings and insights from user engagement guide our operational decisions.

Tom Mehoke UNITED STATES
Senior Data & Informatics Specialist

Why Nexleaf? Building sustainable capacity in countries to leverage the power of large datasets is something I have been passionate about for years. The ability to connect directly with so many different front line public health workers, while being on a great team of people trying to make a difference around the world, make me excited to be at Nexleaf.

Which Nexleaf core value speaks to you the most?
We embrace complexity. Too often, large datasets are relegated to simplistic figures or go unused, given the constraints of processing data within an actionable time window and the challenges of displaying huge quantities of information in ways that allow for quick comprehension and discovery of new insights. Exploring complex data should not be reserved for data scientists alone, and at Nexleaf, I see great opportunities for well-designed data visualizations to inform and empower decision makers around us to take action.

Elizabeth Nave UNITED STATES
People and Operations Generalist

Why Nexleaf? I was first interested in Nexleaf because of the work they were doing and the overall mission of the organization, but what really drew me in was the dedication to their team. I was excited to join an organization that is truly invested in their team's growth and development.

Which Nexleaf core value speaks to you the most?
We challenge the status quo, to me it is a value that we not only use externally in our work, but internally when thinking about our team. Whether it be the way we think about being a remote company, how we can reward our team for their hard work, or how we think about performance - we are constantly challenging the status quo and thinking about how we can improve on it for our internal culture and team.
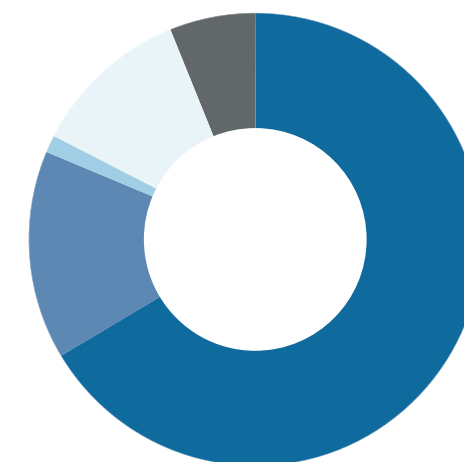
Financial Dashboards

2020 Revenue by Sources
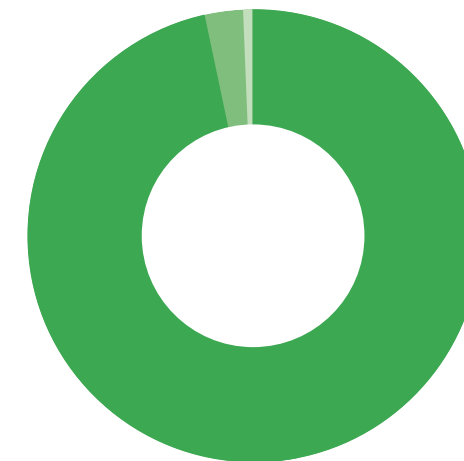
		2020	2019
95.4 %	Grants & Foundations	$ 5,224,986	$ 3,083,667
3.9 %	Earned	$ 215,675	$ 1,468,313
< 0.1 %	Individual	$ 34,184	$ 30,196
	Total	$ 5,474,845	$ 4,606,423

2020 Expenses by Program

		2020	2019
66.7 %	Vaccine Program	$ 3,059,287	$ 2,496,836
15.0 %	Clean Cooking Program	$ 689,754	$ 1,045,241
1.0 %	Medical Equipment Programs	$ 44,252	$ 559,404
11.1 %	Operations	$510,749	$ 533,439
6.2 %	Fundraising	$283,734	$ 155,105
	Total	$ 4,587,775	$ 4,790,025

Recognition & Support

Nexleaf Donors, Partners, Advisors and Champions

We are fortunate to work with so many amazing partners that it is impossible to express our gratitude to every individual here, but we are sincerely thankful for each of you.

Access to Energy Institute (A2EI)

Al Dobran

Amazon Web Services

AmazonSmile

Anish Aswani

Asher Waldfogel

Autodesk Foundation

Beneventures Foundation

Benevity Community Impact Fund

Bill & Melinda Gates Foundation

BlackRock

Brian and Molly Kirk Trust

Burn Manufacturing

Camilla Meyer

Center for Public Health and Development (CPHD)

Centre for Sustainable Energy Services (TaTEDO)

Charles Goldman

Climate and Clean Air Coalition

Clinton Health Access Initiative- Ethiopia

Community Partners International

David Lam

East African Community Regional Centre of Excellence for Vaccines, Immunisation and Health Supply Chain Management

ELMA Vaccines & Immunization Foundation

Ethiopia Ministry of Health

Fast Forward

Fraym

Foundation Beyond Belief

Gavi, the Vaccine Alliance

Georgeinne Bradley and Lawrence Stock

Gerson Lehrman Group

(GLG)

Global Health Labs

Goldman Sachs Gives

Google.org

Hajdu Family

HaSET

HPE Foundation

Hewlett Packard Enterprise

Intel

International Organization for Migration

Jascha Hoffman

John Snow, Inc (JSI)

Kammy Moalemzadeh

Kenya Ministry of Health

Lakshmy Mohanan

McQuown Trust

Michele Hamburger

Modern Energy Cooking

Services

Mulago Foundation

PagerDuty

PATH

Perl Nelson Family Foundation

PowerGen

Qualcomm Wireless Reach

Regional Centre of Excellence for Vaccines, Immunization and Health Supply Chain Management at the University of Rwanda

RippleWorks

Rural Women Energy Security (RUWES)

Rwanda Ministry of Health

Scott Klein

Sistema.bio

Sustainable Energy for All

Swedish Postcode Foundation

Tanzania Ministry of Health, Community Development, Gender, Elders and Children

Tata Trusts

TED

Tides Foundation

UNICEF

Vermont Oxford Network

Vidmob Gives

VillageReach

VVDN Technologies

Waldfogel Family Foundation

We Care Solar

NEXLEAF
A N A L Y T I C S

1964 Westwood Blvd Suite 410
Los Angeles California 90025
United States

nexleaf.org