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Impact Review 2023

Simprints @Simprints

2023: A Year of Growth and Progress in Enabling Partners to Monitor and Optimise Programmes in Real-Time

As we look back at 2023 at Simprints, we're energised by the growing scope and scale of our partnerships. For example, the launch of our groundbreaking project with the Ghana Health Services to track vaccine delivery in the battle against malaria could protect hundreds of thousands of children. Across our projects, we have worked hard to support our partners to monitor and optimise their work in real-time, as they strive to meet global humanitarian and development priorities to provide equitable and quality services to all. We are particularly proud to have launched our first open-source code release while simultaneously ensuring privacy remains at the forefront of our work, publishing our Responsible Biometric Deployment Handbook.

2023 Highlights

- We successfully implemented eight projects across four countries, helping ensure that vaccines, medicines, healthcare, and aid reached **382,943** unique people.
- We supported almost **2,000** frontline workers with training and technical support to use our technology, with **80%** or more consistently reporting that our technology is easy to use.
- In **Ethiopia**, **86%** of health workers reported improved service quality and outcomes as a direct result of using our technology.
- We noted increased efficiency in service delivery in all the contexts in which we work. In **Ghana**, a Community Health Worker (CHW) can identify a client **3x faster** with biometrics; in **Ethiopia**, biometric search was **2.7x faster** than digital ID search and **8x faster** than manual name search.
- In **Uganda**, we saw an **80% decrease** in enrolment time, allowing each Community Health Worker (CHW) to serve, on average, **seven more patients per day.**

We have also responded to key lessons we have learned during **2023** on how we may amplify our impact, including exploring additional contactless biometric modalities, ensuring excellence in the areas of data security, privacy and informed consent, and, wherever possible, advocating for paperless systems to avoid the duplication of client record-keeping. As we build upon our evidence and learning, and make incremental improvements to our solution, we can better support our partners with more accurate and real-time data allowing them to reach more real people with quality health services, and contribute to critical global public health outcomes.

As we look ahead, we are excited to invest in further strengthening our evidence base. In **2024**, we hope to launch our first Randomised Control Trial (RCT) for the purposes of impact evaluation to track the delivery of malaria and other routine child vaccinations in Ghana and evidence the impact of our solution.

I am excited to share more with you about our achievements and learning in our **2023 Impact Review** and look forward to driving more impact over the coming months.

Dr Toby Norman
CEO, Simprints

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What we do: Our Solutions and Projects

Simprints is a UK-registered non-profit founded in 2015. ***Our mission is to transform the way the world fights poverty.*** We build technology to radically increase transparency and effectiveness in global development, ensuring that every vaccine, every dollar, and every public good reaches the people who need them most.

Simprints has developed the world's first open-source biometric digital ID technology with privacy at its core. We've delivered public services to almost **3 million people** in South Asia, the Pacific, and sub-Saharan Africa. Simprints supports various projects, including routine child vaccination in Ghana and Bangladesh, and deworming treatment and trachomatous trichiasis surgery in Ethiopia.

We provide technical support to implementing partners and biometric digital ID for project participants. Our solution is built for frontline contexts and focuses on the following areas:

Technology built for context

Seamless project configuration

We offer technology that easily integrates into existing tools, contextualised project setup, and robust training.

Large-scale deduplication

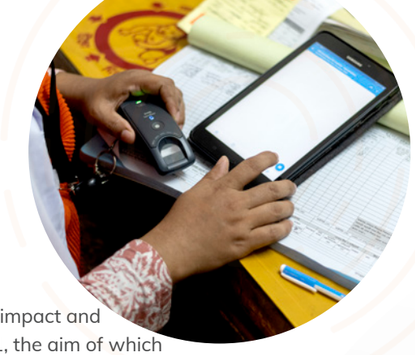
We build tools designed to work in the world's toughest settings. Our technology is created for and by users.

Dashboards and data analytics

We work with you to identify your analytics needs. Better data means greater transparency and impact.

In 2023, Simprints implemented **eight** projects in **four** countries: **Bangladesh, Ethiopia, Ghana** and **Uganda**.

- In **Ghana**, Simprints collaborated with the Ghana Health Service and Gavi – the Vaccine Alliance, to track routine immunisation and other child and maternal health services in 30 health facilities.
- In **Ethiopia**, we have worked with both the Federal Ministry of Health and NGO partners, to improve the capabilities of digital health systems to deliver primary healthcare, trachomatous trichiasis surgery, and to verify the coverage of deworming campaigns. We also provided technical assistance to develop the Ministry of Health's capacity to independently maintain and sustain biometrics inside their electronic community health information system (eCHIS).
- In **Bangladesh**, we piloted a toddler biometric solution to verify measles and rubella vaccine delivery in centres across Dhaka and Moulvibazar. We also conducted research to understand the role vaccine centres could play in supporting access to social protection.
- In **Uganda**, in partnership with local tech partner Mobiklinic, we implemented a pilot project to assess the impact of biometrics to track COVID-19 vaccine delivery in rural settings.



Measuring Impact and Performance at Simprints

Simprints has embarked on a journey to improve how we measure our solution's impact and performance. A monitoring, evaluation and impact team was established in 2021, the aim of which was twofold: to standardise the way that project performance is measured, and to deepen our evidence base with robust research and evaluation that demonstrates that verified delivery is not only possible, but can deliver real impact.

In 2023, we built dashboards that allow us to monitor in near real-time the number of people reached in our projects, the speed and accuracy of our technology, and insights into user performance at both the project and global levels. Over the last year, we delivered seven impact studies, research, and externally commissioned monitoring and evaluation reports, and launched an evidence library in which the key learning from these studies is housed.

Data Protection, Security, and Ethics

In all our data analytics and evidence generation work, we hold the protection and security of data subjects as our first priority. The Do-No-Harm principle is intrinsic to all our projects, and we are careful to observe any issues related to data protection, confidentiality, and the privacy of respondents. As a UK-based entity, Simprints is legally required to adhere to the UK General Data Protection Regulation (GDPR), which sets out key principles such as fairness, accountability, and transparency. Ethical data handling lies at the heart of Simprints' approach to conducting monitoring and evaluation activities, including transparency, confidentiality, and participant well-being. The processes and principles listed below are central to all monitoring, evaluation and research activities:

Simprints adheres to robust data protection measures outlined in **Data Protection and Impact Assessments (DPIAs).** This assessment, conducted before data processing, follows a 'data protection by design and default' approach, outlining the research purpose, potential risks to individuals' rights, and mitigation strategies.

In compliance with UK law, Simprints enters into written **Data Processing Agreements (DPAs)** with research partners.

Data collection is strictly **minimized** to only what is necessary to achieve our objectives.

Informed consent is paramount. Participants receive comprehensive information about the research, including Simprints' involvement, data usage, storage sharing, retention period, and participant rights.

Confidentiality is safeguarded through secure storage and limited access to sensitive records.

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Global snapshot 2023

- **382,943** unique people reached (**379,667** through fingerprint biometrics and **3,276** through face biometrics)
- **442,519** successful biometric identifications
- **5,356** successful biometric verifications
- **1,976** health workers trained
- **92%** consent rate (people consenting to biometrics to be taken)
- **78%** of scans were of good quality
- **274,943** duplicates identified

Ethiopia

- Sector: Health Information System Digitisation
- **349,205** enrolled in the digital system, and **295,768** received a biometrically verified health service
- **440,527** successful biometric identifications
- **1,737** users trained across **16** training sessions
- **1,018** active users
- **1,176** devices distributed

Bangladesh

- Sector: Child Immunisation
- **10,928 measles and rubella** vaccines biometrically verified
- **87** users trained across two trainings
- **50** active users
- **42** scanners distributed

Ghana

- Sector: Maternal and Newborn Child Health
- **6,244** people received at least one biometrically verified health service
- **1,805** successful biometric identifications and verifications
- **142** health workers trained in one training session
- **71** active users

Uganda

- Sector: Covid-19 vaccinations
- **1493** people reached
- **10** users trained across three training sessions

[1] A biometric identification is often referred to as 1:N matching, in which a person is identified from a database of enrolled participants using the biometric data itself.

[2] A biometric verification, often referred to as 1:1 matching, in which a hypothesis may exist regarding a person's identity but we verify it against the stored record using biometrics. For further information on biometric concepts please refer to Simprints' A Responsible Biometric Deployment Handbook.

Assessing the Effectiveness of Our Solution

Quality of technical support and training

- In **Ghana**, **92%** of trained CHWs indicated that Simprints training was clear and concise and, on average, demonstrated a **43.5%** knowledge increase from pre- to post-training.
- In **Ethiopia**, Simprints trained staff from the Ministry of Health to ensure the sustainable utilisation of biometrics. **80%** of attendees rated the training as highly satisfactory and, on average, improved their knowledge of biometric technology by 90%.
- In **Uganda**, **90%** of CHWs expressed high satisfaction with the training and demonstrated a **54%** increase in knowledge of biometrics from pre-training to post-application.
- In **Bangladesh**, **70%** of users recognised Simprints in-field support staff as essential to the system's roll-out, alongside training **(60%)** and good supervision **(52%).**

Ease of use

- In **Uganda**, **80%** of surveyed CHWs reported that Simprints technology was very easy to use, and **90%** were satisfied with enrolling or identifying clients with biometrics.
- In **Ghana, 67%** of CHWs reported high satisfaction with Simprints ID, with satisfaction levels improving over time.
- In **Bangladesh, 97%** of users had a favourable attitude to biometrics after exposure to Simprints solution, and **93%** said they found the scanner easy to use.

"With the fingerprint, identifying an existing client is very easy and fast. Once the client puts their finger on the scanner, the person's details come up immediately. The whole process can take about one to three minutes. " (CHW from Ghana).

Efficiency gains

- In **Bangladesh**, vaccinators perceived significant efficiency gains, and by the end of the project, **91%** of vaccinators reported that it takes them **less than two minutes** to register a child using biometrics.
- In **Ghana**, our operational research revealed that CHWs register and identify clients three times faster with biometrics compared to manual methods and that the biometric systems improved data accuracy by **12.5** percentage points, reducing record duplication and ensuring reliable data storage and security.
- In **Uganda**, CHWs reported an **80%** decrease in enrolment time and a **64%** decrease in identification time from baseline since using Simprints technology, allowing each CHW to serve, on average, **seven more patients per day.**

"It really saves my time while working on someone. I don't have to ask for a card and all those other documents since the details are already in the system." (CHW from Uganda)

Community acceptance

We regularly monitor community acceptance across all our projects and find high levels across the board. In **Bangladesh, 97%** of parents were willing to enrol their children using biometrics. In one project in **Ethiopia**, **97%** of clients consented to biometric data capture and **92%** of CHWs reported that the technology was accepted by the community. In **Ghana**, although acceptance of both modalities was high, as the community generally considered it as advancement in healthcare delivery, we learned that clients generally preferred fingerprint biometrics over face biometrics.

"Our mothers are usually excited to put their finger on the machine either to be captured or verified. They take pride in that and so we do not have difficulty accepting the biometric system." (CHW, Ghana).

"For me, the best part of this digital application is during our post-op follow-up of our patients. I simply scan the fingerprints of our patients and quickly locate their records within a few seconds. It was a cumbersome task when done manually from hundreds of lists in the TT registration book. It is an unbelievable technology."

Integrated Eye Care Worker from Boloso Sore Woreda.

Impact Deep Dive: Improving Trachomatous Trichiasis Backlog Clearance in Ethiopia through Biometric Integration

Ethiopia has the highest burden of trachoma globally and trachoma is the second leading cause of blindness in the country. With the Children's Investment Fund Foundation (CIFF) funding, the Federal Ministry of Health (FMoH) and its partners started the Operation Sight programme in Ethiopia. The project's primary goal has been to reduce avoidable blindness due to trachoma by accelerating trachomatous trichiasis (TT) backlog clearance in four regions of the country. Simprints role was to digitise the surgery registration forms and integrate fingerprint biometrics into the patient registration process and for patient identification during subsequent post-op follow-ups.

Each year, Simprints commissions an **Impact and Learning Review** for one flagship project, and in 2023 we put the spotlight on our Operation Sight project in Ethiopia. We collected data from **322** participants, including integrated eye care workers (IECW), TT patients, government and project stakeholders. A key focus of the study was to assess the relevance and impact of digitisation and integration of biometrics into the Operation Sight programme.

The study showed that in a year, more than **20,000** TT surgeries were recorded on the digital platform, with approximately **85%** of reported surgeries biometrically verified. The study also showed that:

- Biometric search was **2.7x** than digital ID search and **8x** faster than manual name search
- **86%** of surveyed IECWs reported improved service quality and outcomes
- **71%** of respondents reported that preventing duplication of records is one of the main benefits of digital data collection with biometrics and significantly contributed to reducing errors and duplication of records.

[3] International Trachoma Initiative, 2019

Sosina's Story:

Fast and thorough care during eye surgery

Two years ago,[4] **Sosina** received surgery for trachoma in her left eyelid. Recently, she returned to the health centre in Boloso Sore Woreda to undergo a second surgery on her right eye.

Sosina reflected on her experience two years ago, recalling the lengthy patient waiting list, a long wait to receive post-operative treatment, and that she had to wait several minutes for the eye-care worker to locate her record among hundreds of lists of patients:

"I remember being disappointed with the long waiting time, and remember other patients were complaining of the same."

Recently, however, Sosina returned to the same health centre for post-op care for her recent surgery and was delighted to see substantial changes in the speed of care she received. When she entered the health centre, she was met by an eye-care worker who identified her by her fingerprint and was able to quickly locate her records and enter her details into the digital system on his mobile phone:

"I was merely asked to place my four fingers, one by one, on the tiny fingerprint machine. After evaluating my eyelid, the eye doctor swiftly found my records and entered the information on his phone."

"I believe the technology is beneficial for receiving quick services, and I noticed that all of the patients were satisfied because there was no longer any lengthy waiting and queuing."

[4]*The subject's name and some identifying details have been changed to protect their privacy. Photos are not of the subject.*

Reflecting on 2023: What did we learn?

The main factors driving user adoption are ease of use of the technology, time efficiency gains, and the availability of technical support provided by Simprints field team.

Internet connectivity remains a challenge across our projects, and while Simprints ID works offline, data synchronization ultimately requires an internet connection, which remains limited in some remote regions.

While we observe efficiency gains once the digital system has been rolled out, one challenge reported across Bangladesh, Ghana and Ethiopia is the requirement for paper records to be completed in parallel to the digital system. The duplication of effort adds to the existing high workload of CHWs and can impact motivation.

In Ghana, where we implement both face and finger modalities, we see a community preference for fingerprint, while stakeholders often favour contactless face recognition as scanners are not required. Simprints is exploring alternative modalities that may help navigate this challenge.

While we have seen high levels of community and caregiver acceptance, we have also observed lower levels of understanding of data use among clients. While all clients must provide voluntary and informed consent before their biometrics are captured, we can bolster our efforts to ensure users have the resources required to ensure optimal levels of client understanding in the area of data use and privacy.

Measuring Our Impact: Looking Forward

This report marks our first attempt in six years to share a summary of our growing evidence base around the effectiveness of our solution, our partners, and user experience, along with the challenges and key learnings we have gathered along the way.

We are proud of our progress in systematically and consistently measuring our performance at Simprints, but our ambition to go deeper and further remains. While we can now consistently generate evidence from multiple contexts around the efficiency gains of our solution, we realise we have more work to do to quantify our contribution to improving health and other well-being outcomes for the most vulnerable.

Next year, one of our company objectives is to launch our first multi-year impact evaluation, a randomised control trial for our groundbreaking project in Ghana that aims to verify the delivery of the malaria vaccines and other childhood vaccines. This is one of several evidence and learning initiatives we will be undertaking over the next year to strengthen our evidence base and prove that real-time verification of services is possible and impactful.

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