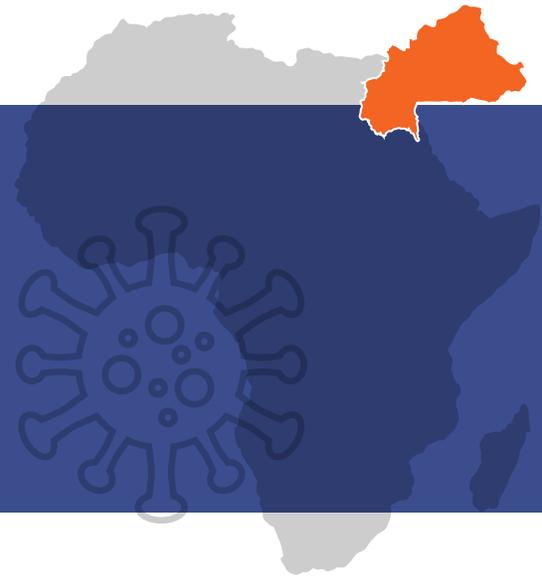# TECHNICAL BRIEF

The role of systems in capturing vital events data for civil registration and health surveillance amid the COVID-19 pandemic: iCivil – Burkina Faso's civil registration system

INTRODUCTION

Burkina Faso faced a complex humanitarian and security crisis for five days when the first case of COVID-19 was detected on 9 March 2020. As in many countries, restrictions designed to control the spread of the virus continue to affect the delivery of public services. With the introduction of lockdown measures, civil registration was declared an essential service. The number of staff at registration offices was limited, using a staff rotation timetable.

Measures including curfews, quarantine in designated COVID-19 affected localities, bans on public demonstrations, and limitations on the number of people at public events had a negative impact on the supply and demand for civil registration services. This introduced limitations on freedom of movement and reduced the number of civil registrars. Although services are continuous, the intensity of work within civil registration services and the number of users has decreased considerably.

Burkina Faso introduced a new system for birth registration in 2018 in a limited number of health facilities. The system combines notification and registration to create a seamless, one-step digital process. It is incorporated into daily administrative duties for healthcare workers in health facilities where it is in use. The system's design has proven to be resilient and broadly unaffected by the constraints that come with COVID-19 containment measures.

This innovative birth registration process is built around the iCivil solution, which assigns predefined, unique numbered tags to each newborn and uses a mobile smartphone application to communicate birth notification records directly to the digital civil registration database. The registration business process requires limited interaction with parents to collect relevant information on a newborn before the mother and newborn are discharged from the health facility. No further intervention is required from parents until they decide to collect the certificate.

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The advantage of this registration business process, built during a health crisis such as COVID-19, is that all children born in health facilities where the system is in use will be registered in a timely manner, regardless of capacity limitations faced by civil registration offices.

The system became fully operational in 2020 after an extensive piloting period in 2018 and 2019. As of January 2021, only 50 out of 2,584 vital event notification points across the country use the iCivil system.

The iCivil technology was originally developed by a private company. Burkina Faso's government purchased the licence and now owns the system. The government is further deploying the system with support from financial and technical partners such as the United Nations Population Fund (UNFPA). Civil registration centres that use the technology fall under the authority of the General Directorate for the Modernization of Civil Status (DGMEC). Health centres that use the technology fall under the authority of the Ministry of Health. To make the iCivil system operational, there is an interoperability protocol between the Ministry of Health and the Ministry of Territorial Administration, which oversees DGMEC. This protocol allows DGMEC to intervene directly in pilot health facilities in the event of technical problems.

The purpose of this brief is to document the role of systems in capturing vital data for civil registration and health surveillance during the COVID-19 pandemic.

DIGITIZING CIVIL REGISTRATION IN BURKINA FASO

Under the Ministry of Territorial Administration, Decentralization and Social Cohesion, DGMEC is responsible for civil registration. In 2019, DGMEC adopted iCivil, a technological solution that computerized its civil registration system to address the challenges the country was facing in meeting certain registration coverage goals. Burkina Faso's government has made efforts to improve birth registration rates, resulting in approximately 77 percent of births being registered.[1] However, this still leaves almost 2.3 million children under the age of 18 unregistered.[2] Urban registration rates are typically higher, at 93 percent,[3] versus 74 percent in rural areas,[4] indicating that efforts are still needed to reach full population coverage, particularly in remote locations.

The purpose of introducing the innovations in notification management was to

- improve registration rates;
- ensure systematic and universal registration;
- establish the availability and permanence of civil status services throughout the territory;
- ensure the availability of exhaustive data on births and deaths; and
- leverage the consequent financing of the civil status system.

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1   World Bank ID4D 2018 dataset.
    datacatalog.worldbank.org/dataset/identification-development-global-dataset

2   Ibid.

3   Ibid.

4   Ibid.

ICIVIL EXPLAINED

The iCivil integrated technology solution is a platform based on protected unique identification codes stored on iCivil hospital bracelets. It includes a mobile application to transfer vital events data into a DGMEC-operated national digital registry of civil status. Other than being used to register births, the process is used to assign people a unique identification number used from birth until death. It allows for vital events to be declared and systematically and securely registered, and for certificates to be issued smoothly. The system also features dynamic interoperability with other related systems.

The platform considers all the facts of civil status and ultimately allows all citizens, both inside and outside the country, to obtain a copy of their civil status documents in any registration centre in the country and in embassies and consulates in other countries.

Overview

Step 1: Maternity ward registers the birth
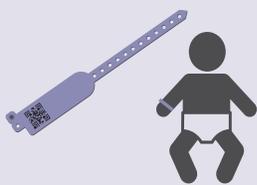
After thte birth, staff members place a random iCivil hospital bracelet around the newborn's arm. The bracelet contains a unique Bubble Seal and a unique identification number represented as a QR code linked to that specific Bubble Seal that cannot be recreated or duplicated. Parents receive an identification card containing the same information as on the bracelet. This identification card does not include identity information such as last name, first name, date of birth, etc.

The midwife uses a mobile phone to scan the QR code on the bubble tag wristband using the iCivil app.

A registration form is available on the phone to fill in information relating to the birth.

Once completed, the form is sent via an encrypted SMS to the DGMEC iCivil central server. The encrypted SMS is verified, and an acknowledgement of receipt is sent back to the mobile phone.

Step 2: Maternity ward shares information with central server at DGMEC headquarters

Once the maternity ward staff receives the acknowledgement of receipt, DGMEC registers the information in the National Register of Civil Status.

Step 3: Civil status centre issues birth certificate

When parents produce the bubble tag wristband and their ID document, the registration officer can register the birth. Information from the registration record is extracted from the National Register of Civil Status. A certified copy of the birth certificate can be printed with the image of the bubble tag.

When fully implemented, Burkina Faso's technological solution will allow for

- systematic registration of newborns in health facilities, deaths, and other civil status events;
- registration of community births by community-based health workers using interoperability protocols;
- electronic archiving of civil status documents;
- reduced deadlines for issuing civil status documents;
- secure, reliable civil status documents;
- work optimization for users (health workers, registrars, justice officials, etc.);
- production and completeness of reliable vital statistics;
- issuance of civil status certificates at any registration centre across the country;
- interoperability with other government systems such as health systems, the National Identification Office, the Independent National Electoral Commission, and the National Institute of Statistics and Demography;
- a secure, reliable electoral register; and
- efficiency in managing the civil status system in the interests of technical and financial partners.

Currently, there are 1,193 civil status offices and 2,584 registration points where vital event notifications can be recorded. So far, only 130 registration points are using the iCivil system (104 in health facilities and 16 in local communities).

Mobile network operators that provide data transfer services are Telmob, Telecel, and Orange at an annual cost of 1,200,000 CFA (US$2,230). In the experimental phases of 2018 and 2019, the total number of notifications received via mobile network operators was 908 and 1,505, respectively. Since then, the total number of iCivil-enabled registration points has increased significantly. As result, during the COVID-19 crisis, the overall number of registered births using iCivil increased.

Notifications and certifications from January to August 2020 are illustrated in Table 1 below. There were 6,656 births reported and registered from March to July 2020, and 3,283 birth certificates were issued.

Table 1. Notifications, recordings, and certifications received via mobile network during the pandemic in 2020.

Period (2020)	Notifications		Recordings		Certifications	
Month	Births	Deaths	Births	Deaths	Births	Deaths
January	500	–	500	–	78	–
February	1,200	–	1,200	–	367	–
March	1,219	–	1,219	–	498	–
April	1,713	–	1,713	–	749	–
May	1,395	–	1,395	–	726	–
June	1,194	–	1,194	–	731	–
July	1,135	–	1,135	–	579	–
August	1,282	–	1,282	–	627	–
Total	9,638	–	9,638	–	4,355	–

Business processes

The following section describes the systems and processes for births and deaths. It also outlines the data elements collected by the iCivil system.

Births

- A declaration must be made within two months of the delivery date to the registrar for the place of birth.
- The father, mother, one of the ascendants, or the closest relative (see art. 107 of the Personal and Family Code[5]) is responsible for making the declaration. Otherwise, a declaration must be made by others who attended the delivery.
- After two months, a birth certificate can be established only by a birth declaration judgement issued by a departmental or district court.
- The information received is transcribed in the register for the current year in duplicate.
- Declarants receive a full copy of the birth certificate.
- Declarants may request the extracts.
- At the end of the year, the office of the public prosecutor of Burkina Faso near the territorially competent high court receives a copy of the register. After verification, the public prosecutor submits the register to the registry of the territorially competent high court.

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5   Refworld. 1989. Burkina Faso: Code des personnes et de la famille.
    refworld.org/docid/3ae6b4da27.html

- The other copy is kept at the main civil status centre of the town hall to issue future certificates.

Deaths

- A declaration must be made within two months of the date of death to the registrar for the place of death.

- The surviving spouse, an ascendant or descendants, or any person with the most accurate and complete information possible on the deceased's civil status is responsible for making the declaration.

- After two months, a death certificate can only be established by a declaration of death from a departmental or district court.

- The information is entered in the register for the current year in duplicate.

- Declarants receive a complete copy of the death certificate.

- At the end of the year, a copy of the register is sent to the prosecutor of Burkina Faso at the territorially competent Tribunal de Grande Instance (court). After verification, the prosecutor files it with the registry of the Tribunal de Grande Instance.

- The other copy is kept at the main civil status centre of the town hall to issue future documents.

Data collected by the civil registry services concern births, marriages, and deaths. Deaths and causes of death are recorded by health services.

Data elements captured for civil registration

Table 2 below describes the data elements captured by Burkina Faso's civil registration system using the medical registration form, civil status register, and iCivil system.

Table 2. Birth register.

Characteristics of the birth (event)	
• Date of the event • Registration date • Location of the event • Urban/rural occurrence • Place of registration	• Type of birth* • Type of event location (hospital, home, etc.) • Sex • Birth weight*
Characteristics of the mother	
• Date of birth • Age* • Marital status • Child born in wedlock (child's legitimacy status) ** • Usual occupation • Usual place of residence • Place of residence • Urban/rural residence	• Place/country of birth • Date of the mother's last menstrual period* • Gestational age* • Number of prenatal visits* • Month of pregnancy prenatal care began* • Birth order or parity* • Children born to mother during her entire lifetime and still living*
Characteristics of the father	
• Date of birth • Marital status • Usual occupation • Usual place of residence	• Place of residence • Urban-rural residence • Place/country of birth

*Data elements available on the medical registration form.

**Data elements available on the civil registration form (not on the medical registration form).

Table 3. Death register.

Characteristics of the death (event)	
• Date of the event • Registration date • Location of the event • Urban/rural event	• Place of registration • Cause of death • Presence at birth (for deaths of children less than 1 year old)
Type of event venue (hospital, home, etc.)	
• Characteristics of the descendant • Date of birth • Age • Sex	• If the birth has been registered (for deaths of children less than 1 year old) • Previous place of residence

System architecture

The iCivil system uses smartphones as declaration terminals to capture and transmit information about an event by an operator at the registration point where iCivil is operational.

The starting point for capturing birth data in the terminal is the identification bracelet assigned to a newborn, which carries an identification code and a unique and non-reproducible authenticating element, or bubble key.

The iCivil system can securely process data transmitted through a basic communication network (landline or mobile operator network), and produce official documents certifying its authenticity. The system includes the following technical elements to safeguard authenticity and integrity in the handling and processing of vital events data:

- Authentic identification media (bubble seal bracelet) comprising at least one unique identification code (number) and at least one authenticating element (bubble seal), prepared in a database of produced and distributed authentic identification media (bubble key bracelet);

- The capture and transmission of the identification code using the terminal; and

- A server configuration that verifies the existence and availability of the identification code received in the database of the authentic identification media.

The bubble key brings together integrity and security by establishing an inviolable link between the bracelet assigned to the newborn and the digital record in which the corresponding vital event is stored. Once parents request a birth certificate, the authentication of the bubble seal from the bracelet against the bubble seal in the database provides added assurance that the record in the database belongs to the child whose parents are requesting the certificate.

Unique identifier for birth registration	Smartphone with iCivil application	Unique identifiers (for prior rights regularization)

HOW ICIVIL WAS USED TO RESPOND TO THE COVID-19 PANDEMIC

The iCivil solution consecutively allows the notification, declaration, registration, and issuance of certificates. This is done mainly by attributing a unique identifier at birth, creating a digital national register of civil status, and using appropriate technologies for civil status management.

During the COVID-19 pandemic, in municipalities using the iCivil technological solution, births were registered from health facilities through smartphones, directly to the national server installed at DGMEC. This helped reduce contact and ensured continuous recording. Death registration, however, has yet to be rolled out.

GENERAL CONSIDERATIONS FOR USING ICIVIL

- **Data collection:** DGMEC uses iCivil to monitor and encourage registration through increased advocacy to increase registration rates and inform political and administrative authorities on the importance of birth registration.

- **Data use:** Different stakeholders, such as the National Institute of Statistics and Demography, can now access statistical reports. However, civil registration data has not been used for health surveillance during the COVID-19 pandemic.

- **Advantages:** The main advantage of using the iCivil system in general and in the context of the COVID-19 pandemic is that it allows for continued recording of vital events. iCivil also provides data on births and deaths and helps prevent physical contact between agents and users of civil status services.

- **System improvements:** DGMEC is focusing on expanding the iCivil system to all civil status offices and involving more stakeholders to improve civil registration in Burkina Faso.

A revision of the main code for civil registration is expected to introduce the digital civil registry.

The existing legal and regulatory framework does not support digital technology and considers only paper-based registers as legal documents. However, initiated by DGMEC, a revision of the Code of Persons and Family is under way. In its current draft version, the revised law would consider both physical and digital registries as legal bases. The draft of the bill is still to be approved by the government Cabinet before going to Parliament.[6]

6   World Bank. 2017. ID4D Country Diagnostic: Burkina Faso,
    documents1.worldbank.org/curated/en/653431522763079651/ID4D-Country-Diagnostic-Burkina-Faso.pdf

ABOUT THIS SERIES

The country brief for Burkina Faso is a technical brief under *Documenting the role of notification systems in capturing vital data about births and deaths for health surveillance amid a health crisis.*

The United Nations Economic Commission for Africa, the APAI-CRVS Secretariat, and the Centre of Excellence for CRVS Systems are supporting the development of technical briefs on innovative, good practices facilitating the continuous and universal registration of vital events in Africa. This includes the generation of data for health surveillance during a health crisis, which has consequently mitigated the impact of COVID-19 on the performance of the civil registration systems. The overarching purpose of this technical paper series is to provide inspiration and policy guidance for CRVS programming in the African region amid a global health crisis, such as the COVID-19 pandemic.

This article was developed by Hosea Mitala and Zoran Đoković. It is based on a desk review of publicly available information of the iCivil system, including the review of Burkina Faso legislation regulating the birth and death registration process. Valuable input was also obtained in consultations with UNFPA Population Data Fellow, Ramoudane Orou Sannou.
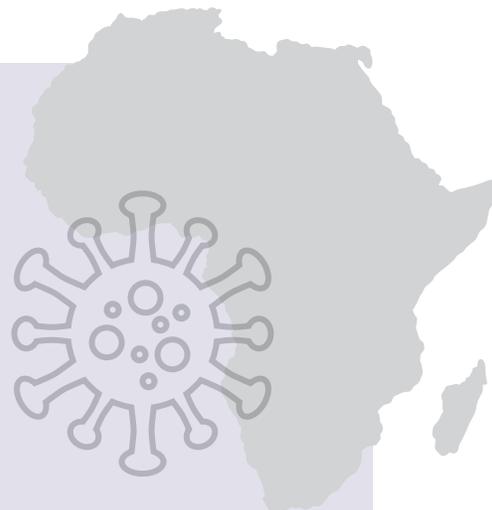
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