IMPLEMENTING BHIMA FOR HEALTHCARE MANAGEMENT IN THE DRC

Introducing Digital Solutions to Hospital Management

Improving the supply chain for medicines and medical equipment is key to guaranteeing access to quality healthcare in the DRC. That is why IMA World Health introduced a software tool called the Basic Hospital Information Management Application (BHIMA) in the DRC during the **ASSP (*Accès aux Soins de Santé Primaires* (Access to Primary Health Care))** project, funded by United Kingdom's Foreign, Commonwealth and Development Office (FCDO) and led by IMA World Health (IMA), that ran from 2013 – 2019. IMA subsequently reinforced and expanded BHIMA during the **ASSR (*Appui au Système de Santé en RDC* (Support for Health Systems in DRC))** (2019 - 2022) and **SEMI (*Services Essentiels de Santé Maternelle et Infantile* (Essential Services for Maternal and Child Health))** (2022 - 2024) projects—also funded by FCDO.

The objective of using BHIMA was to provide a free and open- source hospital information management system tailored to the DRC's infrastructural, regulatory, and financial context. Some key elements that separate BHIMA from other software are OHADA (Organization for the Harmonization of Business Law in Africa) compliance, scalability, low total cost of ownership, and DRC-specific reporting tools aimed at ease of adoption in rural medical institutions. Since initial development, the tool has also been deployed to manage the medication supply chain and improve overall hospital efficiency.

Why BHIMA

BHIMA was born out of a search for a low-cost information management application that IMA could offer to rural hospitals to aid financial reporting and improve evidence-based decision-making. After piloting several solutions, including the Care2X system used successfully in Kenya, it became evident that existing solutions were either costly, cumbersome, or inappropriate for the typical rural hospital in the DRC.

As part of IMA's work to support better governance initiatives, a team of Congolese developers built and deployed the BHIMA software to respond to the needs of these institutions. The software has been actively used since 2014 and currently powers six healthcare establishments: HGR Karawa, HGR Tshikaji, HGR Vanga, HGR Nsele, CSR Bandundu-Ville, CSR Kintambo.

BHIMA's Key Features and Functions

1. Digitization and Centralization of Inventory Data

- *Real-time stock monitoring*: The implementation of an online BHIMA server allows for continuous oversight at the Central Distribution Centers (CDR) and health zone-level offices.
- *Automated drug stock tracking*: BHIMA allows facilities to manage incoming and outgoing stock, see stockout alerts, and more closely monitor drug expiration dates.
- *The BHIMA STOCK mobile application*: BHIMA STOCK allows providers to enter data offline at remote health centers where connectivity is often a challenge, syncing once connected to the internet.
- *Improved transparency*: BHIMA's reductions in human errors, opportunities for mismanagement, and fraudulent diversions in stock control has greatly improved the movement of essential medicines, better equipping facilities to treat patients and anticipate stock need without fear of diversion.

2. Modernizing and Digitizing Financial Management

Before BHIMA, hospitals relied on manual financial management systems prone to errors, inefficiencies, and a heightened risk of fraud. BHIMA revolutionizes this process by centralizing, recording, and making all financial transactions fully traceable.

BHIMA enhances financial management through automated accounting processes, including:

- Electronic billing for medical care and services
- Automated recording of patient payments
- Transparent oversight of grants and external funding
- Real-time monitoring of hospital cash flows

IMA World Health staff access BHIMA on a laptop in a remote health facility.

Additionally, BHIMA simplifies the tracking of patient receivables, making it easier to collect outstanding debts and minimize losses from unpaid bills. This system empowers hospitals to identify critical yet underutilized services affected by costs and enables consistent cost analysis across different regions.

The implementation of BHIMA has proven effective in boosting hospital revenues and reducing financial losses. Key benefits include:

- Increased revenue generation: Data analysis from HGR Tshikapa and HGR Kanzala showed significant revenue growth due to improved billing and payment tracking.
- Minimized financial losses: Automated systems reduce errors and opportunities for fraud.
- Enhanced financial transparency:
  - Every transaction is recorded and accessible in real-time, discouraging corruption and embezzlement.
  - Detailed financial reports support both internal and external audits.

By streamlining financial processes, BHIMA not only ensures operational efficiency but also builds trust through greater accountability and transparency. Hospitals can focus on delivering quality care while maintaining robust financial health.

3. Capacity Strengthening and System Adoption

Through the SEMI project, over 400 personnel from the Regional Distribution Center, the Provincial Health Division office, Health Zone offices and health care providers at the facility level were trained in BHIMA use.

4. Infrastructure and Equipment Enhancement

The SEMI project supplied additional IT equipment, including computers, printers, and network devices, to build on previous investments. To ensure secure computing networks, SEMI installed local BHIMA servers, allowing for uninterrupted operations even without internet access. In areas without access to an electric grid, SEMI implemented alternative energy solutions by installing solar panels to maintain system functionality.

Challenges and Recommendations

Sustainability remains a key concern for BHIMA, as continued government support and dedicated budgets are essential for its long-term maintenance. Scalability is another important factor, with the potential for national implementation of BHIMA to significantly improve financial and supply chain management. Providers already trained in using BHIMA can play a crucial role by training colleagues in other establishments. Additionally, integrating BHIMA with national health databases such as iHRIS, SNIS, and DHIS2 would help streamline reporting processes and enhance data utilization for more effective decision-making.

Future Outlook

The implementation of BHIMA marked a major step forward in the modernization of the supply chain in the DRC. By combining digitization, capacity building and logistical optimization, this initiative, despite the difficulties encountered, has helped to improve the availability of medicines and reduce waste. Its expansion could bring about a lasting transformation in medical stock management on a national scale.

In addition to stock management, the implementation of BHIMA in hospitals has transformed financial management, increasing transparency, efficiency and reliability of transactions. Thanks to the digitization and optimization of financial flows, hospitals can now better manage their revenues, limit losses and guarantee more equitable access to care for the population. Expanding BHIMA's reach across the DRC could lead to a standardized and more efficient healthcare management system. By leveraging digital solutions adapted to local contexts, the DRC can improve transparency, financial sustainability, and supply chain efficiency, ultimately enhancing healthcare service delivery nationwide.

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