Panel I
Donor organisations implementing GS1 Standards

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GS1 Healthcare Conference New Delhi, India
GS1 standards deployment is part of Global Fund Supply Chain strategy

Mouna Jarmouni
Mouna Jarmouni
Supply Chain Data & Performance Lead

• 14 years of experience in Global Supply chain Management, purchasing, logistics, warehouse management and data & analytics management
• As an expert in Supply Chain Management, experienced in healthcare supply chain management, working for Novartis /GSK Consumer healthcare supporting Data Processes, Portfolio Optimization/Value engineering process improvement
• Now devoted to the Global Fund Mission focused on Supply Chain Performance, data & analytics, execution systems to increase data visibility and support Digital health related activities rapidly growing low and middle income countries

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US$14 Billion to Step Up the Fight Against the Epidemics
Results that matter

Smart, effective health investments through the Global Fund have saved 32 million lives, expanding opportunities and achieving greater social justice for families and communities worldwide.

Scientific advances, innovative ideas and private sector savvy are unlocking improvements in disease prevention, treatment and care. Millions of people are now on antiretroviral therapy and spared the death sentence that used to come with HIV. The number of people dying of malaria, most of them young children, has been cut in half. New diagnostics systems are speeding up the testing and treatment of people with TB.

But we can’t stop now. Adolescent girls are contracting HIV at a terrible rate in southern Africa. Multidrug-resistant TB is growing into a potentially catastrophic threat to public health. Gains made against malaria could be lost if we don’t expand prevention and treatment programs.

Millions more lives are still at risk. We must seize the momentum, be ambitious and move faster to end HIV, TB and malaria as epidemics.
A 21ST-CENTURY PARTNERSHIP

The Global Fund’s partnership model is designed to promote innovative solutions. With a 21st-century approach that encourages agile responses and maximum participation, countries take the lead in determining where and how to best fight diseases. Collectively, we harness the best possible experience, insights and innovation in the public and private sectors, from faster delivery of essential medicines to more effective methods to reach the people most in need.
It has helped speed up patient reporting by community health workers, expedite payments to health workers and prevented stock-outs of medicines.
Why GS1 are important for The Global Fund?

Vision Statement
We purchase ~$1.2B of “efficient and safe” products per year and our vision is to trace all products across the complete supply chain up to the final patient to avoid counterfeiting.

Goals & Objectives
✓ Enabling a secure and efficient supply chain from source through to medication dispensing points and operating rooms
✓ Enabling end-to-end data visibility with automated transaction and data-sharing that eliminate manual data entry, validation and correction, reducing errors and costs
✓ Identifying and implementing supply chain efficiencies, minimizing product waste, less time in recalls and more in patients, improving care)
✓ Ensuring supply chain security to help pharmacies, hospitals and physicians identify counterfeit drugs and reimbursement fraud
✓ Improving patient safety
We agreed to link health outcomes to patient impact and functional KPIs, like those for supply chain.

**Key health outcome indicators**
- 90% of people know their status
- 90% of people on antiretroviral therapy
- 90% of people are virally suppressed

**Disease summary data**
- Number of people living with HIV/AIDS
- Reduction of AIDS-related deaths
- Reduction of new infections / cases

**Health outcomes**
- Awareness & usage
- Accessibility
- Availability
- Affordability
- Assured quality

**Patient impact**
- On shelf availability (OSA)
- Inventory turnover
- Product wastage
- SC cost per product / patient
- Compliance to GS1

**Functional KPIs**
- Supply Chain

**Example data for 3 countries**
- Ethiopia
  - Aware of HIV status: 94.0%
  - Treated: 93.5%
  - Virally suppressed: 99.0%

- Tanzania
  - Aware of HIV status: 52%
  - Treated: 37%
  - Virally suppressed: 76%

- Côte d’Ivoire
  - Aware of HIV status: 88%
  - Treated: 88%
  - Virally suppressed: 99%

**Disease summary data**
- Number of people living with HIV/AIDS: 72, 52, 88
- Reduction of AIDS-related deaths: 90, 91, 88
- Reduction of new infections / cases: 99, 50, 76
On Shelf Availability: Access to Health Products are trending upwards, but improvements are still necessary to avoid treatment / diagnostics disruption.

90% still means that 10 out of 100 people seeking health products leave clinics empty handed.

In rural areas where people only go to town once a month, the disruption of treatment is high.

Risking impact in fighting HIV, Malaria and TB.
We will build on and further shape our current supply chain implementation plan up to November 2019.
Global standards could help save thousands of lives and billions of dollars each

Global standards could be a critical enabler to improving the safety and quality of patient care in a cost-effective way. These standards have greater potential to improve care and save resources if they are truly global and adopted by all stakeholders, including manufacturers, distributors, wholesalers, pharmacies, and providers and also governments, Regulators and Development organizations.

Universally accepted methods for identifying products and locations and exchanging data could enable organizations to share vital information along the entire value chain, eliminating today’s broad array of custom data configurations, while improving:

- compatibility and interoperability,
- reducing redundancy,
- preventing medication errors,
- enhancing visibility,
- and enabling seamless, automated information exchange among supply chain partners.
“When I first mooted the idea of the Global Fund, people said I was dreaming... I love dreams. It always starts with a dream.”

Kofi Annan, Secretary General of the United Nations (April 2001)
USAID Implementation of GS1 Standards

GS1 Global Healthcare Conference
New Delhi - November 6, 2019

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Dr. Guirguis holds a Ph.D., M.Sc., and B.Sc. in Computer and System Engineering. Dr. Guirguis is currently a Senior Information Technology Advisor with USAID’s Global Health Supply Chain, where he advises countries with respect to the automation of their national-level public health supply chain system. Dr. Guirguis also provides an oversight to USAID’s global MIS systems for supply chain. He has over 30 years of professional experience in information and communications Technology and contributed to the transformation and modernization of several large enterprises and government agencies spanning many diverse sectors including the: telecommunications, financial, health, defense and development sectors for both public and private sectors in the USA and internationally. Dr. Guirguis represented the DoD at several standards bodies, in the U.S. and overseas. He was a member of the U.S. expert delegation at several ISO/IEC JTC1/SC37 standards meetings. Dr. Guirguis is an Adjunct Professor at Georgetown, authored & co-authored four patents, presented several papers at international conferences. He is an IEEE Senior Member, Senior Fellow at GMU International Cyber Center, PMI member and Certified Project Management Professional (PMP).

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Presentation Outline

• USAID Global Health Supply Chain (https://www.youtube.com/watch?v=mpeCxtCYi-E)
• Phase 1  Supplier Compliance (Rachel)
• Phase 2 Building GS1 Foundation for Public Health Information Systems in LMIC
  – Current Challenges with Product Master
  – National Product Catalog Initiative
• Global Product Catalog
Example of Pharmaceutical Supply Systems - Malawi

We need GS1 and NPC to effectively manage an integrated supply chain system.

Text extracted:

Essential Medicines
Family Planning / MNCH
Malaria
TB
ART
Vaccines
Nutrition

Product Group

Essential Medicines

Family Planning / MNCH

Malaria

TB

ART

Vaccines

Nutrition

Funding Sources

UNITAID

Malawi Govt.

DFID

USG

UNFPA

GFATM

GAVI

UNICEF

Procurement Agents

UNICEF

CMST

GHSC-PSM

UNFPA

VPP

GDF

GAVI

Warehousing

GHSC-PSM

CMST

Bolloré

EPI

Distribution

GHSC-PSM

CMST

Bolloré

EPI

Point of Distribution

Health Facilities
• Physical commodity moves from one supply chain partner to another,
  o Whereas product data & information associated with this commodity does not

• Each SC partner maintains its own set of information affecting data consistency & quality,
  o Thereby limiting end-to-end data visibility, traceability & the ability to plan effectively
Compliance requirements in the USAID/GHSC-PSM supply chain

**Phase 1**
- Compliance as of 30 Dec 2018
- GS1 Data Matrix or GS1-128 barcode encoded with:
  - (01) GTIN
  - (10) Batch/lot
  - (17) Expiration Date

**Phase 2**
- Compliance as of 30 June 2020
- GS1 Data Matrix
  - (01) GTIN
  - (10) Batch/lot
  - (17) Expiration Date

**Phase 3**
- Compliance as of 30 June 2022
- GS1 Data Matrix or GS1-128 barcode also encoded with:
  - (21) Serial Number

**Phase 4**
- GS1-128 barcode encoded with:
  - (00) SSCC
- GS1 Data Matrix also encoded with:
  - (21) Serial Number

**Secondary Packaging**
- GTIN for each unit of measure

**Master Data**
- (416) GLN Sold-From
- (415) GLN Invoice-From
- (414) GLN Production

**Tertiary Packaging**
- Homogenous Trade Item
- GS1 Data Matrix or GS1-128 barcode encoded with:
  - (01) GTIN
  - (10) Batch/lot
  - (17) Expiration Date

**Identification & Capture**
- Identify items and locations
- Capture data in barcode label
- Share data with trading partners
Standardized identifiers available on product today
Current Challenges

1) Problem Statement:
Inability to scan GS1 barcodes on commodity package labels, to improve efficiency, data quality and to facilitate track and trace

2) Problem Statement:
Inability to integrate between multiple application/systems that have different product coding methods

3) Problem Statement:
High degree of error and effort to maintain product definitions that are aligned between multiple systems (often maintained by different organizations)
Product Master Data - Major Challenges

**Identification**
- Manufacturer: Product Id: 02345
- Health Facilities: Product Id: 47880
- Regulatory Authority: Product Id: PD343
- Procurers: Product Id: 10AB0
- Health Facilities: Product Id: 47880

**Classification**
- UNSPSC
- GPC
- ATC
- Country Specific

**Operational Challenge**
- Strategic Challenge
- Operational Efficiency
- Traceability
- Planning
- Product Verification
- Interoperability
- End-to-End Visibility
Importance of Product Master Data

**Public Health Information Systems**
- Mfrs, Suppliers / Donors
- Regulatory
- Medical Stores
- Regional Pharmacies
- Community Health Workers
- Patient Care

**Various Systems**
- Drug Registration
- WMS
- LMIS
- E.g.: RapidSMS
- HMIS

**Product**
- **Basic Information**
  - ID, Description, Unit of Measure, Product Characteristics/Specifications, Attributes
- **Classification Details**
- **GSI Attributes (GTIN)**
- **Pricing Information**
- **Manufacturer**
  - Manufacturer Name & Address (GLN), Country of Origin
- **Inventory Information**
  - Packaging, Storage, Shelf life, Tag / Serial # Controlled
- **Compliance**
  - Registration Details, Labeling

**Processes / Transactions**
- Quantification
- Procurement
- Shipments
- Distribution
- Dispensing
- Recalls
- Inventory Management
- Financial / Billing

**Patients & End Consumers**
Addressing Challenges through Process & People

Manufacturer
GTIN: 02345898873

PRIMS
National Registration. No.: 20/1939/DGCS/PH/2014

WMS (Sage)/eLMIS
Product Id: N02BE01020001E

Private Sector
Product Id: 10AB00123

HMIS
Product Name: Paracetamol tab 500mg

National Product Catalog

<table>
<thead>
<tr>
<th>NPC Product Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>02345898873</td>
<td>Paracetamol tab 500mg</td>
</tr>
</tbody>
</table>

GTIN: 02345898873
PRIMS Registration No.: 20/1939/DGCS/PH/2014
WMS/eLMIS Product Code: N02BE01020001E
Private Sector Product Code: 10AB00123
HMIS Product Name: Paracetamol tab 500mg

Data Governance Group

Best Practice Adoption
Data Quality Compliance
Data Integrity
Issue Resolution

NRA/MoH
Catalog Manager
MoH
CMS
Private
Addressing Challenges through Technology

**National Product Catalog Architecture**

**In Country Systems**

- Manufacturers

**Global Product Catalog**

- Product Registration System

**National Product Catalog**

- Data Collection
- Data Enrichment
- Data Governance
- Data Standardization
- Data Security
- Data Distribution

**Interoperability Layer**

- Automated Publish
- Query/Verify Products
- Requests to Update

**Transaction Systems**

- WMS
- eLMIS
- HMIS
- CISCOM

**Private Sector Systems**

- GDSN
- Future
Conclusion

• Standardized (GS1) product information is the foundation for data visibility and traceability:
  – GTIN
  – Attributes
  – Classification

• There is an urgent need for Donors and Manufactures to collaborate to make product information available for countries.
Thank You
Implementation of Global Standards within the USAID GHSC-PSM Supply Chain

Rachel Smith, Global Standards Technical Specialist
Rachel Smith is a Global Standards Technical Specialist at the USAID Global Health Supply Chain Program – Procurement and Supply Management (GHSC-PSM), where she specializes in supplier engagement for the implementation of global standards within GHSC-PSM’s global supply chain. In addition to that, she has supported initiatives related to supply chain data visibility, traceability, master data management, and analytics for global health. She holds a Master’s degree in Quantitative Methods in the Social Sciences from Columbia University.

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What is GHSC trying to achieve?

Vision
To enable identification of every item procured at every point in the supply chain, through administration to the patient

Goal
To enable a secure and efficient supply chain from source through to service delivery

Objectives
• To enable end-to-end data visibility
• To identify and implement supply chain efficiencies
• To ensure supply chain security
• To increase patient safety
Cross-Cutting Approach

**Strategic Engagement**
Supporting USAID in engaging the global health community to build consensus and align requirements between donors and their procurement agents

**Health Systems Strengthening**
Developing a set of frameworks and tools to support country governments and their implementing partners in developing strategies for global standards and traceability implementations

**Global Supply Chain**
Implementing standard identification, labeling, and master data synchronization for all pharmaceuticals, medical devices, sterile kits, and reagents
Joint donor guideline

• Guidance on identification, data capture, and data sharing aligned with global standards

• Document is endorsed by Global Drug Facility (Stop TB), Global Fund, UNFPA, UNDP, and USAID

• Agency-specific timelines for implementation are included in Annex C

• Implemented by donor procurement agents through their respective supplier contracts

GHSC-PSM Contract Requirements

Phase 1
- 30 Dec 2018
- GS1 Data Matrix or GS1-128 barcode encoded with:
  - (01) GTIN
  - (10) Batch/lot
  - (17) Expiration Date

Phase 2
- 30 Dec 2019
- GS1 Data Matrix encoded with:
  - (01) GTIN
  - (10) Batch/lot
  - (17) Expiration Date

Phase 3
- 30 June 2020
- Homogenous Trade Item
  - GS1 Data Matrix or GS1-128 barcode also encoded with:
    - (21) Serial Number

Phase 4
- 30 June 2022
- Mixed or Partial Trade Item
  - GS1-128 barcode encoded with:
    - (00) SSCC

- Logistic Unit
  - GS1-128 barcode encoded with:
    - (00) SSCC

- GS1 Data Matrix also encoded with:
  - (21) Serial Number

SECONDARY PACKAGING
- Trade Items
- GTIN for each unit of measure

MASTER DATA
- Trade Items
  - (416) GLN Sold-From
  - (415) GLN Invoice-From
  - (414) GLN Production

TERtiary PACKAGING
- Homogenous Trade Item

UNITED STATES AID GLOBAL HEALTH SUPPLY CHAIN PROGRAM
Procurement and Supply Management
Progress by the numbers

2546 | items with GTINs provided
1855 | items with Phase I tertiary packaging verified
183  | items ahead of schedule on packaging requirements
59   | suppliers have submitted evidence of compliance
Phase 1 AIDC Requirements

SUCCESES
High-volume, homogenous product groups like:
• HIV/AIDS Treatment
• Malaria Treatment
• Malaria Diagnostics
• Contraceptives

CHALLENGES
Categories and suppliers with high levels of variation like:
• Wholesalers
• New suppliers
• Low-volume categories
• Low-volume suppliers
Looking ahead to Phase 2
Managing supplier compliance

vs.
Factoring compliance into performance

Global standards compliance is now:

• A dedicated component of every quarterly supplier performance review
• Factored into past performance when evaluating new contract awards
• Factored into strategic sourcing and order allocation decisions

Supplier: ABCD Pharmaceuticals Inc
Classification: Level 2
Overall Score: 68%

<table>
<thead>
<tr>
<th>Component</th>
<th>Notes</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Time Performance</td>
<td>29 lines from April 2019 to June 2019</td>
<td>69%</td>
</tr>
<tr>
<td>Incidents</td>
<td>1 liable incident, breach of shipping protocol</td>
<td>67%</td>
</tr>
<tr>
<td>G31 Compliance</td>
<td></td>
<td>45%</td>
</tr>
<tr>
<td>Qualitative Factors</td>
<td>Average of Qualitative Survey Score</td>
<td>87%</td>
</tr>
</tbody>
</table>
Recognizing top performers

We publish names of suppliers with >95% compliance against each deadline, including future deadlines, on our website and seek to promote more broadly in the future as a means of recognition.

Suppliers with greater than 95% GS1 compliance

### Phase 1
- Abbott Molecular Inc
- AbbVie Inc.
- Access Bio Inc.
- Ajanta Pharma Ltd.
- Aurobindo Pharma Limited
- Bayer AG
- Cipla Limited
- Emcure Pharmaceuticals Limited
- Fosun Pharmaceutical Distribution Jiangsu Co., Ltd
- Guolin Pharmaceutical Co., Limited
- Hetero Labs Limited
- Laura's Labs Limited
- Macleods Pharmaceuticals Limited
- Merck, Sharp + Dohme B.V.
- Mylan Laboratories Limited
- Novartis Pharma Services AG
- Pfizer Overseas LLC
- Pregna International Limited
- Premier Medical
- Roche Diagnostics
- Sanofi Winthrop Industries
- Standard Diagnostics, Inc.
- Strides Shasun Limited
- Syneos Europe GmbH
- Vero Inc.

### Phase 2
- AbbVie Inc.
- Access Bio Inc.
- Ajanta Pharma Ltd.
- Aurobindo Pharma Limited
- Cipla Limited
- Emcure Pharmaceuticals Limited
- Fosun Pharmaceutical Distribution Jiangsu Co., Ltd
- Guolin Pharmaceutical Co., Ltd.
- Ipsa Laboratories Ltd.
- Macleods Pharmaceuticals Limited
- Merck, Sharp + Dohme B.V.
- Mylan Laboratories Limited
- Pregna International Limited
- Pfizer Overseas LLC
- Pregna International Ltd.
- Premier Medical
- Roche Diagnostics
- Strides Shasun Limited
- Surya Ltd.
- Vero Inc.

### Phase 3
- AbbVie Inc.
- Access Bio Inc.
- Ajanta Pharma Ltd.
- Aurobindo Pharma Limited
- Cipla Limited
- Emcure Pharmaceuticals Limited
- Fosun Pharmaceutical Distribution Jiangsu Co., Ltd
- Guolin Pharmaceutical Co., Ltd.
- Ipsa Laboratories Ltd.
- Macleods Pharmaceuticals Limited
- Merck, Sharp + Dohme B.V.
- Mylan Laboratories Limited
- Pregna International Ltd.
- Premier Medical
- Roche Diagnostics (Pty) Ltd.
- Strides Shasun Limited
- Surya Ltd.
- Vero Inc.

### Phase 4
- Ajanta Pharma Ltd.
- Cipla Limited
- Emcure Pharmaceuticals Limited
- Fosun Pharmaceutical Distribution Jiangsu Co., Ltd
- Guolin Pharmaceutical Co., Limited
- Ipsa Laboratories Ltd.
- Macleods Pharmaceuticals Limited
- Merck, Sharp + Dohme B.V.
- Pregna International Ltd.
- Premier Medical
- Roche Diagnostics (Pty) Ltd.
- Strides Shasun Limited
- Surya Ltd.
- Vero Inc.

Available: [http://ghsupplychain.org/GS1SupplierScorecard](http://ghsupplychain.org/GS1SupplierScorecard)
Lessons learned

• Strategy requires multiple components:
  ✓ Phased implementation is necessary for feasibility
  ✓ Adequate lead time to ensure that suppliers can implement
  ✓ Strong feedback loop to support and achieve high-quality outputs

• Dedicated resources are critical for informed feedback and proactive engagement

• Suppliers and procurers need to be partners to make the initiative a success
THANK YOU FOR YOUR COLLABORATION

The USAID Global Health Supply Chain-Procurement and Supply Management project provides commodity procurement and logistics services, strengthens supply chain systems, and promotes commodity security. We support USAID programs and Presidential Initiatives in Africa, Asia, Latin America, and the Caribbean, focusing on HIV/AIDS, malaria, and population and reproductive health commodities.

OUR WEBSITE: http://ghsupplychain.org/globalstandards
A creative packaging professional and leader with over 22+ years of experience in Pharmaceutical and FMCG Industry.

Sourav has been front runner spearheading and executing key Global projects on Pharmaceutical packaging.
My responsibilities include managing relationship with internal and external stakeholders related to serialization and track and trace. I represent Pfizer externally on various industry groups related to the implementation of existing regulations or planned regulations at regional and country level and liaise internally with the Pfizer Digital organization and market colleagues to implement the requirements.

I am the EFPIA representative in the European Medicines Verification Organization Technical Advisory Group and member of the French trade association steering committee for the FMD implementation where I work in different workstreams with the other stakeholders.

Since 2017, I represent Pfizer in the GS1 Healthcare Leadership Team.

I have 20 years of experience in the industry.

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The benefits of improving visibility and security in the vaccines supply chain

36th Global GS1 Healthcare Conference – India

Pascal Aulagnet, Senior Manager Pfizer Digital, Pfizer Inc

6th November 2019 – New Delhi
Disclaimer

This presentation outlines a general technology direction. Pfizer Inc. has no obligation to pursue any approaches outlined in this presentation or to develop or use any functionality mentioned in this presentation. The technology strategy and possible future developments are subject to change and may be changed at any time for any reason without notice.

The views and opinions expressed in this presentation and any related discussion(s) are solely those of the individual presenter(s) and may not express the views of and opinions of Pfizer Inc.
Agenda

- Pfizer and its commitment to global health
- Background and History of Vaccine Visibility System Pilots
  - First Pilot in Nicaragua
  - Gambia implementation outcomes
- What’s next
Breakthroughs that change patients’ lives
Pfizer's Commitment to Global Health

Our Approach: Leveraging the Full Extent of Our Resources and Partnerships

Through our partnerships and investments, we work to strengthen healthcare systems and increase access to quality healthcare for the most vulnerable people around the world.

We work to strengthen service delivery systems through the expertise of our colleagues, invest in strategic partnerships to provide solutions to critical challenges, and increase access to medicines and vaccines through creative commercial partnerships.
Pfizer's Commitment to Vaccine Access

For more than 10 years, Pfizer has been partnering with NGOs to build immunization programs and supply our pneumococcal vaccine to 50 developing countries across Africa, Asia, Latin America, the Middle East, and parts of Europe.

To date, we have shipped over 450 million doses to the world's poorest countries, and are committed to delivering 930 million doses by 2027.
Improving Visibility and Security in Pharmaceutical Supply Chains

❖ **Stock visibility and security are critical issues in many industries.** In healthcare, the supply chain from manufacturer to the patient is long and fragmented, especially in developing countries.

❖ In 2011, the *World Health Organization’s Vaccine Presentation and Packaging Advisory Group* (VPPAG) created a barcode subgroup to enable improved stock tracking in developing countries.

❖ The group is facilitated by GS1, a neutral, non-profit organization that develops and maintains standards for supply and demand chains.

❖ The inclusion of GS1 barcoding standards became a priority for manufacturers.

Pfizer’s partnerships with NGOs demonstrates its commitment to providing vaccines at affordable prices and improving access in the developing world.

Piloting a system to include scanning GS1 barcoding technologies differentiates Pfizer as an innovator in this space.

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1) Accenture Supply Chain Security Strategy POV

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**Information coded into the GS1 barcode on PCV-13 packaging:**

**Capacity:** 3116 Numeric or 2335 Alphanumeric characters

**Omnidirectional:** It can be scanned in any orientation, for speed of use.

**PCV-13 Barcode Content:**

- Global Trade Identification Number (GTIN)
- Manufacturing Lot Number
- Vaccine Vial Expiry date
Pfizer’s case study of VVS

- Pfizer has participated in case studies on the implementation of a Vaccines Visibility System
- First Pilot implementation in Nicaragua followed by an enhancement of the system to add more functionalities and extension in the utilization
- A second pilot in Gambia
Vaccines Visibility System (VVS) – First Pilot in Nicaragua

- The pilot developed a tool (VVS) that integrated barcode scanning with the processes and reporting requirements of the Nicaragua Ministry of Health (MoH).
- VVS was created by building on PHP (PATH Proof of Principle solution), a module of the OpenLMIS Logistics Management Information System in use in Tanzania. The functionality of PHP was enhanced by gathering and implementing requirements from the existing inventory management tool (VSSM) in use at the Nicaragua MoH.
Utilization of VVS within Supply Chain

VVS is utilized at several points throughout the supply chain, supporting end-to-end inventory management from the point of forecasting to real-time inventory reporting at health facilities.

Annual planning & forecasting yearly vaccine quantities

Approval processes within government of Nicaragua, agreements with NGOs, and subsequent procurement process

Receipt of vaccines to national store

Distribution of vaccines to lower levels

Inventory reconciliation after receipt of dispatched vaccines

System generates reports at every level to be used by the Ministry of Health

LEGEND: VVS Stage in which VVS is utilized
Overview of PCV-13 Packaging

Pfizer has committed to including GS1 2D DataMatrix Barcodes on their Prevenar-13 (PCV-13) vaccine packaging at the tertiary, secondary, and primary levels of packaging.

Pfizer PCV-13 Label

GTIN: 65415062115017
Lot Number: L95321
Expiration Date: Oct 31 2017

How does VVS process the barcode information?

- Each unique GTIN corresponds to the type of packaging the vaccines are presented in (tertiary, secondary, or primary level packaging)
- Within the configuration of VVS Basic Data, each GTIN is assigned to a product, manufacturer, the number of vials per package, the number of doses per vial, and the physical volume of each dose
- Using the configured information, VVS is able to populate stock keeping data fields automatically when a box is scanned

Packaging Types

- **Tertiary Level**
  - 1800 vials per cardboard box

- **Secondary Level**
  - 50 vials per box

- **Primary Level**
  - Individual vials
Phase I: Benefits Realized using VVS

Benefits were observed in all the expected categories. The most significant advantage of VVS over the existing tools was its ability to reliably integrate data between all sites, at different levels of the supply chain.

Key Finding:
VVS integrates data that is entered at different sites and levels of the supply chain hierarchy with 4 distinct benefits

Key Next Steps:
1) Further improve integration benefit by expanding scanning footprint
2) Investigate feasibility of serialization
Phase II: Expended Scanning Footprint for Gambia

To improve the capabilities of the VVS system, scanning was enabled within the Dispatches module and Arrivals modules to reap the most benefit in efficiency and accuracy of data entry.

<table>
<thead>
<tr>
<th>Supply Chain Level</th>
<th>Packaging Type Received per Level</th>
<th>Activities Now Enabled by Scanning in VVS 2.0</th>
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<tbody>
<tr>
<td></td>
<td>Opening Stock</td>
<td>Arrival</td>
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<tr>
<td>National Store</td>
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<td>Districts</td>
<td>Tertiary</td>
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<td>Regional</td>
<td>Secondary</td>
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<td></td>
<td>Secondary, Primary</td>
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<tr>
<td>Health Centers</td>
<td>Primary</td>
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</tr>
</tbody>
</table>

LEGEND

- Established ability to scan within specified module
- Integration between levels via Transaction Number
- Newly enabled scanning functionality at specified module

*VVS not currently implemented at final level of supply chain and therefore does not have scanning functionality enabled*
The Gambia Pilot: Status update

Pfizer and PATH deployed a Vaccine Visibility System (VVS) that utilizes 2D barcodes to improve the logistics management of vaccines in The Gambia.

- VVS system deployed at three sites and national warehouse that store vaccines
- 11 Staff members across three sites trained on how to adapt from paper based system to an electronic LMIS system, including an EPI Logistician and ICT technician
- Technical issues were identified and resolved in first two weeks
- Cold chain equipment and initial inventory assessments were completed at each site and loaded into the VVS by the deployment team
- Lessons learned were documented
- Procured additional hardware such as printers and data cards to enable VVS use with lack of connectivity
- Explored opportunities for sustainable expansion of Pilot, through planning, and funding and identifying areas for further support

• Ongoing implementation and training in facilities and understanding expansion potential

2017

Today
The Gambia Pilot: Preliminary Findings – Benefits of VVS

<table>
<thead>
<tr>
<th><strong>Overview of benefits high</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Visibility</strong></td>
</tr>
<tr>
<td>• Improved the overall visibility and management of the vaccines supply chain</td>
</tr>
<tr>
<td>• VVS alerts the user if the vaccine stock is below the minimum required amount</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
</tr>
<tr>
<td>• Detected errors when inputting the information about the vaccine based on already saved information, minimising errors</td>
</tr>
<tr>
<td>• Improved the method of forecasting vaccines needs and future demand</td>
</tr>
<tr>
<td><strong>Efficiency</strong></td>
</tr>
<tr>
<td>• Enabled efficient stocks management – diversion of stocks to facilities in need</td>
</tr>
<tr>
<td>• Improved the process of ordering and dispatching vaccines</td>
</tr>
<tr>
<td>• Reduced the time in processing vaccines upon receipt</td>
</tr>
<tr>
<td><strong>Quality</strong></td>
</tr>
<tr>
<td>• Decreased the chances of stockouts or vaccine expiration</td>
</tr>
<tr>
<td>• Enabled optimal amount of vaccine storage allowing for more space in fridges</td>
</tr>
</tbody>
</table>

"Before you had to force yourself to be on top of monitoring the stock. But with VVS, it warns you that an antigen is about to expire" – Regional Manager

"When running [vaccination] clinics – you always had to keep at the back of your mind which vaccines were in the fridge, and … to update the system. Now, thanks to VVS I can focus on the clinics ….“ – District User

*Note: Blue – national, cyan – regional, green – district, grey – pending interviews.
What’s next?

It’s time to partner together – both governments and pharmaceutical companies – to operationalize and improve technology for the most impact.

What We Need:
- Government participation
- Pharma EPI programs alignment
- Alliance partners engagement
- Get the message out!
- Make this a priority

Barcode technology may increase access to potentially life-saving vaccines.
thank you!
Contact Information

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Be sure to complete each feedback form!

For every feedback form completed in the App, we will donate 5USD to the chosen conference charity “HelpAge India”
COFFEE BREAK
### Afternoon at a glance

**Wednesday, 6 November**

<table>
<thead>
<tr>
<th>Networking lunch &amp; visit of marketplace</th>
</tr>
</thead>
</table>

**Two parallel streams**

<table>
<thead>
<tr>
<th>Stream I – Stream I – Donor organisations implementing GS1 standards</th>
<th>Stream II – Public policy: Pharmaceuticals</th>
</tr>
</thead>
</table>

**Coffee Break**

**Two parallel streams**

<table>
<thead>
<tr>
<th>Stream I – Three Discussion Labs on specific areas of interest</th>
<th>Stream II – Traceability – Challenges and Learnings</th>
</tr>
</thead>
</table>

**Think Tank**  
(by invitation only)
Visit the Marketplace during lunch time

Meet the exhibitors in the Allure Area
Every day during breaks and luncheons
Thank you