Digital Data for Decision-Making

Africa Regional Meeting on Digital Health for Overcoming Barriers to Ending Preventable Child and Maternal Deaths and Achieving Universal Health Coverage

12-15 May 2015, Lilongwe, Malawi

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PROBLEM DEFINITION

- Africa = 3% of global health workforce
- Sub-Saharan Africa - **11%** of the world's population but **24%** of global disease burden
- **Nigeria**
  - 150 million population (projected to double in 20 years at current growth rate)
  - **2%** of the world population, (**10% of world maternal deaths from pregnancy and childbirth**)
  - Over 1 million children die before 5th birthday
  - Ongoing epidemiologic transition with double disease burden of both infections and NCDs
  - $27 Health expenditure per capita with 75% out-of-pocket
  - 3% of global health workforce.
  - Endemic Drugs Counterfeiting - 48% of 27 drugs failed standards testing.

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OPPORTUNITIES

- Ubiquity of mobile devices - more mobile phones than computers & toilets combined.

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- Increasing interest in handheld devices with computing power.
- Lower unit cost of smart devices due to advances in manufacturing technology
- High Mobile Internet penetration

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CliniPAK IMPLEMENTATION

- Started with 2 facilities in 2013
- Currently 51 facilities covered in 4 States
- Over 500 frontline healthcare workers trained
- Database contains records on approx **100,000** pregnant women
- Ongoing 2015 expansion
  - Approximately 250 additional facilities
  - MCH focus will expand to include all PHC services
  - CliniPAK direct interface with DHIS2

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NIGERIA COUNTRY IMPLEMENTATION -
an effective demonstration of Public Private Partnership

NPHCDA MSS/SURE P MCH
- Project Owner

Project Funder

Platform Developer

Data Connectivity

Project Management

CliniPAK DESCRIPTION

- A streamlined decision support electronic medical record, data capture and reporting system including
  - Patient registration and demographics, vitals capture, diagnoses, treatment, lab management, pharmacy, inventory control, etc.
- Offers both workflow and forms-based data capture at the point of care
- Real time data capture allows up-to-date accurate reporting
- Data capture in low resource settings leverages CommCare Open Source Platform (built by Dimagi Inc)
- Information is transmitted via cell or data network to local CliniPAK Unit or centrally hosted Clinical Database

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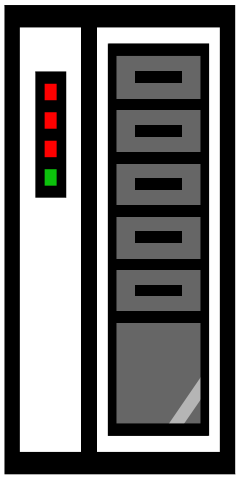
CliniPAK PROCESS WORKFLOW

Step 1: Midwives capture data in Facilities

Step 2: Captured data transmitted to remote server via 3G

Step 3: Remote servers aggregate data and populate reports



Step 4a: Electronic reports are delivered to facility, HMIS Staff

Step 4b: Electronic data is fed to MHMIS

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MNCH CLINICAL DECISION SUPPORT DATA COLLECTION

- **Patient Level Information**
  - Demographics
  - Address and contact phone
  - Personal and family medical history

- **Maternal and Child Health Workflows**
  - Antenatal & Postnatal visits
    - Visit from various time points captured
    - ANC syphilis
  - Birth Summaries
    - Birth weights
    - Still births
    - Abortion
    - Neonatal complications e.g. sepsis, tetanus, jaundice
  - Nutrition
    - Weights of children (0 to 59 months)
    - Vitamin A use
    - CMAM admissions

- Family Planning
  - Contraception- oral, injections, devices
  - Condom
  - Sterilization
- Immunization
  - OPV, Hep B, BCG, Penta, DPT, PCV, DPT, OBV, Measles, Yellow fever, Conjugate A
- Labor and delivery
  - Normal, assisted, C-section and deliveries with complications
  - Deliveries from HIV positive mothers
- Mortality
  - Including deliveries with complications
- PMTCT Sections
  - HIV counseling, testing
  - ART eligibility

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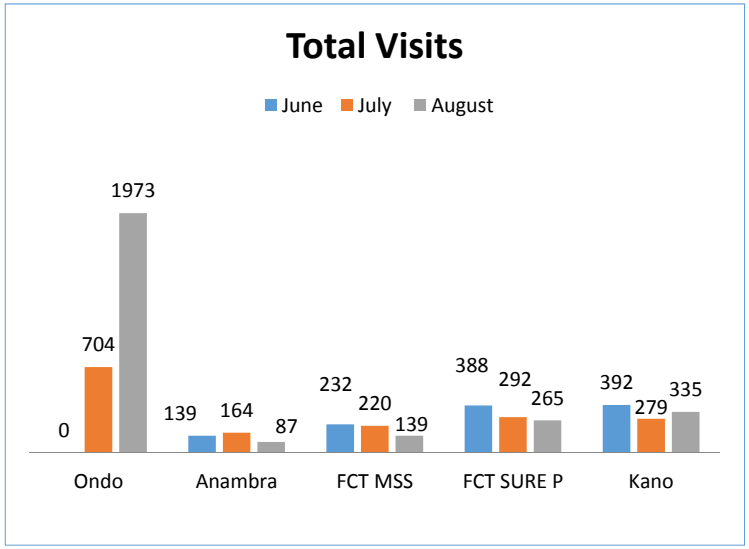
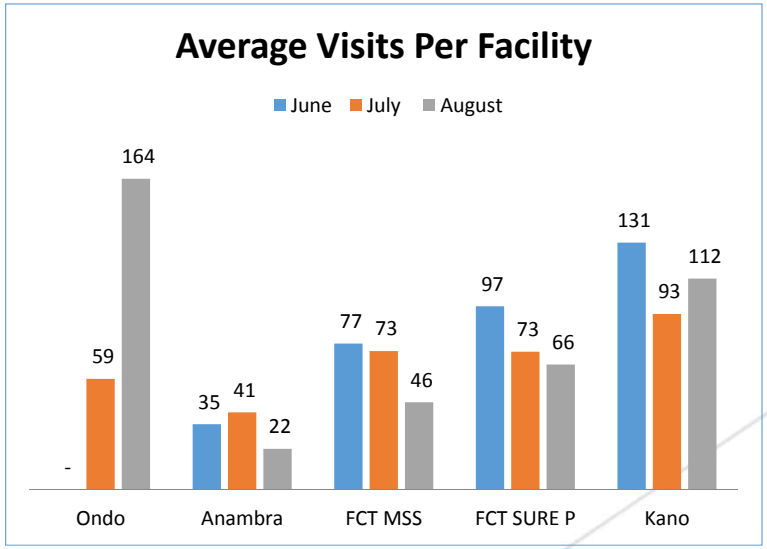
DECISION MAKING: CliniPAK REPORTING & ANALYSIS

- CliniPAK currently generates all NHMIS data
  - Available on demand or via monthly reports
- Data feeds periodic analysis that have yielded important insights
- Examples are provided below





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CliniPAK VERSATILITY

CliniPAKs have been used for the following purposes:

- FLHW two way communication
- Maternal and Child Health Screenings
- Maternal Death Review and Notification
- Ebola Health Worker Education and Clinical Management
  - Video based training planned
- “Mysterious Disease” Outbreak in Ondo State

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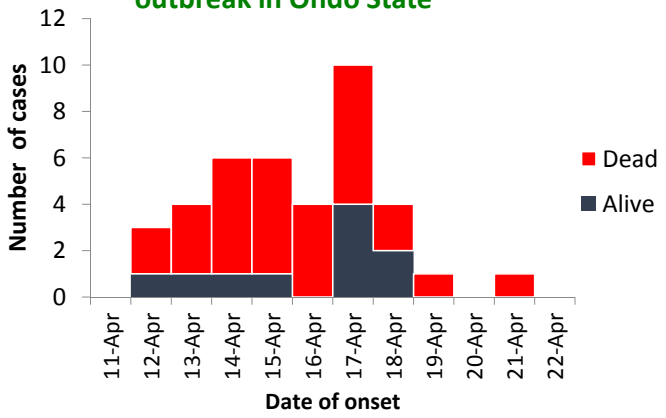
CASE STUDY: CliniPAK disease surveillance identified "Acute Methanol Poisoning" as the cause of recent "Mysterious" Disease outbreak in Ondo State, Nigeria

- InStrat contacted on April 16 to provide electronic disease surveillance support
  - Developed and deployed electronic data capture tools on CliniPAK tablet computers within 24 hours
  - Results obtained within 36 hours (in real time)
- During the period of the investigation, there were a total of 39 confirmed and suspected cases, with 29 deaths as shown in the epicurve below giving a case fatality ratio of 74.4%.

Epi-curve of the methanol poisoning outbreak in Ondo State



Frequency distribution of symptoms of methanol poisoning

Symptoms	Frequency	Percent (%)
Blurring of vision	28	82.3
Blindness	29	82.9
Fever	6	19.4
Headache	17	54.8
Vomiting	6	19.4
Respiratory distress	13	41.9
Seizures	2	6.5
Unconsciousness	7	22.6

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LESSONS LEARNT

- Transitioning to digital health presents a mixed grill of experiences viz:
  - Wide disparities exist in FLHW skills and capacity
  - Capacity assessment and building for proficiency & competencies standardization being implemented
- FLHW adoption is impressive
- Inexistence of device pilferage suggest the viability of this device based mhealth interventions
- Lopsided Mobile broadband penetration across the country requires multiple MNO engagement.
- Rural energy inadequacy requires alternate source of electricity supply.

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NEXT STEPS

- Conclude Integration & Data exchange with DHIS2
- Conduct Project Review and Assessment
- Document Findings and Implement Recommendations
- Scale-up implementation
- Repeat & sustain training of FLHW

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Questions?

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