Challenges of generating Quality Analytical Data to support Regulatory Approvals In Africa

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Drug Lifecycle Control in Subsaharan Africa
Workshop, 29 August - 3 September 2022, Arusha, Tanzania

Presentation outline

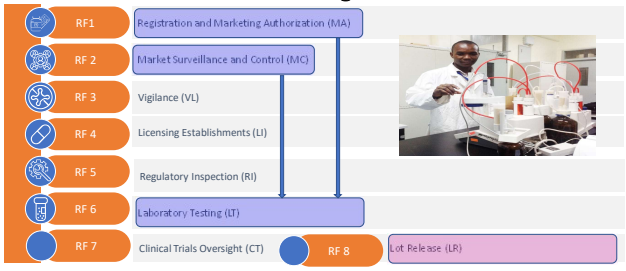
- African Pharma Industry and Marketing authorization
- Medicine Regulation Functions
- Medicine Dossier and Data generation
  - Formulation Development
  - Stability studies
  - Bioequivalent studies
- Testing Infrastructure Challenges
- Concluding remarks

African Pharma Industry and Marketing authorization

- **Pharma industry**
  - **All Tanzania**
  - **Majority of the African continent's**
  - **Discovery (R&D) Industry is at infantry**
- For marketing authorisation
  - Medicine Product Dossier must be file

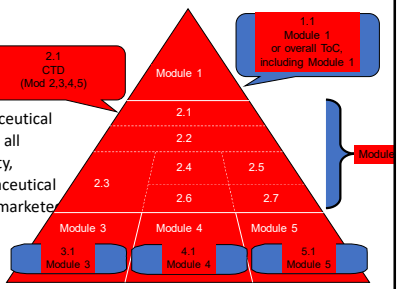
GENERIC

Medicine regulation



Medicine Product Dossier

- Registration Dossier" of the pharmaceutical product is a document that contains all technical data (administrative, quality, nonclinical, and clinical) of a pharmaceutical product to be approved/registered/marketed in a country



CTD Content compilation Requires Laboratory Test Data

Module 3	
3.1	MODULE 3 TABLE OF CONTENTS
3.2	BODY OF DATA
3.2.S	DRUG SUBSTANCE
3.2.S.1	General Information
3.2.S.2	Manufacture
3.2.S.3	Characterisation
3.2.S.4	Control of Drug Substance
3.2.S.5	Reference Standards or Materials
3.2.S.6	Container Closure System
3.2.S.7	Stability
3.2.P	DRUG PRODUCT
3.2.P.1	Description and Composition of the Drug Product
3.2.P.2	Pharmaceutical Development
3.2.P.3	Manufacture
3.2.P.4	Control of Excipients
3.2.P.5	Control of Drug Product
3.2.P.6	Reference Standards or Materials
3.2.P.7	Container Closure System
3.2.P.8	Stability

Module 5	
5.1	MODULE 5 TABLE OF CONTENTS
5.2	TABULAR LISTINGS OF ALL CLINICAL STUDIES
5.3	CLINICAL STUDY REPORTS
5.3.1	Reports of Biopharmaceutic Studies
5.3.2	Reports of Studies Pertinent to Pharmacokinetics using Human Biomaterials
5.3.3	Reports of Human Pharmacokinetic (PK) Studies
5.3.4	Reports of Human Pharmacodynamic (PD) Studies
5.3.5	Reports of Efficacy and Safety Studies
5.3.6	Reports of Post-Marketing Experience
5.3.7	Case Report Forms and Individual Patient Listings
5.4	LITERATURE REFERENCES

Data Quality GENERATION

- Domestic manufacturers lack a Formulation R&D Facility to conduct formulation trials.

- Pre formulation studies
- Formulation development trials
- Optimization > Design of Experiments (DoE)

Test Results

Lab Scale trials 0-5 kg → Upscaling Intermediate Scale trials Up to 50 kg → Transfer to industrial scale 500+ kg

Data Quality GENERATION Challenges

- Many domestic manufactures
  - Lack of formulation development infrastructure
  - No systematic formulation development
  - Inadequate Testing infrastructure
  - Copy & Paste
- Insufficient data to support regulatory appr
  - 3.2.S.1-3.2.S.7
  - 3.2.P.1-3.2.P.7

Weak dossier submission

Data Quality GENERATION Challenges

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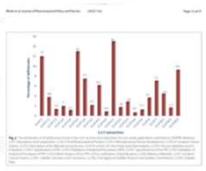


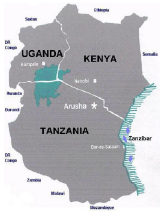
Weak dossier submission

Challenges associated Bioequivalence testing

Selected results from a study commissioned by BMGF in 2020

Total number of medicines registered in each country is presented

Tanzania/50		Uganda/, 52
14	Antibiotics	26
20	Cardiovascular	13
09	Antidiabetics	03
07	Antimalarials	02
00	ARVS/Antituberculosis	08



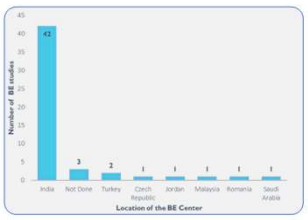
WHO ARE THE PROVIDERS, AND WHAT ARE THE COSTS?

Identified BE Centers

- 20 BE Centers/CROs conducted studies for products registered in TZ/UG

BE Centers Location

- Majority of studies were conducted in India



WHO ARE THE PROVIDERS AND WHAT ARE THE COSTS?

- Six (6) BE Centers/CROs responded

Cost per product

- Response for 11 products tested
- Mostly antibiotic, cardiovascular and ARV tablets

	Source of costs (USD)		
	Ave. Indian Centre	RBEC-Addis Ababa	FARMOVS -SA
Average	27,449	49,375	161,795
Minimum	15,240	45,000	107,594
Maximum	80,000	65,000	287,545

- Centers are accredited/certified various bodies
- ISO and National bodies

WHAT ARE THE ATTRIBUTES OF BE COSTS?

BE cost is attributed by
- Non Clinical Component Basics
- Clinical Components

Distribution of Cost within the components
- Non Clinical Component Basics 65%
- Clinical Components 35%

The is a significant difference Average charges between Indian and African BE CROs
- African CROs charge 2- 6 X HIGHER

CHALLENGES OF GENERATING QUALITY ANALYTICAL DATA TO SUPPORT REGULATORY APPROVAL IN AFRICA

- **Regulatory Approval requires meaningful analytical data for sound decisions.**
- **However, the generation of analytical quality data in Africa is a challenge due discussed**
  - Inadequate R&D infrastructures
  - Financial investments
  - Inadequate number of qualified and skilled personnel
    - Skills mix

CHALLENGES OF GENERATING QUALITY ANALYTICAL DATA TO SUPPORT REGULATORY APPROVAL IN AFRICA

The implementation of PMPA, UNIDO and the African Union Commission jointly produced the 2012 PMPA Business Plan (BP) identified

- Access to finance
- (Small) size of local markets/ (lack of) economies of scale
- Unavailability of appropriately skilled staff and training institutions
- Poor implementation of Good Manufacturing Practices/ quality control standards
- Cost of product development, and
- Underdeveloped supporting industries

ESSENTIAL COMPONENTS FOR IMPROVEMENT OF GENERATION OF QUALITY DATA IN AFRICA

For Africa to improve/ensure the generation of quality analytical data to support regulatory approval, the following considerations have to be done;

- Infrastructure investment
- Analytical instrument qualification and calibration
- Analytical method validation
- Investment in quality health care facilities and services

Danke schön!
Thank you
Asante sana