

Good Manufacturing Practices Assessments

Accra, Ghana

July 16-20, 2012

Trip Report

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Promoting the Quality of Medicines

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PROMOTING THE QUALITY OF MEDICINES

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Executive Summary

PQM staff traveled to Accra, Ghana to visit LaGray Chemical Company (LCC), M&G Pharmaceuticals (MGP), and Phyto-Riker Pharmaceuticals (PRP) and assess the companies' implementation of current Good Manufacturing Practices (cGMP) in manufacturing zinc sulfate tablets.

This assessment was performed using the World Health Organization (WHO) inspection procedures approach for auditing the manufacture of pharmaceuticals. The assessment revealed that LCC has the systems in place as well as the capabilities, facilities, infrastructure, knowledge, and skills necessary to manufacture zinc finished pharmaceutical products (FPP) compliant with cGMP. MGP and PRP are capable of coming into compliance with cGMPs within two years with proper guidance, technical assistance, and commitment from management to improve their facilities and utilities. All the non-compliances and opportunities for improvement observed during the assessments are listed in confidential reports given to each respective manufacturer.

In addition to the assessments, PQM held meetings with the Ghana Food and Drug Board, to brief them on PQM activities, and with Amponsah-Efah Pharmaceutical Ltd. (AEP) to discuss the technical assistance that PQM can offer the firm in the development of zinc sulfate formulations.

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About PQM

The Promoting the Quality of Medicines (PQM) program, funded by the U.S. Agency for International Development (USAID), is the successor of the Drug Quality and Information (DQI) program implemented by the United States Pharmacopeia (USP). PQM is USAID’s response to the growing challenge posed by the proliferation of counterfeit and substandard medicines. By providing technical assistance to developing countries, PQM helps build local capacity in medicine quality assurance systems, increase the supply of quality medicines to priority USAID health programs, and ensure the quality and safety of medicines globally. This document does not necessarily represent the views or opinions of USAID or the United States Government. It may be reproduced if credit is given to PQM and USP.

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- Mr. Gopal C. Vasu, Director, M&G Pharmaceutical
- Mr. Jervis Danquah, Acting. Executive Officer, Phyto-Riker Pharmaceuticals
- Mr. Daniel Offeh-Gymah, Technical Coordination Manager, Amponsah-Efah Pharmaceuticals
- Mr. Anthony Boni, Dr. Maria Miralles, and Ms. Malia Boggs at USAID in Washington, D.C.
- PQM administrative staff and editors

ACRONYMS

AEP	Amponsah-Efah Pharmaceutical
CAPA	Corrective and Preventive Action
DQI	Drug Quality and Information Program
EOI	Expression of Interest
FDB	Food and Drug Board
FPP	Finish Pharmaceutical Product
GMP	Good Manufacturing Practices
LCC	LaGray Chemical Company
MCH	Maternal and Child Health
MGP	M&G Pharmaceuticals
PQ	Prequalification
PQM	Promoting the Quality of Medicines Program
PRP	Phyto-Riker Pharmaceuticals
SHOPS	Strengthening Health Outcomes through the Private Sector
TA	Technical Assistance
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USP	United States Pharmacopeia
WHO	World Health Organization

Background

Since 2004, the Promoting the Quality of Medicines (PQM) program, and its predecessor, the Drug Quality and Information (DQI) program, have been involved in the efforts of the World Health Organization (WHO), United Nations Children’s Fund (UNICEF), and United States Agency for International Development (USAID) to roll out zinc products as oral rehydration salt supplements in the management of children’s diarrhea, especially for those under the age of five.

To support national and global efforts to increase access to and the affordability of management of acute diarrhea in children, the Ghana Food and Drug Board (FDB)—together with USAID, PQM, and the Strengthening Health Outcomes through the Private Sector (SHOPS) project—issued a request for Expressions of Interest (EOIs) in March 2012 to local manufacturers of pediatric zinc treatment products. The request for EOIs involved inspecting the companies’ manufacturing sites to assess their compliance with current Good Manufacturing Practices (cGMP).

Four manufactures (Phyto-Riker Pharmaceuticals, M&G Pharmaceuticals, Effah-Amponsah Pharmaceuticals, and LaGray Chemical Company) submitted EOIs.

Purpose of Trip

PQM staff traveled to Ghana to:

- Conduct GMP assessments of zinc sulfate manufacturing activities at LaGray Chemical Company (LCC), M&G Pharmaceuticals (MGP), and Phyto-Riker Pharmaceuticals (PRP) and provide technical assistance on cGMP compliance
- Meet with Amponsah-Efah Pharmaceutical (AEP) to discuss future collaboration for zinc sulfate products to be developed for local procurement
- Brief Ghana Food and Drug Board on PQM activities

Source of Funding

This trip was funded by USAID through Core Maternal and Child Health (MCH).

Overview of Activities

The following summarizes the assessments conducted by PQM of LaGray, M&G, and Phyto-Riker pharmaceutical manufacturing facilities. The assessments were conducted to determine the firms’ capabilities and future potential in terms of compliance with cGMP.

Item	Description
Institution Evaluated	M&G Pharmaceuticals (MGP)
Date	July 16-17, 2012
Specific Objectives	Assess overall compliance with cGMP standards in the manufacturing activities of zinc sulfate tablets.
Auditors/ Evaluators	Edwin Toledo, Jenny Derry
Key Personnel	<ul style="list-style-type: none">• Mr. Gopal C. Vasu, Director• Mr. Navnit Varia, Director
Agenda	See <i>Annex 1</i> for a detailed audit agenda

Areas Evaluated	Utilities, manufacturing areas, warehouse, and quality control and microbiology laboratories
Key Findings	PQM presented the findings of the visit on the final day to key MGP personnel. A complete confidential report of the visit observations, findings, and recommendations will be sent to the company separately.
Conclusion	Based on the areas inspected, MGP needs to improve the required systems to comply with general cGMP requirements for manufacturing zinc tablets, including facilities and utilities upgrades.
Next Steps	<ul style="list-style-type: none"> • PQM will draft a Corrective and Preventive Action Plan (CAPA) • MGP will address PQM findings

Item	Description
Institution Evaluated	Phyto-Ryker Pharmaceuticals (PRP)
Date	July 18, 2012
Specific Objectives	Assess overall compliance with cGMP standards in the manufacturing activities of zinc sulfate tablets.
Auditors/ Evaluators	Edwin Toledo, Jenny Derry
Key Personnel	<ul style="list-style-type: none"> • Jervis Danquah, CEO • Mr. Reynolds Sarkodie, Head of Finance and Administration • Mrs. Nana Adjoa Turson, G.M., Product Development and Regulatory Affairs • Mrs. Caroline Asante, G.M., Production • Mr. H.Q. Nunoo, VP, Quality Assurance
Agenda	See <i>Annex 1</i> for a detailed audit agenda
Areas Evaluated	Utilities, manufacturing areas, warehouse, and quality control and microbiology laboratories
Key Findings	<ul style="list-style-type: none"> • PRP's zinc sulfate tablet manufacturing processes are in the early stages of development and will be completed in the next 9-12 months • PQM presented the findings of the visit on the final day to key PRP personnel. A complete confidential report of the visit observations, findings, and recommendations will be sent to the company separately.
Conclusion	Based on the areas inspected, Phyto-Ryker needs to finish product development activities for zinc sulfate tablets and improve their systems to comply with cGMP requirements for manufacturing zinc tablets, including facilities and utilities.
Next Steps	<ul style="list-style-type: none"> • PRP will finish zinc sulfate tablet product development activities • PQM will draft a CAPA plan • PRP will address PQM findings

Item	Description
Institution	LaGray Chemical Company (LCC)

Evaluated	
Date	July 19-20, 2012
Specific Objectives	Assess overall compliance with cGMP standards in the manufacturing activities of zinc sulfate tablets.
Auditors/ Evaluators	Edwin Toledo, Jenny Derry
Key Personnel	<ul style="list-style-type: none"> • Dr. Paul A. Lartey CEO • Mr. Satish Deshmukh, Director, Technical Operations
Agenda	See <i>Annex I</i> for a detailed audit agenda
Areas Evaluated	Utilities, manufacturing areas, warehouse, and quality control and microbiology laboratories
Key Findings	PQM presented the findings of the visit on the final day to key LCC personnel. A complete confidential report of the visit observations, findings, and recommendations will be sent to the company separately.
Conclusion	Based on the areas inspected, LCC has the systems in place as well as the capabilities, facilities, infrastructure, knowledge, and skills necessary to manufacture zinc finished pharmaceutical products (FPP) compliant with WHO cGMP, after their zinc sulfate product is approved by the local regulatory agency (FDB) and granted a license.
Next Steps	<ul style="list-style-type: none"> • PQM will draft a CAPA plan for LCC • LCC will address PQM findings

Wednesday, July 18, 2012

Meeting with the Ghana Food and Drug Board (FDB)

Mr. Edwin Toledo, Ms. Jenny Derry, and the PQM local consultant, Mr. Kwasi Poku Boateng, visited the FDB and met with Mrs. Akua Owusua Armartey, Acting Deputy Chief Executive (Drugs), to brief her on the PQM team's activities in Ghana regarding manufacturer GMP assessments. Mrs. Armartey was pleased that PQM is helping to ensure that quality zinc products can be manufactured and procured in Ghana.

Friday, July 20, 2012

Meeting with Amponsah-Efah Pharmaceuticals (AEP)

Mr. Toledo met with Mr. Daniel Offeh-Gymah, Technical Coordination Manager, to discuss PQM's technical assistance for zinc sulfate tablet development and manufacturing in support of the Strengthening Health Outcomes through the Private Sector (SHOPS) project in Ghana.

AEP will be building a new facility during the next year and, thereafter, is interested in receiving technical assistance from PQM.

Conclusion

The baseline GMP assessments at LaGray Chemical Company, M&G Pharmaceuticals, and Phyto-Riker Pharmaceuticals were successful in identifying areas regarding cGMP compliance that the individual companies can improve upon. PQM can provide technical support to the companies to assist them in fully complying with cGMP.

Agenda

Time	Activity
Day 1	
09:30 AM	<u>Opening meeting with key personnel</u> <ul style="list-style-type: none"> • Introductions of all personnel • Manufacturer Presentation • Confirmation of proposed audit plan/schedule
10:30 AM	Tour of Utilities, Warehouse and Manufacturing area
12:00 PM	Lunch Break
1:00 PM	Tour of Utilities, Warehouse
2:15 PM	Tour Manufacturing Area
	<u>Quality Management System review:</u> <ul style="list-style-type: none"> • Personnel Policies: Organization charts, Job descriptions, Training, Health and Hygiene. • List of products/Production planning/Batch numbering system and batch register. • SOP and document preparation, review and control. • List of SOPs/SOP Index. • Deviations/Change control/OOS + related SOP • Reprocessing/Reworking policy + SOPs • Finished product release procedure • Self inspection (SOP, Plans, reports) • Complaints handling system • Product recall system • Product Master Files, production flow diagrams & specifications
Day 2	
9:30 AM	Review of Plant Layout and Utilities (HVAC, Dust control, Water Purification and Compressed air systems): <ul style="list-style-type: none"> • Block layout, area classification, AHU distribution and material and personnel flow HVAC and Dust Control system: <ul style="list-style-type: none"> • Qualification/Requalification/Monitoring the HVAC + Dust Control System • Inspection of the HVAC + Dust extraction technical area Water purification system: <ul style="list-style-type: none"> • PW system drawings and summary of specifications and capacities • Qualification/Requalification/Monitoring the PW system (Sampling and trend analysis) • Inspection of Water Generation and Purification System installations Compressed air system <ul style="list-style-type: none"> • Qualification/Requalification/Monitoring the Compressed Air

Time	Activity
	<p>systems</p> <p>Equipment qualification and preventive maintenance:</p> <ul style="list-style-type: none"> • Equipment qualification/Requalification (DQ, IQ, OQ and PQ for major equipment) • Calibration • Preventive maintenance schedules and records <p>Validation</p> <ul style="list-style-type: none"> • Validation Master Plan (including status and planned) • Process validation and revalidation for the product in focus • Cleaning validation <p>Review of BMRs</p> <ul style="list-style-type: none"> • SOP on batch review and batch release • Review of BMRs for selected batches
12:00 PM	Lunch break
1:00 PM	Discussion
4:00 PM	Summary of observations for the day and Closing meeting with company representatives