



Mycetoma Research Centre

University of Khartoum

WHO Collaborating Center on

Mycetoma & Skin NTDs



Mycetoma Good Clinical Pharmacy Practice Guidelines 2024





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Mycetoma Good Clinical Pharmacy Practice Guidelines

1. Background

Mycetoma: an overview

Mycetoma, a chronic and frequently neglected condition, manifests as a debilitating granulomatous inflammatory granuloma that spreads to the skin, deep tissues and bone. Primarily affecting individuals residing in economically disadvantaged and geographically isolated communities, it particularly burdens those already struggling with poverty. The majority of afflicted individuals belong to socioeconomically disadvantaged groups with limited access to healthcare and educational resources.

Consequently, affected individuals tend to delay seeking medical attention until the disease has progressed significantly, exacerbating their condition. Moreover, due to financial constraints, they find it challenging to access the limited treatment options available, which are both costly and accompanied by potentially severe side effects. These treatments require prolonged administration for an effective cure, further compounding the financial burden on patients.

The demanding nature of the treatment, coupled with its associated expenses and adverse effects, often results in poor patient compliance and frequent discontinuation of follow-up appointments. As a consequence, the overall efficacy of treatment regimens diminishes, leading to suboptimal outcomes for patients.

Therefore, affected patients and their families require specialised care and management to alleviate the effects of the disease and its treatment consequences. Good clinical pharmacy practices play a crucial role in addressing these needs.



The Mycetoma Clinic

in 1991, the Mycetoma Outpatient Clinic was established with the primary goal of providing exceptional medical and health care and services to mycetoma patients. The clinic's dedicated team comprises well-trained clinicians, pathologists, radiologists, nurses, and social workers, ensuring comprehensive and specialised care. Currently, the clinic boasts a registration of approximately 11,000 patients hailing from both Sudan and overseas, all of whom receive regular and attentive care.

The clinic operates every Monday morning, offering a structured approach to patient care. During these sessions, patients undergo routine check-ups and necessary investigations and receive treatment, all provided free of charge. This commitment to affordability aims to ensure that financial constraints do not hinder patients from accessing essential medical services.

The Mycetoma Clinic Shared Goals

- Maintenance of the highest standards of patient management.
- Standardisation of the diagnostic tools.
- Standardisation of the treatment of patients.
- Maintenance of patients follow-up.
- Establishment of the teamwork approach for management.



2. The Guidelines Justifications

The establishment of guidelines for good mycetoma pharmacy practice will contribute to improved patient care, treatment adherence, and treatment outcomes, ultimately enhancing the quality of life for individuals affected by this challenging condition.

2.1 Standardisation

By outlining clear guidelines, we aim to standardise pharmacy practices related to mycetoma treatment. This will help ensure consistency and quality across different healthcare settings.

2.2 Optimal Patient Care

The guidelines will prioritise patient-centred care by providing clinical pharmacists with objective training on medication management, dosage regimens, and monitoring parameters specific to mycetoma treatment. This will help pharmacists tailor their services to meet the unique needs of mycetoma patients, ultimately improving overall patient care and well-being.

2.3 Treatment Adherence

Poor adherence to mycetoma treatment regimens can lead to treatment failure and disease progression. The guidelines will include strategies for promoting treatment adherence, such as patient education, counselling, and monitoring. By emphasising the importance of adherence and providing tools to support it, the guidelines aim to improve treatment outcomes and reduce the risk of relapse.

2.4 Safety and Efficacy

Mycetoma treatments can be complex and may have significant side effects. The guidelines will ensure that pharmacists are equipped with the knowledge and resources needed to assess treatment safety and efficacy, including monitoring for adverse reactions and drug interactions. This will help minimise the risk of harm to patients and maximise the benefits of treatment.

2.5 Collaboration and Communication

Effective management of mycetoma requires collaboration among healthcare providers, including pharmacists. The guidelines will encourage interdisciplinary communication and collaboration to ensure seamless care coordination and optimise treatment outcomes for patients.



3. The Strategies, Principles and Process of Good Practice

3.1 Patient Education

Clinical pharmacists should empower patients to take an active role in managing their condition and promoting their overall health and well-being by providing comprehensive education on mycetoma, including its causes, symptoms, treatment options, and preventive measures.

3.2 Causes and Risk Factors

Pharmacists should educate patients about the causes of mycetoma, emphasising that it is a chronic fungal or bacterial infection that typically affects the skin, subcutaneous tissues, and bones. Patients should be informed about the risk factors associated with mycetoma, such as walking barefoot in contaminated soil or sustaining injuries that lead to infection.

3.3 Symptoms Recognition

Patients should be educated about the common symptoms of mycetoma, including painless swelling, discharging sinuses, and skin changes. Pharmacists can provide visual aids or informational materials to help patients recognise the signs and symptoms of mycetoma.

3.4 Treatment Options

Pharmacists should explain the various treatment options available for mycetoma, including antifungal or antibiotic medications, surgical intervention, and adjunctive therapies. Patients should be informed about the goals of treatment, which may include reducing symptoms, preventing disease progression, and improving overall quality of life.

3.5 Importance of Adherence

Pharmacists should stress the importance of adherence to prescribed medications for the successful management of mycetoma. Patients should understand that consistent use of medications as directed by their healthcare provider is essential for achieving optimal treatment outcomes and preventing disease recurrence.

3.6 Potential Side Effects

Patients should be educated about the potential side effects associated with mycetoma medications, such as gastrointestinal upset, allergic reactions, or hepatotoxicity. Pharmacists should provide guidance on how to recognise and manage common side effects, as well as when to seek medical attention if adverse reactions occur.

3.7 Duration of Treatment

Patients should be informed about the expected duration of treatment for mycetoma, which may vary depending on the severity of the infection and the chosen treatment approach. Pharmacists should emphasise the importance of completing the full course of treatment, even if symptoms improve or resolve before the prescribed duration.

3.8 Preventive Measures

Pharmacists should educate patients about preventive measures to reduce the risk of mycetoma, such as wearing protective footwear in contaminated environments, practicing good wound care, and avoiding contact with infected materials. Patients should be encouraged to maintain good hygiene practices and seek prompt medical attention for any wounds or injuries that could potentially lead to infection.



4. Medication Management

By effectively managing medications for mycetoma, pharmacists contribute to the safe and optimal treatment of patients, promoting positive outcomes and improving the overall quality of care. This includes the following:

4.1 Inventory Management

Pharmacists play a crucial role in ensuring the availability of all necessary medications for the treatment of mycetoma within their pharmacy through the following:

- Maintaining adequate stock levels of antifungal or antibiotic medications, surgical supplies, wound dressings, and other relevant products to meet patient needs.
- Regular monitoring of inventory levels and timely replenishment of stock to prevent medication shortages and ensure continuity of care for patients with mycetoma.
- Shelves should be checked periodically to ensure the removal of products whose expiry date is approaching.
- The near-expired products should be stored separately and disposed of according to Standard Operating Procedures (SOP).
- Products which have already expired should be stored separately on a locked shelf, with the label “Expired Products”, and disposed of according to SOP.

4.2 Storage Conditions

Proper storage conditions must be maintained to preserve the efficacy and stability of medications used in the treatment of mycetoma through the following:

- Pharmacists should store medications according to manufacturer guidelines, including temperature and humidity requirements, to prevent degradation and maintain potency.
- Medications should be stored in designated areas away from direct sunlight, moisture, and extreme temperatures to minimise the risk of deterioration, according to SOP.

4.3 Prescription Verification

Pharmacists are responsible for verifying the accuracy of prescriptions for mycetoma medications before dispensing them to patients. Upon receiving the prescription, the pharmacist should:

- Carefully review each prescription to ensure that the correct medication, dosage, and frequency are prescribed in accordance with clinical guidelines and patient-specific factors.
- Verify patient information, including allergies, concurrent medications, contraindications, and any relevant medical history, to prevent medication errors and adverse drug interactions.

4.4 Dosage Calculation and Dispensing

Upon receiving the prescription, the pharmacist should:

- Accurately calculate medication dosages based on patient weight, age, renal function, and other relevant factors.
- Use appropriate pharmaceutical calculations and dosage forms to prepare medications for dispensing, ensuring consistency and precision in dose administration.
- Employ proper labelling techniques to clearly indicate dosage instructions, cautionary statements, and expiration dates on medication containers to promote safe and effective use by patients.

4.5 Patient Counseling

Pharmacists should provide thorough counseling to patients receiving medications for mycetoma. The patient should be explained:

- How to take the medications.
- For how long.
- When to take the medications and whether to take them before, during or after meals, etc
- What foods/beverages/tasks should be avoided during the therapy
- What side effects should be expected, and how should they be managed?
- What to do if one or more doses get skipped.

Also, the pharmacists should:

- Provide written or verbal instructions, medication guides, and other educational materials to supplement patient counselling and reinforce key concepts regarding medication management for mycetoma.
- Encourage patients to ask questions and seek clarification about their medications to ensure understanding and adherence to the prescribed treatment regimen.

4.6 Medication reconciliation

Medication reconciliation is a formal process intended to prevent medication errors and medicines-related problems at transition points in patient care. It is an essential element of medication management. The purpose of medication reconciliation for mycetoma management is to:

- ensure mycetoma patients receive all intended medicines
- avoid errors of transcription, omission, duplication of therapy, and drug-drug and drug-disease interactions

The clinical pharmacist must apply the process of medication reconciliation, which involves:

- obtaining and documenting the best possible medication history
- confirming the accuracy of the medication history
- comparing the medication history with the prescribed medicines and follow-up discrepancies
- supplying verified information for ongoing care



5. Counseling and Support

Clinical pharmacists can contribute to improved treatment outcomes, enhanced patient satisfaction, and overall well-being. Their compassionate and patient-centred approach helps empower individuals to actively participate in their care and navigate the challenges of living with a chronic condition more effectively.

5.1 Patient-Centered Care

Pharmacists should adopt a patient-centered approach when providing counseling and support to individuals undergoing treatment for mycetoma. They should create a welcoming and supportive environment where patients feel comfortable discussing their concerns, questions, and treatment experiences openly.

5.2 Addressing Concerns and Questions

Pharmacists should actively listen to patients' concerns and questions regarding their mycetoma treatment, acknowledging their perspectives and providing accurate, evidence-based information to address any uncertainties. Patients should be encouraged to express their thoughts and feelings about their condition and treatment plan, fostering open communication and collaboration between the pharmacist and the patient.

5.3 Education and Empowerment

Pharmacists play a critical role in educating patients about their mycetoma treatment, including medication usage, potential side effects, and self-care strategies. They should empower patients to take an active role in managing their health by providing them with the knowledge and resources needed to make informed decisions about their treatment.



5.4 Monitoring and Reporting

Pharmacists should educate patients about the importance of monitoring their symptoms and reporting any adverse reactions or changes in their condition to their healthcare provider promptly. Patients should be informed about specific signs and symptoms to watch for, as well as the appropriate course of action to take if they experience any unexpected or concerning symptoms during treatment.

5.5 Emotional Support

Pharmacists should offer emotional support to patients coping with the physical and emotional challenges associated with mycetoma. They should demonstrate empathy, compassion, and sensitivity when interacting with patients, recognising the impact that living with a chronic condition can have on their overall well-being.

5.6 Referral to Support Services

Pharmacists should be prepared to refer patients to additional support services or resources as needed, such as support groups, counseling services, or patient advocacy organisations. Patients should be made aware of available support networks and encouraged to seek additional assistance if they require further emotional or practical support beyond the pharmacy setting.

5.7 Follow-Up and Continuity of Care

Pharmacists should follow up with patients regularly to assess their progress, address any ongoing concerns or questions, and provide ongoing support throughout treatment. They should collaborate with other members of the healthcare team to ensure continuity of care and facilitate a coordinated approach to patient management.



6. Collaboration with Healthcare Providers

Pharmacists should foster collaboration with healthcare providers involved in the care of mycetoma patients to enhance the quality of care, improve treatment outcomes, and promote patient-centered care delivery. Through regular communication, shared decision-making, and coordinated care planning, the healthcare team can work together effectively to address the complex needs of patients with mycetoma and optimise their overall health and well-being. These include:

6.1 Interdisciplinary Team Approach

Pharmacists should engage in collaborative efforts with a diverse team of healthcare providers involved in the care of mycetoma patients, including physicians, nurses, specialists, and other allied healthcare professionals. Recognising that mycetoma management often requires a multidisciplinary approach, pharmacists should actively contribute their expertise to the healthcare team, working together to address the unique needs of each patient.

6.2 Communication and Information Sharing

Regular and open communication among healthcare team members is paramount for optimising patient outcomes in mycetoma care. Pharmacists should establish channels for efficient communication, such as regular team meetings, electronic health record systems, or secure messaging platforms, to facilitate the exchange of information and updates regarding patient status, treatment plans, and any changes in therapy.

6.3 Collaborative Care Planning

Pharmacists should actively participate in collaborative care planning sessions with other healthcare providers, contributing their knowledge of pharmacotherapy and medication management to the development of

comprehensive treatment plans for mycetoma patients. By working together to assess patient needs, set treatment goals, and coordinate care delivery, the healthcare team can ensure a cohesive and patient-centered approach to mycetoma management.

6.4 Medication Optimisation

Pharmacists play a crucial role in medication optimisation for mycetoma patients, working collaboratively with clinicians to select the most appropriate medications, adjust dosages, and monitor for potential drug interactions or adverse effects. Through collaborative medication reviews and therapeutic consultations, pharmacists can help optimise medication regimens, improve adherence, and minimise the risk of treatment-related complications.

6.5 Patient Education and Support

Collaborative efforts between pharmacists and other healthcare providers are essential for providing comprehensive patient education and support in mycetoma management. Pharmacists can complement the education provided by physicians and nurses by offering tailored counseling on medication use, side effects, and self-care strategies, helping patients better understand their treatment plan and empowering them to take an active role in their care.

6.6 Shared Decision-Making

Involving patients in shared decision-making processes is a key component of collaborative care in mycetoma management. Pharmacists should collaborate with other healthcare providers to engage patients in discussions about their treatment options, preferences, and goals, ensuring that the patient's values and preferences inform care decisions.



7. Patient Monitoring

By actively monitoring patients' progress, assessing treatment response, and ensuring adherence to prescribed regimens, pharmacists play a vital role in optimising outcomes and promoting the effective management of mycetoma. Regular follow-up appointments and collaborative care planning help to identify and address any issues or challenges that may arise during treatment, ultimately improving patient outcomes and enhancing overall quality of care. These can be achieved through the following activities:

7.1 Ongoing Assessment

Pharmacists play a crucial role in monitoring patients' progress during the course of mycetoma treatment, assessing treatment response, and evaluating medication adherence. Through regular interactions with patients, pharmacists can gather valuable information about symptom improvement, medication side effects, and any challenges or barriers to adherence.

7.2 Treatment Response

Pharmacists should assess patients' response to mycetoma treatment by monitoring changes in symptoms, lesion size, and overall disease progression. Objective measures, such as imaging studies or laboratory tests, may also be utilised to evaluate treatment efficacy and identify any signs of disease recurrence or complications.

7.3 Adherence Assessment

Pharmacists should inquire about patients' adherence to prescribed medication regimens, including dosing frequency, timing, and any instructions for medication administration. Patient-reported adherence should be corroborated with objective measures, such as medication refill records or pill counts, to assess adherence levels and identify potential adherence barriers accurately.

7.4 Patient Education and Counseling

Pharmacists should provide ongoing education and counseling to reinforce the importance of medication adherence and adherence to other aspects of the treatment plan. Patients should be reminded of the rationale behind their treatment regimen, the potential benefits of adherence, and strategies for overcoming adherence challenges.

7.5 Follow-Up Appointments

Regular follow-up appointments should be scheduled to evaluate treatment efficacy, monitor patients' progress, and address any concerns or questions they may have. Pharmacists can collaborate with other healthcare providers to coordinate follow-up care and ensure continuity of monitoring throughout the treatment process.

7.6 Therapy Adjustment

Based on the results of patient monitoring and assessment, pharmacists may recommend adjustments to the treatment plan, including changes in medication dosages, addition of adjunctive therapies, or referral to specialist care. Pharmacists should work collaboratively with prescribers and other members of the healthcare team to implement any necessary therapy adjustments and optimise treatment outcomes.

7.7 Documentation and Communication

Pharmacists should maintain accurate and comprehensive documentation of patient monitoring activities, including assessment findings, adherence assessments, and any interventions or recommendations made. Effective communication with other healthcare providers is essential for sharing relevant information about patient progress, treatment response, and any changes in therapy.



8. Adherence to Regulatory Standards

Pharmacists should adhere to regulatory standards and guidelines to enhance their commitment to patient safety, quality of care, and professional excellence in pharmacy practice. Compliance with established regulations helps to safeguard patient well-being, promote public trust in the pharmacy profession, and contribute to positive healthcare outcomes for all patients.

8.1 Dispensing Procedures

Pharmacists are responsible for ensuring that all medications are dispensed in accordance with established dispensing procedures outlined by regulatory authorities. This includes verifying the accuracy of prescriptions, checking for drug interactions or contraindications, and ensuring the correct medication, dosage, and quantity are dispensed to each patient.

8.2 Record-Keeping

Pharmacists must maintain accurate and up-to-date records of all medications dispensed, patient consultations, and other relevant information. Comprehensive record-keeping is essential for tracking patient medication histories, monitoring for potential drug interactions or adverse effects, and facilitating continuity of care between healthcare providers.

8.3 Medication Labeling

Pharmacists are responsible for ensuring that all medications are properly labeled with essential information, including the patient's name, medication name and strength, dosage instructions, and any relevant warnings or precautions. Clear and accurate medication labeling helps to prevent medication errors, promote patient understanding of their treatment regimen, and enhance medication safety.

8.4 Compliance with Regulatory Requirements

Pharmacists must comply with all relevant regulatory standards and guidelines governing the practice of pharmacy, including those established by government agencies, professional organisations, and accrediting bodies. This may include adherence to laws and regulations related to medication dispensing, controlled substances, patient privacy and pharmacy practice standards.

8.5 Patient Safety and Quality of Care

Compliance with regulatory requirements is essential for ensuring patient safety and the delivery of high-quality care in pharmacy practice. Adherence to established standards helps to minimise the risk of medication errors, adverse drug reactions, and other patient safety concerns, thereby promoting positive treatment outcomes and enhancing overall quality of care.

8.6 Continuing Education and Professional Development

Pharmacists should engage in ongoing education and professional development activities to stay informed about changes in regulatory standards and best practices in pharmacy. This may include participation in continuing education programs, training workshops, and professional conferences to enhance knowledge and skills related to regulatory compliance and patient care.



9. Continuous Professional Development

Engaging in continuous professional development activities will enhance pharmacists' ability to expand their expertise in mycetoma treatment and management, stay updated on advances in the field, and provide high-quality care to patients affected by this condition. Ongoing learning and skill development are essential for pharmacists to adapt to evolving healthcare needs, enhance patient care delivery, and maintain professional competence throughout their careers. These include the following activities:

9.1 Staying Updated on Mycetoma Treatment

Pharmacists should actively seek opportunities to stay updated on the latest developments in mycetoma treatment and management. This may involve staying informed about new medications, treatment guidelines, diagnostic techniques, and research advancements through reputable sources such as medical journals, clinical practice guidelines, and professional organisations.

9.2 Participation in Training Programs

Pharmacists can enhance their knowledge and skills in mycetoma management by participating in relevant training programs and educational courses. These programmes may cover topics such as pharmacotherapy for mycetoma, wound care management, patient counselling, and adherence strategies, providing pharmacists with practical insights and tools to optimise patient care.

9.3 Attendance at Conferences and Seminars

Pharmacists should attend conferences, seminars, and symposiums focused on mycetoma and related areas of healthcare. These events offer opportunities to learn from leading experts, exchange knowledge and experiences with peers, and stay abreast of emerging trends and innovations in mycetoma treatment and management.

9.4 Continuing Education Activities

Pharmacists can satisfy their professional development requirements by participating in continuing education activities related to mycetoma care. This may include completing online courses, webinars, or self-study modules on topics such as fungal infections, antimicrobial therapy, wound management, and patient counselling skills.

9.5 Collaboration with Healthcare Providers

Pharmacists should collaborate with other healthcare providers involved in mycetoma care to exchange knowledge, share best practices, and enhance interdisciplinary teamwork. This collaborative approach allows pharmacists to gain insights into the unique challenges and complexities of mycetoma management and fosters a coordinated approach to patient care.

9.6 Application of Knowledge in Practice

Pharmacists should apply the knowledge and skills gained through continuous professional development activities to their daily practice. This may involve incorporating evidence-based practices, guidelines, and recommendations into medication management, patient counseling, and other aspects of mycetoma care to optimise patient outcomes.



10. Community Engagement

Through proactive involvement within the community, pharmacists can assume a critical role in heightening awareness surrounding mycetoma, nurturing a supportive atmosphere for those impacted by the ailment, and advocating for early detection and suitable treatment. By collaborating with local entities, spearheading educational endeavours, and championing advocacy campaigns, pharmacists can actively participate in alleviating the burden of mycetoma and enhancing the general health and welfare of the community.

10.1 Educational Campaigns

Pharmacists can initiate and participate in educational campaigns aimed at raising awareness about mycetoma within the community. These campaigns may include informational sessions, workshops, and public seminars held at community centers, schools, or healthcare facilities to educate individuals about the causes, symptoms, risk factors, and treatment options for mycetoma.

10.2 Distribution of Educational Materials

Pharmacists can distribute educational materials, such as brochures, pamphlets, and posters, containing information about mycetoma prevention, early detection, and available resources for treatment. These materials can be displayed in pharmacy waiting areas, community bulletin boards, or distributed during health fairs and community events to reach a wider audience.

10.3 Collaboration with Local Organisations

Pharmacists can collaborate with local organisations, non-profit groups, and community health centers to organise joint educational initiatives focused on mycetoma awareness. By partnering with established community organisations,

pharmacists can leverage existing networks and resources to amplify the reach and impact of educational campaigns and outreach efforts.

10.4 Media Engagement

Pharmacists can utilise traditional and digital media platforms to disseminate information about mycetoma to the broader community. This may include writing articles for local newspapers, participating in radio or television interviews, or creating social media posts to raise awareness, share personal stories, and debunk myths surrounding mycetoma.

10.5 Community Workshops and Training

Pharmacists can conduct community workshops and training sessions to educate individuals, healthcare professionals, and community leaders about mycetoma prevention, early detection, and appropriate management strategies. These workshops may include interactive presentations, hands-on demonstrations, and skill-building exercises to empower participants with knowledge and practical skills to address mycetoma-related challenges in their communities.

10.6 Advocacy and Policy Engagement

Pharmacists can engage in advocacy efforts aimed at promoting policy changes and resource allocation to support mycetoma prevention, diagnosis, and treatment initiatives. By advocating for increased funding for research, improved access to healthcare services, and enhanced public health policies, pharmacists can help address systemic barriers and disparities affecting individuals affected by mycetoma.





11. Quality Assurance

By instituting quality assurance protocols, pharmacists can maintain elevated levels of pharmacy practice, guarantee the safety and effectiveness of medications provided for mycetoma treatment, and instill trust in pharmacy services among patients. Consistent surveillance, adherence to exemplary methods, and cooperation with healthcare professionals constitute integral elements of a robust quality assurance framework, which bolsters superior patient care and medication oversight. These can be executed through the following activities:

11.1 Implementation of Standard Operating Procedures (SOPs)

Pharmacists should establish and adhere to standard operating procedures (SOPs) for all aspects of medication management, including prescription processing, dispensing, and medication counselling. SOPs outline standardised processes and protocols to ensure consistency, accuracy, and quality in pharmacy practice, thereby reducing the risk of medication errors and enhancing patient safety.

11.2 Medication Storage and Handling

Pharmacists should ensure proper storage and handling of medications used in mycetoma treatment to preserve their safety, efficacy, and integrity. This includes maintaining appropriate storage conditions, such as temperature and humidity control, and following manufacturer guidelines for storage and expiration dating.

11.3 Quality Control Checks

Pharmacists should conduct regular quality control checks on medications, including visual inspection, verification of expiration dates, and assessment of packaging integrity. Quality control measures help identify any potential issues with medication quality or packaging defects, allowing pharmacists to take corrective action and prevent dispensing errors or medication-related problems.



11.4 Adherence to Best Practices

Pharmacists should adhere to best practices and guidelines established by regulatory authorities, professional organisations, and accrediting bodies. This may include following medication compounding standards, ensuring accurate labeling of medications, and verifying prescription accuracy before dispensing.

11.5 Continuous Monitoring and Evaluation

Pharmacists should implement continuous monitoring and evaluation processes to assess the effectiveness of quality assurance measures and identify areas for improvement. Regular audits, reviews of dispensing practices, and feedback mechanisms from patients and healthcare providers can help pharmacists identify any gaps or deficiencies in quality assurance and take corrective action as needed.

11.6 Staff Training and Development

Pharmacists should provide ongoing training and professional development opportunities for pharmacy staff to ensure competency in quality assurance practices. Training programmes may cover topics such as medication safety, error prevention, and adherence to standard procedures, helping staff members stay updated on best practices and regulatory requirements.

11.7 Collaboration with Healthcare Providers

Pharmacists should collaborate with other healthcare providers involved in mycetoma treatment to ensure coordinated and integrated care. This collaboration may involve sharing information about medication safety concerns, adverse drug reactions, or other quality-related issues to facilitate timely intervention and optimise patient outcomes.



12. Ethical Considerations

Pharmacists must prioritise ethical standards, including respecting patient autonomy, confidentiality, and non-discrimination. Maintaining strict patient confidentiality is crucial, ensuring sensitive information remains private unless consented by the patient. Maintenance of these principles fosters trust, enables patient-centered care, and upholds professionalism in pharmacy practice. Ethical considerations are essential for providing compassionate, effective care to patients with mycetoma and other health conditions.

By adhering to these guidelines, pharmacists can play a crucial role in promoting good mycetoma pharmacy practice and improving patient outcomes. These can be executed through the following:

12.1 Respect for Patient Autonomy

Pharmacists should respect and uphold patients' right to make informed decisions about their healthcare. This includes providing patients with relevant information about their condition, treatment options, and potential risks and benefits, empowering them to make autonomous decisions that align with their values and preferences.

12.2 Confidentiality

Pharmacists have to maintain patient confidentiality and protect sensitive medical information from unauthorised disclosure. Patient confidentiality is essential for fostering trust and preserving the privacy rights of individuals seeking healthcare services. Pharmacists should adhere to legal and ethical guidelines governing the release of patient information and ensure that patient data is handled securely and with the utmost discretion.

12.3 Non-Discrimination

Pharmacists should provide care to all patients without discrimination or prejudice based on factors such as race, ethnicity, religion, gender identity, sexual orientation, or socioeconomic status. Discrimination in healthcare can undermine patient trust, compromise the quality of care, and perpetuate disparities in access to healthcare services. Pharmacists should strive to create a welcoming and inclusive environment where all patients feel respected, valued, and supported in their healthcare needs.

12.4 Informed Consent

Pharmacists should obtain informed consent from patients before initiating any treatment or procedure, ensuring that patients have a clear understanding of the risks, benefits, and alternatives involved. Informed consent requires providing patients with relevant information about the proposed treatment, including potential side effects, expected outcomes, and alternatives, and allowing patients to make voluntary and informed decisions based on this information.

12.5 Professional Boundaries

Pharmacists should maintain professional boundaries and avoid conflicts of interest that may compromise patient care or professional integrity. This includes refraining from engaging in personal or financial relationships with patients that could influence clinical judgment or create perceptions of bias or impropriety.

12.6 Ethical Decision-Making

Pharmacists should engage in ethical decision-making processes when faced with complex or challenging situations that require moral deliberation. Ethical decision-making involves considering the ethical principles at stake, evaluating potential courses of action, and selecting the option that best upholds patient welfare, autonomy, and justice.

12.7 Continuing Ethical Reflection

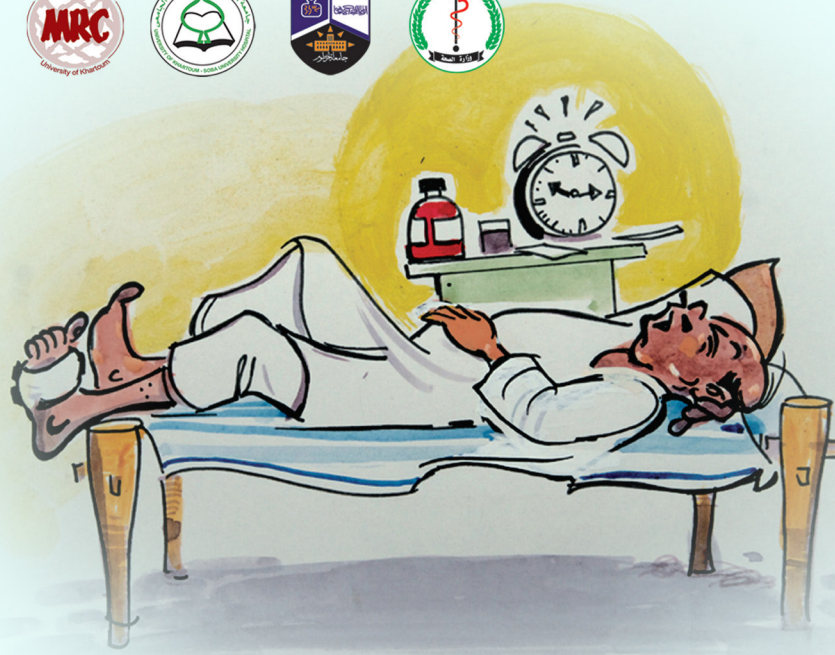
Pharmacists should engage in ongoing ethical reflection and professional development to enhance their ethical competence and navigate ethical dilemmas effectively. This may involve participating in ethics training programs, engaging in case discussions with peers, and seeking guidance from ethics committees or professional organisations when faced with ethical uncertainties.



البرنامج القومي لمكافحة المايستوما Mycetoma National Control Program

عزيزي المواطن

العلاجات البلدية تؤخر الشفاء ولها تأثير سلبي على المريض لهذا نرجو عدم استعمالها.



عزيزي المواطن

قد تطول فترة العلاج وقد يكون مكلفاً وله أعراض جانبية كثيرة ولكن لا بد من ذلك حتى يتحقق الشفاء.
قال صلى الله عليه وسلم: (ما أنزل الله من داء إلا وأنزل له دواء).



13. The Roles of Clinical Pharmacists at The Mycetoma Clinic

Clinical pharmacists play a multifaceted role in the Mycetoma Clinic, contributing to comprehensive patient care, medication management, and research efforts to improve the management of mycetoma and enhance patient outcomes. That can be summarised as follows:

13.1 Medication Management

Clinical pharmacists are responsible for managing medications prescribed to patients with mycetoma. This involves reviewing prescriptions, ensuring appropriate dosing, and monitoring for potential drug interactions or adverse effects.

13.2 Patient Education

Pharmacists play a vital role in educating patients about their medications, including proper usage, potential side effects, and the importance of adherence to treatment regimens. They also guide lifestyle modifications and self-care practices to optimise treatment outcomes.

13.3 Treatment Monitoring

Clinical pharmacists regularly monitor patients' response to treatment, including assessing symptom improvement and monitoring laboratory parameters as necessary. They collaborate with other healthcare providers to adjust treatment plans based on patient's individual responses and needs.

13.4 Adverse Event Management

Pharmacists are trained to identify and manage adverse events associated with mycetoma treatment. They provide timely intervention and support to minimise the impact of adverse effects on patient's health and quality of life.

13.5 Drug Information and Consultation

Pharmacists serve as a valuable resource for healthcare providers and patients, providing up-to-date information on medications, treatment options, and evidence-based practices for managing mycetoma. They offer consultation services to address any questions or concerns regarding medication therapy.

13.6 Research and Quality Improvement

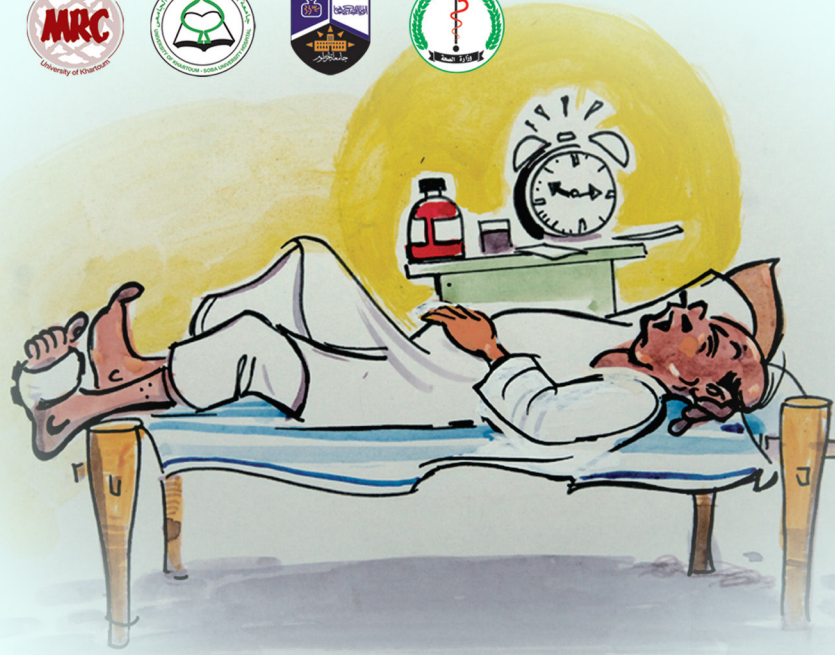
Clinical pharmacists actively participate in research initiatives and quality improvement projects aimed at advancing knowledge and enhancing the quality of care provided at the Mycetoma Clinic. They contribute valuable insights and expertise to improve treatment protocols and patient outcomes.



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Further Readings

- Paudyal V, Okuyan B, Henman MC, Stewart D, Fialová D, Hazen A, Lutters M, Oleárová A, Weidmann AE, Wirth F, Cadogan CA, Nazar Z. Scope, content and quality of clinical pharmacy practice guidelines: a systematic review. *Int J Clin Pharm*. 2024 Feb;69-56:(1)46. doi: 10.1007/s-01658-023-11096x. Epub 2023 Nov 22. PMID: 37991663; PMCID: PMC10830799.
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- Standards of Practice for Clinical Pharmacy Services. Available at: [pa.org.au/publications-resources/standards-of-practice/standards-of-practice-for-clinical-pharmacy-services](https://www.aacp.org.au/publications-resources/standards-of-practice/standards-of-practice-for-clinical-pharmacy-services)



Mycetoma Research Centre

University of Khartoum

WHO Collaborating Center on
Mycetoma & Skin NTDs

Mycetoma Good Clinical Pharmacy Practice Guidelines 2024

