

## MZ: EPTS Implementation Packet

# EPTS System Support Structure Guide

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**Description:** Specific guide to structure human support for HIS system issues<sup>1</sup>

**Audience:** Moz teams

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## Introduction

A system needs to be supportable. The continued deployment of the system and maintenance of its existing deployments is essential to the success of an electronic medical record.

Available resources to provide support: is there a consistent and reliable set of human and system resources accessible to support deployments and faults in the system?

## Ticketing Systems

### Purpose

In order to track issues and requests, it is recommended that an Issue Tracking software system be used. This allows issues and requests that have been made to be entered into the system, a priority set for the issue or request, tracking of the assignment of resolving the issue, and documentation about how the

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<sup>1</sup> Adapted from KenyaEMR materials produced by Casey Iiams-Haesler and Jen Antilla, 2013.

issue was resolved for future knowledge sharing if the issue comes up again.

There are many software programs available for this use. A common one used is a tool called JIRA, but charges a license per user. Free tools include Redmine, Trac, and Bugzilla. These are available either as software to be installed from scratch, or as pre-packaged virtual machine appliances:

- [Redmine Website](#)
- [Redmine Virtual Appliance](#)
- [Trac Website](#)
- [Trac Virtual Appliance](#)
- [Bugzilla Website](#)
- [Bugzilla Virtual Appliance](#)

## Service Level Agreement and Targets

Service Level Agreements are documented terms between a support team and their customers. Within the agreement should be the expected support services and hours for the OpenMRS system, and the Service Level Targets to address issues. *Service Level Targets (SLT)* are the quantitative response and resolution terms that are agreed upon with the facilities. In setting SLT's, keep in mind that they should be SMART: Specific, Measurable, Achievable, Relevant and Timely.

The support team needs a defined way of prioritizing the issues to be resolved in order to know which issues to work on first. This matrix of prioritization helps the support team manager to set appropriate SLTs for the service provided. The columns of the matrix represent the Urgency of the issue and the rows in the matrix represent the Impact of the issue. The crossing of these two parameters creates the Prioritization.

*Urgency x Impact = Prioritization of Issue to be Solved*

- Urgency: Patient Care/Safety, Job Stopped, Job Function Affected, Needs addressing but not affecting job
- Impact: Single, Multi, Software Wide

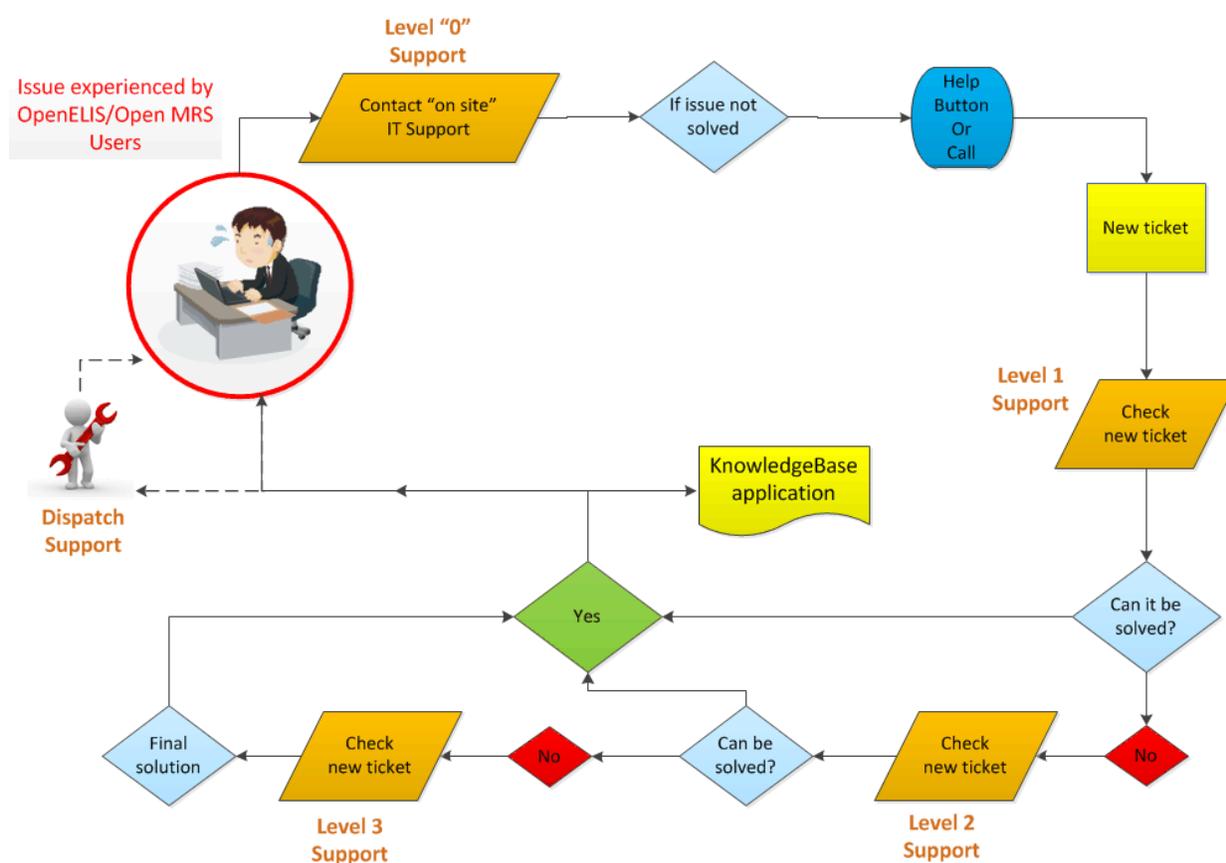
*Table: Prioritization Matrix for Issues*

	Single User	Multiple Users	Software Wide
Patient Care / Safety	Critical	Critical	Critical
Job Stopped	High	Urgent	Urgent
Job Function Affected	High	High	Urgent
Needs addressing but not affecting job	Normal	Normal	Normal

For each prioritization (Critical, Urgent, High, and Normal) both a *Response Time* and a *Resolution or Escalation Time* needs to be set for each support Tier. Examples of these are within the Support Tiers section of this document.

- Response Time: is the time targeted for acknowledgment of the request for support.
- Resolution and Escalation Time: is the time targeted to either solve the problem or to assign the issue to the next Support Tier for more advanced troubleshooting and solving.

## Workflow



## Support Tiers

### Tier 1 Support: On Site

- On site mentoring staff, local IT support (if exists)
- Qualifications: Received OpenMRS mentoring training, or previously trained IT personnel

- Duties:
  - In charge of hardware related issues, network connectivity
- Response Time: 1 hour
- Resolution or Escalation Time:
  - Critical - 30 min;
  - Urgent - 1 hour;
  - High - 4 hours;
  - Normal - 16 hours (2 days);

## **Tier 2 Support: Central Basic Support and Triage**

- “On call” staff centrally located
- Qualifications: Received OpenMRS mentoring training, and previous IT experience in desktop and networking support
- Duties:
  - In charge of creating ticket, responding to calls/emails, triaging ALL requests
  - Search knowledge base for applicable solution to basic issues
  - Dispatch Support to on-site as needed
  - Refer complex problem to Tier 3 support through ticketing system
- Response Time: 1 hour
- Resolution or Escalation Time:
  - Critical - 30 min;
  - Urgent - 1 hour;
  - High - 8 hours (1 day);
  - Normal - 40 hours (1 week);

## **Tier 3 Support: Central Senior Technical**

- “On call” staff centrally located
- Qualifications: Some basic OpenMRS experience and mentorship training, OpenMRS system administration training, previous IT experience in system administration and networking
- Duties:
  - In charge of solving issues that do not required developer action
  - Writing knowledge base solutions on common issues/questions
  - Dispatch Support to on-site as needed
  - Refer problems requiring developers to solve to Tier 4 support
- Response Time: 1 hour
- Resolution or Escalation Time:
  - Critical - 4 hours;
  - Urgent - 8 hours (1 day);
  - High - 24 hours (3 days);
  - Normal - 80 hours (2 weeks);

## Tier 4 Support: Developer

- Development group in charge of the platform
- Qualifications: Knowledge of code and database of OpenMRS
- Duties:
  - Come up with solutions to issues, release software bug fixes, and writing knowledge base solutions
- Response Time: 1 day;
- Resolution Time: Must be determined at time of issue. However, issues should be prioritized from highest to lowest at all times - Critical, Urgent, High, Normal.

## Case Studies: User Experience

### Without the Tier Support System in Place

#### **Martine - Without the Tier Support System**

The day after OpenMRS user training, Jessica tries to log in but receives an error that her password is incorrect. There is no one else trained on OpenMRS at her facility to ask for assistance. She moves the workstation under her desk so it doesn't take up space.

How would the Tier Support System help this case?

- Martine could contact the Tier 1 Support (On Site) person and they could come over and help her reset her password.
- Martine could call Tier 2 Support (Central Triage) by phone or email. Tier 2 would create a ticket in the issue tracking system documenting the issue. At that point, they could use their experience with users to talk her through resetting her password or identify if there is a bigger problem with the system. If the problem cannot be solved by Tier 2 Support, they would reassign the ticket to the next support Tier.

#### **José - Without the Tier Support System**

It's time for the monthly reporting cycle. José signs onto the system okay but gets an error when he tries to generate his reports for the month. He immediately contacts his health records officer, who tries and gets the same error with her login. She reports it the first day to the DHIO. The DHIO comes in after 6 weeks (his next available time) and is able to get it working by using the number of someone he knows at the Partner office, who then forwards the error to the software development team. The software developer works with the DHIO and the HRO at the facility and gets the error fixed remotely the next day.

How would the Tier Support System help this case?

- When José cannot generate the report, he might still try contacting his health records officer as his first tier of support. But once they determine it is still not working, José would call Tier 2

support where a ticket would be issued in the ticketing system. Since the issue is only preventing work for a single user, the issue would be prioritized as “High”. After searching the knowledge base, Tier 2 would reassign to Tier 3 within 1 day, Tier 3 would reassign to Tier 4 (development) within 3 days, and Tier 4 would then resolve the problem in the estimated timeframe given at the time of their response. In this case, the issue would have been solved within a maximum of 5 days from the time Jose experienced the issue.

### **Andre - Without the Tier Support System**

He hopes to turn his interest in IT into a sysadmin position in Maputo. Andre receives an error when attempting to connect from his workstation to the server. He has tried to fix this, but has not been able to do much on the locked down platform. He accesses the server closet, and finds the router (he had tried to login to it himself, but that was also password protected). He is able to factory reset the router though, and goes back to his workstation to try again. Now he can't get anything at all up on his computer, and soon hears complaints from other users about the problems with the system. Andre wants to contact his DHIO, but does not have the phone number. On the DHIO's next visit, 6 months later, Andre alerts him that the system has stopped working. The DHIO is not able to solve it. The facility moves back to paper.

How would the Tier Support System help solve this?

- With Andre's background in IT, he may be trained to be the on-site support - which may have prevented this issue altogether since he would have both the knowledge, the authorization, and the access to the systems to troubleshoot and solve the problem without disrupting the other users.
- In the case that Andre could not solve the issue, he would call Tier 2 support where an issue ticket would be created, and then either resolved or reassigned to more advanced support Tiers. With multiple users unable to do their job, the issue would be prioritized as “Urgent” and result in resolution or reassignment within 1 hour at Tier 2, 1 day at Tier 3, and TBD at Tier 4 (development).

### **With the Tier Support System in Place**

#### **Tomas - Using the Tier Support System**

Thomas has arrived at work to find his workstation returns an error when he tries to go to the login page. He calls the support number. The issue is escalated after 1 day to the second level support. The 2<sup>nd</sup> level support determines there has been a catastrophic failure of the server. The information to is relayed to the local DHIO who comes out after 4 days, and replaces the failed component.

#### **Janice - Using the Tier Support System**

The day after training, tries to log in, but gets an error that her password is incorrect. She calls the support number. The person on the phone connects remotely to her server, resets the password and walks her through the login. 30 minutes after the error has occurred, she can log into the system and begins using OpenMRS.