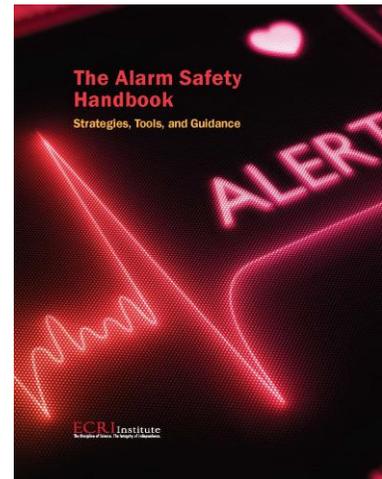


# Contents

## *The Alarm Safety Handbook and Workbook*

Alarm hazards have been recognized as a key patient safety issue, and healthcare facilities are expected to develop programs to assess and improve how clinical alarms are managed. ECRI Institute developed *The Alarm Safety Handbook and Workbook* to help healthcare organizations deal with these formidable tasks. This material provides a starting point from which hospitals can begin to create their own alarm management programs to help them protect their patients, as well as to meet the Joint Commission’s new National Patient Safety Goal on alarm safety.

Members of ECRI Institute’s Health Devices System™, Health Devices Gold™, SELECTplus™, and PSO Plus™ services can access electronic (PDF) versions of these resources through their member websites. (Members also can purchase print editions at a reduced price.) Members of other ECRI Institute programs may be eligible for discounts.



For member or nonmember pricing information or to place an order, call +1 (610) 825-6000, ext. 5889, or e-mail [circulation2@ecri.org](mailto:circulation2@ecri.org).

## The Alarm Safety Handbook

### Strategies, Tools, and Guidance

*The Alarm Safety Handbook* outlines the measures facilities need to take to effectively manage clinical alarms. A critical early step in that process is to form a multidisciplinary team to learn about the issue, to identify safety vulnerabilities within each care area, to study best practices, and to guide the organization’s improvement efforts. The resources in this *Handbook* and in the accompanying *Workbook* (see below) will help team members work through that process.

#### CONTENTS:

<b>Preface</b>	<b>7</b>
What Are Clinical Alarm Hazards?	7
A Top 10 Hazard	8
A National Patient Safety Goal	9
<b>Chapter 1. Making Alarm Management a Patient Safety Priority</b>	<b>11</b>
The Scope of the Hazard—Looking Beyond Alarm Fatigue	12
Alarm Hazards by the Numbers	14
The Joint Commission’s Requirements	18

Addressing the Hazard	20
<b>Chapter 2. Understanding Clinical Alarm Hazards—A Conceptual Model</b>	<b>23</b>
The Life Cycle of an Alarm	24
Alarm Activation	27
Alarm Load	28
Alarm Notification	29
Alarm Content	30
Alarm Escalation/Backup	31
Policies/Staff Education	32
Alarm Resolution	33
<b>Chapter 3. Creating an Action Plan</b>	<b>35</b>
The Path to Alarm Safety	36
1. Set the Tone	38
2. Form a Multidisciplinary Team	40
3. Establish Priorities	43
4. Conduct an Alarm Audit	46
5. Identify and Implement Strategies	48
6. Assess, Refine, and Repeat	49
Closing Remarks	50
<b>Chapter 4. Putting the Plan into Action</b>	<b>53</b>
Using ECRI Institute Tools and Resources	54
Workbook Contents	55
Tool for Step 1—Setting the Tone	55
Tool for Step 2—Forming a Team	55
Tools for Step 3—Establishing Priorities	55
Additional Tools and Resources	56
<b>Chapter 5: Identifying Best Practices</b>	<b>59</b>
Useful Resources	61
Guidance Documents	61
Tools and Resource Lists	61
Webinars	62
Research Studies and Other Literature	64
Supplier Assistance	64
Case Studies	65
Boston Medical Center	65
Standardization of Alarm Defaults for Telemetry	65
Using a Cart-Based System to Provide Patient Monitoring	67
Training at the Point of Care	67
Improving the Management of Telemetry Alarms	68
The Johns Hopkins Hospital	71
AAMI Foundation HTSI Safety Innovation Series	74

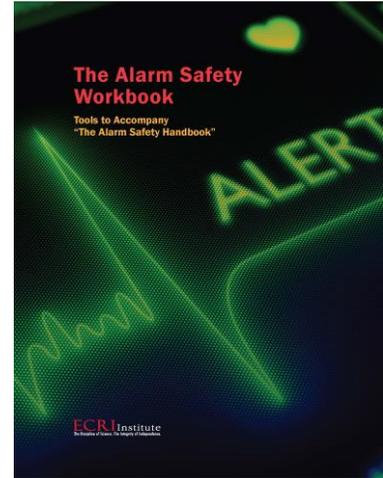
# The Alarm Safety Workbook

## Tools to Accompany

### *The Alarm Safety Handbook*

ECRI Institute developed the tools and resources listed below, along with the guidance presented in *The Alarm Safety Handbook*, to support alarm management teams in their efforts to improve clinical alarm safety, and thus meet the Joint Commission’s National Patient Safety Goal on Alarm Management (NPSG.06.01.01).

Specifically, ECRI Institute developed these materials to help alarm management teams work through various steps of the action plan described in Chapter 3 of the *Handbook*. Editable versions of these materials, along with form-specific instructions, can be downloaded with the electronic version of *The Alarm Safety Handbook*. Once downloaded, healthcare facilities can customize the information to meet the unique needs of their facility.



#### CONTENTS:

<b>Purpose and Use</b>	7
<b>ECRI Institute Tools</b>	
<b>A. Sample Announcement from Leadership</b>	8
This sample letter can serve as a guide to assist hospital leaders in announcing the alarm management effort and in communicating its importance to staff, particularly to clinical staff whose work may be affected by—and, as importantly, whose expertise may contribute to—the effort.	
<b>B. Alarm Management Team Roster</b>	10
One of the first steps in complying with the Goal—and, more broadly, in managing clinical alarms—is the creation of a multidisciplinary alarm management team. This document offers suggestions on who should be on the team and why.	
<b>C. Care Area Assessment Checklist</b>	12
This sample checklist suggests issues for members of the alarm management team to consider when assessing individual care areas for factors that can impede effective alarm management. The form directs the user to rate both the alarm load within the care area and any obstacles to effective alarm communication and response.	

<b>D. Nursing Staff Survey</b>	16
Every alarm management effort should involve obtaining feedback directly from frontline caregivers, particularly from nursing staff. This tool solicits information from nursing staff about which alarm signals (within their care area) warrant the attention of the alarm management team.	
<b>E. Incident-Report Review Form.</b>	22
As noted in the Goal, the involvement of an alarm signal in incidents at your facility is a potential measure of importance. This sample form is intended to guide the team through some of the issues to think about during its review of the facility's previously submitted reports of alarm-related incidents and problems, helping to determine what degree of risk a particular alarm signal may present.	
<b>F. Alarm Review Tool.</b>	25
This Excel spreadsheet is intended to serve as a repository for information obtained using the other tools provided. The spreadsheet allows the team to compile all the information collected and simultaneously review all the key alarm signals identified by the team. Once information is entered, Excel functions (e.g., filter, sort) can be used to facilitate simultaneous review of ratings that the team has assigned to all the unique alarm signals under consideration.	
<b>G. Starter List of Alarm Signals.</b>	28
This document lists those medical devices and associated alarm signals that ECRI Institute believes every hospital should consider when initiating an alarm management program. Even if your team eventually determines that managing other signals is more important, we recommend that you initially spend some time thinking about the items on this list.	
<b>H. Strategies for Reducing the Alarm Load.</b>	30
This document presents a few strategies that healthcare facilities have used to help reduce the number of alarms that staff encounter. Reducing the number of clinically insignificant alarms that activate is a key aspect of alarm management improvement efforts.	