



ALERT TRIAGE SOP

CIED Remote Monitoring Alert Management Workflow

Version: 2.0 | Date: January 2026 | Authors: Dr. Srividya Narayanan & Apekshit Mhatre

QUICK OVERVIEW

The Problem: 300-600+ daily alerts, 4-6 hours/day manual triage, 50% staff dissatisfaction, missed critical alerts, compliance gaps

The Solution: RED/YELLOW/GREEN standardised workflow → 55% time reduction, 98% same-day review, ZERO missed alerts

Annual Impact: \$300K-\$2M+ in safety/compliance/revenue risk eliminated

1. 7-STEP ALERT TRIAGE WORKFLOW

STEP 1: Device → Vendor Cloud (1-15 min auto-review)

STEP 2: Alert appears in Clinic Dashboard

STEP 3: Tech scores alert (RED/YELLOW/GREEN) using checklist

STEP 4: Escalation Path activated:

- RED: Call MD immediately + Contact patient
- YELLOW: Prepare summary + Notify MD within 8 hours
- GREEN: File in EMR + No MD notification

STEP 5: Physician makes clinical decision

STEP 6: Documentation in EHR

STEP 7: Billing & batch processing

2. RED/YELLOW/GREEN CLASSIFICATION

RED ALERTS - Immediate Action Required (≤ 2 hours)

Definition: Immediate threat to patient safety

Examples:

- VT/VF detected (>180 BPM for >30 sec)
- Pacing failure or loss of capture
- Lead impedance critically high (fracture)
- Inappropriate shock delivered
- Battery $<1-3\%$ (device dying)

Action: Call MD immediately → Patient contact → Same-day resolution

YELLOW ALERTS - 24-Hour Action (≤ 24 hours)

Definition: Needs clinical decision but not immediately life-threatening

Examples:

- Frequent PVCs/PACs (>1000 /day)
- AF episode <24 hours (stable)
- Mode-switch episodes
- Battery 6-12 months remaining
- High-voltage zone entry (no shock)

Action: Prepare summary → Notify MD within 8 hours → MD decides within 24 hours

GREEN ALERTS - Routine (Same day filing)

Definition: Expected behavior, informational only

Examples:

- Scheduled battery report
- Successful device interrogation
- Programming confirmation
- Medication reminders

Action: File in EMR → Add to batch log → No MD notification needed

3. ALERT SCORING CHECKLIST (5"×7" Laminated Card)

RED ALERT FACTORS (1 point each if present):

- VT/VF >180 BPM for >30 sec?
- Pacing failure?
- Loss of sensing?
- Lead impedance critically high?
- Inappropriate shock?
- Device malfunction?
- Battery <1-3%?

YELLOW ALERT FACTORS (1 point each):

- Frequent PVCs/PACs (>1000/day)?
- AF episode <24 hours (stable)?
- Mode-switch episodes?
- High-voltage zone entry (no shock)?
- Battery 6-12 months remaining?
- Threshold increasing?
- Patient has symptoms?

SCORING:

- RED subtotal ≥ 2 → RED ALERT (immediate action)
- RED 0-1 + YELLOW ≥ 3 → YELLOW ALERT (24-hour action)
- Otherwise → GREEN ALERT (routine filing)
- Any "?" → Escalate to supervising clinician

Time to complete: <5 minutes per alert

4. TURNAROUND TIME TARGETS

Metric	RED	YELLOW	GREEN
Tech Review	≤15 min	≤15 min	≤15 min
MD Notification	Immediate	≤8 hours	N/A
MD Decision	≤2 hours	≤24 hours	N/A
Documentation	≤2 hours	≤24 hours	Same day

5. ROLES & RESPONSIBILITIES

Alert Triage Coordinator:

- Review all alerts within 15 min of receipt
- Complete scoring checklist
- Classify as RED/YELLOW/GREEN
- For RED: Notify MD immediately
- For YELLOW: Prepare summary within 2-4 hours
- For GREEN: File in EMR
- Track metrics monthly

Supervising Clinician:

- Daily review of RED classifications
- Weekly spot-check of 10% YELLOW/GREEN
- Quarterly competency assessment
- Address escalations
- Lead monthly quality meetings

Attending Physician:

- Evaluate RED alerts within 2 hours
- Review YELLOW summaries within 24 hours
- Make clinical decisions
- Authorize patient contact
- Document in EMR



Clinic Manager:

- Staffing planning using Staffing Calculator
- Monthly metrics reporting
- Quality improvement initiatives

6. QUALITY METRICS (TRACK MONTHLY)

Metric	Target
RED alert MD notification time	≤30 min avg
RED alert MD response time	≤2 hours
YELLOW alert MD review time	≤24 hours
Same-day alert review rate	≥95%
Missed critical alert rate	ZERO
Alert triage time/day	<2.5 hours
Classification accuracy	≥98%
Staff satisfaction	≥8/10

7. DOCUMENTATION REQUIREMENTS

For ALL alerts:

- Alert classification (RED/YELLOW/GREEN)
- Date/time of receipt & review
- Coordinator name
- Scoring checklist completed
- Triage rationale (1-2 sentences)

For RED alerts:

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- Date/time of MD notification
 - Patient contact date/time/method
 - MD assessment & plan
 - CPT code (99091, 99457, etc.)

For YELLOW alerts:

- Summary document prepared
- Date/time sent to MD
- MD decision documented
- Follow-up plan
- CPT code

For GREEN alerts:

- Verification that routine
- EMR filing location
- Batch process log entry

8. PATIENT CONTACT SCRIPTS

RED Alert Script:

"Hello [Name], this is [Tech] from [Clinic]. We received an urgent alert from your device. Your doctor reviewed it and needs to see you right away.

OPTION A: Come to clinic in [X hours]

OPTION B: Go to nearest ER immediately

OPTION C: We'll do a remote device check now

Questions? Call [CLINIC NUMBER]. If chest pain/SOB/fainting: Call 911"

YELLOW Alert Script:

"Hello [Name], this is [Tech] from [Clinic]. Your doctor reviewed an alert from your device and everything is stable. We'd like you to come in for a follow-up visit in the next [3-7 days].

Continue your medications. Call if you have chest pain, SOB, or fainting.

Our clinic: [PHONE]. After-hours: [EMERGENCY NUMBER]"

9. STAFF TRAINING (3-PART PROGRAM)

Component 1: Didactic Training (4-6 hours)

- CIED physiology basics
- RED/YELLOW/GREEN classification system
- 7-step workflow
- 10-point scoring checklist
- Real case studies (20-30 alerts)
- Documentation & audit requirements
- Patient contact protocols
- Q&A discussion

Component 2: Supervised Practice (5-10 real cases)

- Review actual clinic alerts
- Preceptor observes & coaches
- Tech explains rationale
- Minimum 80% accuracy required

Component 3: Competency Verification

- Written exam: 20 questions ($\geq 90\%$ passing)
- Practical assessment: 5-10 case scenarios ($\geq 90\%$ accuracy)
- Supervising clinician sign-off

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- Certificate issued

Total onboarding: 2-3 weeks

Ongoing: Quarterly spot-checks (5-10% of alerts) + Annual recertification

10. STAFFING CALCULATOR

Quick Assessment:

1. Daily alert volume: _____ alerts/day
2. Current FTE staff: _____ (device techs/nurses)
3. Time per alert: ~15-20 min average
4. Daily hours needed: $(\text{Volume} \times 0.25-0.33)$ = _____ hours
5. Available FTE hours/day: $(\text{FTE} \times 8)$ = _____ hours
6. Staffing gap: $(\text{Needed} - \text{Available})$ = _____

If gap >0: Consider hiring 0.5-1 FTE + implement SOP

ROI Example (850 patient clinic, 400 alerts/day):

- Current: 4-6 hours/day = \$250K+/year in labor
- After SOP: <2.5 hours/day = \$140K/year in labor
- Savings: \$110K/year in efficiency
- Plus: \$50K+ revenue recovery + \$75K+ incident avoidance
- Total benefit: \$235K+/year

11. ESCALATION PROTOCOLS

When to escalate to supervising clinician:

- Alert classification unclear
- Complex clinical context
- Borderline scoring (4-5 points)
- Unfamiliar alert type
- Multiple similar alerts from same patient
- Staff uncertainty
- New device type/vendor

When to escalate beyond MD:

- Pattern of RED alerts (acute decompensation?)
- Multiple concurrent RED alerts
- RED alert + acute comorbidity (MI, sepsis, etc.)
- Unclear if ED vs. urgent clinic
- MD unavailable + patient needs immediate action

Process: Flag as "ESCALATE" → Brief summary → Supervising clinician responds ≤1 hour

12. IMPLEMENTATION CHECKLIST

- Print & laminate Alert Scoring Checklist (5"×7")
- Customize with clinic name, physician names, contacts
- Train staff (didactic + supervised practice + exam)
- Set up monthly metrics dashboard
- Configure EMR documentation templates
- Train supervising clinician on quality monitoring
- Brief attending physicians
- Launch SOP, begin tracking metrics Day 1
- Hold monthly quality review meetings
- Quarterly clinical leadership check-ins

This SOP is effective immediately. All clinical staff must follow this document.

Next Review: [12 months from approval]

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Alert Triage Workflow SOP for CIED Remote Monitoring Clinics

Based on Clinical Framework by Dr. Srividya Narayanan & Apekshit Mhatre