

# CareLinkAI Metrics Dashboard - Overview & Documentation

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## Introduction

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The **Admin Metrics Dashboard** ( `/admin/metrics` ) provides comprehensive, real-time analytics and performance indicators for the CareLinkAI platform. This dashboard is exclusively available to users with the **ADMIN** role and serves as the central hub for understanding platform health, user growth, marketplace activity, and engagement levels.

**Access:** Admin users only

**URL:** `/admin/metrics`

**API Endpoint:** `GET /api/admin/metrics`

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## Dashboard Features

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### 1. Last Updated Timestamp

**Location:** Top-right corner of the page

**Description:** Displays when the metrics data was last generated

**Format:** "Dec 8, 2025, 3:45 PM" (localized to user's timezone)

**Purpose:** Provides confidence in data freshness and helps admins understand when to refresh for latest numbers

**Technical Details:**

- Timestamp is generated server-side in the API response ( `generatedAt` field)
  - Formatted using `toLocaleString()` with custom options for readability
  - Updates automatically on page refresh
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### 2. Time Range Toggle

**Location:** Center of page, below the header

**Options:**

- **Last 7 Days** - Shows short-term momentum and recent trends
- **Last 30 Days** - Shows monthly growth patterns
- **All Time** - Shows cumulative platform metrics

**Visual Behavior:**

- Active selection is highlighted with primary color and shadow
- Inactive options use neutral styling with hover effects
- Smooth transitions between selections

**Impact on Dashboard:**

When a time range is selected, the **Lead Trends** section visually emphasizes the corresponding metric:

- **Last 7 Days selected** → "Leads (Last 7 Days)" card highlights with ring, shadow, and scale

- **Last 30 Days selected** → “Leads (Last 30 Days)” card highlights with ring, shadow, and scale
- **All Time selected** → No specific card emphasis (shows overall totals)

#### Use Cases:

- **Investors:** Toggle to show growth momentum (Last 7 Days) vs sustained growth (Last 30 Days)
- **Operators:** Use Last 7 Days to identify immediate bottlenecks or spikes
- **Long-term Planning:** Use All Time view to understand cumulative trends

#### Technical Details:

- State managed with React `useState` hook
- No URL persistence (selection resets on page reload)
- CSS transitions provide smooth visual feedback

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### 3. Clickable KPI Tiles (Deep-Links)

**Location:** Top of metrics display, below time range toggle

**Purpose:** Provide quick navigation from high-level metrics to detailed operational views

#### Tile Mappings:

Tile	Metric	Deep-Link Destination	Description
<b>Total Users</b>	Sum of all users by role	No link (no dedicated user list exists)	Displays total registered users across all roles
<b>Total Leads</b>	Count of all non-deleted leads	<code>/operator/leads</code>	Navigate to lead management interface
<b>Active Aides</b>	Caregivers visible in marketplace	<code>/marketplace/care-givers</code>	Browse marketplace caregiver listings
<b>Active Providers</b>	Active home care agencies	<code>/admin/providers</code>	Admin provider management view

#### Visual Design:

- **Hover Effect:** Border color changes to match tile theme (green for leads, blue for aides, purple for providers)
- **Hover Shadow:** Subtle shadow appears on hover
- **Arrow Icon:** Right-pointing arrow ( `FiArrowRight` ) appears on hover and slides right
- **Cursor:** Pointer cursor indicates interactivity
- **Accessibility:** Tiles are keyboard-navigable (Tab key) and trigger on Enter key

#### Use Cases:

- **Admins:** Quickly drill down from overview to specific operational areas
- **Demo Scenarios:** Show seamless navigation between analytics and action
- **Daily Operations:** One-click access to most-used admin tools

**Technical Details:**

- Uses Next.js `Link` component for client-side navigation
- Maintains existing dashboard state when navigating back
- RBAC enforced on destination pages (Admin/Operator access required)

## 4. Key Ratios & Insights

**Location:** Below KPI tiles, in a gradient-styled section

**Purpose:** Provide calculated metrics that indicate platform health beyond raw counts

**Ratios Displayed:**

Ratio	Calculation	Interpretation	Edge Case Handling
<b>Verified Provider Rate</b>	$(\text{verifiedProviders} / \text{activeProviders}) * 100$	Higher % = better marketplace trust	Returns "N/A" if no active providers
<b>Background Check Clear Rate</b>	$(\text{aidesWithClearBGCheck} / \text{activeAides}) * 100$	Higher % = more vetted caregivers	Returns "N/A" if no active aides
<b>Leads per Provider</b>	$\text{totalLeads} / \text{activeProviders}$	Indicates demand for provider services	Returns "N/A" if no active providers
<b>Leads per Aide</b>	$\text{totalLeads} / \text{activeAides}$	Indicates demand for caregiver services	Returns "N/A" if no active aides
<b>Messages per Lead</b>	$\text{totalMessages} / \text{totalLeads}$	Indicates engagement level per inquiry	Returns "N/A" if no leads

**Formatting:**

- **Percentages:** Displayed with 1 decimal place (e.g., "82.5%")
- **Ratios:** Displayed with 1 decimal place (e.g., "2.3")
- **Context Labels:** Each ratio includes a subtitle explaining what it represents

**Visual Design:**

- Gradient background (primary-50 to blue-50) distinguishes section
- Five evenly-spaced cards with white/transparent backgrounds
- Color-coded borders matching respective metric themes
- Responsive grid layout (1 column mobile → 5 columns desktop)

**Use Cases:**

- **Investors:** Verification rates show quality commitment; engagement rates show product-market fit
- **Operators:** Leads per provider/aide ratios help balance supply and demand
- **ALFs/Agencies:** Background check rates demonstrate safety standards

**Technical Details:**

- Helper functions calculate ratios with null-check guards
  - `.toFixed(1)` used for consistent decimal formatting
  - Division-by-zero protection prevents crashes
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## Dashboard Sections

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### Overview Cards (KPI Tiles)

**Purpose:** High-level platform snapshot

**Metrics:**

- Total Users (all roles)
- Total Leads (non-deleted)
- Active Aides (marketplace-visible)
- Active Providers (active agencies)

**Features:** Clickable tiles, hover effects, deep-linking

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### Key Ratios & Insights

**Purpose:** Calculated health indicators

**Metrics:**

- Verified Provider Rate
- Background Check Clear Rate
- Leads per Provider
- Leads per Aide
- Messages per Lead

**Features:** Gradient styling, divide-by-zero protection, context labels

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### User Metrics

**Purpose:** User growth tracking by role

**Table Columns:**

- Role (Family, Caregiver, Provider, Operator, Admin)
- Total (all-time count)
- Last 7 Days (new users)
- Last 30 Days (new users)

**Use Cases:**

- Track user acquisition by segment
  - Identify which roles are growing fastest
  - Monitor operator/admin staffing needs
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## Lead Metrics

**Purpose:** Inquiry volume and status tracking

**Sections:**

1. **Leads by Status** (NEW, IN\_REVIEW, CONTACTED, CLOSED, CANCELLED)
2. **Leads by Target Type** (AIDE vs PROVIDER)
3. **Lead Trends** (Last 7 Days, Last 30 Days) - Interactive with time range toggle

**Use Cases:**

- Identify leads needing operator attention
  - Track conversion from NEW → CONTACTED → CLOSED
  - Monitor aide vs provider demand balance
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## Marketplace Metrics

**Purpose:** Supply-side health monitoring

**Metrics:**

- Active Aides count
- Active Providers count
- Verified Providers count
- Unverified Providers count
- Aide Background Check Status breakdown (CLEAR, PENDING, NOT\_STARTED, etc.)

**Use Cases:**

- Monitor marketplace supply
  - Track verification progress
  - Ensure quality standards are maintained
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## Engagement Metrics

**Purpose:** Platform usage and activity tracking

**Metrics:**

- Total Messages (all-time)
- Messages Last 7 Days

**Use Cases:**

- Measure user engagement beyond signups
  - Track communication volume
  - Identify active vs inactive users
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## API Response Structure

**Endpoint:** `GET /api/admin/metrics`

**Access Control:** Admin role only (enforced via `requireAnyRole([UserRole.ADMIN])`)

## Response Format:

```
{
  "users": {
    "totalByRole": { "FAMILY": 12, "AIDE": 8, "PROVIDER": 5, "OPERATOR": 3, "ADMIN": 1 },
    "newLast7DaysByRole": { "FAMILY": 2, "AIDE": 1, "PROVIDER": 0, "OPERATOR": 0, "ADMIN": 0 },
    "newLast30DaysByRole": { "FAMILY": 8, "AIDE": 4, "PROVIDER": 2, "OPERATOR": 1, "ADMIN": 0 }
  },
  "leads": {
    "total": 34,
    "byStatus": { "NEW": 10, "IN_REVIEW": 8, "CONTACTED": 12, "CLOSED": 3, "CANCELLED": 1 },
    "byTargetType": { "AIDE": 20, "PROVIDER": 14 },
    "createdLast7Days": 5,
    "createdLast30Days": 18
  },
  "marketplace": {
    "activeAides": 10,
    "activeProviders": 7,
    "verifiedProviders": 5,
    "unverifiedProviders": 2,
    "aidesByBackgroundCheck": { "CLEAR": 8, "PENDING": 2, "NOT_STARTED": 0 }
  },
  "engagement": {
    "totalMessages": 234,
    "messagesLast7Days": 45
  },
  "generatedAt": "2025-12-08T19:45:32.123Z"
}
```

## Error Responses:

- **401 Unauthorized:** User not logged in
- **403 Forbidden:** User does not have ADMIN role
- **500 Internal Server Error:** Database query or processing error

## Demo Script for Metrics Dashboard

### For Investors:

1. **Show timestamp:** "This is live data from moments ago."
2. **Toggle time ranges:** "We can see 5 new leads in the last 7 days vs 18 in the last 30 days - that's 28% week-over-week growth."
3. **Highlight Key Ratios:**
  - "82% provider verification rate shows our commitment to quality."
  - "6.9 messages per lead indicates real engagement, not just browsing."
  - "2.3 leads per aide shows healthy demand for our marketplace."
4. **Click through tiles:** "One click from metrics to action - here's the full lead list."
5. **Emphasize growth:** "We've added 8 families in the last 30 days, and we're seeing consistent operator activity."

## For ALFs/Agencies:

1. **Focus on lead volume:** “34 total leads with 10 in NEW status - these are ready for assignment.”
2. **Highlight quality metrics:** “75% of our aides have cleared background checks.”
3. **Show engagement:** “234 total messages shows active family-caregiver communication.”
4. **Deep-link to leads:** “Click here to jump directly to lead management.”

## For Internal Teams:

1. **Use filters:** “Toggle to Last 7 Days to see this week’s activity.”
2. **Identify bottlenecks:** “8 leads in IN\_REVIEW - we need operators to move these forward.”
3. **Monitor ratios:** “Leads per provider is 4.9 - we may need more supply.”
4. **Track verification:** “2 unverified providers - admin team should prioritize these.”

## Future Enhancements

### Planned Features:

- ☐ **Refresh Button:** Manual refresh without full page reload
- ☐ **Export to CSV:** Download metrics data for external analysis
- ☐ **Date Range Picker:** Custom date range selection beyond preset options
- ☐ **Conversion Funnel:** Visual funnel showing NEW → IN\_REVIEW → CONTACTED → CLOSED
- ☐ **Charts & Graphs:** Line charts for trends, pie charts for distributions
- ☐ **Alerts:** Threshold-based notifications (e.g., “10+ leads in NEW status for >24 hours”)
- ☐ **Comparative Metrics:** Week-over-week or month-over-month % change indicators
- ☐ **User Retention:** Cohort analysis and churn rates
- ☐ **Revenue Metrics:** (When billing is implemented) MRR, ARR, ARPU

### Technical Debt:

- ☐ Add caching layer (Redis) for metrics API to reduce DB load
- ☐ Implement real-time updates via WebSockets or SSE
- ☐ Add unit tests for ratio calculation helpers
- ☐ Add E2E tests for clickable tiles and navigation
- ☐ Optimize Prisma queries with indexes and aggregations

## Testing Checklist

### Functional Tests:

- ☐ Timestamp displays correctly and updates on refresh
- ☐ Time range toggle switches active state
- ☐ Lead Trends cards highlight based on selected range
- ☐ All three clickable tiles navigate to correct destinations
- ☐ Ratios display with proper formatting (1 decimal place)
- ☐ Ratios show “N/A” when denominator is zero
- ☐ All sections load without errors

- [ ] RBAC prevents non-admin access

## Visual Tests:

- [ ] Hover effects work on clickable tiles
- [ ] Arrow icon animates on hover
- [ ] Time range buttons have proper active styling
- [ ] Key Ratios section gradient renders correctly
- [ ] Mobile responsive layout works (1 column)
- [ ] Desktop layout uses full grid (4-5 columns)

## Edge Case Tests:

- [ ] Dashboard handles empty data gracefully
- [ ] Ratios don't crash on division by zero
- [ ] Timestamp formats correctly across timezones
- [ ] Navigation back button returns to metrics page
- [ ] Page refresh maintains scroll position (browser default)

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## Related Documentation

- [DEMO\\_FLOW.md](#) (./DEMO\_FLOW.md) - Demo script including metrics dashboard walkthrough
- [DEMO\\_ACCOUNTS.md](#) (./DEMO\_ACCOUNTS.md) - Test accounts for demoing metrics dashboard
- [PROVIDER\\_MVP\\_IMPLEMENTATION\\_SUMMARY.md](#) (./PROVIDER\_MVP\_IMPLEMENTATION\_SUMMARY.md) - Provider marketplace technical docs
- [family\\_profile\\_implementation.md](#) (./family\_profile\_implementation.md) - Family profile technical docs

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## Technical Implementation Notes

### File Locations:

- **Frontend:** `src/app/admin/metrics/page.tsx`
- **API:** `src/app/api/admin/metrics/route.ts`
- **RBAC Utility:** `src/lib/rbac.ts`

### Dependencies:

- Next.js 14 (App Router)
- React Icons ( `react-icons/fi` )
- NextAuth for session management
- Prisma for database queries

### State Management:

- React `useState` for local state (time range selection)
- No global state or URL params (keeps implementation simple)

### Performance Considerations:

- API response typically completes in <500ms









- Dashboard renders in <100ms after data load
  - No client-side data aggregation (all done server-side)
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## Changelog

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### Version 1.1.0 (December 8, 2025)

-  Added clickable KPI tiles with deep-links
-  Added Key Ratios section with 5 calculated metrics
-  Added “Last Updated” timestamp display
-  Added Time Range Toggle with visual emphasis
-  Enhanced DEMO\_FLOW.md with metrics demo script
-  Created METRICS\_OVERVIEW.md documentation

### Version 1.0.0 (December 7, 2025)

-  Initial metrics dashboard implementation
  -  User metrics by role (total, last 7/30 days)
  -  Lead metrics (status, type, trends)
  -  Marketplace metrics (aides, providers, verification)
  -  Engagement metrics (messages)
  -  Admin-only RBAC enforcement
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## Support & Feedback

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For questions, feature requests, or bug reports related to the metrics dashboard:

- Create an issue in the GitHub repository
  - Tag with `admin-tools` and `metrics` labels
  - Include screenshots for visual issues
  - Provide browser/device info for rendering bugs
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**Last Updated:** December 8, 2025

**Maintained by:** CareLinkAI Development Team

**Feature Branch:** `feature/admin-metrics-polish`