

The Future of Clinician Wellbeing and Retention: Making It A Standard Part of Operations Through Data and Predictive Insights

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Building the Future of Health Together



Presenters



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Agenda

1. Problem
2. New CDC Guidelines
3. Gap in Tools
4. Bridging the Gap Through Existing Data
5. Using Machine Learning for Actionable and Predictive Insights
6. Real World Application
7. Future

Learning Objectives

1. Understand how to leverage existing data for clinician wellbeing
2. Explore the extensive capability of machine learning
3. Discover ways to operationalize wellbeing at health systems

The Problem: Clinician Shortage and Burnout is Impacting the Ability of Providers to Sustainably Deliver Healthcare

**Shortage of
124K
physicians
by 2034 in the U.S.¹**

More than 40%
of clinicians plan to leave their
organization in the next 2
years across U.S.²

Burned out providers have **14%**
**lower patient
experience scores³**

1. AAMC supports resident physician shortage reduction act of 2023. AAMC. (2023, March 29). <https://www.aamc.org/news/press-releases/aamc-supports-resident-physician-shortage-reduction-act-2023>

2. Elsevier. (2022, March 15). Clinician of the future: A 2022 report. [www.elsevier.com](https://www.elsevier.com/connect/clinician-of-the-future). <https://www.elsevier.com/connect/clinician-of-the-future>

3. Blackburn, B., Chan, T., Cherot, E., Freeman R., Hu, X., Matt, Eric., Rhodes, A. (2023). Beyond Burnout: from Measuring to Forecasting. NBER Working Paper Series (<https://www.nber.org/papers/w30895>).

CDC Recommendation: Embed Clinician Wellbeing into Existing Operations to Create Lasting Changes in Wellbeing¹

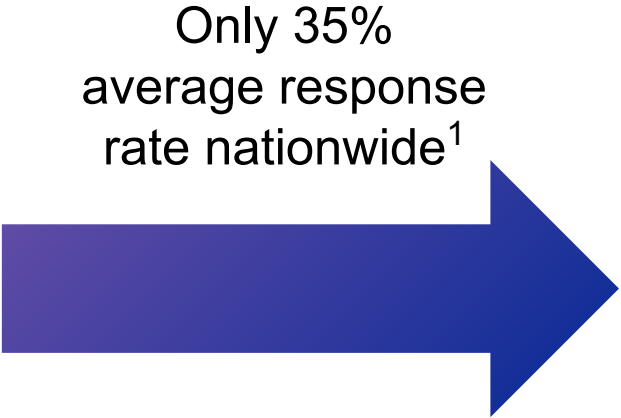


¹<https://www.cdc.gov/niosh/docs/2024-109/pdfs/2024-109.pdf?id=10.26616/NIOSH PUB2024109>

Gap: Existing Survey Tools Only Offer a Limited Way to Measure Wellbeing & Retention

Survey non-respondents are:

Rely on annual surveys to measure clinician wellbeing



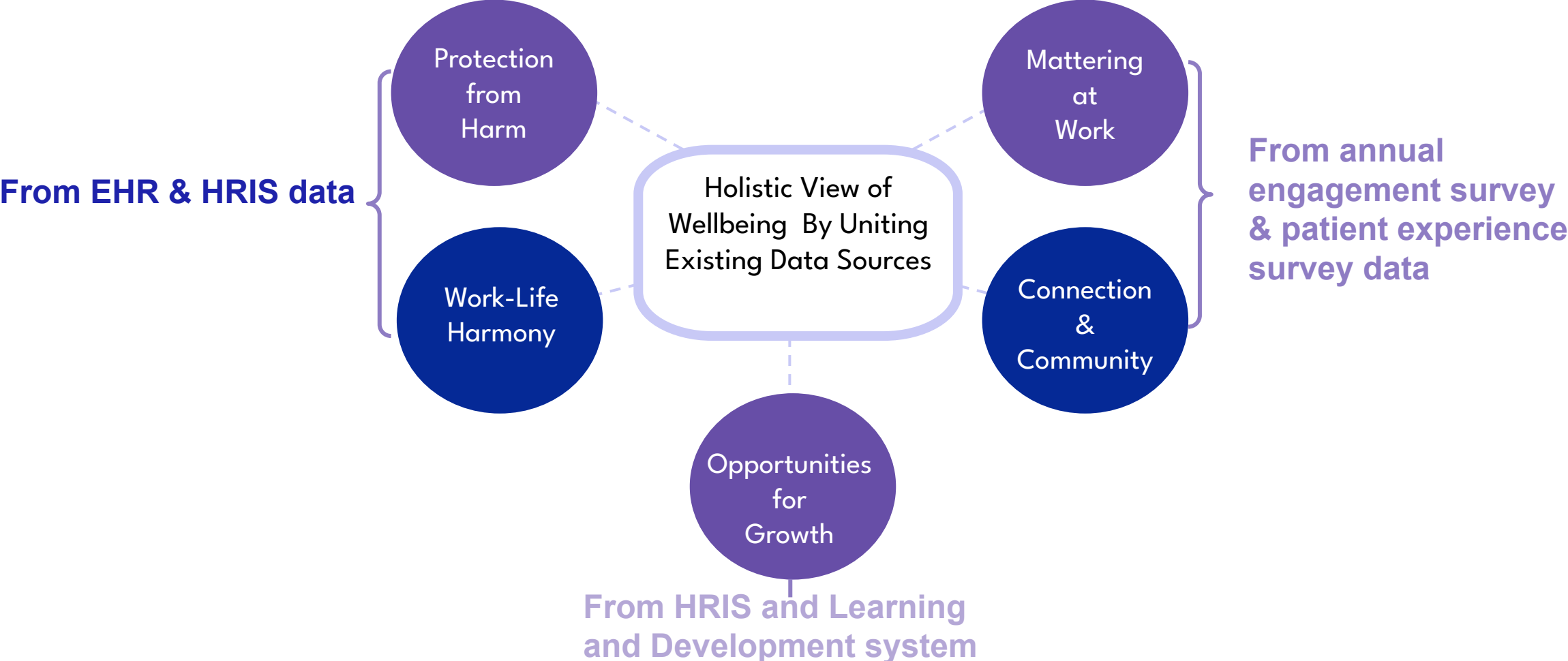
3-9x more likely to leave the organization²

15-30% less productive²

1. Cunningham, C. T., Quan, H., Hemmelgarn, B., Noseworthy, T., Beck, C. A., Dixon, E., ... & Jetté, N. (2015). Exploring physician specialist response rates to web-based surveys. BMC medical research methodology, 15, 1-8.

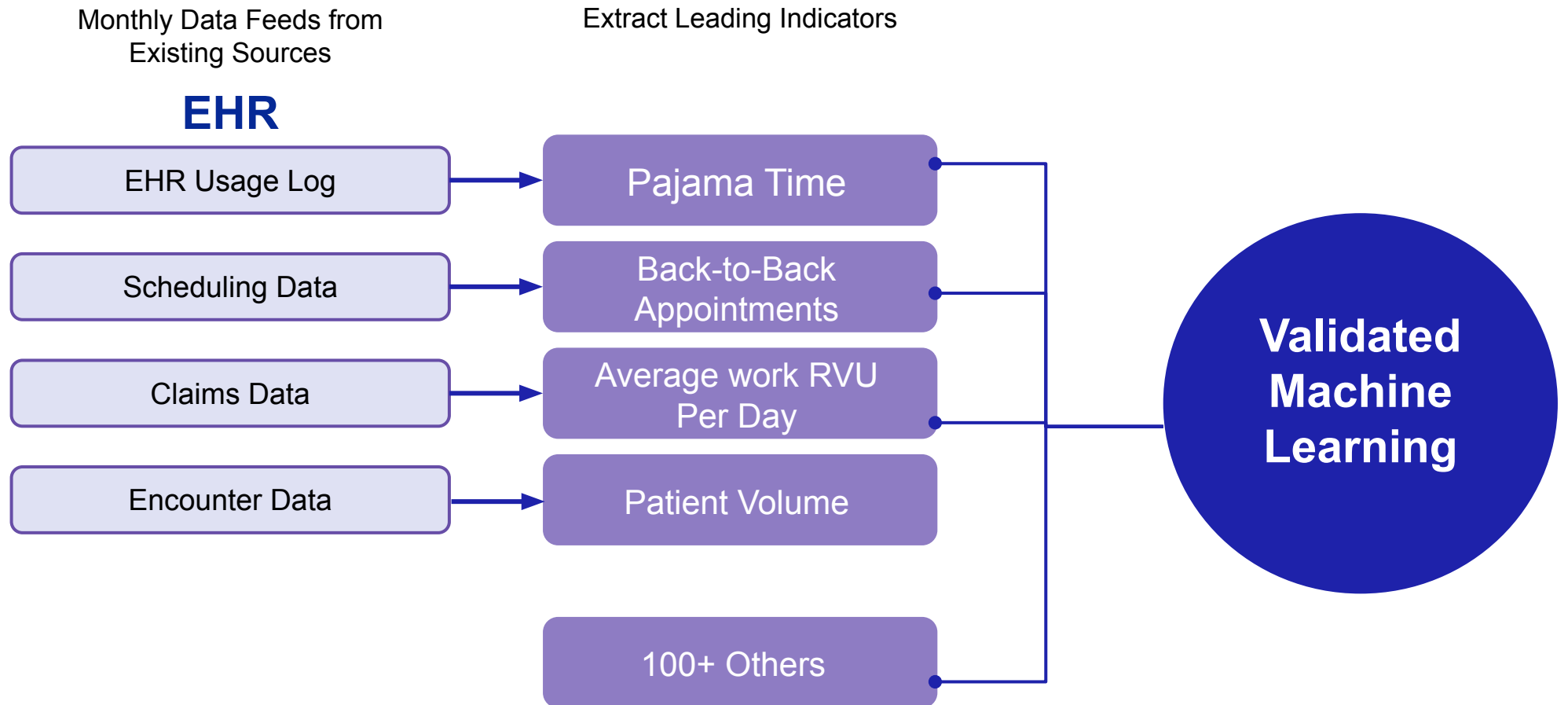
2. Rhodes, C.A., Hu, X., Freeman, R. Agrawal, R., Cherot, E., Dardarian, T., Gotsch, S., Chan, T. & Blackburn, B. (2024). Who's Not Talking? Nonresponse Bias in Healthcare Employee Surveys. Manuscript submitted for publication.

Solution: Unify and Tap into Existing Data Sources for Comprehensive Measurement of Wellbeing & Retention

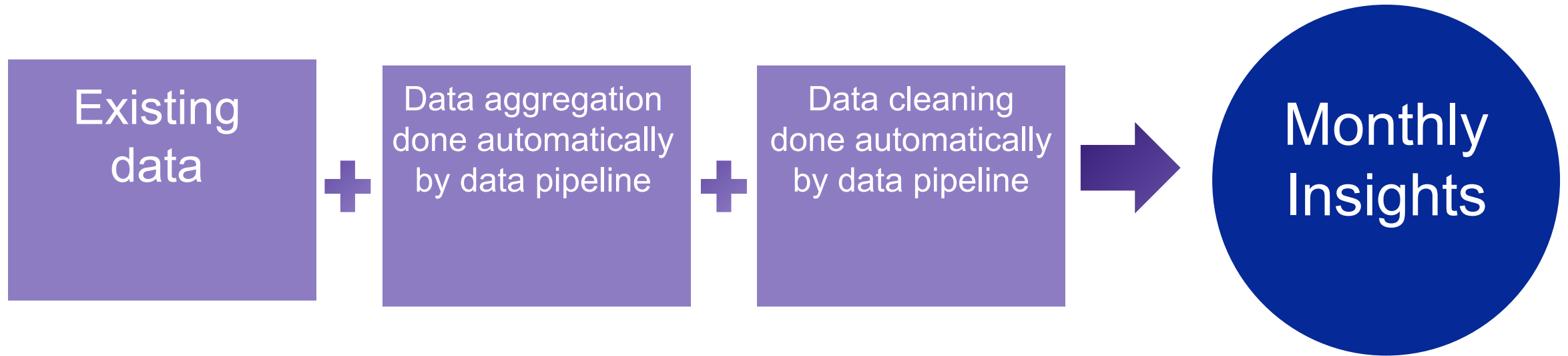


[1. https://www.hhs.gov/surgeongeneral/priorities/workplace-well-being/index.html](https://www.hhs.gov/surgeongeneral/priorities/workplace-well-being/index.html)

How Does It Work?



Machine Learning Infrastructure Minimizes Manual Processing and Enables Monthly Refreshes



Results: Machine Learning Turns Data into Actionable Insights

Turnover Prediction Up to 12 Months Ahead

Unit Turnover Probability

Above Regional Average ↑



Your unit's turnover probability is **4.0% higher** than the regional average. You are at risk of losing more providers because of your elevated risk level.

Prioritization

Leading Indicators Weighted by Importance

Ratio of Encounters Outside 7am - 7pm Count and ratio of hours worked outside of 7am-7pm. Includes count over 1, 2, 3, 6, 12, 24, 36 months and all time.	49%
Time Spent on Patient History Counts the number of seconds provider has spent in EHR on patient history and the variance of that time over 1, 2, 3, 6, 12, 24, 36 months and all time.	40%
Number of Procedures On Weekends Monthly procedure counts on the weekend. Includes count over 1, 2, 3, 6, 12, 24, 36 months and all time.	30%
Total Procedure Counts Count and maximum monthly procedure count. Includes count over 1, 2, 3, 6, 12, 24, 36 months and all time.	29%

Identify Opportunities for Improvement

Healthy Ranges of Leading Indicators

Time Spent on Notes



The average time spent on notes over the last month in your unit is at 773.3 minutes, compared to the healthy range of **from 0 to 525 minutes**.

Create Realistic Goals

Machine Learning Algorithm Tested Across Specialties and Care Settings To Ensure Consistent Applicability and Accuracy

List of 100+ leading indicators are built based on reviewing:

1000+ existing academic literature & interviews with 500+ healthcare leaders



Tested across

- **30+ specialties**
- **13,000 physicians and ACPs**
- **Multi-state national systems**
- **Academic medical centers**

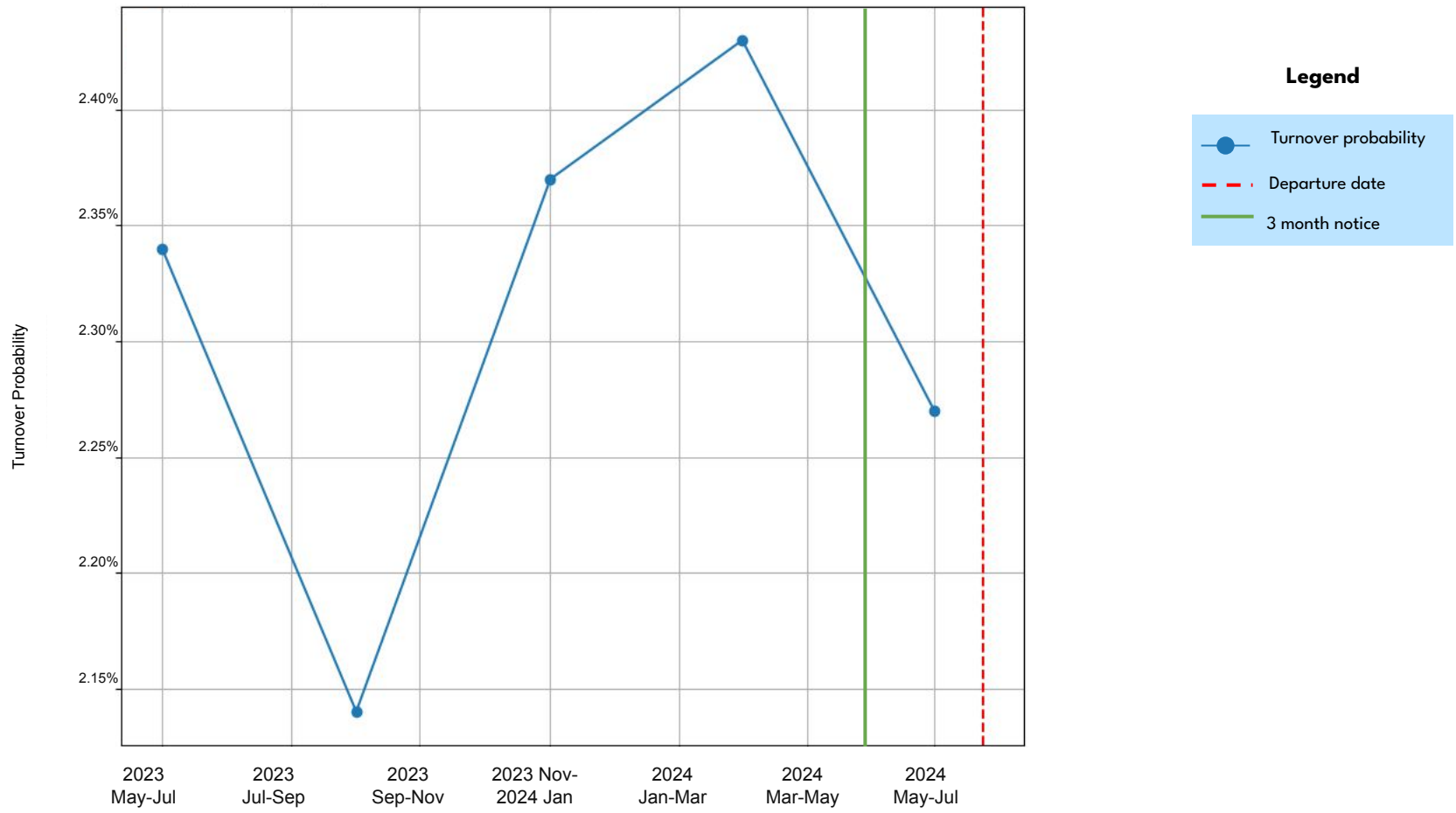


Area Under the Curve (AUC): 0.7–0.8

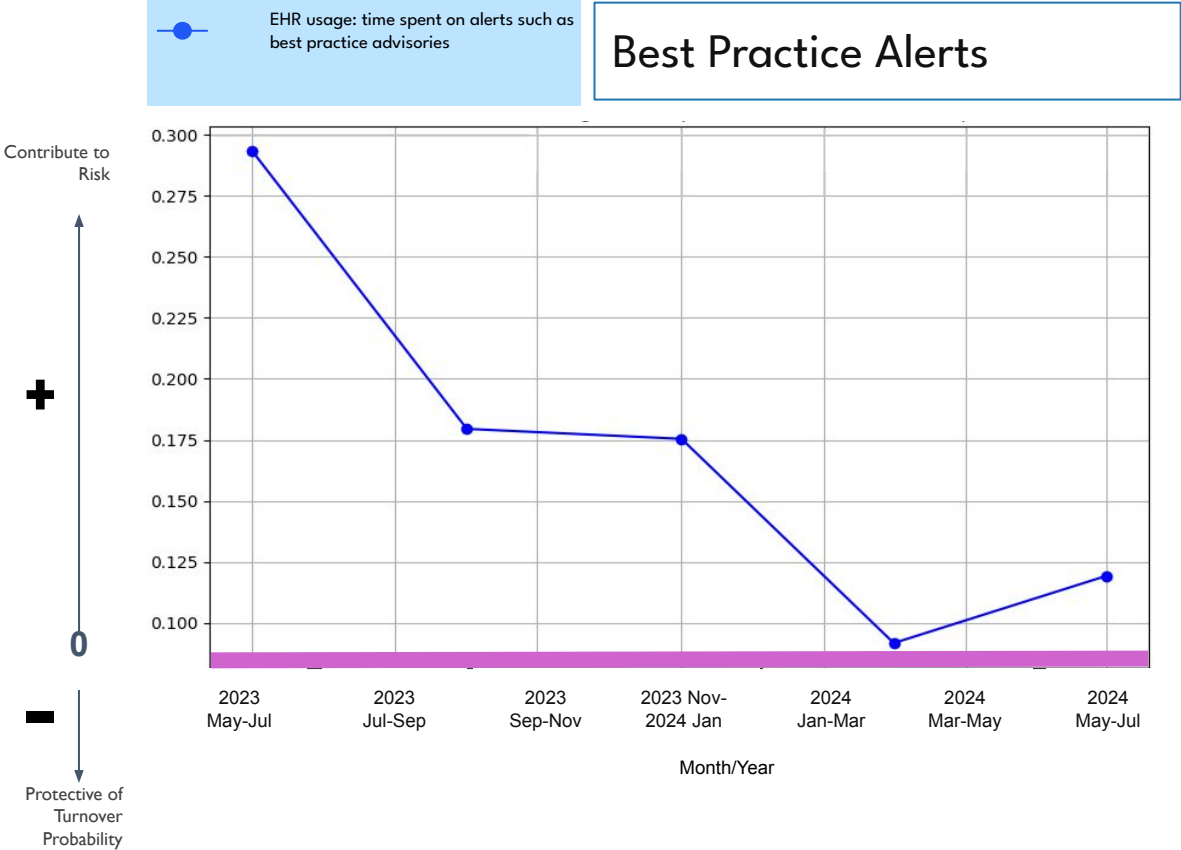
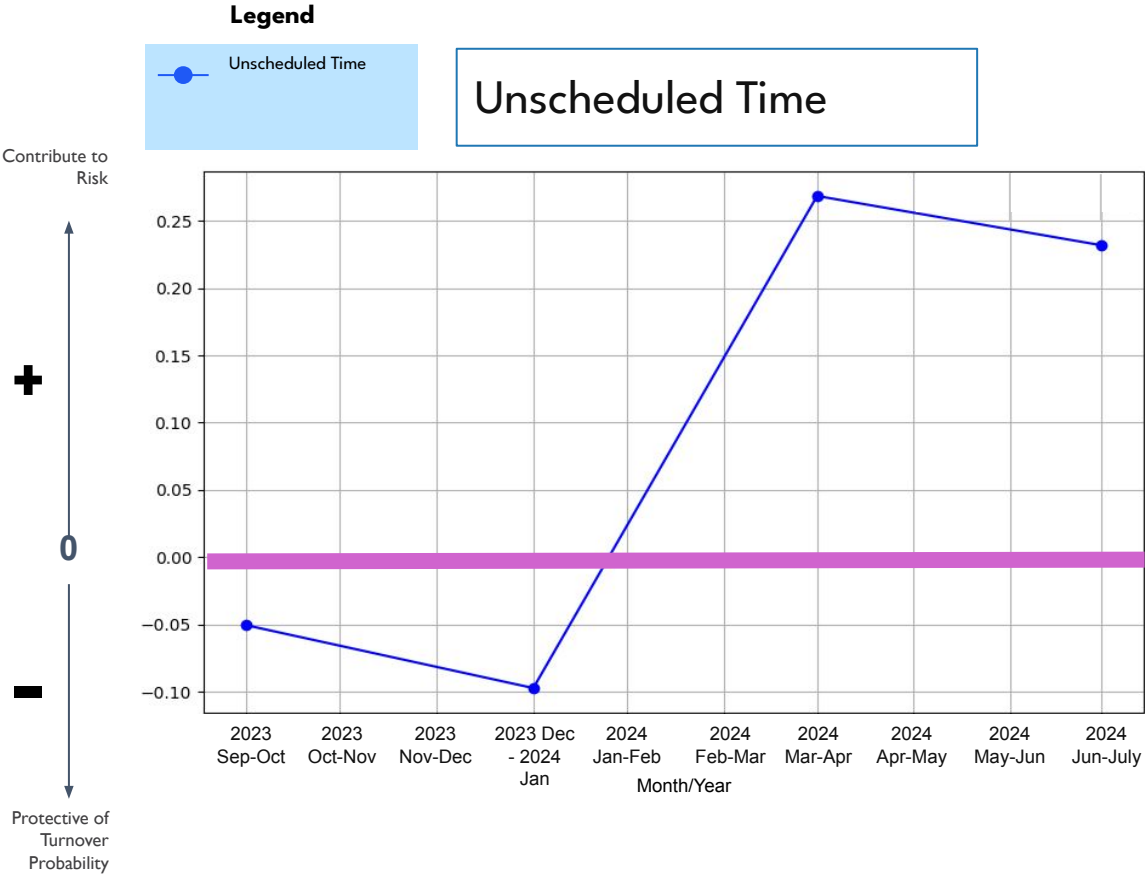
Real World Application of Insights

Step 1: Early warning of emerging turnover risk 10 months ahead of time

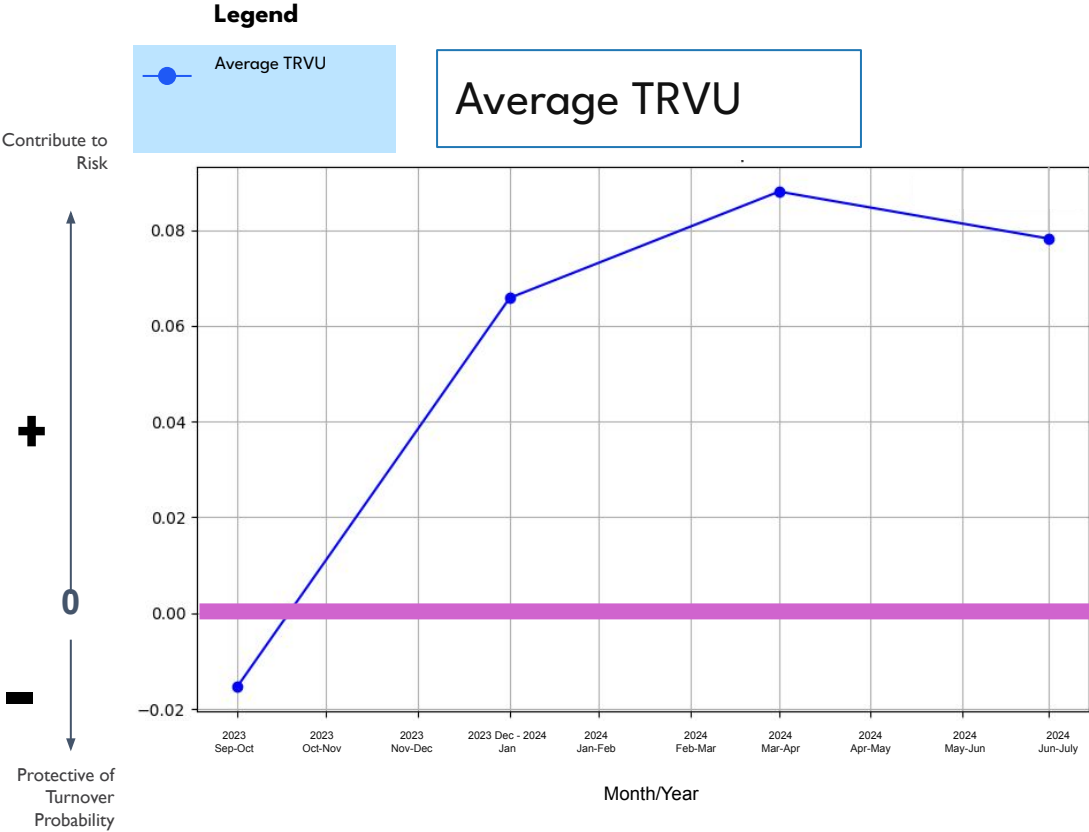
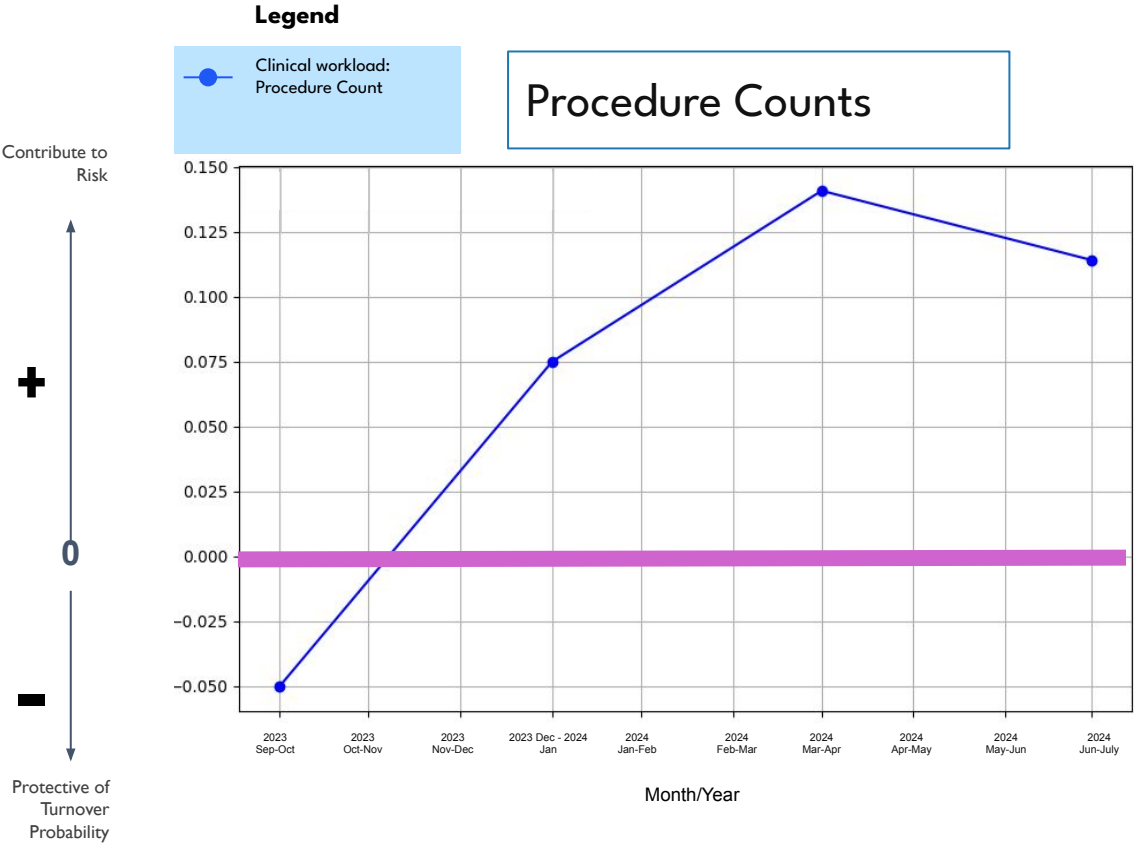
Dr. A
General surgeon



Step 2: Identify potential risk factors to discuss with Dr. A



Step 2: Identify potential risk factors to discuss with Dr. A



Dr. A's story validates the importance of continuous monitoring and early action

- Every individual is unique
- Even with the same individual, things can change over time and new risk factors can arise that require extra support and intervention

Economic Cost of Losing 1 Surgeon

\$500k-\$1M

<https://www.ama-assn.org/practice-management/physician-health/how-much-physician-burnout-costing-your-organization>

Future Opportunities



<https://www.cdc.gov/niosh/docs/2024-109/pdfs/2024-109.pdf?id=10.26616/NIOSH PUB2024109>

Key Takeaways

Unlock the Potential of Your Data

Download The
Research on
Survey
Non-Response
Bias



Thank You

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