Evaluating the Impact of Training on Provider Efficiency

A Data-Driven Analysis of EHR Efficiency Outcomes at

The Ohio State University Wexner Medical Center

Presented in Partial Fulfillment of the Requirements for the Specialized Master of Business Analytics Program in the Fisher College of Business at The Ohio State University

Specialized Master of Business Analytics Candidates:

Sarah Dawson
Amanda Edwards
Liz Hall
Stacy Moore
Mackenzie Szudlo

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1. INTRODUCTION

In today's fast paced world of healthcare, clinical efficiency is much more than just a hot topic – it's a strategic imperative. With increasing demands and rising documentation burdens on providers, the need to optimize time spent in electronic health records (EHRs) is becoming exponentially more important. Healthcare organizations must prioritize the adoption of evidence-based approaches to improve provider workflows without compromising quality of care. At The Ohio State University Wexner Medical Center (OSUWMC), our institution has invested greatly in provider training initiatives designed to promote more efficient EHR usage. These programs span topics including onboarding, targeted efficiency sessions, shadowing, and specialty-specific deep dives. However, until now, there has been limited quantitative evaluation of the true impact these trainings have on both provider behavior and efficiency metrics.

Our capstone aims to address that disconnect by systematically analyzing the relationship between provider training participation and performance outcomes. Using Epic's Signal dataset, our goal is to assess whether participation in training programs contribute to measurable improvements in key efficiency metrics. Targeting metrics such as Time in Clinical Review per Appointment, Time in Notes, and In Basket activity, we aim to identify which types of training programs yield the greatest return on investment.

This analysis focuses on two key areas. First, the overall impact of general training across all providers at OSUWMC. And second, the effectiveness of targeted, metric-specific training sessions. To accomplish this, we utilized a combination of analytical tools like descriptive statistics, paired t-tests, and predictive modeling, including linear and logistic regressions with interaction terms, categorical time-lag comparisons, and program-specific performance analysis. Throughout the analysis, our primary goal is to answer not just whether training works, but how, when, and for whom it works best.

By quantifying the relationship between training and efficiency outcomes, this project aims to provide real and actionable insights to OSUWMC leadership and training teams. It provides a practical approach for assessing the value of training efforts, guiding future program development, and enabling data-informed decisions that benefit both provider experience and organizational outcomes.

Objectives:

- Identify impactful training programs and their effects on provider efficiency across various activities in Epic.
- Determine which training programs most effectively reduce time spent on specific activities.
- Highlight areas in need of intervention to improve efficiency metrics.

- Assist OSU in meeting Epic honor roll criteria for fiscal year 2026 and beyond (FY26 begins July 1, 2025).

2. BACKGROUND

Academic medical centers are under more pressure than ever before to deliver high-quality care. At the same time, they must juggle staffing shortages, shifting technology, and the growing complexity of documentation.[1] Electronic Health Record (EHR) systems like Epic are a key part of clinical workflows. However, when not used optimally, they can often contribute to inefficiencies and add more to the workload on providers.[2] As healthcare continues to evolve toward more data-driven systems, it becomes increasingly important that providers are not just clinically skilled but also comfortable and confident using the tools they rely on every day.

To address this, many healthcare organizations—ours included—have invested in various training and optimization programs aimed at improving EHR proficiency, streamlining workflows, and ultimately enhancing provider efficiency. These interventions range from broad-based onboarding and refresher courses to highly targeted training sessions focused on specific metrics like time spent in notes, In Basket, or clinical review. While these efforts are widely implemented, the actual return on these training investments is often assumed rather than measured. Many health systems continue to rely on anecdotal feedback or isolated success stories to justify ongoing investments in provider training.

At The Ohio State University Wexner Medical Center, we have access to a wealth of provider efficiency data through Epic's Signal platform, which captures granular usage metrics related to EHR behaviors. These data offer a unique opportunity to evaluate the real-world impact of training programs across a diverse clinical workforce. However, extracting meaningful insights from this data requires not only technical capability but also a thoughtful analytical framework—one that accounts for provider role, specialty, baseline usage patterns, and other confounding factors that influence efficiency outcomes.

This project was developed in response to a growing internal need for evidence-based evaluation of training effectiveness. Leadership has expressed interest in determining which programs are associated with tangible improvements in key efficiency metrics, how quickly those changes emerge after training, and whether gains are sustained over time. Moreover, as our organization prepares for future Epic Honor Roll submissions, understanding which interventions move the needle on these metrics becomes both a strategic and financial priority.

In addition to these key efficiency measures, provider performance is also evaluated using Epic's "Honor Roll" framework—a suite of standardized efficiency metrics that represent best-practice use of the EHR. Honor Roll metrics go beyond time tracking to include

benchmarks like note length and preference lists. These metrics are tied to institutional goals, as high Honor Roll performance can unlock significant financial incentives and access to enhanced Epic support. As a result, improving performance on Honor Roll metrics is both a clinical and strategic priority.

Our analysis leverages two years of Signal data, cross-referenced with internal records of training participation. By isolating providers who received targeted interventions and comparing their performance across defined reporting periods, we aim to identify patterns that signal meaningful change. Special attention is paid to time-based metrics (e.g., time in Notes per Appointment, time in Clinical Review per Appointment) as well as Honor Roll–aligned metrics. We also examine the role of specialty, provider type, and key demographic features in shaping EHR behavior—factors that may help tailor future programming for maximal impact.

Ultimately, this work seeks to contribute to a growing movement within healthcare to treat training as a strategic lever, not a box-checking exercise. By surfacing insights from real provider behavior and linking them to educational efforts, we hope to lay the foundation for smarter, more responsive training models that reduce documentation burden, improve satisfaction, and help providers spend more time where it matters most—with their patients.

3. DATA EXPLORATION

Data was provided by the OSUWMC IHIS Training and Optimization Team in three sets: Signal, Training, and Providers.

Signal data is compiled by Epic and sent to OSUWMC for each approximately month-long reporting period, and the dataset contains the calculation for each metric (numerator, denominator and calculated value) for each provider as well as characteristics specific to each provider (e.g., provider type and specialty). Data cleaning for this dataset included combining the multiple monthly files, adjusting for metric changes that happened during the analysis period, and removing duplicates. The cleaned dataset contains 2,246,638 records covering 1/1/23 through 12/28/24. See the Appendix 9.1 for a full description of the dataset.

The ReportingPeriod column was added so that the earliest reporting period was 1, the next reporting period was 2, etc.

Epic's Honor Roll metrics[3] related to provider efficiency are:

Metric	Description	Numerator	Denominator
In Basket Messages Received per Day	Average number of In Basket messages a provider received per day. Excludes pool messages.	Non-pool messages providers received within the reporting period.	Sum of days providers logged in within the reporting period.
Progress Note Length	Average number of characters in a provider's Progress Note. Notes are counted by their date of service.	Characters in all Progress Notes a provider wrote within the reporting period.	Progress Notes providers wrote within the reporting period.
Time in Clinical Review per Appointment	Average number of minutes a provider spent in clinical review activities per appointment. To be included, a provider needs at least 5 appointments scheduled per week within the reporting period.	Minutes providers spent in a clinical review activity or navigator section within the reporting period.	Appointments within the reporting period. Excludes data from days where the UAL data was not submitted.
Time in In Basket per Appointment	Average number of minutes a provider spent in In Basket per scheduled appointment. To be included, a provider needs at least 5 appointments scheduled per week within the reporting period.	Minutes providers spent in an In Basket activity or navigator section within the reporting period.	Appointments within the reporting period. Excludes data from days where the UAL data was not submitted.

Time in Notes per Appointment	Average number of minutes a provider spent writing notes per appointment. To be included, a provider needs at least 5 appointments scheduled per week within the reporting period.	Minutes providers spent in a note activity or navigator section within the reporting period.	Appointments within the reporting period. Excludes data from days where the UAL data was not submitted.
Time in Orders per Appointment	Average number of minutes a provider spent in orders per scheduled appointment. To be included, a provider needs at least 5 appointments scheduled per week within the reporting period.	Minutes providers spent in an orders activity or navigator section within the reporting period.	Appointments within the reporting period. Excludes data from days where the UAL data was not submitted.
Unchanged Defaults from Preference List	Percentage of orders a provider placed from a preference list without modification.	Orders the provider selected from a preference list and signed without modifying order details.	Orders the provider placed from a preference list within the reporting period.

Training data is compiled by the OSUWMC IHIS Training Team on a rolling basis. As training is provided, details of the training and the training participants are then recorded. These details include the training program, training topic, training mode, training session and training length. Data cleaning for this dataset was minimal, as no duplicates were found; there were missing values for Program, which were imputed to be "OSU Provider Coaching," an individualized, non-specific offering. The dataset used for this analysis contains 1378 records covering 1/3/23 through 12/31/24. See the Appendix 9.1 for a full description of the dataset.

The training data was then prepped to suit our analysis. Calculated columns were added to combine data scattered across the provided Areas, Programs and topic-specific columns, resulting in binary columns indicating whether a given training covered InBasket, Communications, Orders, Notes, Navigation, ClinicalReview, Schedule, Workload, PatientList, AmbientListening, and/or Mobile. The data was sorted by EMP CID then Training Date, and a row number partitioned by EMP CID was added so that the earliest training for a provider was Session 1, the next training for that provider was Session 2, etc. This long dataset was

pivoted wider so that each provider had one row, with columns capturing the GeneralTrainingSession1 EventID, TrainingDate and Program; the GeneralTrainingSession2 EventID, TrainingDate and Program, etc. for both general (any training) and specific topics.

Provider data was queried from OSUWMC's Epic Clarity database specifically for this analysis. Details for the unique providers present in the Signal data were pulled, including sex, age, and degree. The dataset contains 5903 records; see the Appendix 9.1 for a full description of the dataset.

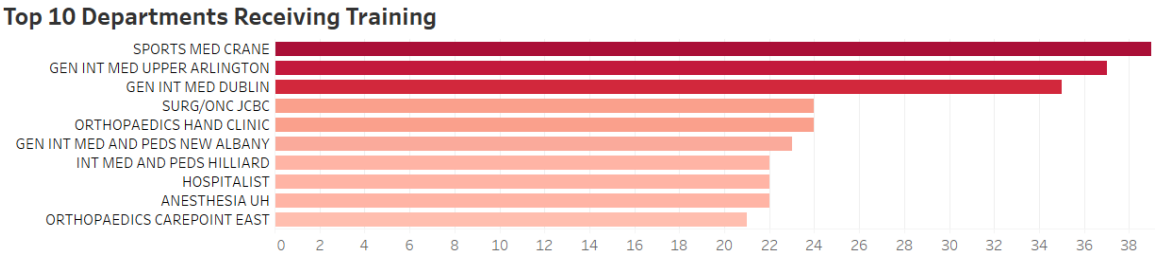
The datasets were then combined. We began with the Signal dataset, using EMPCID, a unique identifier for each provider, as the primary key and joined the Providers dataset and the wide Training dataset. A training status, both general and for specific topics, was calculated by comparing the date(s) of training to the ReportingPeriodEndDate; if any training occurred prior to the ReportingPeriodEndDate, the provider's status was "Trained." Similarly, the number of training sessions that occurred prior to the ReportingPeriodEndDate was counted to obtain the TrainingSessions calculated column. The LastProgram was calculated by finding the most recent training prior to the ReportingPeriodEndDate and selecting the Program name. Using the reporting period containing the date of first training for each provider as the index period, the pre-training reporting period was -1, one-month post-training was reporting period +1, three-months post-training was reporting period + 3, six-months post-training was reporting period + 6, and one-year post-training was reporting period +12; the corresponding values for these comparator periods were recorded.

4. ANALYSIS

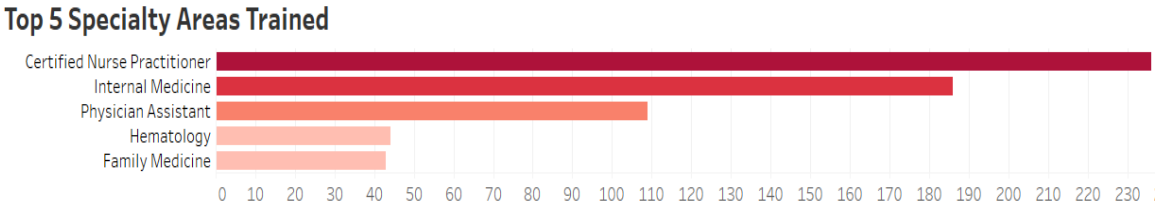
Descriptive Analysis

To understand the relationship between providers and training participation we wanted to know what specialties were being trained. Using the OSUMC team's training dataset, we can clearly see who is participating in training programs.

Training Participation and Demographic Composition



The top departments are Sports Medicine Jamison Crane location followed closely by General Internal Medicine in UA and Dublin. Several internal medicine departments in New Albany and Hillard also show up in the top 10.



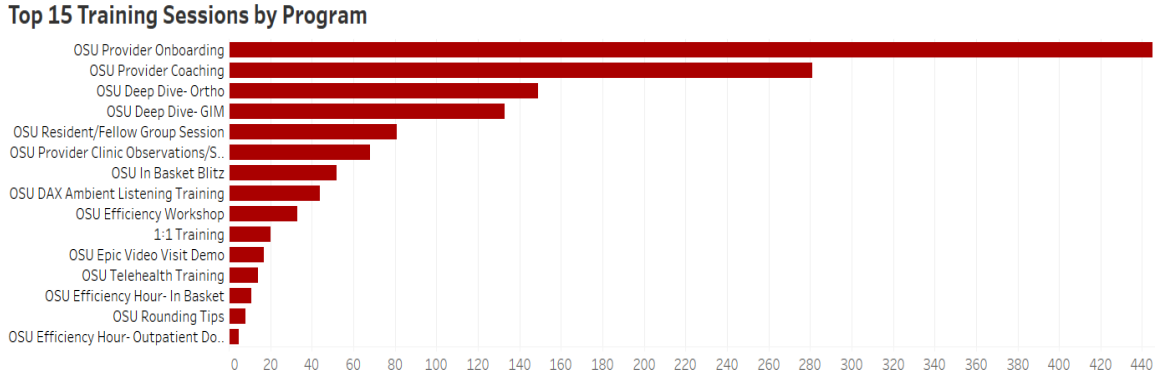
Certified Nurse Practitioners are the largest areas taking training. This suggests that CNPs, often at the frontline of care, may be more actively involved in documentation-heavy workflows. EHR training may be especially appealing to this group due to their broad clinical responsibilities across various care settings.

Specialties such as Internal Medicine and Physician Assistants also show strong participation, likely reflecting both their large departmental size and the complexity of their workflows.

Consistent with the chart above, internal medicine is the second highest followed by physician assistants. There is a sharp decline in the other specialty areas including hematology and family medicine.

Training Participation and Provider Demographics: Key Insights

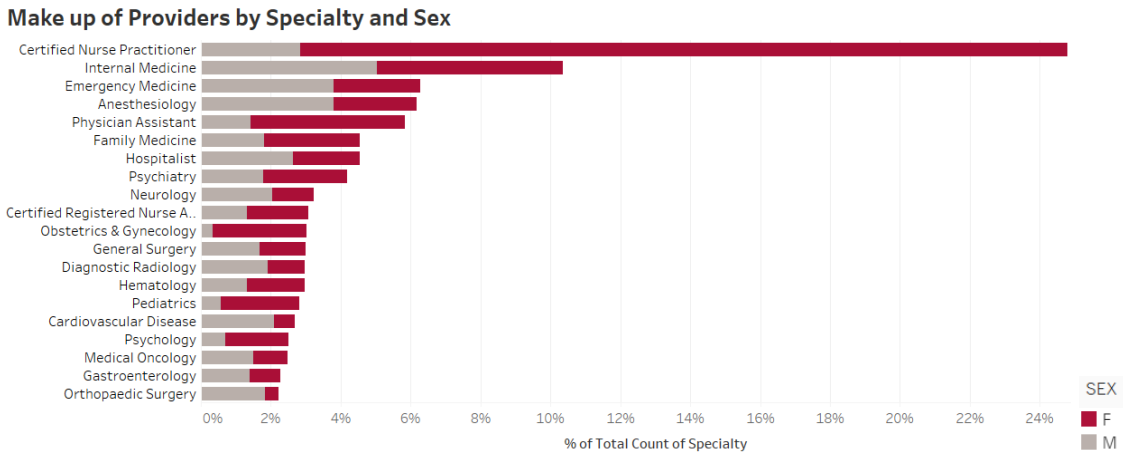
This chart highlights the training programs with the highest levels of training participation.



Onboarding and provider coaching account for nearly 50% of the top 15 training sessions. This highlights the most impactful training, making these programs prime candidates for optimization.

Certified Nurse Practitioners (CNPs) exceed other specialties in training engagement. To contextualize these findings, we examined the overall provider composition at OSUWMC. Our data show that Certified Nurse Practitioners represent 25% of all provider specialty areas. Internal Medicine, Emergency Medicine, and Anesthesiology follow as the next largest groups. Notably, Emergency Medicine appears underrepresented in training participation relative to its size, suggesting an opportunity to improve outreach or tailoring of training for this specialty.

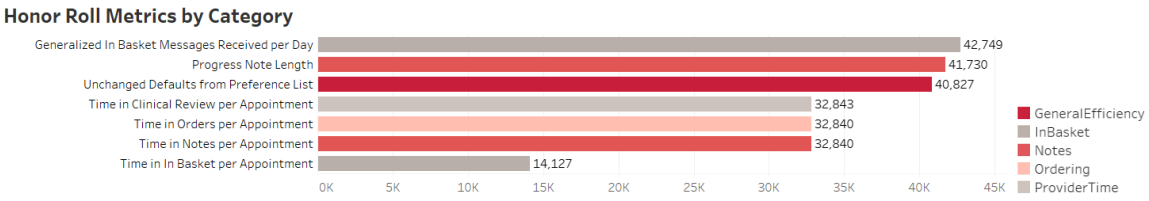
Additionally, analyzing gender distribution by specialty provides important context for tailoring training communication and delivery. For example, aligning training materials and scheduling with dominant gender demographics within each specialty could help improve engagement and inclusivity.



Analysis reveals that the largest provider group—both in terms of overall size and training participation—is predominantly female. This demographic insight is particularly notable among Certified Nurse Practitioners and certain specialties like Obstetrics & Gynecology and Pediatrics.

Understanding the gender makeup of the workforce has practical implications for training program design. Tailoring educational materials, imagery, communication styles, and delivery formats to better align with the preferences and expectations of a female-majority audience may improve relevance. This insight can inform the design of training materials—such as imagery, language to better resonate with this audience and enhance engagement. Messaging that resonates with providers' day-to-day experiences—especially in roles that are both clinically demanding and documentation-intensive—may reinforce the value and applicability of the training content.

With an understanding of the training programs and training, it's time to examine specific training that impacts honor roll metrics.



Focusing on the honor roll metrics, this examines the distribution of provider activity data across key Epic Signal metric categories, as visualized in the "Honor Roll Metrics by Category" chart. The analysis is based on counts of metric records and grouped by category, providing insight into the most populated areas of provider performance data.

Category Descriptions

- **General Efficiency**: Reflects communication and administrative load (e.g., messages received).
- **Notes**: Captures behaviors related to documentation volume and efficiency.
- **Provider Time**: Includes metrics tied to time spent in various parts of the EHR workflow, often correlating with satisfaction and burnout.
- **In Basket and Ordering**: Reflect tasks that can be streamlined through targeted workflow optimization and training.

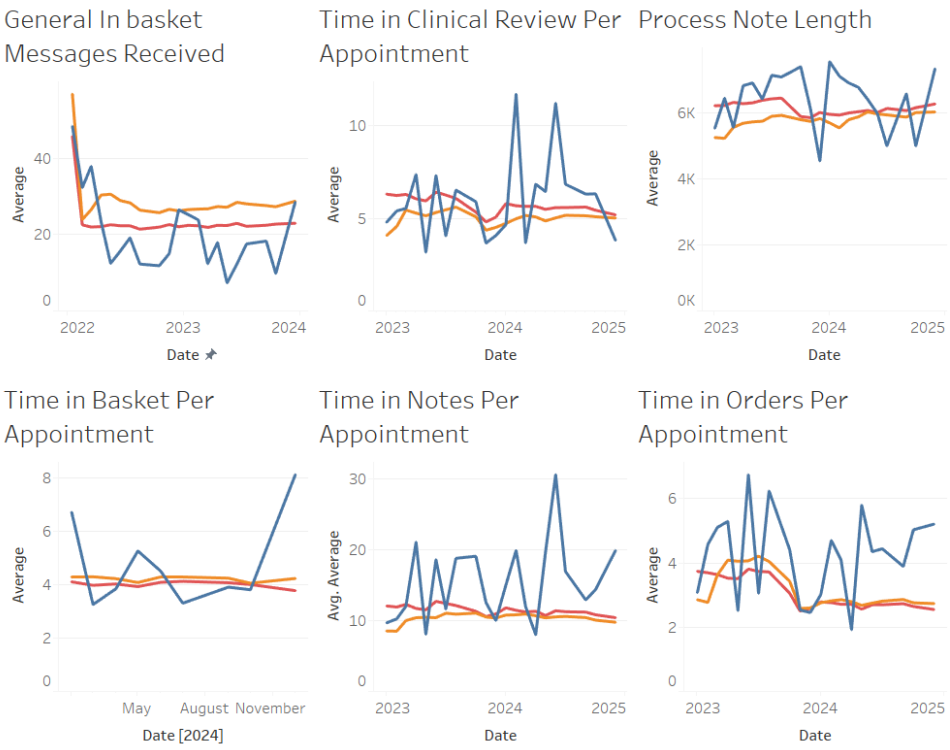
The Most Common Metric Categories with the highest data volumes are General Efficiency, Notes and Provider Time. Each of these categories contains over 30,000 to 40,000 individual metric entries, indicating heavy provider engagement and relevance for performance tracking. The individual metrics with the highest counts include Progress Note Length, Time in Clinical Review per Appointment and Generalized In Basket Messages Received per Day. This suggests areas where providers spend significant time and effort, making them prime targets for efficiency improvements.

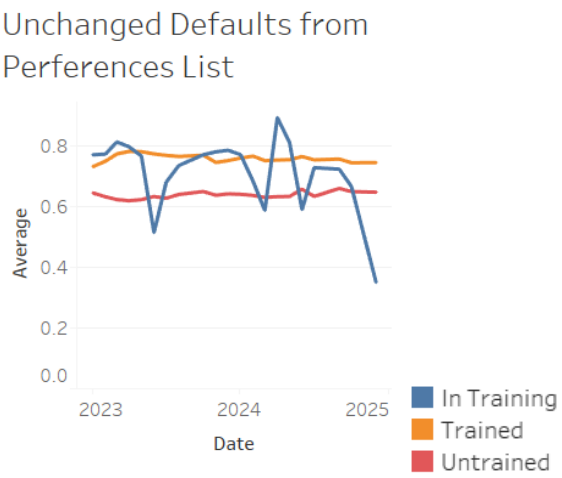
For training, this implies that Training programs focused on SmartTools, note efficiency, and In Basket management are highly relevant and can offer the greatest opportunity for measurable impact on provider performance and overall satisfaction.

The chart underscores the importance of aligning training with the most data-rich and behaviorally significant EHR usage areas. Tailoring training content to focus on Notes, General Efficiency, and Provider Time metrics may maximize impact and support honor roll performance improvements across specialties.

Honor Roll Metric Value Over Time by Training Status

How does the training impact each metric? Is there a positive or negative trend that is consistent for a specific metric, and how does each metric differ? If there are measurable increases or decreases what are the trends over time? These charts show the Epic signal data for these metrics and allows us to compare them for those that are untrained, in training and trained employees over time.





1. **General In Basket Messages Received -** Trained providers appear to have more in basket messages received. This can indicate an increased overall capacity based on more efficient in basket message processing.
2. **Time in Clinical Review per Appointment -** Trained providers spend less time reviewing charts compared to untrained peers. This indicates improved navigation skills and more efficient chart review processes due to training.
3. **Process Note Length -** Trained providers' notes are shorter on average compared to untrained ones. Suggests improved use of SmartPhrases or templating tools, leading to more concise and efficient documentation.
4. **Time in In Basket per Appointment -** Trained providers appear to spend slightly more time in the In Basket compared to untrained. This requires a deeper understanding of the training objectives and this outcome. It can indicate changes for training content for a more efficient goal being less time in basket per appointment.
5. **Time in Notes per Appointment -** Trained providers consistently spend less time documenting each appointment. This shows some efficiency gains for training, but the difference appears small and could be increased.
6. **Time in Orders per Appointment -** Trained providers tend to spend more time placing orders than untrained ones. This could reflect improved customization practices or increased thoroughness due to training. Time increase here may not be negative—it might indicate enhanced care quality.
7. **Orders with Unchanged Defaults -** Trained providers change default order settings more than untrained providers. Suggests training impacts ordering behavior by encouraging more tailored and appropriate choices, but are not making this more efficient for this EPIC metric.

Training programs show measurable effects on most of the honor roll metrics. While some trained providers spend more time on certain tasks, this may reflect deeper engagement

and better compliance rather than inefficiency. Insights from these visualizations support the value of tailored training and ongoing support for providers across different specialties and roles.

Predictive Analysis

The primary aim of this project was to evaluate whether participation in training programs leads to measurable improvements in Honor Roll metrics, such as progress note length and time spent in clinical review. To assess this, we conducted paired t-tests and linear regression analyses to examine the effect of training on our primary outcome variable, 'Value'; for both, the p-value 0.05 was selected. Metrics were assessed at baseline (pre-training), immediately post-training, and at three-, six-, and twelve-month intervals following program completion.

Paired t-test results indicate that providers who received any training demonstrated significant reductions in the following metrics:

- Time in Clinical Review per Appointment
- In Basket Messages Received per Day
- Time in Notes per Appointment
- Progress Note Length
- Time in Orders per Appointment

There were no statistically significant changes in Time in In Basket per Appointment or Unchanged Defaults from the Preference List. However, a downward trend in Time in In Basket per Appointment suggests a potential improvement over time.

The accompanying tables present the paired t-test results at each time point before and after training and further detail the specific impact of Clinical Review Training, Notes Training, and Orders Training. No significance was found in Communications Training, however the sample size of 40 is small:

- Clinical Review Training led to the most consistent improvements across Time in Clinical Review, Time in Orders, In Basket Messages, and Time in Notes.
- Notes Training showed consistent reductions in Time in Notes, Time in Clinical Review, Messages, and Orders. Notably, Progress Note Length was significantly lower at six and twelve months post-training, though not immediately post-training or at three months.
- Orders Training resulted in reductions in Time in Orders, Time in Notes, and Messages.

Average Values Pre-and Post-Training: Any Training (n=1978)					
		Average Value Post-Training			
Metric	**Pre-Training Average Value**	**1 Month**	**3 Months**	**6 Months**	**1 Year**
Time in Clinical Review per Appointment	4.899	4.407 *	4.441 *	4.557 *	4.126 *
Time in In Basket per Appointment	3.684	3.06	3.348	3.532	3.328
In Basket Messages Received per Day	44.138	30.5 *	30.863 *	31.143 *	31.232 *
Time in Notes per Appointment	10	9.187 *	9.054 *	9.19 *	8.853 *
Progress Note Length	5611.718	5512.41	5538.865	5406.162 *	5312.426 *
Time in Orders per Appointment	3.878	3.714 *	3.648 *	3.683 *	2.614 *
Unchanged Defaults from Preference List	0.784	0.781	0.772	0.8	0.798

*Significant at alpha = 0.05 for a paired t test. For Unchanged Defaults from Preference List metric, comparison is for greater number post-training; for all other metrics, comparison is for lower number post-training.

Average Values Pre-and Post-Training: Clinical Review Training (n= 823)					
		Average Value Post-Training			
Metric	Pre-Training Average Value	1 Month	3 Months	6 Months	1 Year
Time in Clinical Review per Appointment	5.22	4.42 *	4.551 *	4.564 *	3.957 *
Time in In Basket per Appointment	3.46	2.865	2.914	3.287	3.055
In Basket Messages Received per Day	42.3	27.946 *	28.663 *	29.82 *	29.267 *
Time in Notes per Appointment	10.493	9.41 *	9.55 *	9.198 *	8.501 *
Progress Note Length	4854.488	4803.006	4847.006	4513.717 *	4748.002
Time in Orders per Appointment	3.386	3.107 *	3.144 *	3 *	2.259 *
Unchanged Defaults from Preference List	0.785	0.775	0.773	0.791	0.799

Average Values Pre-and Post-Training: Communications Training (n= 40)					
		Average Value Post-Training			
Metric	Pre-Training Average Value	1 Month	3 Months	6 Months	1 Year
Time in Clinical Review per Appointment	7.4	6.575	9.261	6.373	7.107
Time in In Basket per Appointment	NaN	NaN	NaN	NaN	NaN
In Basket Messages Received per Day	16.947	21.991	29.742	20.915	23.707
Time in Notes per Appointment	14.534	13.458	12.873	14.682	14.04
Progress Note Length	10588.714	11585.136	11507.398	11977.49	12484.039
Time in Orders per Appointment	5.727	4.812	4.47	5.511	4.544
Unchanged Defaults from Preference List	0.748	0.689	0.725	0.764	0.709

*Significant at alpha = 0.05 for a paired t test. For Unchanged Defaults from Preference List metric, comparison is for greater number post-training; for all other metrics, comparison is for lower number post-training.

Average Values Pre-and Post-Training: Notes Training (n= 1422)					
		Average Value Post-Training			
Metric	Pre-Training Average Value	1 Month	3 Months	6 Months	1 Year
Time in Clinical Review per Appointment	4.494	4.105 *	4.18 *	4.335	3.827 *
Time in In Basket per Appointment	3.384	2.702	2.852	3.26	3.079
In Basket Messages Received per Day	41.362	32.269 *	32.261 *	33.374 *	33.115 *
Time in Notes per Appointment	9.569	8.803 *	8.817 *	8.98 *	8.758 *
Progress Note Length	5075.82	4924.17	4975.932	4608.602 *	4648.491 *
Time in Orders per Appointment	4.14	3.93 *	3.933 *	4.014	2.762 *
Unchanged Defaults from Preference List	0.814	0.818	0.809	0.83	0.827

Average Values Pre-and Post-Training: Orders Training (n= 1380)					
		Average Value Post-Training			
Metric	Pre-Training Average Value	1 Month	3 Months	6 Months	1 Year
Time in Clinical Review per Appointment	4.635	4.216 *	4.304 *	4.394 *	3.933 *
Time in In Basket per Appointment	3.369	2.671	3.078	3.239	2.988
In Basket Messages Received per Day	41.229	31.116 *	31.352 *	31.746 *	31.992 *
Time in Notes per Appointment	9.489	8.666 *	8.662 *	8.762 *	8.49 *
Progress Note Length	5460.007	5339.634	5366.288	5059.043 *	5258.134
Time in Orders per Appointment	3.963	3.74 *	3.76 *	3.79	2.62 *
Unchanged Defaults from Preference List	0.799	0.81	0.795	0.819 *	0.815

*Significant at alpha = 0.05 for a paired t test. For Unchanged Defaults from Preference List metric, comparison is for greater number post-training; for all other metrics, comparison is for lower number post-training.

This analysis suggests that training programs can meaningfully improve many of the Honor Roll metrics and continue to show improvement above baseline for 1-year post-training.

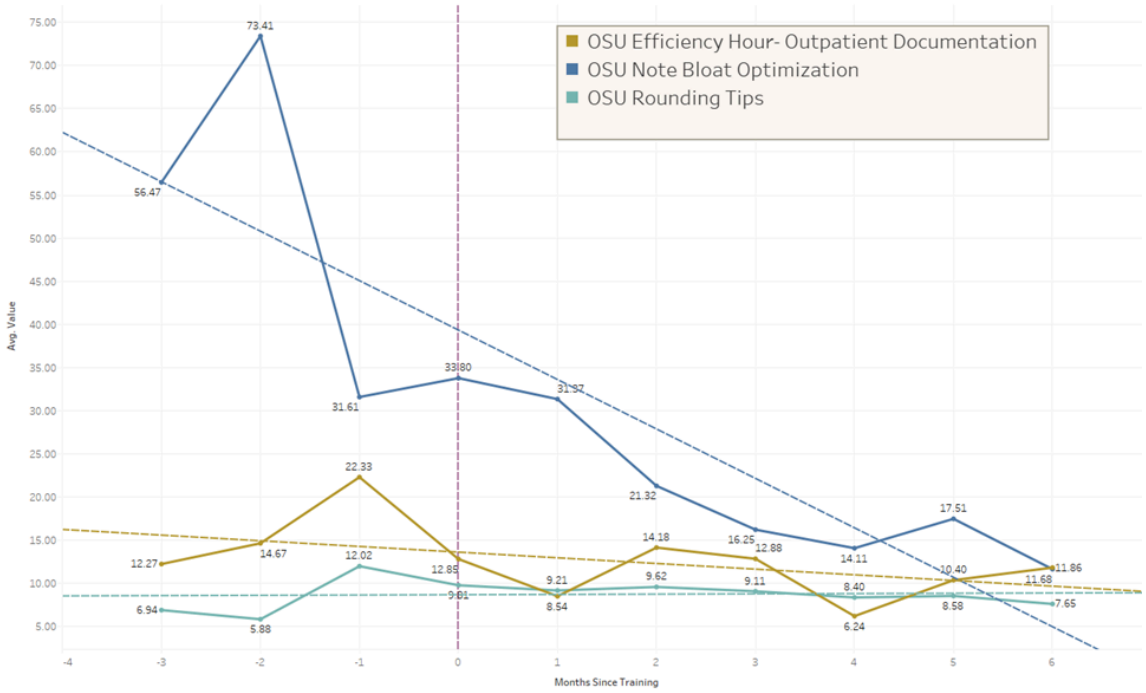
In addition to comparing within-subject improvement, we performed linear regression models evaluating Trained providers versus Not Trained Providers (see Appendix 9.2 for full models). Notably, there was no significant difference between these groups for Time in In Basket per Appointment and Unchanged Defaults from the Preference List. This may indicate that training does not effectively target In Basket Efficiency metrics or potentially that in basket message volume is influenced by external factors beyond the provider's control. Similarly, the lack of impact on unchanged defaults may suggest that training does not cover preference list customization, or that current default options are insufficient or underutilized.

Time In Clinical Review showed an interesting result in that group differences (Trained vs Not Trained) were not observed immediately but rather at longer time points of 6-12 months and over 1 year. This suggests that there is a learning curve in applying the training content before meaningful improvements in this metric are realized. In contrast, Time in Notes and Time in Orders showed earlier improvements, with significant differences appearing within 3–5 months post-training. This may indicate that the skills addressed in training for these tasks are more readily implemented in clinical practice.

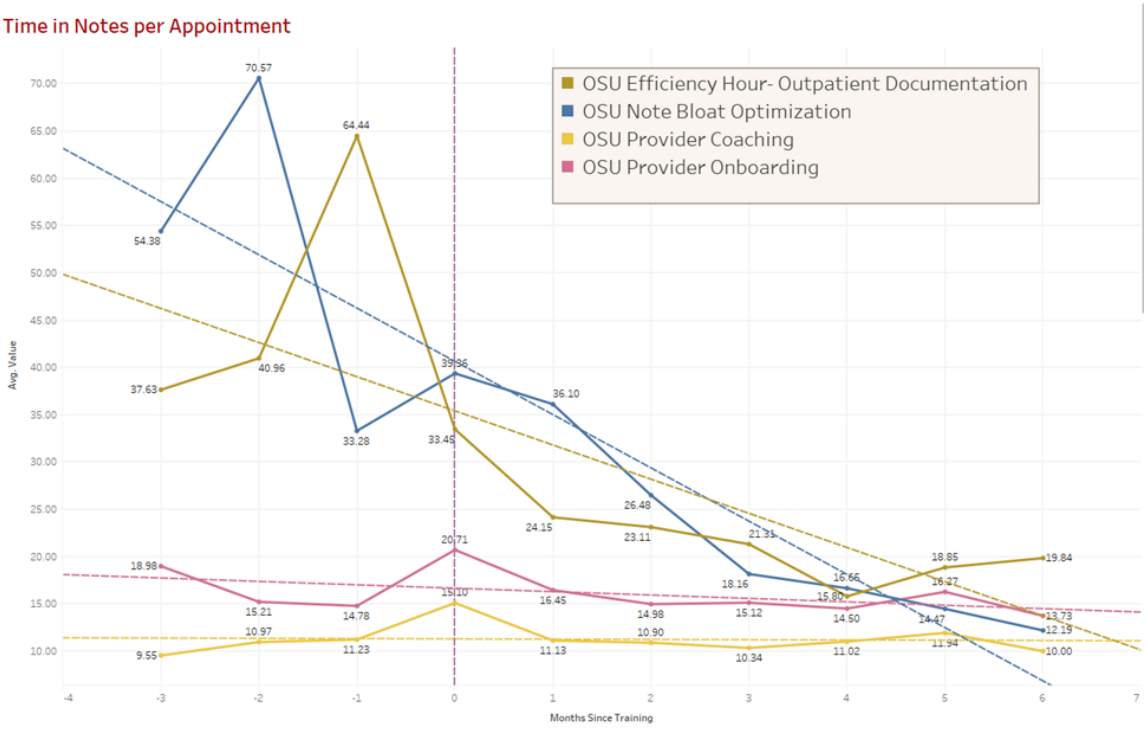
To further investigate these effects, we analyzed each training program in relation to specific metric values and noted a downward trend in some outcome measures. The metrics were standardized to be measured from 4-months pre-training to 6-months post-training. We have included several plots below, however relationship observations are as follows:

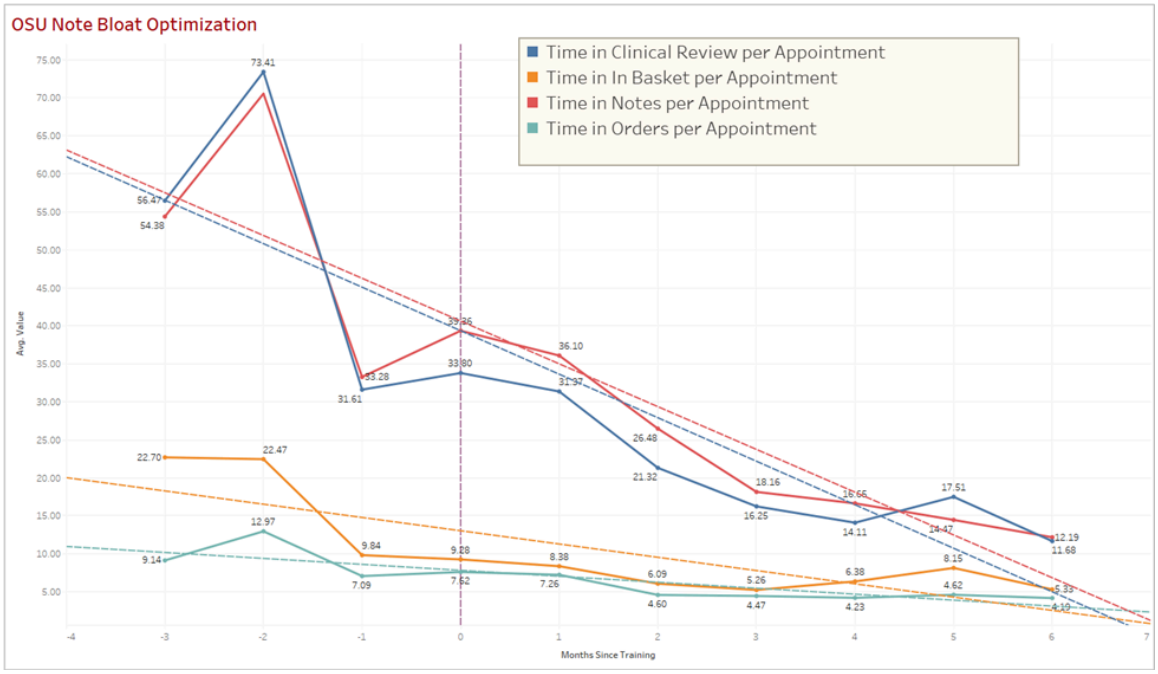
- The OSU Note Bloat Optimization program demonstrated the greatest correlation with Time in Clinical Review per Appointment, Time in Notes per Appointment, Time in In Basket per Appointment, and Time in Orders per Appointment.
- OSU Efficiency Hour also positively correlated with Time in Notes per Appointment.
- In Basket Messages Received per Day was most impacted by OSU Provider Onboarding.
- Progress Note Length showed the greatest reduction following OSU Efficiency Hour – Outpatient Ordering and Preference List.
- Unchanged Defaults from the Preference List showed a general downward trend across all programs, although results were not statistically significant.

Time in Clinical Review per Appointment



Time in Notes per Appointment





In addition to linear regression, we conducted a logistic regression analysis (see Appendix 9.4 for full model). We created a binary outcome variable called *Improved*, where a value of 1 indicated that a provider spent less time on a given metric after training, and 0 indicated no improvement. The logistic regression model included the training program, the specific metric, and their interaction as predictors. The table below displays the interaction effects between each program and metric. For example, the first row shows that providers who completed the OSU Provider Onboarding program were 4.725 times more likely to improve in their Time in Orders per Appointment metric compared to those who did not complete the program. This finding is important as it shows an association between programs taken and the potential change in a given metric. Applying this clinically, providers may benefit from selecting specific training programs tailored to the metrics where they need the most improvement.

Significant Program × Metric Interactions

From Logistic Regression Model

Term	Estimate	Std_Error	Z_Value	P_Value
ProgramOSU Provider Onboarding:MetricTime in Orders per Appointment	4.725	0.589	8.028	0.000
ProgramOSU Provider Onboarding:MetricTime in Clinical Review per Appointment	3.617	0.547	6.612	0.000
ProgramOSU Provider Onboarding:MetricTime in Notes per Appointment	3.798	0.589	6.446	0.000
ProgramOSU Provider Onboarding:MetricProgress Note Length	3.272	0.540	6.063	0.000
ProgramOSU Provider Clinic Observations/Shadowing:MetricTime in Orders per Appointment	3.432	0.660	5.203	0.000
ProgramOSU Provider Onboarding:MetricUnchanged Defaults from Preference List	2.622	0.526	4.986	0.000
ProgramOSU Provider Clinic Observations/Shadowing:MetricProgress Note Length	3.022	0.620	4.876	0.000
ProgramOSU Deep Dive- GIM:MetricTime in In Basket per Appointment	−3.116	0.699	−4.461	0.000
ProgramOSU Deep Dive- Ortho:MetricTime in In Basket per Appointment	−3.626	0.893	−4.059	0.000
ProgramOSU Provider Clinic Observations/Shadowing:MetricTime in Clinical Review per Appointment	2.387	0.621	3.846	0.000
ProgramOSU Deep Dive- GIM:MetricUnchanged Defaults from Preference List	−2.605	0.693	−3.759	0.000
ProgramOSU Provider Clinic Observations/Shadowing:MetricTime in Notes per Appointment	2.464	0.657	3.750	0.000
ProgramOSU Deep Dive- GIM:MetricTime in Notes per Appointment	−2.518	0.696	−3.619	0.000
ProgramOSU Deep Dive- GIM:MetricTime in Orders per Appointment	−2.313	0.691	−3.346	0.001
ProgramOSU Provider Clinic Observations/Shadowing:MetricUnchanged Defaults from Preference List	1.947	0.602	3.232	0.001
ProgramOSU Deep Dive- GIM:MetricTime in Clinical Review per Appointment	−2.172	0.689	−3.150	0.002
ProgramOSU Epic Video Visit Demo:MetricProgress Note Length	3.065	0.995	3.080	0.002
ProgramOSU In Basket Blitz:MetricProgress Note Length	1.893	0.633	2.990	0.003
ProgramOSU Deep Dive- Ortho:MetricUnchanged Defaults from Preference List	−2.565	0.886	−2.893	0.004
ProgramOSU Deep Dive- Ortho:MetricTime in Notes per Appointment	−2.509	0.901	−2.784	0.005
ProgramOSU Deep Dive- Ortho:MetricTime in Orders per Appointment	−2.386	0.888	−2.686	0.007
ProgramOSU Epic Video Visit Demo:MetricTime in Orders per Appointment	2.512	0.987	2.545	0.011
ProgramOSU Provider Onboarding:MetricTime in In Basket per Appointment	1.361	0.546	2.493	0.013
ProgramOSU Deep Dive- Ortho:MetricTime in Clinical Review per Appointment	−2.185	0.890	−2.455	0.014
ProgramOSU Provider Coaching:MetricTime in Orders per Appointment	1.243	0.523	2.375	0.018
ProgramOSU Resident/Fellow Group Session:MetricProgress Note Length	3.406	1.505	2.263	0.024
ProgramOSU Deep Dive- Ortho:MetricProgress Note Length	−1.931	0.895	−2.157	0.031
ProgramOSU Resident/Fellow Group Session:MetricUnchanged Defaults from Preference List	3.546	1.658	2.139	0.033

In summary, our primary objective was to determine whether participation in medical provider training programs is associated with measurable improvements in Honor Roll metrics. As described above, our analysis shows that program participation results in statistically significant improvement in many of these metrics. When comparing Trained versus Not Trained providers, we see group differences in these metrics as well. Metrics such as Time in Clinical Review took 6+ months to see the benefit from training, whereas others we observe immediate effects. These group differences mean that Trained providers demonstrate increased documentation and workflow efficiency. Furthermore, our analysis helps identify which specific metrics are more likely to improve based on the training program attended, offering a potential path for more personalized and effective provider development.

5. DISCUSSION

Our analysis should be considered in context, so it is worth noting that OSU Provider Onboarding and OSU Provider Coaching differ meaningfully from the other training programs in both structure and intent. OSU Provider Onboarding, while not mandatory, is highly encouraged for all new providers joining the medical center. This broad recommendation explains the relatively large participation volume, as it is often one of the first trainings suggested to new hires. Conversely, OSU Provider Coaching operates as a provider-initiated program. Providers reach out to request individualized support for specific questions or workflows. These one-on-one sessions are highly tailored, with topics varying widely depending on provider needs. These two programs differ from other offerings, which are designed by the training team as targeted interventions for specific activities (e.g., ordering, note efficiency) or specialties (e.g., Internal Medicine, Ortho). These are strategically developed and then marketed to relevant provider audiences. Recognizing these distinctions is essential when interpreting program participation rates and training outcomes, as the nature of engagement and learning objectives may vary substantially.

We used both the raw numeric metric value and a calculated binary value that tracked whether the metric improved to enable linear and logistic regression, respectively. The logistic regression allowed us to compare all metrics within one model, while linear regression models had to be created separately for each metric.

Limitations

There are some limitations to our analysis. We did not consider training that occurred prior to our period of interest; by including providers who were potentially trained in the Untrained category, we may be including the impacts of their training on their metrics. Additionally, there is the potential for self-selection bias, in that providers who were already better at efficiency metrics could be those most likely to enroll in optional training. Finally, there could be unequal marketing of specific training programs to providers; for example, Provider Onboarding may be mentioned to new OSUWMC employees during OSUWMC orientation, reaching a much wider audience than an email sent to clinic managers for distribution to their clinic providers.

We recognize that data relevant to our analyses may not have been available. We expect that a provider's length of time in Epic, and how much of it was at OSUWMC or another institution, would be a significant contributor to overall efficiency as well as how effective training ultimately is on an individual basis. We would also recommend including additional training program factors that may influence success:

- Training mode (in-person, e-learning)
- Number of learners
- Length of training

- Training approach (didactic, interactive, etc.)
- Whether training was mandated or voluntary
- How the provider heard about training

Two interesting trends emerged during analysis: the departments and provider types who most frequently took training were associated with facilities that opened during our analysis period and the time in in basket metric actually increased for trained providers.

The top three departments participating in training (Sports Medicine Jameson Crane and General Internal Medicine in Upper Arlington and Dublin) are housed in relatively new facilities and likely opened or substantially expanded during our period of interest. As such, there was likely a higher proportion of new employees at these sites, and these new employees may be more likely to take the two most popular training offerings (Onboarding and Coaching).

Trained providers had higher time in in basket than untrained providers, which could suggest that training negatively affected this metric or that there is something else at work here. For context, in basket time covers both messages sent and received. It is possible that trained providers get more work done and therefore have a higher number/intensity of messages to deal with. A further analysis of the number and complexity of in basket messages would be required to determine the cause of this finding.

Areas for Future Investigation

Providers' preferences for training mode and/or content are also expected to differ across individuals. To gather this data for future analysis, a survey was developed (see Appendix 9.3) to collect individual provider preferences and assemble data that would be useful for a prescriptive analysis of what types of training on which topics should be developed and offered to which providers, based on self-identified provider characteristics.
A closer analysis of the impact of recurring training is merited. Our analysis is based on pre- and post-metrics using the first training date in the period as the index date. Some providers took more than one training session; future exploration is warranted to determine whether and how much improvement in efficiency is seen based on additional and/or complementary training.

The Signal dataset combined with training and provider data is extensive and has the potential to be used for many additional analyses, including to:

- Identify providers who would most benefit from training
- Evaluate potential impact of making certain training programs mandatory for certain providers
- Monitor for provider burnout via additional Signal metrics
    - Time in system per day
    - Pajama time
    - Time on unscheduled days

    - Time outside scheduled hours
- Recommend optimal staffing schedules

6. CONCLUSIONS

The comprehensive analysis of provider training initiatives at The Ohio State University Wexner Medical Center (OSUWMC) demonstrates that targeted, data-driven training programs are associated with measurable improvements in electronic health record (EHR) efficiency across several key metrics1. Statistically significant gains were observed in documentation efficiency (notably reduced time in notes and shorter progress note length), chart review, and in basket management for trained providers, especially when training emphasized personalization and effective use of SmartTools1. While not all metrics showed uniform improvement—and some, such as time in in basket per appointment, were less responsive to training—the overall trend supports the value of continued investment in provider education.

Several important insights emerged:

Training Impact Is Metric- and Program-Specific: Improvements were most pronounced in metrics directly targeted by specialized training sessions, such as Clinical Review and Notes Training, with some effects (e.g., time in clinical review) becoming more evident after a longer post-training interval, indicating a learning curve for adoption1.

Demographic and Specialty Considerations: Certified Nurse Practitioners and Internal Medicine providers were the most engaged in training, and the predominantly female composition of these groups suggests opportunities to further tailor training content and delivery for maximal engagement and effectiveness1.

Strategic Alignment: Focusing future training on specialties most relevant to institutional goals (e.g., Epic Honor Roll criteria) and expanding outreach to underrepresented groups such as Emergency Medicine will maximize organizational impact1.

Continuous Improvement: The findings highlight the need for ongoing refinement of training programs, including the integration of provider feedback, more nuanced tracking of training history, and periodic reassessment of training objectives as clinical workflows and EHR functionalities evolve1.

Recommendations for OSUWMC Leadership:

Prioritize training for specialties with the greatest potential to impact key institutional benchmarks.

Expand and refine training content on EHR personalization and SmartTools.

Increase engagement with underrepresented specialties through targeted outreach and specialty-specific modules.

Update training evaluation methodologies to better capture the effects of prior and repeated training.

Leverage demographic insights to enhance the relevance and inclusivity of training materials.

Incorporate direct provider feedback to ensure training remains responsive to evolving needs.

Monitor metrics where trained providers spend more time to distinguish between improved compliance and potential inefficiency, adjusting training content as needed1.

By implementing these strategies, OSUWMC can further enhance provider efficiency, satisfaction, and organizational performance, supporting both clinical excellence and the achievement of strategic objectives such as Epic Honor Roll status.

7. ACKNOWLEDGEMENTS

We would like to extend our sincere thanks to the Ohio State University Wexner Medical Center's Training and Optimization team for granting us access to the data that made this analysis possible. We are also grateful to Professor Elliot Bendoly for his thoughtful guidance, feedback, and encouragement throughout the duration of this work. Finally, we would like to acknowledge all the professors in the Specialized Master of Business Analytics program for equipping us with the analytical tools and critical thinking skills that served as the foundation for this capstone experience.

8. REFERENCES

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3. Epic Signal Metrics Definitions. Available at signal.epic.com. Accessed 3/15/25.

Additional information regarding Epic software is available at galaxy.epic.com.

9. Appendix

9.1 Data Definitions

9.1.1 Signal Data

Field	Definition	Type
EmpCID	Unique employee ID	Numeric
SerCID	Unique provider ID	Numeric
ProviderType	Epic-assigned provider type	Categorical • Physician • Nurse Practitioner • Anesthesiologist • Resident • Nurse Anesthetist • Fellow
ServiceArea	Unique identifier of institution (OSUWMC)	Numeric
Department	Epic-assigned primary department for provider	String
Specialty	Epic-assigned specialty for provider	String
UserType	Epic-assigned user type for provider	Categorical • Physician • APP • Residents and Fellows
ReportingPeriodStartDate	Beginning of time period for record	Date
ReportingPeriodEndDate	End of time period for record	Date
Metric	Name of measure	String
Numerator		Numeric
Denominator		Numeric
Value	Numerator / Denominator	Numeric
Metric ID	Unique ID assigned by Epic to each metric	Numeric

9.1.2 Training Data

Field	**Definition**	**Type**
Program	Name of the training program	String
Event ID	Unique ID for individual training event	Numeric
Training Date	Date on which training was provided	Date
Training Title	Name of the specific curriculum	String
Trainer	Training team employee(s) providing training	String
Trainee Department	Trainer-recorded primary department for trainee	String
Trainee Specialty	Trainer-recorded area of practice for trainee	String
EMP CID	Unique employee ID	Numeric
SER CID	Unique provider ID	Numeric
InBasket	Did this training cover In Basket tools?	Binary
Communications	Did this training cover communications?	Binary
Orders	Did this training include ordering tools?	Binary
Notes	Did this training include note tools and/or address “note bloat”?	Binary
Navigation	Did this training cover approaches to navigation within the EMR?	Binary
ClinicalReview	Did this training cover approaches to Clinical Review?	Binary
Schedule	Did this training include	Binary

	schedule tools?	
Workload	Did this training address workload?	Binary
PatientList	Did this training include Patient List functionality?	Binary
AmbientListening	Did this training include DAX?	Binary
Mobile	Did this training include mobile tools (Haiku/Canto)?	Binary
TargetedSpecialty	Was this training specifically arranged for / presented to a specific specialty?	Binary

9.1.3 Provider Data

Field	**Definition**	**Type**
USER_ID	Unique identifier for employees within IHIS (OSUWMC's Epic EMR)	String
PROV_ID	Unique identifier for providers within IHIS (OSUWMC's Epic EMR)	String
PROV_TYPE	Type of provider (e.g., nurse, doctor)	String
DOCTORS_DEGREE	The medical degree(s) recorded for the provider	String
SEX	Provider's recorded sex	String
Age on 12/31/24	Providers age at the end of the period of interest	Numeric
Specialty	Provider's recorded area of practice	String
EMP CID	Unique identifier for linking to Training dataset	Numeric

9.1.4 Combined Data

Field	**Definition**	**Type**
EmpCID	Unique employee ID	Numeric
ProviderType	Epic-assigned provider type	Categorical ● Physician ● Nurse Practitioner ● Anesthesiologist ● Resident ● Nurse Anesthetist ● Fellow
Specialty	Epic-assigned specialty for provider	String
ReportingPeriodStartDate	Beginning of time period for record	Date
ReportingPeriodEndDate	End of time period for record	Date
Metric	Name of measure	String
Value	Numerator / Denominator	Numeric
ReportingPeriod	The earliest reporting period in the dataset is 1, then the reporting period increases chronologically.	Numeric
XXXTrainingStatusForReportingPeriod	Whether the provider was trained or [XXX] for the particular reporting period	Categorical ● Trained ● Untrained
Improved?	Whether the metric value improved for the provider compared to the prior reporting period	Binary
TrainingSessions	The number of training sessions a provider had participated in prior to this reporting period	Numeric
LastProgram	The most recent training program a provider had participated in prior to this reporting period	String

XXXMonthsSinceLastTraining	The number of months between the provider's last training session on [XXX] and this reporting period	Numeric
XXXMonthsSinceTrainingFactor	The number of months between the provider's last training session on [XXX] and this reporting period	Categorical ● 0-2 months ● 3-5 months ● 6-12 months ● >1 year

9.2 Linear Regression Models

For all of the following metric-specific linear regression models:

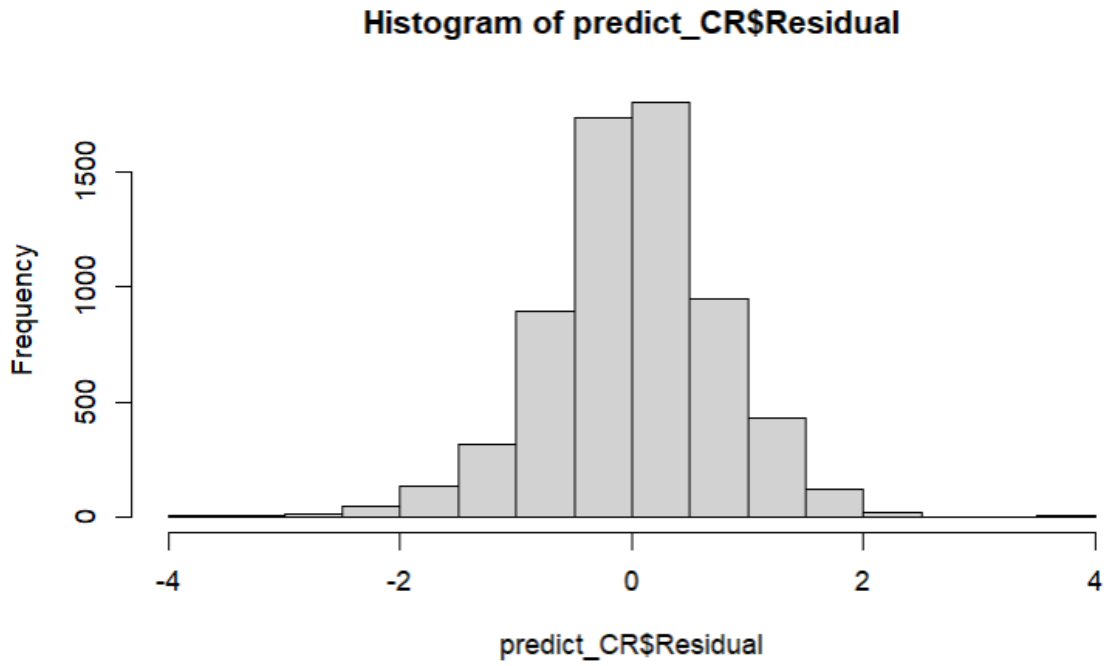
- The comparator (reference value) for MonthsSinceTraining is "Not Trained"
- The comparator (reference value) for LastProgram is "No Training"
- The residuals for the predictions against the test dataset are all approximately normally distributed with means around zero, indicating that the required assumptions for linear regression are met

9.2.1 Linear Regression Model: Time in Clinical Review per Appointment

```
Call:
lm(formula = log(`Time in Clinical Review per Appointment` + 
    1e-04) ~ MonthsSinceTrainingFactor + LastProgram + Specialty + 
    ProviderType:Degree + SEX, data = train_df_all)

Residuals:
    Min      1Q  Median      3Q     Max 
-4.1856 -0.4261  0.0134  0.4622  3.9560 

Coefficients: (40 not defined because of singularities)
                                                                 Estimate Std. Error t value Pr(>|t|)    
(Intercept)                                                      2.768007   0.038799  71.343  < 2e-16 ***
MonthsSinceTrainingFactor0-2 Months                             -0.070423   0.049333  -1.428 0.153446    
MonthsSinceTrainingFactor3-5 Months                             -0.076085   0.050237  -1.515 0.129905    
MonthsSinceTrainingFactor6-12 Months                            -0.178063   0.047481  -3.750 0.000177 ***
MonthsSinceTrainingFactorMore Than One Year                     -0.164930   0.047599  -3.465 0.000531 ***
LastProgram1:1 Training                                         -0.453147   0.746508  -0.607 0.543842    
LastProgramOSU Deep Dive- GIM                                   -0.068303   0.054091  -1.263 0.206690    
LastProgramOSU Deep Dive- Ortho                                 -0.445439   0.050691  -8.787  < 2e-16 ***
LastProgramOSU Efficiency Hour- Reviewing Patient Information -0.211453   0.164989  -1.282 0.199988    
LastProgramOSU Efficiency Workshop                               0.563135   0.107973   5.216 1.85e-07 ***
LastProgramOSU IHIS Hot Spot                                     0.169109   0.241093   0.701 0.483042    
LastProgramOSU Provider Clinic Observations/Shadowing            0.267740   0.056897   4.706 2.54e-06 ***
LastProgramOSU Provider Coaching                                 0.117888   0.047175   2.499 0.012462 *  
LastProgramOSU Provider Onboarding                               0.381745   0.048131   7.931 2.26e-15 ***
LastProgramOSU Resident/Fellow Group Session                     2.471103   0.336134   7.352 2.02e-13 ***
LastProgramOSU Rounding Tips                                     0.454511   0.091727   4.955 7.28e-07 ***
SpecialtyCertified Nurse Midwife                                -1.978901   0.060931 -32.477  < 2e-16 ***
SpecialtyCertified Nurse Practitioner                           -0.474294   0.060860  -7.793 6.78e-15 ***
SpecialtyCritical Care Medicine                                 -0.139028   0.069745  -1.993 0.046230 *  
```

SpecialtyDermatology	-1.693642	0.044101	-38.404	< 2e-16	***
SpecialtyEmergency Medicine	-1.632242	0.040483	-40.320	< 2e-16	***
SpecialtyEndocrinology, Diabetes & Metabolism	-0.162060	0.048063	-3.372	0.000748	***
SpecialtyFamily Medicine	-0.749098	0.034959	-21.428	< 2e-16	***
SpecialtyGastroenterology	-0.344168	0.041617	-8.270	< 2e-16	***
SpecialtyGeneral Surgery	-1.024403	0.058244	-17.588	< 2e-16	***
SpecialtyHematology	-0.136042	0.041100	-3.310	0.000934	***
SpecialtyInfectious Disease	0.429200	0.070887	6.055	1.43e-09	***
SpecialtyInternal Medicine	-0.363007	0.039526	-9.184	< 2e-16	***
SpecialtyMaternal Fetal Medicine	-1.331487	0.068550	-19.423	< 2e-16	***
SpecialtyMedical Oncology	-0.289028	0.038640	-7.480	7.67e-14	***
SpecialtyNephrology	-0.066222	0.047870	-1.383	0.166567	
SpecialtyNeurological Surgery	-0.741966	0.055438	-13.384	< 2e-16	***
SpecialtyNeurology	-0.267439	0.041233	-6.486	8.97e-11	***
SpecialtyObstetrics & Gynecology	-1.021545	0.040881	-24.989	< 2e-16	***
SpecialtyOphthalmology	-2.082519	0.050701	-41.074	< 2e-16	***
SpecialtyOrthopaedic Surgery	-0.840705	0.057579	-14.601	< 2e-16	***
SpecialtyOther	-0.963285	0.032762	-29.403	< 2e-16	***
SpecialtyOtolaryngology	-1.563220	0.044883	-34.829	< 2e-16	***
SpecialtyPhysical Medicine & Rehabilitation	-0.636313	0.062758	-10.139	< 2e-16	***
SpecialtyPhysician Assistant	-2.177439	0.528898	-4.117	3.85e-05	***
SpecialtyPlastic Surgery	-1.413171	0.053688	-26.322	< 2e-16	***
SpecialtyPsychiatry	-0.900468	0.043477	-20.711	< 2e-16	***
SpecialtyPulmonary Disease	-0.265778	0.044561	-5.964	2.49e-09	***
SpecialtyRadiation Oncology	-1.099782	0.045997	-23.910	< 2e-16	***
SpecialtyRheumatology	-0.408663	0.053234	-7.677	1.69e-14	***
SpecialtySurgical Oncology	-0.893193	0.054246	-16.466	< 2e-16	***
SpecialtyUrology	-1.008132	0.048052	-20.980	< 2e-16	***
SEXM	-0.121936	0.010885	-11.203	< 2e-16	***
ProviderTypeFELLOW:DegreeFELLOW	-0.008611	0.046898	-0.184	0.854325	
ProviderTypeMIDWIFE:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeOther:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeOther:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeNURSE PRACTITIONER	-0.548669	0.057413	-9.556	< 2e-16	***
ProviderTypeOther:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeOther	0.355978	0.526152	0.677	0.498686	
ProviderTypeMIDWIFE:DegreeOther	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeOther	1.387679	0.286846	4.838	1.32e-06	***
ProviderTypeOther:DegreeOther	-1.388455	0.052669	-26.362	< 2e-16	***
ProviderTypePHYSICIAN:DegreeOther	-0.892577	0.040197	-22.205	< 2e-16	***
ProviderTypePHYSICIAN ASSISTANT:DegreeOther	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeOther	0.728346	0.236301	3.082	0.002056	**
ProviderTypeFELLOW:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeOther:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreePHYSICIAN	-0.850196	0.023430	-36.287	< 2e-16	***
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreePHYSICIAN ASSISTANT	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreePHYSICIAN ASSISTANT	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN ASSISTANT	NA	NA	NA	NA	
ProviderTypeOther:DegreePHYSICIAN ASSISTANT	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreePHYSICIAN ASSISTANT	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN ASSISTANT	1.259694	0.529214	2.380	0.017305	*
ProviderTypeRESIDENT:DegreePHYSICIAN ASSISTANT	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeRESIDENT	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeRESIDENT	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeRESIDENT	NA	NA	NA	NA	
ProviderTypeOther:DegreeRESIDENT	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeRESIDENT	NA	NA	NA	NA	

```
ProviderTypePHYSICIAN ASSISTANT:DegreeRESIDENT                      NA         NA      NA       NA
ProviderTypeRESIDENT:DegreeRESIDENT                                 NA         NA      NA       NA
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.7431 on 25777 degrees of freedom
  (8398 observations deleted due to missingness)
Multiple R-squared:  0.3683,   Adjusted R-squared:  0.367
F-statistic: 268.4 on 56 and 25777 DF,  p-value: < 2.2e-16
```

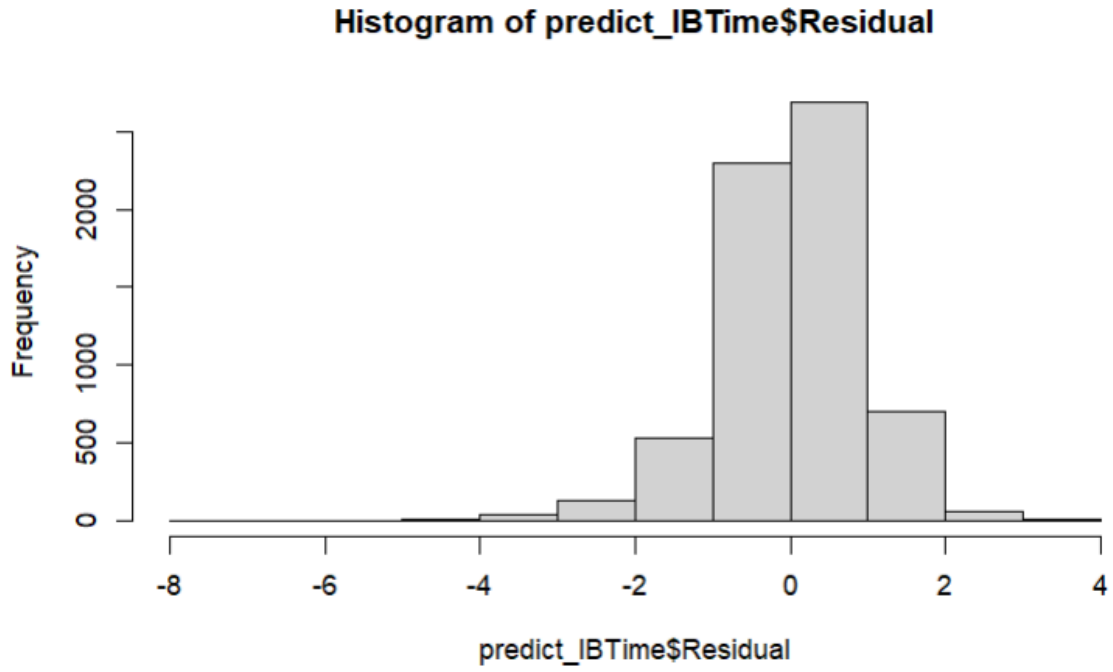


9.2.2 Linear Regression Model: Time in In Basket per Appointment

```
Call:
lm(formula = log(`Time in In Basket per Appointment` + 1e-04) ~
    LastProgram + TrainingSessions + Specialty + ProviderType:Degree +
        `Age on 12/31/24`, data = train_df_all)

Residuals:
    Min      1Q  Median      3Q     Max
-9.4638 -0.4434  0.0580  0.5398  3.9602

Coefficients: (40 not defined because of singularities)
                                                                 Estimate Std. Error t value Pr(>|t|)
(Intercept)                                                     1.8415985  0.0516833  35.632  < 2e-16 ***
LastProgram1:1 Training                                        -0.8985876  0.9167486  -0.980 0.327002
LastProgramOSU Deep Dive- GIM                                  -0.2138923  0.0489440  -4.370 1.25e-05 ***
LastProgramOSU Deep Dive- Ortho                                -0.6367497  0.0464164 -13.718  < 2e-16 ***
LastProgramOSU Efficiency Hour- Reviewing Patient Information -0.2855577  0.1961879  -1.456 0.145534
LastProgramOSU Efficiency Workshop                             -0.5164440  0.1243444  -4.153 3.29e-05 ***
LastProgramOSU IHIS Hot Spot                                    1.1105376  0.2957552   3.755 0.000174 ***
```

LastProgramOSU Provider Clinic Observations/Shadowing	0.0248658	0.0566198	0.439	0.660541	
LastProgramOSU Provider Coaching	-0.0039174	0.0366851	-0.107	0.914962	
LastProgramOSU Provider Onboarding	0.0170715	0.0337100	0.506	0.612565	
LastProgramOSU Resident/Fellow Group Session	0.2866283	0.4115670	0.696	0.486165	
LastProgramOSU Rounding Tips	0.7059444	0.1015439	6.952	3.68e-12	***
TrainingSessions	0.0849564	0.0174268	4.875	1.09e-06	***
SpecialtyCertified Nurse Midwife	-0.7245281	0.0742030	-9.764	< 2e-16	***
SpecialtyCertified Nurse Practitioner	0.2679875	0.0749475	3.576	0.000350	***
SpecialtyCritical Care Medicine	0.0914058	0.0858333	1.065	0.286921	
SpecialtyDermatology	-0.5141841	0.0540195	-9.518	< 2e-16	***
SpecialtyEmergency Medicine	-1.8778320	0.0498984	-37.633	< 2e-16	***
SpecialtyEndocrinology, Diabetes & Metabolism	0.4589409	0.0588897	7.793	6.78e-15	***
SpecialtyFamily Medicine	0.0347412	0.0428376	0.811	0.417374	
SpecialtyGastroenterology	0.2101819	0.0513886	4.090	4.33e-05	***
SpecialtyGeneral Surgery	-1.0139783	0.0716654	-14.149	< 2e-16	***
SpecialtyHematology	-0.2133048	0.0506634	-4.210	2.56e-05	***
SpecialtyInfectious Disease	0.6281920	0.0871775	7.206	5.92e-13	***
SpecialtyInternal Medicine	0.5559259	0.0486131	11.436	< 2e-16	***
SpecialtyMaternal Fetal Medicine	-0.7560925	0.0845678	-8.941	< 2e-16	***
SpecialtyMedical Oncology	-0.9892922	0.0475382	-20.810	< 2e-16	***
SpecialtyNephrology	0.6170488	0.0589292	10.471	< 2e-16	***
SpecialtyNeurological Surgery	-0.4135524	0.0682833	-6.056	1.41e-09	***
SpecialtyNeurology	0.0842105	0.0507394	1.660	0.096994	.
SpecialtyObstetrics & Gynecology	-0.3650304	0.0496682	-7.349	2.05e-13	***
SpecialtyOphthalmology	-2.1757708	0.0624263	-34.853	< 2e-16	***
SpecialtyOrthopaedic Surgery	-0.7397493	0.0709902	-10.420	< 2e-16	***
SpecialtyOther	-0.6245348	0.0403146	-15.492	< 2e-16	***
SpecialtyOtolaryngology	-1.0040894	0.0552842	-18.162	< 2e-16	***
SpecialtyPhysical Medicine & Rehabilitation	-0.3091567	0.0772349	-4.003	6.28e-05	***
SpecialtyPhysician Assistant	-2.5515112	0.6510049	-3.919	8.90e-05	***
SpecialtyPlastic Surgery	-1.4370641	0.0660697	-21.751	< 2e-16	***
SpecialtyPsychiatry	-0.3438260	0.0534876	-6.428	1.31e-10	***
SpecialtyPulmonary Disease	0.0853436	0.0549240	1.554	0.120233	
SpecialtyRadiation Oncology	-1.8078531	0.0568642	-31.792	< 2e-16	***
SpecialtyRheumatology	0.3043420	0.0652846	4.662	3.15e-06	***
SpecialtySurgical Oncology	-1.0876297	0.0667253	-16.300	< 2e-16	***
SpecialtyUrology	-0.9682973	0.0593000	-16.329	< 2e-16	***
`Age on 12/31/24`	-0.0075350	0.0006206	-12.142	< 2e-16	***
ProviderTypeFELLOW:DegreeFELLOW	-0.2284758	0.0576851	-3.961	7.49e-05	***
ProviderTypeMIDWIFE:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeOther:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeOther:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeNURSE PRACTITIONER	-0.5555811	0.0708043	-7.847	4.44e-15	***
ProviderTypeOther:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeOther	-2.4404528	0.6474911	-3.769	0.000164	***
ProviderTypeMIDWIFE:DegreeOther	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeOther	0.8447650	0.3531710	2.392	0.016767	*
ProviderTypeOther:DegreeOther	-1.3011259	0.0651446	-19.973	< 2e-16	***
ProviderTypePHYSICIAN:DegreeOther	-0.7267031	0.0503101	-14.444	< 2e-16	***
ProviderTypePHYSICIAN ASSISTANT:DegreeOther	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeOther	0.7645414	0.2907500	2.630	0.008555	**
ProviderTypeFELLOW:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeOther:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreePHYSICIAN	-0.3306369	0.0300771	-10.993	< 2e-16	***
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreePHYSICIAN	NA	NA	NA	NA	

```
ProviderTypeFELLOW:DegreePHYSICIAN ASSISTANT                          NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreePHYSICIAN ASSISTANT                         NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN ASSISTANT              NA         NA      NA       NA
ProviderTypeOther:DegreePHYSICIAN ASSISTANT                           NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreePHYSICIAN ASSISTANT                       NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN ASSISTANT      2.2802446  0.6514620   3.500 0.000466 ***
ProviderTypeRESIDENT:DegreePHYSICIAN ASSISTANT                        NA         NA      NA       NA
ProviderTypeFELLOW:DegreeRESIDENT                                     NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreeRESIDENT                                    NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreeRESIDENT                         NA         NA      NA       NA
ProviderTypeOther:DegreeRESIDENT                                      NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreeRESIDENT                                  NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreeRESIDENT                        NA         NA      NA       NA
ProviderTypeRESIDENT:DegreeRESIDENT                                   NA         NA      NA       NA
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.9145 on 25779 degrees of freedom
  (8399 observations deleted due to missingness)
Multiple R-squared:  0.3545,   Adjusted R-squared:  0.3532
F-statistic: 267.1 on 53 and 25779 DF,  p-value: < 2.2e-16
```



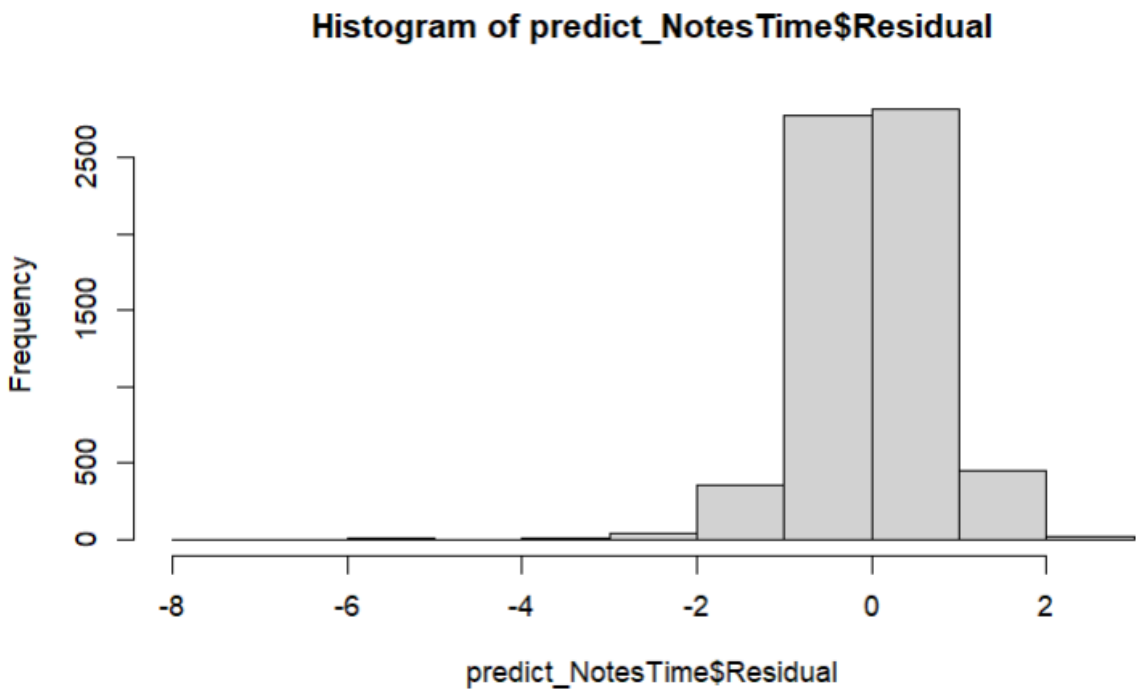
9.2.3 Linear Regression Model: Time in Notes per Appointment

```
Call:
lm(formula = log(`Time in Notes per Appointment` + 1e-04) ~
MonthsSinceTrainingFactor +
    LastProgram + Specialty + ProviderType:Degree + `Age on 12/31/24` +
```

```
    SEX, data = train_df_all)

Residuals:
    Min      1Q  Median      3Q     Max
-7.2119 -0.4297  0.0059  0.4521  3.6146

Coefficients: (40 not defined because of singularities)
```

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	3.2784975	0.0401838	81.588	< 2e-16	***
MonthsSinceTrainingFactor0-2 Months	-0.0775316	0.0466862	-1.661	0.096786	.
MonthsSinceTrainingFactor3-5 Months	-0.1314811	0.0475413	-2.766	0.005686	**
MonthsSinceTrainingFactor6-12 Months	-0.1707787	0.0449330	-3.801	0.000145	***
MonthsSinceTrainingFactorMore Than One Year	-0.2307969	0.0450455	-5.124	3.02e-07	***
LastProgram1:1 Training	-0.2665724	0.7064668	-0.377	0.705930	
LastProgramOSU Deep Dive- GIM	0.0815117	0.0511912	1.592	0.111330	
LastProgramOSU Deep Dive- Ortho	-0.4892132	0.0479728	-10.198	< 2e-16	***
LastProgramOSU Efficiency Hour- Reviewing Patient Information	0.0074275	0.1561877	0.048	0.962071	
LastProgramOSU Efficiency Workshop	1.0238228	0.1021970	10.018	< 2e-16	***
LastProgramOSU IHIS Hot Spot	0.4172821	0.2281884	1.829	0.067460	.
LastProgramOSU Provider Clinic Observations/Shadowing	0.3207654	0.0538656	5.955	2.64e-09	***
LastProgramOSU Provider Coaching	0.2014796	0.0446594	4.511	6.47e-06	***
LastProgramOSU Provider Onboarding	0.5090329	0.0456853	11.142	< 2e-16	***
LastProgramOSU Resident/Fellow Group Session	2.4093282	0.3181924	7.572	3.80e-14	***
LastProgramOSU Rounding Tips	0.5750618	0.0868053	6.625	3.55e-11	***
SpecialtyCertified Nurse Midwife	-1.4267974	0.0577744	-24.696	< 2e-16	***
SpecialtyCertified Nurse Practitioner	-0.7379769	0.0576634	-12.798	< 2e-16	***
SpecialtyCritical Care Medicine	-0.0276669	0.0660026	-0.419	0.675089	
SpecialtyDermatology	-1.3028313	0.0417829	-31.181	< 2e-16	***
SpecialtyEmergency Medicine	-0.8737848	0.0383954	-22.758	< 2e-16	***
SpecialtyEndocrinology, Diabetes & Metabolism	0.2992783	0.0454885	6.579	4.82e-11	***
SpecialtyFamily Medicine	-0.2099054	0.0331169	-6.338	2.36e-10	***
SpecialtyGastroenterology	-0.6268749	0.0395074	-15.867	< 2e-16	***
SpecialtyGeneral Surgery	-1.1348949	0.0551226	-20.589	< 2e-16	***
SpecialtyHematology	-0.4458660	0.0389909	-11.435	< 2e-16	***
SpecialtyInfectious Disease	0.0170545	0.0671165	0.254	0.799419	
SpecialtyInternal Medicine	0.0358625	0.0374864	0.957	0.338738	
SpecialtyMaternal Fetal Medicine	-0.4273691	0.0648723	-6.588	4.55e-11	***
SpecialtyMedical Oncology	-0.5242765	0.0366015	-14.324	< 2e-16	***
SpecialtyNephrology	-0.1558282	0.0453047	-3.440	0.000584	***
SpecialtyNeurological Surgery	-1.5473090	0.0525427	-29.449	< 2e-16	***
SpecialtyNeurology	0.3392342	0.0390265	8.692	< 2e-16	***
SpecialtyObstetrics & Gynecology	-0.5468863	0.0387208	-14.124	< 2e-16	***
SpecialtyOphthalmology	-1.0862870	0.0480471	-22.609	< 2e-16	***
SpecialtyOrthopaedic Surgery	-0.8037412	0.0545949	-14.722	< 2e-16	***
SpecialtyOther	-0.6315641	0.0310335	-20.351	< 2e-16	***
SpecialtyOtolaryngology	-1.1803486	0.0425018	-27.772	< 2e-16	***
SpecialtyPhysical Medicine & Rehabilitation	0.0006654	0.0593921	0.011	0.991061	
SpecialtyPhysician Assistant	-1.1934839	0.5006233	-2.384	0.017133	*
SpecialtyPlastic Surgery	-1.3131798	0.0508288	-25.835	< 2e-16	***
SpecialtyPsychiatry	0.1645983	0.0412449	3.991	6.60e-05	***
SpecialtyPulmonary Disease	-0.0689624	0.0422462	-1.632	0.102609	
SpecialtyRadiation Oncology	-1.5023225	0.0437003	-34.378	< 2e-16	***
SpecialtyRheumatology	-0.2050889	0.0503860	-4.070	4.71e-05	***
SpecialtySurgical Oncology	-0.8757481	0.0513404	-17.058	< 2e-16	***
SpecialtyUrology	-0.7809436	0.0455669	-17.138	< 2e-16	***
`Age on 12/31/24`	0.0010781	0.0004831	2.232	0.025652	*
SEXM	-0.2513531	0.0104296	-24.100	< 2e-16	***
ProviderTypeFELLOW:DegreeFELLOW	-0.0297979	0.0443828	-0.671	0.501982	
ProviderTypeMIDWIFE:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeOther:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeOther:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeMIDWIFE	NA	NA	NA	NA	

```
ProviderTypeRESIDENT:DegreeMIDWIFE                                    NA         NA      NA       NA
ProviderTypeFELLOW:DegreeNURSE PRACTITIONER                           NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreeNURSE PRACTITIONER                          NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreeNURSE PRACTITIONER       -0.0204964  0.0548323  -0.374 0.708556
ProviderTypeOther:DegreeNURSE PRACTITIONER                            NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreeNURSE PRACTITIONER                        NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreeNURSE PRACTITIONER              NA         NA      NA       NA
ProviderTypeRESIDENT:DegreeNURSE PRACTITIONER                         NA         NA      NA       NA
ProviderTypeFELLOW:DegreeOther                                -3.5687337  0.4979223  -7.167 7.86e-13 ***
ProviderTypeMIDWIFE:DegreeOther                                       NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreeOther                     1.3852510  0.2717034   5.098 3.45e-07 ***
ProviderTypeOther:DegreeOther                                 -1.0924804  0.0502164 -21.755  < 2e-16 ***
ProviderTypePHYSICIAN:DegreeOther                             -0.7541439  0.0384644 -19.606  < 2e-16 ***
ProviderTypePHYSICIAN ASSISTANT:DegreeOther                           NA         NA      NA       NA
ProviderTypeRESIDENT:DegreeOther                               0.2280800  0.2236613   1.020 0.307854
ProviderTypeFELLOW:DegreePHYSICIAN                                    NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreePHYSICIAN                                   NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN                        NA         NA      NA       NA
ProviderTypeOther:DegreePHYSICIAN                                     NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreePHYSICIAN                         -0.9749755  0.0231713 -42.077  < 2e-16 ***
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN                       NA         NA      NA       NA
ProviderTypeRESIDENT:DegreePHYSICIAN                                  NA         NA      NA       NA
ProviderTypeFELLOW:DegreePHYSICIAN ASSISTANT                          NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreePHYSICIAN ASSISTANT                         NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN ASSISTANT              NA         NA      NA       NA
ProviderTypeOther:DegreePHYSICIAN ASSISTANT                           NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreePHYSICIAN ASSISTANT                       NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN ASSISTANT      0.3282267  0.5009996   0.655 0.512381
ProviderTypeRESIDENT:DegreePHYSICIAN ASSISTANT                        NA         NA      NA       NA
ProviderTypeFELLOW:DegreeRESIDENT                                     NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreeRESIDENT                                    NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreeRESIDENT                         NA         NA      NA       NA
ProviderTypeOther:DegreeRESIDENT                                      NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreeRESIDENT                                  NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreeRESIDENT                        NA         NA      NA       NA
ProviderTypeRESIDENT:DegreeRESIDENT                                   NA         NA      NA       NA
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.7033 on 25775 degrees of freedom
  (8399 observations deleted due to missingness)
Multiple R-squared:  0.4492,   Adjusted R-squared:  0.448
F-statistic: 368.7 on 57 and 25775 DF,  p-value: < 2.2e-16
```

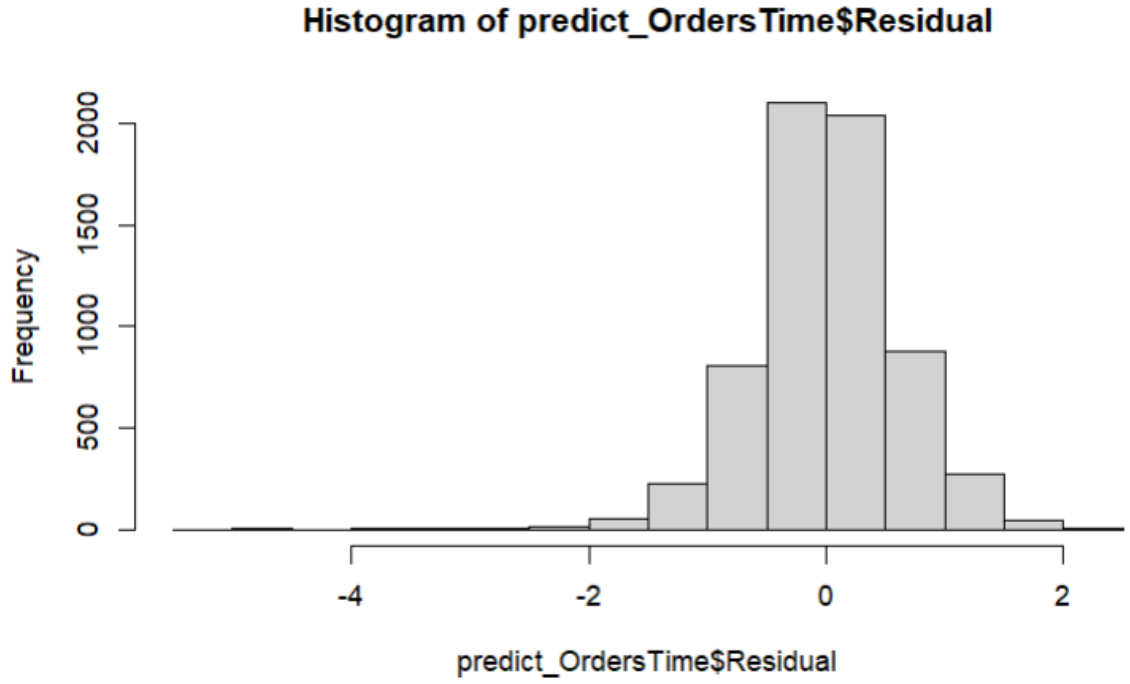


9.2.4 Linear Regression Model: Time in Orders per Appointment

```
Call:
lm(formula = log(`Time in Orders per Appointment` + 1e-04) ~
    MonthsSinceTrainingFactor + LastProgram + TrainingSessions +
        Specialty + ProviderType:Degree + `Age on 12/31/24` +
        SEX, data = train_df_all)

Residuals:
    Min      1Q  Median      3Q     Max
-9.3953 -0.3418  0.0070  0.3680  2.7224

Coefficients: (40 not defined because of singularities)
                                                          Estimate Std. Error t value Pr(>|t|)
(Intercept)                                              1.2800240  0.0345805  37.016  < 2e-16 ***
MonthsSinceTrainingFactor0-2 Months                     -0.0872629  0.0404055  -2.160  0.03081 *
MonthsSinceTrainingFactor3-5 Months                     -0.1845938  0.0411358  -4.487 7.24e-06 ***
MonthsSinceTrainingFactor6-12 Months                    -0.3673486  0.0389033  -9.443  < 2e-16 ***
MonthsSinceTrainingFactorMore Than One Year             -0.4275650  0.0390349 -10.953  < 2e-16 ***
LastProgram1:1 Training                                 -0.4889660  0.6079696  -0.804  0.42125
LastProgramOSU Deep Dive- GIM                            0.2756761  0.0462392   5.962 2.52e-09 ***
LastProgramOSU Deep Dive- Ortho                         -0.0760232  0.0445508  -1.706  0.08794 .
LastProgramOSU Efficiency Hour- Reviewing Patient Information  0.0713694  0.1345952   0.530  0.59594
LastProgramOSU Efficiency Workshop                       0.1350300  0.0890703   1.516  0.12953
LastProgramOSU IHIS Hot Spot                             0.2522090  0.1987352   1.269  0.20443
LastProgramOSU Provider Clinic Observations/Shadowing    0.3803275  0.0489127   7.776 7.79e-15 ***
LastProgramOSU Provider Coaching                         0.1248000  0.0407168   3.065  0.00218 **
LastProgramOSU Provider Onboarding                       0.3509264  0.0403207   8.703  < 2e-16 ***
LastProgramOSU Resident/Fellow Group Session             1.8927453  0.2739472   6.909 4.99e-12 ***
LastProgramOSU Rounding Tips                             0.5986669  0.0751254   7.969 1.67e-15 ***
TrainingSessions                                         0.0343939  0.0116235   2.959  0.00309 **
SpecialtyCertified Nurse Midwife                        -1.0335026  0.0497170 -20.788  < 2e-16 ***
SpecialtyCertified Nurse Practitioner                   -0.5057920  0.0496248 -10.192  < 2e-16 ***
```

SpecialtyCritical Care Medicine	0.2270277	0.0568012	3.997	6.44e-05	***
SpecialtyDermatology	-0.6964583	0.0359643	-19.365	< 2e-16	***
SpecialtyEmergency Medicine	-0.1664711	0.0330527	-5.037	4.77e-07	***
SpecialtyEndocrinology, Diabetes & Metabolism	0.2010780	0.0391570	5.135	2.84e-07	***
SpecialtyFamily Medicine	0.5568576	0.0285106	19.532	< 2e-16	***
SpecialtyGastroenterology	-0.2605855	0.0340081	-7.662	1.89e-14	***
SpecialtyGeneral Surgery	-0.5499664	0.0474346	-11.594	< 2e-16	***
SpecialtyHematology	-0.3582443	0.0335779	-10.669	< 2e-16	***
SpecialtyInfectious Disease	0.1822211	0.0577666	3.154	0.00161	**
SpecialtyInternal Medicine	0.6003644	0.0322658	18.607	< 2e-16	***
SpecialtyMaternal Fetal Medicine	-0.7325252	0.0558285	-13.121	< 2e-16	***
SpecialtyMedical Oncology	-0.2588450	0.0314991	-8.218	< 2e-16	***
SpecialtyNephrology	-0.0510039	0.0389972	-1.308	0.19092	
SpecialtyNeurological Surgery	-1.3124767	0.0452397	-29.012	< 2e-16	***
SpecialtyNeurology	0.1077438	0.0335839	3.208	0.00134	**
SpecialtyObstetrics & Gynecology	-0.4412721	0.0333339	-13.238	< 2e-16	***
SpecialtyOphthalmology	-0.9284135	0.0413481	-22.454	< 2e-16	***
SpecialtyOrthopaedic Surgery	-0.6314761	0.0469823	-13.441	< 2e-16	***
SpecialtyOther	-0.6546838	0.0267091	-24.512	< 2e-16	***
SpecialtyOtolaryngology	-1.1167479	0.0365844	-30.525	< 2e-16	***
SpecialtyPhysical Medicine & Rehabilitation	0.2051139	0.0511110	4.013	6.01e-05	***
SpecialtyPhysician Assistant	-1.1929352	0.4307991	-2.769	0.00562	**
SpecialtyPlastic Surgery	-1.5283124	0.0437395	-34.941	< 2e-16	***
SpecialtyPsychiatry	-0.0145642	0.0354956	-0.410	0.68158	
SpecialtyPulmonary Disease	0.0245220	0.0363630	0.674	0.50008	
SpecialtyRadiation Oncology	-1.3937183	0.0376441	-37.024	< 2e-16	***
SpecialtyRheumatology	0.2409299	0.0433896	5.553	2.84e-08	***
SpecialtySurgical Oncology	-1.4465586	0.0441965	-32.730	< 2e-16	***
SpecialtyUrology	-0.6467118	0.0392466	-16.478	< 2e-16	***
`Age on 12/31/24`	0.0034547	0.0004157	8.310	< 2e-16	***
SEXM	-0.1576537	0.0089805	-17.555	< 2e-16	***
ProviderTypeFELLOW:DegreeFELLOW	0.1962514	0.0381941	5.138	2.79e-07	***
ProviderTypeMIDWIFE:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeOther:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeOther:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeNURSE PRACTITIONER	0.3873008	0.0471846	8.208	2.35e-16	***
ProviderTypeOther:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeOther	0.8892935	0.6055655	1.469	0.14197	
ProviderTypeMIDWIFE:DegreeOther	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeOther	1.9103083	0.2338077	8.170	3.21e-16	***
ProviderTypeOther:DegreeOther	-0.4644107	0.0432123	-10.747	< 2e-16	***
ProviderTypePHYSICIAN:DegreeOther	-0.6023815	0.0333225	-18.077	< 2e-16	***
ProviderTypePHYSICIAN ASSISTANT:DegreeOther	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeOther	0.2036384	0.1924688	1.058	0.29005	
ProviderTypeFELLOW:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeOther:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreePHYSICIAN	-0.5211115	0.0199450	-26.127	< 2e-16	***
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreePHYSICIAN ASSISTANT	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreePHYSICIAN ASSISTANT	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN ASSISTANT	NA	NA	NA	NA	
ProviderTypeOther:DegreePHYSICIAN ASSISTANT	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreePHYSICIAN ASSISTANT	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN ASSISTANT	1.0562762	0.4311227	2.450	0.01429	*
ProviderTypeRESIDENT:DegreePHYSICIAN ASSISTANT	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeRESIDENT	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeRESIDENT	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeRESIDENT	NA	NA	NA	NA	

```
ProviderTypeOther:DegreeRESIDENT                                  NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreeRESIDENT                              NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreeRESIDENT                    NA         NA      NA       NA
ProviderTypeRESIDENT:DegreeRESIDENT                               NA         NA      NA       NA
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.6052 on 25774 degrees of freedom
  (8399 observations deleted due to missingness)
Multiple R-squared:  0.5295,   Adjusted R-squared:  0.5284
F-statistic:   500 on 58 and 25774 DF,  p-value: < 2.2e-16
```

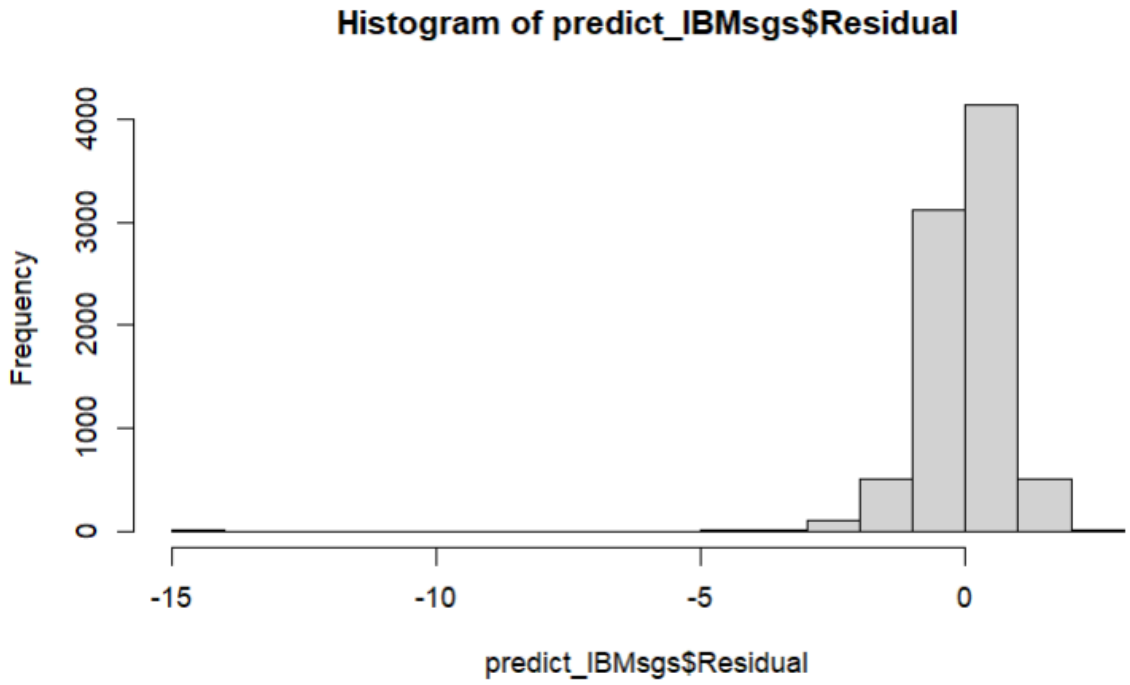


9.2.5 Linear Regression Model: In Basket Messages Received per Day

```
Call:
lm(formula = log(`Generalized In Basket Messages Received per Day` +
    1e-04) ~ MonthsSinceTrainingFactor + LastProgram + Specialty +
    ProviderType:Degree + `Age on 12/31/24` + SEX, data = train_df_all)

Residuals:
     Min       1Q   Median       3Q      Max
-12.2935  -0.3415   0.0801   0.4520   4.2377

Coefficients: (40 not defined because of singularities)
                                                    Estimate Std. Error t value Pr(>|t|)
(Intercept)                                        2.2404605  0.0372712  60.112  < 2e-16 ***
MonthsSinceTrainingFactor0-2 Months                0.1334962  0.0476302   2.803 0.005070 **
MonthsSinceTrainingFactor3-5 Months                0.2637859  0.0487434   5.412 6.28e-08 ***
MonthsSinceTrainingFactor6-12 Months               0.2753806  0.0459189   5.997 2.03e-09 ***
MonthsSinceTrainingFactorMore Than One Year        0.2885514  0.0462163   6.243 4.33e-10 ***
LastProgram1:1 Training                           -4.8470963  0.4720759 -10.268  < 2e-16 ***
```

LastProgramOSU Deep Dive- GIM	-0.0545895	0.0519844	-1.050	0.293674	
LastProgramOSU Deep Dive- Ortho	0.1213431	0.0500820	2.423	0.015403	*
LastProgramOSU Efficiency Hour- Reviewing Patient Information	-1.4477903	0.1399351	-10.346	< 2e-16	***
LastProgramOSU Efficiency Workshop	-0.4953093	0.1142684	-4.335	1.46e-05	***
LastProgramOSU IHIS Hot Spot	-0.1274185	0.2494658	-0.511	0.609519	
LastProgramOSU Provider Clinic Observations/Shadowing	-0.4239150	0.0561997	-7.543	4.71e-14	***
LastProgramOSU Provider Coaching	-0.1709605	0.0456194	-3.748	0.000179	***
LastProgramOSU Provider Onboarding	-0.6780109	0.0454706	-14.911	< 2e-16	***
LastProgramOSU Resident/Fellow Group Session	-0.6023030	0.1622101	-3.713	0.000205	***
LastProgramOSU Rounding Tips	0.2298844	0.0946840	2.428	0.015191	*
SpecialtyCertified Nurse Midwife	0.9667963	0.0612576	15.782	< 2e-16	***
SpecialtyCertified Nurse Practitioner	0.4592835	0.0564087	8.142	4.02e-16	***
SpecialtyCritical Care Medicine	0.0980390	0.0583934	1.679	0.093173	.
SpecialtyDermatology	0.3539561	0.0431042	8.212	2.26e-16	***
SpecialtyEmergency Medicine	0.4830412	0.0356361	13.555	< 2e-16	***
SpecialtyEndocrinology, Diabetes & Metabolism	0.3482302	0.0450227	7.735	1.07e-14	***
SpecialtyFamily Medicine	0.6767318	0.0330733	20.462	< 2e-16	***
SpecialtyGastroenterology	0.3885614	0.0375470	10.349	< 2e-16	***
SpecialtyGeneral Surgery	0.0970217	0.0568708	1.706	0.088017	.
SpecialtyHematology	0.3033330	0.0393628	7.706	1.33e-14	***
SpecialtyInfectious Disease	-0.2209060	0.0453206	-4.874	1.10e-06	***
SpecialtyInternal Medicine	0.4785515	0.0355284	13.470	< 2e-16	***
SpecialtyMaternal Fetal Medicine	0.7555241	0.0587215	12.866	< 2e-16	***
SpecialtyMedical Oncology	0.2312536	0.0376492	6.142	8.22e-10	***
SpecialtyNephrology	0.3713816	0.0454661	8.168	3.24e-16	***
SpecialtyNeurological Surgery	0.5799972	0.0539298	10.755	< 2e-16	***
SpecialtyNeurology	-0.0755795	0.0359955	-2.100	0.035763	*
SpecialtyObstetrics & Gynecology	0.3883262	0.0378825	10.251	< 2e-16	***
SpecialtyOphthalmology	-0.4025327	0.0470511	-8.555	< 2e-16	***
SpecialtyOrthopaedic Surgery	0.0933257	0.0566420	1.648	0.099436	.
SpecialtyOther	0.0108939	0.0298485	0.365	0.715132	
SpecialtyOtolaryngology	0.1260480	0.0447125	2.819	0.004819	**
SpecialtyPhysical Medicine & Rehabilitation	-0.5222264	0.0576898	-9.052	< 2e-16	***
SpecialtyPhysician Assistant	0.4175662	0.5751752	0.726	0.467856	
SpecialtyPlastic Surgery	-0.4213645	0.0517505	-8.142	4.01e-16	***
SpecialtyPsychiatry	-0.2354306	0.0377067	-6.244	4.32e-10	***
SpecialtyPulmonary Disease	0.0229705	0.0392626	0.585	0.558520	
SpecialtyRadiation Oncology	-0.6045994	0.0465078	-13.000	< 2e-16	***
SpecialtyRheumatology	0.7953268	0.0529671	15.015	< 2e-16	***
SpecialtySurgical Oncology	0.1107243	0.0543311	2.038	0.041562	*
SpecialtyUrology	0.4457103	0.0490079	9.095	< 2e-16	***
`Age on 12/31/24`	-0.0104806	0.0004901	-21.383	< 2e-16	***
SEXM	0.0303752	0.0103669	2.930	0.003392	**
ProviderTypeFELLOW:DegreeFELLOW	-0.1750315	0.0290282	-6.030	1.66e-09	***
ProviderTypeMIDWIFE:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeOther:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeOther:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeNURSE PRACTITIONER	0.7127682	0.0528024	13.499	< 2e-16	***
ProviderTypeOther:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeOther	-0.8062646	0.3076282	-2.621	0.008774	**
ProviderTypeMIDWIFE:DegreeOther	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeOther	1.2496647	0.1884096	6.633	3.35e-11	***
ProviderTypeOther:DegreeOther	0.5408887	0.0492422	10.984	< 2e-16	***
ProviderTypePHYSICIAN:DegreeOther	0.5217327	0.0370708	14.074	< 2e-16	***
ProviderTypePHYSICIAN ASSISTANT:DegreeOther	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeOther	-0.0347948	0.1632423	-0.213	0.831213	
ProviderTypeFELLOW:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypeOther:DegreePHYSICIAN	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreePHYSICIAN	1.1881513	0.0201008	59.110	< 2e-16	***

```
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN                      NA         NA      NA       NA
ProviderTypeRESIDENT:DegreePHYSICIAN                                 NA         NA      NA       NA
ProviderTypeFELLOW:DegreePHYSICIAN ASSISTANT                         NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreePHYSICIAN ASSISTANT                        NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN ASSISTANT             NA         NA      NA       NA
ProviderTypeOther:DegreePHYSICIAN ASSISTANT                          NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreePHYSICIAN ASSISTANT                      NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN ASSISTANT     0.4392714  0.5754248   0.763 0.445238
ProviderTypeRESIDENT:DegreePHYSICIAN ASSISTANT                       NA         NA      NA       NA
ProviderTypeFELLOW:DegreeRESIDENT                                    NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreeRESIDENT                                   NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreeRESIDENT                        NA         NA      NA       NA
ProviderTypeOther:DegreeRESIDENT                                     NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreeRESIDENT                                 NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreeRESIDENT                       NA         NA      NA       NA
ProviderTypeRESIDENT:DegreeRESIDENT                                  NA         NA      NA       NA
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.8095 on 33679 degrees of freedom
  (495 observations deleted due to missingness)
Multiple R-squared:  0.2672,   Adjusted R-squared:  0.2659
F-statistic: 215.4 on 57 and 33679 DF,  p-value: < 2.2e-16
```



9.2.6 Linear Regression Model: Unchanged Defaults from Preference List

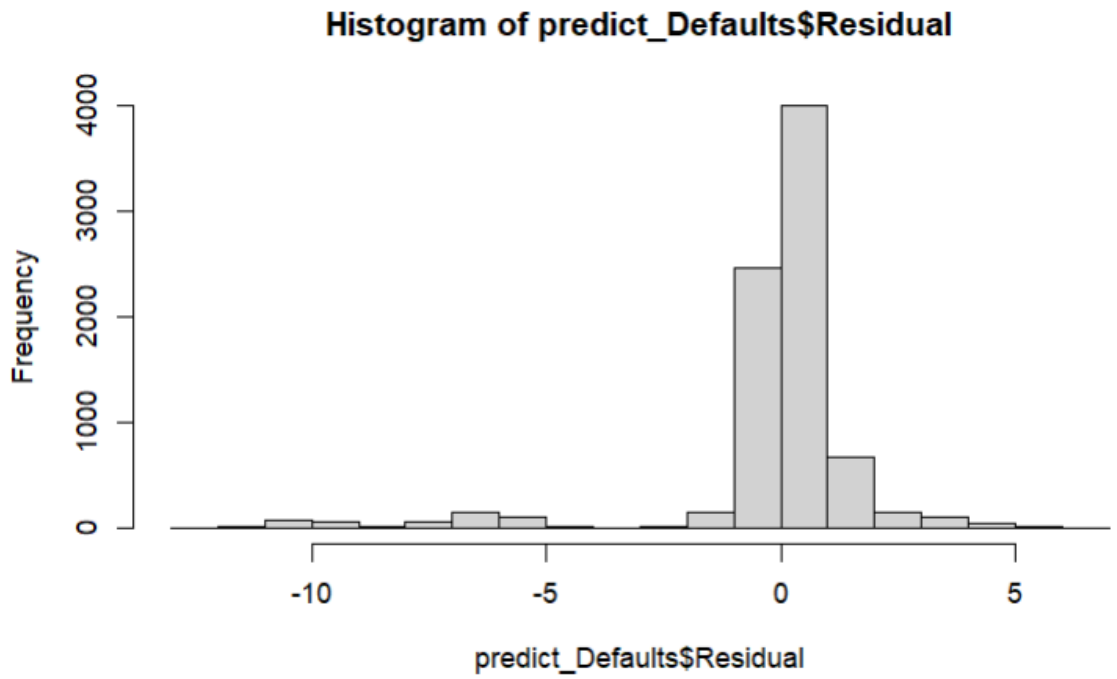
```
Call:
lm(formula = log(`Unchanged Defaults from Preference List` +
    1e-04) ~ LastProgram + Specialty + ProviderType:Degree +
    SEX, data = train_df_all)

Residuals:
```

Min	1Q	Median	3Q	Max
-10.0058	-0.2488	0.1556	0.4599	6.8140

Coefficients: (40 not defined because of singularities)

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	-3.749039	0.066636	-56.262	< 2e-16	***
LastProgram1:1 Training	-0.362532	1.113369	-0.326	0.744716	
LastProgramOSU Deep Dive- GIM	-0.708585	0.063289	-11.196	< 2e-16	***
LastProgramOSU Deep Dive- Ortho	0.340524	0.057161	5.957	2.59e-09	***
LastProgramOSU Efficiency Hour- Reviewing Patient Information	0.002438	0.262067	0.009	0.992577	
LastProgramOSU Efficiency Workshop	-0.052800	0.205666	-0.257	0.797390	
LastProgramOSU IHIS Hot Spot	0.359961	0.475517	0.757	0.449062	
LastProgramOSU Provider Clinic Observations/Shadowing	0.139272	0.078742	1.769	0.076951	.
LastProgramOSU Provider Coaching	0.040633	0.041334	0.983	0.325593	
LastProgramOSU Provider Onboarding	-0.125782	0.042646	-2.949	0.003186	**
LastProgramOSU Resident/Fellow Group Session	-1.039496	0.356710	-2.914	0.003569	**
LastProgramOSU Rounding Tips	-0.191250	0.169057	-1.131	0.257948	
SpecialtyCertified Nurse Midwife	3.616040	0.119094	30.363	< 2e-16	***
SpecialtyCertified Nurse Practitioner	1.115409	0.110516	10.093	< 2e-16	***
SpecialtyCritical Care Medicine	1.353674	0.114469	11.826	< 2e-16	***
SpecialtyDermatology	1.204830	0.083850	14.369	< 2e-16	***
SpecialtyEmergency Medicine	0.212652	0.069741	3.049	0.002297	**
SpecialtyEndocrinology, Diabetes & Metabolism	0.817813	0.088386	9.253	< 2e-16	***
SpecialtyFamily Medicine	1.223896	0.064425	18.997	< 2e-16	***
SpecialtyGastroenterology	-0.219008	0.073866	-2.965	0.003030	**
SpecialtyGeneral Surgery	0.709532	0.112167	6.326	2.55e-10	***
SpecialtyHematology	0.677748	0.076883	8.815	< 2e-16	***
SpecialtyInfectious Disease	1.843561	0.090817	20.300	< 2e-16	***
SpecialtyInternal Medicine	1.676999	0.069694	24.062	< 2e-16	***
SpecialtyMaternal Fetal Medicine	1.519171	0.117131	12.970	< 2e-16	***
SpecialtyMedical Oncology	0.349956	0.073525	4.760	1.95e-06	***
SpecialtyNephrology	0.798410	0.088355	9.036	< 2e-16	***
SpecialtyNeurological Surgery	0.378264	0.108847	3.475	0.000511	***
SpecialtyNeurology	-0.768939	0.071366	-10.775	< 2e-16	***
SpecialtyObstetrics & Gynecology	1.450163	0.074012	19.593	< 2e-16	***
SpecialtyOphthalmology	0.849778	0.094347	9.007	< 2e-16	***
SpecialtyOrthopaedic Surgery	0.675542	0.112016	6.031	1.65e-09	***
SpecialtyOther	0.512961	0.058692	8.740	< 2e-16	***
SpecialtyOtolaryngology	0.892448	0.087658	10.181	< 2e-16	***
SpecialtyPhysical Medicine & Rehabilitation	0.791002	0.115412	6.854	7.32e-12	***
SpecialtyPhysician Assistant	0.920397	1.114292	0.826	0.408815	
SpecialtyPlastic Surgery	0.629683	0.107926	5.834	5.45e-09	***
SpecialtyPsychiatry	-1.340139	0.076112	-17.607	< 2e-16	***
SpecialtyPulmonary Disease	1.078922	0.076667	14.073	< 2e-16	***
SpecialtyRadiation Oncology	0.610271	0.090596	6.736	1.65e-11	***
SpecialtyRheumatology	0.923509	0.102822	8.982	< 2e-16	***
SpecialtySurgical Oncology	-0.097017	0.123735	-0.784	0.433001	
SpecialtyUrology	0.770219	0.095026	8.105	5.44e-16	***
SEXM	0.051348	0.020388	2.518	0.011791	*
ProviderTypeFELLOW:DegreeFELLOW	-1.958773	0.058493	-33.488	< 2e-16	***
ProviderTypeMIDWIFE:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeOther:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeOther:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeNURSE PRACTITIONER	2.094795	0.102997	20.339	< 2e-16	***
ProviderTypeOther:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeNURSE PRACTITIONER	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeOther	-0.736395	0.914339	-0.805	0.420603	
ProviderTypeMIDWIFE:DegreeOther	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeOther	1.646136	0.364803	4.512	6.43e-06	***
ProviderTypeOther:DegreeOther	2.914678	0.100588	28.976	< 2e-16	***
ProviderTypePHYSICIAN:DegreeOther	2.602347	0.077188	33.714	< 2e-16	***

```
ProviderTypePHYSICIAN ASSISTANT:DegreeOther                       NA         NA      NA       NA
ProviderTypeRESIDENT:DegreeOther                            0.280398   0.316213   0.887 0.375226
ProviderTypeFELLOW:DegreePHYSICIAN                                NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreePHYSICIAN                               NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN                    NA         NA      NA       NA
ProviderTypeOther:DegreePHYSICIAN                                 NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreePHYSICIAN                       2.649630   0.038057  69.623  < 2e-16 ***
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN                   NA         NA      NA       NA
ProviderTypeRESIDENT:DegreePHYSICIAN                              NA         NA      NA       NA
ProviderTypeFELLOW:DegreePHYSICIAN ASSISTANT                      NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreePHYSICIAN ASSISTANT                     NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN ASSISTANT          NA         NA      NA       NA
ProviderTypeOther:DegreePHYSICIAN ASSISTANT                       NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreePHYSICIAN ASSISTANT                   NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN ASSISTANT   2.121380   1.114677   1.903 0.057032 .
ProviderTypeRESIDENT:DegreePHYSICIAN ASSISTANT                    NA         NA      NA       NA
ProviderTypeFELLOW:DegreeRESIDENT                                 NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreeRESIDENT                                NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreeRESIDENT                     NA         NA      NA       NA
ProviderTypeOther:DegreeRESIDENT                                  NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreeRESIDENT                              NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreeRESIDENT                    NA         NA      NA       NA
ProviderTypeRESIDENT:DegreeRESIDENT                               NA         NA      NA       NA
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 1.568 on 32156 degrees of freedom
  (2023 observations deleted due to missingness)
Multiple R-squared:  0.4067,   Adjusted R-squared:  0.4058
F-statistic: 423.9 on 52 and 32156 DF,  p-value: < 2.2e-16
```

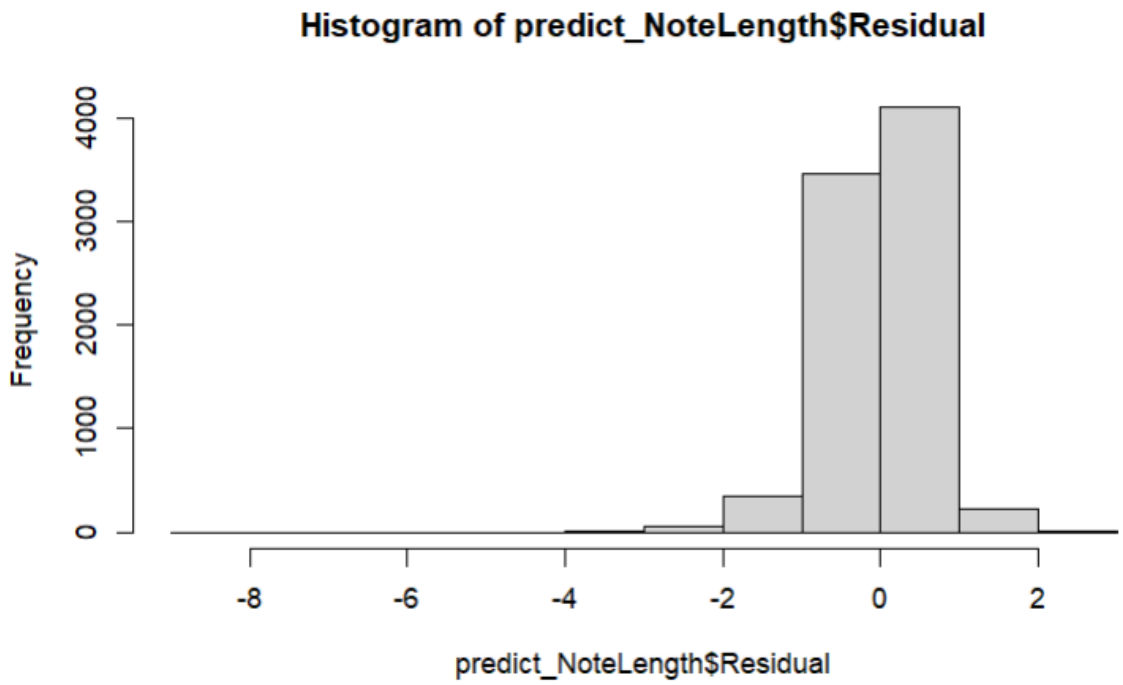


9.2.7 Linear Regression Model: Progress Note Length

```
Call:
lm(formula = log(`Progress Note Length` + 1e-04) ~
MonthsSinceTrainingFactor +
    LastProgram + TrainingSessions + Specialty + ProviderType:Degree +
    SEX + `Age on 12/31/24`, data = train_df_all)

Residuals:
     Min       1Q   Median       3Q      Max
-18.2680  -0.2943   0.0442   0.3556   2.7385

Coefficients: (40 not defined because of singularities)
```

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	8.9930960	0.0283033	317.740	< 2e-16	***
MonthsSinceTrainingFactor0-2 Months	-0.0366575	0.0365166	-1.004	0.315454	
MonthsSinceTrainingFactor3-5 Months	-0.0726429	0.0373309	-1.946	0.051673	.
MonthsSinceTrainingFactor6-12 Months	-0.1020752	0.0351891	-2.901	0.003725	**
MonthsSinceTrainingFactorMore Than One Year	-0.0581482	0.0354342	-1.641	0.100803	
LastProgram1:1 Training	0.6361288	0.4339788	1.466	0.142711	
LastProgramOSU Deep Dive- GIM	-0.0309017	0.0422087	-0.732	0.464103	
LastProgramOSU Deep Dive- Ortho	-0.3726655	0.0416524	-8.947	< 2e-16	***
LastProgramOSU Efficiency Hour- Reviewing Patient Information	-0.2226189	0.1070726	-2.079	0.037612	*
LastProgramOSU Efficiency Workshop	-3.9388846	0.2337145	-16.853	< 2e-16	***
LastProgramOSU IHIS Hot Spot	-0.1088641	0.1903037	-0.572	0.567289	
LastProgramOSU Provider Clinic Observations/Shadowing	0.1025319	0.0456479	2.246	0.024701	*
LastProgramOSU Provider Coaching	0.0408013	0.0372552	1.095	0.273444	
LastProgramOSU Provider Onboarding	0.1179017	0.0360175	3.273	0.001064	**
LastProgramOSU Resident/Fellow Group Session	-0.0714847	0.1271559	-0.562	0.573996	
LastProgramOSU Rounding Tips	0.5642419	0.0730862	7.720	1.19e-14	***
TrainingSessions	0.0480789	0.0112667	4.267	1.98e-05	***
SpecialtyCertified Nurse Midwife	-1.2790599	0.0462255	-27.670	< 2e-16	***
SpecialtyCertified Nurse Practitioner	-0.5534758	0.0426227	-12.985	< 2e-16	***
SpecialtyCritical Care Medicine	-0.1196038	0.0444005	-2.694	0.007069	**
SpecialtyDermatology	-0.6635202	0.0327486	-20.261	< 2e-16	***
SpecialtyEmergency Medicine	-0.2724754	0.0272984	-9.981	< 2e-16	***
SpecialtyEndocrinology, Diabetes & Metabolism	0.0490546	0.0340169	1.442	0.149294	
SpecialtyFamily Medicine	-0.4069830	0.0250567	-16.242	< 2e-16	***
SpecialtyGastroenterology	-0.0574434	0.0289309	-1.986	0.047093	*
SpecialtyGeneral Surgery	-0.6015909	0.0433396	-13.881	< 2e-16	***
SpecialtyHematology	0.0568657	0.0297836	1.909	0.056232	.
SpecialtyInfectious Disease	-0.3270066	0.0344051	-9.505	< 2e-16	***
SpecialtyInternal Medicine	-0.1137298	0.0269773	-4.216	2.50e-05	***
SpecialtyMaternal Fetal Medicine	-1.3959171	0.0451186	-30.939	< 2e-16	***
SpecialtyMedical Oncology	0.4821329	0.0285682	16.877	< 2e-16	***
SpecialtyNephrology	-0.0651633	0.0343592	-1.897	0.057899	.
SpecialtyNeurological Surgery	-0.7613527	0.0408061	-18.658	< 2e-16	***
SpecialtyNeurology	0.0433742	0.0272499	1.592	0.111458	
SpecialtyObstetrics & Gynecology	-0.9640250	0.0286706	-33.624	< 2e-16	***
SpecialtyOphthalmology	-0.5846587	0.0357701	-16.345	< 2e-16	***
SpecialtyOrthopaedic Surgery	-0.6531135	0.0427716	-15.270	< 2e-16	***
SpecialtyOther	-0.4340595	0.0227845	-19.051	< 2e-16	***
SpecialtyOtolaryngology	-0.5457032	0.0340703	-16.017	< 2e-16	***
SpecialtyPhysical Medicine & Rehabilitation	-0.2013787	0.0441296	-4.563	5.05e-06	***
SpecialtyPhysician Assistant	-0.4214266	0.4329856	-0.973	0.330409	
SpecialtyPlastic Surgery	-0.5284355	0.0397374	-13.298	< 2e-16	***
SpecialtyPsychiatry	0.2020174	0.0285927	7.065	1.63e-12	***
SpecialtyPulmonary Disease	-0.1499345	0.0297697	-5.036	4.77e-07	***
SpecialtyRadiation Oncology	-0.4534367	0.0354431	-12.793	< 2e-16	***
SpecialtyRheumatology	-0.3873970	0.0399764	-9.691	< 2e-16	***
SpecialtySurgical Oncology	-0.8559392	0.0413872	-20.681	< 2e-16	***
SpecialtyUrology	-0.3839542	0.0370147	-10.373	< 2e-16	***
SEXM	-0.1132110	0.0079071	-14.318	< 2e-16	***
`Age on 12/31/24`	-0.0014340	0.0003754	-3.820	0.000134	***
ProviderTypeFELLOW:DegreeFELLOW	0.1118662	0.0219703	5.092	3.57e-07	***
ProviderTypeMIDWIFE:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeNURSE PRACTITIONER:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeOther:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypePHYSICIAN ASSISTANT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeRESIDENT:DegreeFELLOW	NA	NA	NA	NA	
ProviderTypeFELLOW:DegreeMIDWIFE	NA	NA	NA	NA	
ProviderTypeMIDWIFE:DegreeMIDWIFE	NA	NA	NA	NA	

```
ProviderTypeNURSE PRACTITIONER:DegreeMIDWIFE                          NA         NA      NA       NA
ProviderTypeOther:DegreeMIDWIFE                                       NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreeMIDWIFE                                   NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreeMIDWIFE                         NA         NA      NA       NA
ProviderTypeRESIDENT:DegreeMIDWIFE                                    NA         NA      NA       NA
ProviderTypeFELLOW:DegreeNURSE PRACTITIONER                           NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreeNURSE PRACTITIONER                          NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreeNURSE PRACTITIONER       0.4301836  0.0398440  10.797  < 2e-16 ***
ProviderTypeOther:DegreeNURSE PRACTITIONER                            NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreeNURSE PRACTITIONER                        NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreeNURSE PRACTITIONER              NA         NA      NA       NA
ProviderTypeRESIDENT:DegreeNURSE PRACTITIONER                         NA         NA      NA       NA
ProviderTypeFELLOW:DegreeOther                                0.3189183  0.2742015   1.163 0.244806
ProviderTypeMIDWIFE:DegreeOther                                       NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreeOther                    0.2965998  0.1418620   2.091 0.036557 *
ProviderTypeOther:DegreeOther                                -0.3632472  0.0384831  -9.439  < 2e-16 ***
ProviderTypePHYSICIAN:DegreeOther                             0.1244697  0.0284776   4.371 1.24e-05 ***
ProviderTypePHYSICIAN ASSISTANT:DegreeOther                           NA         NA      NA       NA
ProviderTypeRESIDENT:DegreeOther                             -0.1130702  0.1228956  -0.920 0.357553
ProviderTypeFELLOW:DegreePHYSICIAN                                    NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreePHYSICIAN                                   NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN                        NA         NA      NA       NA
ProviderTypeOther:DegreePHYSICIAN                                     NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreePHYSICIAN                        -0.2011549  0.0152385 -13.200  < 2e-16 ***
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN                       NA         NA      NA       NA
ProviderTypeRESIDENT:DegreePHYSICIAN                                  NA         NA      NA       NA
ProviderTypeFELLOW:DegreePHYSICIAN ASSISTANT                          NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreePHYSICIAN ASSISTANT                         NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreePHYSICIAN ASSISTANT              NA         NA      NA       NA
ProviderTypeOther:DegreePHYSICIAN ASSISTANT                           NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreePHYSICIAN ASSISTANT                       NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreePHYSICIAN ASSISTANT    -0.1242020  0.4331738  -0.287 0.774324
ProviderTypeRESIDENT:DegreePHYSICIAN ASSISTANT                        NA         NA      NA       NA
ProviderTypeFELLOW:DegreeRESIDENT                                     NA         NA      NA       NA
ProviderTypeMIDWIFE:DegreeRESIDENT                                    NA         NA      NA       NA
ProviderTypeNURSE PRACTITIONER:DegreeRESIDENT                         NA         NA      NA       NA
ProviderTypeOther:DegreeRESIDENT                                      NA         NA      NA       NA
ProviderTypePHYSICIAN:DegreeRESIDENT                                  NA         NA      NA       NA
ProviderTypePHYSICIAN ASSISTANT:DegreeRESIDENT                        NA         NA      NA       NA
ProviderTypeRESIDENT:DegreeRESIDENT                                   NA         NA      NA       NA
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.6094 on 32871 degrees of freedom
  (1302 observations deleted due to missingness)
Multiple R-squared:  0.2726,   Adjusted R-squared:  0.2713
F-statistic: 212.4 on 58 and 32871 DF,  p-value: < 2.2e-16
```



9.3 Logistic Regression Model

```
Call:

glm(formula = Improved ~ Program * Metric, family = "binomial",

    data = modeling_df)


Coefficients:
```

	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	5.798e-01	3.338e-01	1.737	0.082391	.
ProgramOSU Deep Dive- GIM	2.205e+00	5.690e-01	3.875	0.000106	***
ProgramOSU Deep Dive- Ortho	2.990e+00	7.909e-01	3.780	0.000157	***
ProgramOSU Efficiency Hour- In Basket	5.188e-01	8.821e-01	0.588	0.556440	
ProgramOSU Efficiency Hour- Outpatient Documentation	-1.744e-01	9.720e-01	-0.179	0.857641	
ProgramOSU Efficiency Hour- Outpatient Ordering and Preference Lists	5.188e-01	1.202e+00	0.432	0.666021	
ProgramOSU Efficiency Hour- Reviewing Patient Information	1.133e-01	1.269e+00	0.089	0.928863	
ProgramOSU Efficiency Workshop	1.499e+01	6.509e+02	0.023	0.981630	
ProgramOSU Epic Video Visit Demo	-1.050e+00	6.606e-01	-1.589	0.112031	
ProgramOSU IHIS Hot Spot	1.499e+01	1.455e+03	0.010	0.991784	
ProgramOSU In Basket Blitz	-8.311e-01	4.428e-01	-1.877	0.060527	.
ProgramOSU Note Bloat Optimization	-5.798e-01	1.453e+00	-0.399	0.689872	
ProgramOSU PEIP- Open Encs Coaching	3.365e-01	9.008e-01	0.374	0.708755	
ProgramOSU Provider Clinic Observations/Shadowing	-1.657e+00	4.418e-01	-3.751	0.000176	***
ProgramOSU Provider Coaching	-1.845e-01	3.698e-01	-0.499	0.617867	
ProgramOSU Provider Onboarding	-2.252e+00	3.870e-01	-5.819	5.92e-09	***
ProgramOSU Resident/Fellow Group Session	-2.189e+00	1.145e+00	-1.912	0.055912	.
ProgramOSU Rounding Tips	6.729e-01	8.685e-01	0.775	0.438435	
ProgramOSU Telehealth Training	-1.098e-01	6.606e-01	-0.166	0.867977	
MetricProgress Note Length	-1.391e+00	4.815e-01	-2.889	0.003869	**
MetricTime in Clinical Review per Appointment	-7.340e-01	4.633e-01	-1.584	0.113107	
MetricTime in In Basket per Appointment	1.133e-01	4.762e-01	0.238	0.811911	
MetricTime in Notes per Appointment	1.543e-13	4.721e-01	0.000	1.000000	
MetricTime in Orders per Appointment	-8.376e-01	4.644e-01	-1.804	0.071301	.
MetricUnchanged Defaults from Preference List	-8.376e-01	4.644e-01	-1.804	0.071301	.
ProgramOSU Deep Dive- GIM:MetricProgress Note Length	-1.299e+00	7.013e-01	-1.852	0.064010	.
ProgramOSU Deep Dive- Ortho:MetricProgress Note Length	-1.931e+00	8.953e-01	-2.157	0.031020	*
ProgramOSU Efficiency Hour- In Basket:MetricProgress Note Length	2.238e+00	1.429e+00	1.566	0.117246	
ProgramOSU Efficiency Hour- Outpatient Documentation:MetricProgress Note Length	1.391e+00	1.378e+00	1.009	0.312801	

```
ProgramOSU Efficiency Hour- Outpatient Ordering and Preference Lists:MetricProgress Note Length                  1.391e+00  1.702e+00   0.817 0.413990
ProgramOSU Efficiency Hour- Reviewing Patient Information:MetricProgress Note Length                           1.391e+00  1.798e+00   0.774 0.439157
ProgramOSU Efficiency Workshop:MetricProgress Note Length                                                     -2.974e+01  1.218e+03  -0.024 0.980514
ProgramOSU Epic Video Visit Demo:MetricProgress Note Length                                                    3.065e+00  9.951e-01   3.080 0.002070 **
ProgramOSU IHIS Hot Spot:MetricProgress Note Length                                                           -2.974e+01  2.058e+03  -0.014 0.988471
ProgramOSU In Basket Blitz:MetricProgress Note Length                                                          1.893e+00  6.333e-01   2.990 0.002794 **
ProgramOSU Note Bloat Optimization:MetricProgress Note Length                                                  1.391e+00  2.057e+00   0.676 0.499002
ProgramOSU PEIP- Open Encs Coaching:MetricProgress Note Length                                                 1.868e-01  1.231e+00   0.152 0.879393
ProgramOSU Provider Clinic Observations/Shadowing:MetricProgress Note Length                                   3.022e+00  6.197e-01   4.876 1.08e-06 ***
ProgramOSU Provider Coaching:MetricProgress Note Length                                                        1.020e+00  5.309e-01   1.922 0.054665 .
ProgramOSU Provider Onboarding:MetricProgress Note Length                                                      3.272e+00  5.396e-01   6.063 1.33e-09 ***
ProgramOSU Resident/Fellow Group Session:MetricProgress Note Length                                            3.406e+00  1.505e+00   2.263 0.023646 *
ProgramOSU Rounding Tips:MetricProgress Note Length                                                            1.380e-01  1.172e+00   0.118 0.906314
ProgramOSU Telehealth Training:MetricProgress Note Length                                                      7.666e-01  9.308e-01   0.824 0.410157
ProgramOSU Deep Dive- GIM:MetricTime in Clinical Review per Appointment                                       -2.172e+00  6.894e-01  -3.150 0.001633 **
ProgramOSU Deep Dive- Ortho:MetricTime in Clinical Review per Appointment                                     -2.185e+00  8.900e-01  -2.455 0.014087 *
ProgramOSU Efficiency Hour- In Basket:MetricTime in Clinical Review per Appointment                            1.245e+00  1.443e+00   0.863 0.388222
ProgramOSU Efficiency Hour- Outpatient Documentation:MetricTime in Clinical Review per Appointment             1.589e+01  7.277e+02   0.022 0.982574
ProgramOSU Efficiency Hour- Outpatient Ordering and Preference Lists:MetricTime in Clinical Review per Appointment  3.285e-01  1.746e+00   0.188 0.850748
ProgramOSU Efficiency Hour- Reviewing Patient Information:MetricTime in Clinical Review per Appointment        4.082e-02  1.927e+00   0.021 0.983102
ProgramOSU Efficiency Workshop:MetricTime in Clinical Review per Appointment                                  -1.622e+01  6.509e+02  -0.025 0.980120
ProgramOSU Epic Video Visit Demo:MetricTime in Clinical Review per Appointment                                 1.674e+00  9.298e-01   1.800 0.071816 .
ProgramOSU IHIS Hot Spot:MetricTime in Clinical Review per Appointment                                         7.340e-01  2.058e+03   0.000 0.999715
ProgramOSU In Basket Blitz:MetricTime in Clinical Review per Appointment                                       7.621e-01  6.239e-01   1.222 0.221874
ProgramOSU Note Bloat Optimization:MetricTime in Clinical Review per Appointment                               1.630e+01  1.029e+03   0.016 0.987363
ProgramOSU PEIP- Open Encs Coaching:MetricTime in Clinical Review per Appointment                            -4.700e-01  1.224e+00  -0.384 0.700963
ProgramOSU Provider Clinic Observations/Shadowing:MetricTime in Clinical Review per Appointment               2.387e+00  6.206e-01   3.846 0.000120 ***
ProgramOSU Provider Coaching:MetricTime in Clinical Review per Appointment                                    8.570e-01  5.197e-01   1.649 0.099126 .
ProgramOSU Provider Onboarding:MetricTime in Clinical Review per Appointment                                  3.617e+00  5.471e-01   6.612 3.80e-11 ***
ProgramOSU Resident/Fellow Group Session:MetricTime in Clinical Review per Appointment                        -1.322e+01  1.455e+03  -0.009 0.992751
ProgramOSU Rounding Tips:MetricTime in Clinical Review per Appointment                                        -2.311e+00  1.423e+00  -1.624 0.104367
ProgramOSU Telehealth Training:MetricTime in Clinical Review per Appointment                                  6.004e-01  9.394e-01   0.639 0.522708
ProgramOSU Deep Dive- GIM:MetricTime in In Basket per Appointment                                             -3.116e+00  6.985e-01  -4.461 8.16e-06 ***
ProgramOSU Deep Dive- Ortho:MetricTime in In Basket per Appointment                                           -3.626e+00  8.934e-01  -4.059 4.94e-05 ***
ProgramOSU Efficiency Hour- In Basket:MetricTime in In Basket per Appointment                                 3.975e-01  1.447e+00   0.275 0.783527
ProgramOSU Efficiency Hour- Outpatient Documentation:MetricTime in In Basket per Appointment                  5.798e-01  1.547e+00   0.375 0.707824
ProgramOSU Efficiency Hour- Outpatient Ordering and Preference Lists:MetricTime in In Basket per Appointment  -5.188e-01  1.749e+00  -0.297 0.766797
ProgramOSU Efficiency Hour- Reviewing Patient Information:MetricTime in In Basket per Appointment             -8.065e-01  1.930e+00  -0.418 0.676126
ProgramOSU Efficiency Workshop:MetricTime in In Basket per Appointment                                       -1.707e+01  6.509e+02  -0.026 0.979082
ProgramOSU Epic Video Visit Demo:MetricTime in In Basket per Appointment                                     -4.543e-01  9.555e-01  -0.475 0.634484
ProgramOSU IHIS Hot Spot:MetricTime in In Basket per Appointment                                             -1.133e-01  2.058e+03   0.000 0.999956
ProgramOSU In Basket Blitz:MetricTime in In Basket per Appointment                                            4.454e-03  6.331e-01   0.007 0.994386
ProgramOSU Note Bloat Optimization:MetricTime in In Basket per Appointment                                    1.545e+01  1.029e+03   0.015 0.988020
ProgramOSU PEIP- Open Encs Coaching:MetricTime in In Basket per Appointment                                   -7.419e-01  1.229e+00  -0.604 0.546009
ProgramOSU Provider Clinic Observations/Shadowing:MetricTime in In Basket per Appointment                     7.231e-01  6.259e-01   1.155 0.247995
ProgramOSU Provider Coaching:MetricTime in In Basket per Appointment                                         -3.676e-01  5.296e-01  -0.694 0.487660
ProgramOSU Provider Onboarding:MetricTime in In Basket per Appointment                                        1.361e+00  5.461e-01   2.493 0.012679 *
ProgramOSU Resident/Fellow Group Session:MetricTime in In Basket per Appointment                             -1.407e+01  1.455e+03  -0.010 0.992287
ProgramOSU Rounding Tips:MetricTime in In Basket per Appointment                                             -2.282e+00  1.253e+00  -1.822 0.068496 .
ProgramOSU Telehealth Training:MetricTime in In Basket per Appointment                                        1.098e-01  9.627e-01   0.114 0.909184
ProgramOSU Deep Dive- GIM:MetricTime in Notes per Appointment                                                -2.518e+00  6.959e-01  -3.619 0.000296 ***
ProgramOSU Deep Dive- Ortho:MetricTime in Notes per Appointment                                              -2.509e+00  9.010e-01  -2.784 0.005362 **
ProgramOSU Efficiency Hour- In Basket:MetricTime in Notes per Appointment                                     5.108e-01  1.446e+00   0.353 0.723799
ProgramOSU Efficiency Hour- Outpatient Documentation:MetricTime in Notes per Appointment                      1.516e+01  7.277e+02   0.021 0.983378
ProgramOSU Efficiency Hour- Outpatient Ordering and Preference Lists:MetricTime in Notes per Appointment      1.447e+01  8.403e+02   0.017 0.986263
ProgramOSU Efficiency Hour- Reviewing Patient Information:MetricTime in Notes per Appointment                 1.487e+01  1.029e+03   0.014 0.988469
ProgramOSU Efficiency Workshop:MetricTime in Notes per Appointment                                           -1.597e+01  6.509e+02  -0.025 0.980423
ProgramOSU Epic Video Visit Demo:MetricTime in Notes per Appointment                                          9.400e-01  9.343e-01   1.006 0.314347
ProgramOSU IHIS Hot Spot:MetricTime in Notes per Appointment                                                 -5.403e-10  2.058e+03   0.000 1.000000
ProgramOSU In Basket Blitz:MetricTime in Notes per Appointment                                                1.046e+00  6.412e-01   1.632 0.102769
ProgramOSU Note Bloat Optimization:MetricTime in Notes per Appointment                                        1.557e+01  1.029e+03   0.015 0.987932
ProgramOSU PEIP- Open Encs Coaching:MetricTime in Notes per Appointment                                      -6.286e-01  1.227e+00  -0.512 0.608510
ProgramOSU Provider Clinic Observations/Shadowing:MetricTime in Notes per Appointment                         2.464e+00  6.570e-01   3.750 0.000177 ***
ProgramOSU Provider Coaching:MetricTime in Notes per Appointment                                              3.727e-01  5.299e-01   0.703 0.481763
ProgramOSU Provider Onboarding:MetricTime in Notes per Appointment                                            3.798e+00  5.893e-01   6.446 1.15e-10 ***
ProgramOSU Resident/Fellow Group Session:MetricTime in Notes per Appointment                                 -1.396e+01  1.455e+03  -0.010 0.992349
ProgramOSU Rounding Tips:MetricTime in Notes per Appointment                                                 -3.365e-01  1.251e+00  -0.269 0.788006
ProgramOSU Telehealth Training:MetricTime in Notes per Appointment                                           -4.700e-01  9.387e-01  -0.501 0.616591
ProgramOSU Deep Dive- GIM:MetricTime in Orders per Appointment                                               -2.313e+00  6.913e-01  -3.346 0.000821 ***
ProgramOSU Deep Dive- Ortho:MetricTime in Orders per Appointment                                             -2.386e+00  8.881e-01  -2.686 0.007225 **
ProgramOSU Efficiency Hour- In Basket:MetricTime in Orders per Appointment                                    4.322e-01  1.278e+00   0.338 0.735163
ProgramOSU Efficiency Hour- Outpatient Documentation:MetricTime in Orders per Appointment                     1.600e+01  7.277e+02   0.022 0.982460
ProgramOSU Efficiency Hour- Outpatient Ordering and Preference Lists:MetricTime in Orders per Appointment     4.322e-01  1.746e+00   0.248 0.804517
ProgramOSU Efficiency Hour- Reviewing Patient Information:MetricTime in Orders per Appointment                1.445e-01  1.928e+00   0.075 0.940244
ProgramOSU Efficiency Workshop:MetricTime in Orders per Appointment                                          -1.513e+01  6.509e+02  -0.023 0.981450
ProgramOSU Epic Video Visit Demo:MetricTime in Orders per Appointment                                         2.512e+00  9.869e-01   2.545 0.010932 *
ProgramOSU IHIS Hot Spot:MetricTime in Orders per Appointment                                                 8.376e-01  2.058e+03   0.000 0.999675
ProgramOSU In Basket Blitz:MetricTime in Orders per Appointment                                               1.133e+00  6.239e-01   1.817 0.069285 .
ProgramOSU Note Bloat Optimization:MetricTime in Orders per Appointment                                       1.640e+01  1.029e+03   0.016 0.987283
ProgramOSU PEIP- Open Encs Coaching:MetricTime in Orders per Appointment                                      2.090e-01  1.224e+00   0.171 0.864433
ProgramOSU Provider Clinic Observations/Shadowing:MetricTime in Orders per Appointment                        3.432e+00  6.595e-01   5.203 1.96e-07 ***
ProgramOSU Provider Coaching:MetricTime in Orders per Appointment                                             1.243e+00  5.234e-01   2.375 0.017555 *
ProgramOSU Provider Onboarding:MetricTime in Orders per Appointment                                           4.725e+00  5.886e-01   8.028 9.92e-16 ***
ProgramOSU Resident/Fellow Group Session:MetricTime in Orders per Appointment                                -1.312e+01  1.455e+03  -0.009 0.992808
ProgramOSU Rounding Tips:MetricTime in Orders per Appointment                                                -1.274e-01  1.201e+00  -0.106 0.915484
ProgramOSU Telehealth Training:MetricTime in Orders per Appointment                                           1.466e+00  9.925e-01   1.477 0.139605
ProgramOSU Deep Dive- GIM:MetricUnchanged Defaults from Preference List                                      -2.605e+00  6.931e-01  -3.759 0.000171 ***
ProgramOSU Deep Dive- Ortho:MetricUnchanged Defaults from Preference List                                    -2.565e+00  8.864e-01  -2.893 0.003810 **
ProgramOSU Efficiency Hour- In Basket:MetricUnchanged Defaults from Preference List                          -7.718e-01  1.190e+00  -0.649 0.516562
ProgramOSU Efficiency Hour- Outpatient Documentation:MetricUnchanged Defaults from Preference List           2.672e-02  1.372e+00   0.019 0.984463
ProgramOSU Efficiency Hour- Outpatient Ordering and Preference Lists:MetricUnchanged Defaults from Preference List -2.610e-01  1.597e+00  -0.163 0.870162
ProgramOSU Efficiency Hour- Reviewing Patient Information:MetricUnchanged Defaults from Preference List      -5.486e-01  1.793e+00  -0.306 0.759640
ProgramOSU Efficiency Workshop:MetricUnchanged Defaults from Preference List                                 -1.432e+01  6.509e+02  -0.022 0.982443
ProgramOSU Epic Video Visit Demo:MetricUnchanged Defaults from Preference List                                1.462e+00  9.221e-01   1.585 0.112891
ProgramOSU IHIS Hot Spot:MetricUnchanged Defaults from Preference List                                        8.376e-01  2.058e+03   0.000 0.999675
ProgramOSU In Basket Blitz:MetricUnchanged Defaults from Preference List                                      8.376e-01  6.205e-01   1.350 0.177029
ProgramOSU Note Bloat Optimization:MetricUnchanged Defaults from Preference List                              1.640e+01  1.029e+03   0.016 0.987283
ProgramOSU PEIP- Open Encs Coaching:MetricUnchanged Defaults from Preference List                             2.090e-01  1.224e+00   0.171 0.864433
ProgramOSU Provider Clinic Observations/Shadowing:MetricUnchanged Defaults from Preference List               1.947e+00  6.025e-01   3.232 0.001231 **
ProgramOSU Provider Coaching:MetricUnchanged Defaults from Preference List                                    6.712e-01  5.164e-01   1.300 0.193732
ProgramOSU Provider Onboarding:MetricUnchanged Defaults from Preference List                                  2.622e+00  5.259e-01   4.986 6.17e-07 ***
ProgramOSU Resident/Fellow Group Session:MetricUnchanged Defaults from Preference List                        3.546e+00  1.658e+00   2.139 0.032475 *
ProgramOSU Rounding Tips:MetricUnchanged Defaults from Preference List                                       -9.259e-01  1.180e+00  -0.785 0.432549
ProgramOSU Telehealth Training:MetricUnchanged Defaults from Preference List                                  2.135e-01  9.221e-01   0.232 0.816900
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Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 6341.8  on 4648  degrees of freedom

Residual deviance: 5642.0  on 4516  degrees of freedom
```

```
AIC: 5908


Number of Fisher Scoring iterations: 14
```

9.4 Potential Trainee Survey to collect data for Prescriptive Analysis

Electronic Medical Record (EMR) Efficiency Training Survey

Objective: To understand which features of documentation and workflow training programs most influence medical providers' participation, independent of cost.

Target Audience: Medical providers (e.g., physicians, nurse practitioners, physician assistants, physical therapists) who regularly use Epic and are involved in patient documentation.

Approach: Respondents are asked to fill out four sections:

1. Screening & Demographics (multiple choice)

2. Psychological Variables (Likert)
    - Cognitive Load / Documentation Burden
    - Autonomy & Workflow Control
    - Trust in Defaults & System Design
    - Legal Vigilance & Risk Aversion
    - Learning Motivation & Self-Efficacy

3. Choice-Based Conjoint
    - Topic
    - Mode
    - Length
    - Follow-up
    - Support
    - Incentive

4. Follow-Up Behavior & Attitude (Likert)

1. Introduction:

Survey Introduction: Welcome to the survey! We are gathering insights on the features of training for Electronic Medical Record (EMR) software. Your input will help us better understand your preferences. The survey should take about 10-15 minutes to complete.

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2. Demographics

1. [Screening] Do you currently provide direct patient care at OSU Wexner Medical Center (OSUWMC)?
    - Yes
    - No [terminate] (If No: 'Thank you for your interest. This survey is intended for current clinical providers.')
2. [Screening] Do you use IHIS (the Epic Electronic Health Record (EHR) system) in your clinical workflow?
    - Yes
    - No [terminate] (If No: 'Thank you. This survey focuses on Epic EHR users.')
3. [Screening] What is your age (in years)?
    - Less than 18 [terminate]
    - 18–29
    - 30–39
    - 40–49
    - 50–59
    - 60+
4. [Screening] Which best describes your current engagement with EHR-related training?
    - I completed training in the past 12 months
    - I am actively exploring training opportunities
    - I am considering training in the next 6–12 months
    - I am not interested in training [terminate]
5. [Conditional – if completed training] Which type(s) of training have you completed? (Select all that apply)
    - Initial Epic training during onboarding
    - Follow-up optimization training
    - Specialty-specific workflow training
    - Self-paced learning resources (e.g., job aids, videos)
    - Other (Please specify): _____
6. What is your current role?
    - Physician
    - Nurse Anesthetist
    - Anesthesiologist
    - Midwife
    - Physician Assistant

- Nurse Practitioner
- Resident
- Clinical Nurse Specialist
- Fellow
- Mid-Level
- Other (specify)

7. What is the highest degree that you have achieved?
    - High school diploma (or equivalent)
    - Associate's degree
    - Bachelor's degree
    - Master's degree
    - Doctorate (MD, DO, DPT, PhD, etc.)
8. What is your primary practice setting?
    - Outpatient
    - Inpatient
    - Emergency Department
    - Rehabilitation
    - Mixed
    - Other (specify)
9. How many years have you worked at OSUWMC?
    - <1
    - 1–5
    - 6–10
    - >10
10. How many years, in total, have you been in clinical practice?
    - <1
    - 1–5
    - 6–10
    - >10
11. How many patients do you typically see in a shift?
    - Fewer than 5
    - 5–9
    - 10–14
    - 15–19
    - 20–24
    - 25 or more
    - Not applicable to my role
12. How long is a typical shift?
    - Less than 4 hours
    - 4-6 hours
    - 6-8 hours

- 8-10 hours
- 10-12 hours
- 12-14 hours
- 14-16 hours
- 16+ hours

13. How many years have you been using Epic (at OSUMC or elsewhere)?
    - Less than 1 year
    - 1–3 years
    - 4–6 years
    - More than 6 years
14. What challenges do you experience when using Epic? (Select all that apply)
    - Navigating charts
    - Timely documentation during visits
    - Timely documentation after hours
    - Managing in-basket
    - Managing orders
    - Reviewing results
    - Customizing workflows
    - Time spent in Notes
    - Other (Please specify): _____
15. How much time do you spend documenting per patient per shift?
    - <5 min
    - 5–10 min
    - 10–15 min
    - >15 min
16. How often do you adjust default order settings?
    - Never
    - Rarely
    - Sometimes
    - Often
    - Always
17. Which of the following Epic efficiency tools have you used? (Select all that apply)
    - SmartTexts / SmartPhrases
    - Personalization options (e.g., macros, filters)
    - Chart review shortcuts
    - In Basket management techniques
    - None
18. What is your preferred learning style?
    - Visual (learns best with pictures, diagrams, etc.)
    - Auditory (learns best by hearing)
    - Kinesthetic (learns best through hands-on experience)

- A combination of the above

19. Which of the following factors is important to you in deciding whether to take training?

	Not Important	Somewhat Important	Very Important
Relevance to my job	◯	◯	◯
Flexible training schedules	◯	◯	◯
Time commitment	◯	◯	◯
Clear instructions and guidance	◯	◯	◯
Ability to ask questions and receive answers	◯	◯	◯
Hands-on practice and real-world examples	◯	◯	◯
Interaction with my peers	◯	◯	◯
Regular feedback on progress	◯	◯	◯
Ease of access	◯	◯	◯
Follow-up support	◯	◯	◯

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3. Psychological Factors

Please indicate how much you agree with the following statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am more likely to complete training if I can do it on my own time.	◯	◯	◯	◯	◯
Recognized CME/CEU credit increases my interest in training.	◯	◯	◯	◯	◯
Shorter training modules are more appealing, even if the content is condensed.	◯	◯	◯	◯	◯
I prefer training that directly applies to my day-to-day documentation work.	◯	◯	◯	◯	◯
I'm more motivated to take training when it uses real-world examples.	◯	◯	◯	◯	◯
EHR documentation consumes too much of my mental energy	◯	◯	◯	◯	◯
Reducing documentation time would improve my patient interactions.	◯	◯	◯	◯	◯
I feel in control of how I use Epic during patient care.	◯	◯	◯	◯	◯
I prefer tools that let me tailor workflows to my practice style.	◯	◯	◯	◯	◯
I rely on system defaults to save time.	◯	◯	◯	◯	◯
I believe default settings in Epic are generally well-designed.	◯	◯	◯	◯	◯
I write longer notes to reduce my liability exposure.	◯	◯	◯	◯	◯
Detailed documentation makes me feel more legally protected.	◯	◯	◯	◯	◯
I am confident that EHR training can improve my efficiency.	◯	◯	◯	◯	◯
I'm motivated to engage in training if it shows measurable benefits.	◯	◯	◯	◯	◯
Training on Epic improves how efficiently I can complete my daily tasks.	◯	◯	◯	◯	◯
I feel confident navigating Epic to complete patient care efficiently.	◯	◯	◯	◯	◯
I prefer systems that are simple and easy to use, even if it means fewer features.	◯	◯	◯	◯	◯
I actively seek out opportunities to improve my skills in Epic and other digital tools.	◯	◯	◯	◯	◯
I am open to changing my workflow if it helps improve efficiency or quality of care.	◯	◯	◯	◯	◯
I often feel emotionally exhausted by work.	◯	◯	◯	◯	◯
My use of Epic is very efficient.	◯	◯	◯	◯	◯
I am very confident in my ability to use Epic optimally.	◯	◯	◯	◯	◯
I am interested in reducing my daily workload.	◯	◯	◯	◯	◯
I am interested in improving patient interactions while documenting in IHIS.	◯	◯	◯	◯	◯
I believe provider efficiency is important to OSUWMC.	◯	◯	◯	◯	◯
I believe effective use of IHIS is part of my job as a provider.	◯	◯	◯	◯	◯
I believe I can effectively use IHIS after training, even without constant support.	◯	◯	◯	◯	◯
I do not have time to take training.	◯	◯	◯	◯	◯
I am not sure how effective efficiency training would be.	◯	◯	◯	◯	◯
Available IHIS efficiency trainings do not seem relevant to my job.	◯	◯	◯	◯	◯

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4. Preferences

On the following screens, you will be asked to select between three training options. Aspects of the trainings are defined below.

Glossary of Terms:

Term		Definition
Topic		What the training is about
	Time Management	IHIS tools to help you find and prioritize work
	SmartTexts / SmartPhrases	Customizable documentation shortcuts
	Personalization	Macros, filters, and UI settings
	Chart review shortcuts	Tools for quickly reviewing patient records
	In Basket management	Strategies for handling Epic messages
	Specialty specific	Curriculum developed for your area of practice
	Workflow specific	Curriculum developed for a challenging process
Mode		How the training is delivered
	In-person sessions	Face-to-face training with an instructor
	Live virtual training	Real-time online instruction
	Hybrid	Some students are in-person and some are virtual
	Pre-recorded eLearning	Computer-based learning modules
	One-on-one coaching	Personalized guidance with a trainer
	On-demand help within Epic	Built-in assistance or AI tools
Duration		How long each session is (in hours)
Method		Types of activities used during training
	Lecture	Trainer delivers didactic material
	Demonstration	Trainer shows how to use a tool or perform a process
	Hands-on	Practice exercises or simulations

	Group discussions	Peer-to-peer conversations about IHIS tools/processes
	Case study	An example situation with prompts
	Q&A	Unscripted discussion between trainer and trainees
Schedule		When the training is offered
	Morning	7am-noon
	Afternoon	Noon-5pm
	Evening	5pm-9pm
	Weekend	Saturday/Sunday
	On Demand	Available anytime
Class Size		How many trainees in one session
	Small	1-5 people
	Medium	6-15 people
	Large	16+ people
Support Level		Availability of a training facilitator
	Email-based support	Submit questions and receive responses within 24–48 hours
	Live Q&A sessions	Access real-time virtual Q&A with a training facilitator
	Dedicated coach	One-on-one support available throughout the course
	Follow-ups	Training staff will check in one or more times after initial session (usually virtually or by email)
Incentive		What you get upon successful completion of training
	Continuing education credit	Time counts toward continuing education required to maintain clinical license
	Certification	Institutional certificate or Epic badge

	Bonus	One-time monetary award
	Time-off voucher	Comp time for future use

You will be shown different scenarios that vary in EHR efficiency metrics and training support. Please choose the workflow option you would most prefer in each situation.

There are no right or wrong answers—just choose based on what would make your work most efficient and satisfying.

Selection 1

	Option A	Option B	Option C	Your Choice:
Topic(s)	In Basket Management	Time Management	Personalization	◯Option A
Mode	In person	e-Learning	Hybrid	
Duration	3 hours	6 hours	1 hour	◯Option B
Method(s)	Hands-on, group discussion	Lecture, hands-on, case study	Q&A	◯Option C
Schedule	Morning	On demand	Afternoon	
Class size	Medium	N/A	Large	
Training support	In person	None	Live Q&A sessions	
Incentive	Continuing education credit	None	None	

Selection 2

	Option A	Option B	Option C	Your Choice:
Topic(s)	Specialty specific	Onboarding	Workflow specific	◯Option A
Mode	Live virtual	e-Learning	In person	
Duration	1 hour	30 minutes	2 hours	◯Option B
Method(s)	Hands-on, group discussion	Demonstration	Group discussion	◯Option C
Schedule	Morning	On demand	Afternoon	
Class size	Medium	N/A	Small	
Training support	Live Q&A sessions, follow-ups	None	Live Q&A sessions	
Incentive	Continuing education credit	None	None	

Selection 3

	Option A	Option B	Option C	Your Choice:
Topic(s)	In Basket Management	Workflow specific	Specialty specific	◯Option A
Mode	In person	e-Learning	Hybrid	
Duration	4 hours	1 hour	30 minutes	◯Option B
Method(s)	Hands-on, group discussion	Lecture, hands-on, case study	Q&A	◯Option C

Schedule	Evening	On demand	Afternoon	
Class size	Medium	N/A	Large	
Training support	In person	None	Live Q&A sessions, follow-ups	
Incentive	Time off voucher	Continuing education credit	None	

Selection 4

	Option A	Option B	Option C	Your Choice:
Topic(s)	Workflow specific	SmartTexts/Smartphrases, personalization, chart review shortcuts, in basket management, workflow specific	Specialty specific	◯Option A ◯Option B ◯Option C
Mode	On-demand help within Epic	Live virtual	Hybrid	
Duration	<30 minutes	1 day	1 hour	
Method(s)	Demonstration, hands-on	Lecture, demonstration, hands-on, group discussions, Q&A	Group discussions	
Schedule	On demand	Morning/Afternoon	Afternoon	
Class size	N/A	Small-Medium	Small	
Training support	None	Dedicated coach, follow-ups	Live Q&A sessions	
Incentive	None	Time-off voucher	Continuing education credit	

Selection 5

	Option A	Option B	Option C	Your Choice:
Topic(s)	Personalization	Specialty specific	Personalization	○ Option A
Mode	In person	Live virtual	Pre-recorded eLearning	
Duration	2 hours	2 hours	1 hour	○ Option B
Method(s)	Hands-on	Demonstration, hands-on	Lecture, demonstration	○ Option C
Schedule	Scheduled individually	Evening	On demand	
Class size	1	Large	N/A	
Training support	Dedicated coach, follow-ups	Live Q&A	None	
Incentive	None	Continuing Education Credit	None	

---

5. Attitude

1. Which of the following factors is important to you in deciding whether to take training?

	Not Important	Somewhat Important	Very Important

Topic(s)	◯	◯	◯
Mode	◯	◯	◯
Duration	◯	◯	◯
Method(s)	◯	◯	◯
Schedule	◯	◯	◯
Class size	◯	◯	◯
Support	◯	◯	◯
Incentive	◯	◯	◯
Ease of access	◯	◯	◯
Follow-up support	◯	◯	◯

2. How likely are you to participate in an Epic training program if it improved efficiency by 15%?
    - Not at all likely
    - Unlikely
    - Neutral
    - Likely
    - Very likely

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9. Conclusion Page:

Thank you for completing the survey!
Your responses will help improve the way EMR software training is designed and delivered. If you have any additional thoughts or comments on the training process, please feel free to share them below.

Open Text Box:
(For any additional comments or thoughts the participant wants to share)
