SubmittingProject Report: Group 3

A novel approach to analyzing the caliber of University of Washington Medicine clinical ethics consults

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Abstract

Background: Ethical consultations are a useful and necessary service offered at many hospitals and medical centers, yet there is no standardized procedure for conducting these consultations. This analysis began to address this deficiency in the assessment of the completion and quality of 326 ethics consultations completed across three University of Washington Medical Centers by twelve consultants.

Methods: We utilized mixed effects regression models with random intercepts for lead consultants and adjustment for primary ethics issues. The primary outcome was completion, a binary variable indicating if consultants have fully entered all relevant information into the database or not. The secondary outcome was a quality score ranging from 0 to 5, indicating the number of core competencies met per consultation, as outlined in the U.S. Department of Veterans Affairs National Center for Ethics Care IntegratedEthics® Service.

Findings: Average completion for all consultants was 70%, and ranged from 34% to 100% at the consultant level. The average quality score across all consultations was 3.6, while the average quality score at the consultant level ranged from 3.2 to 4.7. Both the primary and secondary models resulted in a ranking of consultants while adjusting for different caseload sizes and varying difficulties of the primary ethical issues in order to not over- or under-rate any individual consultant.

Interpretation: This research introduces a new method for the ranking of ethics consultations by completion and quality. Our method helps elucidate the relationship between the consults and other variables of interest, such as ethical issues, and is a first step towards improving the caliber of ethics consultations more widely in order to better serve the clients utilizing these services.

Background

Clinical ethics have been an integral component of healthcare for decades – the field of bioethics has existed since 1969, although the need for this field was recognized even earlier than that.[11] Bioethics extends to all life science fields, not just healthcare fields, yet the advancements and complexities of modern health sciences create a particular need for ethical safeguards protecting patients, clinicians, and others involved in medical practices and procedures.

The roles of ethics consultants and committees have expanded in response to an ever-growing need. The Department of Bioethics and Humanities at University of Washington Medicine identifies an ethics consultant to be “an expert in ethics who provides ethics consultations and may also serve as an educator to the [ethics] committee or program”.[8] Their knowledge and skills focus on contextual norms (both local and medical), the rights and perspectives of those involved, and facilitation towards a mutual consensus for all involved parties.[5] There are both pros and cons to this role. The consultant is a single dedicated expert with expertise in ethics, while ethics committees are formed from a small group of people, often with differing

backgrounds. It is easier to convene with one consultant as compared to a committee, which can be important when cases include end-of-life scenarios or other time-sensitive issues. However, ethics committees allow for multiple voices to be heard, while ethics consultants work alone and result in only one opinion being expressed.[8] While neither approach is inherently better nor worse, it is pertinent that all those involved in clinical ethics consults are held to well-articulated, well-known, and verifiable standards.

The purpose of this study was to create novel methods for evaluating the completeness and quality of clinical ethics consultations and apply regression techniques to rank consultants at the University of Washington Medicine. To evaluate consultations, we leveraged a current standard for clinical ethics consultations, the U.S. Department of Veterans Affairs National Center for Ethics in Health Care IntegratedEthics® Service, which was most recently updated in 2015 and focuses on care of veterans (but can be applied more broadly to ethics consults as a whole). The overall goal of this standard is to uphold and improve ethics quality at healthcare institutions and identify key components of successful ethics consultations.

The IntegratedEthics® Service uses the CASES approach: this approach breaks consultations into step-by-step instructions and ensures that consultants **C**larify the consultation request, **A**ssemble the relevant information, **S**ynthesize the information, **E**xplain the synthesis, and **S**upport the consultation process (through follow-up, evaluation, and so on).[1]

A second standard, the second edition of the American Society for Bioethics & Humanities Core Competencies for Healthcare Ethics Consultation, was considered. This standard was created in 2011 by a society of professionals in the bioethics field. The Core Competencies for Healthcare Ethics Consultation breaks the process down into sixteen "core competencies" that incorporate many of these same ideas in more detail. Examples include calls to:

- "Identify the nature of the value uncertainty or conflict that underlies the need for healthcare ethics consultation (HCEC),"
- "Access relevant ethics literature, policies, guidelines, and standards,"
- "Establish HCEC expectations and determine whom to involve,"
- "Facilitate formal meetings,"
- "Identify systems issues and delegate follow-up." [9]

While ultimately, only the CASES approach was utilized in this study, an expansion of this study aims to include the Core Competencies standard as well. We note that neither standard has been universally accepted, and there are no obligations for facilities to use any standard when conducting ethics consultations.

The need for such standards is clear – clinical ethics have impacts beyond even the lives and wellbeing of medical professionals, patients, and families of patients. In addition, ethics consults can be convened for a whole host of reasons, including but not limited to: "clarification of … values; assistance understanding ethical dimensions of the situation; help discussing different

perspectives related to the best course of treatment; or assistance resolving disagreements among or between key decision-makers," and with such varied subject matter, it is important to follow guidelines when conducting these consultations.[2] However, studies show that ethics consults are underutilized despite their relevance and applicability to a variety of difficult situations.[4] In addition, it has been noted that "Clinical ethics consultations (CECs) are sometimes deemed complete at the moment when the consultants make a recommendation… such consults have insufficient 'closure' for patients, families, and providers".[3] It is important that this system works for both the consultants and the clients. By ensuring that the consultations at UW Medicine are well-aligned with the aforementioned standards and looking for areas in which consultants may consistently fall short, we hope to open the door for future improvements of the ethical consultation process as well as ensure that there are robust systems in place for efficient and accurate identification, analysis, and resolution of ethical concerns.

Objectives

The primary objective of this study was to estimate which UW Medicine clinical ethics consultants had the highest rates of consult documentation completion for their consultations that took place between January 2017 and June 2022. Predicted rates were designed to consider factors such as varying volumes and difficulties across a wide range of ethical issues. Secondarily, we aimed to rank consultants based on how well their consultations met predetermined quality standards as defined in the IntegratedEthics® Service.

To attain both the primary and secondary objectives, we implemented provider ranking with case-mix adjustment to compare the completion rates and quality scores of the UW Medicine consultants. We identified key fields within an ethics consultation that should be filled out in order for that consultation to be considered complete. Similarly, we created an algorithm for scoring and evaluating consultation quality against objective standards that can be used going forward to rank consultant performance and improve the quality of UW Medicine clinical ethics consultations for clients, medical professionals, patients and their families, and consultants alike.

Study Population

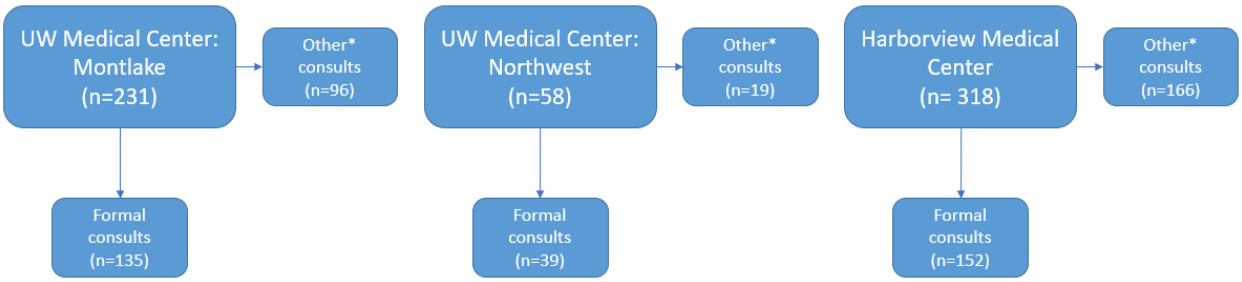
The population of interest in this study was the collection of UW Medicine clinical ethics consults that happened between January 1, 2017, and June 21, 2022. For our primary and secondary analyses, we only included formal consultations and excluded any consultations marked as informal, organizational, moral distress support, or other. This population spanned three medical centers – the UW Medical Centers at Montlake and Northwest and the Harborview Medical Center – and included consultations overseen by twelve different consultants over a variety of ethical concerns and medical departments. All formal clinical ethics consultations that took place between the specified dates at these medical centers were included.

Data Source

The data set was taken from a REDCap database, with each row representing a separate ethics consultation from one of the three UW Medicine locations. Each row included over 130 columns of information related to the lead and secondary consultants, the client, the primary ethical

concern, steps taken to ensure quality, such as peer review feedback and ethics committee feedback, the length of time spent conducting the consultation, and more. All information about the clients has been de-identified, and consultants were assigned ID numbers to protect privacy.

Figure 1: Flowchart indicating numbers of consultations by medical center and type of consultation. Note that other* consultations (including informal consultations) are unlikely to be held to the same completion standards as formal consults, and as such we focused on the proportion of complete consultations for formal consultations only.



Primary Outcome

The primary objective was to assess and rank clinical ethics consultants based on the completeness of their consultations. To achieve this objective, we created a binary outcome variable for completeness that indicated whether or not the consultant had filled out all of the fields of the consultation that were deemed important by experts in the University of Washington Bioethics Department. This outcome variable was coded as completed if all these key fields were complete and not completed if any of the fields were missing. The key fields that were considered for the completion outcome are:

- Lead consultant
- Consultation completion date
- Caller's role
- Caller's service
- Location
- Formal ethics meeting held
- Patient decision making capacity established (If no, then: Legal surrogate identified)
- Advanced directive established
- Consultant spoke with patient
- Primary ethics issue
- Total time spent in minutes

Secondary Outcome

To assess our secondary outcome of quality, we, alongside experts in the University of Washington Bioethics Department, created a composite variable ranging from 0 to 5 to measure how well each consultation ranked against the CASES quality standards as described in the

Background section. We determined whether consultations met each objective by utilizing one or more variables in our dataset, as explained below:

CASES standard	Variable(s)	Rationale	Point Value
Clarify the request	Caller role, caller service	Determines if consultants talked with the caller	0.5 each (total of 1 point maximum)
Assemble relevant information	Spoke to patient, spoke to surrogate	Determines if consultants talked with patient, or, if unavailable, the legal surrogate	1 point if either was filled out as 'yes'
Synthesize the information	Primary ethics issue	Determines if the consultant synthesized the request into a primary issue	1 point if filled out
Explain the synthesis	Statement of the ethical issue	Determines if the consultant wrote out an explanation of the ethical obligations	1 point if filled out
Support the consultation process	Total time spent, explanation of time spent	Determines if and how the consultant spent time supporting the process	0.5 each (total of 1 point maximum)

We then added the points to create a score for each consultation. By doing so, we were able to examine quality more robustly than would be possible with a simple binary score indicating if all five CASES standards were met.

Key Predictor Variables

We were interested in evaluating and ranking Lead Consultants on the primary and secondary outcomes while including case-mix adjustment for Primary Ethical Issue (there were 20 possible issues – e.g., end of life care issue, intra-family dispute, patient decisional capacity). These primary ethical issues were condensed into the top five issues, as well as an 'Other' category that included all other primary ethics issues. The top five, from most common to least common, included:

- Treatment Refusal by Patient
- Medical Futile/Medically Inappropriate Treatment Conflicts
- End of Life Care Issue
- No Surrogate
- Patient Decisional Capacity

Primary Analysis

To compare consultants regarding clinical ethics consultation completion, we implemented provider ranking techniques with case-mix adjustment. Case-mix adjustment has been used in similar studies to evaluate performance while accounting for differing patient cohorts across providers or hospitals[6-7,10]. In essence, we fit a logistic regression model for our binary completion outcome with random intercepts for the predictor of interest (Lead Consultant) and fixed effects for the case-mix covariate (Primary Ethical Issue).

With a small group of lead consultants (12) and differing caseloads for each consultant, the completion numbers and our certainty in completion rates varied widely by consultant. The use of random intercepts in our model allowed us to characterize the magnitude of consultant-to-consultant variation, while the differences across varyingly complex ethical issues handled by the providers were dealt with via case-mix adjustment. This model design allowed us to solely compare lead consultant variation in completion. The predicted estimates and prediction intervals were reported from the provider ranking model with adjustment for ethical issue. The prediction intervals were calculated using the predictInterval function from the R package merTools. This method used 5000 simulations to draw a sampling distribution for the random and fixed effects and estimated the fitted values across that distribution.

We note that some consultants conducted small numbers of consults. For example, two consultants had less than ten consults. Despite the small number of consults, these data points were included in the study, as both our primary and secondary models account for consultants with varying caseloads.

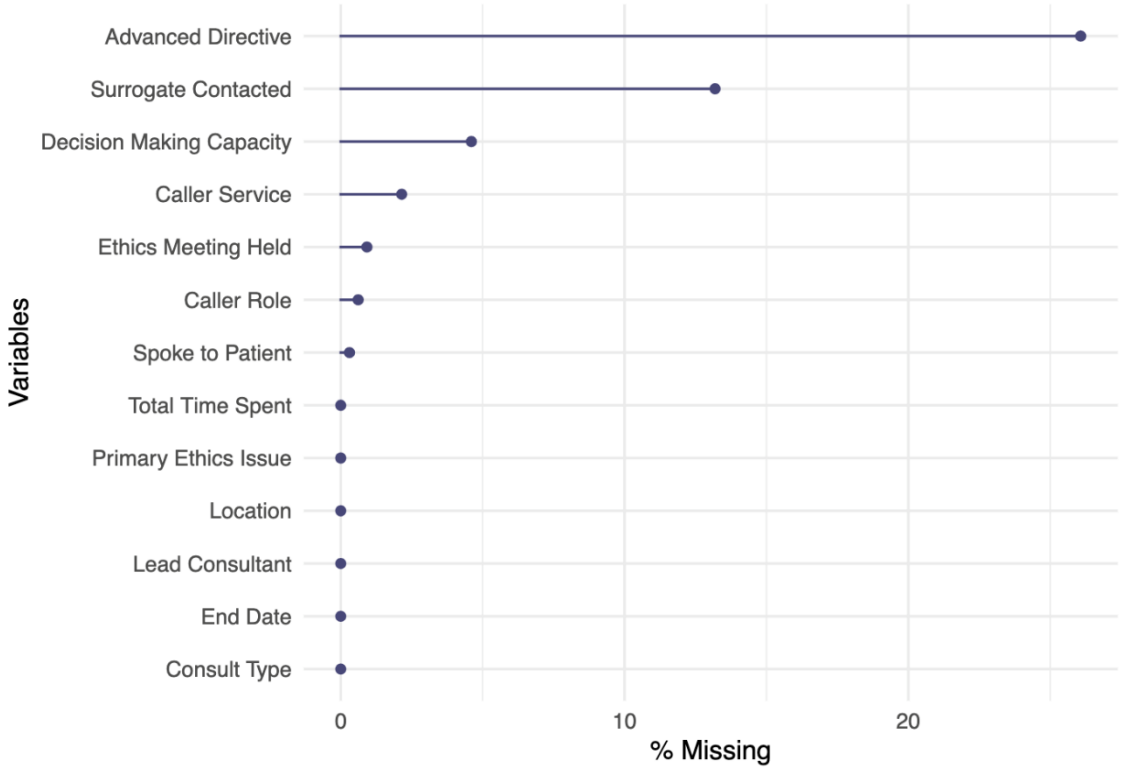
Secondary Analysis

In order to address our secondary objective, we implemented similar provider ranking techniques as described above in Primary Analysis using a linear regression model. We treated Lead Consultant as random intercepts and included case-mix adjustment for Primary Ethical Issue to understand which consultants had the best predicted quality scores. Prediction intervals were similarly calculated for the estimates obtained from our secondary model.

Missing Data

There was a significant amount of missing data in this study which was used to inform our completion and quality scores. Both the primary and secondary outcomes were created to have no missing data, and the lead consultant and primary ethics issue are known in nearly all cases; one case was removed from the study, as we were unable to determine who was lead consultant. For other variables, some data was missing because a service was not used (such as a consultation where a second consultant was not brought in), and some data was missing because the section was not filled out or was unknown when inputting data. This second type of missing data was useful to us in creating our completion and quality outcomes. Because of the nature of this study, we did not impute missing data and instead analyzed and reported the extent of missingness to inform how useful certain variables may be in our sensitivity analyses. Refer to Figure 2 to visualize the percentage of consultations that had missing values in each key variable.

Figure 2: Percentage of missing values in the key variables used to inform completion outcome



Sensitivity Analyses

Along with the pre-specified models above, we fit additional models for both the primary and secondary outcomes. These models were used in order to analyze how robust our findings were when including other, less-understood variables in our models.

For our primary outcome, we fit two more models. First, we fit a simple logistic regression that only included the completeness variable as outcome and random intercepts for lead consultants. Secondly, we fit a more complex model that used completeness as the outcome and had random intercepts for lead consultants, as well as number of secondary consultants, primary ethics issue, number of secondary ethics issues, and time to completion as covariates. We anticipated that additional consultants and ethical issues would indicate increased complexity. Time spent on a consultation was also expected to be indicative of complexity or thoroughness of consultants.

Similarly, we fit two additional models for our secondary outcome. An additional simple linear model was fitted with quality score as the outcome and random intercepts for lead consultants. The more complex model included random intercepts for lead consultants, as well as number of secondary consultant(s), primary ethics issue, number of secondary ethics issue(s), and time to completion as covariates. These additional models were used for comparison purposes and to identify covariates that may be worth investigating in future studies.

Findings

Descriptive Statistics

Consultants and Ethical Issues

Table 1 displays descriptive statistics to show the top ethical issues comprising each consultant's caseload. There is a large spread in the number of consultations done by each individual. However, we see that the majority of consultants undertook consults that fit into the top five ethical issues identified earlier. In Table 2, we display the number of consultations that belong to each top ethical issue. While "Other" ethical issues comprises a fairly large proportion of consultations, this encompasses 15 types of issues, each individually making up less than 4% of the total consults (excluding the ethics issues labeled as "Ethics Issue – Other" by consultants, which was conflated in our "Other" variable, and which makes up 11% of all consults).

Table 1: Descriptive statistics displaying caseloads and most common ethics issues handled overall and by individual consultants

Lead Consultant ID Number	Total number of consultations (2017-2022)	Primary ethics issue #1 (% of total consults)	Primary ethics issue #2 (% of total consults)	Primary ethics issue #3 (% of total consults)
Overall	326	Treatment Refusal by Patient (28%)	Medically Inappropriate Treatment (16%)	End of Life Care Issue (13%)
#1	15	Medically Inappropriate Treatment (27%)	Treatment Refusal by Patient (27%)	Patient Decisional Capacity (13%)
#2	4	Treatment Refusal by Patient (75%)	Treatment Refusal by Surrogate (25%)	N/A
#3	17	Treatment Refusal by Patient (35%)	End of Life Care Issue (29%)	Ethics Issue - Other (24%)
#4	82	Treatment Refusal by Patient (39%)	Medically Inappropriate Treatment (24%)	Ethics Issue - Other (8.5%)
#5	24	Medically Inappropriate Treatment (38%)	End of Life Care Issue (17%)	Treatment Refusal by Patient (17%)
#6	7	Treatment Refusal by Patient (29%)	Complex Disposition (29%)	Medically Inappropriate Treatment (14%)
#7	15	End of Life Care Issue (20%)	Medically Inappropriate Treatment (20%)	Treatment Refusal by Patient (20%)

#8	30	No Surrogate (30%)	Patient Decisional Capacity (23%)	Treatment Refusal by Patient (13%)
#9	24	Treatment Refusal by Patient (33%)	Ethics Issue - Other (25%)	Medically Inappropriate Treatment (13%)
#10	18	Medically Inappropriate Treatment (39%)	Patient Decisional Capacity (17%)	End of Life Care Issue (11%)
#11	29	End of Life Care Issue (21%)	Treatment Refusal by Patient (21%)	Ethics Issue - Other (14%)
#12	61	Treatment Refusal by Patient (28%)	End of Life Care Issue (23%)	No Surrogate (20%)

Table 2: Volume of consultations and mean time spent (in minutes) on consultations by Primary Ethical Issue type, among the five highest volume ethical issue codes (72% of all ethical consultations) and Other* (28% of all ethical consultations).
*'Other' category consists of consultations dealing with rarer ethical issues or issues that consultants felt could not be categorized into given ethical issues.

Primary ethical issue	Total # of consultations	Percentage of overall consultations	Mean time spent (in minutes)
Other	91	28	368
Treatment Refusal	91	28	410
Inappropriate Treatment	53	16	450
End of Life	42	13	336
No Surrogate	29	9	308
Patient Decisional Capacity	20	6	252

Completion and Quality

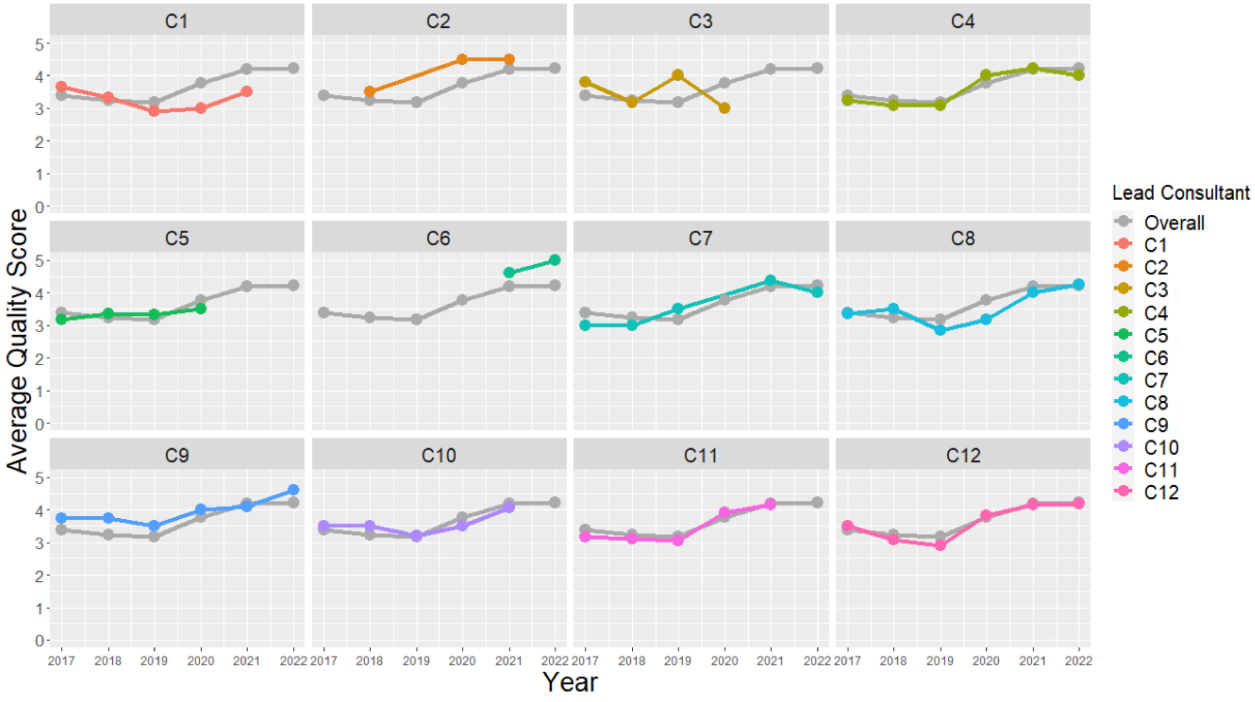
When looking at the completion rates and the quality scores, we find that for all of the consultations conducted between January 1st, 2017, and June 21st, 2022, there is a 70% completion rate and an average quality score of 3.64 (out of 5). Figure 3 is a visualization of raw (unadjusted) completion rates per consultant (with overall rates in gray on all graphs) by year, and Figure 4 is a visualization of raw (unadjusted) quality scores per consultant (similarly, with overall scores in gray) by year. We note that not all consultants took cases at one of the medical centers in this study every year since 2017, so some data points are blank. These plots display completion rates and quality scores for consultants in relation to one another and additionally allow us to identify years with higher or lower completion rates overall.

From Figure 3, we can see there is a large spread of completion rates across consultants: consultants 3 and 7 have 100% completion for all consults, while some consultants, such as consultants 9 and 12, have lower scores on average that are inconsistent over time. Overall completion rates are fairly steady, with a slight decrease from 2017 to 2022.

In contrast with completion rates, Figure 4 suggests that there is less variety across quality scores. We note that overall and for most consultants, quality scores appear to be increasing with time. From the quality algorithm used to create the score, we find that consultants are consistently **S**ynthesizing the information and **C**larifying the consultation request (completed nearly 100% of the time), but not **E**xplaining the synthesis, which is done roughly 40% of the time.

Figure 3: Observed completion rates per consultant from January 1st, 2017 through June 21st, 2022

Figure 4: Observed quality scores per consultant from January 1st, 2017 through June 21st, 2022



Primary Model Results

Our primary model allowed us to rank consultant performance in completing clinical ethics consultation documentation while taking into account varying caseloads and difficulty of ethical issues. These methods result in a shrinkage effect of estimates towards the mean and prevent consultants with a small number of cases from being mislabeled as having extremely good or extremely poor performance when it may be sampling variability that has created this effect. This can be seen in Figure 5, as many of the consultants with 100% observed completion rates consisting of data from only a few consultations are predicted to have lower performance in the long term. The adjusted predicted rates estimate the completion rates of consultants across the same reference ethical issue. This adjusted model takes into account differences between ethical issues as well as the number of consultations performed. This adjustment does not appear to have much effect on the completion proportions and rankings. Estimates for all consultants and prediction intervals for the predicted adjusted completion estimates can be found in Table 3.

Figure 5: Results of consultant ranking: (1) Observed consultation completion rate (number of complete consultations divided by the total number of consultations) vs. (2) Unadjusted predicted completion rate (obtained from logistic regression with random intercepts for consultants) vs. (3) Adjusted predicted completion rates (obtained from logistic regression with random intercepts for consultants and case-mix adjustment for Primary Ethical Issue).

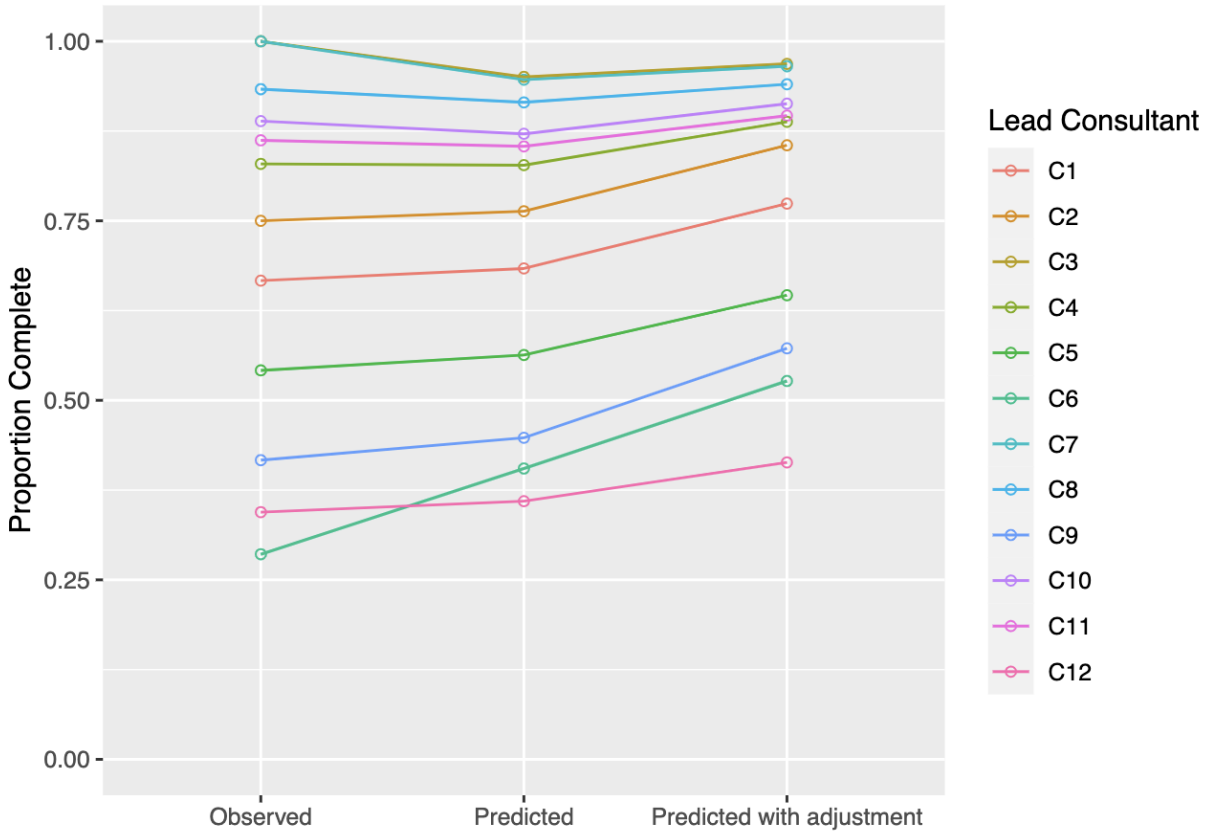


Table 3: Number of consultations performed by consultants with consultant observed and predicted adjusted completion rates and 95% prediction intervals for the predicted adjusted estimates, in order of highest to lowest observed completion rates

Lead Consultant	Total Number of Consulta-tions	Observed Proportion Complete	Predicted Adjusted Proportion Complete	95% CI Lower	95% CI Upper
3	17	1.00	0.97	0.61	1.00
7	15	1.00	0.97	0.62	1.00
8	30	0.93	0.94	0.56	1.00
10	18	0.89	0.91	0.44	0.99
11	29	0.86	0.90	0.41	0.99
4	82	0.83	0.89	0.41	0.99
2	4	0.75	0.86	0.25	0.99
1	15	0.67	0.77	0.22	0.98
5	24	0.54	0.65	0.14	0.95
9	24	0.42	0.57	0.10	0.93
12	61	0.34	0.41	0.07	0.88
6	7	0.29	0.53	0.07	0.94

Secondary Model Results

Similar to the primary model, the secondary model allows us to rank consultant performance with adjustment for varying caseloads and ethical issues, this time using a quality score. See Figure 6 for a visual representation of this model and Table 4 for estimates for all consultants, as well as prediction intervals for the predicted adjusted quality scores. As with the primary model results, we see a shrinkage effect towards the mean: consultant six, with the highest observed quality score, shrinks by nearly 0.3 points when comparing the observed quality scores with the secondary model output (columns one and three in Figure 6), and consultant one, with the lowest observed quality score, increases by 0.2 points in the secondary model output. As both of these consultants had fairly small numbers of consults, this is not surprising. The adjusted model does not have a large effect on the predicted quality scores, with a change of 0.3 points being the largest change.

Figure 6: Results of consultant ranking for secondary outcome: (1) Observed average quality score (crude estimate) vs. (2) Unadjusted predicted average quality score (obtained from linear regression with random intercepts for consultants) vs. (3) Adjusted predicted average quality score (obtained from linear regression with random intercepts for consultants and case-mix adjustment for Primary Ethical Issue). Note that the y-axis begins at score 3, due to a lack of low-scoring consultants.

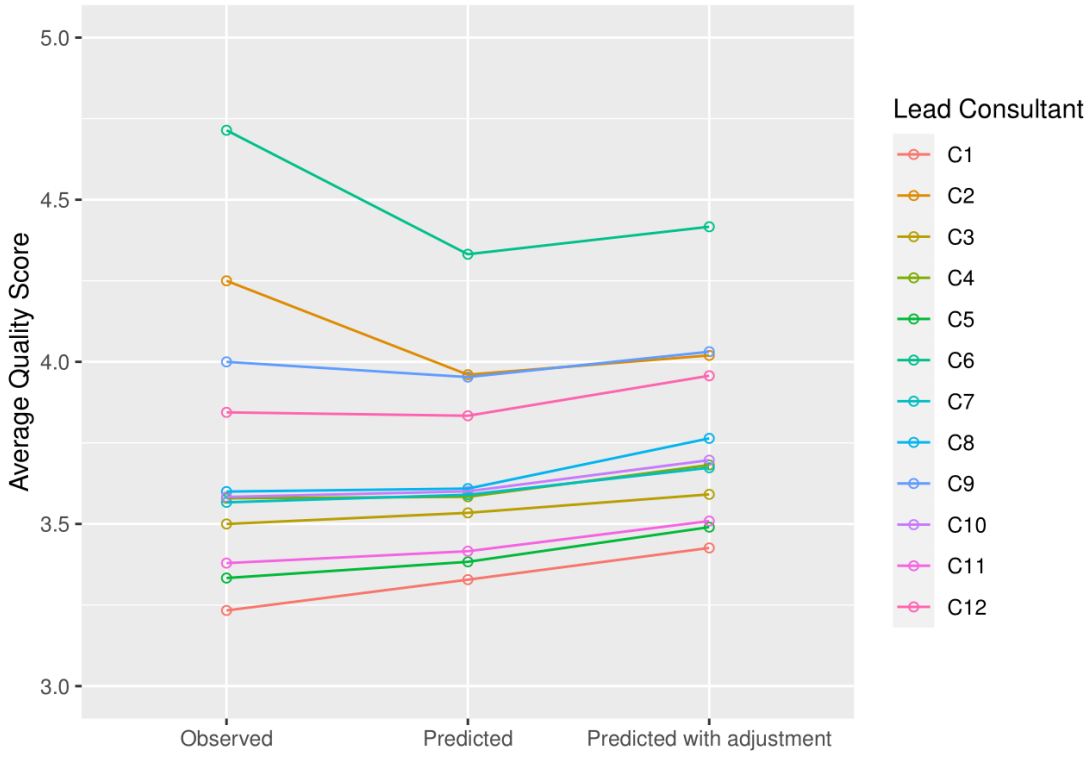


Table 4: Consultant total number of consultations, observed, predicted, and predicted adjusted quality scores, alongside 95% prediction intervals for the predicted adjusted estimates, in order of highest to lowest observed quality scores

Lead Consultant	Total Number of Consultations	Obeserved Average Quality	Predicted Adjusted Average Quality	95% CI Lower	95% CI Upper
6	7	4.71	4.42	3.07	5.00
2	4	4.25	4.02	2.58	5.00
9	24	4.00	4.03	2.65	5.00
12	61	3.84	3.96	2.57	5.00
8	30	3.60	3.76	2.51	5.00
10	18	3.58	3.70	2.36	5.00
4	82	3.58	3.68	2.51	5.00
7	15	3.57	3.67	2.28	4.90
3	17	3.50	3.59	2.29	5.00
11	29	3.38	3.51	2.06	4.96
5	24	3.33	3.49	2.30	4.83
1	15	3.23	3.43	2.15	4.70

Sensitivity Analyses

For both the primary and secondary outcomes, two sensitivity analyses were performed. Results from the sensitivity models are similar to what was found in the main models. These findings are displayed in Figures 7 and 8: results from the simple sensitivity model are in column 1 (using only random intercepts for lead consultants), with the primary/secondary model results as previously described in column 2, and results from the complex sensitivity model in column 3 (using random intercepts for lead consultants and the number of secondary consultants, primary ethics issue, number of secondary ethics issues, and time to completion as covariates).

We note that there are only slight differences between the primary/secondary models and the more complex sensitivity models. The quality score rankings change slightly in column 3, indicating that this model may more accurately capture the complexities in the relationship between quality and the included covariates; however, most covariates in these models were nonsignificant. In future studies, it may be worth investigating the amount of time spent on a consultation in relation to consultation quality in future studies, as this was the only significant variable found in the sensitivity models.

Figure 7: Sensitivity models, displayed alongside the primary model results

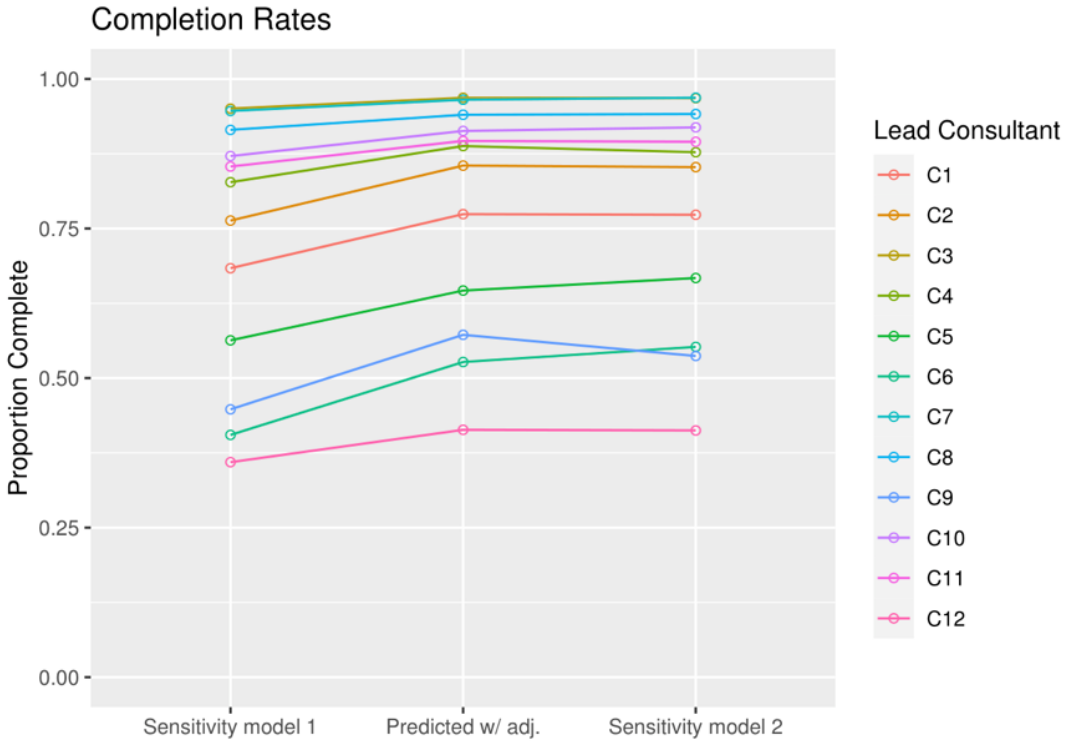
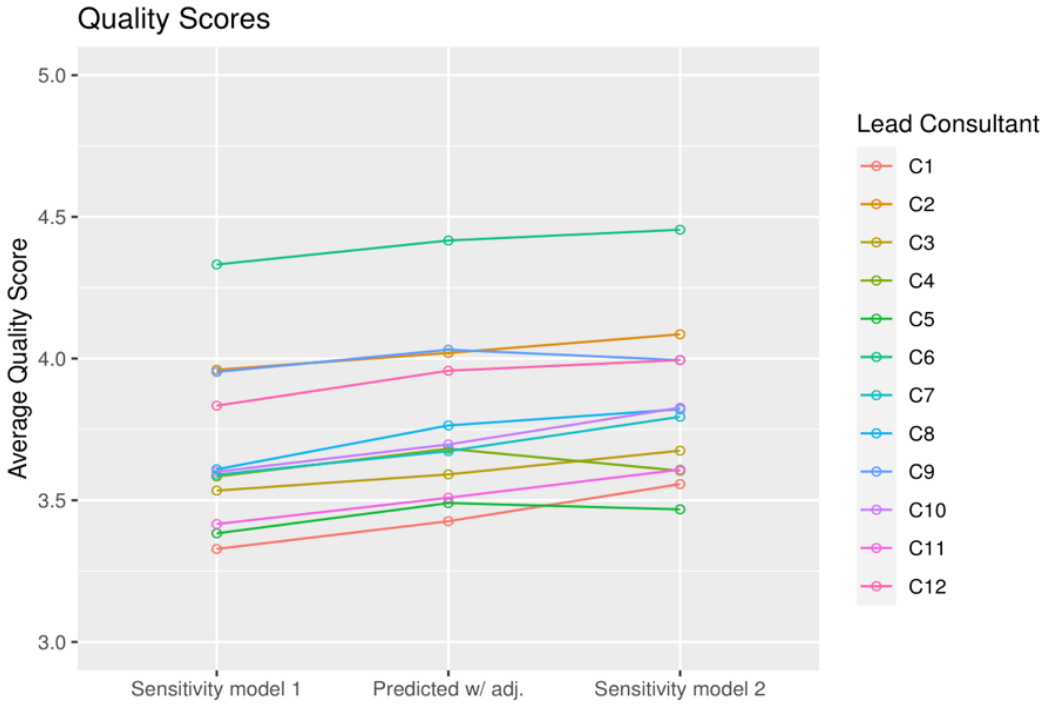


Figure 8: Sensitivity models, displayed alongside the secondary model results. Note that the y-axis begins at 3 due to a lack of low scores.



Discussion

Impacts

Little prior research has been done in evaluating clinical ethics consultations and consultants. As such, we present this study as a novel method for the assessment of the caliber of consultations. Our results suggest that provider ranking techniques are useful in this setting to estimate the true performance of clinical ethics consultants. Many of our consultants were responsible for a small number of consultations, and our model was able to account for this and estimate more reasonable completion rates. However, adding in case-mix adjustment for the Primary Ethical Issue did not have much effect on the estimated completion rates, suggesting that it might not be important to include this adjustment when ranking consultants. Overall, consultants may use the results of similar provider ranking assessments to improve their own practices, while institutions with clinical ethics consult services can understand where their programs fall short and develop better practices for training their consultants.

Limitations

Due to the subjectivity of the data collected and the small number of consultants, this study has some limitations in its conclusions and applicability to other settings. Consultants make the ultimate decision in categorizing their consultations into ethical issues, leaving room for the possibility of different coding between consultants. This could confuse our understanding of the role that different ethical issues play in completion rates and quality of consultations. In addition, all data entered into documentation is consultant-reported and thus could be susceptible to individual biases. It is also impossible to discern how much assistance is given with a particular consultation by the secondary consultants, and so within our ranking system, the lead consultant is solely responsible for the outcome. We also note that this particular ranking system may not extend to other consultation services or hospitals with clinical ethics consult systems depending on how their data is collected. However, the methods should still be applicable, and one could implement these provider ranking techniques on their own outcomes of interest.

Future Research and Next Steps

There is still much work to be done to expand provider ranking of clinical ethics consultants to other hospitals with clinical ethics consult programs. While we found that these methods were useful for adjusting for varying caseloads of consultants, we did not find that adjusting for the primary ethical issue was necessarily important. In the future, we hope to research other covariates within the consultation documentation that could potentially be associated with completion and quality.

Finally, the quality score used to assess the secondary outcome is a rudimentary score based off the U.S. Department of Veterans Affairs National Center for Ethics in Health Care IntegratedEthics® Service CASES approach to defining good clinical ethics consultations. Future work may be done to quantify the quality of an ethical consultation in a more comprehensive way. We hope in the future to implement a mixed-methods analysis of quality that combines the aspects of clinical ethics standards described by the VA IntegratedEthics®

Service and the American Society for Bioethics & Humanities Core Competencies, the two current standards in this area.

Transition Plan

Our project provides insight into the completeness and quality of ethical consultations at UW Medicine. Upon providing the results to our sponsors at the UW Bioethics Department, they plan to continue to build upon them and use them to develop more concrete plans of action for improving their clinical ethics consultations. We will provide the sponsors with this final report that includes our methods and findings. We will also potentially provide them with our working, well-commented R code so that they may adapt the consultation quality score as they see fit.

Team Contributions

Katie:

- Reviewed data dictionaries and unified lead consultant information; double checked earliest consultations to ensure they matched
- Limitations of study
- Created Table 1, Figure 1, Figure 2
- Added abstract
- Ran secondary model and wrote up results/made figures and tables
- Ran sensitivity models and wrote up results/made figures and tables

Alison:

- Created Table 2, Figure 3, Primary results table/figure
- Edited paper for tense and flow
- Double-checked lead consultant information
- Updated paper with sections for discussion and transition plan
- Revamped the discussion section with more ideas and expanded upon them
- Ran primary model and wrote up results

Together:

- Created completion outcome column in dataset based on the key variables
- Held meetings with sponsor to verify consultant data
- Researched provider ranking analysis and case-mix adjustment
- Met with sponsor to finalize the quality score
- Edited paper for clarity and formatting

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List of Abbreviations

- CEC – Clinical Ethics Consultation
- HCEC – Healthcare Ethics Consultation
- ASBH – American Society for Bioethics & Humanities