Content analysis of resident evaluations of faculty anesthesiologists: supervision encompasses some attributes of the professionalism core competency

Analyse du contenu de l'évaluation par les résidents des enseignants en anesthésiologie: la supervision recouvre quelques attributs du cœur de compétence professionnelle

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Abstract

Background Anesthesiology departments need an instrument with which to assess practicing anesthesiologists' professionalism. The purpose of this retrospective analysis of the content of a cohort of resident evaluations of faculty anesthesiologists was to investigate the relationship between a clinical supervision scale and the multiple attributes of professionalism.

Methods From July 1, 2013 to the present, our department has utilized the de Oliveira Filho unidimensional nine-item supervision scale to assess the quality of clinical supervision of residents provided by our anesthesiologists. The "cohort" we examined included all 13,664 resident evaluations of all faculty anesthesiologists from July 1, 2013 through December 31, 2015, including 1,387 accompanying comments. Words and phrases associated with the core competency of professionalism were obtained from previous studies, and the supervision scale was analyzed for the presence of these words and phrases.

Results The supervision scale assesses some attributes of anesthesiologists' professionalism as well as patient care and procedural skills and interpersonal and communication skills. The comments that residents

provided with the below-average supervision scores included attributes of professionalism, although numerous words and phrases related to professionalism were not present in any of the residents' comments.

Conclusions The de Oliveira Filho clinical supervision scale includes some attributes of anesthesiologists' professionalism. The core competency of professionalism, however, is multidimensional, and the supervision scale and/or residents' comments did not address many of the other established attributes of professionalism.

Résumé

Contexte Les départements d'anesthésiologie ont besoin d'un outil pour évaluer le professionnalisme des anesthésiologistes praticiens. L'objectif de cette analyse rétrospective du contenu des évaluations des enseignants en anesthésiologie par une cohorte de résidents était d'analyser les rapports entre l'échelle de supervision clinique et les multiples attributs du professionnalisme.

Méthodes Notre département a utilisé du 1^{er} juillet 2013 à ce jour l'échelle de supervision unidimensionnelle en neuf points de De Oliveira Filho pour évaluer la qualité de la supervision clinique des résidents assurée par nos anesthésiologistes. La « cohorte » que nous avons examinée incluait la totalité des 13 664 évaluations de résidents de tous les anesthésiologistes enseignants du 1^{er} juillet 2013 au 31 décembre 2015, y compris les 1 387 commentaires les accompagnant. Les mots et phrases associés au cœur de compétence professionnelle ont été tirés d'études précédentes et l'échelle de supervision a été analysée en recherchant ces mots et phrases.

Résultats L'échelle de supervision évalue certaines caractéristiques du professionnalisme des

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anesthésiologistes de même que les compétences en matière de soins aux patients, de procédures, de communications et de relations interpersonnelles. Les commentaires faits par les résidents avec des notes de supervision inférieures à la moyenne incluaient des caractéristiques de professionnalisme, bien que de nombreux mots et phrases en rapport avec le professionnalisme n'aient pas été retrouvés dans les commentaires des résidents.

Conclusions L'échelle de supervision clinique de De Oliveira Filho inclut quelques caractéristiques du professionnalisme des anesthésiologistes. Néanmoins, la compétence centrale du professionnalisme est multidimensionnelle et l'échelle de supervision et/ou les commentaires des résidents n'ont pas abordé un grand nombre des autres caractéristiques connues du professionnalisme.

In the United States, anesthesia departments are required to provide the hospitals with physician-specific metrics that demonstrate competence in their professional practice in order for the physicians to maintain hospital privileges.¹ The Joint Commission refers to the process as “Ongoing Professional Practice Evaluation” (OPPE).¹ Six core competencies² are often used as a framework for OPPE assessment.¹ A competency is said to be a “core” competency when it applies to every physician, regardless of medical specialty. The core competencies include patient care and procedural skills, interpersonal and communication skills, and professionalism.^A The recent review article by Yang addressing professionalism in anesthesia emphasized that feedback is essential to improve professionalism, whether in “the form of annual reappointment assessments, peer assessments, 360° evaluations,” and so on.³ A limitation, however, is that none of these areas is measured on a specific scale (instrument). Thus, the development of a reliable, valid way to assess anesthesiologists’ professionalism is needed.⁴

Many anesthesiologists working in operating rooms and other procedural locations (henceforth referred to as “ORs”) provide clinical supervision (e.g., generally with anesthesia residents and, in the United States, nurse anesthetists).^{5,6} “Supervision” entails clinical oversight functions directed toward ensuring the quality of clinical care whenever the anesthesiologist is not the sole anesthesia care provider. When the anesthesiologist is supervising an OR, depending

on other responsibilities – such as in another OR and/or a post-anesthesia care unit – it can be challenging to be present at critical portions of every anesthetic delivery and still contribute fully to each patient’s care.^{5,7–9} Thus, our department monitors the quality of anesthesiologists’ supervision and provides them with periodic feedback.^{5,10}

Individual faculty anesthesiologists can be reliably and dependably assessed using the de Oliveira Filho nine-item clinical supervision scale (Table 1).^{11–13} Low supervision scores have been associated with resident reports of increased errors with adverse effects on patients.^{14–16} The nine-item scale was designed to measure all attributes of faculty anesthesiologists’ supervision of anesthesia residents (Table 1). The scale has repeatedly been shown in multiple studies to do so as a unidimensional construct (including assessments by nurse anesthetists).^{13,15,17,18} Along with the daily numerical scores of faculty supervision, our residents may also provide a written free-text comment about the faculty anesthesiologist.¹⁸ The supervision scores and comments are the cumulative result of how the anesthesiologists perform in clinical environments (i.e., they reflect *in situ* performance and improve with feedback).^{6,10,17}

In the current study, we performed a content analysis of a cohort of our department’s residents’ written evaluations of faculty anesthesiologists to test two hypotheses. One hypothesis was that the clinical supervision scale includes attributes of professionalism and thus is in part assessing anesthesiologists’ professionalism. The basis for our hypothesis was that de Oliveira Filho *et al.* labelled their question #4 (Table 1) as a reflection of “professionalism.”¹⁷ Our second hypothesis was that professionalism has other attributes not measured by the supervision scale and not reported by our residents (i.e., supervision and professionalism are not equivalent constructs). The basis for our hypothesis was that previous studies have listed words and phrases associated with professionalism but seemingly of different themes (Tables 2–4).^{2,19–23}

Methods

The University of Iowa Institutional Review Board declared (November 9, 2015) that this investigation did not meet the regulatory definition of human subjects research. All analyses were performed with de-identified data.

From July 1, 2013 to the present, our department has utilized the de Oliveira Filho supervision scale^{6,10–17} to assess the quality of clinical supervision provided by our anesthesiologists (Table 1). The cohort reported herein included all of the residents’ evaluations of all faculty anesthesiologists over the 2.5-year period, from the starting

^A The other three core competencies – practice-based learning and improvement, systems-based practice, medical knowledge – were not included in this article.

Table 1 de Oliveira Filho Scale¹⁷ for Measuring Faculty Anesthesiologists' Supervision of Residents During Clinical Operating Room Care

1. The faculty provided me timely, informal, nonthreatening comments on my performance and showed me ways to improve
2. The faculty was promptly available to help me solve problems with patients and procedures
3. The faculty used real clinical scenarios to stimulate my clinical reasoning, critical thinking and theoretical learning
4. The faculty demonstrated theoretical knowledge, proficiency at procedures, ethical behaviour, and interest/compassion/respect for patients
5. The faculty was present during the critical moments of the anesthetic procedure (e.g., anesthesia induction, critical events, complications)
6. The faculty discussed with me the perianesthesia management of patients prior to starting an anesthetic procedure and accepted my suggestions, when appropriate
7. The faculty taught and demanded the implementation of safety measures during the perioperative period (e.g., anesthesia machine checkout, universal precautions, prevention of medication errors, etc.)
8. The faculty treated me respectfully, and strived to create and maintain a pleasant environment during my clinical activities
9. The faculty gave me opportunities to perform procedures and encouraged my professional autonomy

The uniquely selectable choices beneath each question were: 1-never; 2-rarely; 3-frequently; or 4-always. All questions were presented daily in the same sequence. The wording differs from that developed¹⁷ only to the extent that (a) the word “faculty” was used instead of “instructor” to be more closely aligned with the role of supervision of the nurse anesthetists and (b) the tense of the verbs was changed to past tense because each evaluation was for a specific date working together

Table 2 Words and Phrases in the Quality of Supervision Scale and their Association with Professionalism and other Competencies

de Oliveira Filho Supervision Scale Word or Phrase	Potential Association with Other Core Competencies ²	References for Association with Professionalism
timely, informal, nonthreatening comments	interpersonal and communication skills	20,22
showed me ways to improve		20
promptly available to help me solve problems with patients		20,21
demonstrated theoretical knowledge and proficiency at procedures	patient care and procedural skills	19,22
ethical behaviour		19,20,23
interest/compassion/respect for patients		2,19-23
present during the critical moments	patient care and procedural skills	21
discussed with me the peri-anesthesia management	interpersonal and communication skills	20
accepted my suggestions, when appropriate	patient care and procedural skills	
taught and demanded the implementation of safety measures	patient care and procedural skills	19,21,22
treated me respectfully	interpersonal and communication skills	2,19,20,22
maintain a pleasant environment		19,20
gave me opportunities to perform procedures	patient care and procedural skills	

Phrases are listed in sequence of the questions as presented in studies. In the Reference (2), see also section IV.A.5.a).(2) starting on page 15 for “patient care and procedural skills.” As an example of application of the column 3 references, we consider the 2 rows for which Reference (2) has been listed: “interest/compassion/respect for patients” and “treated me respectfully.” From the reference, “residents are expected to demonstrate,” “compassion, integrity, and respect for others,” “responsiveness to patient needs that supersedes self-interest,” and “respect for patient privacy and autonomy”

date of July 1, 2013 through December 31, 2015; the study was initiated February 2016 (see Discussion newsletter article). The evaluation process consisted of daily, automated e-mail requests²⁴ to anesthesia residents to evaluate the supervision provided by each anesthesiologist with whom they worked the previous day in an OR setting, including obstetrics and/or non-operating room anesthesia (e.g., radiation therapy).^{6,10–12,18} The residents provided numerical scores to answer the scale's nine questions (Table 1). The 13,664 numerical evaluations were supplemented with 1387 free-text

comments.^B Comments and scores are confidential, with scores provided only after averaging. Comments were never provided directly to the individual anesthesiologist

^B Among the 14,722 evaluations that were requested, residents provided a response for 99.1% (n = 14,585). Residents could answer that they worked with the faculty that day for insufficient time to evaluate the supervision. Residents used this option for 6.3% of requests (N = 921). Among the n = 13,664 numerical evaluations of supervision quality, the mean supervision score was 3.80 with a standard deviation of 0.37, with 2.20% less than “frequent” (i.e., < 3.00). These values were reported in an earlier paper of ours, in the first paragraph of the Results of Reference section.¹⁸

because their usefulness depended on the procedural context, which often revealed the identity of the evaluating resident.^{10,18,25,26}

Comments were searched automatically using Excel 2010 (Microsoft Corp., Redmond, WA, USA) for the presence or absence of words associated with physicians' professionalism, without regard to capitalization.¹⁸ Words and phrases (Tables 2–4) associated with professionalism were obtained from the Accreditation Council for Graduate Medical Education's Program Requirements for Anesthesiology and from previous studies.^{2,19–23} For testing the hypotheses, the words and phrases needed to represent attributes of professionalism. Tables 2–4 show these attributes and their corresponding references. The right-most columns of Tables 2–4 with the head "references for association with professionalism" were completed independently by each of this article's authors to ensure an absence of coding error. Only words and phrases with concordance among the authors as being in a reference were included in Tables 2–4. This method was suitable for testing the hypotheses because the words and phrases needed not (and do not) represent a complete set of the attributes of professionalism. The hypotheses are deterministic (i.e., not based on "average," "most," and so on) and thus are not tested inferentially. The hypotheses are, however, potentially sensitive to a few words, and to residents, and/or faculty. Therefore, counts of each of these categories are included as sensitivity analyses.

Results

Table 2 shows that the nine-item supervision scale assesses some attributes of professionalism. There are eight "words or phrases" pertaining to professionalism. Table 3 contains examples of words and phrases that (a) residents provided with below-average supervision scores and (b) are related to professionalism. The 17 words or phrases (made by 11 residents) pertaining to professionalism are from 18 comments obtained on 18 different dates in regard to 14 anesthesiologists. Together, Tables 2 and 3 show that the unidimensional construct of clinical supervision has attributes in common with professionalism. Based on the findings of Tables 2 and 3, our hypothesis was satisfied and was insensitive to exclusion of specific dates, anesthesiologists, or residents.

In contrast, Table 4 contains 68 words and phrases related to professionalism that are present in zero (i.e., none) of the residents' 1,387 comments (i.e., the comments associated with any score, low or high). Notably, this zero tally represented the absence of these words and phrases over the course of 13,664 evaluations, on 581 dates, by

Table 3 Words and Phrases Associated with Professionalism and Present in the 215 Resident Comments with Below Average Rating of Faculty Quality of Supervision

Comment Word or Phrase about Anesthesiologist	Count of Evaluations (Comments)	References for Association with Professionalism
belligerent	1	20,21
completely disrespectful	1	2,20–22
condescending attitude	1	20
condescending remarks	1	20
confrontational	1	20,21
demeaning	4	20,21
disrespectful and abrasive	1	2,20–22
disruptive	1	20–22
hostile	2	20–22
mocking of resident work	1	20
refuses to explain	1	20
rude	2	20,22
yelled rather than taught	1	20
did not respond to my pages	1	2,20,21
I did not see	2	20,21
not even always staying in the unit	1	20,21
spends < 5 min	1	20,21

All of the comments in this table were published previously in Tables 3–4 of Reference (18). What is new is the application and the 3rd column

The words and phrases in this Table 3 appeared among the 215 of 1,387 comments accompanying a below-average daily supervision score. There was only one occurrence of the words and phrases among the other 1,172 comments.¹⁸ "Demeaning" appeared once, and with negation: "was *not* demeaning".¹⁸

The following are some of the quantitative results from Reference (18). The mean (standard deviation [SD]) supervision scores for the 25 evaluations with a comment about the anesthesiologist being disrespectful were less than for the other 1,362 evaluations with comments [2.86 (0.65) vs 3.90 (0.27); $P < 0.001$]. Each increase in the faculty's number of comments of being disrespectful (from 0 to 5) was associated with a lesser mean score (Kendall's $\tau_b = -0.31$, $P < 0.001$). A low supervision score (< 3.00) had an odds ratio of 85.4 (95% confidence interval, 31.2 to 232.5) for a comment regarding disrespectful faculty behaviour ($P < 0.001$). The six faculty who each had a comment about insufficient faculty presence had significantly lesser mean (SD) scores than the other 70 faculty [3.70 (0.09) vs 3.81 (0.12); $P = 0.007$]. The six evaluations with comments related to insufficient faculty presence had lesser mean (SD) scores than the other 1,381 evaluations with comments [2.61 (0.30) vs 3.89 (0.30); $P < 0.001$]

90 anesthesiologists and 59 residents. Consequently, Table 4 shows that multiple attributes of professionalism are not elements of the clinical supervision scale. Thus, our second hypothesis also was satisfied – a result that also was insensitive to specific exclusion of dates, anesthesiologists, or residents.

Table 4 Words and Phrases Associated with Professionalism and *Not* Present in the Quality of Supervision Scale Questions¹⁷ or in any of the Residents' 1,387 Positive or Negative Comments Made While Evaluating the Faculty

Word or Phrase	References for Association with Professionalism
accepts criticism	23
accepts responsibility	19,21,23
accountability	19,20,22,23
accountable	19,20,22,23
accurate records	20
advocacy	19,20,22,23
altruism	19,21,22
altruistic	19,21
biased	21
civilized	22
collaborate	19-21
collaborative	19-21
collaboratively	19-21
competent	19,22
confidential	2,19-21,23
confidentiality	2,19-21,23
conflict of interest	19
cost effective	19
cost-effective	19
cultural diversity	2,19,20
cutting corners	22
dignity	23
disclose	19,21
disclosure	19,21,22
discriminates	19,21
discrimination	19,21
discriminatory	19,21
dishonest	19,21
empathetic	21
empathy	20,21,23
equitable	19
exploit	19
fairness	19
honest	19,23
honesty	19,22,23
information to patients	19,20
integrity	2,19,20,22,23
interest of the patient	19
justice	19,21
mastery	22
maturity	23
morality	22
obstructive	22
patient autonomy	2,19-21
patients' autonomy	2,19-21

Table 4 continued

Word or Phrase	References for Association with Professionalism
patient's autonomy	2,19-21
patient centered	19,21
patient-centered	19,21
patient decision making	19,21
patient decision-making	19,21
patients' dignity	20,22
patient's dignity	20,22
patient interest	19,21
patients' interest	19,21
patient's interest	19,21
professional competence	19
responsible	19,21,22
self-assessment	22
self-awareness	22,23
self interest	19
self-interest	19
shared decision making	19,21
shared decision-making	19,21
swearing	20,22
takes responsibility	19,22
timeliness of charting	21
trustworthy	19,23
welfare	19,21

To indicate the importance of the references other than that one of the Accreditation Council for Graduate Medical Education Program Requirements for Graduate Medical Education in Anesthesiology,² reference 2 is listed in the second column for just seven of the 68 rows

Discussion

Our content analysis was motivated by a newsletter article from the Anesthesia Quality Institute Anesthesia Incident Reporting System Steering Committee, "Professionalism: Will we know it when we see it?"²¹ The article discussed a case report from an anesthesia incident-reporting system that described an event related, in part, to inadequate faculty supervision of an anesthesia resident. Specifically, there was insufficient faculty presence – an attribute of professionalism associated with low supervision scores (Table 3).^{13,18} There was concern regarding the resident's honesty, another attribute of professionalism (Table 4).²¹ There was poor interpersonal communication (a core competency distinct from professionalism) between the resident and the faculty anesthesiologist, which may have contributed to the event. Thus, we had reason to expect that the supervision scale encompasses more than one of the six core competencies² (Table 2) and that professionalism includes not only the dimension of

supervision (Tables 2 and 3) but other attributes as well (Table 4) – i.e., the core competency of professionalism is multidimensional. Our results show that our conclusion holds. The conclusion matches that of Symons *et al.* in which factor analysis of family practice residents' self-assessments identified two dimensions of professionalism: "interpersonal relations" and "conveying medical information [to patients]."²⁷

The data in Tables 2 and 3 show that the conclusions are not self-evident. Regarding the implication that professionalism includes the dimension of supervision, three articles about professionalism in anesthesiology lacked the word "supervision,"^{3,22,23} including the review by Yang.³ Regarding the implication that the clinical supervision scale assesses anesthesiologists' professionalism, our earlier article, showing that supervision scores were sufficient to identify anesthesiologists with disrespectful behaviour, did not include the word "professionalism."¹⁸ Although de Oliveira Filho *et al.* labelled their question #4 (Table 1) "professionalism," they did not show that it was measuring professionalism. We think that question #4's three phrases assess professionalism, but so do eight other phrases in the supervision scale (Table 2).

We considered attributes of professionalism in clinical practice as it relates to maintenance of clinical privileges and OPPE. However, there are other attributes of professionalism. For example, among medical students and resident physicians, unprofessional behaviours include cheating, misrepresentation of publications, plagiarism, and falsification of documentation such as work hours.⁴ The addition of such words and phrases to Table 4 for these behaviours would have *strengthened* our finding that the constructs of "supervision" and "professionalism" are not equivalent, despite their extensive overlap of attributes (Tables 2 and 3).

Some of the attributes of professionalism in Table 4 may be unimportant to the residents and, hence, were not "worthy" of a comment.²⁸ Alternatively, and we think more likely, during the course of their daily interaction in the OR with an anesthesiologist, anesthesia residents would not know if these attributes were present in their faculty. For example, we speculated that residents would care if the anesthesiologist violated the patient's confidentiality (Table 4), in part because the faculty anesthesiologist's patient is also the resident's patient. However, it would be unlikely that the resident would know that a breach of confidentiality occurred because usually such an event occurs outside the OR. Thus, although Tables 2 and 3 show that residents' daily assessments of faculty clinical supervision measure some attributes of professionalism, Table 4 shows that our residents' assessments of the anesthesiologists' professionalism are incomplete. There

are two implications of these findings. Whereas less than frequent supervision^{10,29} shows unprofessional behaviour, it is entirely possible for an anesthesiologist to exhibit unprofessional behaviours and yet provide consistently high-quality supervision. Therefore, in addition to supervision scores and comments, other methods/metrics are necessary for full assessment of anesthesiologists' professionalism.

To demonstrate competence in professional practice suitable for maintaining clinical privileges (i.e., OPPE), our department assesses and reports physician-specific practice metrics.¹ Although the supervision scale includes several attributes of professionalism (Tables 2 and 3), it excludes many others (Table 4). For OPPE reporting,¹ our department's metrics also include (a) faculty completion rates for trainee evaluations over six-month periods and (b) faculty completion rates of anesthesia record attestations within six days after the date of service, also over the six-month periods. These additional metrics assess the professionalism measures of maintaining accurate records and being accountable (Table 4).

Tables 2 and 3 show that the supervision scale^{6,10–17} assesses three of the six core competencies to be assessed and reported: professionalism, interpersonal and communication skills, and patient care and procedural skills. Validity of its assessment of the competency of patient care and procedural skills is based also on the supervision scores being correlated with the raters' choice of the anesthesiologist to care for their family.¹¹ The supervision scale is a measure of an anesthesiologist's individual contribution to the department, statistically independent of clinical production, specifically weekly anesthesia hours.⁶ The supervision scale also quantifies faculty anesthesiologists' quality of clinical teaching.¹⁸ These multiple roles for the supervision scale are not obtained because the supervision scale is multidimensional. In fact, it has been found in multiple departments and settings to be unidimensional (Cronbach $\alpha = 0.948$).^{11,13,15,17,18} Rather, it is because the core competencies,² as well as clinical teaching, do not themselves represent distinct (i.e., separable) dimensions for assessment.

In conclusion, although the de Oliveira Filho clinical supervision scale includes some attributes of anesthesiologists' professionalism. However, the core competency of professionalism is multidimensional. Thus, many attributes of professionalism were not addressed by the supervision scale and/or were not included in the residents' comments.

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Conflicts of interest None declared.

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Author contributions Franklin Dexter helped design the study, conduct the study, analyze the data, and write the manuscript. Debra Szeluga helped conduct the study. Bradley J. Hindman helped conduct the study and write the manuscript. All authors have seen the original study data and approved the final manuscript.

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