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Malpractice and Patient Safety Concerns

Their Influence on the Clinical Behaviors of Dermatopathologists Interpreting Melanocytic Lesions

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Key Words: Defensive medicine; Assurance behaviors; Medical malpractice; Patient safety; Patient harm; Dermatopathology; Melanocytic skin lesions

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ABSTRACT

Objectives: *"Assurance behaviors," a type of defensive medicine, involve physicians' utilization of additional patient services to avoid adverse legal outcomes. We aim to compare the use of clinical behaviors (such as ordering additional tests, services, and consultations) due to malpractice concerns with the same behaviors due to patient safety concerns.*

Methods: *A national sample of dermatopathologists (n = 160) completed an online survey.*

Results: *Participants reported using one or more of five clinical behaviors due to concerns about medical malpractice (95%) and patient safety (99%). Self-reported use of clinical behaviors due to malpractice concerns and patient safety concerns was compared, including ordering additional immunohistochemistry/molecular tests (71% vs 90%, respectively,* P < *.0001), recommending additional surgical sampling (78% vs 91%,* P < *.0001), requesting additional slides (81% vs 95%,* P < *.0001), obtaining second reviews (78% vs 91%,* P < *.0001), and adding caveats into reports regarding lesion difficulty (85% vs 89%,* P > *.05).*

Conclusions: *Dermatopathologists use many clinical behaviors both as assurance behaviors and due to patient safety concerns, with a higher proportion reporting patient safety concerns as a motivation for specific behaviors.*

Key Points

- Beyond accurately diagnosing patients, certain clinical behaviors are exclusively assumed a defensive medicine technique.
- Dermatopathologists also engage in "assurance behaviors" because they are truly concerned about patient safety.

The medical subspecialty of dermatopathology ranks second highest in malpractice verdicts exceeding $1 million,[1] and misdiagnosed melanoma is the most common reason for dermatopathology malpractice claims.[2,3] Approximately 9% of a pathologist's 40-year career (just under 4 years) is spent with an open malpractice claim.[4] Malpractice litigation has been described as a personal crisis for pathologists who are sued.[5]

Physicians aim to avoid medical malpractice litigation[6] and its accompanying burdens, including emotional stress[7] and fear of reputation loss among colleagues, patients, and on online physician-grading websites.[8] Physicians report observing a type of defensive medicine called "assurance behaviors" to prevent medical malpractice lawsuits.[9] Assurance behaviors have been previously defined as supplying additional services of minimal or no clinical value to reduce adverse outcomes, to deter patients from suing, and/or to demonstrate to the legal system that a standard of care was met.[10,11] In national surveys, assurance behaviors are reported by skin pathologists (95%),[6] breast pathologists (88%),[12] physicians across various

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specialties (91%-94%),[11,13] medical residents (96%),[10] and medical students (92%).[10]

On the other hand, patient safety initiatives have become an integral part of the overall strategy to improve American health care.[14-18] In particular, dermatopathologists (and all clinicians) are required to receive continuing medical education in patient safety.[19,20] Concerns for patients and a desire to provide optimal care may reinforce a dermatopathologist's tendency to take thorough precautions. A recent review of interpretive diagnostic error reduction in pathology[21] provides evidence to support the use of secondary reviews and confirmatory ancillary tests.

Dermatopathologists engage in clinical behaviors such as ordering additional services, tests, or consultations to accurately diagnose and manage their patients. Beyond this motivation, however, dermatopathologists' clinical behaviors may also be driven by concerns of medical malpractice *and* patient harm. Due to the field's recent emphasis on patient safety and the general (Hippocratic) professional oath of all physicians to *do no harm*, we hypothesized that a higher proportion of dermatopathologists engage in clinical behaviors due to patient safety concerns compared with medical malpractice concerns.

Materials and Methods

We conducted a national study, Reducing Errors in Melanocytic Interpretations (REMI), to examine the variation in and influences on dermatopathologists' diagnoses of melanocytic lesions. Study procedures for participating dermatopathologists included completing an online survey (described below) and interpreting two slide sets of melanocytic skin lesions. Only data from the online survey are used in this report.

All procedures were Health Insurance Portability and Accountability Act compliant, and approval was obtained from the Institutional Review Boards of the Fred Hutchinson Cancer Research Center and the David Geffen School of Medicine at University of California, Los Angeles.

Participant Recruitment

Potential dermatopathologist participants (n = 1,407) were identified in 40 geographically diverse states (excluding 10 states recruited for our earlier M-Path study: California, Connecticut, Hawaii, Iowa, Kentucky, Louisiana, New Jersey, New Mexico, Utah, and Washington). A list of potential participants (board certified in dermatopathology, with available e-mail addresses) was generated from Direct Medical Data databases and shuffled in a random order. Potential participants were contacted by e-mail (maximum of three attempts), followed by telephone (maximum of two attempts) and postal mail (one attempt) to verify eligibility. Eligible participants met the following criteria: currently practicing in the United States, board certified and/or fellowship trained in dermatopathology, interpreted melanocytic skin biopsy specimens within the previous year, and expected to continue interpreting melanocytic skin lesions for the next 2 years. Dermatopathologists verified as eligible were invited to enroll in the study, beginning at the top of the randomly ordered list, between July 2018 and July 2019, until we met the number required for our primary study.

Data Collection Procedures and Materials

REMI survey content was developed in consultation with a panel of experienced dermatopathologists. The online survey took approximately 15 minutes to complete and queried participating dermatopathologists on general professional information (demographics, training, clinical practice, history of previous lawsuits) and attitudes on topics of interest to the field. Many survey questions were based on previously published survey scales[6,12,23] and were piloted for face validity with a team of dermatopathologists, biostatisticians, physicians, and researchers with expertise in medical education and health psychology. For clinical behaviors, we expanded on the current definition of ordering "additional tests, procedures, consultations" to also include adding a caveat into their laboratory reports regarding the difficulty of certain skin lesions, as this additional step has been recommended in recent literature[24] **Figure 1**.

For medical malpractice and patient safety survey questions, a dichotomous variable was created to aggregate all five clinical behaviors. If a participant answered in agreement with any of the behaviors, it was considered a use of one or more clinical behaviors in practice.

To examine whether participants were more likely to engage in clinical behaviors due to safety or malpractice concerns, we calculated the percentage of participants indicating that they engaged in each of the behaviors due to malpractice concerns and compared it with the corresponding percentage of engagement in behaviors due to safety concerns. We also compared the proportions of participants reporting a behavior exclusively due to patient safety concerns and exclusively due to malpractice concerns. All statistical testing employed McNemar's test for paired binomial response data, and confidence intervals for proportions are binomial exact. All statistical analysis was done using R version 3.5.0 (R Foundation for Statistical Computing).

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Indicate how **medical malpractice concerns** have affected your own practice with melanocytic skin lesions. Due to medical malpractice concerns:

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
A. I order additional tests such as IHC and/or molecular tests	□	□	□	□	□	□
B. I recommend additional surgical sampling	□	□	□	□	□	□
C. I request additional slides cut from the block	□	□	□	□	□	□
D. I request more second opinions	□	□	□	□	□	□
E. I am more likely to choose the more severe diagnosis in borderline cases	□	□	□	□	□	□
F. I add a caveat into my reports regarding the difficulty of certain lesions	□	□	□	□	□	□

Indicate how **patient safety concerns** have affected your own practice with melanocytic skin lesions. Due to patient safety concerns:

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
A. I order additional tests such as IHC and/or molecular tests	□	□	□	□	□	□
B. I recommend additional surgical sampling	□	□	□	□	□	□
C. I request additional slides cut from the block	□	□	□	□	□	□
D. I request more second opinions	□	□	□	□	□	□
E. I am more likely to choose the more severe diagnosis in borderline cases	□	□	□	□	□	□
F. I add a caveat into my reports regarding the difficultly of certain lesions	□	□	□	□	□	□

Figure 1 Reducing Errors in Melanocytic Interpretations (REMI) online survey questions regarding medical malpractice and patient safety concerns.

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Results

Of 486 potential participants with working contact information, 226 were verified as eligible for participation and invited into the study. Enrolled participants included 160 (71%) dermatopathologists from 33 US states.

Table 1 summarizes participant characteristics and clinical experience. Of the five specific clinical behaviors included in the survey, 152 (95%) of 160 participants reported engaging in at least one behavior due to malpractice concerns, and 158 (99%) reported engaging in at least one behavior due to patient safety concerns Figure 2. In analysis of the joint distribution of these survey items Table 2, 20% of participants agreed that they order additional tests due to patient safety concerns but disagreed that they do so for malpractice concerns. That is, 20% of participants reported that they order additional tests exclusively out of patient safety concerns. In contrast, 1% of participants (one of 160) reported that they do so exclusively out of malpractice concerns. For the behavior of recommending additional surgical sampling, for example, 78% reported doing so from malpractice concerns and 91% for patient safety concerns ($P = .0001$). Fourteen percent of participants reported this behavior exclusively out of patient safety concerns compared with 1% of participants exclusively due to malpractice concerns. A full display of Likert scale responses is depicted in Figure 3.

Table 1

Reducing Errors in Melanocytic Interpretations (REMI) Dermatopathologists' Characteristics (n = 160)

Characteristic	No. (%)
Demographic	
Age, y	
<40	29 (18)
40-49	65 (41)
50-59	43 (27)
≥60	23 (15)
Sex	
Male	107 (68)
Female	51 (32)
Geographic region of dermatopathology practice[a]	
Northeast	31 (19)
Midwest	49 (31)
South	64 (40)
West	16 (10)
Clinical practice	
Affiliation with academic medical center	
No	75 (47)
Yes, adjunct/affiliated clinical faculty	49 (31)
Yes, primary appointment	36 (23)
In which of the following disciplines have you completed a residency program	
Anatomic/clinical pathology	88 (55)
Anatomic pathology	28 (18)
Dermatology	52 (33)
Other	3 (2)
Have you ever been named in a medical malpractice suit?	
No, never been sued	130 (81)
Yes, related to melanocytic skin lesions	13 (8)
Yes, related to other pathology or medical cases	18 (11)
Experience with melanocytic skin lesions	
Years interpreting melanocytic skin lesions	
<5	18 (11)
5-9	44 (28)
10-19	66 (41)
≥20	32 (20)
What percentage of your usual caseload is interpreting melanocytic skin lesions?	
<10%	7 (4)
10%-24%	74 (46)
25%-49%	57 (36)
≥50%	22 (14)

[a]Of the 40 states from which dermatopathologists were invited, no pathologists were enrolled from seven states (Idaho, Alabama, Delaware, West Virginia, South Dakota, Vermont, Wyoming).

Discussion

Ninety-five percent of dermatopathologists responding to our survey reported engaging in one or more behaviors that have been designated as clinical "assurance behaviors" due to concerns about medical malpractice. These results are similar to nationwide surveys reporting that 88% to 96% of physicians use assurance behaviors in their medical practices in an attempt to avoid medical malpractice lawsuits.[6,10-13] In our survey, most participating dermatopathologists report engaging in certain clinical behaviors out of concerns for patient safety as well, with a higher proportion reporting patient safety concerns as the motivation for specific behaviors, such as ordering additional immunohistochemistry/molecular tests, recommending additional surgical tests, requesting additional slides from the block, and requesting more second opinions. That is, when asked about specific clinical behaviors, a higher proportion of dermatopathologists stated that they do these behaviors out of patient safety concerns than due to malpractice concerns. Moreover, for these four clinical behaviors, only 1% of dermatopathologists reported doing the behavior exclusively out of malpractice concerns. This contrasts with 13% to 20% who report doing these behaviors exclusively out of patient safety concerns.

Our findings challenge the perception that beyond the purpose of diagnosing patients accurately, physicians order additional tests, services, and consultations *only* as assurance behaviors to avoid malpractice litigation. Physicians value patient safety. Accordingly,

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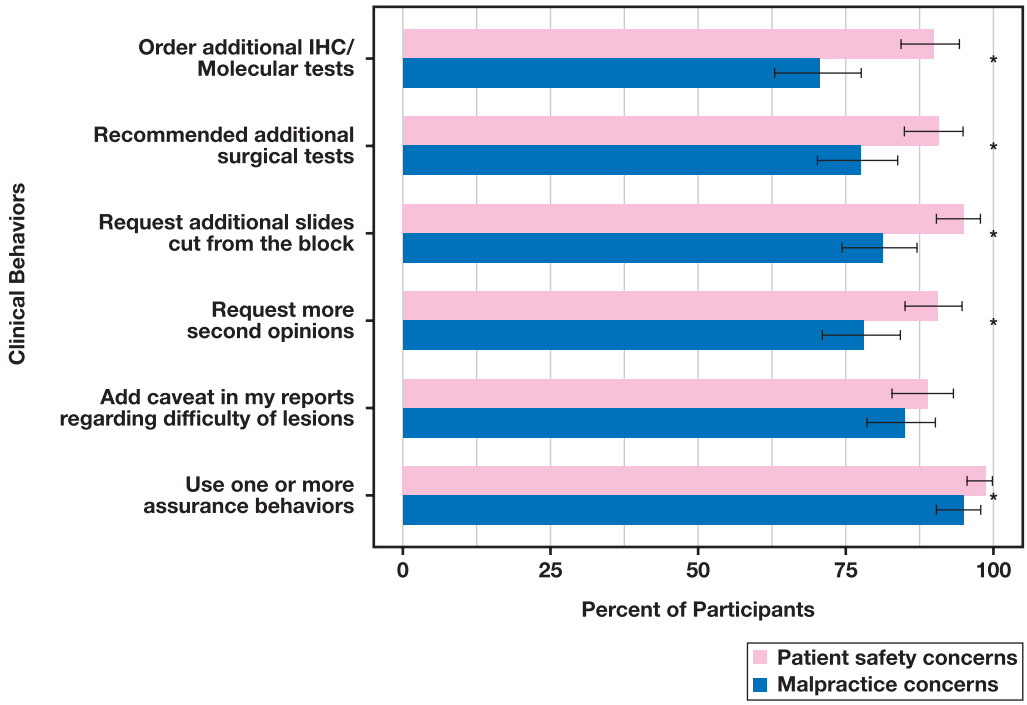

Figure 2 Percentage of pathologists who agree with statements that they engage in clinical behaviors due to malpractice concerns and patient safety concerns. Asterisk indicates statistically significant differences between malpractice concerns and patient safety concerns on clinical behavior. Black bars indicate 95% confidence intervals for proportion. IHC, immunohistochemistry.

Table 2

Comparison of Impact of Medical Malpractice vs Patient Safety Concerns on Reducing Errors in Melanocytic Interpretations (REMI) Participants' Clinical Behaviors[a]

	Patient Safety Concerns, No. (%)			
Characteristic	**Disagree**	**Agree**	**Total, No. (%)**	***P* Value**
I order additional tests such as IHC and/or molecular tests				
Malpractice concerns				
Disagree	15 (9)	32 (20)	47 (29)	<.0001
Agree	1 (1)	112 (70)	113 (71)	
Total	16 (10)	144 (90)	160 (100)	
I recommend additional surgical sampling				
Malpractice concerns				
Disagree	13 (8)	23 (14)	36 (23)	<.0001
Agree	2 (1)	122 (76)	124 (78)	
Total	15 (9)	145 (91)	160 (100)	
I request additional slides cut from the block				
Malpractice concerns				
Disagree	7 (4)	23 (14)	30 (19)	<.0001
Agree	1 (1)	129 (81)	130 (81)	
Total	8 (5)	152 (95)	160 (100)	
I request more second opinions				
Malpractice concerns				
Disagree	14 (9)	21 (13)	35 (22)	<.0001
Agree	1 (1)	124 (78)	125 (78)	
Total	15 (9)	145 (91)	160 (100)	
I add a caveat into my reports regarding the difficulty of certain lesions				
Malpractice concerns				
Disagree	14 (9)	10 (6)	24 (15)	.18
Agree	4 (3)	132 (83)	136 (85)	
Total	18 (11)	142 (89)	160 (100)	

IHC, immunohistochemistry.
[a]All percentages are calculated relative to the total sample size of n = 160.

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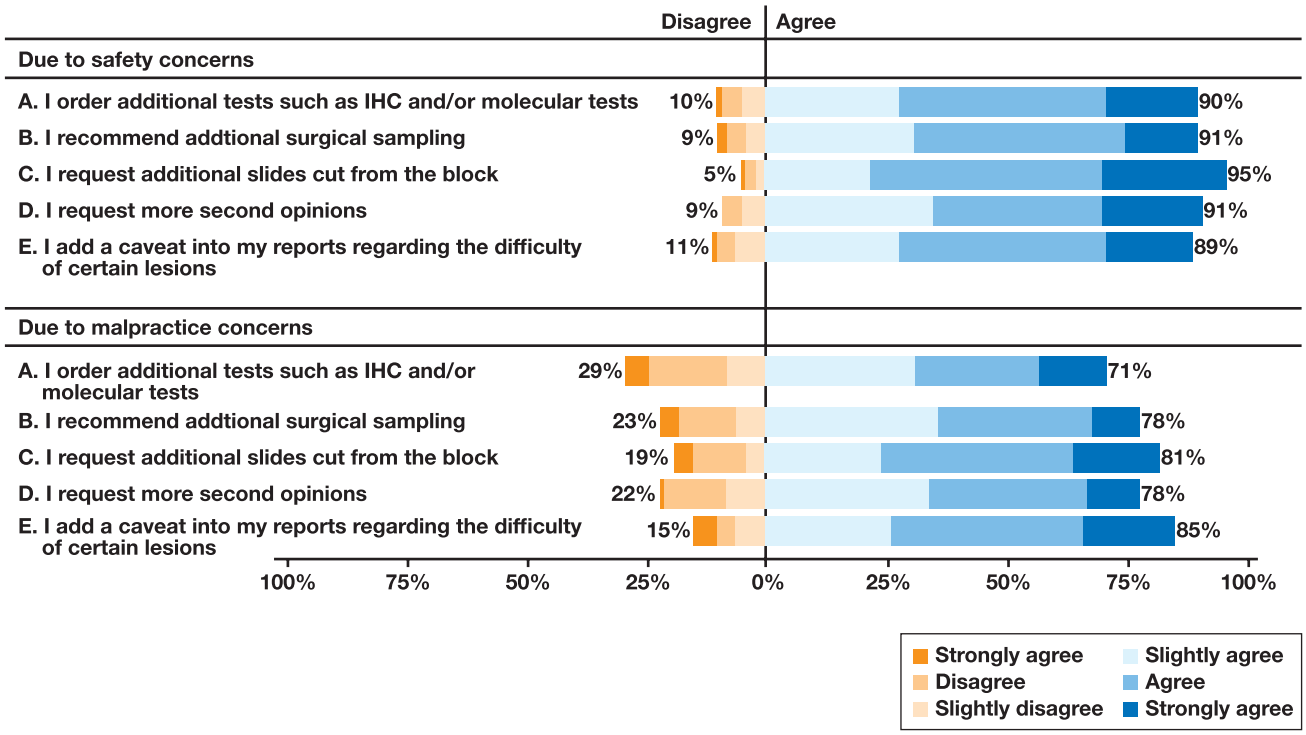

Figure 3 Likert scale responses to clinical behaviors due to malpractice concerns and patient safety concerns (strongly disagree to strongly agree). IHC, immunohistochemistry.

they are averse to the risk of missing a diagnosis and harming the patient, not simply to the risk of being sued when harm occurs. Dermatopathologists, like all physicians, take the Hippocratic Oath. It is logical that they engage in "assurance behaviors" (ie, ordering additional tests, services, and consultations) out of genuine desire to provide accurate diagnoses. Ordering additional tests, stains, biopsies, and cuts may reflect commitment to doing their best for the patient by engaging in proactive, conscientious practice.

Previous research demonstrates that ordering additional tests, consultations, and services results in *both* decreased medical malpractice claims *and* increased patient safety. Jena and colleagues[25] reported that in six of seven specialties studied, higher-spending physicians experienced fewer malpractice claims. Nakhleh et al[21] supported the use of secondary reviews and confirmatory ancillary tests to increase patient safety. Clinical behaviors can simultaneously minimize legal exposure and maximize patient well-being.

It has been proposed that medical malpractice and patient safety are not independent processes; physicians may be unable to discriminate between the effects of liability pressure and patient safety concerns that influence their decisions to order extra services.[26] After all, there are two primary rationales for the medical malpractice tort system: (1) to ensure compensation for injured patients and (2) to promote patient safety and reduce patient injury to a socially defined level and cost.[27] By helping to prevent diagnostic errors, patient safety measures also protect against malpractice litigation.[28]

This study has several limitations. In this survey research, we assessed physician self-report of their motivations for clinical practices. We acknowledge that with survey research, there is always the possibility that participants provide socially desirable behaviors. However, the topic of this research is physicians' rationale and motivation for clinical behaviors, which would be difficult or impossible to ascertain by a mechanism other than self-report. Furthermore, as described below, we believe the design of our survey may have minimized biases in self-report of motivations for clinical behaviors. In particular, the survey queries physicians on many topics, and questions about clinical behaviors motivated by malpractice concerns were separated within the survey from questions about clinical behaviors motivated by patient safety concerns. An additional limitation is that clinical behaviors may occur for reasons not studied. These reasons include patient demand or increasing personal income; these could be contrasted with due diligence toward achieving the highest quality care possible (independent of malpractice and patient safety concerns). Our survey did not collect data on the frequency of behaviors. For

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example, a dermatopathologist may agree that he or she engages in a behavior for reasons of both malpractice and patient safety but does so much more frequently for one of these motivations. Our survey data collection was part of a larger REMI study with main study aims requiring inclusion of board-certified dermatopathologists. Our findings for dermatopathologists may not generalize to other subspecialties in pathology.

Strengths of our study include a survey response rate of 71% among eligible invitees, which surpasses standards for physician surveys.[29-31] Our data were gathered from across the United States and included responses from both academic and community dermatopathologists. Survey questions were written specifically for dermatopathologists and specifically about melanocytic skin lesions. For the first time, clinical behaviors due to patient safety concerns were compared with identically worded assurance behaviors due to malpractice concerns. The questions were separated in the survey so as to minimize the effect on answering the second set of questions based on recalled responses to the first set. This allowed us to probe more deeply into clinical behaviors beyond our earlier findings regarding assurance behaviors and medical malpractice concerns[6,12,23] expanding the concept of assurance behaviors from exclusively a defensive medicine technique to a proactive approach toward achieving patient safety.

Conclusions

Dermatopathologists are influenced to request additional tests, services, and consultations because of concerns about patient safety (to do no harm) and also because of concerns about medical malpractice. Our findings call into question the perception that, beyond attempts to diagnose and manage patients accurately, physicians order additional services exclusively due to fears of malpractice. We provide evidence that physicians are strongly motivated by concerns for patient safety.

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