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Original Research Article

Utilization of second opinion pathology consults by clinicians: a cross sectional study

Felix Emeka Menkiti[1]*, Cornelius Ozobia Ukah[1], Simdi Stephanie Ukoha[2], Ifeoma Oluchukwu Menkiti[3], Chisom God'swill Chigbo[4], Ugochukwu Timothy Uchendu[5], Jude Ikwuakonam Mgbemena[6], Azuka Chinweokwu Ezeike[7], Chinwendu Onyebuashi[8], Kenechukwu Uche-Okonkwo[9], Chinonso Alozie[10], Peter Chukwudi Nwakile[11], Ebele Adaobi Muoghalu[12], Chinedu Nnaemeka Ilokanuno[13]

[1]Department of Anatomic Pathology and Forensic Medicine, [2]Department of Histopathology, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria
[3]Department of Nursing, College of Nursing, Nnamdi Azikiwe University Teaching Hospital, Nnewi, Anambra State, Nigeria
[4]Department of Epidemiology, School of Public Health, University of Port-Harcourt, Rivers State, Nigeria
[5]Department of Orthopaedics, National Orthopaedic Hospital, Enugu, Nigeria
[6]Out-Patient department, St. Jude's Hospital Ózûbûlû, Anambra State Nigeria
[7]Department of Obstetrics and Gynaecology, National Hospital, Abuja, Nigeria
[8]Department of Paediatrics, University of Abuja Teaching Hospital, Gwagwalada, Abuja, Nigeria
[9]Department of Otorhinolaryngology, University of Ilorin Teaching Hospital, Kwara State, Nigeria
[10]Department of Histopathology, Federal Teaching Hospital Owerri, Imo State, Nigeria
[11]Department of Community Medicine, University of Uyo Teaching Hospital, Uyo, Akwa-Ibom State, Nigeria
[12]Department of Haematology and Immunology, University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu State, Nigeria
[13]Department of Surgery, Nnamdi Azikiwe University/Nnamdi Azikiwe University Teaching Hospital, Nnewi, Anambra State, Nigeria

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***Correspondence:**
Dr. Felix Emeka Menkiti,
E-mail: fe.mekiti@unizik.edu.ng

ABSTRACT

Background: Pathology diagnosis is key to critical decision making in clinical medicine. In clinico-pathologic consults, there may be errors in pathologic diagnoses resulting in delayed or inappropriate treatment, hence impaired quality of care. Seeking a second opinion on a pathology consults is one procedure that enhances quality of healthcare services. In the spate of medical litigations, some doctors are either not aware of the procedure or do not utilize second opinion pathology consults (SOPCs).
Methods: This cross sectional study used an online structured questionnaire to assess the awareness of and utilization of SOPCs by clinicians in Nigeria. Information regarding socio-demography, cadre, years in practice, reasons for utilization or non-utilization and modalities for seeking SOPCs were collected.
Results: Of the 511 respondents, 75.7% of whom practiced in government-run tertiary hospitals, 33.5% have never utilised SOPC. Surgeons (29.7%) and gynaecologists (12.1%) are the major users of SOPCs; utilization of which is associated with cadre (p= 0.001) and not years of practice (p= 0.199). 24.3% divided specimen between pathologists, 15.5% sent a fresh specimen, 15.2% and 24.1% sent out the same slides and tissue blocks respectively, used for the first diagnosis. 65.8% SOPC requests were not accompanied with the first pathologist's report.
Conclusions: SOPC is an important component of a total quality assurance that helps reduce the overall cost of patient care. Many clinicians are not aware of SOPC procedure, hence the under-utilization. It is our opinion that proper enlightenment of clinicians will bridge this gap in knowledge and enhance better practice.

Keywords: Awareness, Clinicians, Pathology consults, Second opinion, Utilization

INTRODUCTION

The aim of pathology is to provide clients (patients and clinicians) with an accurate and timely diagnosis, with relevant prognostic information of assistance for management decisions from the submitted specimen.[1] "Being human, we are imperfect. That's why we need each other. To catch each other when we falter. To encourage each other when we lose heart. Some may lead; others may follow; but none of us can go it alone.[2] In clinic-pathologic consults, there may be errors in pathologic diagnoses (discrepancy between clinical and pathologic diagnosis, and even diagnosis among pathologists), thus leading to delayed or inappropriate treatment with its attendant cost. Achieving quality therefore in healthcare services requires shared opinions and inputs among professionals in the healthcare industry. Quality healthcare is the "Provision of professionally assessed care that meets/exceeds clients' expectations using correct clinical guidelines and standards, with good communication, shared decision making and cultural sensitivity, delivered in a resource-efficient way, and achieves the highest possible clinical outcomes.[3,4] Seeking a ''second opinion'' in medical practice is one approach to achieving quality in healthcare, including clinico-pathologic consults.

At the instance of insurance companies as a pre-authorization tool before elective surgery, second opinion program was first introduced in the United States of America in the 1970s.[5] Subsequently, second opinion has taken prime position in the American healthcare system, improving diagnosis and patient's care.[6] The awareness of diagnostic errors that are potentially litigious being reported in the medical literature and mass media has led many to consider obtaining second opinions to prevent errors and improve quality.[7-9] Also, in medical practice, especially oncology, second opinions have become of great importance in an era of complex treatments and a growing demand for information by patients.[10] To reduce inappropriate therapy and attendant risks, seeking a second-opinion becomes inevitable in clinical practice.[5] The American Society of Clinical Pathology recommended second opinion as an important element of total quality programs in diagnostic surgical pathology, providing means to achieving patient safety for tissue-based diagnoses.[11]

Referring a case for a ''second opinion'' implies the traditional, formal approach of sending a case to an external, recognized specialist department or individual pathologist with experience and expertise in a particular field.[12] Second opinion pathology consult is the review of pathology specimens, by a second pathologist, usually at the request of the managing clinician, following a clinico-pathologic meeting, as a quality control protocol or as standard practice to review all cases prior to commencement of treatment.[13] It has been shown to significantly improve diagnostic agreement in pathologists' interpretations of biopsy specimens.[14] Hence, it is a well-recognized and endorsed strategy to improving diagnostic accuracy.[15,16] Three categories of second opinions are recognized based on who initiated the process: the first is at the instance of the patient/relative who desires to confirm the diagnosis or prognosis suggested by his first pathologist; the second category is that initiated by the physician, who is looking for the advice of a second specialist whereas the third category is related to 'second opinion' programs/policy as a cost containment measure.[5]

Although there are published guidelines for obtaining second opinions in pathology to prevent medical errors, health policy regarding its accessibility differs among countries.[5,11] Most US pathology laboratories have policies requiring a second review of new cancer diagnoses before signing out.[17] To the best of our knowledge, no study has been done in Nigeria on the subject. The aim of this study is therefore to assess the utilization of 'second opinion' pathology consults (SOPCs) by physicians in Nigeria.

METHODS

Sampling methods/collection

This is a cross-sectional study that targeted all doctors working in Nigeria. The data were collected using a self-administered, anonymized, structured online questionnaire that has three sections. The first section was dealt on socio-demographics of the respondents, including age range, sex, current status, state/hospital/department of practice and number of years in clinical practice. The second section dealt with utilization of SOPCs, assessing awareness level, reasons for utilization/non-utilization of SOPCs and the methods utilized in seeking SOPCs. The third part looked at the outcome following a second opinion request.

The questionnaire was developed after a focussed discussion among a group of clinicians and pathologists, and subsequently pretested among 10 individuals from different departments of medical practice, and minor changes made following observations. Following this group discussion, development, and review of the questionnaire, a one-month pilot study was carried out using clinicians drawn randomly from the different geo-political zones of the country to ensure validation. The responses from the pilot study were utilized to develop the final questionnaire that was distributed. This system was utilized for validation as there was no prior research on this topic and no standardized scale or scoring system exists for SOPC.

Study population

A minimum sample size of 384 was calculated at 95% confidence interval. A total of five hundred and eleven (511) doctors working in different parts of the country, both in private and public hospitals, responded to the

questionnaire. These included house officers, medical officers, senior medical officer/junior residents, senior residents, consultants and general practitioners. Anatomic pathologists/histopathologists, chemical pathologists, radiologists, and other clinicians whose practice does not require sending surgical or cytology specimens to the histopathology laboratory, were excluded from the study.

Study duration

This study was conducted from December 2022 to February 2023. This was a national survey of doctors practicing in the public and private owned hospitals in Nigeria.

Data analysis

Data were entered into Microsoft Excel 2016 and imported into the IBM Statistical package for Social Sciences (SPSS) version 22 for data analysis. Simple descriptive statistics (i.e. proportions, ratios, and percentages) was done for independent variables such as sex, age, cadre, years of practice, etc. We compared the characteristics of respondent who utilized SOPCs to those who did not. A Chi-square test of association was done using a significant level of 5%. Results were then presented in statements, tables and relevant figures.

RESULTS

Socio-demography of the clinicians

A total of 511doctors practicing across the six geo-political zones of Nigeria responded, majority of whom were aged between 31 and 40 years (46.1%) and largely males (69.1%). The respondents were mostly consultants/specialists (44.8%) and resident doctors (40.1%), predominantly senior residents-23.7%. Most of the respondents practiced in federal government-run tertiary hospitals (75.7%) (Tables 1).

Utilization of second opinion pathology consults (SOPC)

Among the respondents, 171 (33.46%) had never utilized SOPC. A good proportion of this population were specialists practicing in tertiary healthcare facilities (Table 2).

Some of the reasons provided for non-utilization of SOPC included that it amounts to an extra cost to the patient (60.2%), use of clinical judgement to resolve the incongruent report (41.5%), and 31.6% stated that they do not know the procedure for requesting SOPC. 96 (18.8% of all respondents and 56.1% of those who had never utilized SOPC) respondents were not aware and had never thought of requesting SOPC (Figure 1).

Table 1: Socio-demographic variables of the study participants.

Variable	Frequency (n= 511)	Percentage (%)
Sex		
Females	154	30.1
Males	357	69.9
Age range		
20-30	53	10.4
31-40	236	46.2
41-50	156	30.5
51-60	46	9.0
61-70	15	2.9
>70	5	1.0
Cadre/level		
Consultant/specialist	229	44.8
General practitioner	21	4.1
House officer	14	2.7
Medical officer	27	5.3
Registrar	84	16.4
Senior medical officer	15	2.9
Senior registrar	121	23.7
Total	511	100.0
Health facility		
Federal tertiary hospital	387	75.7
General hospital	19	3.7
Private hospital	68	13.3
State teaching hospital	37	7.2
Region of practice		
North central	87	17.0
North east	14	2.7
North west	39	7.6
South south	69	13.5
South west	57	11.2
South east	245	47.9
Years in practice		
0-5	86	16.8
6-10	91	17.8
11-15	192	37.6
16-20	63	12.3
21-25	41	8.0
>25	38	7.4
Total	511	100.0

Among the 415 respondents who are aware of SOPC, 340 (81.9%) had sought for SOPC at least once in their practice. Most of these were males (239/340; male: female ratio=2.4:1), aged 31-50 and consultants/specialists. The covariates that were found to have a statistically significant effect ($p<0.05$) on seeking a SOPC included: age group ($p=0.004$) and cadre ($p=0.001$), but not years of practice ($p=0.199$) (Table 3).

Table 2: Demography of those who have not utilized SOPC.

	CADRE							Total
	Consultant/ specialist	Gen Pract	House officer	MO	Registrar	SMO	Sen Reg	
Years in practice								
0-5	2	4	8	14	16	0	1	45
6-10	2	0	0	3	20	1	11	37
11-15	19	5	0	0	7	3	20	54
16-20	9	1	0	0	0	1	6	17
21-25	4	0	0	0	1	0	1	6
>25	5	5	0	0	1	0	1	12
Total	41	15	8	17	45	5	40	171
Health facility								
Private hospital	6	13	0	12	1	1	1	34
General hospital	0	1	0	2	1	1	2	7
State teaching hospital	1	0	1	1	5	2	2	12
Federal tertiary hospital	34	1	7	2	38	1	35	118
Total	41	15	8	17	45	5	40	171

Gen pract= General practitioner; MO= Medical officer; SMO= Senior Medical Officer; Snr Reg= Senior Registrar

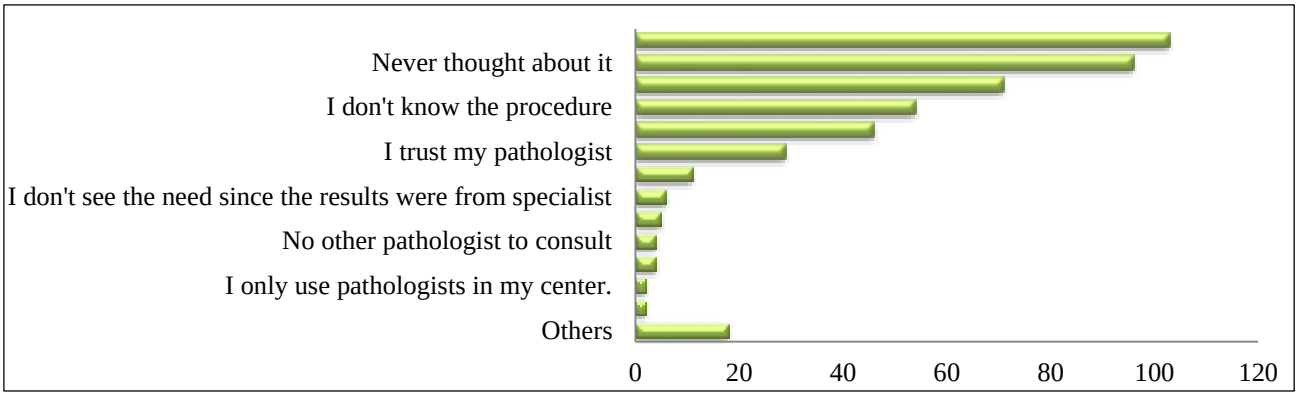


Figure 1: Reasons for non-utilization of SOPC.

Table 3: Relationship between demography and request for second opinion PC.

Demographic characteristics	Request for second opinion PC		Chi- value	P value
Age range	**Have requested**	**Never requested**		
20 – 30	19 (5.6)	13 (17.3)		
31-40	152 (44.7)	39 (52.0)		
41-50	119 (35.0)	18 (24.0)	17.131	0.004*
51-60	37 (10.9)	4 (5.3)		
61-70	10 (2.9)	1 (1.3)		
>70	3 (0.9)	0 (0)		
Cadre				
Consultant/specialist	188 (55.3)	20 (26.7)		
Gen practitioner	6 (1.8)	1 (1.3)		
House officer	6 (1.8)	3 (4.0)		
Medical officer	10 (2.9)	5 (6.7)	24.537	0.001*
Registrar	39 (11.5)	19 (25.3)		
Smo	10 (2.9)	2 (2.7)		
Senior registrar	81 (23.8)	25 (33.3)		
Years of practice				
0-5	41 (12.1)	12 (16.0)		

Continued.

Demographic characteristics	Request for second opinion PC		Chi- value	P value
6-10	138 (40.6)	31 (41.3)		
11-15	46 (13.5)	8 (10.7)	7.305	0.199
16-20	35 (10.3)	3 (4.0)		
21-25	54 (15.9)	18 (24.0)		
>25	26 (7.6)	3 (4.0)		
Sex				
Female	101 (29.7)			
Male	239 (70.3)			

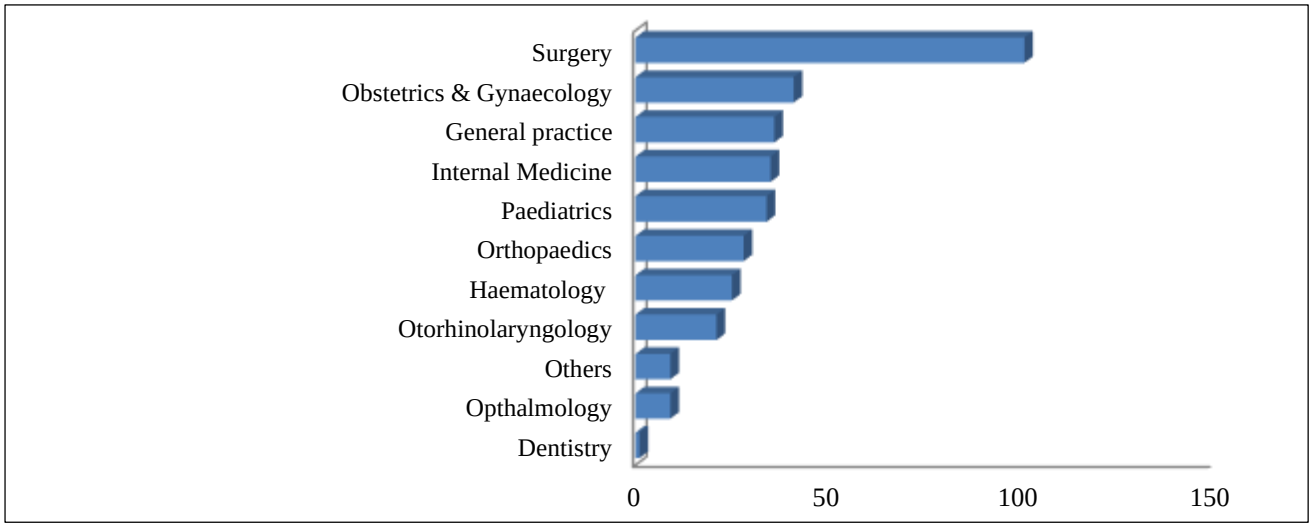


Figure 2: Requests for SOPC by departments.

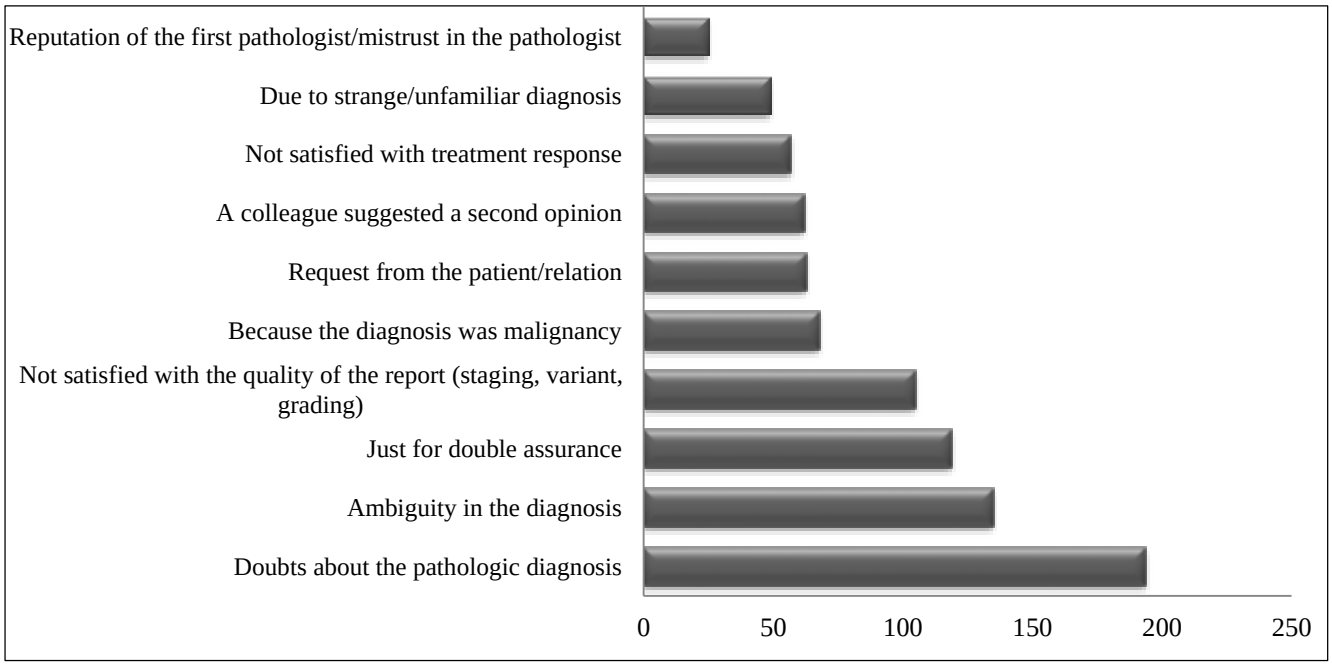


Figure 3: Reasons for SOPC requests.

The highest rates of SOPCs were from surgery department (29.7%). Other specialties with high SOPC utilization were obstetrics and gynaecology (12.1%) and General practice (10.6%) (Figure 2).

Process/modalities for seeking SOPC

As shown in Table 4, 63.8% of those who sought for SOPC used another facility whereas 14.7% requested for a review of the case by same pathologist (second look).

Most (65.8%) requests were not accompanied by the first pathologist's report as they either felt it will bias the second pathologist (66.1%) or didn't know its importance (9.8%). 24.3% and 15.5% divided the second specimen between at least two pathologists, while 15.5% sent a fresh specimen to the second pathologist. Only 15.2% of these clinicians sent out the same slides used for the first diagnosis while 24.1% sent the tissue blocks.

Table 4: The procedures for seeking SOPC.

		Frequency	Percentage (%)
Facility used for second opinion			
Another facility		217	63.8
Another pathologist in the same facility as the source of the first report		73	21.5
Same facility and same pathologist (second look)		50	14.7
Did you accompany your second opinion request with the previous report?			
No		224	65.8
Reason	I didn't consider the importance	22	9.8
	It will bias the second pathologist	148	66.1
	Neutral	54	24.1
Yes		116	34.1
Reason	Just felt like it	11	9.5
	To Properly guide the second pathologist	105	90.5
Method of Seeking second opinion			
I divided the sample and sent to different pathologists.		155	24.3
I sent the slides used for the first diagnosis		97	15.2
I sent a fresh specimen (cytology/biopsy) to the second pathologist		99	15.5
I sent the tissue blocks used for the first diagnosis		154	24.1
I requested for a second look		134	20.97

Table 5: Declared outcomes of the SOPC (multiple responses).

	N	%
Satisfied with the second opinion		
Neutral	73	21.5
No	8	2.4
Sometimes	14	3.8
Yes	246	72.1
It caused more confusion		
Neutral	58	17.1
No	261	76.8
Yes	21	6.2
The second opinion was different from the first opinion		
Neutral	55	16.2
No	106	28.2
Yes	189	52.4
The second opinion diagnosis led to change/modification of patient's treatment		
Neutral	15	4.4
No	116	34.1
Yes	216	63.5
No response	23	6.8

Most (72.1%) of the respondents stated that they were satisfied with the SOPC report, even though 52.4% declared that the SOPC was different from the first. However, the SOPC led to change led to change/modification of the patients' management (Table 5).

DISCUSSION

Pathologists are humans, who through a process of cognitive interpretation of the morphological features present in a small tissue sample make pathological diagnosis. It is a misperception to think that the process is 'error free'.[18] It is part of some laboratories' policy that prior to definitive treatment, pathology material is reviewed internally or externally as a key aspect of patient safety and patient care.[19,20] Also, the attention to medical diagnostic errors and the consequent possible litigations in the mass media and medical literatures has given rise to strong consideration to obtaining SOPC to prevent errors and improve quality in healthcare services.[14] In the study by Elmore et al, they observed that rates of pathologic misclassification decreased from 24.7% to 18.1% when all cases received second opinions ($P<0.001$).[14]

Our findings show a high level of inconsistency between the SOPC practices in the western countries and ours, despite the fact that there is a spate of medical litigations globally.[21] About a third (33.46%) of respondents had never utilized SOPC, even when they felt some inconsistencies between clinical and pathologic diagnosis. Among the reasons for non-utilization of SOPC are lack of awareness and knowledge (31.6%) of the procedure, feeling that it would amount to extra cost

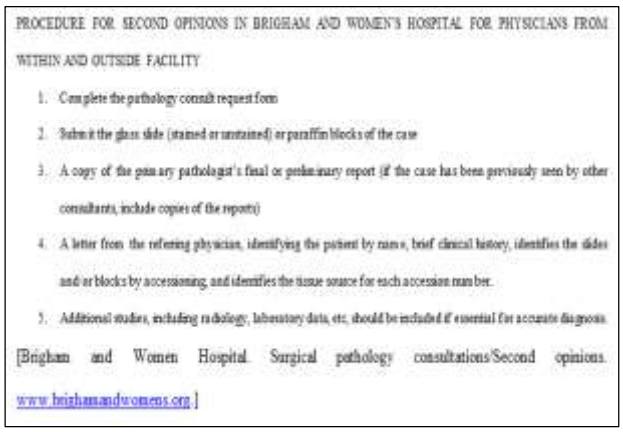
to the patient (60.2%) and reliance on clinical judgement (41.5%). Although the value and utility of routine second review of patients' pathologic material is usually questioned, also being time consuming, studies have shown that it is cost-saving. It has been shown to reduce health care costs by preventing inappropriate therapy and identifying correct therapy, especially when pathologists with subspecialty expertise are responsible for second review.[13] A study that assessed the clinical impact of second opinion using 922 cases of thyroid fine needle aspiration cytology slides over a 2-year period, reported a cost saving of $940,166.[22]

About two-thirds (66.5% of all respondents) had utilized SOPC, mostly from surgery (29.7%) and obstetrics and gynaecology (12.1%) departments. It is understandable that most SOPCs requests are from the above departments who carry out most surgeries requiring tough decisions. Although most of the SOPCs were initiated by the clinicians for reasons including doubts about the first pathologic diagnosis (57.1%), ambiguity in the diagnosis (39.7%), for double assurance (35.0%), not being satisfied with the quality of the first report (30.9%), and diagnosis of malignancy (20%) among others, 18.5% SOPCs were initiated by patients/relatives. SOPCs request initiated by patients/legal representatives is becoming common with the universal availability of the internet, lay access to medical literature and litigation.[12]

SOPCs may be done by pathologists before sign-out as part of internal quality control policies, or retrospectively after sign-out following requests by clinicians. The retrospective second opinion may occur as institutional review of outside pathology slides as a standard protocol for referral patients before definitive treatment (especially oncology cases); when departmental audit or quality assurance reveals a disagreement between pathologists that cannot be resolved internally or requests initiated/made directly by the patient, relatives, or legal representatives, especially after investigation into the diagnosis by the patient.[12]

Retrospective SOPCs after sign out may be done when treatment is followed by an unexpected clinical outcome. Such SOPCs can be associated with potential problems, including a change in diagnosis leading potentially to changes/modification in patient management, which impact cannot be easily measured.[23] In SOPCs, there may be need to undertake further special studies and possible literature review, which will certainly affect reporting time.[12] However, it has been shown that SOPC is beneficial for patient care and can reduce the frequency of inappropriate chemotherapy or radiotherapy.[24] Hence, health policy regarding SOs is a matter of balancing benefits and costs.[25] Identifying discrepancies retrospectively can also have implications on the quality assurance and training needs of the original pathologist.[23]

It is our finding the SOPCs are significantly correlated with age (X=17.131; p=0.004) and cadre (X=24.537; p=0.001) but not years of practice (X=7.305; p=0.199). This could be due to associated responsibility and liability, as the burden of decisions regarding patient care lies with increasing senior ranking members of the managing team, especially in the teaching hospitals. Also, the lower cadre staff, including house officers, who had requested SOPC could have done so under the instruction/supervision of the consultants. These house officers are likely to utilize SOPCs in their independent practices, having learnt under consultants who utilized SOPCs, underscoring the importance of formal and informal training in good clinical practice. The majority (72.1%) stated satisfaction with the SOPCs, a significant proportion stated that the SOPC differed from the primary pathology diagnosis, with some leading to change in patient management modalities. Although studies on SOPCs had similarly reported both minor and major differences in second opinion diagnoses, and change/modifications in treatment modalities, the differences related by the responders in our study may not be real.[14,13,25,26] A significant proportion of the respondents are not aware of the procedures for SOPC, as only 15.2% and 24.1% of these clinicians sent out the same slides and/or the tissue blocks used for the first diagnosis respectively. Others sent another specimen, divided a specimen between pathologists or requested for a second look in the name of SOPC. Second opinion implies that the different pathologists make their independent diagnoses from same material. The published procedure by the surgical pathology division of Brigham and women's hospital provides a proper minimum dataset for SOPCs, requiring that the glass slide or the paraffin tissue block utilized by the first pathologist be submitted (see figure 4).[27] The referring physician should accompany the SOPC request with complete demographic information; important clinical, laboratory and imaging findings; all of the histology slides and any special studies already performed, along with a representative tissue block or material for further investigation, if necessary for the diagnosis.[12]


PROCEDURE FOR SECOND OPINIONS IN BRIGHAM AND WOMEN'S HOSPITAL FOR PHYSICIANS FROM WITHIN AND OUTSIDE FACILITY

1. Complete the pathology consult request form
2. Submit the glass slide (stained or unstained) or paraffin blocks of the case
3. A copy of the primary pathologist's final or preliminary report (if the case has been previously seen by other consultants, include copies of the reports)
4. A letter from the referring physician, identifying the patient by name, brief clinical history, identifies the slides and/or blocks by accessioning, and identifies the tissue source for each accession number.
5. Additional studies, including radiology, laboratory data, etc, should be included if essential for accurate diagnosis.

[Brigham and Women Hospital. Surgical pathology consultations/Second opinions. www.brighamandwomens.org]

Figure 4: Sample procedure for SOPC.

This study has few limitations. This was a cross-sectional study, and there is possibility of responder and recall

bias. However, the provision of a set of options to choose from was used to minimize this. Although this is an online survey with a wider reach, its online nature may have introduced some selection bias and the responses may not be completely representative of the population.

CONCLUSION

SOPC is an important component of a total quality assurance program in diagnostic surgical and cyto-pathology. It is a necessary procedure that helps improve quality and clinical outcomes by providing patients with evidence-based treatment plans for their precise pathologic diagnoses. Thus, it reduces the overall cost of patient care. Many clinicians are not aware of SOPC procedure, hence the under-utilization. It is our opinion that proper enlightenment of clinicians will bridge this gap in knowledge and enhance better practice.

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