CLINICIANS OPINION ON ERRORS IN ULTRASOUND REPORTS IN SOUTH EASTERN NIGERIA

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ABSTRACT
This study investigated clinicians opinion on common errors in ultrasound reports in South Eastern Nigerian. 238 clinicians from speicialities of internal medicine, surgery, general practice and obstetric/gynaecology selected through stratified random sampling were invloved in ths survey. A questionnaire with four response options ranging from 'very often' to 'never' were used to obtain respondents opinion on the frequency of their observation of common errors in ultrasound reports. The commonest errors identified by respondents were conflicting report (3.73 $\pm$ 0.62) and missed diagnosis (3.66 $\pm$ 0.69). On a 4 point scale clinicians indicated that irrespective of the common errors, the ultrasound report was still helpful. The overall mean rating of the clinicians on the extent of common errors in ultrasound report is 2.77 $\pm$ 0.29. The response indicates that ultrasound reports in the locality are associated with significant errors.

INTRODUCTION
The use of sonography in facilitating medical diagnosis and particularly for precise and safe obstetric management has increased tremendously in the locality[1]. This is due to the non-ionising nature of ultrasound.[2] Clinicians' awareness of this imaging modality in the locality is high and consequently many requests are sent for sonography.

However, most sonographic features are non-specific and the image interpretation process is observer-dependent[3]. There has been recently been compliants from referring clinicians of ultrasound reports, that did not match clinical findings at delivery in the labour ward or at surgery, and that have at times confused clinical impression. A repeat scan is usually indicated in such situations and the associated increased financial cost transferred to the patient. When surgical interventions are based on inaccurate sonographic report, the consequences can be very tragic.

There has been no audit of sonographic practice in the locality. This study was therefore designed to obtain and document clinicians' opinion of common errors in ultrasound reports.

MATERIALS AND METHODS
238 clinicians from various specialities who have been receiving ultrasound reports for at least 5 years were selected from a population of 588 practitioners through stratified random sampling. The sample size was determined using Yamene method[4] and an assumed error tolerance of five percent was adopted. The stratification was done to allow various specialities, public and private health establishment to be represented. Table 1 shows the distribution of the participants.

Structured questionnaires were distributed to all the participants to obtain their opinion of errors in the ultrasound reports they receive. A four response Likert scale ranging from 'very often' to 'never' enabled each respondent to rank the frequency of his/her observation of errors in ultrasound reports.

The reliability of this instrument was tested using test-retest procedure with Spearman's rank order correlation and Cronbach alpha. The test-retest yielded a rho of 0.94 while the Cronbach for test of internal consistency yielded an alpha of 0.92. These values indicate good reliability. All the questionnaires distributed were returned.

The clinicians' rating responses for each common error encountered in practice were then categorised according to speciality. The mean and standard deviation of the scores were obtained and tested using one-way analysis of variance (ANOVA). The mean scores were quantitatively ranked as 1 for never; 2 for rare; for often; 4 for very often on a four point scale.

RESULTS

The respondents identified missed diagnosis and conflicting reports after a rescan as the commonest errors in Ultrasound reports and were ranked 3.66 ± 0.69 and 3.73 ± 0.62 respectively on a 4 point scale. (Table 2). The errors that occurred 'the least' were reports that were not helpful or did not answer clinical query and were ranked 1.44 ± 0.63 and 1.47 ± 0.66 respectively on a 4 point scale.

The ratings of the clinicians on the extent of errors in ultrasound report across the specialities are shown in Table 2 and indicate an overall mean score of 2.77 ± 0.29.

One way analysis of variance at 0.05 level of significance show that surgery and obstetric/gynaecology had significantly higher frequency of misdiagnosis than other specialties ($p < 0.05$) whereas there was an insignificant different across the specialties on the frequency of missed diagnosis, conflicting reports and reports which were generally 'not helpful'.

DISCUSSION

The accuracy of any medical diagnostic process is important as patient management is thereby affected. The relevance of any medical diagnostic tool is determined by its contribution to the identification of the patient's problem.

From this study, clinicians' response across the specialties indicate the occurrence of errors in ultrasound scan reports. Missed diagnosis and conflicting reports after a rescan were identified as the commonest with scores of 3.66 ± 0.62 respectively on the 4 point scale. This means that many diagnosis are missed during an initial visit and require a second or even third scan in another centre before being picked. Reports on patients scan that conflict with each other often come from two different centres. These errors may be due to the ultrasound practitioners lack of problem solving skill as sonographic features are non-specific and observer dependent.3

Conflicting reports after rescan is one of the commonest errors in ultrasound reports from this study and may be attributable to the absence of a generally accepted and verifiable protocol for ultrasound practice in the locality. Significant difference was also noted in the mean rating of the clinicians on the extent of misdiagnosis in the ultrasound reports from surgery and general practice as well as those from obstetric/gynaecology and general practice. Specialists in surgery and obstetric/gynaecoogy have opportunity of confirming the ultrasound reports either from surgical findings in the theatre or at delivery in the maternity.

An approach to minimise these errors would be a closer collaborative work between sonologists/sonographers and clinicians. The three groups can co-operate to produce specific protocols that would direct the scan to be 'problem solving' oriented. At the worst, the information from the protocol can be reviewed piecemeal by the clinician as a way to cross check the authenticity of the final result. An audit can be done to re-evaluate these errors after three years of operating above measures, to test the effectiveness, if any.

Table 1: Distribution of Participants Area of Specialization

Town	Surgery	Obstetric & Gynaecology	Internal Medicine	General Practice	Total
Enugu	19	13	17	13	62
Port Harcourt	22	21	17	17	77
Aba	7	6	9	5	27
Onitsha	1	1	2	3	7
Warri	3	4	2	6	15
Benin	17	11	9	13	13
Total	**69**	**56**	**56**	**57**	**238**

Table 2: Extent of Common Errors in Ultrasound Reports

		Misdiagnosis		Misdiagnosis		Not Helpful		Conflicting Report+		No Answer		Extent of Common Errors	
Area of Specialisation	No. of Respon-dents	Mean Rating	SD	Mean Rating	SD	Mean Rating	SD	Mean Rating	SD	Mean Rating	SD	Mean Rating	SD
Medicine	56	3.57	0.68	3.67	0.69	1.33	0.51	3.64	0.72	1.51	0.80	2.75	0.24
Surgery	69	3.68	0.60	3.59	0.75	1.46	0.69	3.73	0.67	1.40	0.55	2.77	0.31
Obstetric/ Gynaecology	56	3.71	0.68	3.64	0.74	1.55	0.65	3.76	0.50	1.53	0.63	2.84	0.27
General Practice	57	3.22	0.84	3.75	0.57	1.42	0.62	3.77	0.56	1.45	0.65	2.72	0.33
Total	**238**	**3.55**	**0.72**	**3.66**	**0.69**	**1.44**	**0.63**	**3.73**	**0.62**	**1.47**	**0.66**	**2.77**	**0.29**

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