



Evaluation of the pattern of referrals to a Paediatric Emergency Unit in relation to the outcome of care in Benin City

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Abstract

Background: The referral system is a process where a patient is moved from one level of care to a higher or better level of care for appropriate treatment. Healthcare workers usually initiate referrals, which should be accompanied by a referral letter.

Objective: To evaluate the pattern and content of referral notes received in a children's emergency unit at a tertiary facility in Benin City.

Methods: Over six months, a cross-sectional study reviewing all referral notes accompanying children to the Paediatric Emergency Unit of the University of Benin Teaching Hospital, Nigeria was done.

Results: Two hundred and six of 300 children (68.7%) had formal written referral letters, while 94 (31.3%) had verbal referrals. Eighty-nine per cent were initiated by healthcare personnel, while clients were initiated in 33 (11.0%) of cases. Doctors made referrals in 238 (79.3%) cases, while 26 (8.7%) referrals were made by nurses. Doctors (182; 76.5%) were more likely to write referrals compared to nurses (9; 31.0%) ($\chi^2 = 32.3$, $p < 0.001$). Referrals from medical doctors had significantly better content, including complaints, examination findings, diagnosis investigations, treatment and reason for referral, hospital, name and qualification of doctor ($p < 0.05$). Referral type, source and referring personnel did not significantly affect the mortality of the children ($p = 0.24, 0.70, 0.41$ respectively).

Conclusion: Referrals were more frequently documented and the contents were more comprehensive when written by doctors.

Keywords: Content, Pattern, Referral, Paediatric Emergency Unit

Introduction

Referrals are essential in medical practice. It is a process where healthcare workers seek help or transfer a patient's care from one level of the health system to a better or higher-level facility for optimal patient care.^{1,2} Referrals occur when there are insufficient resources or expertise to manage a clinical condition at a particular facility, hence the need to seek the assistance of a better or differently resourced facility.² An efficient referral system enhances good

relationships between all levels of care. It encourages cost-effective utilisation of facilities while ensuring that every level of care is well utilised with no overcrowding of certain levels. It also provides access to good quality care for affected patients.^{2, 3} The World Health Organization (WHO) declares that a functioning referral system is important for improving the quality of care for children and young adolescents.⁴ The WHO further states that “every child with condition(s) that cannot be managed

effectively with the available resources should receive timely referral with seamless continuity of care".⁴ This entails that the decision to refer is made on time, pre-referral care is given, and appropriate information exchange and feedback to relevant healthcare staff are given.⁴ In Nigeria, three levels of care are available: the primary, secondary and tertiary health care levels. The third or tertiary level of care offers specialised care for patients, and most paediatric emergency units (PEU) in tertiary facilities are in this category.^{5, 6} The PHC provides a basic level of care for common illnesses for children, and health workers in these PHCs are expected to be trained in identifying severe diseases that require referral to secondary facilities and higher centres.

The PEU provides emergency care to acute and critically ill children. Most PEUs in low and middle-income countries (LMICs) are overcrowded due to inefficient primary and secondary healthcare systems, resulting in unnecessary referral to tertiary facilities.⁵ In paediatric practice, referrals to the emergency units can arise from within the hospital via the general practice clinics, paediatric specialist clinics/paediatric outpatient clinics or from outside the hospital from secondary and primary care facilities, privately-owned facilities including maternity homes and in some cases, self-referral by the parents or caregivers.⁷⁻⁹ In a study by Koce *et al.*⁵ in Niger State, Nigeria, about 60-90% of patients bypass the PHC for various reasons resulting in under-utilisation of the PHC and overburdening higher levels of care.

A sound referral system should identify patients that need to be moved early, have efficient communication between referral centres, provide detailed information on the patient, promptly receive the patients and have a suitable feedback mechanism.^{4,10} In some contexts, patients may present to the PEU without a written referral. Some patients who self-referred themselves do

not have formal referral notes. Oyagi *et al.*¹¹ in Kenya found in their study that about 72% of referral cases presented with a referral note. In comparison, Orimadegun and colleagues¹² in Nigeria found that 54.8% of the patients presented with referral letters. The quality of the information provided depends on the expertise of the personnel initiating the referral and possibly the referral's originating facility. In the Kenyan study,¹¹ 76% of the notes were formally written, and doctors or clinical officers initiated 74% of them. Simba *et al.*¹³ in Tanzania found that 72.5% of patients admitted were based on self-referral. In Ilorin, Nigeria, Akande¹⁴ documented that only 7.1% of patients seen at the Teaching Hospital were formally referred, while 92.9% presented to the facility without a referral.

Detailed referrals with appropriate information are important for efficient care of the child. Some studies have alluded that referral letters are inadequate regarding their content.^{12, 15-17} In Israel, Edvardson and Taylor¹⁵ documented that more than 50% of referral letters reviewed lacked the information the receiving physicians needed. About 93% and 97% of referral letters assessed by Ezhumalai and co-researchers¹⁶ in India were poorly written and contained inadequate information respectively, pre-introduction of the referral education module. Similarly, Haeusler *et al.*¹⁷ in South Africa found that 87% of referrals assessed in their study lacked key clinical information, and 19% were adjudged to be outrightly inappropriate. In Lagos, Nigeria, Ojewola *et al.*¹⁸ found that 55% of referrals were inadequate, while Akodu *et al.*¹⁹ noted that only 2.11% of letters from PHCs were considered good referrals. In Ibadan, Orimadegun and colleagues¹² reported that more than half of the referral letters to the children's emergency unit of a teaching hospital in Southwest Nigeria did not contain key information on the patient, investigations and treatment. Referral letters containing detailed information about the patient

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enhance triaging and prompt access to care for such patients at the receiving facility. Haeusler *et al.*¹⁷ reported that referral letters in their study helped make triage decisions in only 35% of cases in their work.

With the numerous benefits of good referral system and letters to the standard of care of children and young adolescents, it is important to review the content and pattern of referral letters accompanying children to the PEU to make recommendations on improving the system's quality. More studies are needed to evaluate the contents of referral notes, especially in children. Hence, this study assessed the patterns and content of referrals, factors associated with the documentation/content of referral notes, and their relationship to the outcomes of referred patients.

Methods

Over six months, this study was carried out at the Paediatric Emergency Unit (PEU) of the University of Benin Teaching Hospital (UBTH), Benin, Nigeria. The UBTH is a 900-bed tertiary institution that provides tertiary health care services to the population of Edo State and neighbouring Delta, Bayelsa, Ondo, and Kogi states. The PEU of UBTH is manned by two Consultants and at least six resident doctors. The unit receives medical and surgical paediatric emergency cases and runs a 24-hour emergency service for all children under 18 years. Ethical approval for this study was obtained from the Ethics and Research Committee of the UBTH.

Referral letters of children presenting in the PEU over the study period were retrieved and evaluated. Characteristics of referral letters evaluated included the status of the referring personnel, source facility and content of referral notes, which encompassed the name, qualification and signature of the referring doctor, presenting complaints, examination and investigation findings, diagnosis, treatment

given, reason for referral and need for feedback (feedback entails communicating back to the referring personnel on the final diagnosis and outcome of referred patient and areas to improve upon in subsequent cases seen). Concordance of diagnosis from the referring facility with the emergency room diagnosis was also evaluated, and outcomes (survival, survival with sequelae and death) were assessed.

Data was analysed using International Business Machines Corporation (IBM) Statistical Package for the Social Sciences (SPSS) version 26.0 (SPSS for Window Inc.; Chicago, LL, USA) Statistical Software. Referral characteristics such as types of referral, initiating personnel, status of health worker and the source facility were expressed in proportions. Associations between the status of health workers and source facility and content of referral notes, concordance with diagnosis and outcome were assessed using the Chi-Square test with a level of confidence set at 95% and significant p-value at less than 0.05.

Results

Referral characteristics

A total of 300 children were seen over the period. Two hundred and six (68.7%) had written referral letters, while 94 (31.3%) were verbal referrals. Eighty-four per cent of the referrals originated from hospitals, while only 3% came from Traditional Birth Homes (TBHs). Two hundred and sixty-seven (89.0%) and 238 (79.3%) were initiated by health workers and doctors, respectively (Table I).

Relationship between type of referral and status of referring personnel and source facility

One hundred and eighty-two (76.5%) of doctors gave written referral letters compared to 9 (31.0%) of nurses/midwives and 15 (45.5%) of others who did not indicate their status ($\chi^2 = 32.3$, $p < 0.001$). Similarly, a significantly higher number of referrals from hospitals, (189; 74.4%)

and pharmacies, (7; 100.0%), were formally documented referrals compared to referrals from

maternity homes and TBA ($\chi^2 = 40.7$, $p < 0.001$), as shown in Table II.

Table I: General description of the referrals received

Characteristics of referrals		Frequency	Percentage
<i>Referral Type</i>	Verbal	94	31.3
	Written/Documented	206	68.7
<i>Initiating Personnel</i>	Health workers	267	89.0
	Clients	33	11.0
<i>Status of Referring Personnel</i>	Doctor	238	79.3
	Nurse/Midwife	29	9.7
	Not indicated	33	11.0
<i>Source Facility</i>	Hospital	254	84.7
	Pharmacy	07	2.3
	Maternity/Nursing home	30	10.0
	TBH/Others	09	3.0

TBH – Traditional Birth Home

Table II: Relationship between type of referral and status of referring personnel and source facility

<i>Referral characteristics</i>	<i>Verbal</i> <i>n = 94</i>	<i>Documented</i> <i>n = 206</i>	χ^2	<i>p-value</i>
<i>Status of referring personnel</i>				
Doctor	56 (23.5)	182 (76.5)		
Nurse/Midwife	20 (69.0)	9 (31.0)	32.3	0.00
Not indicated	18 (54.5)	15 (45.5)		
<i>Source facility</i>				
Hospital	65 (25.6)	189 (74.4)		
Pharmacy	0 (0.0)	7 (100.0)	40.7	0.00
Maternity/Nursing home	22 (73.3)	8 (26.7)		
TBH	7 (77.8)	2 (22.2)		

TBH - Traditional Birth Home

Contents of referral notes

Table III shows the proportions of the content of the referral letters assessed. Two hundred and three (98.5%), 197 (95.6%) and 189 (91.7%) stated the healthcare facility's name, presenting complaints and reason for referral, while 182

(88.3%) and 170 (82.5%) stated the name of the referring personnel and working diagnosis. Only 3 (3.9%) requested feedback, while 198 (96.1%) did not ask for feedback. Other details of the contents are shown in Table III.

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Table III: Analysis of the contents of referral notes

<i>Referral Content</i>	<i>Present n = 206</i>	<i>Absent n = 206</i>
Identity of the healthcare facility	203 (98.5)	3 (1.5)
Name of referring personnel	182 (88.3)	24 (11.7)
Signature of the referring personnel	148 (71.8)	58 (28.2)
Qualifications	72 (35.0)	134 (65.0)
Presenting complaints	197 (95.6)	9 (4.4)
Examination findings	144 (69.9)	62 (30.1)
Working diagnosis	170 (82.5)	36 (17.5)
Investigations carried out	94 (45.6)	112 (54.4)
Progress or deterioration made by the patient while being managed	96 (46.6)	110 (53.4)
Treatment offered	116 (56.3)	90 (43.7)
Was the reason for the referral stated	189 (91.7)	17 (8.3)
Was there a request for feedback	8 (3.9)	198 (96.1)

Figures in parentheses are percentages of the total in each column

Association between the status of referring personnel and proper documentation of referrals

The association between the status of referring personnel and aspects of the content of referrals is depicted in Table IV. With regards to stating the identity of the facility, name of referring personnel, qualification, signature of the personnel, presenting complaints, working diagnosis and investigations, a higher proportion of doctors stated these contents compared to nurses and those who did not indicate their status and the difference was statistically significant ($p < 0.001$). The difference in stating the presenting complaints, examination findings, progress or deterioration, treatment and reason for referral was not statistically significant across the various groups of referring personnel (Table IV). Almost all the different referring personnel did not state the need for feedback ($\chi^2 = 1.10$, $p = 0.58$). *Association between source facility and content of referrals*

Referral notes originating from hospitals had significant content in stating health care facility

(100%; $p < 0.001$), name of referring personnel (89.4%, $p < 0.001$), signature of referring personnel (74.6%, $p < 0.001$), stating presenting complaints (100%, $p < 0.001$), diagnosis (84.1%, $p < 0.001$) and reason for referral (92.6%, $p < 0.001$). Across all possible source facilities, documenting qualification of referring personnel had low proportions (0-33.9%) except for maternity homes (75%, $p = 0.07$). Only 8 (4.2%) of referrals from the hospital indicated feedback as against none for all other source facilities ($\chi^2 = 0.75$, $p = 0.86$), as shown in Table V.

Concordance of referral and final diagnosis

Seven (77.8%) nurses and 9 (60%) others missed the correct diagnosis compared to 97 (53.3%) doctors, but the difference was not statistically significant ($\chi^2 = 2.25$, $p = 0.32$). Also, more referrals (2; 100.0%) from TBH, 6 (75.0%) from maternity homes and 5 (71.4%) from pharmacies missed the diagnosis compared to 106 (56.1%) from the hospitals ($\chi^2 = 3.19$, $p = 0.36$) as shown in Table VI.

Table IV: Association between the status of referring personnel and content of referrals

Referral Content	Doctor (n = 182)		Nurse/Midwife (n = 9)		Not indicated (N=15)		χ^2	p
	Yes	No	Yes	No	Yes	No		
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)		
Identity of the healthcare facility	182 (100.0)	0 (0.0)	6 (66.7)	3 (33.3)	15 (100.0)	0 (0.0)	66.6	<0.001
Name of referring personnel	170 (93.4)	12 (6.6)	5 (55.6)	4 (44.4)	7 (46.7)	8 (53.3)	39.2	<0.001
Signature of the referring personnel	138 (75.8)	44 (24.2)	3 (33.3)	6 (66.7)	7 (46.7)	8 (53.3)	12.2	<0.001
Qualifications	70 (38.5)	112 (61.5)	1 (11.1)	8 (88.9)	1 (6.7)	14 (93.3)	8.52	0.01
Presenting complaints	174 (95.6)	8 (4.4)	8 (88.9)	1 (11.1)	15 (100)	0 (0.0)	1.67	0.43
Examination findings	132 (72.5)	50 (27.5)	4 (44.4)	5 (55.6)	8 (53.3)	7 (46.7)	5.33	0.07
Working diagnosis	160 (87.9)	22 (12.1)	2 (22.2)	7 (77.8)	8 (53.3)	7 (46.7)	35.2	<0.001
Investigations carried out	90 (49.5)	92 (50.5)	1 (11.1)	8 (88.9)	3 (20.0)	12 (80.0)	9.37	0.01
Progress or deterioration made by the patient while being managed	84 (46.2)	98 (53.8)	2 (22.2)	7 (77.8)	10 (66.7)	5 (33.3)	4.59	0.10
Treatment offered	98 (58.8)	84 (46.2)	5 (55.6)	4 (44.4)	13 (86.7)	2 (13.3)	6.07	0.05
Was the reason for the referral stated	168 (92.3)	14 (7.7)	6 (66.7)	3 (33.3)	15 (100.0)	0 (0.0)	0.65	0.42
Was there a request for feedback	8 (4.4)	174 (95.6)	0 (0.0)	9 (100.0)	0 (0.0)	15 (100.0)	1.10	0.58

Relationship between the outcome of patients and referral types, the status of health workers and source facility

More patients survived when referred by doctors (126 ;69.2%), nurses (6; 66.7%) and those whose identities were not indicated (8; 53.3%). The status of referring personnel did not significantly affect the outcome of the patients ($\chi^2 = 1.79$, $p = 0.41$), as shown in Table VII. Similarly, more patients survived irrespective of the source facility and type of referral, but the difference between survival and mortality for these variables was not statistically significant ($p = 0.70$ and $p = 0.24$, respectively)

Discussion

This study found that two-thirds of children referred to this facility had formally documented referral notes. The proportion of children presenting with referral notes is slightly higher than 54.8%, as reported by Orimadegun and colleagues¹² in Ibadan in 2008. This increase compared to the study in Ibadan may be because, in this current study, over 80% of the referral notes were initiated by healthcare workers. Hence, there is a likelihood that medical personnel will formally document a referral. Children presenting with formal written referral letters are less likely to experience delays in triage. Thus, written referral letters should be encouraged.

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Table V: Association between source facility and content of referrals

Referral Content	Hospital n = 189	Pharmacy n = 7	Maternity homes n = 8	TBH n = 2	χ^2	p-value
Identity of the healthcare facility	189 (100.0)	3 (42.9)	8 (100.0)	0 (0.0)	145.4	<0.001
Name of referring personnel	169 (89.4)	3 (42.9)	8 (100.0)	0 (0.0)	28.3	<0.001
Signature of the referring personnel	141 (74.6)	3 (42.9)	4 (50.0)	0 (0.0)	10.6	0.01
Qualifications	64 (33.9)	2 (28.6)	6 (75.0)	0 (0.0)	6.9	0.07
Presenting complaints	189 (100.0)	7 (100.0)	8 (100.0)	2 (100.0)	102.5	<0.001
Examination findings	133 (70.4)	5 (71.4)	6 (75.0)	0 (0.0)	4.7	0.19
Working diagnosis	159 (84.1)	3 (42.9)	8 (100.0)	0 (0.0)	19.1	<0.001
Investigations carried out	90 (47.6)	2 (28.6)	2 (25.0)	0 (0.0)	4.17	0.24
Progress or deterioration made by the patient while being managed	89 (47.1)	3 (42.9)	2 (25.0)	2 (100.0)	3.56	0.31
Treatment offered	103 (54.5)	7 (100.0)	4 (50.0)	2 (100.0)	7.36	0.06
Was the reason for the referral stated	175 (92.6)	7 (100.0)	8 (100.0)	0 (0.0)	25.1	<0.001
Was there a request for feedback	8 (4.2)	0 (0.0)	0 (0.0)	0 (0.0)	0.75	0.86

TBH - Traditional Birth Home

Figures in parentheses are percentages of the total in the respective column

Table VI: Concordance of referral diagnosis with status of health care and source facility

<i>Characteristics</i>	Concordance of diagnosis		χ^2	<i>p-value</i>
	<i>Yes</i>	<i>No</i>		
<i>Status of referring personnel</i>				
Doctor	85 (46.7)	97 (53.3)	2.25	0.32
Nurse/Midwife	2 (22.2)	7 (77.8)		
Not indicated	6 (40.0)	9 (60.0)		
<i>Source health facility</i>				
Hospital	83 (43.9)	106 (56.1)	3.19	0.36
Pharmacy	2 (28.6)	5 (71.4)		
Maternity/Nursing home	2 (25.0)	6 (75.0)		
TBH	0 (0.0)	2 (100.0)		

TBH - Traditional Birth Home

Table VII: Association between the outcome of patients and referral types, the status of referring personnel and source facility

<i>Characteristics</i>	<i>Survival</i>	<i>Mortality</i>	χ^2	<i>p-value</i>
<i>Status of referring personnel</i>				
Doctor	126 (69.2)	56 (30.8)		
Nurse/Midwife	6 (66.7)	2 (33.3)	1.79	0.41
Not indicated	8 (53.3)	7 (46.7)		
<i>Source health facility</i>				
Hospital	131 (69.3)	58 (30.7)		
Pharmacy	6 (85.7)	1 (14.3)	1.41	0.70
Maternity/Nursing home	5 (62.5)	3 (37.5)		
TBH	1 (50.0)	1 (50.0)		
<i>Referral type</i>				
Verbal	68 (72.3)	26 (27.7)	1.37	0.24
Written	135 (65.5)	71 (34.5)		

TBH - Traditional Birth Home

The majority (84%) of the letters originated from hospitals compared to those from pharmacies and maternity homes. About three-quarters of referral letters were written by doctors, while less than ten per cent originated from nurses in this study. This is not surprising as medical personnel, and those in well-established clinical settings are more likely to be confident to formally refer patients with letters to other facilities if the need arises. Appropriate referral documentation is part of medical and nursing training, and it is necessary to stress its importance and continuous practice in patient management.²⁰ This finding is similar to what was documented in Ibadan¹², where 69.2% of letters were written by physicians and 21.3% were written by nurses, while Oshikoya *et al.*²¹ in Lagos also reported that a high proportion (82%) of the referral letters in their study were written by doctors and 84% were sent from other hospitals. Only 11% of referrals in the current study were from unidentified personnel compared to 6.7% reported in the Ibadan study.¹²

Over 90 per cent of the referral letters in the present study stated the name of the health care facility, presenting complaints and reason for referral. In contrast, over 80% stated the name of referring personnel and working diagnosis. This is similar to what Haeuslers *et al.*¹⁷ reported in South Africa. A third of the letters did not include examination findings, while over half of the letters did not state investigations were done and the progression of the disease before the presentation. Only half of the letters stated the treatment given in this study. This finding is much lower than what Oshikoya *et al.*²¹ reported; he had noted that treatment was documented in 90% of the referral letters assessed in their study. The reason for this wide disparity is not so apparent as a similar proportion were from hospitals in both studies. Still, most letters from Lagos study²¹ included referrals from other tertiary facilities, which presupposes that the treatment given would be better documented in such settings than in secondary and primary facilities. The present study did not assess the

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type or level of health facility referrals came from. They also noted that no examination finding was documented in 44% of referrals compared to 30% in this study. Orimadegun and co-workers¹² noted that information missing in their referral letters included examination findings (47.9%), history of presenting complaints (36.6%), patient's age, treatment given and investigations in more than half of the patients. These findings are higher than those documented by this current research, and this may be due to the higher proportion of doctors as referring personnel in this study, which makes it more likely that these parameters will be considered necessary for documentation in referral letters. The reason for referral was stated in over 90% of letters compared to 52% of letters reviewed in the South African Study.

Evaluating the content of referral notes, doctors, closely followed by nurses, significantly stated the referring facility, name, qualification, and signature of referring personnel, presenting complaints, investigating investigations, and working diagnosis in their referral letters. On the other hand, treatment given, reason for referral and need for feedback were stated by doctors much more compared to nurses and other referral personnel. Referrals from hospitals also significantly stated the referring facility, name and signature of the referring doctor, presenting complaints, examination and investigation findings, diagnosis, treatment given and reason for referral. However, there was poor documentation of the qualification of referring personnel and requests for feedback across all referring personnel and facilities. It stands to reason that referrals from doctors and nurses who are core medical personnel and are likely to be employed in hospitals should be more detailed and contain more important information than referral letters from other personnel otherwise not stated and those from maternity/nursing homes and TBAs. The need for or request for feedback

in the current study was relatively poor, with over 90% not requesting feedback. This closely parallels the finding by Odinaka and coworkers²² in Imo State, Nigeria, where none of the referrals requested input. Seeking feedback encourages a review of the performance of care and service delivery, and if this mechanism is appropriately implemented, there should be an improvement in care and service delivery in subsequent patient management in affected facilities.

In over half of the cases in the present study, diagnosis was missed irrespective of the status of the referring personnel and source facility of the referral; however, more misdiagnoses were seen with referrals from TBHs and maternity homes than those from hospitals. Similarly, more diagnoses were missed with referrals from unidentified personnel and nurses compared to doctors. This is not surprising as doctors are supposed to be well-trained in making diagnoses for proper treatment. Hence, they are less likely to make wrong diagnoses. For personnel in maternity homes and TBAs, the poor level of formal training in medicine will contribute to the high rate of misdiagnoses seen in their referral.

A higher proportion of children in the present study survived irrespective of the referring personnel, source of referral and type of referral compared to those with mortality. This is not surprising as the outcome of illnesses depends on a complexity of factors, some of which are not within the scope of this study. When children are accompanied by formal written letters, the attending doctor can understand what has been done for the child at the referral centre and promptly make adequate clinical judgement to provide higher levels of care as needed. Also, the quality of care given at the receiving facility and how promptly this is administered is important for survival. The recipient facility in the present study is a tertiary facility with emergency paediatricians and adequate facilities for the

resuscitation and management of children with emergency conditions. Hence, the higher survival rate in this study may be due to the quality of care delivered in the receiving facility and other undetermined variables that affect the outcome of diseases.

Conclusion

This study found that most of referrals received in this facility were formal with referral letters written by doctors. Referrals from doctors and hospitals had better content compared to those from other personnel and facilities. Referral type and source, as well as the referring personnel, did not negatively affect the outcome of the patients.

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