

KNOWLEDGE, PRACTICES AND CHALLENGES OF LAPAROSCOPY AMONGST DOCTORS IN BAYELSA STATE OF NIGERIA

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ABSTRACT

Background: Ascertaining a particular moment when the modern endoscopic time started is an imprecise art, one that is likewise subject to inclinations in point of view. The benefits of laparoscopy will be more appreciated with an insight into laparoscopic chronology.

Aim: To assess the knowledge, practices and challenges of laparoscopy amongst Doctors in Bayelsa state, creating awareness on this paradigm shift to improve on our surgical armamentarium.

Methodology: This is a descriptive cross sectional study of Doctors in Federal Medical Centre, Yenagoa and Niger Delta University Teaching Hospital, Okolobiri, Bayelsa State. A structured self-administered questionnaire was designed and used to collect information from 170 Doctors cutting across Medical and most especially Surgical disciplines. Data was analyzed with SPSS.

Results: Of the 170 respondents, majority (61%) of the Doctors showed low knowledge vis-à-vis 7.1% of Doctors that expressed high knowledge. The remaining 31.8% of Doctors expressed moderate knowledge. 22 (12.9%) have had a formal training in laparoscopy and of this, only 3 (13.6%) of the Doctors have performed laparoscopy on their own.

Conclusion: Laparoscopic surgery undoubtedly has prospects in Nigeria. For us in Bayelsa state and perhaps other resource poor settings globally, there is a surgical lag. However, increasing the knowledge, improving training and practices of our Doctors, and improvising ways of surmounting our local challenges are pertinent in enhancing our surgical prowess and service delivery to patients.

Keywords: Knowledge, Practices, Challenges, Laparoscopy, Endoscopy.

INTRODUCTION

Ascertaining a particular moment when the modern endoscopic time started is an imprecise art, one that is likewise subject to inclinations in point of view. Endoscopic surgery is an art that perhaps began with the reflection of light into the cervix by Abdulkasim, AD 938. Then again, among different physicians, it appears the Italian-German Philip Bozzini was the doctor most accept attained the first critical endeavor to visualize the interior body in a novel manner, acquiring him the title of the father of endoscopy in 1804.

Very nearly all gynaecological/general surgery procedures can be performed utilizing minimally invasive methods. The wording minimal invasive surgery was presented by John Wickham, however according to Cuschieri in 2005, this phrasing was off base on the grounds that invasive implied total and minimal gave the feeling that the systems were minor which is not genuine and he felt that the wording minimal access surgery was more proper. The increase in the utilization of this sort of procedure was because of patients requiring better cosmesis, less painful operations and faster postoperative recovery (Zinner & Ashley 2007, Rothrock, 2007)

In 1910, Hans Christian Jacobaeus of Stockholm, Sweden, reported the first laparoscopy and thora-coscopy in people in which he depicted the endoscopic diagnosis of intra-abdominal tuberculosis, cirrhosis, syphilis and malignancy. He likewise presented the idea of making a working space by expanding air into the peritoneum and viewing the abdomen utilizing a Nitze cystoscope (Jacobaeus HC 1910, Nitze M 1879, Philips 2007).

In 1924, Richard Zollikofer of Switzerland proposed the utilization of carbon dioxide to make a pneumoperitoneum and this was favored over oxygen and nitrogen due to its inflammable nature and fast absorption by the peritoneum.

The veress needle as the favored course of insufflation was presented by Janos Veress in Hungary in 1938. This gadget included a spring loaded blunt obturator at its tip which secured the inward viscera from the sharp needle tip once it had penetrated the rectus sheath and the peritoneum (Veress J 1938).

Semm, a German gynaecologist performed the first laparoscopic appendicectomy in 1983. In 1985 the charge coupled device (CCD) silicone chip solid state sensor – the scaled down feature cam was created which permitted all parts of the laparoscopic working team to view the operative field at the same time. The CCD is made out of little picture components called a pixel which in the vicinity of light gets to be conductive and without light remains non-conductive. (Muhe B 1986)

In 1987, Mouret, a gynaecologist, performed the first laparoscopic cholecystectomy utilizing four trocars. It was Dubois who in 1988 started enthusiasm toward the technique and from that point forward there has been a touchy increase in the utilization of laparoscopic methods for abdominal operations (Zinner & Ashley 2007).

Harry Reich described the first laparoscopic hysterectomy using bipolar dessication; later he demonstrated staples and finally sutures for laparoscopic hysterectomy. (Reich H et al 1989, Reich H 2007).

First robotic arm in 1994 was designed to hold the telescope with the goal of improving safety and reducing the need of a skilled camera operator. First live telecast in 1996 of laparoscopic surgery was remotely performed via the internet (Robotic Telesurgery). In 2001, American aviator Charles Lindbergh did the first ever transatlantic surgery. Doctors Michel Gadner and Jacques Marescaux in Strasbourg, France from New York, using a ZEUS robotic surgical system. Robotic prostatectomy became the first most commonly performed robotic surgery in 2004. (RK Mishra 2013).

Despite these advancements, Nigeria is joining the queue late, however, there is increasing enthusiasm and acquisition of skills in diagnostic and therapeutic laparoscopic surgeries. (Ikechebelu JI and Okeke CA 2008, Ikechebelu JI et al 2009, Adisa AO et al, Abdurrahman A et al

2014, E Ray-Offor et al, 2014). This late entry has encouraged Medical tourism, huge expenses on patients and depletion of our foreign exchange reserve with old frontiers, the United Kingdom and the United States of America, being surpassed by emerging nations like India, South Africa, Egypt, Thailand, Malaysia, Singapore and Turkey.

As this is the first laparoscopic study in Bayelsa state, we aim to assess the knowledge, practices and challenges of laparoscopy amongst Doctors in Bayelsa state, creating awareness on this paradigm shift to improve on our surgical armamentarium.

METHODOLOGY

Study Design: This is a descriptive cross sectional study of Doctors in Federal Medical Centre, Yenagoa and Niger Delta University Teaching Hospital, Okolobiri, Bayelsa State.

Study Area: Bayelsa state is a Southern state of Nigeria in the core of the Niger Delta, between Rivers state and Delta state.

Study Population: This consisted of Medical Doctors.

Eligibility Criteria

- Doctors in Federal Medical Centre, Yenagoa.
- Doctors of Niger Delta University Teaching Hospital, Okolobiri, Bayelsa State.

Inclusion Criteria

- House officers
- Corpers
- Medical officers
- Residents
- Consultants

Exclusion Criteria

- Nurses
- Pharmacists
- Medical Laboratory scientists
- Other supportive staff
- Patients

Sampling Method: This was a multistage random sampling in which a sample frame of the Tertiary hospitals in Bayelsa state were obtained. There are two of such centres; Federal Medical Centre, Yenagoa and Niger Delta University Teaching Hospital, Okolobiri. 200 Doctors cutting across Medical and most especially Surgical disciplines were given a structured self-administered questionnaire and retrieved simultaneously. 170 questionnaires were correctly and completely filled.

Study Instrument: A structured self-administered questionnaire was designed and used to collect information from Doctors.

Consent And Ethical Approval: A permission to study was obtained from the Ethical and Research Committee of the Federal Medical Centre, Yenagoa. Verbal informed consent was obtained from each participant before inclusion in the study. The reason for the study and procedure for data collection was explained to the Doctors before collection of data from them.

Data Analysis: The data was processed using SPSS. Summary statistics, sample frequencies and crossed tabulations was then computed.

RESULTS ANALYSIS

Table 1: Sociodemographic Data

Statement	Frequency (F)	Percentage (%)
Age:		
20-30	68	40.0
31-40	74	43.5
41-50	18	10.6
51-60	9	5.3
61 and above	1	.6
Sex:		
Male	120	70.6
Female	50	29.4
Area of specialization:		
General practitioner	67	39.4
General surgery	1	.6
Urology	3	1.8
O&G	23	13.5
Pediatrics	8	4.7
Internal medicine	15	8.8
Ophthalmology	4	2.4
Dentistry	3	1.8
Others	46	27.1

Table 1 shows the socio-demographic distribution of respondents: 68 (40.0%) are 20-30yrs, 74 (43.5%) are 31-40yrs, 18 (10.6%) are 41-50yrs, 9 (5.3%) are 51-60yrs while 1 (.6%) is 61years and above; 120 (70.6%) are males while 50 (29.4%) are females; 67 (39.4%) are General practitioners, 1 (.6%) are General surgeons, 3 (1.8%) are Urologist, 23 (13.5%) are in O&G, 8 (4.7%) are in pediatrics, 15 (2.4%) are in internal medicine, 4 (2.4%) are in Ophthalmology, 3 (1.8%) are in dentistry while 46 (27.1%) are other sub-specialist.

Table 2: Knowledge on Laparoscopy

Statement/Question	Frequency (F)	Percentage (%)
What is Laparoscopy?		
A transperitoneal endoscopic instrument	164	96.5
A transcervical endoscopic instrument	6	3.5
Have you seen a Laparoscopy?		
Yes	97	57.1
No	73	42.9
Light source:		
True	161	94.7
False	3	1.8
I don't know	6	3.5
Camera:		
True	151	88.8
False	3	1.8
I don't know	16	9.4
Laparoscopy tip is 0°:		
True	36	21.2
False	18	10.6
I don't know	116	68.2
Laparoscopy tip is 30°:		
True	37	21.8
False	13	7.6
I don't know	120	70.6
Laparoscopy tip 120°:		
True	40	23.5
False	9	5.3
I don't know	121	71.2
Monitor:		
True	117	68.8
False	2	1.2
I don't know	51	30.0
Insufflator:		
True	83	48.8
False	3	1.8
I don't know	84	49.4
Irrigator:		
True	75	44.1
False	9	5.3
I don't know	86	50.6
Electro-coagulation machine:		
True	89	52.4
False	7	4.1
I don't know	74	43.5
Recorder:		

True	86	50.6
False	10	5.9
I don't know	74	43.5
Air:		
True	56	32.9
False	20	11.8
I don't know	94	55.3
Carbon dioxide:		
True	53	31.2
False	23	13.5
I don't know	94	55.3
Carbon monoxide:		
True	16	9.4
False	46	27.1
I don't know	108	63.5
Helium:		
True	38	22.4
False	20	11.8
I don't know	112	65.9
Nitrous Oxide:		
True	34	20.0
False	24	14.1
I don't know	112	65.9

Table 2 shows respondents knowledge on laparoscopy: 164 (96.5%) stated laparoscope is a transperitoneal endoscopic instrument while 6 (3.5%) stated that it is a transcervical endoscopic instrument; 97 (57.1%) stated that they have seen a laparoscope, while 73 (42.9%) have not; 161 (94.7%) stated that laparoscope has a light source, 3 (1.8%) no light while 6 (3.5%) don't know; 36 (21.8%) stated that laparoscope has camera, 3 (1.8%) no camera while 16 (9.4%) don't know; 36 (21.2%) stated that laparoscope has laparoscope tip of 0°, 18 (10.6%) stated false while 116 (68.2%) don't know; 37 (21.8%) stated that laparoscope has laparoscope tip 30°, 13 (7.6%) stated false while 120 (70.6%) don't know; 40 (23.5%) stated that laparoscope has laparoscope tip of 120°, 9 (5.5%) stated false while 121 (71.2%) don't know; 117 (68.8%) stated that laparoscope trolley/tower is made up of Monitor, 2 (1.2%) stated false while 51 (30.0%) don't know; 83 (48.8%) stated that laparoscopic trolley/tower is made up of insufflator, 3 (1.8%) stated false while 84 (49.4%) don't know; 75 (44.1%) stated that laparoscopic trolley/tower is made up of irrigator, 9 (5.3%) stated false while 86 (50.6%) don't know; 89 (52.4%) stated that laparoscopic trolley/tower is made up of electro coagulation machine, 7 (4.1%) stated false while 74 (42.5%) don't know; 86 (50.6%) stated that laparoscopic trolley/tower has recorder, 10 (5.9%) stated false while 74 (43.5%) don't know; 56 (32.9%) stated that Air can be used in laparoscopy, 20 (11.8%) stated false while 94 (55.3%) don't know; 53 (31.2%) stated that Carbon dioxide can be used in Laparoscopy, 23 (13.5%) stated false while 94 (55.3%) don't know; 16 (9.4%) stated that Carbon monoxide can be used in laparoscopy, 46 (27.1%) stated false while 108 (63.5%) don't know; 38 (22.4%) stated that Helium can be used in Laparoscopy, 20 (11.8%) stated false while 112 (65.9%) don't know; 34(20.0%) stated that Nitrous Oxide can be used in laparoscopy, 24 (14.1%) stated false while 112 (65.9%) don't know.

Table 3: Practice of Laparoscopy

Statement/Question	Frequency (f)	Percent (%)
Do you have a Laparoscopy in your hospital/Institution of training?		
Yes	42	24.7
No	128	75.3
Have you had a formal training in Laparoscopy before?		
Yes	22	12.9
No	148	87.1
Have you performed Laparoscopy before?		
Yes	3	13.6
No	19	86.4
Can Laparoscopy be diagnostic & therapeutic:		
Yes	148	87.1
No	22	12.9

Table 3 shows respondents practice of laparoscopy: 42 (24.7%) stated that they have laparoscopy in their hospital while 128 (75.3%) stated that they do not have, 22 (12.9) stated that they have had a formal training in laparoscopy while 148 (87.1%) have not. Of the 22 (12.9%) who have had formal training, only 3 (13.6%) have performed laparoscopy before while 19 (86.4%) have not; 148 (87.1%) stated that laparoscopy can be diagnostic & therapeutic while 22 (12.9%) stated it is not.

Table 4: Advantages of Laparoscopy

Statement/Question	Frequency (F)	Percent (%)
Reduce costs:		
True	80	47.1
False	67	39.4
Don't know	23	13.5
Prolong hospital stay:		
True	36	21.2
False	119	70.0
I don't know	15	8.8
Better cosmesis:		
True	147	86.5
False	16	9.4
I don't know	7	4.1
Less post-operative pains:		
True	149	87.6
False	10	5.9
I don't know	11	6.5
Less infection:		
True	151	88.8
False	8	4.7
I don't know	11	6.5
Improve diagnosis:		

True	139	81.8
False	6	3.5
I don't know	25	14.7

Table 4 shows advantages of laparoscopy: 80 (47.1%) state that laparoscopy reduces cost, 67 (39.4%) stated it does not while 23 (13.5%) don't know; 36 (21.2%) stated that laparoscopy prolong hospital stay, 119 (70.0) stated it does not while 15 (8.8%) don't know; 147 (86.5%) stated that laparoscopy does better cosmetic job, 16 (9.4%) stated it does not while 7 (4.1%) don't know; 149 (87.6%) stated that laparoscopy has less operative pains, 10 (5.9%) stated it does not while 11 (6.5%) don't know; 151 (88.8%) stated that laparoscopy has less infection, 8 (4.7%) stated it does not while 11 (6.5%) don't know; 139 (81.8%) stated that laparoscopy improve diagnosis and is therapeutic, 6 (3.5%) stated it is not while 25 (14.7%) don't know.

Table 5: Challenges to Laparoscopy use

Statement/Question	Frequency (f)	Percent (%)
Increase cost equipment:		
True	141	82.9
False	10	5.9
I don't know	19	11.2
Reduced trained support staff:		
True	142	83.5
False	8	4.7
I don't know	20	11.8
Acceptance of patients:		
True	88	51.8
False	48	28.2
I don't know	34	20.0
Awareness among medical doctors:		
True	124	72.9
False	25	14.7
I don't know	21	12.4
Lack of constant power:		
True	144	84.7
False	12	7.1
I don't know	14	8.2
Resistance to change:		
True	109	64.1
False	27	15.9
I don't know	34	20.0
Increase in learning curve:		
True	79	46.5
False	24	14.1
I don't know	67	39.4

Table 5 shows challenges to laparoscopy: 141 (82.9%) stated that increased cost of equipment is one of the challenges of laparoscopy, 10 (5.9%) stated false while 19 (11.2%) don't know; 142

(83.5%) stated that reduced trained support staff is one of the challenges of laparoscopy, 8 (4.7%) stated false while 20 (11.8%) don't know; 88 (51.8%) stated that acceptance by patients is a challenge of laparoscopy, 48 (28.2%) stated false while 34 (20.0%) don't know; 124 (72.9%) stated that awareness among medical practitioner is a challenge of laparoscopy, 25 (14.7%) stated false while 21 (12.4%) don't know; 144 (84.7%) stated that lack of constant power is a challenge of laparoscope, 12 (7.1%) stated false while 14 (8.2%) don't know; 109 (64.1%) stated that resistance of power is one of the challenges of laparoscopy, 27 (15.9%) stated false while 34 (20.0%) don't know; 79 (46.5%) stated that increase in learning curve is one of the challenges of laparoscopy, 24 (14.1%) stated no while 67 (39.4%) don't know.

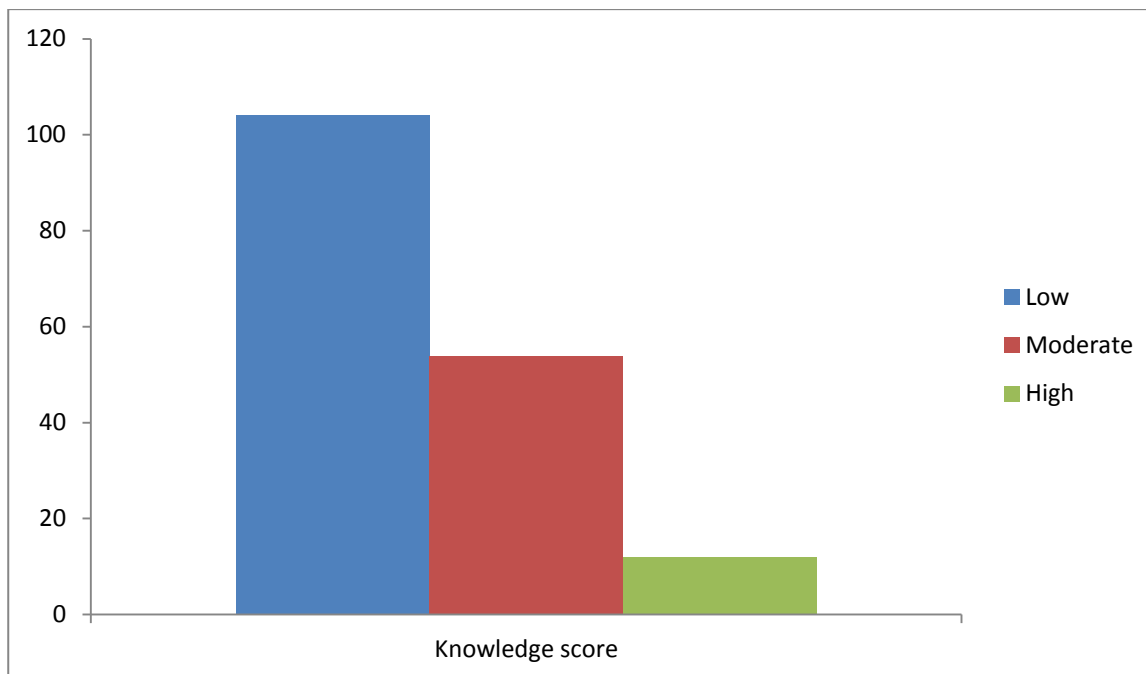


Fig. 1: shows knowledge distribution of respondents (based on a scoring system): 104 (61.2%) expressed low knowledge, 54 (31.8%) expressed moderate knowledge while 12 (7.1%) expressed high knowledge.

Table 6: Relationship Between Age and Knowledge on Laparoscopy

Educational Status	Knowledge Score			Df	X ²	P-value
	Low	Moderate	High			
20-30	40	24	4	8	10.265	0.247
31-40	51	19	4			
41-50	10	6	2			
51-60	2	5	2			
61 and above	1	0	0			
Total	104	54	12			

Table 6 shows the relationship between age and knowledge on laparoscopy. At $P < 0.05$, Chi-square (X^2) = 10.265, difference (df) 8 and P-value = 0.247, there was no statistical significant relationship between age and knowledge on laparoscopy.

Table 7: Relationship Between Sub-specialty and Knowledge on laparoscopy

Sub-specialty	Knowledge Score			Df	X^2	P-value
	Low	Moderate	High			
General practitioner	41	21	5	16	23.206	0.108
General surgery	1	0	0			
Urology	0	3	0			
O and G	9	11	3			
Paediatrics	3	5	0			
Internal medicine	10	4	1			
Ophthalmology	2	2	0			
Dentistry	3	0	0			
Others	35	8	3			
Total	3	60	129			

Table 7 shows the relationship between sub-specialty and knowledge on laparoscopy. At $P < 0.05$, Chi-square (X^2) = 23.206, difference (df) 16 and P-value = 0.108, there was no statistical significant relationship between sub-specialty of respondents and knowledge on laparoscopy.

DISCUSSION

In our study, majority (61%) of the Doctors showed low knowledge vis-à-vis 7.1% of Doctors that expressed high knowledge. The remaining 31.8% of Doctors expressed moderate knowledge. This could be explained with the fact that Laparoscopy still remains a rocket science to many Doctors in Bayelsa state as there are very few trained Laparoscopic gynaecologists/surgeons and yet an established Laparoscopic centre in the state. In a similar study by Ray-Offor E and Fiebai PO in University of Port Harcourt Teaching Hospital Nigeria, knowledge was adjudged inadequate as 49.3% of surgeons, gynaecologists and their trainees could not accurately define laparoscopy and 21.8% did not know the abdomen as the body part involved in laparoscopy (Ray-Offor E and Fiebai PO, 2012).

There were no statistical significant relationship between age and knowledge ($P < 0.05$, Chi-square (X^2) = 10.265, difference (df) 8 and P-value = 0.247) and sub-specialty and knowledge on laparoscopy ($P < 0.05$, Chi-square (X^2) = 23.206, difference (df) 16 and P-value = 0.108) respectively. One could expect that older Doctors would have more knowledge than younger once due to years of practice/study or on the other hand, younger Doctors could have more knowledge than older once due to active reading and perhaps introduction of laparoscopy in institutions. Also, one could expect that gynaecological and surgical sub-specialties could demonstrate more knowledge than general physicians, ophthalmologists, Dentistry and others. However, our study showed no statistical difference nor data from other studies from available research to support it.

Of the 170 respondents, 22 (12.9%) have had a formal training in laparoscopy and of this, only 3 (13.6%) of the Doctors have performed laparoscopy on their own. This may be due to high cost of laparoscopic facilities and then unavailability of these facilities in the state hospitals.

Despite low knowledge displayed and little or no practice of laparoscopy amongst Doctors in Bayelsa state, the advantages of laparoscopy are not new to them as shown in table 4. As reported in other studies, there are usually better cosmesis, less post-operative pain, faster recovery, reduced hospital stay and resumption of work within minimal time (Meikle SF et al 1997, Fall B et al 2003, Murphree S et al 1993, Kaplan M et al 2009, Hemandas AK et al 2010, Martin RC et al 2010, Asbun HJ et al 1996, Akute OO 2003).

Respondents identified increase in cost of laparoscopic equipment, reduced trained support staff, acceptance of patients, awareness among doctors, resistance to change, increase in learning curve, lack of constant power supply as challenges to use and practice of laparoscopy in Bayelsa state (table 5). Abdurrahman A. et al recently reported that laparoscopic surgeries in Amino Kanu Teaching Hospital, Nigeria cost \$400.00 which is thrice that of open surgeries due to laparoscopic consumables (Abdurrahman A. et al., 2014). Similarly, other studies have reported insufficient experience and training, lack of hospital equipment, poor support from colleagues, relatively low reimbursement rates from institutions and protracted learning curves amongst others (Englund M. 2007, Wattiez A. et al, 2002).

We therefore recommend for;

- Tertiary hospitals and private specialist hospitals in Bayelsa state and other resource poor settings to procure Laparoscopic equipment as providing such services to the people will in addition to the aforementioned benefits reduce the cost with increasing uptake.
- Training and retraining of surgeons, gynaecologists and their trainees on basic and advanced laparoscopic courses.
- Introduction of Laparoscopic lectures in our CMEs to increase knowledge and awareness amongst Doctors for prompt referral of cases to centres where such services can be enjoyed.
- Convincing colleagues and patients that it can be done here is pertinent.
- Inclusion of laparoscopic surgeries in the National Health Insurance Services program would be vital in reducing the cost implication and making it affordable to many.
- Collaboration with international partners that are vast with interventional laparoscopy for transfer of knowledge.

CONCLUSION

Laparoscopic surgery undoubtedly has prospects in Nigeria. For us in Bayelsa state and perhaps other resource poor settings globally, there is a surgical lag. However, increasing the knowledge, improving training and practices of our Doctors, and improvising ways of surmounting our local challenges are pertinent in enhancing our surgical prowess and service delivery to patients.

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