

# Pre-anaesthesia Assessment Clinics: A look at the Practice in Ghana and Nigeria

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Submitted: 24th October, 2021. Published: April 1st, 2022

## ABSTRACT

**Background:** The practice of Pre-anaesthesia Assessment Clinics (PACs) is the trend in many developed countries. Some developing countries are imbibing the practice because of the benefits it offers. It has been shown to increase patient satisfaction with anaesthetic services, reduce delay and cancellation of surgical procedures and decrease the cost of hospitalization among other benefits. Some tertiary hospitals in Ghana run PACs while in Nigeria, two hospitals are known to run a PAC. This study looked at the practice of PACs in Ghana and Nigeria.

**Methodology:** This was a questionnaire-based survey in Nigeria and Ghana. Questionnaires were sent out to selected tertiary hospitals in the two countries using purposive and convenience sampling techniques. Information was collected from physician/nurse anaesthetists and surgeons. Data obtained were analyzed and expressed as numbers and percentages.

**Results:** A total of thirty four questionnaires, seventeen each from both countries were filled and returned. Cooperation of the Chief Medical Directors, anaesthetists, nurses, surgeons and other healthcare workers were among the factors needed to facilitate the operation of PACs in both countries. Benefits of PACs reported included its patient oriented nature, an enriched patient's medical records; it makes better the preoperative preparation and a decreased cancellation of surgery. Nigerian respondents said absence of office space and non-availability of supporting staff were responsible for the lack of widespread running of PACs.

**Conclusion:** The cooperation of all stakeholders in the health sector is needed to be able to successfully operate PACs in hospitals. There is need for all Nigerian tertiary hospitals to set up PACs in order to enjoy its numerous benefits.

**Keywords:** Pre-anaesthesia, Assessment, Peri-operative, Anaesthesia practice, Anaesthesia clinics.



Access to the article

Website: [www.jmbsr.com.ng](http://www.jmbsr.com.ng)

 10.5281/zenodo.6342067

### How to cite this article

Yakubu SY, Amponsah G, Eguma SA. Pre-anaesthesia Assessment Clinics: A look at the Practice in Ghana and Nigeria. *J Med & Bas Sci Res.* 2022;3(1):29-35. DOI: 10.5281/zenodo.6342067

## INTRODUCTION

The practice of Pre-anaesthesia Assessment Clinics (PACs) is the current trend in many developed countries. Some developing countries are imbibing the practice because of its promise in improving the peri-operative outcome of surgical patients and the numerous benefits it offers to healthcare workers, hospitals and the community. It has been shown to increase patient satisfaction with anaesthetic services, reduce delay and cancellation of surgical procedures and decrease the cost of hospitalization among other benefits.<sup>1,2,3</sup> In Ghana, some hospitals are known to run PAC while in Nigeria, two hospitals run PAC. The drive for new innovations in the healthcare system is influenced by the values of the organization, funding considerations and the extent healthcare workers are motivated among others.<sup>4, 5</sup> Cooperation of anaesthetists, Board of Directors and other professional groups have been reported to facilitate the setting up and running of PACs.<sup>6</sup> Lack of finance and shortage of anaesthetists have been cited to limit the implementation of anaesthesia clinics.<sup>4</sup> The Nigerian healthcare system is facing challenges such as poor funding, inadequate infrastructure, lack of motivation among workers and unhealthy competition between various professional groups.<sup>7</sup> There is need for all of Nigeria's tertiary hospitals to have a functioning PAC. Bill Gates described Ghana's universal healthcare system as the most successful in Africa.<sup>8</sup> We studied the practice of PACs in Ghana and Nigeria to determine the factors that facilitated its operation or otherwise, perceived benefits and limitations in the 2 countries.

## MATERIALS AND METHODS

This was a questionnaire-based survey in Nigeria and Ghana. Following Ethics approval from the hospital Ethics committees, questionnaires were sent out to selected tertiary hospitals in the six geopolitical zones of Nigeria regardless of whether they are known to run a PAC or not and some tertiary health care facilities in Ghana using purposive and convenience sampling techniques during the period of July-August 2018. Information was collected from physician anaesthetists, surgeons and nurse anaesthetists on the location of PACs in their institutions and who was responsible for referring surgical patients to the pre-anaesthetic clinic. Other information collected were the distance patients have to travel to attend the clinic, factors that facilitated the running of PACs, perceived benefits and the limitations associated with the setting up of PACs. Data obtained were analyzed and expressed as numbers and percentages

## RESULTS

A total of thirty four questionnaires, seventeen each from both countries were filled and returned. Respondents were physician anaesthetists, surgeons and nurse anaesthetists. The characteristics of respondents from both countries were similar. Respondents in Ghana included 2(11.8%) anaesthetists, 9(52.9%) general surgeons, 5(29.4%) obstetrician and gynaecologists and 1(5.9%) orthopaedic surgeon. In Nigeria 13(76.5%) anaesthetists filled the questionnaire. Other respondents were 2(11.8%) surgeons and 1(5.9%) each of obstetrician and gynaecologist and orthopaedic surgeons. PAC

locations in Ghana were the outpatient department in 4(23.5%) responses, anaesthesia department in 10(58.9%) instances and in the wards in 3(17.6%) responses. Respondents in Nigeria reported that PACs were supposed to be sited in the outpatient department in 5(29.4%) cases, 4(23.5%) in the anaesthesia department and 8(47.1%) of situations in the wards and theatres. In Ghana, respondents said that surgeons are responsibility for referring patients to PAC in 11(64.7%) of cases while other healthcare personnel do so in 6(35.3%) of instances. Their Nigerian counterparts mentioned surgeons as referral personnel in 7(41.2%) of cases, physicians in 1(5.9%) and other health staff do so in 9(52.9%) of situations respectively. The Ghanaians reported that in 4(23.5%) instances anaesthetists make deliberate efforts to see patients on the same day they were seen in the surgeons outpatient clinic while in 13(76.5%) of cases the surgical patients were seen in the PAC on a different day. The reverse was the case in Nigeria. Eleven (64.7%) of surgical patients in Ghana travel a distance of less than 50 Km to attend a pre-anaesthetic clinic while 1(5.9%) and 5(29.4%) travel between 50-200 Km and greater than 200 Km respectively in order to attend the PAC. On the other hand the Nigerian respondents said that 10(58.8%) patients travel greater than 200 Km to attend a PAC, 4(23.6%) travel a distance of 50-200 Km to the hospital and 3(17.6%) shuttle a distance of less than 50 Km. Cooperation of Chief Medical Directors, physician anaesthetists, nurses, surgeons and other healthcare workers were among the factors needed to facilitate the operation of PACs in both countries (Tables Ia and Ib). Benefits of PACs seen in Ghana and Nigeria included the fact that it was patient oriented, enriches patient's medical records/makes better the preoperative preparation and decreases cancellation of surgery (Tables IIa and IIb). In

particular, those interviewed in Nigeria believed that the absence of office space and non-availability of supporting staff was responsible for not operating PACs in the majority of hospitals as shown in Table III.

**Table Ia. Factors facilitating implementation of pre-anaesthetic assessment clinic in Ghana**

Facilitating factors	Frequency	percent
Cooperation of Chief Medical Director	17	100
Cooperation of Director of Medical Affairs	16	94.1
Cooperation of Physician Anaesthetists	17	100
Cooperation of nurse anaesthetists	17	100
Cooperation of surgeons	17	100
Cooperation of other medical specialists	16	94.1
Cooperation of health workers	17	100
Feedback to attending specialists	16	94.1
Cooperation and trust	17	100
Availability of supporting staff	17	100
Availability of appropriate office space	17	100
Awareness of the benefits of pre -anaesthesia clinic	17	100
Others	0	0

**Table 1b: Factors needed to facilitate the wide implementation of pre-anaesthetic assessment clinic in Nigeria**

Facilitating factors	Frequency	Percent
Cooperation of Chief Medical Director	15	88.2
Cooperation of Chairman Medical Advisory Committee	16	94.1
Cooperation of Physician Anaesthetists	16	94.1
Cooperation of nurse anaesthetists	13	76.5
Cooperation of surgeons	17	100
Cooperation of other medical specialists	15	88.2
Cooperation of health workers	15	88.2
Feedback to attending specialists	17	100
Cooperation and trust	17	100
Availability of supporting staff	17	100
Availability of appropriate office space	17	100
Awareness of the benefits of preanaesthesia clinic	17	100
Others	0	0

**Table IIa. Benefits of pre-anaesthetic assessment clinic reported by respondents from Ghana**

Benefits	Frequency	percent
It is patient oriented	16	94.1
It makes better the preoperative preparation	16	94.1
It enriches patient medical records	16	94.1
Improves the professional career of anaesthetists	13	76.5
Reduces the cancellation of surgical cases	15	88.2
Reduces the length of hospital stay	13	76.5
Decreases the need for preoperative consultation by other specialists	6	35.3
Reduces the need for unnecessary laboratory requests	2	11.8
Reduction in X-ray requests	2	11.8
Others	0	0

**Table IIb: Benefits of pre-anaesthetic assessment clinic reported by respondents from Nigeria**

Benefits	Frequency	percent
It is patient oriented	17	100
It makes better the preoperative preparation	17	100
It enriches patient medical records	16	94.1
Improves the professional Career of anaesthetists	16	94.1
Reduces the cancellation of surgical cases	17	100
Reduces the length of hospital stay	14	82.4
Decreases the need for preoperative consultation by other specialists	7	41.2
Reduces the need for unnecessary laboratory requests	5	29.4
Reduction in X -ray requests	5	29.4
Others	0	0

**Table III. Limiting factors to wide implementation of pre-anaesthetic assessment clinic in Nigeria**

Limiting factors	Frequency	percent
Uncooperative Physician Anaesthetists	12	70.6
Non-cooperation from nurse anaesthetists	8	47
Poor cooperation from surgeons	14	82.4
Non-Cooperation from other health specialists	14	82.4
Poor funding	13	76.5
Absence of office space	17	100
Non-Availability of supporting staff	16	94.1
Inadequate number of Physician Anaesthetists and nurse anaesthetists	12	70.6

## DISCUSSION

This study found that most of the pre-anaesthetic assessment clinics in Ghana were run in a dedicated place in the departments of anaesthesia while in Nigeria most of pre-anaesthetic patient reviews were performed in the wards and operating theatres. Lew et al.<sup>9</sup> in their review article on outpatient pre-anaesthesia evaluation clinic documented that setting up a PAC close to a surgical clinic removes difficulty and provides easy access to the patient that is scheduled to attend the two clinics on the same day. They went further to state that the PAC may also be run near the operating theatre.

It has been documented that the organization of PACs varies from one institution to another based

on the criteria for patient selection, which staff is responsible for running the clinic and location of its operation among others.<sup>10</sup> The Ghana pre-anaesthesia clinics have been run by physician anaesthetists since its inception. A fee is paid by patients for attending the clinic. Currently the clinic in one of the hospital in Ghana is run three days a week by a minimum of five physician anaesthetists. This clearly shows the popularity and acceptance of the clinic by both surgeons and patients. This situation did not exist at the beginning. Some of the surgeons objected to the establishment of yet another “clinic” where patients have to pay additional fees but currently most of the referrals to the PAC are done by surgeons. However, majority of the patients in Ghana are not seen on the day they attended the surgical outpatient clinic. This study found that most patients travel less than 50 Km to attend the PAC as opposed to Nigerians that have to travel greater than 200 Km to receive pre-anaesthesia review. One can deduce from this finding that Ghanaians are more likely to attend a PAC than Nigerians because of consideration of distance. Seidel and co-workers<sup>11</sup> conducted a study on the association between the distance from a patient's place of residence to a PAC and the possibility of the patient visiting the clinic before their surgery in Calgary, Canada. They found that patients were not likely to visit a PAC before surgery as the distance from their homes increases. One of the tertiary hospitals in South-West of Nigeria has a PAC that operates once a week in a dedicated clinic and patients are not charged a fee for attending the clinic. However, the situation is slightly different in another South-West teaching hospital where most of the clinic consultations are done in the office of the consultant anaesthetist as a modification for convenience. As a form of

innovation in the operation of anaesthesia assessment clinics, Digner<sup>12</sup> reported a preoperative assessment system that is based on telephone calls to patients to assess their fitness for anaesthesia thus allowing PACs to attend to a large number of patients and to those with complex needs.

As found by this study, the cooperation of various cadres of healthcare workers is necessary for the successful operation of anaesthesia clinics. In his study on the economic aspects of an anaesthesia preoperative evaluation clinic Pollard<sup>13</sup> reported that the most efficient and effective PAC requires the cooperation of anaesthetists, surgeons, physicians and specially trained nurses. There is the need for collaboration, team work and effective communication between staff in our hospitals for efficiency and safety of the patient as opposed to the infighting that is the current norm.

The benefits of PACs found in this study were similar to those reported by Lemmens et al.<sup>6</sup> in their study on the implementation of outpatient preoperative clinics in Dutch hospitals. Even though cost has always been referred to by hospital managements as a challenge to the setting up of PACs in low resource countries previous studies have shown that anaesthesia clinics are cost effective in the long run particularly when operated by physician anaesthetists.<sup>14</sup> It has also been shown that there is increased rate of specialty referral, costs and cancellation of cases when surgeons are in charge of the pre-operative care of patients instead of the physician anaesthetists.<sup>15</sup> In a study by Kyei et al.<sup>16</sup> on cancellation of cases on the day of surgery, only about 7% of surgeries were cancelled due to incomplete patient work up as opposed to about 77% of cases being cancelled due to surgery running late. The authors thought this could have been due to the establishment of PAC at their health facility as all their patients go through the clinic.

The benefits of operating PACs cannot be over emphasized. Poor assessment of surgical patients is associated with increased incidence of adverse events and complications of anaesthesia. A document by the Australian Incident Monitoring Study<sup>17</sup> stated that 11% of reports identified inadequate or incorrect preoperative assessment or preparation of patients as responsible for 3.1% of adverse events. Pre-anaesthesia Assessment Clinic offers the anaesthetist the opportunity to have a longer interaction with the patient in a controlled environment. This also gives the patient and care givers the opportunity to ask all the relevant questions before the day of surgery. Patients' satisfaction with the services they receive in a hospital is an indication of the quality of the service being rendered in that hospital including the adequacy of communication.<sup>18</sup> Sandberg and colleagues<sup>19</sup> reported that lack of effective communication will hinder a patient's understanding of the diagnosis of his disease and management options.

The shortage of anaesthetists and supporting staff reported in Nigeria as reasons for not operating PAC was also reported by Tsen and colleagues<sup>20</sup> in their study on the survey of residency training in preoperative evaluation. Shortage of manpower has been associated with increased peri-operative mortality among surgical patients in Africa.<sup>21</sup> The African surgical outcome studies (ASOS) reported that one in five patients in Africa that had surgery is at risk of developing a postoperative complication. The authors went further to state that 10% of patients with complications die of preventable causes due to an inadequate number of workforce that can provide safe surgery and anaesthesia in Africa.<sup>22</sup> Attending a PAC is part of the preparation of surgical patients that ensures a smooth peri-operative period by identifying patients at risk of surgery and putting measures in place to reduce

such risks. Therefore, adequate number of well trained manpower is necessary for the successful running of pre-anaesthesia clinics and peri-operative anaesthetic services.

This study did not include all tertiary hospitals in Nigeria and Ghana. We also did not study activities in the clinic that impacted on patient care as compared to the traditional review on the day before surgery. There is need for a survey to cover the entire West African sub-region in order to determine the factors that facilitate or work against the operation of PACs. Patients who went through PAC should also be interviewed to obtain their view points.

## CONCLUSION

The cooperation of all stakeholders in the health sector is needed to be able to successfully operate PACs in tertiary hospitals. PAC is of benefit to the patient, hospital and the community. There is need for all Nigerian tertiary hospitals to set up PACs in order to enjoy its numerous benefits.

## Conflicts of interest

No conflicts of interest from the authors.

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