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# Caesarean in rural environment of Eastern Kasai (R.D. Congo): Cover of the needs and quality of the services with Kasansa and Tshilenge

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**Abstract**
**Objective:** Analyze the coverage of cesarean needs and quality of services in maternity wards of general hospitals in rural areas of reference
**Methods:** it is a multicenter, retrospective transversal type. It involved 434 women who delivered by cesarean section in maternity wards of general hospitals Tshilenge reference and Kasansa in East Kasai (DRCongo)
**Results:** The Caesarean section rate was 21.1% in the overall study population, 17.7% to the reference Kasansa General Hospital and 28% to the reference Tshilenge General Hospital. The indications for cesarean section were required in 298 cases (68.7%), prudence in 98 cases (22.6%) and necessary in 38 cases (38%). Coverage of needs cesarean related to expected births was 2.1% overall, 1.5% and 2.8% Kasansa, Tshilenge. 76 cases (16.4%) of Caesarean sections have a complication. Infectious complications were most common, 45 cases (59.2%) and among them, suppuration and dropping sutures accounted for 35.1%, 119 cases (27.4%) of Caesarean sections were of poor quality.
**Conclusion:** The rural caesarean coverage and quality of services are insufficient. Efforts should be concentrated on increasing capacity care providers, quality monitoring of pregnancy and services, early diagnosis of the emergency and referral of patients to the appropriate person in a timely manner for rational management finally thoroughly analyze the perceptions and experiences of caesarean section in rural areas.

**Keywords:** Caesarean, coverage requirements, quality of services, rural

## 1. Introduction
Since the beginning of time, pregnancy and childbirth have spread to the woman a mortal risk. The risk that haunts every obstetrician explains the ongoing research to achieve the best conditions for a favorable outcome of pregnancy and childbirth. Cesarean section as obstetric intervention, consisting of the surgical opening of the uterus for the rapid evacuation of the conceptus (fetus) is one of the strategies recommended for this purpose [1].
Once reserved for major dystocia, cesarean section has become a common procedure. Its incidence is increasing in recent decades despite the recommendations of the World Health Organization (WHO) not to exceed 10 to 15% [31]. This frequency varies from one country to another. Estimated at 10-20% in industrialized countries, it reaches about 30% in the US [2].
In the majority of least developed countries, mainly in sub-Saharan Africa, caesarean section rates remain well below the threshold "security" of 5% set by WHO. In these countries, the rates are still much lower in rural areas, sometimes below 1% when they reach 5% in urban areas. In remote rural sites, performing a Caesarean may be simply impossible [10]. The percentage of Caesarean sections within a population can measure the level of access and use of this intervention. It can serve as an indicator for policy makers and governments to assess progress in maternal and child health and monitor emergency obstetric care and the use of resources [30].
This study aims to analyze the coverage of cesarean needs and quality of services in maternity wards of general hospitals in rural areas of reference

## 2. Methods
This is a multicenter, retrospective, cross-sectional. It involved women who delivered by cesarean section in maternity wards of general hospitals Tshilenge reference and Kasansa in East Kasai (DR Congo). The study's data were for 434 cesareans performed for 2 years or from 01/01/2015 to 31/12/2016 in so-called maternity. Included are all the women who have been

Operated in these maternity hospitals while those having been made in other structures and sent to the treatment were excluded. Data for this study were collected in the records (of operating and delivery rooms), plugs and partopgrammes parturients.

Analysis of obstetric records and logs has identified thirty indications for cesarean section. To facilitate their study, classifying cesarean indications approaching that of Maillet [7] and BOISSELIER [8] Sheikh T *et al.* [8] and already used in several studies, including those of Senegal and Burkina Faso [6 5], has been selected as part of this study. This classification involves the concept of mandatory information, prudence and necessity. Apart from this classification, we also distinguished abusive indications for caesarean sections.

- **Compulsory particulars** relate to situations in which delivery can not be achieved except by the high way (fetal-pelvic disproportion, placenta previa, abnormal presentation (except seat), obstructed labor, pre-rupture and uterine rupture). In these cases, the lack of support by Caesarean section leads to death or very serious maternal effects
- **The caution signs** correspond to circumstances for which intervention is not necessary, but can bring in some instances better vital or functional prognosis for the mother, but especially to children (cesarean, breech presentation, fetal distress, child "precious "cord prolapse, circular cord, premature rupture of membranes).
- **Indications of need** are performed for diseases generally accessible preventive treatment, but in the absence of supervision or care during pregnancy and childbirth, may have an unfavorable change leading to a surgical procedure often performed in emergency maternal rescue (dynamic dystocia, hypertensive disease, another twin pregnancy maternal disease).
- **Abusive directions** concern all indications caesarean by excessive and avoidable: dynamic dystocia not treated medically, without limit basin test of correct work, fetal distress based on the sole criterion presence of stained amniotic fluid, an isolated bradycardia, tachycardia isolated etc.

Data entry and data analysis were done using Excel 2007 software, and analysis performed through the software Epi info and SPSS Version 7 13.

Frequencies and averages of different variables were calculated. Proportions were compared using chi-square tests of Pearson and Yates. The averages, in turn, were compared using Student's t test. A difference was statistically significant for p value <0.05. For analysis, the good cesarean criteria were those already used in other settings [6] or caesarean section having no complications (morbidity or mortality) for the mother, child alive.

## 3. Results

**Table 1:** Frequency of caesarean.

| Mode of delivery | Kasansa | | Tshilenge | | Total | | p-value |
|---|---|---|---|---|---|---|---|
| | Effective | % | Effective | % | Effective | % | |
| vaginally | 1142 | 82.3 | 486 | 72 | 1628 | 78.9 | 0.0000 * |
| caesarean | 245 | 17.7 | 189 | 28 | 434 | 21.1 | |
| TOTAL | 1387 | 100 | 675 | 100 | 2062 | 100 | |

*****= Significantly different from 5%

In this table, we see that in 2062 deliveries were recorded in the two maternity hospitals, 434 of these deliveries were caesarean sections or 21.1% overall structures. The difference in frequency of caesarean sections is significantly different in the two structures (17.7% against 28%; p=0.0000).

**Table 2:** Socio-demographic and obstetric characteristics.

| | Kasansa (n = 245) | | Tshilenge | | Total | | p-value |
|---|---|---|---|---|---|---|---|
| | Effective | % | Effective | % | Effective | % | |
| Age | n = 245 | | n = 189 | | n = 434 | | |
| <18 | 17 | 6.9 | 16 | 8.5 | 33 | 7.6 | 0,350 |
| 18- 35 years | 183 | 74.7 | 121 | 64 | 304 | 70 | 0,016 * |
| > 35 years | 45 | 18.4 | 52 | 27.5 | 97 | 22.4 | 0,023 * |
| Average and standard deviation | 28.1 ± 6.7; | | 28.9 ± 7.3; | | t = 0.223 | | 0.223 |
| Parity | n = 245 | | n = 189 | | | | |
| primiparae | 47 | 19.2 | 46 | 24.3 | 93 | 21.4 | 0.194 |
| Paucipares | 34 | 13.9 | 23 | 12.2 | 57 | 13.1 | 0.601 |
| multiparous | 85 | 34.7 | 62 | 32.8 | 147 | 33.9 | 0.680 |
| great multiparas | 79 | 32.2 | 58 | 30.7 | 137 | 31.6 | 0.729 |
| Mean and standard deviation | 4.4 ± 3.2 | | 4.1 ± 3 | | t = 0, 34 | | 0.340 |
| Gestational age (n = 324) | n = 175 | | n = 149 | | | | |
| <37 | 52 | 29.7 | 42 | 28.2 | 94 | 29 | 0.914 |
| 37- 42 | 102 | 58.3 | 84 | 56.4 | 186 | 57.4 | 0.729 |
| > 42 | 21 | 12 | 23 | 15.4 | 44 | 13.6 | 0.368 |
| Mean and standard deviation | 38.8 ± 3.7 | | 39.5 ± 3.3 | | t = 0.08 | | 0.088 |
| History of caesarean sections | n = 245 | | n = 189 | | | | |
| Once | 31 | 12.7 | 20 | 10.6 | 51 | 11.8 | 0.506 |
| Two times | 6 | 2.4 | 3 | 1.6 | 9 | 2 | 0.905 |
| Thrice | 2 | 0.8 | 2 | 1.1 | 4 | 0.9 | 0.806 |
| Total | 39 | 15.9 | 25 | 13.2 | 64 | 14.7 | 0.539 |

*****= Significantly different from 5%

The results of this table show that 70% of patients had the age between 18 and 34 years overall. Significant differences were observed Kasansa and Tshilenge for patients aged 18 to 35 years (74.7% against 64%; p = 0.016) and those over 35 years (18.4% against 27.5%; p = 0.023). The average age was 28.1, respectively±6.7 years and 28.9±7.3 years. The difference was not significant (t = 0.223; p=0.223).
Multiparous and high parity showed 33.9% and 31.6% of the workforce respectively. The mean difference in the two hospitals was not significant (4.4±3 and 4.1±3 t = 0.34; p= 0.334)
The mean gestational age was 38.8±3.7 weeks of amenorrhea (SA) to 39.5 Kasansa±3.3 Tshilenge SA, 29% of caesarean sections were concerned older pregnancies of less than 37 weeks and 13.6% for those over 42 SA. The gestational age difference was significant (p = 0.088). Caesarean sections performed on the scarred uterus was 14.7% overall. The prevalence of iterative caesarean was no different to Kasansa and Tshilenge (15.7% against 13.2%; p=0.539).

**Table 3:** Using services.

| | Kasansa (n = 245) | | Tshilenge | | Total | | p |
|---|---|---|---|---|---|---|---|
| **Fashion intake** | **Effective n =245** | **%** | **Effectiven = 189** | **%** | **Effective n = 434** | **%** | |
| Direct | 170 | 69.4 | 97 | 51.3 | 267 | 61.5 | 0.000 |
| Reference | 2 | 0.8 | 2 | 1.1 | 4 | 0.9 | .8063 |
| Emergency Evacuation | 73 | 29.8 | 90 | 47.6 | 163 | 37.6 | 0, 000 |
| EIC | n = 199 | | n = 106 | | n = 305 | | |
| Any | 121 | 60.8 | 36 | 34 | 157 | 51.5 | 0.000 |
| 1- 2 | 9 | 45.2 | 2 | 1.9 | 11 | 3.6 | 0.393 |
| ≥ 3 | 69 | 34.7 | 68 | 64.1 | 137 | 44.9 | 0,007 |
| response time | n = 245 | | n = 189 | | n = 434 | | |
| <60 minutes | 161 | 65.7 | 87 | 46 | 248 | 57.1 | 0.000 |
| ≥ 60 minutes | 84 | 34.3 | 102 | 54 | 186 | 42.9 | |
| Mean and standard deviation | 92.1±154.5 | | 142± 177.7 | | t = -3.17 | | 0.001** |

*****Significant difference = 5% with test $X^2$
** = significant difference with 5% t student

Analysis of the results of this table reveals that 61.5% had come directly from their homes across followed by those evacuated urgently with 163 cases (37.6%). The significant difference was observed Kasansa and Tshilenge for direct admission (69.4% against 51.3%; p= 0.0007) and the evacuated (29.8% against 47.6%; p= 0.0001).
More than half of women (51.5%) had not followed the EIC and that much more than Kasansa Tshilenge (60.8% against 34%, p= 0.0000). Overall 44.9% were performed plus or minus 3 CPN sessions with a significant difference between the two structures (34.7% against 64.1%; p=0.007), 3.6% have been 1 to 2 times the CPN. 57.1% of the parturient were made within 60 minutes after the indication and 42.9% after 60 minutes, the average time between the indication and the start of the operation was 92.1±154.5 nm, with extremes of 11 minutes and 976 minutes and 142 Kasansa±177.7 Tshilenge min (range 11 to 1050 minutes); the very significant difference (p= 0.0016)

**Table 4:** Main indications of cesarean section.

| **Indications** | **Kasansa (n = 245)** | | **Tshilenge (n = 189)** | | **Total n = 434** | | **p-** |
|---|---|---|---|---|---|---|---|
| | **Effective** | **%** | **Effective** | **%** | **Effective** | **%** | |
| 1. mandatory | 146 | 59.6 | 152 | 80.4 | 297 | 68.7 | 0.000 * |
| Rupture / pre uterine rupture | 9 | 3.7 | 16 | 8.5 | 25 | 5.7 | |
| placenta previa | 27 | 11 | 48 | 25.4 | 75 | 17.3 | |
| retro-placental hematoma | 23 | 9.4 | 6 | 3.2 | 29 | 6.7 | |
| malpresentations | 44 | 18 | 53 | 28 | 97 | 22.4 | |
| Pelvic disproportion foeto | 36 | 14.7 | 28 | 14.8 | 64 | 14.7 | |
| contracted pelvis | 7 | 2.9 | 1 | 0.5 | 8 | 1.8 | |
| 2. Caution | 73 | 29.8 | 25 | 13.2 | 98 | 22.6 | 0.000 * |
| acute fetal distress | 30 | 12.2 | 8 | 4.2 | 38 | 8.8 | |
| uterine scar | 17 | 6.9 | 2 | 1.1 | 19 | 4.4 | |
| Breech presentation | 19 | 7.8 | 5 | 2.6 | 24 | 5.5 | |
| Prolapsed cord | 5 | 2.1 | 10 | 5.3 | 15 | 3.4 | |
| Circular Cord | 2 | 0.8 | 0 | 0 | 2 | 0.5 | |
| 3. Need | 26 | 10.6 | 12 | 6.4 | 38 | 8.8 | 0.110 |
| dynamic dystocia | 10 | 4.1 | 8 | 4.2 | 18 | 4.1 | |
| Eclampsia | 4 | 1.6 | 3 | 1.6 | 7 | 1.6 | |
| premature rupture of membranes | 3 | 1.2 | 0 | 0 | 3 | 0.7 | |
| multiple pregnancy | 3 | 1.2 | 0 | 0 | 3 | 0.7 | |
| Other maternal diseases | 3 | 1.2 | 0 | 0 | 3 | 0.7 | |
| prolonged labor | 3 | 1.3 | 1 | 0.5 | 4 | 0.9 | |

* = Significant difference tests with 5% of $X^2$

Compulsory particulars caesarean presented 298 cases (68.7%), followed by caution signs with 98 cases (22.8%) and the need for information with 38 cases (8.8%) with significant differences in both hospitals for the mandatory information (59.6% against 80.4%, p = 0.0000) and the need for information (29.8% against 13.2%, p = 0.0000)

**Table 5:** Coverage of needs caesareans.

| | Kasansa | Tshilenge | Total | p |
|---|---|---|---|---|
| Population | 216063 | 310669 | 526732 | |
| expected births | 8643 | 12427 | 21069 | |
| expected caesareans (5% of births) | 432 | 621 | 1053 | |
| caesarean sections | 245 | 189 | 434 | |
| VBAC / expected births | 2.8% | 1.5% | 2.1% | 0.0000 * |
| Caesareans performed / expected caesareans | 56.7% | 30% | 41.2% | |

*****Significant difference = 5% with chi-square test

This table shows that the rate of cesarean section in relation to the expected births was 2.8% to 1.5% and Kasansa Tshilenge and 2.1% overall. The coverage of needs is much lower than Tshilenge Kasansa (2.8% against 1.5%, p = 0.0000)

**Table 6:** Complications early post-operative.

| Complication | *Kasansa* | | Tshilenge | | Total | | p-value |
|---|---|---|---|---|---|---|---|
| | Effective n = 245 | % | Effective n = 189 | % | Effective | % | |
| infectious complications | 12 | 4.9 | 32 | 16.9 | 44 | 59.5 | 0.000 * |
| Suppuration of the wall / Coast inverse sutures | 6 | 2.4 | 21 | 11.1 | 27 | 35.5 | 0.000 |
| Septicemia | 3 | 1.2 | 2 | 1.1 | 5 | 6.8 | 0.983 |
| Uro genital infection | 3 | 1.2 | 6 | 3.1 | 9 | 11.8 | 0.282 |
| Peritonitis | 0 | 0 | 2 | 1.1 | 2 | 2.6 | 0.368 |
| Endometritis | 0 | 0 | 1 | 0.5 | 1 | 1.3 | 0.896 |
| Vesico vaginal trauma | 0 | 0 | 1 | 0.5 | 1 | 1.3 | 0.689 |
| Hemorrhage | 10 | 4.1 | 14 | 6.9 | 24 | 30.3 | 0.127 |
| Heart problem / MV | 3 | 1.2 | 3 | 1.6 | 6 | 7.9 | 0.743 |
| Total | 25 | 10.2 | 49 | 25.9 | 74 | 17.1 | 0.000* |

*****Significant difference = 5% with chi-square test

The prevalence of early maternal complications observed were 74 cases out of 434 (17.1%) in the entire study population, 10% (25 cases out of 245) to the HGR Kasansa and 27% the HGR Tshilenge (51 cases out of 189) with significant difference (p = 0.0000). Infectious complications were the most observed with a prevalence of 59.2% in the whole sample and a significantly higher prevalence among women in Tshilenge caesarean compared to those carried in Kasansa (16.9% against 4 , 9% P = 0.0000). Hemorrhagic complications (28.9%) were the second most recorded complications in cesarean section women. However, the difference for these bleeding complications were not significant in both structures (6.9% against 3.7%, p = 0.1279) Suppuration and dropping sutures was the most common infectious complication (35, 5%) with very significant difference between the two structures (11.1% against 2.4%; p = 0.0002).

**Table 7:** Early postoperative complications according to the classes of information.

| Complication | Kasansa | | Tshilenge | | Total | | p-value |
|---|---|---|---|---|---|---|---|
| | Effective n = 245 | % | Effective n = 189 | % | Effective | % | |
| mandatory | 17 | 6.9 | 41 | 21.7 | 58 | 78.4 | **0.0000 *** |
| Infectious complications | 7 | 2.9 | 25 | 13.2 | 32 | 42.7 | **0.0000 *** |
| Vesico vaginal trauma | 0 | 0 | 1 | 0.5 | 1 | 1.3 | .8963 |
| Hemorrhage | 9 | 3.7 | 12 | 6.3 | 21 | 28 | .1554 |
| Cardiac problem | 1 | 0.4 | 3 | 1.6 | 4 | 5.3 | .3787 |
| Caution | 4 | 1.6 | 6 | 3.7 | 11 | 14.7 | |
| Infectious complications | 3 | 1.2 | 6 | 3.2 | 9 | 12 | 0.1575 |
| Cardiac problem | 1 | 0.4 | 0 | 0 | 1 | 1.3 | .8963 |
| Need | 3 | 1.2 | 2 | 1.1 | 5 | 6.7 | |
| Infectious complications | 2 | 0.8 | 2 | 1.1 | 4 | 5.3 | .8063 |
| Vesico vaginal trauma | 0 | 0 | 0 | 0 | 0 | 0 | |
| Hemorrhage | 1 | 0.4 | 0 | 0 | 1 | 1.3 | .8963 |
| Heart problem / MV | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total | 25 | 10.2 | 49 | 25.9 | 74 | 17.1 | |

*****Significant difference = 5% with chi-square test

Table 7 shows that the prevalence of complications in the compulsory indications represented 78.7% followed by those of prudence (14.7%) and the need for indications (6.7%). Infectious complications represented successively in the compulsory indications 42.7% overall with a significant difference in both surgical facilities (2.9% against 13.2%; p = 0.0000); 12% in the caution indications and 5.3% in the indications of need with no significant difference in the two structures.

**Table 8:** Early complications of cesarean section in accordance with the intake modes.

| Fashion intake | Kasansa | | Tshilenge | | Total | | p-value |
|---|---|---|---|---|---|---|---|
| | Effectiv (n = 245) | % | Employes (n = 189) | % | Effective | % | |
| Direct | 17 | 6.9 | 23 | 12: 2 | 41 | 9.5 | 0.0419 * |
| Reference | 0 | 0 | 1 | 0.5 | 1 | 0.2 | 0.0980 |
| Emergency Evacuation | 8 | 3.3 | 25 | 13.2 | 34 | 7.8 | 0.0000 * |
| TOTAL | 25 | 10.2 | 49 | 25.9 | 76 | 17.5 | |

*****Significant difference = 5% with chi-square test

The results of this table show that the prevalence of cesarean complications was 9.5% in patients who had come directly from their homes followed those evacuated urgently with 7.8% followed by those evacuated urgently with 7.8% of the entire study population. Prevalence was very insignificant in both structures to those coming directly from home (6.9% against 12.7%; p = 0.0419) and very significant for emergency evacuated (3.3% against 13.8%; p = 0.0000)

**Table 9:** Prognosis maternal indications as classes.

| Class | Kasansa (n = 245) | | Tshilenge (n = 189) | | Total | | p-value |
|---|---|---|---|---|---|---|---|
| | Effective | % | Effective | % | Effective | % | |
| mandatory | 6 | 85.7 | 4 | 100 | 10 | 90.9 | 0.925 |
| Caution | 1 | 14.3 | 0 | 0 | 1 | 9.1 | 0.896 |
| Need | 0 | 0 | 0 | 0 | 0 | 0 | 0.894 |
| TOTAL | 7 | 63.6 | 4 | 36.4 | 11 | 100 | 0.863 |

The results of this table show that of 434 cesarean sections, a total of 11 maternal deaths were reported, representing a 2.5% lethality, Mandatory cesarean represented 90.9% of caution followed fatality of caesarean sections (9.1%) and no deaths were recorded among the need for caesarean in both structures. No significant difference was recorded among all classes of indications.

**Table 9:** fetal prognosis according to the classes of information.

| CLASS | Kasansa (n = 245) | | Tshilenge (n = 189) | | Total | | p-value |
|---|---|---|---|---|---|---|---|
| | Effective | % | Effective | % | Effective | % | |
| Mandatory | 22 | 73.3 | 34 | 91.9 | 56 | 83.5 | 0.0105 * |
| Caution | 5 | 16.7 | 2 | 5.4 | 7 | 10.5 | .6734 |
| Need | 3 | 10 | 1 | 2.7 | 4 | 6 | .8063 |
| TOTAL | 30 | 44.8 | 37 | 55.2 | 67 | 100 | 0.0360 * |

*****Significant difference = 5% with chi-square test

Resulting in this table shows that perinatal mortality was amounted to 15.4%. Required caesareans were more deaths with 83.6% followed by caution cesarean (10.5%). Child fatality difference was not significant in the structures for both the mandatory information (73.3% against 91.9% p = 0.0105) for all indications 44.8% against 55.2% p = 0.0360)

**Table 10:** Quality of caesareans.

| Quality | Effective | % |
|---|---|---|
| Good | 316 | 72.8 |
| Bad | 118 | 27.2 |
| Total | 434 | 100 |

In applying the quality criteria caesarean section, the results of this table show that 27.2% of cesarean sections were poor in both structures.

**Table 11:** Quality of caesareans according to the classes of indications of cesarean section and maternal intake patterns.

| Class | Kasansa (n =245) | | | | Tshilenge (n = 189) | | | | Total | p-value |
|---|---|---|---|---|---|---|---|---|---|---|
| | BQ | | MQ | | BQ | | MQ | | | |
| | Eff | % | Eff | % | Eff | % | Eff | % | | |
| Indications | | | | | | | | | | |
| Mandatory | 112 | 76.7 | 34 | 23.3 | 93 | 61.2 | 59 | 38.8 | 298 | * 0.007 |
| Caution | 61 | 83.6 | 12 | 16.4 | 19 | 76 | 6 | 24 | 98 | 0.497 |
| Need | 22 | 84.6 | 4 | 15.4 | 10 | 83.3 | 2 | 16.7 | 38 | 0.427 |
| Fashion adm | | | | | | | | | | |
| Direct | 145 | 85.3 | 25 | 14.7 | 64 | 66 | 33 | 34 | 267 | 0.936 |
| Reference | 1 | 50 | 1 | 50 | 1 | 50 | 1 | 50 | 4 | |
| Emergency Evacuation | 49 | 67.1 | 24 | 32.9 | 57 | 63.3 | 33 | 36.7 | 163 | 0.893 |
| Total | 195 | 44.9 | 50 | 11.5 | 122 | 28.1 | 67 | 15.4 | 434 | 0,000 * |

*****Significant difference = 5% with chi-square test; BQ = good, MQ = Poor

Reading this table shows that overall the quality of cesarean was worse than in Tshilenge Kasansa (11.5% against 15.4%, p = 0.000) Also in the compulsory indications of cesarean section (24% against 16.4%; p = 0.007). While no significant difference was observed in relation admission modes.

## 4. Discussion

### 4.1 Epidemiology

This study was initiated to identify the epidemiological situation and the coverage of cesarean needs in rural health areas and Tshilenge Kasansa. The main results show.

Between 1 January 2015 and 31 December 2016, 2062 women gave birth in the reference general hospitals and Kasansa Tshilenge. Among them 434 (21.1%) had a caesarean. Significant differences were observed between Tshilenge and Kasansa (p<0.05). Compared to the literature, this rate is lower than those reported in hospitals in Guinea 36% [11] but corroborates the observed rates CHU Yalgado Ouedragogo [6] which was 21.6% with a slightly higher sample ours 473 and university clinics and the general hospital Kalemie reference was 24.1% with a sample of 488 and Panzi hospital (23.5%) by Cikwanine B. [32] and it remains slightly higher than that recorded in Yaounde by Foumane P. *et al.*, (19.7%) [33]. However it was double that found on the city of Lubumbashi is 10.65%. [23] Unlike our study, most of these results (Excepted the Panzi) come from studies in urban areas by all teaching hospitals for some.

The average age of women caesarean was 28,42ans with a standard deviation of 6.96 years (Extreme 15 and 47 years). This average was not significantly different in the two surgical facilities (p>0.05). The influence of age on caesarean section was also reported by several authors [12, 23]. All these studies have shown that mothers under 15 years and 35 years and older have a higher risk of undergoing caesarean section.

Primiparous and high parity were the most affected by caesarean section 34.8% and 31.6%. These results are higher compared to those found by Diallo FB *et al.* [26] who found that extreme parities were most affected by caesarean section with 22.46% in primiparous and 21% among high parity. The average rate was 4.31±2.83 extreme 0 and 15) with no significant difference (p>0.05). This average is much higher than that found by Kinekinda *et al.* 2.6±2.5 to Lubumbashi [23]. This rate is significantly higher than that observed in Kalemie (14.1%) [12].

In our series gestational age ranged between 22 and 47 SA around an average of 39 ± 4 SA, but the difference was significant (p> 0.05), 29% of caesarean section have been on pregnancy age less than 37 weeks.

Indeed, previous Caesarean section remains one of the main causes of cesarean sections in many countries [24, 25]. In our series iterative caesarean represented 14.8%. These rates are double those reported by most authors: 6.6% Kadony Mumba N *et al.* [28] A Lokossou. *et al.* [16]; Dembele *et al.*, Thaore Y *et al.* [17]. However it is close to that found by Kinekinda *et al.* (11%). [23] The risk of a major complication during a trial of labor explain this phenomenon. There is indeed a risk of about 1% of uterine rupture during an attempted vaginal birth after a [15] C-section.

### 4.2 Service use and indications of caesarean sections

#### 4.2.1 Service utilization

##### 4.2.1.1 Operating maternal intake

In our series, 61.5% of caesarean women had come of themselves. It is Kasansa that this mode of admission was more noticed (p<0.05). The difference was also significant about the emergency evacuation in two hospitals (p<0.05). However 37.6% were evacuated in emergency overall with very significant difference between the two surgical facilities (p = 0.05). Unlike some African authors [5, 6.11], all these women evacuees were from the health center. It noted that only 0.9% of women treated had been referred (from NPC) to a surgical center before the start of work.

##### 4.2.1.2 Monitoring of pregnancy

Note that 44.9% of operated patients had a minimum of 3 EIC required and made two had received no CPN (50.5%). More likely to Kasansa that Tshilenge (p = 0.05). While it noted more women who received roughly 3 sessions of NPC to Tshilenge that Kasansa (p = 0.05). This low coverage of the EIC explain the low reference rate of women in labor (0.9) for all structures including the indications for cesarean were predictable, but also the difficult acceptance of referral of women to a sharp surgical center by fear of caesarean section on one hand and on the other, by the social repercussions this operation into poverty. Hence the woman comes to the hospital late after several attempts, sometimes dangerous (to the health center or at home).

Our reference rate was much lower than in Senegal which was 28% in the series of CISSE [5], that of Ouagadougou which was 13.6% in the C series of Ouedraogo *et al.* [6] and roughly 50% times what was recorded at Panzi (45.1%) [32] we agree with CISSE [5] and Ouedraoga C *et al.* [6] these results lead us to question the current quality NPC in the fight against maternal mortality and morbidity.

#### 4.2.2 Indications for cesarean

The main indications were respectively represented by abnormal presentations (27.9%), placenta previa (17.3%), the foetopelvienne disproportion (16.6%), fetal distress (8.8%). These indications were valued differently by several authors, most of which noted the high frequency of obstructed labor. So:

In Senegal, Cisse [5] noted 30.4% of fetal-pelvic disproportion, fetal distress 18.2%, 6.5% and 3.7% anomalous presentations for placenta previa

In Ouagadougou Ouedraogo C *et al.* [6] on the other hand, observed 25.1% feto pelvic disproportion, 15.2% of acute fetal distress, 10% and 4% malpresentation placenta previa.

In Guinea, Keita N. *et al.* [11] noted 16.3% of fetal distress, 9.1% foeto pelvic disproportion, 7.9% for abnormal presentations and 4% of placenta previa.

These indications are placed on basis of clinical examination, electronic monitoring is not still relevant in our communities.

In our series on the classification by groups of indications showed that the mandatory information were more common than caution indications (68.7% vs 22.6%; p<0.05) and safety indications outnumbered those in need (22.6% vs 8.8%; p<0.05). These results corroborate those of Kabandilwa SE *et al.*, [12] those recorded in Guinea where caution indications (48.97%) were double the mandatory information (22.80%) [11] and Senegal is 43, 8% for the mandatory information, 30.8% for precautionary indications and 25.4% for the need for information [5]. Our rate of iterative caesarean section (cesarean) is much lower than those observed in Guinea [11] and Ouagadougou [6], in Kalemie (DRC) [12] Abusive indications have not been directly observed. This absence does not reflect their nonexistence. Whatever it was, it is believed that around 6% of cesarean were abusive by referring to the threshold accepted by WHO (15% maximum). This frequency is significantly lower vis-à-vis those reported by Ouegraogo C and K Abandilwa [6, 12].

### 4.3 Coverage of needs

434 caesarean sections correspond to a rate of 2.1% of all births in relation to expected, or less than minimum threshold set by WHO to 5%. Coverage of caesarean needs is lower than in Tshilenge Kasansa ($p<0.05$). This coverage, while remaining below the WHO threshold, are much higher than those found in Senegal by CISSE *et al.* [5] (0.6% over all, 1.3% and 0.1% in Dakar Kaolack Fatick.). The. qu'on explanation can give this low coverage of caesarean requirements would be the fact that in addition to geographical and financial access difficulties, feelings of humiliation and failure experienced by women, cesarean section is often seen as a major procedure, disabling, associated with fear to see her belly " re-open " at the slightest effort which goes against the role played by women in rural societies of black Africa where they assume the painstaking work involves physical integrity. Hence, the same cesarean for referrals to the ANC, are performed in emergency because the woman occurs only when all remedies (Attempts to deliver at home, consulting other structures than had referred, prayer, traditional healer.) are exhausted. Hence it is necessary to try to understand the perceptions of women on this vital intervention to save the mother and child if the way is not possible.

### 4.4 Quality of services

#### 4.4.1 Postoperative complications

Among our patients operated, 75 of them or 17.8% had at least one complication with 63.4% of septic complications. In our series the rate of septic infections is lower than in other African countries: 93.3% by Ouedraogo *et al.* [6] in Ouagadougou, 55% in Senegal by CISSE C [5] and it is similar to that observed Yaounde (16.95%) by Ngowa JDK *et al.* [29].

The are mandatory information presented more complications of cesarean section than other classes (78.7%) and a very significant difference between Kasansa and Tshilenge ($p<0.05$). Infectious complications occupied the head in all classes of indications and a significantly different prevalence in the two structures among the mandatory information (eg<0.05).

The higher prevalence of complications among patients come directly to home and those evacuated by the health centers could be explained by the fact that these women would drag either at home or in the structure which referred to reaching hospital often late for some reason (failed attempt to deliver at home, lack of transportation, delay in evacuation decision by health centers. ..). Yet it follows from the literature as C-sections made emergency have 10 times more complications (20-30%) that elective caesarean sections (2 to 3%) [34, 35, 36, 29].

#### 4.4.2 Maternal prognosis

In this study, we identified 11 cases of maternal death is a fatality rate of 2.5%. Although this rate seems close to that of Cisse in Senegal [5] C Ouedraogo in Burkina Faso *et al.* [6] have identified a lethal 3% and 2.3% respectively, it is 1/3 that found by Kadony MN Mbujimayi (7.1%) [28].

#### 4.4.3 Fetal prognosis

The perinatal mortality rate in our series was 15.4%. This rate corroborates that of Ouedraogo C. *et al.* [6] (15.9%). But it is lower compared to those found in some African countries by Robitail *et al.* in Madagascar (17.8%) [22], and al Kizonde in Lubumbashi (DRC) is 19.5%. [21] The fatality rate observed by these authors are significantly higher than those of developed countries is in the order of 2 to 3% [27].

Certainly caesarean part in the reduction of perinatal mortality, but it is the quality of obstetric monitoring that allows to improve. Thus, the perinatal mortality rate was significantly higher in the compulsory indications ($p <0.05$). These data reflect the seriousness of the maternal table with its negative impact on the fetus.

Achieving cesarean should be seen as an end in itself, but a means among others to improve the health of mother and child.

It is then important to look at all factors that can influence the success of cesarean section, that is to say, the mother and child survive in the best possible conditions and without sequelae.

In applying the quality criteria at the start, almost a third of cesarean sections (27.2%) was poor. With very significant differences in Tshilenge both overall ($p< 0.05$) for the mandatory information (eg<0.05). No significant difference to the poor quality of cesarean section was observed depending on maternal intake patterns in the two structures. This is explained by the fact that most C-sections performed for compulsory indications, are mostly in emergency without good prior preparation.

As for the conditions of implementation of the intervention, it was observed that most C-sections performed in emergency should have been programmed because of the existence of factors indicating the counter vaginally. Prospective analyzes African media revealed several obstacles in achieving caesarean [5, 6].

## 5. Conclusion

Epidemiological surveillance of surgical obstétrico- coverage is very little studied in Black Africa. This study allowed to understand that obstetric emergencies are a real public health problem in rural areas because of the very poor prognosis they impose on the mother and child pair.

The results from our study that the coverage of cesarean needs remains lower (2.1%) the minimum threshold required by the WHO (5%) and about one third (27.2%) and very significantly the quality service was worse than in Tshilenge Kasansa this in all directions for the mandatory information ($eg< 0.05$).

These results challenge a strengthening aseptic perioperative measures in surgery to reduce infectious complications.

Efforts should be concentrated on increasing capacity care providers, quality monitoring of the pregnancy, early diagnosis of the emergency and referral of patients to the appropriate person in a timely manner to a decision in rational load finally thoroughly analyze the perceptions and experiences of caesarean section in rural areas. Everyone is concerned, starting with the state, providers, pregnant and people.

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