



Study of physical facilities and workload of maternity hospital associated with tertiary care institute from North India

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ABSTRACT

Introduction: Maternal and child healthcare services are very important for the health outcomes of the mother and that of the child by ensuring that both maternal and child deaths are prevented ⁽⁴⁾.

Aim : To study the physical facilities and assessment of workload.

Material & Methods: Observational study & interview method was used to study the physical facilities existing at maternity unit of SKIMS and for assessment of workload retrospective analysis of data retrieved from electronic medical records was conducted.

Result: Caesarean rate for the year 2018-19 is 76.7% whereas in year 2019-20 it is 77.5%. Bed occupancy rate when calculated came out to be 81% and 81.9% for the year 2018-19 and 2019-20 respectively.

Keywords: Maternal healthcare, Electronic medical records, Caesarean

INTRODUCTION

Quality maternity care is defined as the degree to which maternal health services for individuals and populations increase the likelihood of timely and appropriate treatment for the purpose of achieving desired outcomes that are both consistent with current professional knowledge and uphold basic reproductive rights⁽¹⁾.

Quality maternal care is directly related to the possibility of mothers for timely and appropriate treatment in order to achieve desired outcomes. The use of services and outcomes are the result not only of the provision of care but also of women's experience of that care. Unfortunately, quality of care received by mothers and babies in developing countries is often reported as poor⁽²⁾.

Women's expectations and experiences of maternity services are increasingly important to healthcare professionals, administrators and health policy

makers, and can inform decisions about the organisation and provision of services⁽³⁾.

Referral institutions should provide a reasonable level of quality care. Referral is especially important within obstetrics due to the high numbers of professionals who support a woman through pregnancy and birth, the speed with which action often needs to be taken and the global burden of maternal mortality⁽⁴⁾.

Maternal and child healthcare services are very important for the health outcomes of the mother and that of the child by ensuring that both maternal and child deaths are prevented⁽⁵⁾.

Pregnancy, otherwise known as gestation is the timing during which one or more offspring develops inside a woman and can occur by sexual intercourse or assisted reproductive technology^{6,7}. It is also referred to as the state of carrying a developing

embryo/foetus within the female body and usually lasts for about nine months, measured from the date of the woman's last menstrual period (LMP) and conventionally divided into three trimesters, each about three months long^{8,9}.

Maternity period is crucial and sensitive in the life of women due to various physiological changes that take place in the body during pregnancy and after. These changes need close monitoring to help optimize maternal and foetal health. An array of services is provided to pregnant women during this period. These services include prenatal care and counselling, skilled delivery, and assistance in all cases by skilled person without excessive recourse to caesarean sections⁽¹⁰⁾.

The World Health Organization promotes skilled attendance at every birth to reduce maternal mortality and recommends that women's satisfaction be assessed to improve the quality and effectiveness of health care.⁽¹¹⁾

Aim: To study the physical facilities and to assess the workload of maternity hospital.

Material & Methods:

To study the physical facilities an observational study was carried out from April 20 to June 20. In addition study of records and interview with the concerned functionaries were carried out to assess the physical facilities and manpower resources of the maternity unit. The data was entered on a predesigned proforma which divided the maternity hospital into five basic functional units:

1. Inpatient area.
2. OPD.
3. Laboratory block.
4. Operation theatre suite.
5. Attendant comfort area.

The gross layout design of hospital was obtained from hospital records of engineering department. The manpower resources data was obtained from interview with administrative functionaries and administrative office records.

To study the workload of the hospital a retrospective study was carried out for a period of two years 2018-2020. The inpatient records of patients for the said

period were studied and data pertaining to following aspects of workload was entered on a predesigned proforma.

Number of admissions, Lower segment caesarean section (LSCS + LSCS with ligation), deliveries, Abdominal hysterectomies, Vaginal hysterectomies, Dilation & curettage (D&C), Laprotomies, Medical termination of pregnancy (MTP's), type of investigations (CBC, VDRL, Blood grouping, Blood sugar, Urine examination, USG & ECG).

The data was calculated on monthly, yearly basis and relevant rates were calculated.

Results: An observational study and interviews were carried out to assess the physical facilities of maternity hospital. The facilities were divided as inpatient area, outpatient area, laboratory area, theatre suite and patient attendant comfort area.

1. Inpatient area.

Total bed strength of the hospital is 58. The inpatient area is divided into:

- a. Postoperative ward 1 and ward 2 (total 28 beds)
- b. Antenatal ward 1 and ward 2 (total 15 beds)
- c. Three bedded cubicles 3 (total 9 beds)
- d. HDU (6 bedded)
- e. Intrauterine insemination facility.
- f. Day care unit (where different day care procedures are being carried out)

Staff:

1 Doctors

- a. Faculty 5
- b. Residents (SR, PG, JR) 30

2 Nursing staff (Nurses, Nursing aides) 42

3 Auxiliary staff (security, sanitation & others) 50

Equipments:

USG, Patient monitors, Baby resuscitation trolley, vacuum suction machines, Electrocardiograph (ECG) Machine, blood pressure apparatus & cardiographic machines (CTG).

2. OPD Block:

The OPD block consists of

- 3 consultation rooms
- USG facility
- ECG room
- Family planning & counselling room
- Medical Records section

3. OT suite:

OT complex of Maternity hospital consists of three operating suites, out of three one is dedicated for infectious cases. Theatre complex has all up to date gadgets and equipment for conduct of normal and complex gynaecological and obstetrical procedures. Sterilization of theatre instruments and linen is carried out in theatre sterilization unit of the OT complex.

4. Laboratory:

Laboratory unit consists of a separate two storied building adjacent to the inpatient block. Various tests like routine urine examination, blood sugar, CBC, blood grouping, coagulogram, biochemical and hormonal analysis are performed in lab.

5. Attendant patient comfort area:

Maternity hospital has small sarai/ attendants inn where attendants of patient from far off places especially reside during night. It accommodates 8-12 people at a time and also it has a small area attached having wardrobes where attendants keep their belongings.

It has public toilet facility, public canteen and car parking space for attendants visiting the hospital.

WORK LOAD:

Workload of maternity hospital was assessed by retrospective analysis of electronic medical records for a period of 2 years.

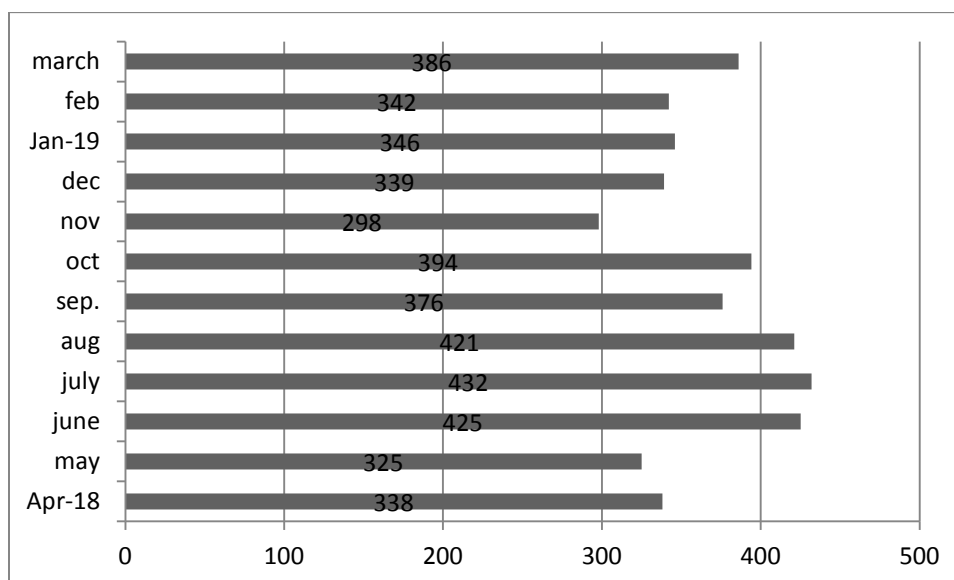


Fig1: Inpatients Admissions 2018-19

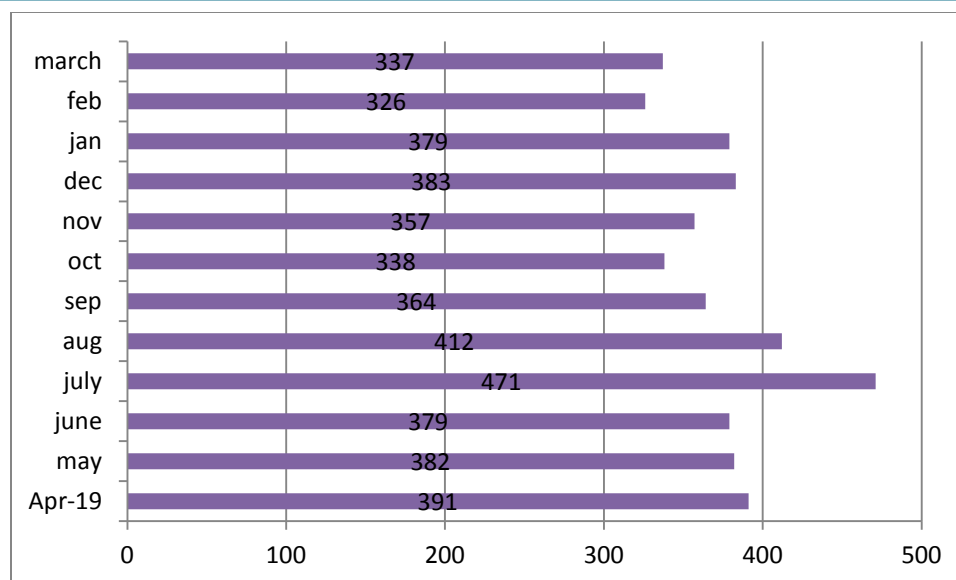


Fig 1a: Inpatient Admissions 2019-20

Observations regarding the total number of admissions during the year of study 2018 revealed that highest admissions were noted during the month of july i.e. 432 while lowest (n= 298) were in the month of November. The same trend was noticed during the year 2019 with july showing the highest admissions 471.

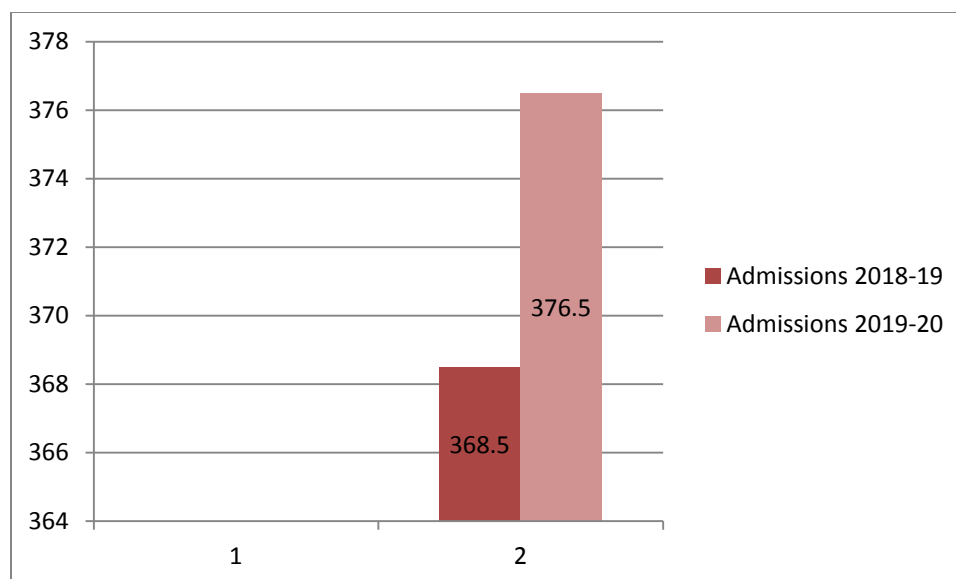


Fig 1b: Average of Inpatient admissions

Average inpatient admission for the year 2018 works out to be 368 while for the year 2019 it was 376.

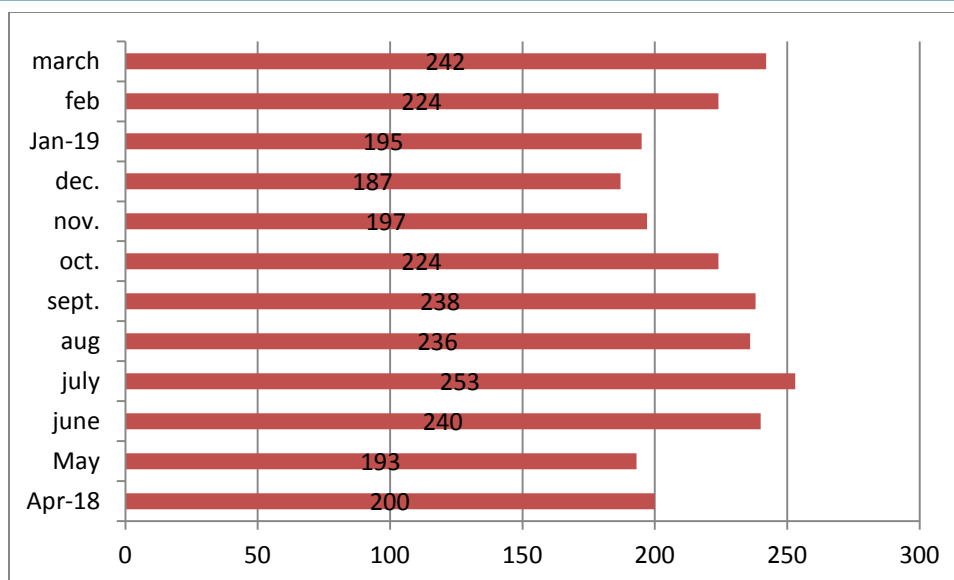


Fig 2: LSCS+ LSCS With ligation 2018-19

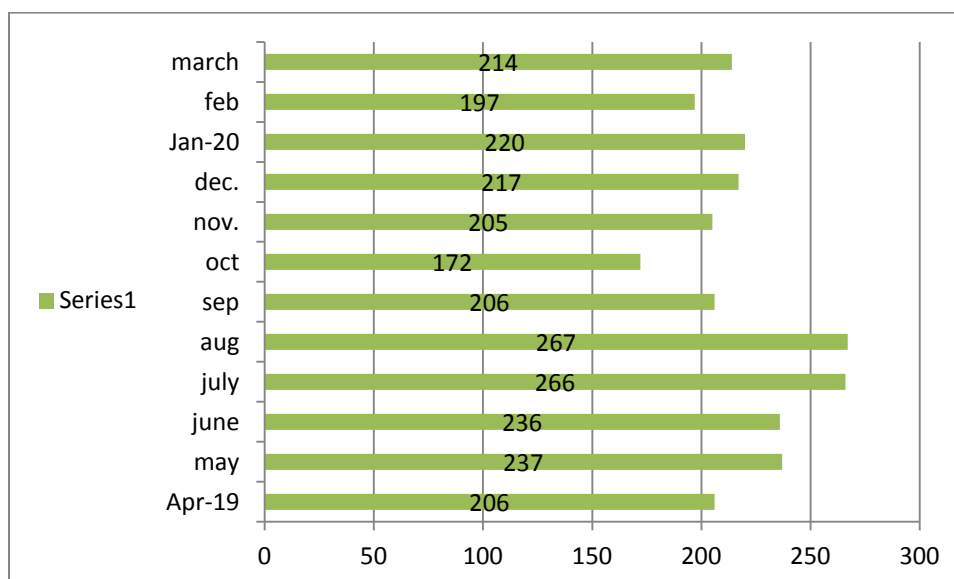


Fig.2a: LSCS+ LSCS With ligation 2019-20

LSCS + LSCS with ligation were studied for the years 2018 and 2019. Observations revealed that highest number of ligations for the year 2018 were in the month of July (253), lowest LSCS i.e. 187 for the year were in the month of December 2018-19. During the year 2019 highest number of LSCS were performed during the month of July & August (266 and 267 respectively).

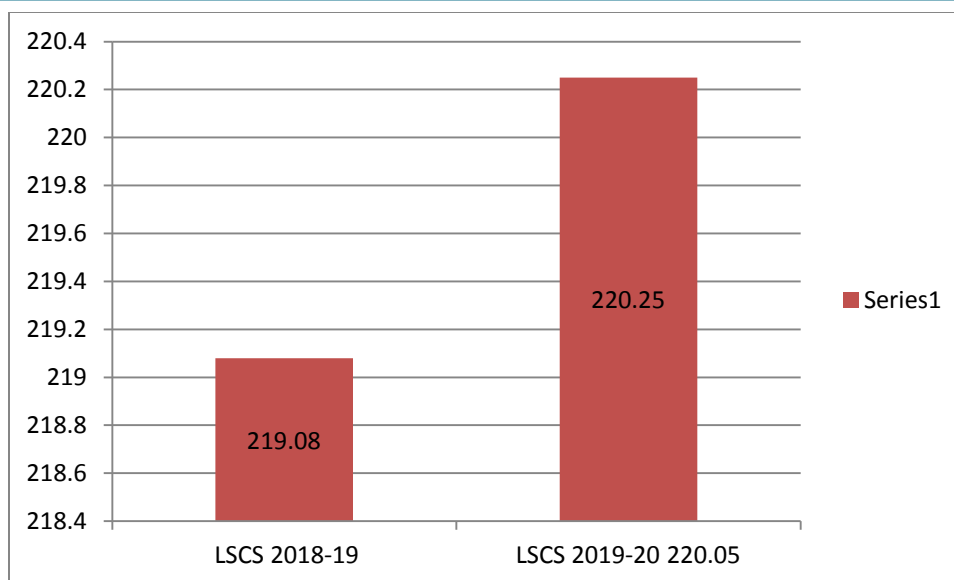


Fig 2b: Average no. Of LSCS+ LSCS with ligation (2018-20)

Average number of LSCS for the year 2018 was 219 and for the year 2019 was 220.

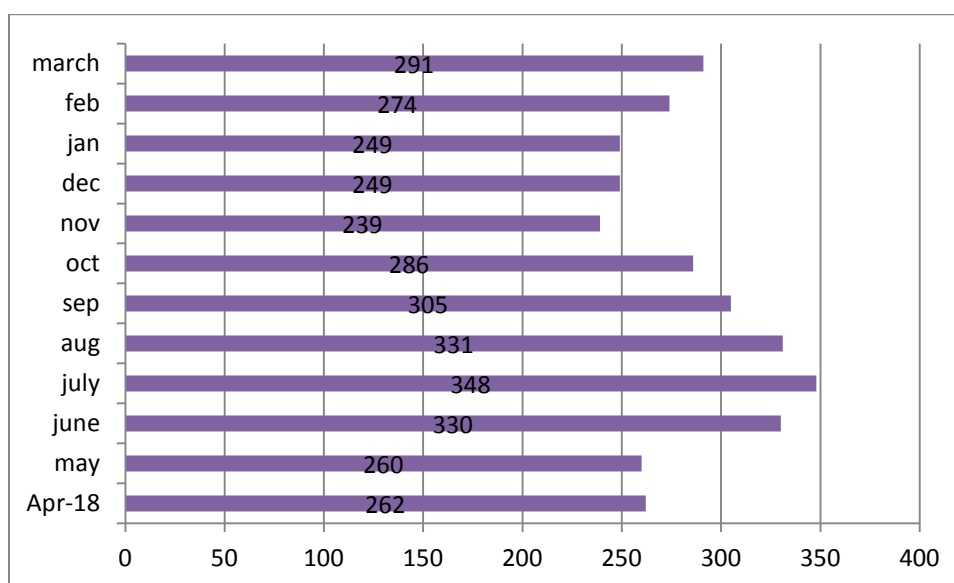


Fig 3: Deliveries 2018-19

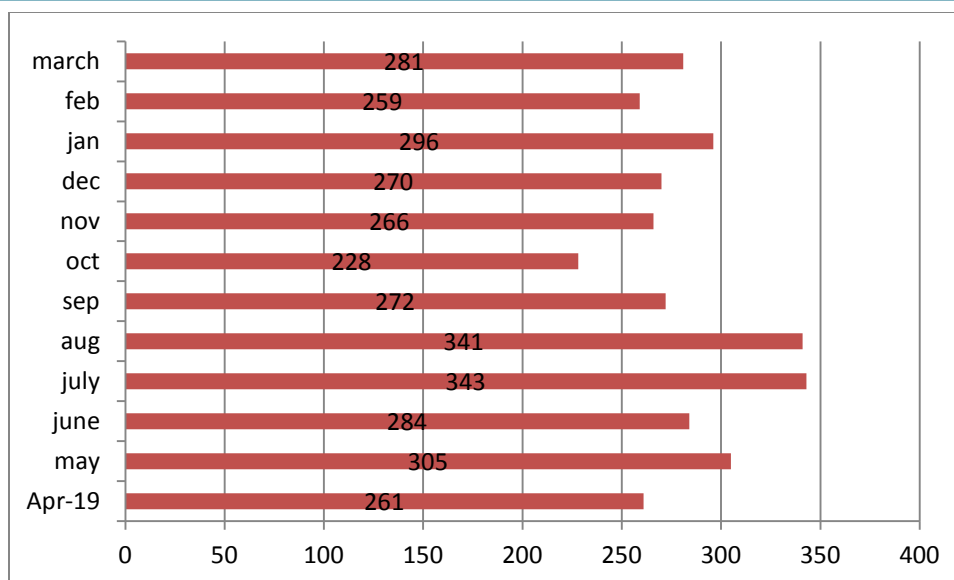


Fig.3a: Deliveries 2019-20

Normal deliveries constituted lesser number of patients in comparison to caesarean section carried out during the years of study. Maximum numbers of deliveries were conducted in the month of July 348 in 2018 and 343 in 2019. Winter months (October, November & December) during both years had low numbers of normal deliveries.

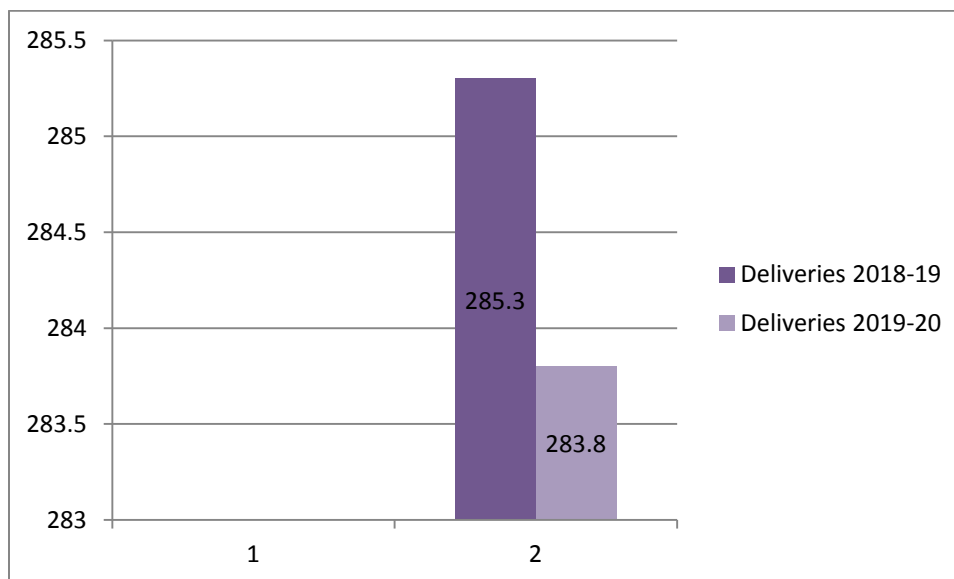


Fig 3b: Average number of deliveries (2018-20)

Yearly average for normal deliveries worked out to be 285 for the year 2018 and 283 for the year 2019.

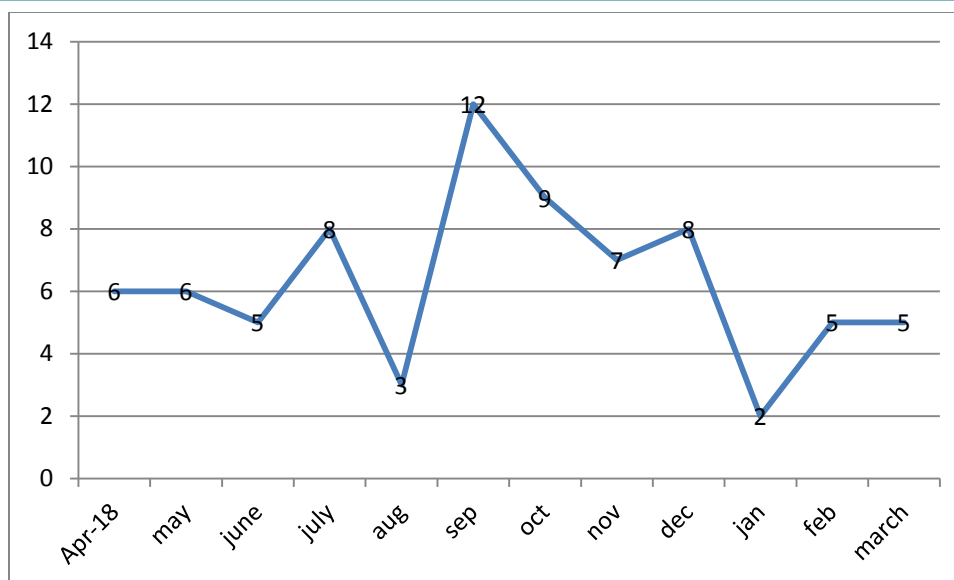


Fig.4:Abd.Hyst. 2018-19

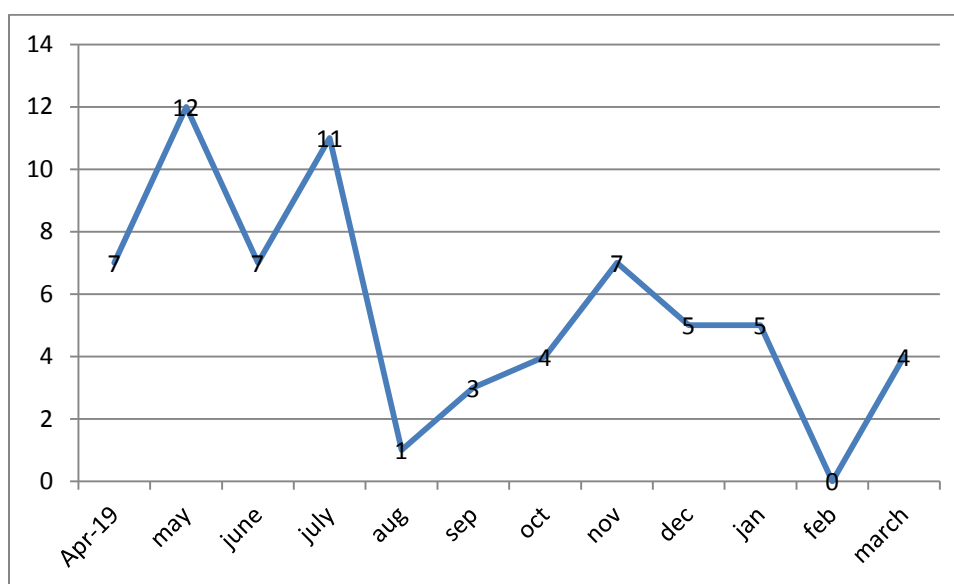


Fig4a: Abd. Hyst. 2019-20

Gyneacological procedures are a back bone of maternity hospital as it projects the skill and effectiveness of qualified Workforce. Maximum numbers of hysterectomies (12) for the year 2018 were performed in the month of September. Studying the curve of abdominal hysterectomy during the year 2019 showed that maximum (12) abdominal hysterectomies were performed in the month of September followed by July (11) during the month of February no abdominal hysterectomy was performed.

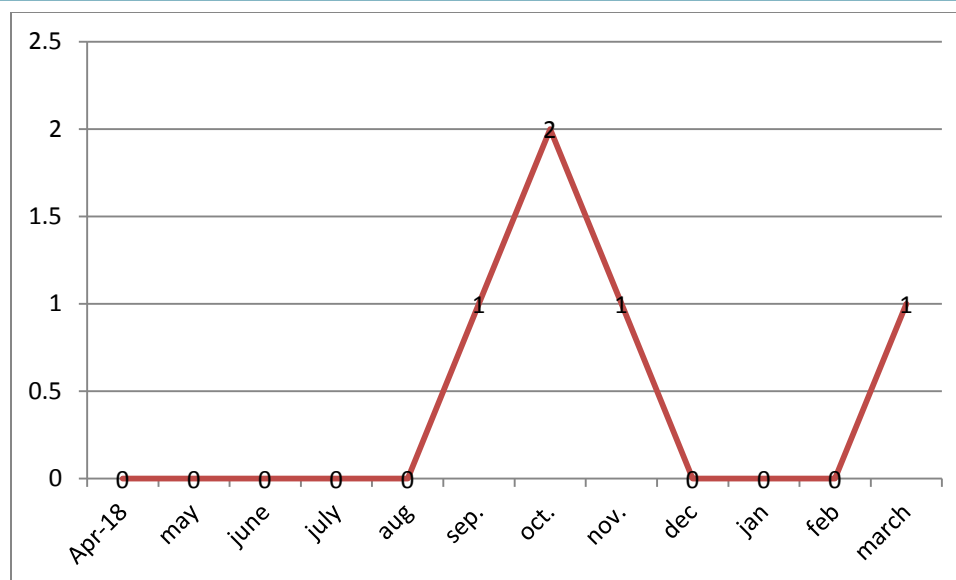


Fig.5: Vaginal Hysterectomy 2018-19

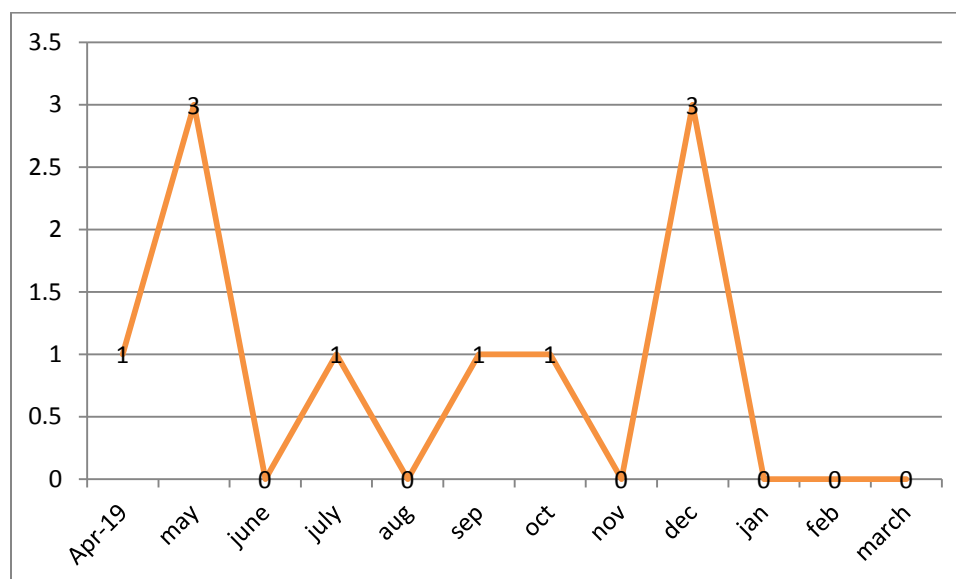


Fig.5a: Vaginal Hysterectomy 2019-20

Vaginal hysterectomy procedure was performed in lesser numbers during the years of study in comparison to abdominal Hysterectomy. Studying the vaginal hysterectomies for the year 2018-19 flat baseline was observed from April to August. Only two cases were performed during the month of October. In comparison during the year 2019 vaginal hysterectomies were performed regularly.

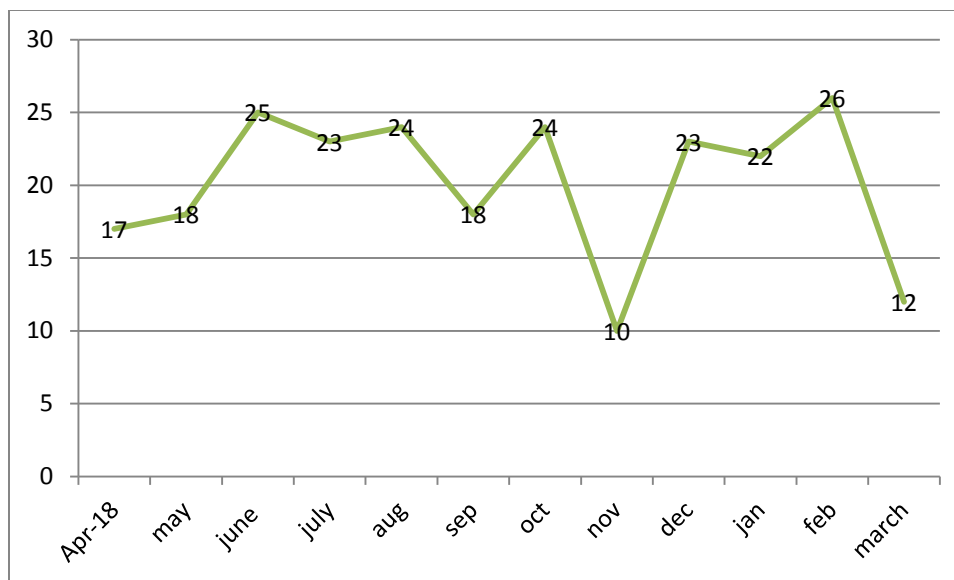


Fig6: D&C and C&C performed 2018-19

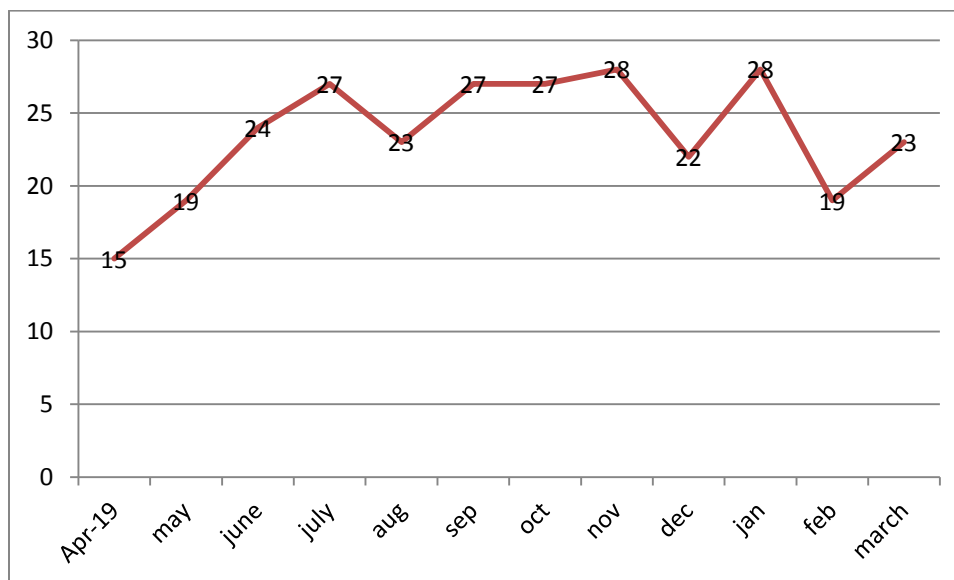


Fig 6a: D&C and C&C performed 2019-20

Minor surgical procedures like Dilatation and curettage constitute a considerable number of cases at maternity set up. In total 242 and 282 D&C procedures were performed during the year 2018 & 2019 respectively. Observing the curve of D&C minimum number (10) & minimum (15) were done in the month s of November 18 and April 19 respectively.(fig.6,6a)

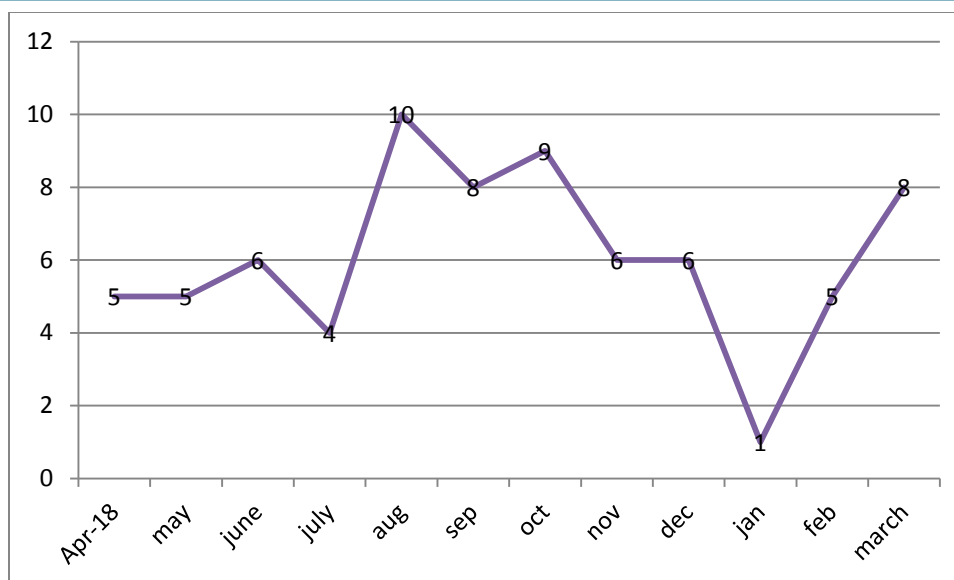


Fig.7: Laprotomies 2018-19

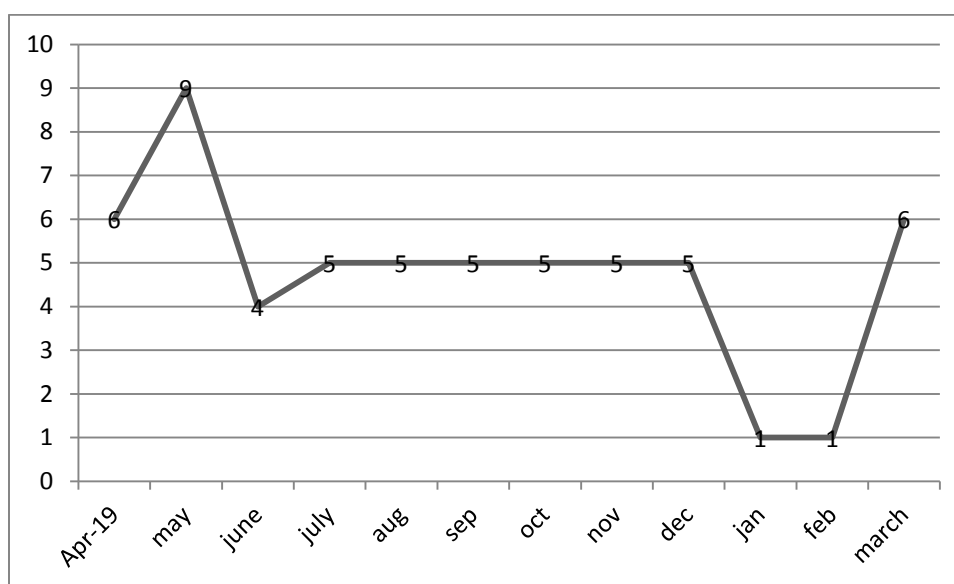
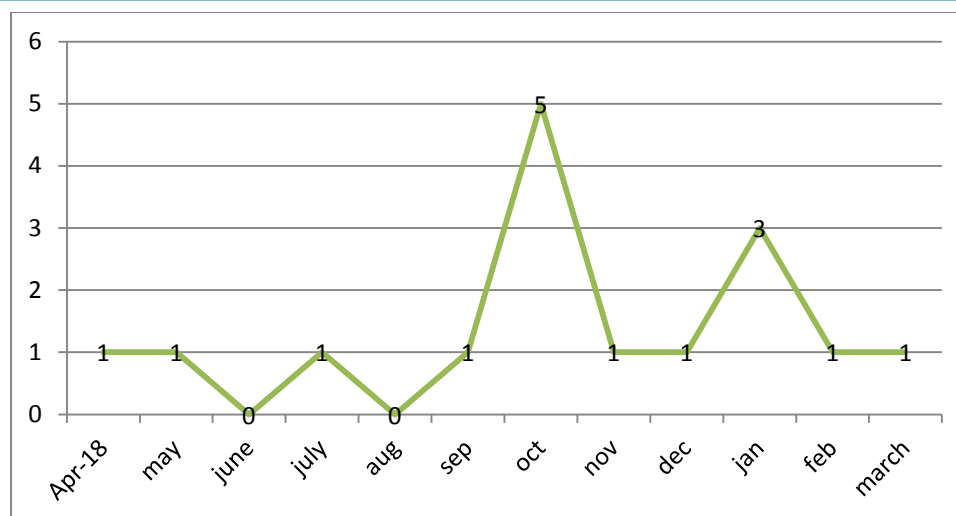
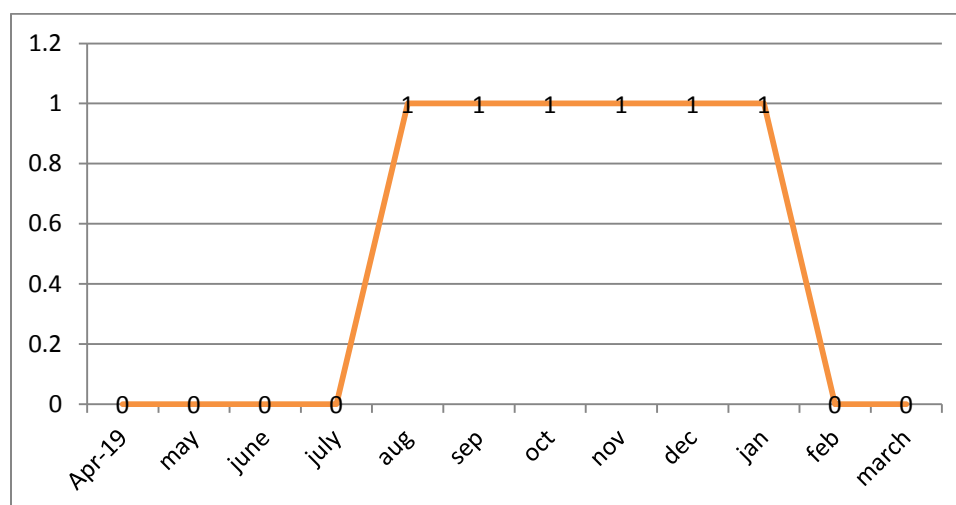


Fig7a: Laprotomies 2019-20

Studying the major surgical procedure laprotomy during 2018-19 revealed that total of 73 & 57 laprotomies were performed during the year 2018 and 2019 respectively. Maximum cases (10) were carried out in the month of August 2018 and same numbers of laprotomies were done from July-December 2019-20. (fig7,7a)

**Fig8: MTP 2018-19****Fig 8a: MTP 2019-20**

Total of 16 MTP procedures were done during the year 2018 while only 6 cases reported for MTP during the year 2019. Maximum five MTP's were done in October 18

Table 1: Showing number of investigations

S.No.	Type of Investigation	2018-19	2019-20
1	CBC	18220	20137
2	VDRL	3766	4519
3	BL. Grouping	4902	5499
4	BL. Sugar	10421	16793
5	Urine Examination	5053	5675
6	USG	16268	24907
7	ECG	2924	4654

Investigations form an important backup for establishment of diagnosis and appropriate treatment of the patients. Observations for the investigations carried out during the years of study revealed that in 2018 a total of 18220 CBC's , 3766 VDRL, 4902 Blood groupings, 10421 blood sugar and 5053 urine examinations were performed. In comparison during the year 2019 a higher number of these investigations were recorded as shown in the table 1. Ultrasonography being a key tool used during pregnancy recorded 16268 USG during the year 2018 and 24907 during the year 2019. A total of 2924 ECG's were performed during 2018 in comparison to 4654 in 2019.

Caesarean Rate is an important indicator for determining the quality maternal services provided . Caesarean rate was calculated by following formula

Caesarean rate: Total no. Of LSCS + LSCS with ligation/Total no. Of deliveries x 100

Caesarean rate for the year 2018 was 76.7% and for the year 2019 it was 77.5%.

Bed occupancy rate was calculated using following formula:

Bed occupancy rate: No. Of patient days (service days in yrs.) x 100/No. Of beds x 365

Bed occupancy rate for the year 2018 was 81% and 81.9% for the year 2019

Discussion:

Maternal health has become an important aspect of policy and planning for healthcare, as reflected by its inclusion as the fifth Millennium Development Goal (MDG)⁽¹²⁾.

As an intervention for the Sustainable Development Goals 3, the World Health Organization (WHO) strongly suggests that skilled care before, during, and after childbirth can save the lives of women and newborn babies. This can be decrease in the mortality and morbidity rates in the country⁽¹³⁾.

In our study it was found that caesarean rate in year 2018-19 is 76.7% whereas in year 2019-20 is 77.5% which is very high when compared to accepted norm of WHO i.e. 15%.⁽¹⁴⁾ The caesarean section rate in Africa was 60.2% where as in United Kingdom ; the CSR was 24.1% of all live births^(15,16). A study by

Samdal LJ et al from rural Nepal reported CSR of 9.5%⁽¹⁷⁾.

The reasons for the increased caesarean are multifaceted. Commonly cited causes are^(18,14,19)

Increased institutional deliveries, Avoiding difficult manipulative / instrumental vaginal deliveries, Foetal distress detected especially with the use continuous electronic monitoring, Liberal use of caesarean in high risk cases like breech presentation, previous caesarean delivery , growth retarded foetus ,multiple pregnancy,preterm baby, Improved safety of C-section with better surgical techniques,anaesthesia, better availability of blood and its products ,advanced antibiotics, fear of the patient for labour pain, busy schedule of the obstetrician specially those working in private sector and also an apprehension of the obstetrician regarding the fear of poor neonatal outcome, increased incidence of IVF and other high - risk pregnancy.

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