

## Incidence of Caesarean Section in AL-Elwyia Maternity Teaching Hospital: Retrospective Study

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**Abstract:** *The tremendous progress in the field of surgery and care of the newborn has made cesarean delivery safer for the mother and the fetus.*

**Objectives:** The study aimed to identify the caesarean section rate for five years from 2009 until 2013 in AL-Elwyia Maternity Teaching Hospital.

**Methodology:** A retrospective study appropriately designed was conducted through a review of relevant statistics from 2007 to 2013 from annual report of Ministry of Health regarding the incidence of C/S in Iraq, Al-Ruasafa directorate, and Elwyia Maternity Teaching Hospital statistics regarding the incidence of cesarean section for the period between 2 February to 17 April 2014.

**Result :** The percentage of C-sections in AL-Elwyia Maternity Teaching Hospital of the total births were as follows: (38.09%) for the year 2009, (40.58%) for the year 2010 (42.5%) of 2011, (44.97%) for the year 2012, and (44.2%) for the year 2013.

**Conclusions:** The study concluded that the incidence of caesarean section in AL-Elwyia Maternity Teaching Hospital increase in rates not only in the private hospitals, but also in government hospitals, but more generally in the private hospitals for five years and its steady increase.

**Recommendation:** The study recommended conduct teaching program to pregnant women to increase awareness and encourage them not to perform caesarean surgery unless necessary because of its futuristic notify the health of the fetus. Also, follow-up the reason of increase in Caesarean sections in private hospitals, and provide obstetric care by using partograph record in hospitals and at all levels.

Keywords: Caesarean Section, Incidence, Retrospective Study.

### I. Introduction

A Caesarean section: also C-section, is a surgical procedure in which one or more incisions are made through a mother's abdomen (laparotomy) and uterus (hysterotomy) to deliver one or more babies, or, rarely, to remove a dead fetus.<sup>[1]</sup> A Caesarean section is usually performed when a vaginal delivery would put the baby's or mother's life or health at risk, although in recent times it has also been performed upon request for childbirths that could otherwise have been natural.<sup>[2][3][4]</sup> In recent years, the rate has risen to a record level of 46% in China and to levels of 25% and above in many Asian, European and Latin American countries.<sup>[5]</sup> The rate has increased significantly in the United States, to 33 percent of all births in 2011, up from 21 percent in 1996 and in the rate in 2009 varied widely between hospitals (ranging from 6.9% to 69.9% of births).<sup>[6][7]</sup> Across Europe, there are significant differences between countries: in Italy the Caesarean section rate is 40%, while in the Nordic countries it is only 14%.<sup>[8]</sup> That should study these rates to reduce them where there are a number of large countries, West Asia and especially (Iraq and Syria) and Africa (Angola, Congo and Democratic Republic of Congo without national data on cesarean section).

### II. Methodology

A retrospective study appropriately designed to see Caesarean section rates in Elwyia maternity teaching hospital. The study sample was selected through a review of related statistics from 2007 to 2013 from the Ministry of Health, Al-Rasafa directorate, and Elwyia maternity teaching hospital statistics regarding the incidence of cesarean section. The data were collected through reviewing of related statistics from 2007 to 2013 from annual report of Ministry of Health regarding the incidence of C/S in Iraq, Al-Rasafa directorate, and Elwyia maternity teaching hospital statistics regarding the incidence of cesarean section from 2009 to 2013 for the period from 2<sup>nd</sup> feb. to 17<sup>th</sup> of April 2014. The data of the study were analyzed through the application of descriptive data analysis (frequency & percentage).

III. Results

Table (1):- Rates of Caesarean Sections in the Governorates of Iraq for Years (2007-2012)

| Governorates            | 2012   |       | 2011   |       | 2010   |       | 2009   |      | 2008   |      | 2007   |      |
|-------------------------|--------|-------|--------|-------|--------|-------|--------|------|--------|------|--------|------|
|                         | NO.    | %     | NO.    | %     | NO.    | %     | NO.    | %    | NO.    | %    | NO.    | %    |
| Baghdad                 | 99189  | 50.29 | 99657  | 49.91 | 90346  | 49.72 | 84405  | 47.3 | 61718  | 28.5 | 54264  | 28.5 |
| Basra                   | 23396  | 26.64 | 16303  | 18.95 | 15056  | 17.74 | 13183  | 16.3 | 115373 | 12   | 10660  | 11.4 |
| Nineveh                 | 22496  | 22.81 | 20966  | 21.75 | 18889  | 20.43 | 17128  | 9.8  | 14866  | 12.6 | 12920  | 13.5 |
| Maysan                  | 4040   | 17.39 | 3834   | 15.72 | 3910   | 15.64 | 4104   | 15.3 | 3713   | 9.5  | 3635   | 7.8  |
| Diwaniyah               | 14664  | 45.75 | 13942  | 44.19 | 14329  | 48.23 | 13675  | 48.5 | 11188  | 28.7 | 9144   | 25.9 |
| Diyala                  | 12355  | 35.49 | 12006  | 34.48 | 10579  | 32.82 | 9738   | 31.1 | 7266   | 17   | 4346   | 16.2 |
| Anbar                   | 13926  | 36.06 | 13091  | 33.58 | 13354  | 33.75 | 10047  | 28.5 | 6562   | 17   | 3526   | 19.4 |
| Babylon                 | 13579  | 29.55 | 14918  | 31.77 | 13267  | 30.85 | 16099  | 30.1 | 14574  | 20.7 | 13218  | 19.6 |
| Karbala                 | 11920  | 33.39 | 11990  | 33.93 | 10964  | 30.91 | 9591   | 30.4 | 7798   | 19.8 | 7236   | 18.5 |
| Kirkuk                  | 10460  | 30.58 | 9222   | 29.42 | 8275   | 29.36 | 7019   | 26.3 | 5724   | 12.5 | 5170   | 13.2 |
| Wasit                   | 10807  | 34.35 | 11287  | 35.75 | 8848   | 32.42 | 8885   | 32.2 | 7608   | 16   | 7247   | 14.5 |
| Dhi Qar                 | 10958  | 26.86 | 12282  | 30.03 | 12739  | 37.40 | 8762   | 26.8 | 7574   | 11.3 | 7846   | 10.9 |
| Muthanna                | 6075   | 23.40 | 5866   | 22.72 | 5439   | 22.18 | 5281   | 22.1 | 4622   | 14.7 | 4187   | 14.3 |
| Salah AL-Dien           | 7707   | 32.05 | 7483   | 33.24 | 4956   | 26.61 | 4562   | 23.9 | 4969   | 11   | 2555   | 9.9  |
| Najaf                   | 15275  | 35.41 | 13985  | 33.69 | 12656  | 31.72 | 11464  | 29.6 | 11386  | 24.2 | 11054  | 24.5 |
| Arbil                   | 17537  | 37.57 | 13524  | 34.97 | 11384  | 29.93 | 8230   | 24.1 | 5890   | 20.9 | -      | -    |
| Dohuk                   | 7419   | 21.00 | 6992   | 18.45 | 5730   | 16.64 | 5828   | 15.7 | 4842   | 17.2 | -      | -    |
| Sulaymaniyah            | 14387  | 34.46 | 14386  | 34.81 | 9348   | 26.95 | 9075   | 29.2 | 7306   | 29   | -      | -    |
| SUM. & Total percentage | 320027 | 34.09 | 301734 | 33.32 | 270069 | 32.01 | 247076 | 30.1 | 99143  | 18   | 157008 | 17.9 |

NO. =Number SUM.=Summation %= Percentage

Table (1): Shows the rates of Caesarean deliveries in Baghdad and the provinces of Iraq. Which indicates that the proportion of caesarean section in Baghdad for the years 2007 and 2008 was (28.5%) and in 2009 the ratio doubled to reach (47.3%), and in 2010 was (49.72%), and in 2011 was (49.91%) and in 2012 increased relatively to reach (50.29%). The second highest rate after Baghdad in the province of Diwaniyah and was almost less or equal to or slightly larger proportions where it was (25.9%) in 2007 (28.7%) in 2008, and doubled up in 2009 to (48.5%), and in 2010 it was (48.23%), and in 2011 it was (44.19%), and in 2012 was (45.75%). The lowest proportion of Caesarean birth was in Maysan province, where it was in 2007 (7.8%) and in 2008 was (9.5%), in 2009, the ratio is doubled to reach (15.3%), Where stabilized in the years 2010 and 2011 to be (15.64%) and (15.72 %), respectively, and was (17.19%) in 2012. The total proportion of cesarean births in Iraq (government and private) was (17.9%) in 2007 (18%) in 2008, and nearly doubled (30.1%) in 2009, (32.01%) in 2010, (33.32%) in 2011. Finally (34.9%) in 2012.

Table (2): Rates of Caesarean Deliveries in the Governorate of Iraq Government and Private Hospitals and according to its Delivery for the Years (2009-2012).

| N. | Governorates            | 2009                |      |                  |       | 2010                |      |                  |      | 2011                |      |                  |      | 2012                |      |                  |      |
|----|-------------------------|---------------------|------|------------------|-------|---------------------|------|------------------|------|---------------------|------|------------------|------|---------------------|------|------------------|------|
|    |                         | Government Hospital |      | Private Hospital |       | Government Hospital |      | Private Hospital |      | Government Hospital |      | Private Hospital |      | Government Hospital |      | Private Hospital |      |
|    |                         | NO.                 | %    | NO.              | %     | NO.                 | %    | NO.              | %    | NO.                 | %    | NO.              | %    | NO.                 | %    | NO.              | %    |
| 1  | Baghdad                 | 39800               | 33.8 | 44605            | 73.6  | 41588               | 34.8 | 49758            | 78.4 | 51056               | 36.6 | 48601            | 80.6 | 52975               | 38.8 | 46214            | 76.2 |
| 2  | Basra                   | 10722               | 14.3 | 2461             | 40.6  | 13219               | 16.5 | 1837             | 38.4 | 14597               | 18   | 1706             | 35.8 | 21716               | 26.2 | 1680             | 35   |
| 3  | Nineveh                 | 16425               | 19.2 | 703              | 96.7  | 18023               | 19.7 | 866              | 98.2 | 20401               | 21.3 | 565              | 99   | 21616               | 22.3 | 680              | 100  |
| 4  | Maysan                  | 4104                | 15.3 | 0                | 0     | 3910                | 15.7 | -                | -    | 3834                | 15.7 | 0                | 0    | 4040                | 17.4 | 0                | 0    |
| 5  | Diwaniyah               | 8015                | 37.2 | 5660             | 85.5  | 7931                | 34.8 | 6398             | 92.8 | 8823                | 44   | 5119             | 92.1 | 9636                | 35.8 | 5028             | 98.6 |
| 6  | Diyala                  | 7649                | 26.2 | 2089             | 97.9  | 8813                | 29.1 | 1766             | 94.1 | 10236               | 31   | 1770             | 99.9 | 10630               | 32.1 | 1725             | 100  |
| 7  | Anbar                   | 8088                | 25.3 | 1959             | 61.1  | 9417                | 27.3 | 3937             | 74.3 | 10683               | 30.9 | 2408             | 54.1 | 11793               | 33.8 | 2133             | 57.5 |
| 8  | Babylon                 | 14557               | 28   | 1542             | 99.4  | 11532               | 28.0 | 1735             | 99.9 | 12991               | 29   | 1927             | 91   | 11883               | 26.9 | 1696             | 100  |
| 9  | Karbala                 | 6117                | 22.3 | 3474             | 84.3  | 6789                | 22.2 | 4175             | 87.1 | 7751                | 25.7 | 4239             | 82.7 | 7517                | 24.3 | 4403             | 89.4 |
| 10 | Kirkuk                  | 5817                | 22.9 | 1202             | 94.9  | 7040                | 26.2 | 1235             | 95.9 | 8136                | 26.9 | 1086             | 98.1 | 9218                | 28   | 1242             | 98.4 |
| 11 | Wasit                   | 8695                | 31.8 | 190              | 76.9  | 8748                | 32.2 | 50               | 53.8 | 11287               | 35.8 | 0                | 0    | 10807               | 34.4 | 0                | 0    |
| 12 | Dhi Qar                 | 7877                | 24.8 | 885              | 100   | 10318               | 31.9 | 1421             | 99.9 | 10656               | 27.2 | 1626             | 100  | 9056                | 23.3 | 1902             | 99.8 |
| 13 | Muthanna                | 4991                | 21.2 | 290              | 100   | 5399                | 22.1 | 40               | 100  | 5866                | 22.7 | 0                | 0    | 6075                | 23.4 | 0                | 0    |
| 14 | Salah AL-Dien           | 3839                | 20.9 | 723              | 97.2  | 3623                | 21.1 | 1333             | 95.6 | 5530                | 27   | 1953             | 96.7 | 5686                | 26.1 | 2021             | 88.9 |
| 15 | Najaf                   | 7520                | 22.2 | 3944             | 83.9  | 9049                | 25.4 | 3607             | 85.9 | 10974               | 28.8 | 3011             | 87.7 | 12435               | 31.1 | 2840             | 91.2 |
|    | SUM. & Total percentage | 154216              | 24.6 | 69727            | 74.80 | 165399              | 25.9 | 77158            | 79.6 | 192821              | 27.8 | 74011            | 79.7 | 205283              | 29.3 | 71564            | 77.9 |

\*private hospitals where there are no NO. =Number SUM.=Summation %= Percentage

Table (2): Shows the rates of Caesarean deliveries in both government and private hospitals of the total births of the Iraqi governorates. In Baghdad the percentage was (33.8%) in government hospitals while, (73.6%) in the private hospitals. In 2010 the percentage was (34.8%) in government hospitals, while, more than twice (73.6%) in the private hospitals. In 2011 the percentage was (36.6%) in government hospitals while the percentage was more than twice (80.6%) in the private hospitals. But in 2012, the percentage was (38.8%) in governorate hospitals while the figure was doubled (76.2%) in the private hospitals. As for the Diwaniyah governorate was the highest rate for government hospitals in all years and approach to the proportions of Baghdad governorate. There are governorate their percentage of Caesarean delivery in private hospitals (100%)(

The Dhi Qar, Muthanna, Ninueeh, Diyala and Babel) . Maysan governorate C/S births limited to government hospitals as well as it remained the governorate of the lowest rate of operations.

**Table (3) Ratios of Cesarean Deliveries in Government and Private Hospitals, According to the total Proportion of Births (Normal + C-section) in each Province (2009-2010).**

| N. | Governorates            | 2009                |      |                  |      |                         |      | 2010                |       |                  |       |                         |       |
|----|-------------------------|---------------------|------|------------------|------|-------------------------|------|---------------------|-------|------------------|-------|-------------------------|-------|
|    |                         | Government Hospital |      | Private Hospital |      | SUM. & Total percentage |      | Government Hospital |       | Private Hospital |       | SUM. & Total Percentage |       |
|    |                         | NO.                 | %    | NO.              | %    | NO.                     | %    | NO.                 | %     | NO.              | %     | NO.                     | %     |
| 1  | Baghdad                 | 39800               | 22.3 | 44605            | 25.1 | 84405                   | 47.3 | 41558               | 22.9  | 48758            | 26.8  | 90346                   | 49.72 |
| 2  | Basra                   | 10722               | 13.3 | 2461             | 3.03 | 13183                   | 16.3 | 13219               | 15.6  | 1837             | 2.2   | 15056                   | 17.74 |
| 3  | Nineueh                 | 16425               | 19.0 | 703              | 0.8  | 17128                   | 19.8 | 18023               | 19.5  | 866              | 0.94  | 18889                   | 20.43 |
| 4  | Maysan                  | 4104                | 15.3 | 0                | 0    | 4104                    | 15.3 | 3910                | 15.64 | -                | -     | 3910                    | 15.64 |
| 5  | Diwanayah               | 8015                | 28.4 | 5660             | 20.1 | 13675                   | 48.5 | 7931                | 26.7  | 6378             | 21.54 | 14329                   | 48.23 |
| 6  | Diyala                  | 7649                | 24.4 | 2089             | 6.7  | 9738                    | 31.1 | 8813                | 27.34 | 1766             | 5.6   | 10579                   | 32.82 |
| 7  | Anbar                   | 8088                | 22.9 | 1959             | 5.6  | 10047                   | 28.5 | 9417                | 23.7  | 3937             | 9.9   | 13354                   | 33.57 |
| 8  | Babylon                 | 14557               | 27.2 | 1542             | 2.9  | 16099                   | 30.1 | 11532               | 26.82 | 1735             | 4.35  | 13267                   | 30.85 |
| 9  | Karbala                 | 6117                | 19.4 | 3474             | 11.0 | 9591                    | 30.4 | 6789                | 19.14 | 4175             | 11.8  | 10964                   | 30.91 |
| 10 | Kirkuk                  | 5817                | 21.8 | 1202             | 4.5  | 7019                    | 26.3 | 7040                | 24.98 | 1235             | 4.4   | 8275                    | 29.36 |
| 11 | Wasit                   | 8695                | 31.5 | 190              | 0.7  | 8885                    | 32.2 | 8748                | 32.22 | 50               | 0.2   | 8848                    | 32.42 |
| 12 | Dhi Qar                 | 7877                | 24.1 | 885              | 2.7  | 8762                    | 26.8 | 10318               | 30.5  | 1421             | 4.21  | 12739                   | 37.70 |
| 13 | Muthanna                | 4991                | 20.9 | 290              | 1.2  | 5281                    | 22.1 | 5399                | 22.02 | 40               | 0.2   | 5439                    | 22.18 |
| 14 | Salah AL-Dien           | 3839                | 20.1 | 723              | 3.8  | 4562                    | 23.9 | 3623                | 19.5  | 1333             | 7.2   | 4956                    | 26.61 |
| 15 | Najaf                   | 7520                | 19.4 | 3944             | 10.2 | 11464                   | 29.6 | 9049                | 22.7  | 3607             | 9.04  | 12656                   | 31.72 |
|    | SUM. & Total percentage | 154216              | 18.3 | 69727            | 11.8 | 2239043                 | 30.1 | 165399              | 22.5  | 77158            | 10.5  | 242557                  | 33.00 |

NO. =Number      SUM.=Summation      %= Percentage

**Table (3) :** Shows the rates of Caesarean deliveries in both (government and private) hospitals of the total percentage for each governorate for the years 2009-2010. Where the highest percentage of caesarean delivery in Baghdad and Diwanayah as close descent. In Baghdad for the year 2009 the total percentage (47.3%) of them (22.3%) in government hospitals, (25.1%) in the Private hospitals. In 2010, the total percentage (49.72%), of them (22.9%) in government hospitals, (26.8%) in the Privet hospitals. As for the governorate of Diwaniya the percentages for government hospitals is higher than the Privet hospitals. The lowest proportion of hospitals for caesarean delivery was in Maysan governorate, where the percentage accounted in government hospitals (15.3%), (15.64%) in 2009 and 2010 respectively. Maysan governorate not having a private hospital and its operations are limited to government hospitals, and it remains at lowest percentage of operations.

**Table (4) : Ratios of Cesarean Deliveries for Government and Private Hospitals, According to the total percentage of Births (Normal + C- Section) in each Province (2011-2012)**

| N. | Governorates            | 2011                |       |                  |       |                         |       | 2012                |       |                  |       |                         |       |
|----|-------------------------|---------------------|-------|------------------|-------|-------------------------|-------|---------------------|-------|------------------|-------|-------------------------|-------|
|    |                         | Government Hospital |       | Private Hospital |       | SUM. & Total percentage |       | Government Hospital |       | Private Hospital |       | SUM. & Total Percentage |       |
|    |                         | NO.                 | %     | NO.              | %     | NO.                     | %     | NO.                 | %     | NO.              | %     | NO.                     | %     |
| 1  | Baghdad                 | 51056               | 25.6  | 48601            | 24.34 | 99657                   | 49.91 | 52975               | 26.9  | 46214            | 23.43 | 99189                   | 50.29 |
| 2  | Basra                   | 14597               | 16.97 | 1706             | 1.98  | 16303                   | 18.95 | 21716               | 24.73 | 1680             | 1.91  | 32396                   | 26.64 |
| 3  | Nineueh                 | 20401               | 21.2  | 565              | 0.81  | 20966                   | 21.75 | 21816               | 22.2  | 680              | 0.7   | 22496                   | 22.81 |
| 4  | Maysan                  | 3834                | 15.72 | 0                | 0.0   | 3834                    | 15.72 | 4040                | 17.4  | 0                | 0.0   | 4040                    | 17.39 |
| 5  | Divaniyah               | 8823                | 27.97 | 5119             | 16.23 | 13942                   | 44.19 | 9636                | 30.1  | 5028             | 15.7  | 14664                   | 45.75 |
| 6  | Diyala                  | 10236               | 29.4  | 1770             | 5.1   | 12006                   | 34.48 | 10630               | 30.54 | 1725             | 4.95  | 12355                   | 35.49 |
| 7  | Anbar                   | 10683               | 27.4  | 2408             | 6.2   | 13091                   | 33.58 | 11793               | 30.54 | 2133             | 4.95  | 13926                   | 36.06 |
| 8  | Babylon                 | 12991               | 27.7  | 1927             | 4.1   | 14918                   | 31.77 | 11883               | 25.9  | 1696             | 3.7   | 13579                   | 29.55 |
| 9  | Karbala                 | 7751                | 21.94 | 4239             | 12    | 11990                   | 33.93 | 7517                | 21.1  | 4403             | 12.3  | 11920                   | 33.39 |
| 10 | Kirkuk                  | 8136                | 25.96 | 1086             | 3.5   | 9222                    | 29.42 | 9218                | 26.95 | 1242             | 3.63  | 10460                   | 30.58 |
| 11 | Wasit                   | 11287               | 35.8  | 0                | 0.0   | 11287                   | 35.75 | 10807               | 34.4  | 0                | 0.0   | 10807                   | 34.35 |
| 12 | Dhi Qar                 | 10656               | 26.1  | 1626             | 3.98  | 12282                   | 30.03 | 9056                | 22.2  | 1902             | 4.7   | 10958                   | 26.86 |
| 13 | Muthanna                | 5866                | 22.72 | 0                | 0.0   | 5866                    | 22.72 | 6075                | 23.4  | 0                | 0.0   | 6075                    | 23.40 |
| 14 | Salah AL-Dien           | 5530                | 24.6  | 1953             | 8.7   | 7483                    | 33.24 | 5686                | 23.7  | 2021             | 8.41  | 7707                    | 32.05 |
| 15 | Najaf                   | 10974               | 26.4  | 3011             | 7.3   | 13985                   | 33.69 | 12435               | 28.82 | 2840             | 6.6   | 15275                   | 35.41 |
|    | SUM. & Total percentage | 192821              | 24.5  | 74011            | 9.4   | 266832                  | 33.9  | 205283              | 23    | 71564            | 8.02  | 276847                  | 31.02 |

NO. =Number      SUM.=Summation      %= Percentage

**Table (4):** Shows the proportions of cesarean deliveries in (government and private) hospitals of the total percentage for each governorate for the years 2011-2012. Where the proportion of the overall caesarean section in Baghdad for the year 2011 (49.91%) of them (25.6%) in government hospitals, (24.34%) in the private hospitals. In 2012, a total percentage was (50.29%), of them (26.9%) in government hospitals, (23.43%) in the

private hospitals. As for the other governorate were percentages of government hospitals is higher than the private hospitals. The lowest proportion of hospitals for caesarean delivery was in Maysan governorate, where the proportion of birth in government hospitals formed (15.72%) and (17.39%) in 2011 and 2012 respectively.

**Table (5) Rates of Caesarean Sections in AL-Elwya Maternity Teaching Hospital for the Year 2009**

| Type of Delivery     | Normal Vaginal Delivery |             |             |             | Caesarean Section |             |             |              | Total        |              |
|----------------------|-------------------------|-------------|-------------|-------------|-------------------|-------------|-------------|--------------|--------------|--------------|
|                      | Male                    | Female      | Total       | percentage  | Male              | Female      | Total       | Percentage   | Total        | percentage   |
| Single Live Births   | 4819                    | 4640        | 9459        | 59.78       | 2941              | 2763        | 5704        | 36.05        | 15163        | 95.83        |
| Multiple Live Births | 75                      | 86          | 161         | 1.02        | 132               | 114         | 246         | 1.55         | 407          | 2.57         |
| Single Dead Birth    | 88                      | 86          | 174         | 1.09        | 46                | 32          | 78          | 0.49         | 252          | 1.59         |
| <b>Total</b>         | <b>4982</b>             | <b>4812</b> | <b>9794</b> | <b>61.9</b> | <b>3119</b>       | <b>29.9</b> | <b>6028</b> | <b>38.09</b> | <b>15822</b> | <b>100.0</b> |

Table (5) :Shows the caesarean section rate for the year (2009) in AL-Elwya Maternity Teaching Hospital from its total births (normal + C-section), the overall caesarean section rate (44.2%), where formed of Single Live Births rate formed (38.09%) of Caesarean section births, twin births (1.55%), and dead births (0.49%) of caesarean section rate. It is clear from the table that the twin birth rate in caesarean section formed (1.55%) more than that in the normal birth (1.02%), while the dead in caesarean birth rate (0.49%) which is less than the rate in the normal childbirth (1.09%).

**Table (6): Rates of Caesarean Sections in AL-Elwya Maternity Teaching Hospital for the Year 2010.**

| Type of Delivery     | Normal Vaginal Delivery |             |             |              | Caesarean Section |             |             |              | Total       |              |
|----------------------|-------------------------|-------------|-------------|--------------|-------------------|-------------|-------------|--------------|-------------|--------------|
|                      | Male                    | Female      | Total       | percentage   | Male              | Female      | Total       | percentage   | Total       | percentage   |
| Single Live Births   | 2260                    | 2226        | 4486        | 57.34        | 1545              | 1382        | 2927        | 37.41        | 7413        | 94.75        |
| Multiple Live Births | 35                      | 32          | 76          | 0.85         | 65                | 65          | 130         | 1.66         | 197         | 2.52         |
| Single Dead Birth    | 50                      | 46          | 96          | 1.23         | 67                | 51          | 118         | 1.5          | 214         | 2.74         |
| <b>Total</b>         | <b>2345</b>             | <b>2304</b> | <b>4649</b> | <b>59.42</b> | <b>1677</b>       | <b>1498</b> | <b>3175</b> | <b>40.58</b> | <b>7824</b> | <b>100.0</b> |

Table (6) : Shows the caesarean section rate for the year (2010) in AL-Elwya Maternity Teaching Hospital from the total births (Normal + C-section), The overall caesarean section rate (40.58%), Single Live Births rate formed (37.41%) of Caesarean section births, twin births (1.66%) of Caesarean section rate, stillbirths (1.5%) of caesarean section rate. It was clear from the table that the twin birth rate in C-section formed (1.66%) more than that in the Normal birth (0.85%), while the rate of dead birth in caesarean section were (1.5%) which is more than the rate in the normal birth (1.23%).

**Table (7): Rates of Caesarean Sections in AL-Elwya Maternity Teaching Hospital for the Year 2011.**

| Type of Delivery     | Normal Vaginal Delivery |             |              |             | Caesarean Section |             |             |             | Total        |              |
|----------------------|-------------------------|-------------|--------------|-------------|-------------------|-------------|-------------|-------------|--------------|--------------|
|                      | Male                    | Female      | Total        | percentage  | Male              | Female      | Total       | percentage  | Total        | percentage   |
| Single Live Births   | 4977                    | 4731        | 9708         | 54.7        | 3549              | 3552        | 7101        | 39.98       | 16809        | 94.65        |
| Multiple Live Births | 172                     | 156         | 328          | 1.85        | 190               | 176         | 366         | 2.06        | 694          | 3.91         |
| Single Dead Birth    | 99                      | 86          | 185          | 1.04        | 38                | 31          | 69          | 0.39        | 254          | 1.43         |
| <b>Total</b>         | <b>5248</b>             | <b>4973</b> | <b>10221</b> | <b>57.5</b> | <b>3777</b>       | <b>3759</b> | <b>7539</b> | <b>42.5</b> | <b>17760</b> | <b>100.0</b> |

Table(7): Shows the caesarean section rate for the year (2011) in AL-Elwya Maternity Teaching Hospital from the total births (Normal + C-section), The overall caesarean section rate (42.5%), Single Live Births rate formed (39.98%) Caesarean section births, twin births (2.06%) of caesarean section rate, and dead births (0.39%) of caesarean section rate. Twin birth rate formed (2.06%) more than the rate in the normal birth (1.85%), while the rate of Single Dead Birth in caesarean birth was (0.39%) which is less than the rate in the normal childbirth (1.04%).

**Table (8): Rates of Caesarean Sections in AL-Elwya Maternity Teaching Hospital for the Year 2012.**

| Type of Delivery     | Normal Vaginal Delivery |             |             |              | Caesarean Section |             |             |              | Total        |            |
|----------------------|-------------------------|-------------|-------------|--------------|-------------------|-------------|-------------|--------------|--------------|------------|
|                      | Male                    | Female      | Total       | percentage   | Male              | Female      | Total       | percentage   | Total        | percentage |
| Single Live Births   | 4245                    | 3976        | 8221        | 52.9         | 3222              | 3278        | 6500        | 41.83        | 14721        | 94.73      |
| Multiple Live Births | 85                      | 73          | 158         | 1.02         | 177               | 184         | 361         | 2.32         | 519          | 3.34       |
| Single Dead Birth    | 94                      | 78          | 172         | 1.11         | 61                | 67          | 128         | 0.82         | 300          | 1.93       |
| <b>Total</b>         | <b>4424</b>             | <b>4127</b> | <b>8551</b> | <b>55.03</b> | <b>3460</b>       | <b>3529</b> | <b>6989</b> | <b>44.97</b> | <b>15540</b> | <b>100</b> |

Table (8) : Shows the caesarean section rate for the year (2012) in AL-Elwya Maternity Teaching Hospital from the total births (Normal + C-section), the overall caesarean section rate (44.97%), Single Live Births rate form (41.83%) Caesarean section births, twin births (2.32%) of Caesarean section rate, stillbirths (0.82%) of the caesarean section rate. Twin birth rate in C-section formed (2.32%) more than the rate in the normal birth (0.1.02%), while the proportion of dead in caesarean birth (0.82%) which is less than the rate in the normal birth (1.11%).

**Table (9) Caesarean Section Rates in AL-Elwya Maternity Teaching Hospital for the Year 2013**

| Type of Delivery     | Normal Vaginal Delivery |        |       |            | Caesarean Section |        |       |            | Total |            |
|----------------------|-------------------------|--------|-------|------------|-------------------|--------|-------|------------|-------|------------|
|                      | Male                    | Female | Total | percentage | Male              | Female | Total | Percentage | Total | percentage |
| Single Live Births   | 142                     | 4109   | 251   | 53.53      | 3267              | 3151   | 6418  | 41.64      | 14669 | 95.17      |
| Multiple Live Births | 65                      | 80     | 145   | 0.94       | 167               | 173    | 340   | 2.21       | 5.3   | 3.26       |
| Single Dead Birth    | 107                     | 98     | 205   | 1.33       | 28                | 26     | 54    | 0.35       | 259   | 1.68       |
| Total                | 314                     | 4287   | 601   | 55.8       | 3462              | 3350   | 6812  | 44.2       | 15413 | 100        |

Table (9) :Shows the caesarean section rate for the year (2013) in the AL-Elwya Maternity Teaching Hospital from the total births (normal + C-section), the overall caesarean section rate (44.2%), Single Live Births rate formed (41.64%) Caesarean section births, twin births (2.21%) of caesarean section rate, and dead births (0.35%) of caesarean section rate. The twin birth rate in caesarean section formed (2.21%) more than the rate in the normal birth (0.94%), while the dead in caesarean birth rate (0.35%) which is less than the rate in the normal childbirth (1.33%).

**Table (10) Percentage of Caesarean Sections in AL-Elwya Maternity Teaching Hospital of the total government and private hospitals in Baghdad**

| Years | Government Hospital |      | Private Hospital |       | Baghdad Hospital Government+ Private |      | AL-Elwya Maternity Hospital |       |
|-------|---------------------|------|------------------|-------|--------------------------------------|------|-----------------------------|-------|
|       | NO.                 | %    | NO.              | %     | NO.                                  | %    | NO.                         | %     |
| 2009  | 39800               | 15.2 | 44605            | 13.51 | 84405                                | 7.14 | 6028                        | 38.9  |
| 2010  | 41588               | 7.63 | 48758            | 6.51  | 90346                                | 3.51 | 3175                        | 40.58 |
| 2012  | 51056               | 14.8 | 48601            | 15.51 | 99657                                | 7.6  | 7539                        | 42.5  |
| 2013  | 52975               | 13.2 | 46214            | 15.12 | 99189                                | 7.1  | 6989                        | 44.97 |
| 2014  | -                   | -    | -                | -     | -                                    | -    | 6812                        | 44.2  |

Table (10): Show the rate of cesarean deliveries in AL-Elwya Maternity Hospital from the government hospitals formed (15.2%) for the year 2009, (7.63%) for the year 2010 due to the lack of statistics for seven months, and (14.8%) for the year 2011, (13.2%) for the year 2012 .With respect to the Private hospital the proportion of caesarean section in AL-Elwya Maternity Hospital form (13.51%) for the year 2009, (6.51%) for the year 2010, (15.51%) for the year 2011, (15.12%) for the year 2012.As for the percentage of C-sections in AL-Elwya Maternity Hospital of the total births Baghdad government and private hospitals were (7.14%) for the year 2009, (3.51%) for the year 2010, (7.6%) for the year 2011, and (7.1%) for the year 2012.As for the percentage of C-sections in the AL-Elwya Maternity Hospital from the total its birth (Normal +C/S) was as follows: (38.09%) for the year 2009, (40.58%) for the year 2010 (42.5%) of 2011, (44.97%) for the year 2012, and (44.2%) for the year 2013.

#### IV. Discussion

This study explains the debate which is related to the analysis of the results of Statistics which have been collected from multiple sources for the caesarean section rates in Iraq in general and in AL-Elwya Maternity Hospital in particular.

##### Part1: Cesarean Section in the Governorates of Iraq

Table (1) : Shows the rates of Cesarean deliveries in Baghdad and the provinces of Iraq. Which indicates that the proportion of caesarean section in Baghdad for the years 2007 and 2008 was (28.5%) and in 2009 the ratio doubled to reach (47.3%), and in 2010 was (49.72%), and in 2011 was (49.91%) and in 2012 increased relatively to reach (50.29%). The second highest rate after Baghdad in the province of Diwaniyah and was almost less or equal to or slightly larger proportions where it was (25.9%) in 2007 (28.7%) in 2008, and doubled up in 2009 to (48.5%), and in 2010 it was ( 48.23%), and in 2011 it was (44.19%), and in 2012 was (45.75%). The lowest proportion of Cesarean birth was in Maysan province, where it was in 2007 (7.8%) and in 2008 was (9.5%), in 2009, the ratio is doubled to reach (15.3%), Where stabilized in the years 2010 and 2011 to be (15.64%) and (15.72 %), respectively, and was (17.19%) in 2012.The total proportion of cesarean births in Iraq (government and private) was (17.9%) in 2007 (18%) in 2008, and nearly doubled (30.1%) in 2009,

(32.01%) in 2010, (33.32%) in 2011. Finally (34.9%) in 2012. When comparing the numbers and rates of Caesarean section with the annual report of the Ministry of Health note that there are (199143) a Caesarean section and formed (17.9%) percentage of the total deliveries for the whole of Iraq.

**Part 2: Caesarean deliveries in the governorates of Iraq government and private hospitals, according to Delivery for the Years (2009-2012).**

Table (2): Shows the rates of Caesarean deliveries in both government and private hospitals of the total births of the Iraqi governorates. In Baghdad the percentage was (33.8%) in government hospitals while, (73.6%) in the private hospitals. In 2010 the percentage was (34.8%) in government hospitals, while, more than twice (73.6%) in the private hospitals. In 2011 the percentage was (36.6%) in government hospitals while the percentage was more than twice (80.6%) in the private hospitals. But in 2012, the percentage was (38.8%) in governorate hospitals while the figure was doubled (76.2%) in the private hospitals. As for the Diwaniya governorate was the highest rate for government hospitals in all years and approach to the proportions of Baghdad governorate. There are governorate their percentage of Caesarean delivery in private hospitals (100%)(The Dhi Qar, Muthanna, Ninueeh, Diyala and Babel) . Maysan governorate C/S births limited to government hospitals as well as it remained the governorate of the lowest rate of operations.

**Part 3: Caesarean Deliveries Ratio in Government and Private Hospitals, according to the total Proportion of births (Normal + C-section)**

Table (3) : Shows the rates of Caesarean deliveries in both (government and private) hospitals of the total percentage for each governorate for the years 2009-2010. Where the highest percentage of caesarean delivery in Baghdad and Diwaniyah as close descent. In Baghdad for the year 2009 the total percentage (47.3%) of them (22.3%) in government hospitals, (25.1%) in the Private hospitals. In 2010, the total percentage (49.72%), of them (22.9%) in government hospitals, (26.8%) in the Privet hospitals. As for the governorate of Diwaniya the percentages for government hospitals is higher than the Privet hospitals. The lowest proportion of hospitals for caesarean delivery was in Maysan governorate, where the percentage accounted in government hospitals (15.3%), (15.64%) in 2009 and 2010 respectively. Maysan governorate not having a private hospital and its operations are limited to government hospitals, and it remain at lowest percentage of operations.

**Part 4: Caesarean Deliveries Rate in Government and Private Hospitals, according to the total Proportion of Births (Normal + C-section)**

Table (4): Shows the proportions of cesarean deliveries in (government and private) hospitals of the total percentage for each governorate for the years 2011-2012. Where the proportion of the overall caesarean section in Baghdad for the year 2011 (49.91%) of them (25.6%) in government hospitals, (24.34%) in the private hospitals. In 2012, a total percentage was (50.29%), of them (26.9%) in government hospitals, (23.43%) in the private hospitals. As for the other governorate were percentages of government hospitals is higher than the private hospitals. The lowest proportion of hospitals for caesarean delivery was in Maysan governorate, where the proportion of birth in government hospitals formed (15.72%) and (17.39%) in 2011 and 2012 respectively. Note that Maysan governorate not having a private hospital and its operations are limited to government hospitals, and it remain at lowest percentage of operations.

**Part 5: Caesarean sections Rates in AL-Elwylia Maternity Teaching Hospital**

Table (5) :Shows the caesarean section rate for the year (2009) in AL-Elwylia Maternity Teaching Hospital from its total births (normal + C-section), the overall caesarean section rate (44.2%), where formed of Single Live Births rate formed (38.09%) of Caesarean section births, twin births (1.55%), and dead births (0.49%) of caesarean section rate. It is clear from the table that the twin birth rate in caesarean section formed (1.55%) more than that in the normal birth (1.02%), while the dead in caesarean birth rate (0.49%) which is less than the rate in the normal childbirth (1.09).

Table (6) : Shows the caesarean section rate for the year (2010) in AL-Elwylia Maternity Teaching Hospital from the total births (Normal + C-section), The overall caesarean section rate (40.58%), Single Live Births rate formed (37.41%) of Caesarean section births, twin births (1.66%) of Caesarean section rate, stillbirths (1.5%) of caesarean section rate. It was clear from the table that the twin birth rate in C-section formed (1.66%) more than that in the Normal birth (0.85%), while the rate of dead birth in caesarean section were (1.5%) which is more than the rate in the normal birth (1.23).

Table(7): Shows the caesarean section rate for the year (2011) in AL-Elwylia Maternity Teaching Hospital from the total births (Normal + C-section), The overall caesarean section rate (42.5%), Single Live Births rate formed (39.98%) Caesarean section births, twin births (2.06%) of caesarean section rate, and dead

births (0.39%) of caesarean section rate. Twin birth rate formed (2.06%) more than the rate in the normal birth (1.85%), while the rate of Single Dead Birth in caesarean birth was (0.39%) which is less than the rate in the normal childbirth (1.04).

Table (8) : Shows the caesarean section rate for the year (2012) in AL-Elwya Maternity Teaching Hospital from the total births (Normal + C-section), the overall caesarean section rate (44.97%), Single Live Births rate form (41.83%) Caesarean section births, twin births (2.32%) of Caesarean section rate, stillbirths (0.82%) of the caesarean section rate. Twin birth rate in C-section formed (2.32%) more than the rate in the normal birth (0.1.02%), while the proportion of dead in caesarean birth (0.82%) which is less than the rate in the normal childbirth (1.11).

Table( 9) :Shows the caesarean section rate for the year (2013) in the AL-Elwya Maternity Teaching Hospital from the total births (normal + C-section), the overall caesarean section rate (44.2%), Single Live Births rate formed (41.64%) Caesarean section births, twin births (2.21%) of caesarean section rate, and dead births (0.35%) of caesarean section rate. The twin birth rate in caesarean section formed (2.21%) more than the rate in the normal birth (0.94%), while the dead in caesarean birth rate (0.35%) which is less than the rate in the normal childbirth (1.33).

#### **Part 6: Caesarean Sections in AL-Elwya Maternity Teaching Hospital of the total Government and Private Hospitals in Baghdad**

Table (10): Show the rate of cesarean deliveries in AL-Elwya Maternity Hospital from the government hospitals formed (15.2%) for the year 2009, (7.63%) for the year 2010 due to the lack of statistics for seven months, and (14.8%) for the year 2011, (13.2%) for the year 2012 .With respect to the Private hospital the proportion of caesarean section in AL-Elwya Maternity Hospital form (13.51%) for the year 2009, (6.51%) for the year 2010, (15.51%) for the year 2011, (15.12%) for the year 2012.As for the percentage of C-sections in AL-Elwya Maternity Hospital of the total births Baghdad government and private hospitals were (7.14%) for the year 2009, (3.51%) for the year 2010, (7.6%) for the year 2011, and (7.1%) for the year 2012.As for the percentage of C-sections in the AL-Elwya Maternity Hospital from the total its birth (Normal +C/S) was as follows: (38.09%) for the year 2009, (40.58%) for the year 2010 (42.5%) of 2011, (44.97%) for the year 2012, and (44.2%) for the year 2013.

#### **Part 7: Compared the Results Of the Study with the Results of the Ministry of Health , Arab Countries and Other Countries: -**

That the rate of C-sections in AL-Elwya Maternity Teaching Hospital for government hospitals formed (15.2%) for the year 2009, (7.63%) for the year 2010 due to the lack of statistics for a period of seven months, and (14.8%) for the year 2011, (13.2%) for the year 2012.

With respect to the private hospital the proportion of caesarean section in AL-Elwya Maternity Teaching Hospital form (13.51%) for the year 2009, (6.51%) for the year 2010, (15.51%) for the year 2011, (15.12%) for the year 2012 births private hospitals.

As for the percentage of C-sections in AL-Elwya Maternity Teaching Hospital of the total births in government and private of Baghdad hospitals were (7.14%) for the year 2009, (3.51%) for the year 2010, (7.6%) for the year 2011, (7.1%) for the year 2012.

As for the percentage of C-sections in AL-Elwya Maternity Teaching Hospital of the total births was as follows: (38.09%) for the year 2009, (40.58%) for the year 2010 (42.5%) of 2011, (44.97%) for the year 2012, and (44.2%) for the year 2013 . The rate of increase in AL-Elwya Maternity Teaching Hospital back to being one of the specialized hospitals known and deal with critical situations, in addition to the referral of cases from areas nearby and the parties have, in addition to the position between the multi-level residential areas and possess medical and nursing staffs and being a typical hospitals and the turn out by pregnant women .

As for the results of the Arab countries have a study conducted by the King Abdul Aziz Medical City in the National Guard in Jeddah revealed that Caesarean sections in Saudi Arabia increased during the 10 years increased by 80.2%, where caesarean section rate increased for all births from 10.6% in 1997 to 19.1% in 2006. The study pointed out that this dramatic rise in the rate of Caesarean deliveries does not comply with the recommendations of the World Health Organization stressed that this should not exceed the ratio of 5 to 15% of the total births in any way<sup>(9)</sup>. With regard to the results of other countries in 2001, an estimated 21.4% of all births in England, an increase five-fold since 1971. In 2002, more than a quarter of all births (26.1%) in the United States and it was at the highest rate ever reported. In 2004, births to cases of CS First pregnancy rate increased to 29. % of all births, and the rate continues to the upside. Since 1996, C/S where more than 40% increased rates. While the C/S rate is 22% in Egypt. And imposed a Brazilian Ministry of Health Supreme limit C/S rate of 35% in public hospitals while private sector rates of 70% and more common in the country . In Delhi, CS rate in teaching hospitals currently ranging between 19-35%. In Sweden, Denmark and the Netherlands.<sup>(10-13)</sup>

## **V. Conclusions**

The study concluded that the incidence of caesarean section in AL-Elwyia Maternity Teaching Hospital increase in rates not only in the private hospitals, but also in government hospitals, but more generally in the private hospitals for five years and its steady increase.

## **VI. Recommendation**

The study recommended conduct teaching program to pregnant women to increase awareness and encourage them not to perform caesarean surgery unless necessary because of its futuristic notify the health of the fetus. Also, follow-up the reason of increase in Caesarean sections in private hospitals, and provide obstetric care by using partograph record in hospitals and at all levels.

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