

**What was the trend of the adolescent pregnancy delivery rate at  
Paarl Hospital over the past 10 years (1999- 2008)?**

By

Dr Eugene Lesch

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Division Family Medicine & Primary Care  
Department of Interdisciplinary Health Sciences  
Faculty of Health Sciences  
University of Stellenbosch

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Supervisor Dr Dirk Hagemester

## Declaration

I, the undersigned, hereby declare that the work contained in this assignment is my original work and that I have not previously submitted it, in its entirety or in part, at any university for a degree.

Eugene Lesch

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## Abstract

**Background-** Despite government strategies to reduce the number of unintended or unplanned pregnancies, the number of adolescent pregnancies in South Africa continues to rise. The aim of this study was to determine the adolescent pregnancy delivery rate at Paarl Hospital and to see what the trend was over a 10 year period (1999-2008).

**Methods-** A retrospective observational study was done and the data was obtained from the birth register at Paarl hospital and therefore information of pregnancy statistics over the 10 year period. This research study included adolescent females giving birth at age 19 years and younger.

**Results-** Of the 40576 mothers giving birth at Paarl Hospital from 1 January 1999 until 31 December 2008 8182 (20.16%) were adolescents (age 19 years and younger at the time of delivery). Adolescents younger than 15 years of age were a total of 200 (2.4%) of the total adolescents giving birth and showed an upward trend over the 10 year period. The trend of adolescents' age 15-19 years of age at delivery had stabilized since 2001.

**Conclusions-** Adolescent pregnancies are a relevant and significant point of concern in the Paarl area, which is important not only because of its associated socioeconomic problems but also for the health implications such as HIV/AIDS.

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## **What was the trend of the adolescent pregnancy delivery rate at Paarl Hospital over the past 10 years (1999-2008)?**

*Eugene Lesch, MMed (Fam Med), 4<sup>th</sup> Year. Division of Family Medicine & Primary Care, University of Stellenbosch.*

### **Introduction, Background and Motivation**

Despite government strategies to reduce the number of unintended or unplanned pregnancies, such as making contraception a human right, the number of adolescent pregnancies in South Africa continues to rise. (1) The Choice on Termination of Pregnancy Act (CTOP) Act, 92 of 1996, which was implemented in February 1997, was to encourage every fertile woman to exercise her right in deciding whether to keep the pregnancy or not. From the beginning of 1973 to the end of 1983, of the 20,590 mothers who delivered their babies at Paarl hospital, adolescents (19 years and younger) numbered 6284 or 30,51%. About 5% of all the mothers were 16 years or younger. (2) In Cape Town and in the Transkei region, research has shown that by age 19 years, 49% of adolescents had their first pregnancy. (3)

Worldwide there is an increase in adolescent pregnancy rates and by doing this study I wanted to see what the trend is with the adolescent pregnancy delivery rate at Paarl hospital. The intended impact of the study would be to convince the Department of Health as well as the Department of Education and parents to improve contraception education towards our adolescents.

### **Literature review**

Adolescence constitutes a special phase of human development as it represents the transition between childhood and adulthood. This is a phase marked by substantial biological, physical and hormonal changes and these in turn have profound implications on one's emotional stability as they bring with them needs and urges that significantly impact on behavior. Adolescence according to the World Health Organization is defined as "a period of life extending from 10 to 19 years of age". (4) Adolescent *pregnancy* refers to conception involving a girl aged 19 or younger.

Teenage pregnancy is extremely common in South Africa and this reflects a pattern of sexual activity which puts teenagers at risk of sexually transmitted diseases and more importantly HIV. (5) Many studies in South Africa and elsewhere are finding that adolescents are engaging in sexual activity at younger ages. In most cases, sexual debut is unprotected, unguided and uninformed. Adolescents who begin sexual activity at younger ages are less likely to make use of contraception. (6) The increasingly younger age at the first sexual encounter should raise concern, because it marks the beginning of exposure to the risk of unintended pregnancy and sexually transmitted diseases (STD).

While teenage pregnancy rates have fallen in most European countries, except the UK, they remain high in the USA, where 1 in 3 women conceive their first child before the age of 20. (7) In South Africa, it has been reported that pregnancy rates were escalating among school going girls. Initially, there was speculation that the child support grant was acting as an incentive for young girls to fall pregnant, but this was investigated by the Department of Social Development and it was found that there was no connection between the two. (8) In 1998 the South African Demographic and Health Survey revealed that approximately 2,4% of the adolescent girls surveyed had fallen pregnant by the age of 15, with 35% of the sample reporting a pregnancy by the age of 19 years. (9) The Reproductive Health Research unit conducted the LoveLife survey in 2003 and found that the teenage pregnancy rate in South Africa had not diminished despite initiatives to improve the reproductive health counseling and related resources. The Birth to Twenty Longitudinal study of child health and development conducted by the University of Witswatersrand provides insight into some issues around teenage pregnancy and in 1989/1990 3273 pregnant women were enrolled into the study. (7) At the time of delivery, 29 women (1% of the sample) were age 15 or younger and 12% of the sample were 19 years or younger. The study has found that children who formed part of the original birth cohort have begun to fall pregnant and there have been 6 pregnancies reported within the second- generation cohort with all the girls 14 years and younger when they fell pregnant.

Various studies have been done to try and determine the reasons behind adolescent pregnancies. There are significant predictors of adolescent pregnancy which include younger age with first sexual contact, lack of knowledge about sex and how to use contraceptives, barriers to accessing contraceptives including negative attitudes of health staff, peer pressure, sexual coercion, low

self-esteem, low educational expectations, having a teen mother, poverty, family breakdown and heightened sex-based messages in the media. (10) According to the South African Department of Health Survey of 1998 the age at first intercourse is dependent on the factors mentioned previously. 9% of adolescents surveyed commenced sexual intercourse before age 15. (9) African teenagers have the highest adolescent pregnancy rates followed by the colored population, whites and Asians. What this survey also revealed was the disturbing fact that only 4% of sexually active adolescents use condoms as a form of family planning and this is not high enough to prevent the spread of sexually transmitted diseases (STD) as well as HIV.

The social and economic consequences of early childbirth are profound. Young mothers are traumatized by the stigma of early pregnancy and could see a lifelong struggle with poverty for themselves and their children because of poor job prospects. In fact, studies in South Africa have shown that after financial concerns, teen pregnancy is one of the main reasons for high school dropout rates.

The factors driving teen pregnancy are complex and therefore require multi-factorial intervention strategies at the individual, familial, cultural and social levels. There are a wide variety of programs aimed at preventing adolescent pregnancy in South Africa including education programs, family planning services, youth-friendly clinics and youth development programs. However, a review of adolescent pregnancy prevention programs reported that of those programs only a small number can be successful. (11) A number of initiatives have been implemented in South Africa to prevent the impact of teen pregnancy. These include sex education as part of the life skills program in schools, roll out of youth friendly services at government clinics, and program such as LoveLife. In addition, the availability of termination of pregnancy services at government hospitals provides young people with the option of terminating early and unwanted pregnancy.



## **Aims and Objectives**

### **Aims**

The aim of this study is to investigate the trend of the adolescent pregnancy delivery rate was at Paarl Hospital over the past 10 years (1999-2008).

### **Objectives**

1. To assess the total number of adolescent women giving birth at Paarl hospital in the years 1999-2008 and to calculate the relative proportion of adolescent mothers amongst all woman giving birth here.
2. To identify possible trends in adolescent pregnancies in the Paarl hospital.
3. To determine the adolescent pregnancy delivery rate by age for girls aged 19 years and younger and to compare it with the national pregnancy rate by age.
4. To motivate for educational interventions using the information gained.

### **Study design and Methodology**

This study is an observational study and data was obtained retrospectively from the birth register at Paarl hospital and therefore information of pregnancy statistics over a 10 year period. This research study included adolescent pregnant females which according to the World Health Organization (WHO) are defined as conception involving a girl aged 19 or younger. Exclusion criteria were pregnant females older than 19 years of age at the age of conception, pregnant females not giving birth at Paarl hospital and pregnant females who made use of termination of pregnancy, because this study is only about adolescent pregnancy delivery at Paarl Hospital and not the Paarl region.

### **Data Analysis**

The analysis was done by using regression and correlation methods to compare the variables. MS Excel was used to capture the data and STATISTICA version 8 (StatSoft Inc. (2008) STATISTICA (data analysis software system), [www.statsoft.com](http://www.statsoft.com).) was used to analyze the data. The relationships between continuous response variables and nominal input variables were

analyzed using analysis of variance (ANOVA). Correlations among continuous and/or ordinal variables were expressed using Spearman's or Pearson's correlation coefficients. Summary statistics were used to describe the variables. Distributions of variables are presented with histograms.

### **Ethical Consideration**

According to the National Health Act No 61.2003, all health research must be reviewed and approved by an ethics committee. The research study falls under Human Subject Research and was therefore submitted to the Health Research Ethics Committee for ethics approval, which I obtained.

Because of the retrospective character of the study and the impossibility to trace all the individuals who formed the study sample, a waiver of consent was applied for and granted. Confidentiality was protected as no identifiable individual information was used.

### **Results**

Between 1 January 1999 and 31 December 2008 a total of 40576 mothers gave birth at Paarl hospital labour ward and these data were obtained retrospectively from the birth registers at Paarl hospital complex. Of these patients 8182 (20.16%) were adolescent pregnancies (age 19 years and younger) at the time of delivery. Adolescent pregnancies younger than 15 years of age were a total of 200 (2.4%) of the total adolescent pregnancies. The median age of delivery was 17.4 years of age with the colored population being the dominant over the 10 year period, but this is understandable because this population group constitutes the majority in this area. Over the 10 year period the percentages of adolescent pregnancies were as follows: 1999- 18.69% (717); 2000- 18.68% (723); 2001- 20.40% (798); 2002- 19.91% (731); 2003- 20.86% (820); 2004- 20.08% (821); 2005- 20.62% (855); 2006- 20.50% (896); 2007- 21.25% (919) and 2008- 20.38% (902). A regression analysis was used to study the trend of the % adolescent pregnancies over time as in figure2. The regression equation:  $y=18.96 + 0.212x$  where y is the % adolescent pregnancies and x represents the years. The slope (0.212) represents the trend over time. In the

regression analysis this slope is associated with a p-value of 0.01153, indicating that the trend over the 10 year period is statistically significant.

Figure 1 gives a comparison between the total adolescent deliveries and the total deliveries that were recorded over the 10 year period of the study:

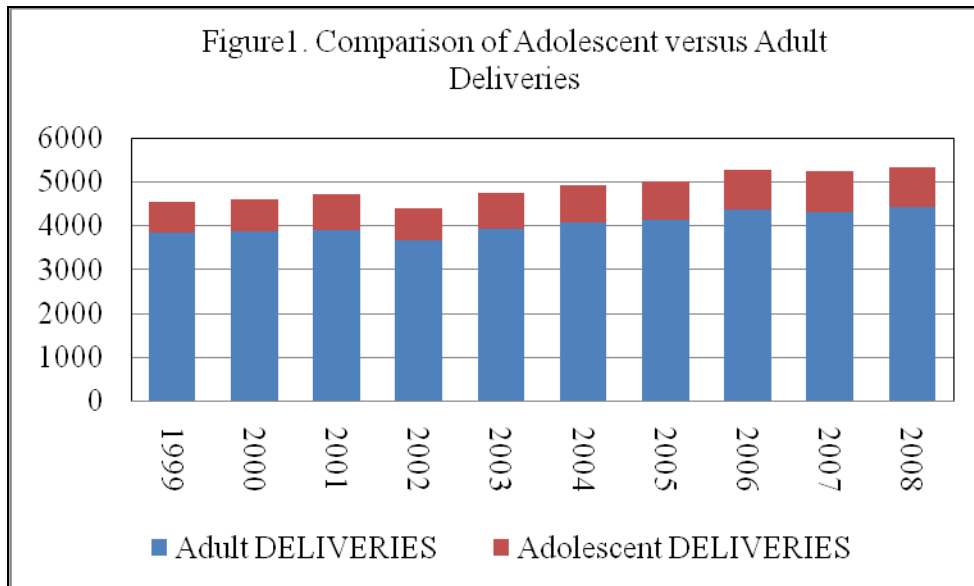


Figure 1: Comparison of Adolescent versus Adult Deliveries

The overall adolescent pregnancy delivery rate over the 10 year period can be seen in Figure 2 and to establish if there are possible trends. The correlation coefficient was calculated to study the relationship between the % adolescent pregnancies and time (years) and a correlation coefficient,  $r=0.755$  was obtained (see figure2). This indicates that there is a strong positive relationship between time and % pregnancies. With time, the % of adolescent pregnancies increased.

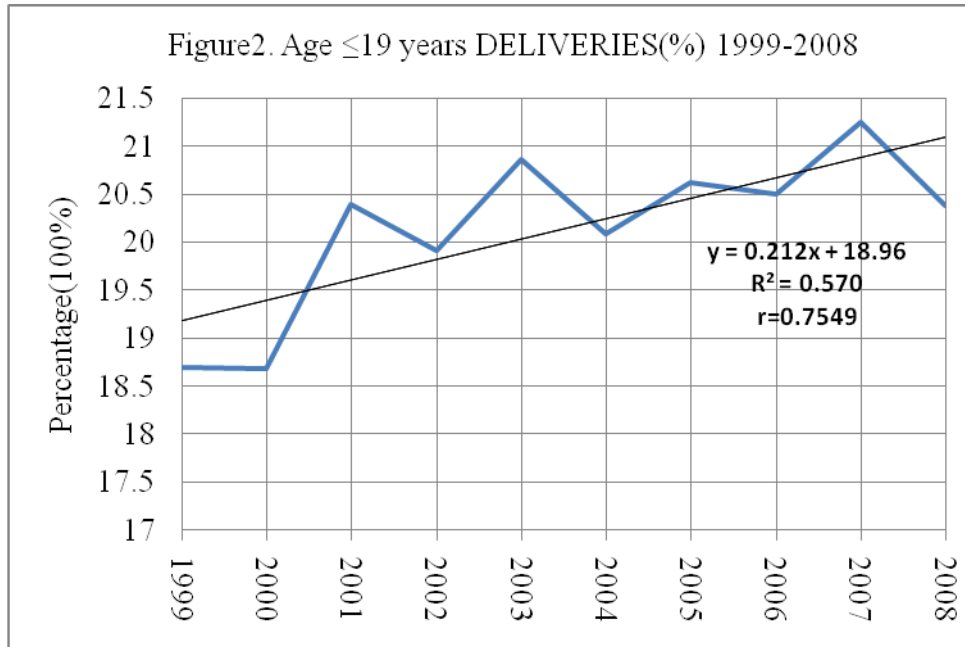


Figure 2: Adolescent Deliveries (%) 1999-2008

In a previous study done at Paarl hospital over a 10 year period (1973-1983) to determine the adolescent pregnancy delivery rate it was found that adolescent pregnancy deliveries constituted 30,51%. (2)

Adolescent pregnancy deliveries were also divided according to age, those younger than 15 years of age and adolescents 15 years until 19 years of age at delivery. These data is being illustrated in *Figure 3* and *Figure 4* respectively:

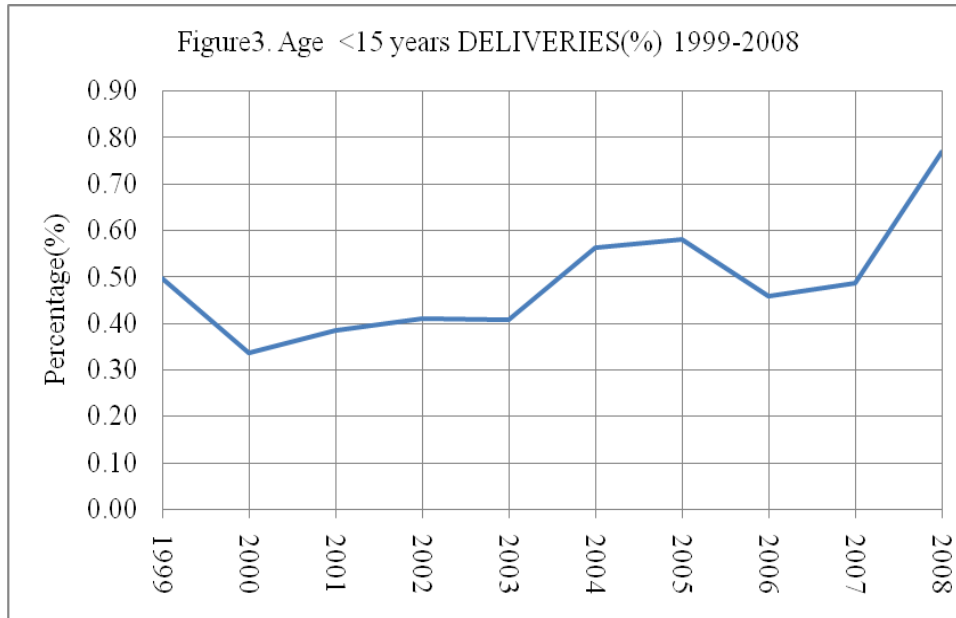


Figure 3: Age <15 years (%) Deliveries 1999-2008

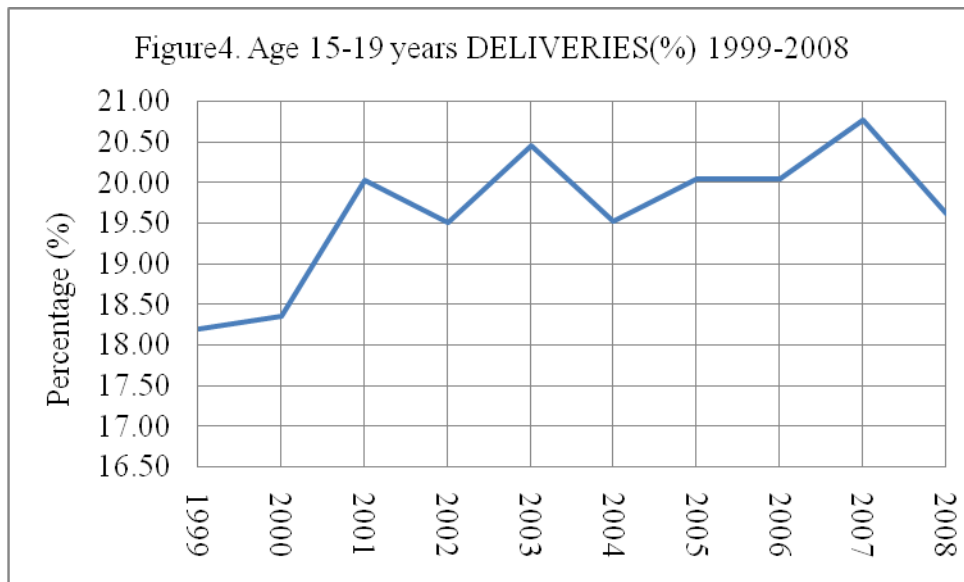


Figure 4: Age 15-19 years (%) Deliveries 1999-2008

Table 1 compares the rates of adolescent pregnancy deliveries at Paarl hospital to the Western Cape Province and the National values. Results were obtained from the Health statistics- Health Systems Trust website. (12)

Table 1: Comparison of Adolescent Pregnancies (Age 15-19): Western Cape versus National versus Paarl

<b>Year</b>	<b>Western Cape</b>	<b>National</b>	<b>Paarl</b>
<b>1998</b>	13.7%	13.2%	15.28%
<b>2002</b>	12%	19.1%	20%
<b>2003</b>	10.4%	9.4%	19.5%
<b>2008</b>	9.1%	21.9%	19%

The data in Table 1 could not be obtained for each year from 1998 till 2008 because the yearly statistics for both the Western Cape and National were not available and therefore the data available were used as above, and it does give an indication where Paarl region falls with the adolescent pregnancy delivery rate. SA lacks vital statistics on fertility, pregnancy and abortion. Nevertheless, fertility rates could be reliably estimated from the Demographic and Health Surveys. (13)

## **Discussion**

As was stated before the data were collected retrospectively from the birth registers over a 10 year period (1999- 2008) and the registers were easily accessible. During data collection it was made sure that only birth entries in the registers that fulfill the inclusion criteria were collected.

As previously stated the study done on adolescent pregnancy delivery rate at Paarl hospital between 1973 until 1983 found that adolescent pregnancies (which included adolescents giving birth at 19 years of age and younger) constituted 30,1% of the total pregnancies at Paarl hospital. In this study it was found that the adolescent pregnancy delivery rate had decreased to 20.16% when compared with the previous study and there could be many factors that would have led to the reduction. One could argue that better sex education or more programs that make adolescents aware of teenage pregnancies could be the answer as well as campaigns like the LoveLife

campaign. When looking at the data as a whole over the 10 year period it is clear that there had been a slight increase in the delivery rate. One possible reason for this is that when students finish school (grade 12) the current economic conditions do not favor them for getting employment or to educate them further and this is a well known risk factor for adolescent pregnancies. (13) What is also noticeable is that the adolescent pregnancies 15-19 years had somewhat stabilized over the 10 year period especially from 2001 onwards with a slight increase (21.25%) in 2007 but decreased to 20.38% in 2008 (see figure 4). A worrying/disturbing point is that if we look at figure3 which gives a representation of pregnancies below 15 years of age, it shows an upward trend in pregnancies in this age group. This age group consists of children who are at primary school and who are minors and cannot give consent to sexual intercourse according to the sexual offenses act (Sexual Offences and Related Matters) Amendment Act, No. 32 of 2007.

When looking at the adolescent pregnancy delivery rate in the Paarl region in the broader context with comparison to the rest of the Western Cape Province and the National statistics it actually shows a disturbing pattern. If we should compare the Paarl region statistics with its immediate geographical area (Western Cape) it is clear that while the rest of the Western Cape had a decrease in their numbers, Paarl in contrary had an increase in the adolescent pregnancy delivery rate (table1). These data included adolescents aged 15-19 years at the age of delivery but still gives us valuable information about where statistics at Paarl hospital is when compared with the rest of the Western Cape and national statistics. Not only is it higher than the rest of the Western Cape but it was twice as high if we look at data from 2003 (WC= 10.4% vs Paarl= 19.5%) and 2008 (WC= 9.1% vs Paarl= 19%) (see table 1). When comparing the statistics of Paarl with the national statistics it shows that Paarl Hospital had an upward trend in adolescent pregnancy delivery rate which is about the same as the national statistics in 2002, although there was a slight decrease in the rate in 2008 with Paarl lower than the national rate (National= 21.9% vs Paarl= 19%) see table1. When considering these data, one needs to ask why there is an upward trend in the adolescent pregnancy delivery rate in Paarl when there is a downward trend in the Western Cape Province. Do we in the Paarl region actually do enough to educate our adolescents about preventing pregnancies which should include safe sex practices? A review of adolescent pregnancy prevention programs reported that of those programs only a small number can be successful. (11) Could this be a reason why we find that the programs in the Paarl region are

unsuccessful? Currently sexual education programs concentrate largely on our adolescents attending secondary schools but from this statistics it shows that more should be done at our primary schools to make children aware of pregnancies and its associated negative impact it can have on their health as well as socioeconomically. When looking at the results it is important that we should keep in mind that adolescent pregnancies as a whole could be higher than the current statistics due to the effect that termination of pregnancies has on the statistics, as these statistics were not taken into account during this study. Because Paarl Hospital refers complicated obstetrics cases to Tygerberg Hospital (tertiary hospital) we must also take into account that high risk adolescent pregnancy deliveries possibly could have been lost to statistics due to delivery at other institutions outside of the Paarl area.

### **Conclusion**

Adolescent pregnancies are a relevant and significant point of concern in the Paarl area, which is important not only because of its associated socioeconomic problems but also for the health implications such as HIV/AIDS.

In conclusion this study was done to see if there was a trend in the adolescent pregnancy delivery rate at Paarl hospital over a 10 year period and it is clear that there was a significant increase in the rate over this period (1999-2008).

### **Recommendations**

The following recommendations are made for the Paarl area:

1. It needs to be assessed if there are sufficient programs available to assist adolescents with sex education.
2. If there are programs available, those programs need to be evaluated to see if they are effective in reaching their intended outcomes and if not, one needs to ask why.
3. It also needs to be investigated whether the programs reach those they are aimed at (the target population).
4. We need to involve both parents and the education department in educating adolescents as well as children aged 15 years and younger in making the right sexual and reproductive choices when being confronted with it.



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