



RESEARCH: CAUSES AND PREVENTION

In addition to the care that we provide to children born with cleft lip and palate in Guatemala, we also conduct research into the causes and prevention of cleft lip and palate in a country such as Guatemala. We are often asked why the number of cleft births in Guatemala seems to be so much higher than in for example the Netherlands? To clarify this, we would like to share the following information with you:



NETHERLANDS
17.18 MILLION
 INHABITANTS IN 2018

Source: [Google Data](#)

CHILDREN BORN:

9.8 / 1000 inhabitants = **168,364**

Source: [CBS Statline](#)



427,800
 = 2.5 as many births in GT as in NL
168,364

CLEFT L/P: 1:667 births* = **252**

* According to the [Dutch Association for Cleft Palate and Craniofacial Anomalies](#) the ratio is 1 to 2 for every 1000 births. We have therefore decided to calculate with the number in between.



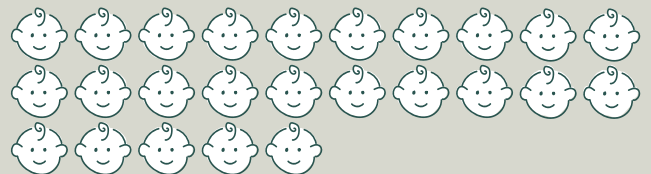
GUATEMALA
17.25 MILLION
 INHABITANTS IN 2018

Source: [Google Data](#)

CHILDREN BORN:

24.8 / 1000 inhabitants = **427,800**

Source: [Macrotrends](#)



CLEFT L/P: 1:500 births* = **856**

* Precise figures in Guatemala are unavailable. According to [ASHA](#) sources, the ratio among "American Indians" is higher, at 1:500 births. We have therefore decided to take this as our measurement.

If you only look at the average number of cleft births in Guatemala it indeed seems a lot higher than in the Netherlands. However, relatively more children were born in Guatemala, about 2.5 times more in the year 2018.

In this case, it is more interesting to look at the ratio of the number of births with cleft lip and palate. If we are to believe the numbers above, then this ratio is expected to be higher in a country like Guatemala.

To gain more insight into this, we will delve further into the possible causes of cleft on the next page >>

POSSIBLE CAUSES CLEFT LIP AND PALATE

The exact causes of babies being born with cleft are not yet determined. As informed by the Plastic Surgeons that we work with, it is usually a combination between genetic and environmental factors. We can therefore expect that the difference in amount of births per country depend on the differences in these factors, e.g: the number of clefts in a family, the presence of incest, the maternal age of a mom or the toxins that are used on the land.

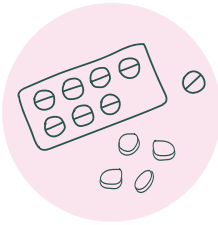
Below we present some more probable causes that can be related to cleft lip and palate:



GENETICS & CONSANGUINITY



MATERNAL AGE



MEDICATIONS



USE OF ALCOHOL, DRUGS, TOBACCO



INFECTIONS

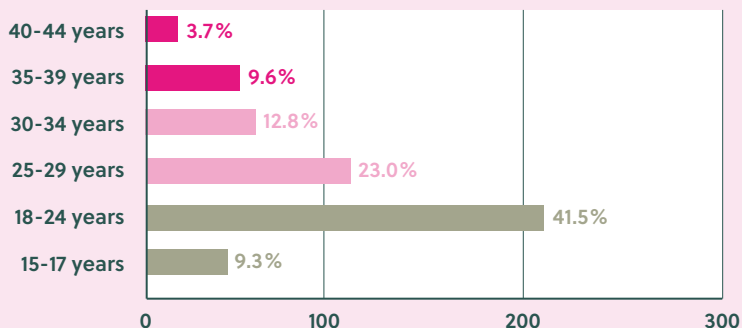


ENVIRONMENTAL TOXINS

As we not only like to tackle the cleft issue in Guatemala, but also find ways to prevent babies from being born with this birth defect, we are conducting research to obtain more insight in why babies in Guatemala are born with cleft. This research makes it possible to work towards a more sustainable organization for the future. It is still too early to draw conclusions from these numbers, but we would like to share with you the results. Below you will find the statistics from a survey that we did with 508 randomly picked (parents of) patients in our program. Our hopes for the future are to be able to compare these numbers with other researches in Guatemala and around the world, in order to draw better and more reliable conclusions.

PATIENT RESEARCH

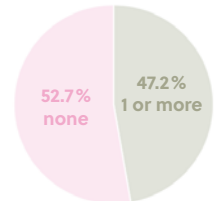
Maternal age of the 508 surveyed moms



Family members with cleft lip/palate



Almost **HALF** of the 508 patients have 1 or more family members with cleft lip/palate



9.8% of the parents share **THE SAME LAST NAME**

Making it possible that they come from the same family

43.5% of the families work in agriculture where they

USE PESTICIDES

0.8% of the moms smoked during the pregnancy

2.0% of the moms drank alcohol during the pregnancy

73.4% of the moms took prenatal vitamins **0%** of them before getting pregnant



10.0% was taking medicines during the pregnancy

(insuline, medicine for blood pressure/epilepsy and - mostly - antibiotics)