Operation Smile is a children’s medical charity with a presence in more than 60 countries across 6 continents committed to continuing and furthering our efforts to improve child survival and health around the world. By mobilizing more than 5,000 highly-specialized volunteer medical professionals from 76 countries, Operation Smile provides free reconstructive surgery and associated services for children born with facial deformities as well as children in need of surgery due to injury or other maladies.

Operation Smile has nearly 30 years of experience providing surgical and associated medical services for patients, as well as related medical education and training for local health professionals. Operation Smile works collaboratively with local and national governments and ministries of health, local hospitals, teaching institutions, professional associations, private companies and local nongovernmental and civil society organizations to create sustainable programs around the world. Operation Smile is a registered, nonprofit organization in the United States, headquartered in Norfolk, Virginia.

Child Health & Survival Challenges Associated with Cleft Lip & Cleft Palate

Approximately one in 500 to 700 children is born with a cleft lip and/or cleft palate globally, totaling more than 200,000 children born with a cleft each year. Children suffering from a cleft lip or cleft palate often face numerous challenges to their health and survival.

- Infants with clefts often face severe difficulties feeding due to the inability to form a sealed closure that is required for sucking.
- An unrepaired cleft palate can cause continuous challenges for food and liquid intake throughout childhood as food and liquid can easily pass through the nasal cavity.
- Feeding challenges commonly result in the child receiving fewer nutrients than required for optimal growth and development.
- Due to difficulties successfully breastfeeding, supplementary foods are often introduced much earlier than optimal feeding guidelines recommend.
- Malnutrition poses a significant threat to the health and survival of these children and they will often experience comorbidities that can significantly impact their physical and social development.
- Children with clefts are at an increased risk of dying during infancy as compared to their peers. A study by Hujoel, Bollen, and Mueller (1992) found that one in 10 children born with a cleft died before reaching their first birthday.
- Infants born with a cleft are at an increased risk of being born with low birth weight and the presence of a cleft increases the risk of adverse outcomes following birth.
- Malformation of the upper airway can affect the function of the Eustachian tube and increase the presence of fluid in the middle ear, leading to recurrent ear infections and the potential for permanent hearing loss.
- Children with clefts have difficulty with speech development as the lips and palate are not properly formed, inhibiting their ability to form certain sounds and speak clearly. They are often denied the opportunity to attend school and are likely to miss key opportunities for further development.
- Focused interventions regarding proper hygiene and feeding practices are essential due to this population’s susceptibility to illness and infection.
The current research suggests that a combination of genetic and environmental factors can lead to a cleft lip or cleft palate. Environmental factors that have been found to be associated with clefting include:

### Proper Nutrition, Folic Acid and Multivitamin Supplementation

- Multivitamins and some mineral supplements in early pregnancy including vitamin B6, folic acid and zinc have been linked to decreased risk of orofacial clefts.
- Folic acid plays an important role in early fetal development. It has been proven that folic acid supplementation during the first 4 months of pregnancy provides significant protection against cardiovascular defects, neural tube defects (anencephaly, spina bifida), and may lower the incidence of clefting.
- The protective effects of folic acid against neural tube defects are higher than those against oral clefts; however, the protective effects of folic acid against oral cleft are still important.

### Smoking

- Maternal tobacco smoking during pregnancy is associated with a variety of adverse outcomes such as: low birth weight, preterm birth, presence of oral cleft defects and other diseases in newborns.
- The increased risk for oral cleft is around twofold with maternal smoking. The more a mother smokes, the higher the risk.

### Alcohol Consumption

- The cells that merge and fuse to form important structures of the face can be damaged by alcohol during the embryonic period of life, causing cleft lip and cleft palate.
- While the risk for oral clefting does not seem to increase with low quantities of maternal alcohol, there is increased risk of clefting with increased consumption. Women who drink five or more alcoholic drinks per seating, at least once a week, have an increased risk of having a child with isolated oral cleft.

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**Cleft Lip and Cleft Palate: The Basics**

**What is a cleft lip and cleft palate?**

A cleft is an opening in the lip, the roof of the mouth or the soft tissue in the back of the mouth. A cleft lip may be accompanied by an opening in the bones of the upper jaw and/or the upper gum. A cleft palate occurs when the two sides of a palate do not join together, resulting in an opening in the roof of the mouth. A cleft lip and cleft palate can occur on one side or both sides. A child can suffer from a cleft lip, a cleft palate or both.

**What causes cleft lips and cleft palates?**

The exact cause is unknown. Cleft lips and cleft palates are congenital defects that occur early in embryonic development. Scientists believe a combination of genetic and environmental factors, such as maternal illness, drugs or malnutrition, may lead to a cleft lip or cleft palate. If one child in a family is born with a cleft, the risk increases by 2 to 4 percent that future children in the family will suffer from the same defect.

**Can cleft lips and cleft palates be repaired?**

Yes. Cleft lip and cleft palate surgery provides excellent results. A pediatrician and a plastic surgeon work with a child’s parents to choose the best timing for surgery. Most surgeons agree that a cleft lip should be repaired by the time a baby is 3 months old. To repair the partition of mouth and nose as early as possible, a cleft palate generally is repaired between the ages of 12 and 18 months. Any surgical procedure is dependent upon a child’s general health and the nature of the cleft lip or cleft palate.