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Report on the activities carried out by 'Sonrisas' to promote oral health: the experience of a Canadian dental hygienist in the Dominican Republic

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Abstract: Smiles Foundation is a non-profitable organization established in Canada as a sister foundation to the Dominican Fundacion para la Prevencion y la Salud Bucal de los Niños "Sonrisas" the Dominican Republic, which provides free dental treatment and oral health education to underprivileged children. Its founder Elina Katsman, a Canadian dental hygienist embarked on this project in 1986, and started giving lectures in the small community of Samana along with two local nurses that she trained in the principles of oral hygiene and related primary health care. Today, the foundation runs eight dental clinics and five mobile units that serve remote areas and has benefited 1 723 119 people in total. The aim of this article was to report on the growth that Smiles Foundation has experienced to promote oral health among children and adults in the Dominican Republic including its activities and the results it has achieved up until 2005.

Key words: cavities; Dominican Republic; educators; non-profit organization; oral health; oral hygiene; Smiles Foundation

Introduction

Table 1. Dominican Republic facts

Statistics

Total population: over 9 million
GDP per capita (Intl \$, 2004): 4986
Life expectancy at birth M/F (years): 64.0/70.0
Healthy life expectancy at birth M/F (years, 2002): 57.2/61.9
Child mortality M/F (per 1000): 34/30
Adult mortality M/F (per 1000): 280/169
Total health expenditure per capita (Intl \$, 2003): 335
Total health expenditure as % of GDP (2003): 7.0

PAHO: figures are for 2004 unless indicated. Source: The World Health Report 2006.

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Back in 1984, I went to Samana (Northern Province in the Dominican Republic) as a tourist (see Table 1). At that time, I could never imagine that one trip was going to turn into a life-time commitment to something as exciting and challenging as ‘Sonrisas’ (Smiles in Spanish).

It was my first trip to a third world country, and my heart was touched by smiling children on the streets selling nuts, cleaning shoes and working hard to gain a living. Missing teeth, gum disease and other oral problems were very widespread and quite obvious to the naked eye. There was only one dentist in town whose services were too expensive for the poor.

Public dental care was not available, therefore, when people had problems they just pulled their teeth at home the old fashioned way or if they could afford it, they had a dentist do it for a somewhat hefty fee. I felt that I would like to come back to the Dominican Republic one day and do something valuable to promote oral health.

When it was time to embark on my new journey to help Dominicans have healthy smiles, I named my project ‘Brighter Smiles Around the World’, and it was a first step in the creation of my Dominican, and later Canadian branch of Smiles Foundation.

When I went to the Dominican Republic (1986) for what I thought was going to be a year of fun, a year of a volunteer work, a year of teaching... it turned out to be a lifetime calling. After spending unforgettable times teaching oral hygiene principles in local schools, churches and community centres, I realized that there were people already in pain with a lot of damaged teeth and only educating them unfortunately was not enough (Table 2). Who could help them? The country needed accessible dental care that majority of the population could afford.

Table 2. Caries trends; dmft and DMFT; different age groups

DMFT 12 years	Year	Sources
6.0	1986	*
4.4	1997	**

*Angulo M. Studies of dental caries in a group of Uruguayan children. Thesis. 1995, University of Göteborg, Sweden.
**Beltrán-Aguilar ED, et al. Analysis of prevalence and trends of dental caries in the Americas between the 1970s and 1990s. *Internat Dent J*, 1999; 49: 322–329.

So there I was, on my way back to Canada to get a job again. My original funds had run out and I urgently needed to get some dental equipment donated to start a clinic with the contacts I had made in the Dominican Republic. I sent out

letters to local dentists asking for help and finally one of the doctors I was working for myself, Dr Tzvi Rubinger, donated the whole set of dental equipment from the practice that he was remodelling. It was amazing.

Materials and methods

In 1990, the first ‘Sonrisas’ clinic was opened in Herrera, a community in the outskirts of Santo Domingo. Furnished with donated equipment from Canada, and relying on local graduating dental students and volunteers ‘Sonrisas-I’ clinic quickly became a huge success. The following year saw the opening of ‘Sonrisas-II’ in the city of Moca. The programme was also taken on the road where thousands more were served in remote parts of the island. Clinics were set up in churches, community centres, service clubs, and sometimes right under a tree. During this initiative, many children received what would be their first dental care.

With strong demand from local communities, the first ‘Sonrisas’ mobile clinic was launched. With vehicles and mobile equipment donated by the Willowdale Rotary Club, Rotary International and local Colgate- Palmolive branch, ‘Sonrisas’ was able to take its much-needed services to some of the most remote areas of the Dominican Republic.

In the years that followed, new permanent clinics were opened in Santiago, Puerto Plata, and Higuey, as well as the Los Rios, Pantoja and Villa Mella, areas of Santo Domingo. New clinics are on the way in LaVega and El Seibo.

In the early stages of the Brighter Smiles Around the World program, it was discovered that most of the children who were coming to us had no idea how to take care of their teeth. At six in the morning, our waiting rooms were full with kids, their parents and siblings. I decided to use the accumulation of people to teach them while they were waiting. The educational programme that developed out of that idea was a huge success! Patients were taught not only how to brush and floss, but also the principles of healthy nutrition, family planning and even abuse prevention.

Over the years, lectures have been given to children and adults regardless of their educational level and socio-economic status, but it is more likely that we are visited by low income people as every clinic is located in well-populated areas where poverty is present.

The career of dental hygienist does not exist locally; therefore, I initially trained the educators on giving lectures about oral health myself. Our educators come from different professional backgrounds, including public community work, project management, educational sector and journalism. All the

educators had previous experience with community work. They know the target communities and their reaching out to the people is easier, because community members are more open and ready to work with them.

Our educators give lectures at schools, hospitals wards, community centres, our own clinics and on the field trips. They talk to the children and adults, make questions to make sure that they are learning the subject and some of them are asked to show what they have learned on the hygiene articulator model.

Today 'Sonrisas' is operating 47 dental units, in eight permanent and five mobile clinics. With 98 fulltime employees and over 250 volunteers, 'Sonrisas' has provided their much-needed services to over 1 million people in the Dominican Republic (Table 3). And yet, even with these numbers, the greater majority of children have not yet been served.

Table 3. Number of patients treated and educated by Sonrisas in the Dominican Republic

Year	Number
1990–1997	435 077
1998	131 292
1999	145 880
2000	162 088
2001	199 697
2002	152 631
2003	138 527
2004	177 620
2005	180 307
2006	205 082
Total	1 928 201

Source: annual reports of the eight permanent dental clinics and five mobile units of Fundación para la Prevención y la Salud Bucal de los Niños (Sonrisas).

In our clinics, children are treated free of charge, only collaborating with \$1 Canadian dollar per visit, equivalent to 10 Dominican pesos. Adults pay a small fee for their treatments, which are approximately 40% lower than what a private dentist would charge. About 50% of this money will become dentists' salary and in the morning they volunteered their time to work with the kids. The other 50% of what was generated from treating the adults is used to pay salaries for the rest of the employees and to cover all kinds of work-related expenses.

As more and more people read about our work in daily press, saw us on TV or heard about us from word of mouth, a volunteer group was being formed composed of Dominican women and men wanting to donate their time and efforts. The group started meeting in my own backyard planning a variety of fundraising events to help the foundation. It is funds, raised by them, that help us keep going. We also do not have to

purchase most of the equipment or materials, as I get them donated through my Smiles Foundation in Canada.

A short anonymous structured questionnaire (Appendix A) was distributed among 650 patients in May 2002, when patients were being treated or educated at the clinic in Moca, Santo Domingo and Puerto Plata. The response rate was 93% ($n = 603$).

In Appendixes B and C, we can appreciate the lower incidence of cavities in those individuals that received oral health education.

Results

Sixty-eight per cent of respondents were female. Twenty-three per cent had no formal education; 27% had a primary school diploma; 15% an intermediate one; and 30% a high school diploma. Only one participant had a post-secondary degree. Eight per cent did not answer this question.

Sixty-eight per cent had previously participated in 'Sonrisas' educational activities, 28% had not, and 5% did not answer this question. Forty-five per cent of participants had attended lectures in 2001, while only 8% in 2000. The most common educational topics had been: oral health (56%), interpersonal relationships (33%) and nutrition (8%). However, the second section of the questionnaire could not be tabulated because most respondents needed a lot of help to answer, as they could not understand because of low education level or idiosyncrasy.

Many lives were affected and there are more than a million stories to be told, but I will tell you only two.

The story of Ana

It is about a girl from Puerto Plata. Her name is Ana and when she was a kid she was embarrassed to smile because she had so many cavities. She always dreamed of being a model. But imagine how a poor girl with such bad smile could ever become a model? Well, somebody told her that there was a clinic near by and she came to 'Sonrisas-IV'. We fixed her teeth and at the time she had a part time job at one of the small corner grocery stores, nurturing a big dream... The girl grew up with a beautiful smile and guess what? She is a model now well known and respected in the local community and she is so proud of it.

This is just one of so many initially 'sad' stories that got beautiful endings, just like fairy tales do. Kids coming from very poor families that had to endure a lot of pain, abuse and suffering finally got the cure.

The story of Elba Lucy

Elba Lucy is 12 years old and lives with her grandmother and three cousins in a 2-room house that is located across from a free-running sewage canal in Santo Domingo. Both of her natural parents are dead. Her grandmother is endeavouring to raise the four children on about \$35 Canadian dollars per month.

Elba Lucy suffers from hepatitis, an inflamed liver, and anaemia. She should be receiving dialysis weekly, but her grandmother cannot afford the cost of the treatments. Likewise, visits to a regular dental clinic would be impossible for Elba Lucy or her cousins, because of the high costs. Fortunately, the family heard about 'Sonrisas', and has started to come to the Pantoja clinic on a regular basis. Since her first visit, Elba Lucy has been treated for two root canals and five cavities, and has had four teeth extracted. She is so thankful to the people at 'Sonrisas' who have helped her and her cousins get a new smile.

Elba Lucy is just one of hundreds of thousands of children who have received a brighter smile, thanks to the 'Sonrisas' clinics.

Today those kids like Ana and Elba Lucy can come into 'Sonrisas' clinics, improve their smiles and get rid of pain. Their parents can learn a lot about treating and bringing up their children because prevention of woman and child abuse as well as proper health care habits and nutrition are part of our education programme. Many lives have been changed; many lives have been touched.... and my personal lesson from it all: when you can help and make a difference in someone else's life, do it. The opportunity is definitely worth it.

Conclusion

A large proportion of participants in this study had oral health problems mainly because of economic strains and low educational level; however, a small proportion applied their newly acquired education through Smiles Foundation to prevent oral disease.

Smiles Foundation is dedicated to giving the children of the developing world the opportunity for a healthier and more fruitful existence. We value the rights of equal access to education and health without exception of race, sex, age or economic status.

We believe that if children are educated and raised with proper health practices, they will be better equipped to meet the challenges of our changing world and they will develop the self-confidence needed to fulfil the leadership roles of tomorrow.

All parents would like their children to have a happy and healthy smile. Some can give it to them, while others cannot. But everybody can help. Give the gift of a beautiful smile to a child today. And thank you for your generous support.

Appendix A

Questionnaire for the beneficiaries of the educational programme

A. Date

B. Location

C. Sex

D. What is the highest educational degree you have reached?

None

Basic

Intermediate

High school

Professional title

Bachelor's degree

Post-graduate or specialization title

E. Did you receive lectures organized by Sonrisas?

Yes –

No –

F. Yes, I did. Do you remember the last day that you received a lecture?

Year –

Month –

G. If you did receive lectures, do you remember some of the subjects that were presented?

1. When should you visit your dentist?

(a). Once a year

(b) Whenever my teeth hurt

(c) Twice a year

(d) Every 4 months

(e) None of the above

2. At what age should you take your child to the dentist?

(a) When the child is 6 months old

(b) When the child is 1 year old

(c) Between 2 and 4 years of age

(d) When the child goes to primary school

(e) None of the above

3. What are teeth for?

(a) To cut, chew and grind food

(b) To hold some face muscles

(c) To have a beautiful smile

(d) To help us to pronounce correctly when we speak

(e) All of the above are correct

4. Which are the most common diseases of the mouth?

- (a) Plaque
(b) Gum disease
(c) Cavities
(d) Tartar
(e) B and C are correct
5. How can we eliminate plaque and tartar?
(a) Brushing, flossing and visits to the dentist every 6 months
(b) Not eating foods like cheese and milk
(c) Oral rinse
(d) A and B are correct
(e) A and C are correct
6. How are cavities formed?
(a) The acid produced that the bacteria of the plaque damages the teeth enamel
(b) The sugar produced by the bacteria of the plaque damages the teeth enamel
(c) The tartar destroys the bacterial plaque that protects teeth
(d) All of the above are correct
(e) None of the above are correct
7. Which foods protect our teeth?
(a) Milk and cheese
(b) Chocolate and sweet drinks
(c) Vegetables and bananas
- (d) A and B are correct
(e) A and C are correct
8. How often one should change a toothbrush?
(a) Every week
(b) Every month
(c) Every 3 months
(d) Every 6 months
(e) Once a year
9. What is the bacterial plaque?
(a) It is bacteria that grows eating the remains of food trapped between teeth
(b) It is a film of microbes covering teeth
(c) It is a protective gel for teeth
(d) A and B are correct
(e) A and C are correct
10. Why do we have to prevent and eliminate the bacterial plaque?
(a) Because it produces cavities
(b) Because it produces gum disease
(c) Because it produces bad breath
(d) All of the above are correct
(e) None of the above are correct

Appendix B

Cases of children treated in Sonrisas I, Herrera

Name	Age	Sex	Address	Start date	Diagnosis	Number of fillings	Date when treatment concluded	Recall date	Diagnosis
Rafelina Acosta	12	F	Barrio Duarte, Herrera	January 7, 2005	8 fillings.	8 fillings. Educated in oral health.	December 19, 2005	June 2006	1 cavity
Alvaro Carnalejo	9	M	Barrio Calamares, Carretera Sanches	February 16, 2005	3 extractions.	3 extractions. Educated in oral health.	May 4, 2005	November 2005	0 cavities
Eduard Baez	5	M	Barrio Los Girasoles	March 31, 2005	5 extractions	5 fillings. Educated in oral health.	May 9, 2005	October 2005	1 cavity
Marcel Baez	13	F	Barrio Enriquillo de Herrera	July 4, 2005	15 fillings	14 fillings (composite) 1 filling (Amalgam). Educated in oral health.	January 12, 2006	June 2006	1 cavity
Marcelis de Monte	7	F	Barrio Alma Rosa	May 6, 2005	4 fillings, 1 extraction	4 fillings (composite) 1 extraction. Educated in oral health.	May 13, 2005	November 2005	1 cavity
Paola Agiar	6	F	Marcoli Estrella #16	March 28, 2005	3 extractions	3 extractions. Educated in oral health.	September 3, 2005	May 2006	0 cavities

Appendix C

Cases of adults treated in Sonrisas I, Herrera

Name	Age	Sex	Address	Start date	Diagnosis	Number of fillings	Date when treatment concluded	Recall appointment	Diagnosis
Ramona Cruz	44	F	C/A Sur, #4 Ciudad Moderno	June 26, 2004	8 fillings and 2 extractions	8 fillings and 2 extractions Educated in oral health.	May 4, 2005	January 2006	0 cavities
Isabel Pinales	29	F	Calle Emeterio Mendez No. 56	October 29, 2004	14 fillings	14 fillings Educated in oral health.	March 18, 2005	December 2005	1 cavity
Martha Abreu	56	F	Buenos Aires de Herrera	March 21, 2005	3 extractions, 6 fillings	3 extractions, 6 fillings	April 26, 2005	January 2006	0 cavities
Juan Peralto	46	M	Las Caobas	July 15, 2005	10 fillings	10 fillings. 1 prosthesis. Educated in oral health.	September 18, 2005	April 2006	0 cavities
Eddie Castillo	34	M	Buenos Aires de Herrera	April 19, 2005	7 fillings, 1 crown. 1 implant	7 fillings, 1 porcelain crown, 1 implant. Educated in oral health.	July 18, 2005	January 2006	0 cavities
Zeneida Cabrera	32	F	Residencial Sto. Dgo., Herrera	March 22, 2005	9 fillings. 3 extractions.	9 fillings, 3 extractions. Educated in oral health.	July 3, 2005	January 2006	1 cavity

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