

Benaim Burn Foundation in Argentina Will Celebrate This Year Its 40th Anniversary

Fortunato Benaim

INTRODUCTION

The “Fortunato Benaim Foundation” was created on October 26, 1981, by a group of people with service vocation who supported my idea of founding a nonprofit institution for the public good to promote and carry out actions aimed at increasing *research*, contributing to *teaching*, improving *care*, and promoting the *prevention* of burns.

This year, our Foundation will celebrate its 40th Anniversary, so let me take a brief look at its origin, to inform when, why, and how it was created.

ANTECEDENTS

In 1952, the Argentinian Government inaugurated a new monovalent hospital, in Buenos Aires city, with the name of “Burns and Reconstructive Surgery Institute,” which was dedicated solely to receiving and treating burn patients.

In 1956, a competition was opened to designate a new director for that hospital. I applied along with another 20 candidates, and I was the winner, thus elected to be the new director.

ACKNOWLEDGEMENTS: The author has not received any funding or grants in support of the presented research or for the preparation of this work and has no declarations of potential conflicts of interest.

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For more information on the Benaim Burn Foundation visit our website www.fundacionbenaim.org.ar. The Benaim Foundation institutional video (in Spanish) is available at https://www.youtube.com/watch?v=vwa4Qv9NuCU&feature=emb_logo.

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I worked in that position until 1984, the year in which I turned 65; according to the regulations of our country, I had to retire. During those 28 years, I had the opportunity to appreciate the complex problems of burn pathology and its treatment and the necessity to improve knowledge in its different areas: care, research, teaching, and prevention.

With this idea in mind, in 1981, 3 years before my retirement, I invited a group of friends, members of the Buenos Aires Rotary Club to which I became a member in 1969, to create a nonprofit institution dedicated to help to fulfil the above-mentioned purposes. They accepted my idea, and in a private short meeting, held at the office of Dr. Juan Guaresti, a distinguished lawyer and ex General Secretary of the Buenos Aires Rotary Club, the Foundation was created. The resolution was recorded in a minute-book and signed by all present members who thus constituted the first Administrative Council.

Another invited friend, Dr. Hector Bértora, professor of economy, offered his collaboration to prepare the statute of the Foundation and to perform all necessary steps to achieve the official recognition as a new private not-for-profit scientific institution.

FOUNDATION EVOLUTION

Budget

The first problem to be considered by the Administrative Council was how to obtain the necessary funds to develop the Foundation's activities. It was decided to appeal to sponsors; important business individuals and beneficent institutions were approached, with requests for financial support for the Foundation's programs.

In addition, some members of the Administrative Council made several donations. The vice president, Mr. Uber Ricciardi, owner of an important jewelry business, provided the furniture for the president's office and made donations of watches, rings, and other articles to be raffled at fundraising events. The general secretary, Mr. José Lococo, owner of a nice and modern cinema, organized previews of films in his private exhibition room, with

capacity for 80 persons, followed by cocktails, to collect money for the Foundation.

In addition to these activities, during winter holidays, weekly expositions with the name of “Expo Show” were presented and dedicated to children, offering games and other entertainments, and the Foundation received what was produced by the sale of tickets.

Furthermore, the need for subsidies was presented to the Health Ministry, according to the necessity of getting funds for each new program. In the end, positive replies were obtained, and happily the dilemma to raise funds was solved.

Headquarters

To accomplish the need to have a headquarters, a 3-story house was acquired at Alberti street 1093 in Buenos Aires City. Mr. Javier Goñi, the Foundation’s administrative council treasurer, donated 30 000 dollars to help finance the house purchase, and Mrs. Bértora obtained a contribution of a significant amount of money from a friend, to be applied to the building renovation.

In 1984, after the completion of the work to adapt the house to our needs, the Foundation’s Headquarters was inaugurated with a formal ceremony. National Health Authorities, sponsors, and others important personalities were personally invited to the ceremony.

The Headquarters was organized into different offices; the president’s office, secretary’s office, an administrative office, a room reserved for members of the Administrative Council, and a library were installed on the first floor, along with bathrooms and a little office to prepare coffee. On the ground floor, the admission’s office, waiting room, assembly hall, men’s and women’s bathrooms, and kitchen were placed. A designated room was made to accommodate

the housekeeper. The third floor was reserved for research necessities, including laboratories (bacteriology, keratinocytes culture), tissue bank, and Chief Research Department’s office.

Skin bank

The use of frozen skin from deceased donors is an important resource for burn treatment. This skin must be provided by skin banks. To have our own skin bank, one of my collaborators, Dr. Alberto Bolgiani, was sent to Philadelphia (USA) to investigate the equipment needs and to study how to manage this type of bank.

In 1990, our Skin Bank was opened, and it was recognized by National Health authorities as the first skin bank in our country (Figure 1). It was equipped with a -20 °C refrigerator, a -80 °C freezer, a small laminar flow to prepare the sterilized cadaveric skin before being stored in the -80 °C freezer, and materials for packing the skin to be stored after sterilization. Sterilization was performed at the Atomic Energy National Commission Sterilization Department, utilizing cobalt 60. Homologous skin from our skin bank was disposable and offered to Burn Services to be used as homografts to cover temporarily raw surfaces generated by removal of necrotic tissue, in full-thickness burns.

Tissue culture laboratory

We had looked forward to using in Argentina the new resource that Dr. H. Green in Boston (USA) was developing, that is, culture of epidermic cells (keratinocytes) in vitro.

In 1990, I was called to treat a very severe burn patient (60% of his corporeal area was affected with full-thickness burns), and I took the opportunity to use this resource by sending to the Boston Laboratory a biopsy of the patient’s skin to be cultured. The cultured keratinocyte sheets were shipped by airplane from Boston to Buenos Aires, with

FIGURE 1. Skin Bank



the recommendation to apply them no later than 24 hours after they were harvested. The surgical operation was successfully performed, and the patient's life was saved.

After this positive experience, we decide to have our own laboratory for tissue culture. The Renault Foundation, which was asked to help economically, donated 100 000 dollars, which were applied to cover equipment expenditures and expenditures for the technical preparation of specialized staff. To carry out this new project, Dr. Alicia Lorenti was selected to travel to the United States to learn how to organize our tissue culture laboratory and the techniques for tissue culture. She attended the Shriners Burn Institute in Galveston, Texas (USA); upon her return to Buenos Aires, she was appointed to oversee the new laboratory and advise on its equipment. Dr. Glenn Philips from the United Kingdom offered his collaboration and the help of the International Atomic Energy Commission, who provided the most important elements to furnish the laboratory: special microscopy, laminar flow cabinet, centrifugal, liquid nitrogen, and some other special instruments. In 1992, the laboratory was inaugurated as the first Skin Culture Laboratory in Argentina (Figure 2) and officially recognized by the Health Ministry. It has been able to provide cultured keratinocytes at burn services whenever this new therapeutic resource for treatment of patients is needed.

Teaching program

To initiate teaching activities, it was decided to publish a journal dedicated to disseminating throughout Latin America the knowledge of burn's different aspects. The journal was named "*Revista Argentina de Quemaduras*" (*Argentine Burn Journal*), and today it remains the sole burn publication in Spanish language in the world.

FIGURE 2. Tissue Culture Laboratory



I was the Chief Editor for more than 15 years., after which Dr. Bolgiani continued the work with Lic. Pedro Bilyk as Assistant Editor. Mr. Jorge Rivas has been incorporated as Executive Director. He took over the design and distribution of the Journal and lately its online version, which can be consulted at the Benaim Foundation web page.

The next step was to contribute to the preparation of new professional specialists in burn treatment, not only surgeons and intensive care physicians, but also nurses, physical and occupational therapists, nutritionists, psychologists, and social workers. Different training courses were offered with well-prepared special programs for each one of the interdisciplinary burn team members.

Later, as a complement to this teaching program, distinguished foreign burn specialists were invited to give lectures on different aspects of burn problems at the Foundation's Headquarters. These were recorded in order to be used later in meetings dedicated to spreading scientific information related to burns. Drs. David Herndon, Jack Burke, Charles Baxter, Simon Teich Alasia, and Michele Masellis were some of the lecturers.

Another step in our teaching program was made when lectures on emergency treatment directed to general surgeons were dictated in different Argentinian cities to explain what to do during the first 48 hours after the patient is injured and to emphasize the need to improve first aid knowledge.

To back and guarantee our entire teaching program, agreements were signed with Buenos Aires University (UBA), Del Salvador University (USAL), and University of Management and Social Sciences (UCES - Universidad de Ciencias Empresariales y Sociales).

Prevention campaigns

Another important realization of the Foundation was the organization of prevention campaigns. Different resources, including interviews in newspapers, radio, and TV and brochures delivered to students in primary schools, were used to emphasize the necessity to be prudent in professional and domestic activities to avoid burn and other injuries.

A new and remarkably interesting resource, proposed and developed by our psychologist Pedro Bilyk, was the presentation in primary schools of a comedy specially prepared for children, in which actors and puppets, while talking, singing, and dancing, referred to the dangers of using fire and not being familiar with its safe use (Figure 3).

It is also interesting to point out that the Burn Latin American Federation has recommended to national burns societies to adopt October 26 as the "Latin American Burn Prevention Day," as an homage to our Foundation and in commemoration of its creation day.

Research programs

The first research work performed by the Foundation was carried out at its Bacteriological Laboratory by Dr. Lorenti. It was titled "Sensitivity assay for topical agents" and was published in the *Journal of Burn Care and Rehabilitation* (1989;10;209-212).

Many other research investigations were carried out by different professionals and members of the Foundation and published in Argentina and other foreign burn journals (see the list in Table 1).

Another important contribution, to facilitate the realization of clinical research works, has been the development of a personal and original protocol to collect data following

a systematic computerized system. In Spanish, it is known as "P.Re.S.Da.Q" (Protocolo Recolección Sistemática de Datos sobre Quemaduras). For more details on the coding used in this protocol, see Table 2.

Burn unit

The idea of having our own burn unit was taken into consideration, with the thought that it would be useful not only to treat patients but also to use the facility for practical training of professionals in our courses who were coming from different cities of Argentina and other countries, including Bolivia, Chile, Colombia, Equator, Paraguay, Uruguay, and Venezuela. After an analysis of the feasibility of making this project a reality, we accepted the risk.

TABLE 1. List of Papers Published in Foreign Burn Journals by Members of the Benaim Burn Foundation

Benaim F. Thirty years at the service of burns in Argentina and South America. <i>J Trauma</i> . 1981;21(5):356-363. doi:10.1097/00005373-198105000-00004
Bolgiani A, Lorenti A, Prezzavento G, Benaim, F. Clinical application of cryopreserved and cultured skin as allografts and autografts. <i>Cryomedicine Argentina Postgraft Monserrat</i> . 1992:53-55.
Benaim F, Artigas, R. Development in the treatment of burns in South America during the last decades. <i>Burns</i> . 1999;25(3):250-255. doi:10.1016/s0305-4179(98)00171-5
Ramos G, Patiño O, Sanchez D, et al. Use of glucocorticoids in burn patients with adult respiratory syndrome. <i>Ann Burns Fire Disasters</i> . 2001;14:7-11.
Ramos G, Resta M, Patiño, O, et al. Perioperative hypothermia in burned patients subjected to non-extensive surgical procedures. <i>Ann Burn Fire Disasters</i> . 2002;15:132-141.
Ramos G, Bolgiani A, Patiño O, et al. Catheter infection risk related to the distance between insertion and burn area. <i>J Burn Care Rehabil</i> . 2002;23(4):266-271. doi:10.1097/00004630-200207000-00007
Ramos G, Bolgiani A, Patiño O, et al. Antiseptic impregnate central venous catheter: its evaluation in burn patients. <i>Ann Burn Fire Disasters</i> . 2006;19:130-135.
Ramos G. Perioperative bacteremia in burn patients. <i>Ann Burn Fire Disasters</i> . 2006;19:130-135.
Ramos G, Resta M, Machare Delgado E, Durlach R, Fernandez Canigia L, Benaim F. Systemic perioperative antibiotic prophylaxis may improve skin autograft survival in patients with acute burns. <i>J Burn Care Rehab</i> . 2008;29(6):917-23. doi:10.1097/BCR.0b013e31818b9e5c

FIGURE 3. Children at School, Watching the Comedy "To be prudent doesn't take away bravery" During the Burn Prevention Campaign and Actors Playing the Comedy



TABLE 2. P.Re.S.Da.Q Protocol Coding

To record relevant aspects of the burn patient, injury, treatment, and its evolution, the following groups of data were identified:
Etiology
- Topography
- Diagnosis
- Personal Data
- Success Data
- Translation
- Organism
- Patient
- Injury
- Complementary Studies
- Treatment
- Complications
- Evolution
- Discharge Conditions
- Records and Discharge Summary Status
Each group of data, which in turn have several other subgroups or levels, is coded as a combination of letters and numbers so that a unique code is reached to identify all variables.

The following example better illustrates how this system works. Data "Topography" is identified by the letter "T", and each region code is represented by a number as follows:

1. Head	4. Thorax	7. Perineum & genitalia
2. Face	5. Abdomen	8. Upper extremity
3. Neck	6. Lumbo sacral coccyx	9. Lower extremity

Thus, for upper extremity, the code is "T.8"; the region can be left or right, so another number is added to the code (1 for left side and 2 for right side); thus, the code is "T.8.1" for left upper extremity and "T.8.2" for right upper extremity. Continuing with the right upper extremity, another code number is added to differentiate each part: T.8.2.1 indicates right shoulder, T.8.2.2 right armpit, T.8.2.3 right arm, T.8.2.4 right elbow, T.8.2.5 right hand, and T.8.2.6 fingers of right hand. The same system can be used to code each one of the groups of data.

The next step was to design sheets to record each coded data. The treatment, evolution, and complication data are divided into local and general and must be recorded daily; the sheets prepared for this purpose were designed to allow weekly registration. Similar steps were taken for all other data that must be registered daily, including temperature, blood pressure, and other nurse's tasks. Physical and psychological therapies and nutritional diets also have special sheets.

Clinical research is based on the systematic registration of data to be then utilized to obtain statistical results; to fulfil that purpose, it is necessary to ready material for analyses. This table presents a glance of the coding and sheets used to record data for clinical charts. This protocol is available to those researchers who would like to use it. Please request at info@fundacionbeaim.org.ar.

We were looking for a suitable place for its installation when I was called to see a burn patient in the German Hospital in Buenos Aires city. The Hospital director invited me to visit the fourth floor of one of their buildings, the "Pueyrredon Tower." It seemed to me that the possibility to have a burn unit in a high-complexity general hospital would be particularly good because it would allow collaborations among the hospital's general services, including laboratories, radiography, hemotherapy, pathology, and the possibility to have interdisciplinary consultations with all the medical specialties. Thus, we accepted the Hospital's proposal, and an agreement was signed by both institutions to formalize the compromise.

To start the work, an architect specialized in hospital constructions was requested to prepare the plans. His indications were that there should be 3 differentiated areas: "Restricted Circulation Area," "Free Circulation Area," and "Transferences" and that it was mandatory to keep the Restricted Circulation Area apart from the Free Circulation Area and to connect both by Transference Areas. Patients

FIGURE 4. Burn Unit Patients Rooms, Fully Equipped**FIGURE 5.** Burn Unit Operating Theatre, Equipped With Benaim's Model Operating Table

rooms (Figure 4) should be in the Restricted Area, on one side, with the Operating Theatre (Figure 5), Hydrotherapy Room (Figure 6), Nurse's Office, Nutritional Office, Doctor On Call Room, and Deposit Room for dressing materials and other necessary elements on the other side. Both sides should be separated by a wide corridor (Figure 7) to facilitate movement of beds when patients had to be moved from their rooms to the treating area, to be dressed, operated, or bathed. At the Free Circulation Area, a peripheral corridor (Figure 8) would allow the patients' visitors to see patients through the windows of their rooms that were to be placed looking to the corridor. The Transference Areas were necessary for entrance and exit of patients (Figure 9), personnel (Figure 10), and other elements, such as dressing materials, medicaments, food, clothes, and surgical instruments used for treatment (Figure 11).

The general equipment was provided by the Hospital, and the special equipment, with my personal design, that is, special beds (Figure 12), operating table, and mechanical transportation system by crane, were provided by the Foundation and installed at the new Burn Unit.

The professional members of the interdisciplinary team for burn treatment (surgeons, intensive care physicians, physical therapist, nutritionist, and psychologist) belonged to the Foundation. Nurses and all auxiliary personnel were provided by the Hospital.

The name of the new burn unit was "Excellence Center for Burn Assistance or CEPAQ (in Spanish, Centro de Excelencia para Asistencia de Quemaduras) and was inaugurated in 1997 with a ceremony held at the Assembly Hall of the Hospital, with presence of Hospital and official health authorities, sponsors, and specially invited personalities. Among them was Dr. Basil Pruitt, President of the "International Society for Burn Injuries (ISBI)," who had travelled to Buenos Aires and was invited to visit the Unit and participate in the opening ceremony. He gave a short speech emphasizing its quality.

NEW PROJECTS

Proposal to create an "Argentina Net of Services for the Treatment of Burned Patients"

Today in Argentina, burn patients are treated by services located in different cities scattered around the country; however, some facilities do not have proper equipment or specialized personnel. The purpose of this project is to improve the actual status and assist these facilities with their necessities.

This Project has been presented to the Health Commission of the National Congress and will be considered by the Representative Chamber. Unfortunately, the COVID-19 pandemic, which considerably affected our country and the

FIGURE 6. Burn Unit Hydrotherapy Room and Mechanical Transportation System by Crane



FIGURE 7. Burn Unit Wide Internal Corridor



FIGURE 8. Burn Unit Peripheral Corridor With Windows Facing the Patients' Rooms



FIGURE 9. Burn Unit Transference Area: Patient's Entrance**FIGURE 10.** Burn Unit Transference Area: Personnel Dressing Room and Entrance to Restricted Area**FIGURE 11.** Burn Unit Transference Area: Entrance of Clean Elements

world, has resulted in postponement of all projects, giving priority to only those directed to improve the conditions of people with the virus. We hope that, at the end of this pandemic, our Project will be considered and discussed. If approved, the Foundation has offered its collaboration to carry it out.

Prizes and scholarships

In 2015 the “Forum to Stimulate Research and Study of Burn Care” was created as a new department of the Foundation. The Forum organized a competition to award a scholarship to young professionals interested in improving their knowledge of burn care.

To start this new Program, agreements with Chile and Uruguay Burn Societies were signed with the purpose of organizing scientific exchange among these countries. Three doctors, one from each country participating in this Program, were selected to be the first group of scholars.

FIGURE 12. Benaim's Patented Model of Bed for Burn Patients

The reports presented by each at the end of their visits have demonstrated the success of this new Foundation Project, which will be enlarged in the future, including having more countries participating.

Regarding prizes, the National Academy of Medicine and the Argentine Burn Association will be consulted about the possibility of awarding a Biannual Prize, consisting of a medal with the name of "Benaim Burn Foundation," along with money provided by the Foundation to be given to the authors of the best papers on research or clinical works related to burns. Winners of the contest will be supervised by these scientific entities.

FINAL WORDS

I have written this paper with the purpose of leaving a document that summarizes the creation and activities of the Foundation, to allow those interested to learn what has been done in my country, Argentina, with regard to its contribution to burn care and knowledge.

Here, I have provided details of each one of the different programs on teaching, research, prevention, and care of burns carried out by the Foundation. Moreover, references

to economic dilemmas and how we obtained funds to cover expenditures, including those needed to adapt the house purchased for the Headquarters and other expenses, have been described. In addition, in recognition for their valuable help, I have mentioned the names of people and institutions that donated money and different elements required to furnish some of the Foundation's activities.

Lastly, I want to express my deepest appreciation to all those who have collaborated to perform all the Foundation's projects: founders and administrative council members; sponsors, professional and administrative staff, members of the interdisciplinary burn team, organizers of beneficial acts for raising funds, and all those who have participated in Foundation activities.

Also, I am grateful to my daughter Alejandra for correcting this manuscript and adapting it for this Journal; to my son Paul, who filmed several videos and movies and prepared presentations to illustrate conferences and other Foundation activities; and to Professor Mehmet Haberal for inviting me to be the Honorary Chief Editor of *Burn Care and Prevention* and to present this paper.