

in the Institute. One out of the four occupational therapists and four of the 33 physiotherapists of the Institute are working with our spinal cord patients; one physiotherapist is employed full time in the unit and the most experienced physiotherapist in paraplegics' re-education heads the team, members of which are rotated regularly in order to give the opportunity to treat spinal cord patients to the other physiotherapists of the Institute who are interested in this field.

SUMMARY

After relating the circumstances which ended in the creation of the first Swiss University Paraplegic Centre in Geneva, a brief description of the Centre is given. Its medical organisation is described and the composition of its personnel is presented.

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ORGANISATION OF AN AUTONOMOUS SPINAL INJURIES UNIT

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THE Instituto Guttmann, legally dependent from the National Association of Civilian Cripples, is a 44-bed autonomous Spinal Unit in Barcelona, a city of about two million people in the region of Catalonia, one of the most industrial areas in Spain. The aim of the Centre is the total care of the paraplegic patient, from the acute stage to domestic, social and industrial resettlement.

HISTORY

Señor Gonzalez is the founder and President of the Board of Instituto Guttmann. His desire to set up a Paraplegic Centre in Barcelona was activated by his own disablement as the result of a motor-car accident, some nine years ago, when he became a tetraplegic.

After his accident he was examined by many leading surgeons and other specialists in Barcelona, but despite continued medical care his condition deteriorated steadily.

Señor Gonzalez was subsequently transferred to the National Spinal Injuries Centre, Stoke Mandeville Hospital in England, where he remained for 11 months. It was then that he began to be concerned about the fate of those paraplegics

and tetraplegics in Spain to whom the possibility of being treated abroad was denied. So insistent was his desire to do something for his compatriots similarly disabled, that Sir Ludwig Guttmann called him the 'apostle' of paraplegia in Spain.

Returned to Barcelona, his one aim was to provide a Centre as similar as possible to the one that had turned him from a hopeless cripple into an active and dignified man.

Previous to his setting up the Instituto Guttmann, Señor Gonzalez's attempts to set up a paraplegic unit in a general hospital were met with failure and disappointment. Despite many set-backs, he had the foresight to make arrangements for a Spanish orthopaedic surgeon and a Spanish nurse—both previously trained in England—to go to Stoke Mandeville for eight months for specialised training in paraplegia. His next problem was to find a place to accommodate his newly trained staff of two. This was solved as follows:

National Association of Civilian Invalids. The National Association of Civilian Invalids is an officially recognised nation-wide organisation for the welfare of civilian invalids. It was that organisation which helped to materialise Señor Gonzalez's idea.

Foundation for Physical Rehabilitation. This non-profit-making organisation was set up by Señor Gonzalez and a group of Barcelona business-men in 1962 with the purpose of providing funds for the Institute.

Acquisition, rent free, of a former Venereal Disease Hospital from Spanish Government. The National Association of Civilian Invalids was able to obtain, rent free from the Spanish Government, the use of a former venereal disease hospital—a building over 50 years old—which, at the time, was occupied by 50 families left homeless as a result of the floods in the Barcelona area in September 1962. The building consists of ground and two floors, with floor space of approximately 22,000 square feet. The approximate surface of the non-built area is, at present, of 28,000 square feet.

Only in May 1965 was the ground floor cleared of the refugee families, and on 27 November of that year the Instituto was officially opened as an autonomous 20-bed Spinal Unit. During these six months important reconditioning work had to be carried out in this antiquated building. Rehousing the remaining refugee families continues, but 18 families still occupy the top of the building.

Purchase of 20,000 square feet of Land adjoining Instituto Guttmann. It should be mentioned that Mr. Gonzalez and the National Association of Civilian Invalids, at equal parts, purchased some 20,000 square feet of land adjacent to the Hospital. The reason for the foresight in making this purchase will be explained later in this paper.

PRESENT SET-UP AND ORGANISATION OF THE INSTITUTE'S GOVERNING BODY

The Hospital is governed by a committee which consists of the President, the Medical Director of the Centre, three voting members from the National

Association of Civilian Invalids, and three voting members from the Foundation for Physical Rehabilitation.

This governing body is empowered to decide matters concerning the running of the Hospital, the acquisition of minor equipment, employment of staff, etc. For major matters, such as building, purchase of expensive equipment, the governing body must submit the project for approval to the Presidents of both the National Association of Civilian Invalids and the Foundation for Physical Rehabilitation.

Present Staff. The actual staff consists of the following personnel: one medical director, one administrator, one house keeper, one head nurse, one superintendant physiotherapist, one social worker, one craft instructor, one medical registrar, one medical officer, three staff nurses, six nurses, three physiotherapists, one administrative officer, two secretaries and ten orderlies (total, 34).

This personnel, the majority working full time, make up the permanent staff of the Hospital. There is also a visiting consultant urologist, coming once a week, and a psychiatrist. A neurosurgeon, general and chest surgeons are always available on request. An anaesthetist interested in resuscitation techniques is also always available.

The Director of the Centre, being an orthopaedic surgeon, deals himself with the orthopaedic and plastic surgery problems.

The Centre maintains a cleaning-staff, but, at present, due to the limited number of patients, no kitchen staff. It is both more practical and economical to contract the supply of cooked meals from outside.

Present Ward and Private Room Capacity. In July 1966 the first floor of the Institute became free from refugees and in November of the same year the structural alterations were completed. Thus the capacity of the Centre went from 20 to 44 beds.

Male ward for acute lesions	12 beds
Male general ward	22 beds
Female ward	8 beds
Private rooms	2 beds
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Total	44 beds
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All wards are divided up in partitions with a maximum of eight beds in each partition.

Actual Equipment. *Operating theatre.* Temporarily situated on the ground floor with temporary and out-of-date equipment. It can, however, deal with general and urological surgery. Sterilisation: central, by hot air and autoclave. Each ward has its own electric boiler.

X-ray equipment. The hospital is covering temporarily its X-ray requirements with a single 100 kV. 100 mA. apparatus.

Positive-negative pressure respirator.

Mechanised beds. Two Egerton Stoke-Mandeville turning beds. The Institute is now acquiring six more beds of the same type.

Physical therapy. There is an adequately equipped gymnasium but at present no hydrotherapy facilities.

Laboratory. It is equipped to cover most of the routine requirements of the Centre, except for bacteriological examinations, cultures and sensitivities, which are sent to the pathology laboratory of a general hospital.

Sports facilities. There is equipment for the practice of archery, table-tennis, billiards, throwing the javelin and discus.

Light machinery for workshops. Machinery exists mainly for making the calipers used for the patients and for handicrafts.

Transport. The Hospital possesses no form of motorised transport.

Research Facilities. At present there are no facilities for experimental research. Statistical research as to the number of paraplegics in Spain and the conditions of their settlement might be possible in the near future by the agency of the National Association of Civilian Invalids.

Educational Facilities. On the same ground of the Hospital the National Association of Civilian Invalids runs a school for physically handicapped children. The Centre has also been using this school for some of its own patients who were either illiterate or who's cultural level was very low.

Recreational Facilities. Library, in-door games, sound film projector, several television sets and collective outings sponsored by the National Association of Civilian Invalids.

ADMISSIONS AND TURNOVER

Up to 30 June 1967, 53 patients have been admitted to the Institute. Trauma was the main cause of paraplegia in 42 (79 per cent.) of these 53 patients. Of the 42 traumatic cases, 29 (69 per cent.) were due to work injuries.

The number of acute lesions—patients admitted within 11 days following injury—was 9 (17 per cent. of the total number of admissions). In patients admitted at later stages, the presence of pressure sores was the rule.

The distribution of patients, according to the level of their lesions, was as follows:

8 Cervical	. . .	(15% approx.)
11 Thoracic 1-6	. . .	(21% approx.)
15 Thoracic 7-12	. . .	(28% approx.)
19 Lumbo-sacral	. . .	(36% approx.)
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<u>53</u>	Total	<u>(100%)</u>

So far, 23 patients have been discharged. Only one had to be readmitted two months later, having been discharged again after six months and successfully resettled since then.

The average stay in the Centre for these 23 patients has been 224 days.

GENERAL MANAGEMENT

Treatment of the Fractured Spine. The method of postural reduction, as described by Guttman, is used in the treatment of acute traumatic lesions.

In our experience three-hourly turnings have proved sufficient to prevent pressure sores.

Management of Bladder. Intermittent catheterisation done by a doctor with the non-touch technique, following the teaching of the National Spinal Injuries Centre, Stoke Mandeville, is the method of choice in the early management of any cause of paraplegia.

Aids to Conventional Physiotherapy. Work and sport are used as valuable aids to conventional physiotherapy.

Routine Complementary Examinations. Each individual patient is submitted to the following complementary examinations: repeated control of residual urine, fortnightly bacteriological examination of urine, intravenous pyelography, cystometrography and vital capacity (in patients with cervical lesions and lesions above T7).

Case Conference. From two to three weeks after admission to the Institute a case conference is held for each individual patient. By that time, all concerned have had full opportunity to get to know the patient.

The aim of the case conference is to bring together all the available information in an effort to view the problem as a whole and set up a plan of action towards the future resettlement of the patient.

The members of the staff taking part in the conference are: medical director, registrar, medical officer, social worker, craft instructor, superintendent physiotherapist and head nurse.

SOURCES OF INCOME AND RUNNING COSTS

Sources of Income. About 55 per cent. of the total number of patients admitted to the Instituto Guttman are industrial injuries cases, and their respective Insurance Companies pay for the stay and treatment. Another 5 per cent. approximately, can be classed as private patients who pay for their stay and treatment. The National Association of Civilian Invalids contributes the equivalent of 50 per cent. of the running costs once the contribution by paying patients has been deducted. The Foundation for Physical Rehabilitation contributes the other 50 per cent.

Donations to the Centre from private individuals come mainly in the form of goods.

Running Costs. Operating costs and overheads come to about £4000 per month, which means that the Institute is running at a loss of, approximately, £1500 per month. When the structural alterations on the second floor are

completed there will be a total capacity for 80 beds, which should enable the Institute to be self-supporting.

An agreement between Instituto Guttmann and the Spanish Social Security Scheme, now in preparation, should secure the future financial position of the Centre.

FUTURE OF THE INSTITUTO GUTTMANN

The projects of the Barcelona City Planning Council present a problem for the Governing Body of the Institute. The main wings of the present building run parallel to a small street which the City Council intends to widen into a main thoroughfare. When this project is put into operation, possibly within the next five to ten years, the entire building will have to be demolished. Having had foreknowledge of this project, Mr. Gonzalez, together with the National Association of Civilian Invalids, purchased the 20,000 square feet of land—mentioned earlier in this paper—adjacent to the building. It is the intention of the Governing Body to build on this land, after requisition by the City Council of the existing building, an up-to-date construction which would comprise: the Hospital, sheltered workshops and living accommodation for tetraplegics and for under-privileged paraplegics who cannot find their place in society.

Sufficient land would remain to provide a sports ground.

It is hoped that with the compensation that will be made to the Institute for the loss of the existing building, together with some State aid, the major cost of the new building will be covered. The Institute will have to look elsewhere for the remainder.

COMMENTS

The Instituto Guttmann presents particular aspects derived from its autonomous set up.

A paraplegic unit as part of a larger general hospital has known advantages, mainly the convenience of available ancillary services and the facility for consulting colleagues of other specialities within the same premises. These advantages are not readily available in an autonomous centre.

However, when attempting to set up the Instituto Guttmann in a general hospital we were soon aware of great difficulties in obtaining the necessary autonomy for its successful running.

As an entirely autonomous paraplegic unit the Instituto Guttmann has absolute freedom of action, both technically and administratively, and we feel that this advantage outweighs most drawbacks.

From a financial point of view it is, obviously, more difficult to obtain the sufficient resources to set up an entirely autonomous paraplegic unit, but, as far as running cost is concerned, we have found out that the running of Instituto Guttmann can be 50 per cent. lower than the running cost of some other comparable paraplegic units in Spain which are part of general hospitals.

SUMMARY

The Instituto Guttmann, an autonomous spinal unit in Barcelona, Spain, with a present capacity of 44 beds, was opened in November 1965.

Some notes on the history, previous to the official opening of the unit, are given.

The present set-up and organisation of the Centre are reported.

An account is given on the number of admissions and turnover of patients, general management, sources of income and running costs, together with a preview on the future of the Institute.

The main advantages and drawbacks derived from the autonomous setting up of the unit are discussed.

ORGANISATION OF AN AUTONOMOUS SPINAL UNIT AS PART OF A NATIONAL ACCIDENT INSURANCE ORGANISATION

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THE Istituto Nazionale per l'Assicurazione contro gli Infortuni sul Lavoro (I.N.A.I.L.: Italian National Institute for Labour Accident Insurance) is an autonomous State organisation, the object of which is insurance against labour accidents and occupational diseases in industry and agriculture. Among its tasks, therefore, is also that of providing medical and surgical treatment, orthopaedic and physiotherapeutic management as well as functional and professional rehabilitation of its insureds. The organisation was created by a law issued on 8 July 1883; its present ruling is contained in a law issued in 1933 with a number of subsequent amendments.

The organisation is supervised and protected by the Ministry of Labour and Social Security; the Institute is presided over by a Chairman who is appointed by the President of the Italian Republic, and by a board of directors on which all the categories concerned are represented, *i.e.* industrial workers, agricultural workers, workers engaged in commercial activity, craftsmen, directors of industrial enterprises, representatives of the employers and representatives of certain Government departments and other State organisations concerned with social security.

Within the framework of its specific duties to treat and to rehabilitate with every useful procedure the victims of occupational accidents, I.N.A.I.L. has created, during the last few years, a network of large traumatological hospital centres in all the more important towns of Italy. These centres are run by I.N.A.I.L. directly. Other hospital wards or departments have been organised or developed in many smaller towns. Further, a certain number of centres has been created in order to answer certain particular therapeutic needs, such as the Centre at Budrio near Bologna for the application of prostheses in amputees and the Spinal Injuries Centre at Lido di Roma, 10 years ago.

The aim of the Spinal Centre is to treat and rehabilitate every recent injury to the spinal cord which is brought to the Centre in the acute phase. Furthermore,