Out-patient Attendance. All cases that can be brought back for medical re-examination are seen at regular intervals at our out-patient clinics and are re-admitted for full routine annual investigation. Those too far afield where it is impracticable to return to the Centre are supervised by the nearest provincial hospital or a general practitioner or district surgeon and are referred back to the Centre if necessary. Out-patient attendance figures are unfortunately not available for the entire period under consideration, but a comparison of the figures for 1967 with those of the previous year show a marked increase—297 in 1967, 102 in 1966. It is encouraging to see how well the majority of the discharged patients manage once out of hospital, a relative minority return with sores or urinary complications.

SUMMARY

An analysis of 300 new lesions admitted to the Spinal Injuries Centre, Conradie Hospital, Cape Town, which was officially opened in November 1963.

Statistics given relate to the following:

1. Mode of transport to the Centre.
2. Age and sex distribution.
3. Cause and frequency of spinal cord lesions.
4. Neurological classification—incidence and extent.
5. General nursing care.
6. Plastic repair of sores.
7. Incidence of automatic and autonomous bladders and treatment.
8. Orthopaedic procedures.
9. Tracheostomy.
10. Death rate.
11. Discharges.
12. Out-patient attendance.

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SOME CONCLUSIONS ON A STUDY OF 365 PATIENTS WITH SPINAL CORD LESIONS

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THIS study has been carried out on 365 patients with spinal cord lesions caused by trauma or illness. They have been selected from a total of 600 patients, treated in a similar way in our institution from 1959 to 1968.

Our statistics show major accidents occurring in the age-groups between 20 and 39. Decompressive laminectomies were performed as a rule, immediately after the trauma (Table I).

TABLE I
LEVEL LAMINECTOMIES

TABLE II

Average Time between the Accident or Illness and the Admission to this Rehabilitation Centre

Date of admission	Number of patients admitted	Time since beginning of illness to admission	Average time
		months	months
1958	3	63	21
1959	37	1,503	40
1960	33	1,150	34
1961	57	1,914	33
1962	52	1,764	33
1963	29	774	26
1964	42	1,231	29
1965	37	1,435	38
1966	39	619	16
1967	36	1,062	29
1958-67	365	11,515	31

Table II gives the average time interval between accident or onset of illness and admission to the unit. Only 13 per cent. of the patients under study were hospitalised during the first month of onset of the lesion (Table III).

We want to point out that injuries causing paraplegia were more frequently due to falls than due to traffic accidents. This is similar to United States statistics 20 years ago (Abramson, 1968) unlike the present-day statistics in that country. Complete lesions were more frequent in injuries caused by bullets.

In the following the physical, orthopaedic or surgical procedures are described which have taken place before or after admission.

TABLE III

Surgical Intervention which can be prevented by Proper
Physical Treatment

Plastic surgery in decubiti ulcers	72
Hamstring tenotomy with or without capsulotomy	17
Hip flexor tenotomy	6
Achille's tendon tenotomy or elongation	57
Phalanxectomy in feet	9
Adductor tenotomy with or without neurectomies	12
Interphalangeal arthrodesis in feet	2
Triple arthrodesis (Lambrinudi)	2
Anterior rizotomy	2
Transmetatarsal osteotomy	2
Neurectomies of sciatic and crural	2
Other orthopaedic interventions	22
Total	205

Tendon transplants on the hands of 38 quadriplegics were performed with good results in most of the cases. We applied arthrodesis on patients with lesions below C5, but we did not use them as a rule in lesions below C6. In these cases, surgery was performed to improve contractures (Zancolli, 1967).

Blocking infiltrations with phenol-glycerine in 20 per cent. of the 365 patients under study. These chemical nerve blocks gave partial results in 43 per cent. of the 39 patients who were submitted to them.

In the presence of severe muscular deformities 133 orthopaedic operations were performed. Many of these would have been unnecessary if the patients had been given proper care immediately after injury. We prefer surgical intervention of the soft parts, for the alignment fractures of the lower limbs, being a more secure and quicker method (Table III).

With regard to *sub-arachnoidal blockings* the existence or non-existence of sacral sensibility and the presence of a balanced bladder and the sexual function was decisive for the indication of this procedure. We performed anterior rizotomy in five cases, with cystometric control and good results. In two of these cases we had to complete them afterwards by orthopaedic operations of soft parts.

In 14 patients, 20 fractures occurred during treatment after the original injury had taken place. All fractures formed exuberant callus and in one case a pseudoarthrosis developed. There were seven of supracondylar and four of supramalleolar type. We observed one bilateral supracondylar fracture after a fall on the

knees and another very peculiar one of a tibial metaphysis (del Sel, 1968). In all cases, the bones were osteoporotic below the lesions, this was found in 80 per cent. of the complete lesions. They were treated in plaster casts, but three of the cases had surgical nailing in two diaphysis of femur and one a surgical reduction of the shoulder were performed.

In 4.6 per cent. heterotopic calcifications were found, 64 per cent. had stone formation in the urinary system.

In four patients amputations have been performed. There was telescopic phantom sensation of the foot in all these cases and only one of them is using a prosthesis. There were no phantom pains, only sensations which did not prevent the re-adjustment of the patients.

Statistics show an enormous and frequent incidence of pressure sores at the time of admission of these patients to our Center. Of 365 patients admitted, 234 had sores and many of them had multiple ulcers. The greatest incidence was observed in patients with lower dorsal and lumbo-sacral lesions. In tetraplegics and upper dorsal lesions this dangerous complication was less pronounced perhaps because of better care.

Intermittent catheterisation was used in approximately 13 per cent. of the patients with excellent results even in patients with moderate cystitis (Guttmann, 1947, 1969; Guttmann and Frankel, 1966). Using a fine soft plastic catheter (Foley 14) and changing it every five days at the maximum, we believe that the presence of the balloon does not increase the harm caused by the catheter as a foreign body. Intermittent catheterisation seems to be the only thing which introduces something different in the drainage of the neurogenic bladder.

The education of the patient was always stressed in order to teach the patient how to manage his bladder and look after his skin.

At the time of admission to this center, it was found that out of 365 patients 100 per cent. presented infection and after a period of treatment only 27 per cent. were discharged without cystitis and the remainder had a moderate infection.

It was confirmed during treatment that 15 per cent. had hydronephrosis and 6 per cent. urethraoectasis with a larger incidence of both these complications in male patients. We did not make statistics of the incidence of reflux.

Peno-scrotal ulcers were 3 per cent. at the time of admission. One single case occurred during inpatient treatment at this center. Surgical procedures gave the following results: in 20 per cent. bad results and 80 per cent. acceptable and good results. There were three re-operations.

The incidence of stone formation in the urinary tract with regard to level and type (flaccid and spastic) of the lesions is shown in Tables IV and V.

As for intestinal care, we have always tried to avoid enemas and had good results by controlling a time-table, discipline and proper feeding or administering glycerine suppositories, and teaching external anal stimuli (Tables IV and V).

In general, an appropriate rhythm of defaecation was achieved for each patient, provided he took an interest and learned to educate himself in this problem. We have been very strict in the choice of diets.

We studied the sexual function in 162 male patients and followed the scheme of Bors and Comarr. We found the following results (Table VI). None of the male patients with possibilities of performing intercourse was able to have children.

We had four expectant mothers. The confinements and child births were normal, one patient had twins. Menstruation returned days or months after acci-

TABLE IV

TABLE V

dent with approximately the same characteristics as before the accident. No special relationship with the type of lesions, complete or incomplete, was observed.

Death occurred in 14.7 per cent., as a rule due to kidney problems. We are unable to offer statistics in this respect, as most of the patients lived in the interior of the country and it was difficult to obtain adequate reports to study the details of their death.

All patients were treated psychologically and were given vocational training.

In conclusion, patients with spinal cord lesions must be treated in specialised Centres. It has been proved that the prevention and treatment of complications is more important than surgical intervention.

Surgical procedures must not be performed by surgeons who are not familiar with the whole integral management of these patients. A passive attitude of

TABLE VI

Sexual Study in 162 Male Patients with Intravertebral Nervous Lesions

Lesion	Erection	%	Ejaculation	%	Orgasm
C.M.N. Complete	Reflex	87	Rare	—	Absent
C.M.N. Incomplete	Reflex and psychological	92	Continues reflex erection psychological	41	Present with ejaculation
C.M.N. Complete	Psychological	7	Continues psychological erection	—	Present with emission
C.M.N. Incomplete	Psychological and reflex	86	Continues psychological and reflex erection	10	Present with ejaculation

doctors towards these patients who are not familiar with all the aspects of this problem might endanger the patient's life.

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ROTO-REST

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THIS bed has been designed to introduce automation into the nursing of severely disabled patients. It makes possible improved nursing care which hitherto was not practical or economical, and facilitates medical examination and specific therapy of these patients. The Roto-rest is primarily intended for use in the treatment of spinal injuries, with or without the complication of paraplegia or quadriplegia and also for head injuries and orthopaedic cases. It may also be used to great advantage for the chronic patient at home.