

# Setting standards for day care foot surgery. A quinquennial review. Part I

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Refer to *Clinical Audit Bulletin: Origins of PASCOM* on page 440.

*'The development of podiatry may have come about because of a lack of orthopaedic interest in foot surgery, driving patients to seek alternative sources of help' Klenerman 1991.*

## SUMMARY

Three surveys were conducted to confirm the effects of podiatric surgery on patients under local anaesthetic at a School of Podiatry. The first five years (1987-1991) of the unit's development have been analysed following its successful implementation within an undergraduate BSc(Hons) Podiatry course. Educational aspects of the Podiatry clinic (hereafter called the unit) have not been included in any detail.

Day surgery exists to reduce hospital inpatient costs, especially hotel charges. Furthermore beds are released for more major operations (Royal College of Surgeons, 1985). Day surgery increases the discharge rate from hospital and reduces the waiting list for specific types of procedures. The quality of care has not been analysed to the same extent as efficiency.

Podiatric foot surgery has developed in the podiatric models of the USA. The literature supporting the success and development of progress in Britain has been very scanty over the first twenty years of its development (Tollafield, 1993).

The structure and benefits of day surgery have been reviewed by the Audit Commission (1992). Day surgery implies that the patient has no planned overnight stay. As yet no evidence has been published establishing standards for podiatric day care surgery. Routine palliative care of feet by repetitive and costly treatment by chiropodists has been criticised. Gilbert and Galloway (1990) provided evidence to support the poor utilisation of chiropody care to manage long standing problems by repetitive hard skin reduction. In a different study, Hood (1992), using patients from the School of Podiatry's Surgery Unit, identified a discharge rate of 48.5% as opposed to 8% in a control group receiving chiropody care for the same problem.

Terms of reference for this report include podiatrist to mean Fellow of the Podiatry Association\* (FPodA), Specialist in Podiatric (Foot) Surgery. Chiropodist refers to a State Registered Chiropodist uninsured to practise invasive foot surgery. Training of the podiatrist would require a minimum of four additional years following state registration.

\*The Society of Chiropodists and Podiatrists also recognise members who have skills in performing invasive foot surgery. At the time of this report, negotiations were being undertaken to produce a single policy toward the practice of foot surgery in the UK.

Quality assurance is only part of audit. Donebedian (1980) provided three main mechanisms that have been recognised in a number of medical texts to assess audit performance at different levels (Pollock & Evans, 1990; Mackie, 1990; University of Dundee, 1992). Such mechanisms of audit encompass the process of *structure, process* and *outcome*. This means that audit might be studied within different levels of activity. Only part of delivery of care can be determined by measuring waiting lists. Ellis and Whittington (1993) consider that standards arising from Donebedian's parameters are an uneasy mix of the three aforementioned parts of audit. The interrelationship between each arises from subjective as well as objective evaluation.

**AUDIT OBJECTIVES FOR  
PODIATRIC SURGERY**

In 1991, three target samples were examined by closed and open postal questionnaire as part of an audit and study commissioned by Nene College, Northampton, in the School of Health Sciences. These set out to examine:

- i. Medical practitioner (GP) attitudes to surgery.
  - ii. Patient attitudes to podiatric surgical care.
  - iii. Data concerning operative results from patient records.
1. The study examined the hypothesis that podiatric surgery could be performed safely by chiropodists known as podiatrists (Specialists in Podiatric Surgery).
  2. Measurable standards have been achieved by combining the results of these three surveys:
    - i. Medical practitioners were asked to provide their views about an extension to the scope of practice beyond simple nail and skin care traditionally performed by chiropodists.
    - ii. Patients were surveyed on standards of care offered, pain tolerance, peri-operative problem management, extent of clear communication, as well as success of foot surgery regarded as 'satisfaction'.
    - iii. Retrospective examination of patient records highlighted the following aspects of podiatric care:
      - Sample of patient outcomes.
      - Operative complications
      - Resources
      - Duration of operation
      - Medication required

This report was launched at the same time as the Royal College of Surgeons met with the Podiatry Association, Society of Chiropodists and British Orthopaedic Association in the production of a Commission on Provision of Surgical Service (COPSS) report for the DHSS which will convey a general statement about podiatric surgery within NHS centres.

This report is in four sections:

**SECTION I**

Data collected from the survey describes findings from patient and GP groups.

**SECTION II**

Data related to surgical activity identifies specific techniques and problems that have occurred.

**SECTION III**

The concluding results from the tripartite survey have been presented to highlight support for the hypothesis stated in (1).

**SECTION IV**

Suggests a set of standards that can be applied critically to surgical audit in similar

circumstances as stated in (2). Such standards highlighted are provisional and recommendations only made for the unit in which the study has been undertaken, until further data can be collected from other centres.

**SECTION I. COLLECTION OF  
GENERAL DATA FROM SURVEYS**

This report brings together views from 112 general medical practitioners and 171 patients from two district health authorities.

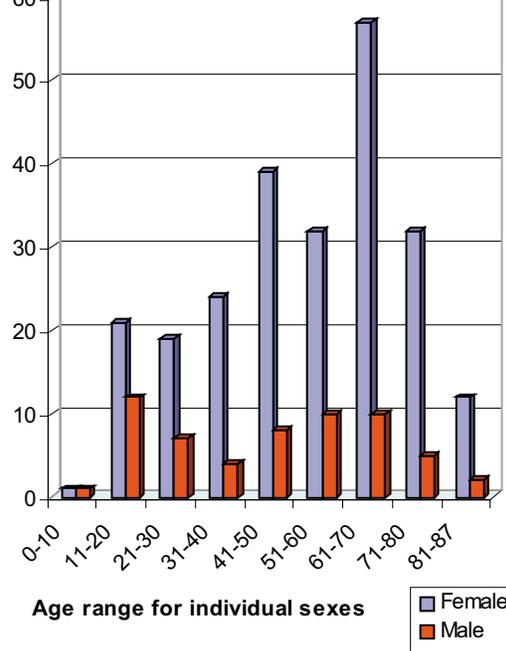
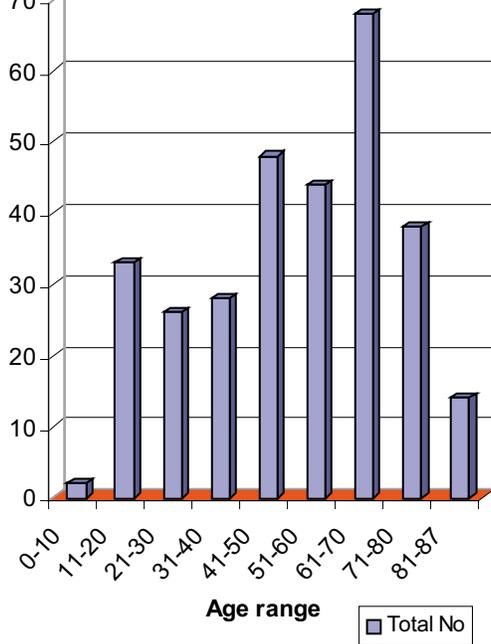
Operations were coded as in Table 1. The original list was placed in groups for easier identification. 321 operative survey files were created from 299 possible patient records. The variation in numbers occurred because each operation was counted and recorded separately.

The female population (78.2%) was more dominant, representing a 4:1 ratio, females to males.

The youngest patient was a girl of 6 who responded well to an excision of a verruca, Figures 1 & 2 provides an illustration of the age distribution. Only 2 cases under 10 were identified. At the other end of the age spectrum, the oldest patient was 87 years. The greatest age band lay between 61 and 70, a typical age grouping attracting chiropody consultation.

Table 1. Allocated codes to procedures performed. Minor-minor requires no incision/sutures, minor relates to soft tissue and simple bone surgery. Major relates to surgery requiring fixation and bone realignment. Pain medication has now identified as indicated on the basis of experience. (1) = paracetamol/aspirin (2) = compound analgesics 10 mg codeine (3) = NSAIDs, supplemented with or without (2).

CODES	Nos	Complexity	Pain control	PROCEDURE
2	31	inter	2	amputation whole/partial digit
5	18	inter	2	arthrodesis proximal ipj
6	118	inter	1	arthroplasty distal or proximal ipj, lesser toes
7/8	11	major	3	osteotomy first ray & hallux
9	2	inter		calcaneal spur
12	1	minor	2	capsulotomy (mtpj)
13	6	inter	2	cheilectomy
16	12	inter+ major	3	Keller 1st mtpj arthroplasty mixed or sole procedure
17	10	inter	2	lesser metatarsal osteotomy
20	1	minor	1	metatarsocuneiform bump
23	15	inter	2	neurectomy
24	9	minor	1	osteotripsy
26	2	minor	2	nail excision
29	6	minor	-	tendon lengthening
30	57	minor-minor	1	IGTN phenolisation
32	4	inter	2	first metatarsal eminence excision
34	13	inter	2	subungual exostectomy
37	2	inter	2	digital syndactyly
46/5	32	minor	1	excision of verrucae or foreign body



Figures 1 and 2.

### LOSS OF DATA

From 415 patients taken from the surgical register, only 299 patients were recovered from the unit's record system (72%). Separating data into each of the five years, Figure 3 produced a mean recovery over the five year period of 73.6%, SD= 6.63. Furthermore, this accounted for only 350 of 517 (67.7%) procedures performed. Five main causes existed for return failure:

- Pre paid envelopes were only used for GPs.
- Record filing policy was altered in the 4th year of the clinic's development, with loss of records.
- Patients were lost to follow up due to some moving out of the area.
- Filing relies wholly on a manual system with records easily overlooked.

Only 39% of GPs and 57% of patients responded to questionnaires sent.

The Podiatry clinic showed a steady increase of surgical operations each year from 1987 to 1991 (Figure 4) reaching 113 cases per annum, of varying degrees of complexity by year five. After 1988 all nail surgery was accounted for through ordinary clinics and not admitted to theatre.

### GPS SURVEYED

Sixty two per cent of GPs had referred patients, and 87.5% were aware that chiropodists, known as podiatrists, could operate on more than skin and nail structures.

At the time of the GP survey (Nov 1991) 70% of GP respondents indicated (by approximation) their referral rate for foot surgery.

- 45% had referred up to three cases.
- 28% had referred up to ten cases.
- 15% had referred more than ten cases.

GPs were asked about their own interests in treating the foot. Nine main group headings were identified and ranked. GPs gave more than one answer, but nail surgery, warts and steroid injections were more frequently selected.

- |  |     |
|--|-----|
| 1. nails   | 76% |
| 2. warts   | 19% |
| 3. excisional biopsy                               | 16% |
| 4. no interest in surgery                          | 14% |
| 5. steroid injections                              | 11% |
| 6. superficial skin                                | 7%  |
| 7. extent of surgery depends on GP training        | 7%  |
| 8. want to do surgery or want option to do surgery | 3%  |
| 9. minor trauma                                    | 2%  |

### THE PATIENTS SURVEYED

From 299 patients sent questionnaires, 171 responded (57%).

Patients attending between 1987-1991 predominantly came from Northampton district (64%). Thirty per cent came from Kettering and 6% came from other districts, as far a field as Nottingham and Derby.

The majority of patients (80%) lived under 15 miles from the hospital. The first 25% within 3 miles, 50% within 5 miles and 75% within 14 miles.

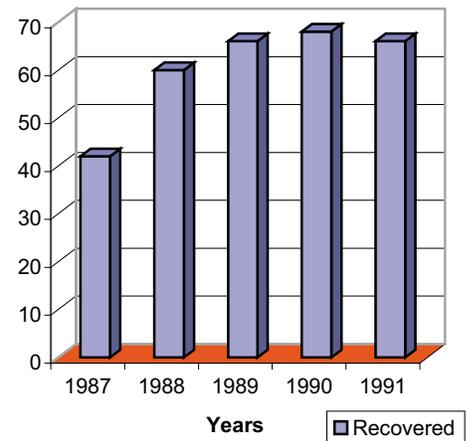


Figure 3.

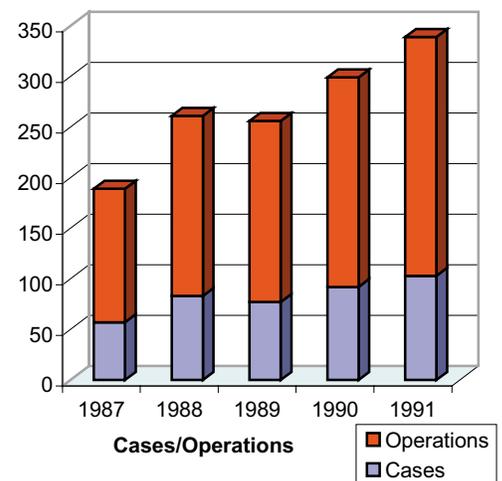


Figure 4.

Part 2 of this paper will appear in the September issue, and Part 3 in October.

# Setting standards for day care foot surgery. A quinquennial review. Part 2

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## SECTION II: ANALYSIS OF SURGICAL PROCESS

### PRESCRIPTION MEDICATION FOR PAIN

Given the type of procedure recorded for this survey, 67% of patients did not appear to require prescription only medication (POM). The number of POM drugs required was likely to increase with more complex surgery. Figure 5 shows range of POMs provided for 33% of patients.

Fundamental drugs used for clearly specified cases under GP direction included:

- opioid compound analgesics with up to 30 mg dihydrocodeine e.g. tylex.
- Anxiolytics: diazepam, temazepam and midazolam
- Penicillins, cephalosporins, tetracyclines, macrolides, sulphonamides, metronidazole.

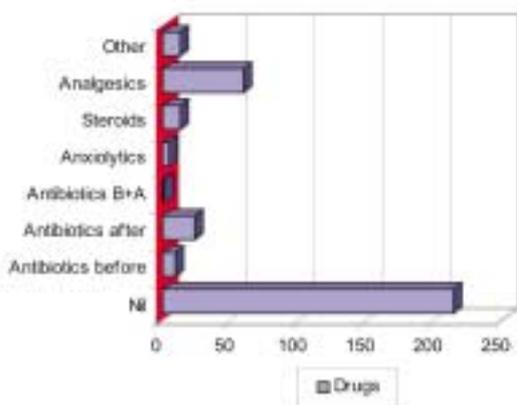


Figure 5. POM range of drugs.

*'The development of podiatry may have come about because of a lack of orthopaedic interest in foot surgery, driving patients to seek alternative sources of help' Klenerman 1991.*

Part 3 of this paper will appear in the October issue

- Hydrocortisone, methyl prednisolone, triamcinolone and betamethasone injectables.
- NSAIDs: indomethacin, diclofenac sodium and ibuprofen.

### POST OPERATIVE PAIN

Pain medication is often insufficient (Royal College of Surgeons, 1990). Practice has led to pain only being managed once an unbearable level has been reached. Given that the majority of operations monitored were on lesser toes, pain medication was confined to compound analgesics with opioid content (8-10 mg) (graded 1 in Table 1) readily available over the counter (67%). Interpretation of this seemingly low pain has to be cautiously analysed. 85% felt that their pain medication was satisfactory which left 15% who felt that their medication was unsatisfactory.

Following operation, 70% felt no pain at all, 27% felt a little discomfort and 3% felt a lot of pain. The pain experienced at the time of the operation was not from inadequate analgesia, but from the ankle tourniquet which curiously started to become uncomfortable at 45 minutes in some but not all cases. The maximum time for ankle tourniquet under local anaesthetic is 90 minutes.

When post operative pain experienced was linked to length of tourniquet time, no obvious trends were identified.

Following operation 53% felt pain after (rather than before) leaving hospital, while 47% experienced no pain.

The point at which pain was first experienced was investigated after arriving home. 24% experienced no pain at all, 4% experienced pain before reaching home, 36% later

that night and 14% the next day. Pain was experienced one week later by 6%, and was usually associated with some complication.

The survey was analysed further to establish whether number of procedures at each admission and tourniquet time affected the use of pain medication. The magnitude and complexity of the operation was the most likely factor creating pain. More than two digits operated together appeared to require stronger analgesics.

### COMPLICATIONS AND POST OPERATIVE PROBLEMS

The survey concentrated on pain and infection. The report records 4 patients who had problems. Two elected not to return to the unit for care after healing. Both cases were treated in the first 18 months of the unit being opened. One had inadequate correction of an hallux valgus angle, the other unremitting heel pain from a Haglund's exostectomy within 6 months. Failure to meet adequate standards arose because of the unsatisfactory patient communication. The same attending surgeon was implicated in both cases.

A third patient was referred to a pain agency with reflex sympathetic dystrophy exacerbated by operation to an ingrowing toe nail by a chiropodist, podiatrist and three orthopaedic surgeons (Tollafield, 1991) – case study audit.

In a fourth case, the patient was admitted to hospital 12 weeks post operatively with a pulmonary thrombosis. Recovery was complete. This incidence was due to an overly long non ambulation period while awaiting x-rays. A new protocol for x-ray review has been established.

Postoperative problems have been placed into a number of categories (Figure 6 and Table 2).

## INFECTION

Infection is not uncommon following foot operation. Patient perceived infection, actual identified infection and suspected infection was noted in 14% of patients who identified with a problem due to infection otherwise or not. Suspected infection, where antibiotics were utilised as part of pain management 5.8% (18 cases) was compared against proven infection (through culture) of 2.3% (7 cases).

The survey records that 5 or 7 day courses of antibiotics were often found to be inadequate for infections. Symptoms improved better with 10 to 14 day courses. Antibiotic protocol has changed to reflect this awareness.

The most common antibiotics used were flucloxacillin, erythromycin and amoxicillin (prophylactic). All infections identified were due to *S.Aureus*.

For the group of patients studied, infection was more likely to occur where free bleeding, prior to closure, had not been utilised undertaking digital amputation procedures.

## TOURNIQUET

The duration of operative time for most procedures ranged from 10 minutes to 90 minutes. The use of an ankle tourniquet has been well documented (Lichtenfield, 1992) and proven to be safe. There have been no recordings of any post operative sequelae as a result of using either unilaterally or bilaterally placed ankle tourniquet cuffs in this survey. Manual or gas operated cuffs are used for up to 90 minutes (depending upon patient tolerance). The longest period of ankle exsanguination recorded was 110 minutes.

Figure 7 illustrates the time bandings based on known tourniquet times recorded at the time of the operation for 67% of operations performed. The longest procedure undertaken lasted for 180 minutes and consisted of reconstruction of all digits without recourse to GA.

## ANAESTHETIC TECHNIQUE

Common peroneal blocks (at the level of fibula head) were used in 4% of cases. A perceptible improvement was noted in the tourniquet comfort.

Peroneal blocks have been found contraindicated where hallux valgus surgery requires voluntary control of the anterior muscle group. In particular the extensor hallucis tendon was difficult to assess. No lasting foot drop or other pathology was recorded.

**Table 2.** Potential post operative complications.

Swelling/haematoma
Pain
Infection
Scarring
Necrosis
Deep vein thrombosis
Reflex sympathetic dystrophy
Pulmonary thrombosis
Operative complication

## IMPLANTS AND DRAINS

87% of cases required no implants. 10% required fixation technique (internal or external wires or AO screws). 5% of cases were given a closed suction drain.

## DIAGNOSTIC SERVICES

A number of diagnostic services were used. 41% of cases surveyed required plain X-rays. The increase of hallux valgus and metatarsal osteotomy surgery in the unit has created a greater increase since the survey was undertaken.

Histopathology was used for clarification of non expansile tissue, benign tumours, usually of ganglionic or neurological nature (7%). The use of this service has seen an increase in referral.

Microbiology was used during this period in 2 cases. This probably relates to the difficulty encountered in retrieving sufficient exudates from digital wounds.

Haematology was used in 1 case post operatively. It is generally recognised that haematology is used more extensively by some podiatrists than others. 'Near testing' frequency of patients by urine analysis and glucometer testing was unrecorded. Routine FBC and differentials are not taken in this unit.

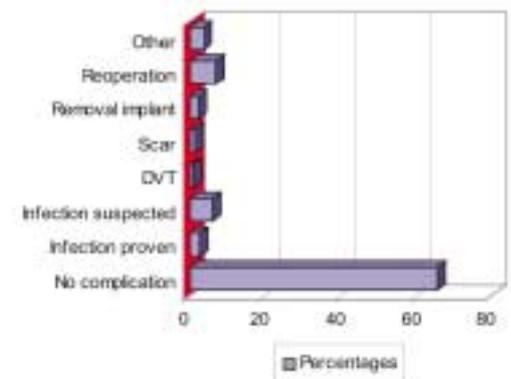
## IMMOBILISATION TECHNIQUES

Casting offers a number of advantages – reduction of swelling of the foot, protection and early ambulation. Disadvantages have included skin chafing, slippage and demineralisation of bone. 89% did not require any form of casting, 8% benefited from foot casts and 2% from leg back splints. 1% were provided with below knee casts.

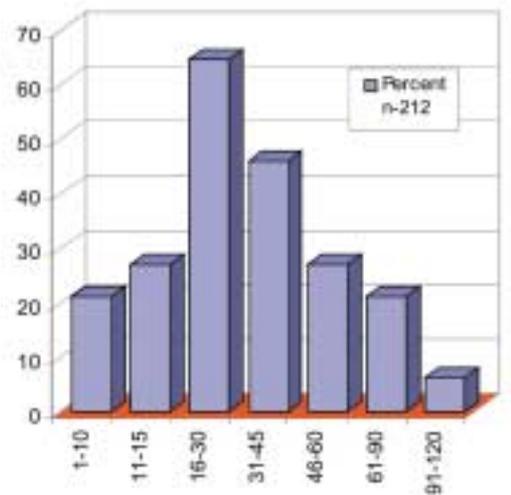
## DIGITAL PROCEDURES

Lesser toe operations accounted for over 50% of operations performed in this first five year study. In this study arthrodesis has been found to be slightly more satisfactory than excisional arthroplasty when dealing

**Figure 6.** Operative complications.



**Figure 7.** Tourniquet time in minutes.



with digital deformity at the MPTJ. However for the three categories given, the data does not favour one type of procedure over the other (Table 3).

Problems with *kirschner wire* replacement in digits observed included a higher risk to vasculature when extended into the head of the metatarsal, creating traction on small vessels. Early release of tourniquet avoided occlusion and no problems arose except in a tendency for some toes to swell more than with arthroplasties.

The fragility of circulation in the toe was noted in one patient with a distal IPJ arthroplasty who went on to recover unremarkably. The occurrence was thought related to heavy smoking. Counselling in this area has been embarked upon.

Following surgery with arthroplasty and arthrodesis, the toe has a high chance of enlarging due to interstitial swelling. Failure of lymphatics to drain the toe is not unusual where the toe swells rapidly. Patients need to be warned in advance of such swelling.

Not all arthroplasty techniques adequately corrected digital flexion deformities. Failure necessitates further operation for some patients (data unavailable).

Lesser toe surgery was found to produce more post operative problems than the first ray surgeries.

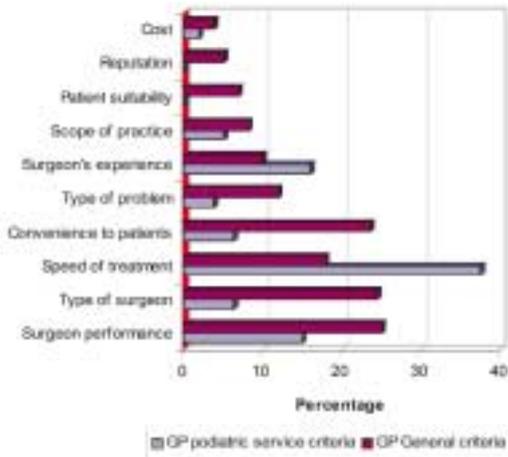


Figure 8. Criteria for selecting surgeons by GPs

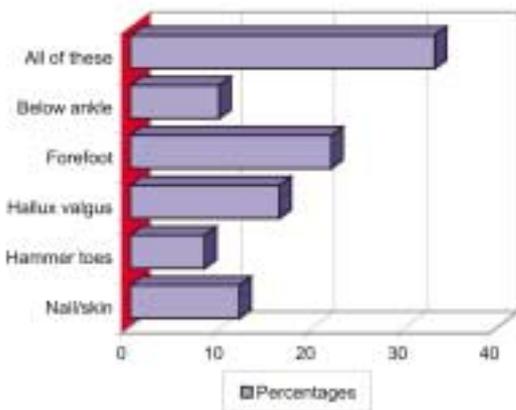


Figure 9. Scope of surgical practice perceived by GPs

### SECTION III: SUPPORT FOR PODIATRIC SURGERY

#### RELATIVE STRENGTHS

#### GP ATTITUDES ANALYSED

Of those GPs responding 57% were satisfied with the Podiatry unit. 37% chose not to comment either way, although they had initiated a referral for surgery. The remaining respondents would have been unable to respond as they had not used the surgical side of the unit at all.

Ninety three GP replies were ranked in descending order of importance for selecting

Table 3. Comparison of arthroplasty & arthrodesis techniques.

Procedure	Satisfactory	Reservations	Unsatisfactory
Arthroplasty	80.17%	16.38%	3.45%
Arthrodesis	83.33%	11.11%	5.55%

whom to refer to. Referral criteria were compared between general referral for surgery and referral for podiatric surgery (Figure 8).

Evidence shows that GPs have different requirements from podiatrists than other surgical disciplines. The waiting time appears to be an important referral criterion.

Medical practitioners strongly support the use of non medical specialists in operations on the foot. 75% (84) either agreed or agreed strongly that such surgery was acceptable. 20% (22) were uncertain because they did not know about podiatrist's qualifications and training. 5% (6) either disagreed or disagreed strongly. Where uncertainty lay, the main areas of concern related to:

- Training 5%
- Experience 11%
- Lack of medical knowledge 6%
- Lack of GP knowledge about speciality 2%
- Litigation 5%
- Lack of medical support available 2%

(values given for whole group sampled, 69% chose not to answer as they supported or knew about podiatry).

The scope of practice undertaken by podiatrists has formerly involved superficial structures associated with skin and nails. Of 97 GPs responding, 12% (12) felt that scope should be so limited. 88% (85) supported a view that more than this scope could be provided. The response is illustrated in Figure 9. GPs have different views on the scope of practice for reasons already stated.

#### PATIENT ATTITUDES ANALYSED

##### Benefits from surgery

Patients were asked if their original complaint had improved or deteriorated. Figure 10 illustrates that the majority of patients (78%) benefited positively from undergoing surgery (CI 85% 58.7-97.3%). 52% had no discomfort at all. Satisfaction is considered in more detail in Section IV – *Defining Satisfaction*.

90% of patients had a significant reduction in their original problems. 10% were graded unsatisfactory from the records or showed deterioration. 93% indicated a willingness to undertake a similar procedure. (CI 8-95% 89.3-96.7).

A similar study of day care foot surgery was reported by Tibrewal and Floss (1991). Patients undergoing first ray surgery were operated as day patients under general anaesthesia. 20% of patients would have preferred to be admitted to hospital. In contrast only 7% of podiatry patients found this study would have preferred hospital admission.

99% of patients though they had been treated sympathetically. Confidence in the operating team comprised care throughout the operating episode. 87% felt that they were in good hands. Of those remaining 8% had doubts, but these were not justified in the end. 4% lost

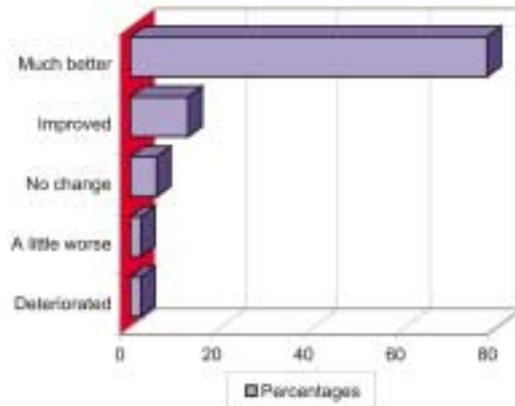


Figure 10. Change in complaint after surgery.

confidence after their experience and less than 1% had no confidence in the operating team.

It is usual for most surgeons to fall back on their community GP service once discharged from hospital. The Podiatry Unit has sought to care for all cases and responds to emergency call out wherever necessary. In some cases GPs were called although it was usual to find that a locum had been called (5 cases). 4 cases went to casualty and 10 cases called the attending podiatrist. The values above indicate the experience of 19 patients. Missing values were recognised on computer analysis. In summary only 8% of cases called on an emergency service during the period under study.

#### RELATIVE WEAKNESSES

##### GP ATTITUDES ANALYSED

Responses were given to an open question designed to establish weakness of the service. These identified frequency of times responded.

- Limited range of surgical experience 8
- Poor communication 5
- Lack of patient confidence in non medic problem arising from distance of travel (between districts) 3
- Limited medical knowledge 3
- Legal aspects of who is responsible 5

The most frequent response noted suggested 'no weaknesses' (10 GPs). This infers that although some respondents provided more than one response, only 29% of respondents commended on such weaknesses.

##### PATIENT ATTITUDES ANALYSED

No section identified a serious problems. The report identified early teething problems with patient communication about expectations following treatment. The distinctions between GP and podiatrist have now been overcome. In part this may have been due to the broad misunderstanding that occurs with the wide use of white coats. 4% would have preferred to have been operated on by a doctor.

# Setting standards for day care foot surgery. A quinquennial review. Part 3

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## SECTION IV: SETTING STANDARDS OF CARE

### DEFINING SATISFACTION

The data has provided areas in which performance can be set and measured. Performance is successful when the surgeon can determine that his idea of success is within the same parameters as the patients' perception of success.

Satisfaction involves a wide range of aspects as determined in Table 4. Satisfaction cannot be determined by a narrow question, but must be made up from a number of questions interconnecting with the patient's overall perception of success. Success is related to outcome.

True success of satisfaction is measured by the patient and the clinician. Both should agree on the result or have values that are similar. This premise was suggested by Tollafield & Price (1984).

Criteria for successful outcome from this study related to:

- benefit of surgery to original condition
- ability to return to footwear quickly
- management of post operative recovery
- current status of problem at 6 months+
- would the patient undergo the procedure under the same conditions.

81% of patients surveyed had at the time of the survey, no problem following surgery, up to 5 years. Clinical analysis was achieved by examining patients records as follows:

*'The development of podiatry may have come about because of a lack of orthopaedic interest in foot surgery, driving patients to seek alternative sources of help' Klenerman 1991.*

### Patient satisfaction

- patients stated 78% much better
- records indicated 75% as satisfactory

A further 12% admitted being better, so that overall satisfaction by patients was higher at 90%.

Reservations about treatment (clinician perceived) were recorded in 19% of cases. This may have occurred because the notes were unclear, or because the patient had not been followed up for a long enough period to make an objective judgement concerning the outcome of surgery.

Unsatisfactory notation in records was also considered in comparison with the patient's view.

- patients indicated 10% unsatisfactory.
- Records indicated 6% unsatisfactory.

Return to footwear was considered an important criterion for success after an operation. 25% were able to return to footwear by 2 weeks. 50% were able to return to footwear by 4 weeks. 75% were able to return to footwear by 7 weeks. 82% could wear most shoes by 8 weeks.

Two people had difficulty wearing shoes after 6 months. Quantitative analysis on the sample showed that 53% of patients could wear all shoes by the time of the survey, 28% said that they could wear some but not all shoes, 8% implied that they could not wear the shoes that they would have liked and 8% said that they could wear all shoes with an insole. 2% could not wear shoes at all.

### STRUCTURE

The structure of health care delivery for podiatry is dependent as with most services upon the strength of available resources. Podiatric surgery requires sufficient instrumentation, a satisfactory working environment, administrative support and diagnostic support services as laid down in the Royal College of Surgeons recommendations for the practice of day surgery.

The major financial burden is attached to intra operative process (theatre based) and post operative aspects of care (clinical follow up).

### PROCESS

The majority of this report concerns process and outcome. The mechanism for referral was examined. At the time of survey 26% of patients were referred by their GP, 56% had been referred by a State Registered Chiropodist and 18% had referred themselves.

High rejection rates will increase the cost to the service in wasted time and administration. Patient dissatisfaction will rise proportionally to the inconvenience experienced in unsuccessful referral. Rejections rate from data presented at a surgery meeting (Tollafield, 1989) indicated 23%. This compares favourable with Ariori's (1989) rejection rate of 31%.

The source of rejection is two fold. A) due to inappropriate referral. B) limited scope of practice and experience by the surgeon.

Table 4.

## SATISFACTION

1. Meeting expectation initially stated at first interview (determined by the patient not the clinician)
2. Feeling that thoroughness of examination was undertaken.
3. Knowing what to expect and aware of any risks in advance.
4. Understanding of what has been said (written/oral).
5. Confidence at the time of treatment.
6. Experiencing no unreasonable pain during operation.
7. Knowing what to do if a problem arises.
8. Being managed after operation: effective pain relief, post operative problem, quick response, courteous response.
9. Return to most footwear after expected period.
10. Original discomfort better or resolved.
11. Can undertake all previous activities.

Patients at risk include those that have:

- Unstable diabetes,
- severe respiratory disease,
- poor circulation,
- been taking anticoagulants,
- known keloid,
- been or are undergoing chemotherapy.

Other levels of risk do exist and will have to be taken into consideration with GP and consultants involved with such patients.

Patients who live over an hour from the centre cannot be easily managed, where implications exist, by the podiatrist. GP services can overcome this difficulty but after care must be considered before surgery is offered. The unit has strenuously increased its out of office hours communication, with one podiatrist always on call during vacation periods.

Adequate analgesia should be available and effective for the duration of all journeys home.

### The selection process

The criteria for selection does not differ greatly from that laid down by the Royal College of Surgeons (1985).

- 70% of patients operated on were ASA (American Society of Anaesthesiologists) grade 1. *No organic physiological, biochemical or psychiatric disturbance.*
- 30% of patients operated on were ASA grade II. *Mild to moderate disturbance, mild diabetes, essential hypertension or anaemia, extreme obesity and chronic bronchitis.*

92% thought that they had adequate examination before surgery. This was based on Kilmartin *et al's* (1991) protocol for presurgical examination screening. 2% thought that they had not been examined

enough and 6% thought probably over examined.

An initial 15 minute consultation covers the personal and social aspects of the patient's home and background. Three specific aspects are discussed prior to offering surgery and performing a history and physical examination:

1. What does each patient expect from surgery (taken as a written statement).
2. Do they wish to have surgery (knowing the risks).
3. Do they understand the person performing surgery is a non medical specialist.

Criteria for selecting patients has followed generalisations given below:

- reason for condition
- health status ASA grade I/II
- GP support
- Personal home circumstances
- Preoperative mobility
- Ability to organise non public transport to and from unit
- Adequate ability (by the patient) to judge if assistance is required in event of a problem.

Selection for surgery has favoured patients with a high chance of cure, with intractable problems, affecting the foot and those previously requiring intense and repetitive chiropody care. The earlier the referral the better the outcome (Hood, 1993).

### Selecting children

Patients over the age of 16 generally make better candidates for podiatric procedures. Age as a distinction for surgical selection has been considered important. Children fair less well under local anaesthetic than adults without the use of anxiolytics. 11.6% fell into the age range under 20 years of age.

## Appropriateness of surgery

The need for treatment provided to patients was scrutinised. No respondent felt that they were pushed into surgery. 72% felt that they needed surgery, having first taken advice. 25% felt that all avenues had been attempted as opposed to 2% who were unsure that everything had been tried.

The criteria for surgery or foot treatment were evaluated. 42% wanted surgery to walk more comfortably while 53% wanted to be cured by the best method. The remaining 5% gave reasons for electing to have surgery as wanting to wear nice shoes, wanted a better shaped foot, not wanting to have repetitive chiropody and not wanting to go into hospital.

## Informed consent and risks from foot surgery

All risks are discussed and covered as standard protocol. The risks follow those complications are given in Table 2 (*See Part II, September issue, p475*). Patients are issued with pre operative and post operative instructions before the surgery.

Informed consent has two components; information about the procedure and complications and risks.

Most patients surveyed (89%) thought that they had been given sufficient information about the intended procedure. No one indicated that too much information was given. 3% felt that they did not want to know details while 6% criticised clarity of details offered. 2% felt insufficient information had been given.

Complications and risks were discussed before the operation: 46% indicated that they were provided with good explanations of risks, 35% said that some explanation was provided, 10% could not remember but thought that some explanation was given and 9% said that no explanation of risks and complications had been given.

Preoperative instructions are given to all patients. 70% received written instructions before surgery while 97% of respondents admitted adequate post operative instructions. Furthermore if a post surgical problem arose, 89% knew what to do, while 11% were unsure. These two questions were similar and resulted in a discrepancy in response.

## Waiting times

Waiting time for referral has not been reported in the survey. Pain, infection and localised swellings might well constitute a basis for priority although referral letters are seldom clear as to urgency in these terms.

Patients are now given appointments at the time of their main history and physical examination. This allows better planning and avoids the implied term 'added to waiting list'. This system has been practiced elsewhere.

The unit has an extended period of wait of up to an additional 8 weeks for new patients when closed for summer educational recess. Emergency services and surgery continue for this period. During term time waiting time is 4 to 8 weeks on average for a first consultation.

## OUTCOME

### Discharge rate

45% of patients were completely discharged. Interestingly this compares well with Ariori's (1989) figure of 42% and Hood (1992) who looked at a selected sample of digital arthroplasty procedures over 18 months and found that 48.5% were discharged.

Following surgery, 14% of patients were discharged to another agency. Discharged refers to return for chiropody in most cases, although one case was referred to a pain centre and another for an orthopaedic opinion.

A number of patients (10%) were still undergoing treatment without the prospect of discharge in the next 6 months of the survey. 17% had further surgery planned, not necessarily because of failure of surgery, but due to a secondary problem which needed to be managed separately. 14% were expected to be discharged imminently.

Discharge rates appear low because plantar corns, the second most frequent foot problem, was not a condition managed by surgery in the first 5 years. This problem is being addressed.

### Patient satisfaction

Patients should have understood the nature of their treatment. This is a minimal requirement from hospital consent forms.

57% of patients had no post operative problems. 24% of patients sampled indicated that the problem had been resolved and had been handled well. 18% indicated that their problem was still being handled and that they were happy with the care given. 2% were unhappy with their postoperative management (see 'Complications and post operative management', Part II, September issue, p474).

The original problem has different levels of improvement. Total clearance of the pre operative foot problem is the optimum aim, but achievable in less than 60% of case surveys. Occasional discomfort (30%) accounts for another large group who may be equally satisfied. 'No change', 'a little worse' or 'deteriorated' are all levels of dissatisfaction accounting for 10%.

### Pain control

Pain medication should be adequate and should cover the period of aftercare satisfac-

torily. The period of analgesic cover needed has been found to be 2–4 days. The study compares favourably with results highlighted by the Royal College of Anaesthetists (1990) where a variety of studies showed levels ranging from 31 to 75% uncontrolled pain following surgery. Pain was not defined in this survey, but intolerable pain levels have been experienced in less than 15% of surgical operations.

Operations will require different levels of pain control. Multiple operations or operations necessitating through bone incision and fixation will require stronger medication that paracetamol, aspirin or paracetamol with dextrapropoxyphene. Gilbert (1993) reported in a study of 119 cases a lower need for pain control in minor and intermediate procedures (codes given in Table 1 (See Part I, August issue, p435).

### Infection rates

Infection rates fall into two categories – 'proven' and 'suspected'.

### Histopathology

Clinically undetermined tissue should be sent to histopathology. Tissue involving joints and nerves should be sent to the laboratory to confirm correct diagnosis.

### Return to footwear

It must be accepted, particularly for the female design of shoes, that not all may be suitable after a foot operation. Furthermore it may be undesirable to return to all styles, some of which may have a deleterious effect on the operated foot.

### Recording data

The patient outcome has been based upon how well the operation dealt with the problem, return to ambulation and how quickly return to footwear occurred. Records were frequently difficult to follow because not all carried specific information about follow up problems. Surgery notes were mixed with chiropody notes. Attention to recording data has been addressed by using pre operative and post operative forms. The system is under review.

Referring doctors should receive adequate communication. Telephone discussions should be followed by a typed letter where decisions or actions are taken.

### General standards of care

The care provided by the attending podiatrist has been considered to be satisfactory. Evidence collected to date substantiates the continued management of foot problems by non medical specialists. The issues essential for quality care include:

- good pre surgical examination standards.
- Sufficient explanatory information.
- Awareness of individual patient's need throughout.
- Returning a satisfaction rate of 70%.

### Recommendations applicable to the unit

Specific clinical data should be logged onto computerised records to provide easier audit and rapid access. The time taken for this audit to be finalised was unacceptable because of reliance of manual data handling at different locations. The Royal College of Surgeons states that resources should be sufficient to allow this activity to be implemented. Rejection referral rates at primary selection might be expected, but should be no higher than 40%.

Patients should no longer refer themselves for surgery without knowledge of their GP.

Patient discharge should be as high as possible. Ariori (1989) and this study revealed that practice related to (lesser) digital surgery alone will not achieve total discharge above 50%. Expansion of techniques must be encouraged to achieve a high potential discharge rate.

Satisfaction should broadly be achieved in as many patients as possible. Targets should be above 70% of cases.

The original problem should have improved in as many patients as possible. This may not be wholly achievable and there will be lesser levels of satisfaction. Pre operative statements about post operative expectations would help provide more objective data.

Unsatisfactory communication results experienced should be as low as possible. Areas to be targeted include 'complications and risks' and 'instructions following the operation'. These should be remeasured to seek a better communication performance than 9% and 3% respectively.

Post operative pain could be reasonably expected to be adequately controlled in 79.7% - 90.4% (95% CI) of patients. Greater improvement might be sustained with clearer patient advice, stronger analgesics and more frequent use of marcaïn.

Infection must be regarded as 'proven' and 'suspected' to record patient rates effectively. 'Proven' should be below 4.6%. Infection 'suspected' should be below 8.5% on the basis of 95% CI of data collected being the higher margin.

Data should be ideally kept with medical not chiropody records for open access to all specialists in a hospital environment.

Podiatrists in similar units might compare some of these findings to provide a broader guide of performance targets that could be published and used for future audit.

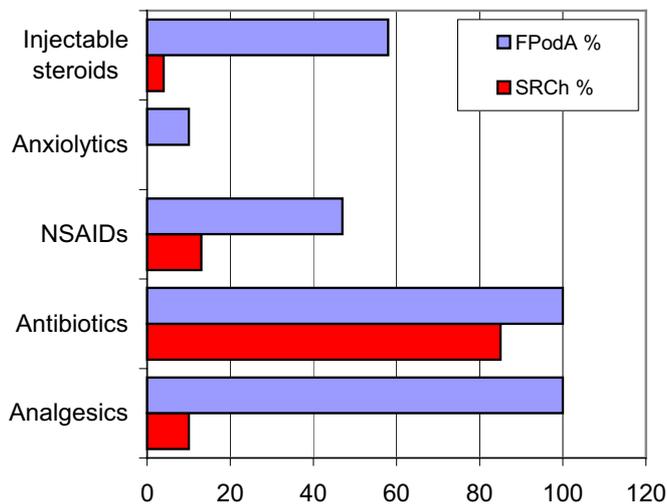


Figure 11. Drug usage between chiropodists and podiatrists.

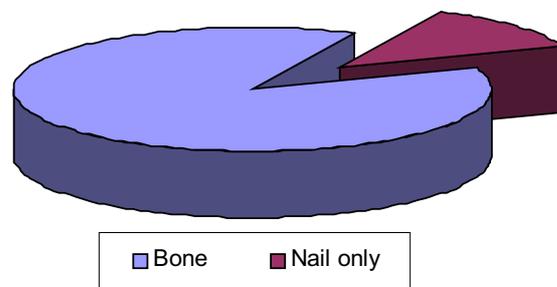
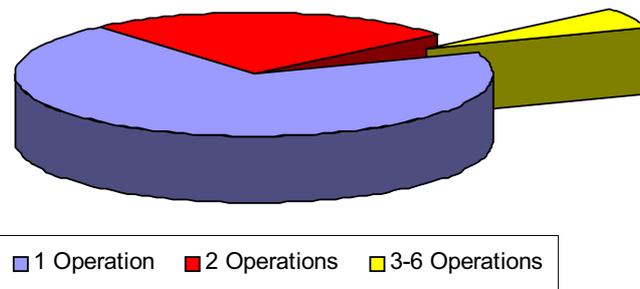


Figure 12. Scope of Practice.

Figure 13. Number of operations performed on each patient.



## APPENDICES

I. From recent evidence Sprague (1993) provided a comparison between chiropodist and podiatrist practice needs for medication (Figure 11).

II. By year three, the nail surgery (minor-minor) was devolved to standard consulting rooms, leaving theatre sessions free for bone surgery and complex soft tissue surgery (Figure 12). Surgery only requiring phenolisation of nail beds does not need the use of an operating theatre.

III. The number of operations performed on each case was usually one or two (Figure 13). Fewer patients had more than two performed per session. Operation timings are regarded in 30,60 and 90 minute bandings for minor, intermediate and major procedures.

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