Ten Years' Experience in a British Casualty Department Staffed by General Practitioners

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Ten years' documented experience in a British Casualty Department* shows that the family physician has a potentially large role to play in the accident and emergency services of his community. It is clear that a well-trained family physician in a properly equipped hospital department can care for the great majority of his patients' injuries, minor surgical operations, and anesthetic needs. This is especially so where group practice and helpful specialist colleagues provide a supportive framework for problem sharing. A case is made for education of all family practice students and residents in this large and important area of medicine.

Background

In 1963, after training involving hospital appointments in medicine, surgery, obstetrics with gynecology, pediatrics and casualty, a research fellowship, and a general practice traineeship, I entered a group practice partnership as a general practitioner** in the Shropshire town of Bridgnorth. The population centered on this rural market town was about 11,000 in 1963 and grew to over 14,000 in the subsequent decade. The main occupation was agriculture and the area served comprised approximately 300 square miles.

The practice of six doctors provided routine general medical services as well as full medical staffing of the busy Casualty Department at Bridgnorth and South Shropshire Infirmary, the local community hospital. In addition, the maternity services (350 to 400 deliveries each year), some anesthetic services and much of the occupational medical coverage were provided by members of the practice. Extra commitments involved dental anesthetic work, two Planned Parenthood clinics every week, participation in Red Cross and Saint John Ambulance Brigade instruction, on-call duty for a local coal mine, and occasional lecturing to high school students, women's organizations and service groups. There was also some police-related work involving cases of drunken driving, assault, acute psychiatric disturbance, and sudden death. Involvement in medical education encompassed undergraduate preceptorship with students from Liverpool University Medical School, active participation in the regional residency program, and the organization and running of a continuing education scheme on behalf of the Royal College of General Practitioners. The topographical setting of the practice and its methods of operation have been described elsewhere.[1]

Data from the decade 1964 to 1974 is presented and discussed in this paper. Only material from the Casualty Service is dealt with here; night call work generated from the practice will be the subject of another paper.

In 1963, the Casualty Department handled approximately 4,000 cases, and this figure increased steadily over the decade to reach about 10,000 in 1974. It is fair to say that financial return was not a strong motivating factor for those doctors who worked in the hospital, the annual income being less than $1,000 each, but the casualty work was viewed as a community service which all were glad to perform.

In over 85 percent of cases only one doctor was required to handle the problem, and there were never any incidents in which I was involved where five or more doctors were working in the Department at the same time. When two doctors were involved (eight percent of all), one was usually acting as an anesthetist, whereas when three were working together (six percent of all), this was usually an anesthetist, plus a surgeon, and an assistant.

The number of new cases seen by me increased threefold over the decade and, although this was largely related to increases in the practice population, the influence of the nearby town of Telford, which had no hospital, was also felt.

Description of Practice

Data from the study over a ten-year period are shown in Tables 1 through 7. It is interesting that 73 percent of patients came from the practice population, 18 percent were referred by neighboring doctors, and nine percent were vacationers or travelers in transit through the town. It might be argued that the hospital Casualty Department was serving as a treatment room for the group practice, although it should be noted that many of the conditions encountered

*"Casualty Department" is synonymous with "Accident and Emergency Room."
**"General practitioner" and "family physician" are used here as interchangeable terms since this is the custom in Britain.

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Table 1
Age Distribution: Patients 1964–1974

Age in Years	%
0-2	7
3-7	18
8-10	14
11-15	13
16-20	11
21-30	7
31-40	8
41-50	9
51-60	6
61-70	4
Over 71	2
Age not recorded	<1

could only have been dealt with effectively in the hospital environment.

One is struck by the high proportion of patients between the ages of 3 and 15 years (Table 1) and the more or less even distribution among other age categories. To a certain extent, this distribution can be accounted for by the frequency of minor trauma in childhood, but an additional factor was the tradition of using the Casualty Department as an "open house" consultation facility, especially for children. This was despite the fact that there was easy access to family practice appointments in the nearby practice building during the working day. There is a common feeling that a Casualty Department is a kind of "open clinic" where first aid, nursing help, and, if required, a doctor are easily available at any time of day or night. The difficulty with this approach was the requirement placed upon the nursing staff by the administration that all patients be seen by a doctor and that the responsibility for treating any condition whatsoever, "sight unseen," must always rest with the doctor himself.

Reviewing the geographic locations where injuries occurred, it may be seen (Table 2) that the great majority were the result of traffic accidents. This was related to the location of Bridgnorth at a junction of several routes where it is the only river crossing for miles. Other factors include increasing traffic congestion on rural roads, and perhaps the effect of railroad closure in increasing road use. Farm injuries were the next most common, and increasing mechanization, adverse working conditions, and fatigue were responsible for trauma in many cases. In my experience the unguarded chain saw is the most deadly tool yet devised, and in the hands of a tired, inexperienced farm boy on a wet day it can almost be guaranteed to cause injury. The sportsfield and home are more or less equally represented, and in the former the range of injuries was wide with rugby football providing an excessively high proportion of cases. In the home, burns are common but falls from unstable stepladders, splinters from wooden structures, and falls over rugs, stairs, and toys were all well represented. If the data on place of injury is any guide, the safest place to be is in a shop, but school and garden are also low-risk sites.

Since Bridgnorth is in a rural area used for recreation as well as farming, fishing injuries were encountered, and these were exclusively hooks caught in the hand, ear, nape of neck, or nose. The most bizarre of these was a teenage boy who presented with a fishhook in the ala of the left nostril and a live maggot wriggling at the base of the hook. The initial procedure was excision of the maggot!

Boating, swimming, and wading in the river Severn accounted for cuts on the feet, immersion chilling and one case of near-drowning. The fact that the river is polluted and a dumping ground for bottles, old bicycles, and car batteries does not seem to deter many people from using it for swimming, fishing, paddling or, occasionally, drinking!

Soft tissue trauma is summarized in Table 3, and this group comprised the overwhelming majority of patients seen. Although most trauma produced lacerations, there was an appreciable number of crush injuries and puncture wounds.

Fractures are summarized in Table 4. A single fracture was present in over 200 cases out of a total of more than 400. Fractures of the skull, spine and pelvis were rare, but the metacarpals and phlanges were frequently damaged, and digital injury to the foot was also common. As one might expect, the classical Colles fracture was frequently represented and carpal bones, especially the scaphoid (palmar navicular), were also prominent. This distribution of fractures suggests where one might place emphasis in teaching medical students in a Casualty Department.

The vast majority of burns (Table 5) were suffered at home and were managed on an outpatient basis. Almost half occurred in children under ten, which gives one a clear indication of the best preventive strategy. Almost all of the 43 patients burned at work had been welding at nearby garages or had been involved in furnace operations at a local foundry. Two exceptions were forestry workers burned while creosoting poles in a pit of boiling pitch.

In view of the rural setting, it is not surprising that a small, but significant, number of injuries were caused by animals. The most common injury was the dog bite and the most bizarre a lacerated prepuce in a young boy who had been assaulted by a rooster! The circumstances of this strange incident were never explained to my satisfaction.

Other injuries caused by beasts included fractured toes in a farmer's wife who was trodden on by a cow, a case of "goring" by a bull, and several fractured clavicles and forearm bones due to falls from horseback. It is to the credit of the local horse-riding fraternity that no cases of fractured skull were encountered, probably because protective hunt caps were universally worn in the field.

Soft tissue sepsis treated by incision and drainage, with or without chemotherapy, provided about 50 cases a year for management (Table 6). Although no detailed data were recorded, it is interesting that the most prominent sites of sepsis were the hand and perineum. Perhaps this is related to the frequency of trauma in the former and the proximity to large bowel pathogens in the latter.

So many patients presented in the practice with leg ulcers that it was sound organization to run a "leg clinic" in the hospital Casualty

Department. This had the advantage of providing a high volume service where one doctor could cope with a big patient load. Ambulance services could be organized to transport the patients once a week and methods of treatment could be standardized and compared.

Only three varicose ulcer patients in ten years required hospital admission for treatment. In 32 cases ultraviolet light as well as dressings were given and in 256, oral antibiotics for cellulitis were given as a necessary part of treatment.

In some settings these patients might have been treated at home by the district nurse or in the treatment room of a health center. The peculiar setting of the practice with great distances from the center to the patients' homes made it more practicable to use the hospital Casualty Department for the treatment program.

Patients with foreign bodies commonly present to the family physician for help, and in this series (Table 7) the eye was the most frequently affected site. Grit blown by wind, eyelashes, flakes of rust from beneath cars, and fragments projected from grindstones were all common. It was striking that many of the industrial eye injuries caused by foreign bodies were inflicted despite the fact that the patient possessed protective goggles. It would appear that existing designs of industrial eyeshields are uncomfortable, cumbersome and as likely to be worn in a supraorbital mode during work than in the proper protective fashion. Several of the workmen with ocular foreign bodies had been injured before, but even so failed to wear protective eyeshields.

Wood splinters were commonly encountered. I found that the easiest to remove were those that had not been "soaked" at home first, and that an efficient pair of splinter forceps was an essential piece of equipment.

Metallic staples were encountered in the hands of young women working in a local factory producing industrial gloves, and the fact that three patients were injured by shotgun pellets indicated a failure of elementary safety precautions that should have been applied during a local informal "shoot."

Excluded from the figures was a case of a young poacher who climbed out of his car early one morning with a short shotgun under his arm. The fact that it was loaded and cocked made the subsequent blast that tore his axilla to shreds almost inevitable. The injury was so extensive that my tasks were limited to first-aid arrest of hemorrhage, emergency transfusion, and the injection of morphine, penicillin, and tetanus toxoid prior to his removal to a major trauma center.

Minor surgery in a less-harassed style was practiced in a series of 128 vasectomies that have been reported in detail elsewhere.[2] The fact that I was in daily contact with minor trauma surgery and involved in the workings of a well-equipped department made it fairly easy to establish an effective free vasectomy service for the patients of our own practice.

Circumcision was seldom performed and, indeed, in recent years it has been done in Britain only when there are good clinical indications, such as phimosis with or without repeated infection. Anesthesia was, of course, always general and provided by one of my partners. The patients were all under the age of six, since any older boy or adult needing circumcision was referred to a colleague with higher surgical qualifications and much greater experience of operative work than myself.

Remaining data from the study show a miscellany of minor surgical operations, emergency dental work and a series of anesthetic procedures. There were also 23 cases of drug overdose requiring resuscitation or of shock from hemorrhage and major trauma.

Elective minor surgery involved the removal of sebaceous cysts, warts, moles, lipomata and verrucas, while the dental procedures consisted of temporary fillings, suturing bleeding tooth sockets and repair of gum trauma, all carried out at times when dental surgeons were unavailable.

The family physician in Britain is seldom called upon to administer anesthetics except when he holds a hospital appointment on a regular basis. In Bridgnorth, all the doctors working at the Infirmary were expected to be able to give "straightforward" short-duration inhalation anesthetics and also local infiltration anesthetics for minor surgical procedures.

Table 2. Injuries: "Where And How"

Road traffic accidents (RTA)	633
At work (including farm)	332
Sports (including football and cricket)	199
At home	177
Street (other than RTA)	66
School excluding organized sport	53
Animal bite, kick, or peck (including farm)	53
Gardening (leisure)	34
Boating, swimming, and wading	13
Fishing	11
Shops (customer)	4
Total	1,575

Table 3. Soft Tissue Trauma

Lacerations	844
Combination of injuries	481
Crush injuries	134
Puncture wounds	120
Incised wounds	63
Total	1,642

In view of the very short duration of the procedures undertaken in the department, "top circle" semi-closed technique using a Boyle's machine was the standard general anesthetic method in most cases. In my earlier years in the practice I used "open" ether with ethylchloride induction using a Schimmelbusch mask for small children. However, this was discarded to make way for more sophisticated and safer techniques when experience with halothane had been gained in adults. Most intravenous inductions were with ultra short-acting barbiturates, but a short

series of eight fracture reduction cases using propanidid was included as a trial of a new agent. Since no great advantages were reported by the consultants whose advice was sought, propanidid was not introduced on a greater scale.

Most inhalation procedures involved the use of halothane (Fluothane), and this agent was found to be safe and reasonably easy to administer. A limited experience of methoxyflurane (Penthrane), using this agent as an analgesic, did not encourage me to use it for anything more extensive.

The series of local anesthetic administrations included 20 patients who were anesthetized with prilocaine (Citanest). These were all vasectomy patients and prilocaine was in use on a trial basis to gain experience of the longer-acting anesthetic properties of this drug. In all cases the local anesthetic effect was satisfying and seemed prolonged enough to give pain prevention for at least four hours after operation.

Table 4. Fractures and Dislocations

Skull	12
Spine	3
Upper limb	
Metacarpals and phalanges	198
Carpus	68
Colles	59
Humerus	16
Lower limb	
Multiple	232
Metatarsus and phalanges	96
Pott's	29
Femur	17
Tarsus	5
Pelvis	3
Total	738

Table 5. Burns

Severity	
Minor	455
Requiring hospital admission	31
Age	
Under 10 years	206
10-60 years	195
61 years and over	80
Age not recorded	5
Location of accident	
Domestic	401
At work	43
Other	42
Total	486

Discussion

One of the most satisfying aspects of medical practice is the use of practical skills to bring relief or cure to one's patients. Much "surgical" disease encountered by a family physician is on a scale that he can deal with effectively and safely given adequate training, regular practice, suitable surroundings and good equipment.

Historically, in many areas of Britain the family physician is divorced from hospital practice, especially in major cities. In rural areas, on the other hand, there are still many small hospitals that rely upon general practitioners, who often give their services free or for very little recompense. However, the present situation in Britain is very unstable and current medico-political upheavals may yet see a review of the general practitioner's role with more active participation in the hospital work of cities as well as the country.* It is, therefore, especially pertinent to explore again the scope of family practice.

Two of the most intractable problems of our times are the geographic maldistribution of physicians and the difficulties experienced by some patients in gaining access to effective health care.

Solutions will have to be found within the next few years, not so much to the technical questions posed by medicine but to the more mundane and equally important matter of how competent and consistent medical care can be made available to every citizen irrespective of locale, income, and social background. No society has all the answers, and in Britain there are chronic difficulties in securing enough competent physicians to staff the accident and emergency services. It is an indictment of clumsy health-care planning to find Britain's Casualty Departments closing through lack of staff, and the remaining ones functioning under severe strain. One possible answer might be to revise the working patterns of family physicians to be more attuned to the needs of the local community.**

This paper has reviewed emergency and minor surgical service provided by one doctor as part of a team in a small hospital in rural England. The work was made possible by a cooperative style of practice, with the heavy emotional and physical loads being shared by five equally committed and active partners. It is inconceivable that a similar workload could have been handled in the absence of a close-knit partnership, however interesting the work or necessary the job.

Supportive consultant colleagues were always available to the family physicians involved in the Casualty Department described here. Indeed, the feeling that one always had an interested surgical, orthopedic or other specialist as back-up in the event of difficulty or complication had much to do with the confidence with which the work was handled in the Department. This feature of close cooperation between family physician and consulting specialist is worthy of

*The upheavals referred to include a "work to rule" (strike) by junior hospital doctors, the controversial reorganization of the National Health Service bureaucracy and political pressure by the Socialist Minister of Health and Social Security to abolish by legislation all forms of private practice.

**A minority of British family physicians have hospital privileges. This has produced feelings of frustration in many and possibly, even, lower standards of practice than those encountered where access to hospitalized patients is the norm.

close attention by anyone planning the emergency services either in town or country – and this is true on both sides of the Atlantic.

The problems of patients in rural areas are no less difficult than those of city people. Sparsely populated American towns have difficulty attracting physicians because of a relatively deficient social milieu, poor schools, geographic isolation, and a cultural deprivation felt to a greater or lesser extent by those who reside there. Broadly speaking, this is the reverse of the British situation. America, however, has the great advantage of considerable financial resources, a tradition of innovation and flexibility, and the opportunity of a revival of enthusiasm for family practice, to formulate effective remedies to whatever deficiencies there are in the health-care system.

It is submitted that the sort of work illustrated in this paper can be undertaken by most adequately trained family physicians and that the task for medical educators is to prepare the student and resident for competency in this field. At present accident and emergency work is given a low priority in the curriculum. If family physicians of the future are to play an effective part in all aspects of primary care, greater emphasis must be placed on casualty work , especially the practical surgical aspects.

At present one may not infrequently encounter senior students and even residents near the end of their training, who have never administered an anesthetic, never reduced a simple fracture, never removed a corneal foreign body, and whose experience of suturing is limited to two or three cases. The fact that they are erudite in cytogenetics, molecular chemistry and tumor immunology is unlikely to impress the father of a child with a shattered limb or the worker with a burned face.

The main purpose of this paper, therefore, is to make a plea to those responsible for planning curricula to look again at the wide potential of the family physician and especially to take cognizance of the need to provide practical training in the surgical skills that are fundamental to the effective delivery of primary care in all its aspects.

This position has been recognized by the American Board of Family Practice who require every postgraduate training program to include a two-month rotation through the accident and emergency department before such a program is acknowledged as suitable training for the family practitioner.

Although this is a sound beginning, it might be even more useful for every resident to keep a log of the procedures he has performed to be compared with an ideal list consisting of the 20 most common procedures encountered in practice. This paper offers documented experience upon which such a list might be based.

In Britain, casualty experience is optional, and it is possible for the young doctor to enter family practice without ever having set a fracture or sutured an injury. I believe that this is unsatisfactory. With the rapidly shifting perspectives of evolving health-care delivery systems, it would be wise to think again about the value of integrating general practitioners into reformed accident and emergency services.

Family physicians have the obligation to respond effectively to their patients' needs in emergency situations. The community has the power to ensure that material resources, including well-equipped casualty units and treatment rooms, are provided to make effective responses possible.

The medical educator has the responsibility for devising productive training programs, monitoring the effectiveness of such training, and encouraging greater enthusiasm for this fascinating branch of medicine than has been the case up until now.

Summary

Data from a decade of work in the Casualty Department of a small British community hospital is tabulated and discussed.

The place of the family physician as a "minor surgeon" in the rapidly evolving health-care systems is suggested and a plea made for more effective training of all doctors entering family practice through approved education programs.

Table 6. Soft Tissue Sepsis

Hand	243
Perianal	113
Other sites, including head and neck, feet, and lower limbs	80
Axilla	57
Breast	19
Ischiorectal	15
Bartholin's Abscess	7
Total	527

Table 7. Foreign Bodies

Location of foreign body	
Eye	186
Other sites, including scalp, feet, and trunk	157
Hand	68
Nose	15
Ear	13
Identity of foreign body	
Grit	298
Rust fragment	55
Wooden splinters	42
Metallic splinters	17
Fishhook	12
Other	12
Shotgun pellets	3
Total	439

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