LETTERS TO THE EDITOR

Toxicological screening in trauma

EDITOR,—Carrigan et al through the use of toxicological screening suggests a significant prevalence of drug and alcohol use in the British accident and emergency (A&E) trauma population.1 Our own audit of 351 patients attending St Thomas’s Hospital A&E in London, examined the part alcohol plays in the use of radiological investigation for traumatic injuries, found similar prevalence. However, a simple questionnaire type assessment carried out by the A&E doctor seems to be as effective at indicating alcohol intoxication as blood alcohol concentrations, thus avoiding any ethical and financial issues in obtaining blood specimens. Validation for such screening assessments already exists2 and as such we advocate the routine use of such questionnaires in the accident department. Screening for blood alcohol concentrations in A&E as a means of identifying at risk drinkers has no role.

IAN HUNT
PHILIPPA RUST
Department of Plastic Surgery, Chelsea and Westminster Hospital, 369 Fulham Road, London SW10 9NH

The author’s reply

In the discussion of our paper, we highlighted the limitations of toxicological screening in trauma, and acknowledged the role of questionnaires in confirming alcohol (and other drug) misuse or dependency, or both. Hunt and Rust suggest that questionnaires are as effective as blood alcohol estimation in detecting alcohol intoxication, and blood alcohol estimation has no role in an “accident” department. Questionnaires, in fact, have been shown to be more sensitive and some more specific than blood alcohol estimations for diagnosing alcohol dependence and harmful drinking as compared with the gold standard DSM III-R criteria.1

Their referenced paper by Soderstrom indeed predicted certain attributes of presenting patients that could be used to identify alcohol excess and play a part in selective screening in trauma patients, but questionnaires were not validated as such here. Soderstrom actually recommends in a subsequent journal edition that blood alcohol estimation, in combination with the CAGE questionnaire, should be used when screening trauma patients.

Also, a recent article demonstrates the efficacy of brief interventions in decreasing alcohol excess and play a part in selective screening in trauma patients, using blood alcohol estimation and a short questionnaire to identify many patients as possible for their randomised controlled trial of an applicable treatment to the emergency department.1

The opportunity for questioning may be limited by early discharge, by trauma severity, by cognitive impairment, or by non-compliance. A self-reporting questionnaire used while the patient is intoxicated or fearful of prosecution is also debatable.

Their other referenced paper, the Paddington Alcohol Test study, has been shown to be efficacious in a self selecting general emergency population with respect to decreasing alcohol misuse. I thank Hunt and Rust for referencing this paper, as it highlights the major deficiencies of questionnaires in the emergency department, that of utilisation by busy staff and variable acceptability by the patient. This must be tackled.

Financially, the marginal cost of a plasma ethanol screen is approximately 50 pence, and ethically, it is a standard test used to identify a cofactor in the altered mental status of a patient in many emergency departments.

In summary, neither brief questionnaires nor blood alcohol estimation are the gold standard in the detection of alcohol misuse or dependence in trauma patients in the emergency department. Rational discussion of such priorities, be it selective screening or the use of toxicological and/or questionnaire screening, needs to take place.

In an ideal department, this should detect as many trauma patients as possible, but should be implemented only if the appropriate referral and brief intervention programmes are concurrent, and these processes evaluated in a cost and outcome effective manner.

THOMAS CARRIGAN
Accident and Emergency Department, Bradford Royal Infirmary


The Ottawa Ankle Rule

EDITOR,—Further to previous correspondence I think the use of the Ottawa Ankle Rule needs some clarification. In the Ottawa group1 they themselves acknowledge that clinical judgement should take precedence over sticking to rigid rules. They are also careful to point out several groups in whom they do not feel the rules should be applied, such as the intoxicated, the multiply injured, or those with communication problems either because of language or mental disorder. They are very specific in stating that the entire posterior 6 cm of the malleoli are as a criterion for radiography.1 Subsequent refinement and validation found age not to be a significant factor—that is, bone fragments greater than 3 mm in breadth. All four of the missed fractures in our study were significant.2 As discussed in the original article, no reason could be found to explain why these cases fulfilled none of the Ottawa Ankle Rules.

We do accept that it was not clearly stated that the entire posterior 6 cm of the malleoli were examined and this may have influenced the study’s outcome. However, a retrospective review of the case notes of the four missed fractures we felt that this was not the case.

The Ottawa Ankle Rules were initially devised to include age greater than 55 years as a criterion for radiography. Subsequent refinement and validation found age not to be a significant factor.1 It was included in our study as the aim was to determine if the Ottawa Ankle Rules were valid in a setting of an urban teaching hospital in the United Kingdom.

We accept that there were limitations in our study but feel that it does illustrate the need to be cautious when applying these rules and that these should not replace clinical judgement and experience.

SAMANTHA PERRY
NIGEL RABY
PATRICK T GRANT
Accident and Emergency Department, Western Infirmary, Glasgow G11 6NT


147

www.emjonline.com
Chest pain observation units

EDITOR.—Goodacre concluded in the January 2000 issue of the journal “there is no strong evidence that chest pain observation units (CPOU) will improve outcomes” and further evidence is necessary to determine whether this approach can be applied in the United Kingdom.1 He did not reach this conclusion from the cost studies that he listed in table 2. These savings were present in all nine studies reviewed and ranged from $1873 per patient to $567 per patient. He reached this conclusion from examination of mortality and missed pathology that he summarised in table 1. The five reviewed studies included three randomised clinical trials.

The flaws in Goodacre’s analysis lies in his failure to examine physician emergency department disposition patterns and his failure to perform power calculations. The missed myocardial infarction (MI) diagnosis rate ranges from 2.8% to 13% in large clinical trials without CPOUs.2 There is a 11% to 25% death rate for those whose diagnosis is missed and patient released from the emergency department with false reassurances.3 This is the leading cause of adverse outcomes and malpractice suits in emergency medicine in the United States. The rate of missed diagnosis has been shown to be inversely related to the percentage of emergency department patients receiving a “rule out MI evaluation” (performed during hospital admission before the development of CPOUs).1

What sample size is needed to demonstrate a 25% reduction in the missed MI rate? The average miss rate in emergency departments in the United States is 4% with a 60% “true” rule out MI evaluation rate.1 At this emergency department disposition rate, over 50% of admitted patients are found after full evaluation to have no serious disease as the cause of their symptoms. The study sample size required to demonstrate a reduction in the average missed MI rate from 4% to 3% is 6262 patients per study arm (85% power). The size of the three randomised clinical trials reviewed by Goodacre were much smaller than this requirement with the largest trial having only 212 patients in each study arm.

I agree with the author’s suggestion to not state that CPOUs are a safe and practical means of assessing patients with chest pain but to “evaluate further the evidence” because the alternatives to CPOU are likely unable to help us answer this question. This is because the current evidence regarding the quality of acute chest pain care in the United Kingdom is not strong enough to conclude that CPOUs will improve outcomes in the UK but evidence is required.

I share the concerns of both correspondents regarding the quality of chest pain assessment in the UK. Indeed, as I stated, descriptive studies show that CPOUs are a safe and practical means of assessing patients with chest pain. However, I do not agree that evidence exists to support our present approach.

Evaluation of the role of the CPOU in the UK will be challenging but offers an excellent opportunity to develop a cost effective, evidence-based service for our patients.

STEVe GOODACRE

Accident and Emergency Department, Northern General Hospital, Hares Road, SS 7AU

Three generations of recurrent dislocated shoulders

EDITOR.—A 57 year old man presented with a spontaneous posterior dislocation of his right shoulder. It had happened as he reached up to open an overhead cupboard door. He had first dislocated it eight weeks before, while an inpatient receiving chemotherapy for a brain tumour.

He was accompanied by his daughter. When asked she admitted having dislocated both her shoulders in the past. From the history these seemed to be spontaneous dislocations. As there appeared to be a familial tendency she was asked about other members of the family. One of her three sisters and a niece had also suffered spontaneous dislocated shoulders. She then admitted that the patient was not her biological father: only her stepfather, but that her biological father (deceased) had had a spontaneous shoulder dislocation. The result of this inquiry was a family tree in which three generations had suffered from spontaneous dislocations of the shoulder. There was no family history of any other joint dislocations, nor was there any history of noticeable joint laxity, or "double jointedness". None of the family had had any surgery to prevent further recurrences.

Atraumatic dislocations of the shoulder are relatively uncommon. Rowe, in 1956, noted that atraumatic shoulder dislocations only accounted for 4% of a series of 500 dislocations.7 However, atraumatic instability of the shoulder is a well recognised phenomenon, which may be multidirectional and bilateral. Recurrent instability can result from minor


The author’s reply

It is true that my conclusion regarding outcomes was not based upon the costs studies listed in table 2. From these studies I concluded that the chest pain observation unit (CPOU) is cost saving in the United States compared with monitored cardiology beds and in the studies of Roberts and of Gomez with the emergency department. Indeed, as I stated, descriptive studies show that CPOUs are a safe and practical means of assessing patients with chest pain. However, I do not agree that evidence exists to support our present approach.

Evaluation of the role of the CPOU in the UK will be challenging but offers an excellent opportunity to develop a cost effective, evidence-based service for our patients.

ANdrew Kelly

Emergency Department, Derriford Hospital, Plymouth PL6 8DH
trauma, such as lifting an arm, or reaching up, as described by the index case in this report.

Regarding the familial tendency seen in this case Hovelius noted that 17% of young adults (aged 23–29 years) with shoulder instability had the problem in both shoulders, and that the incidence of dislocation in other family members was 5%, compared with only 1.7% for the general population. Therefore, the incidence for three generations in a family with dislocating shoulders will be 0.00425% (1.7% × 5%).

Joint laxity has been suggested as a cause of familial recurrent dislocation of the shoulder. It is a feature of several dominantly inherited conditions, such as Ehler’s–Danlos and Marfan’s syndromes, and osteogenesis imperfecta. Congenital dislocations, especially of the elbow, are also a feature of Larsen’s syndrome (pentasomy X). Carter and Sweetnam, who investigated the role of joint laxity in recurrent dislocation of the shoulder, found only two families in which two family members had suffered recurrent dislocated shoulders, from their series of 40 patients with recurrent shoulder dislocations. In neither case did the condition extend over three generations. A three generation history of recurrent shoulder dislocation would seem to be a very rare event.

BERNARD A FOEX
Department of Accident and Emergency Medicine, Royal Bolton Hospital
Correo de: Mr Foex, 21 Sunnybrow Road, Middleton, Manchester M24 4AD, UK
(bfoex@zen.co.uk)

ACCIDENT AND EMERGENCY MEDICINE: MINOR TEXTS


This paperback book in the case presentation series comprises 61 case histories followed by questions regarding differential diagnosis, investigation and treatment options. The answers are succinct and often followed by literature references. The cases cover a wide spectrum of topics ranging from the simple to the more complex, presented in variable order. This book can be recommended as a revision aid for higher A&E exams. Rating ***


An excellent teaching and revision aid. It is extremely readable being set out in a question and answer format covering many real clinical situations. It successfully explores controversies with evidence-based arguments and is helpful in day to day clinical decision making. Rating ***


Rating **


Rating **


Rating **


Rating **

ANAESTHESIA AND INTENSIVE CARE


Written by anaesthetists with an understanding of the function of A&E this book is a very useful guidebook for A&E trainees. The anatomy of the book comprises five sections dealing comprehensively with general anaesthesia, local/regional anaesthesia, intensive care, chronic pain and resuscitation. It incorporates basic principles with practical tips and highlights key messages. Each chapter is referenced with suggestions for further reading and illustrations take the form of photographs, flow charts and tables. The downside of the book is its limited chapter on resuscitation but overall it is affordable, relevant and practical. Rating ***


A revised edition of the text first published in 1994, this is aimed at A&E staff rather than anaesthetists. It is eminently readable and pitched at an appropriate level for the A&E specialist registrar with no previous anaesthetic experience. It covers local and general anaesthesia, analgesia and sedation. The layout of the first section “General concepts of anaesthesia and analgesia” does not always seem logical. This is somewhat mitigated by a much improved index. It is a pity that similar improvement in the illustrations, particularly in the excellent section on local anaesthesia has not been taken. Despite these reservations it remains a good starting text at a tolerable price. Rating ****


This book was indispensable during an intensive care attachment and is an invaluable resource for those of us managing the critically ill patient in the resuscitation area. It is clearly laid out with excellent tables and numerous useful “warning” boxes. The section on optimising the patients haemodynamic status exemplifies the structured approach to the critically ill. There is clear explanation of how to interpret the response to a fluid challenge and of the appropriate use of inotropes and vasoconstrictors. Similarly, topics such as artificial ventilation and invasive monitoring are clearly and succinctly explained. However, the section on the management of the poisoned patient is poor and that of major trauma very brief. Overall this is an excellent pocket manual. Rating ***


Rating **


Rating **

CRITICAL APPRAISAL


This is a compact “bible” of EBM. The authors succeed in showing us how to find and use the best clinical evidence, integrate this with our clinical expertise and thus make decisions about patient care. Certain sections of the text are difficult to follow because of, in part, the fact that it assumes more than a basic knowledge of statistics and epidemiology but also because of its self imposed size restraints. Overall it is an excellent introduction into EBM emphasising its clinical application. It is particularly useful for A&E trainees undertaking then FFPAEM exam. Rating ***

(2nd edition is also now available: ISBN 0-443-06240-4. This edition includes a CD.)


This book, based on a series of nine research papers, covers both clinical and policy problems in a stepwise fashion. The reader is guided in appraising each paper by answering a series of questions. Although not specifically relevant to A&E the papers allow the authors to demonstrate techniques of appraisal to help the reader make evidence based decisions. A checklist is included at the end of each paper to aid in critical appraisal of other articles the reader may encounter. Dispersed throughout the book are summaries of relevant statistical terms. This book is well presented, easy to read and covers an area of great importance to all of us in training. Rating ***


A helpful book for understanding the basics of using the medical literature to its full potential. It contains many anecdotal points that bring the concept of evidence based medicine into real life. Included are excellent chapters on the use of MEDLINE and medical statistics and structured advice on how to appraise papers about diagnostic tests, systematic reviews, guidelines and qualitative research. The checklists in the appendix for each section of the book are useful for quick reference. Excerpts from this book have appeared in a BMJ series in 1997. Rating ** ***

DERMATOLOGY


This book is both concise and relevant the A&E specialist registrar. Well laid out with many excellent illustrations and clinical photographs it covers the spectrum of dermatology from commonly encountered problems to
more esoteric conditions. As expected in such a short book it does not focus greatly on controversial issues. Unfortunately there are no references or suggestions for further reading. This is excellent value and overall an excellent book.

Rating ***


Rating **


Rating **

ENT


This offers a concise overview of ENT for the non-specialist. It is arranged into short chapters, each of which focuses on a presenting complaint rather than a disease, with helpful advice on the management of each area. It is aimed at general practitioners but has much to commend it to A&E trainees as the conditions described make up a substantial proportion of ENT cases seen in our departments. The book is not particularly detailed and trainees wanting a more in depth review of an ENT topic would be well advised to consult more substantial texts. The chapter on injuries is particularly short and trauma to the larynx not covered at all.

Rating ***


Rating **

GYNAECOLOGY AND OBSTETRICS


A significant amount of the A&E workload falls into this category and as such it is a relevant topic. However, this publication is badly organised and in parts long winded.

Much, if not all, the relevant information is contained but it is difficult to pinpoint. Reference lists are included but I do not feel this book offers value for money. I can recommend this book only in the absence of a suitable alternative.

Rating **

LEGAL AND FORENSIC MEDICINE


Like most of the Oxford series, this book is affordable and well referenced. The text is a relevant blend of legal principles and practical clinical advice on a variety of subjects, including departmental discipline, consent and confidentiality and court attendance. Case reports complement and clarify the legal principles discussed. The reference section discusses the legal issues relating to the police, controlled drugs and the mentally ill. Written by someone who has sat on both sides of the fence, so to speak, it is essential reading for the specialist registrar and consultant.

Rating ***


Rating **

MAXILLOFACIAL EMERGENCIES


This book, written by a maxillofacial surgeon and an A&E consultant, covers a subject of great relevance to specialist registrars in A&E. It is easy to read, has a user friendly layout and contains a large amount of useful information. However, it is often difficult to pick out the important facts from others of less relevance, such as anatomical descriptions and details of surgical operations. The text is accompanied by many useful illustrations including radiographic examples. No reference lists are provided although additional reading is recommended after certain chapters. Despite the deficiencies in this book I have improved my knowledge by reading it. I could not however recommend ownership.

Rating **


Craniofacial trauma management is often a multidisciplinary event. With this in mind, the authors have written a reference book providing an integrated strategy for its management. After an excellent chapter summarising the initial ATLS approach to the patient, subsequent chapters follow in “ABC” sequence. Probably the most surprising chapter is the last one—"Talking to relatives". In just over one side, this chapter conveys more useful information than larger chapters in more substantive texts. The authors have certainly achieved their objective of producing an excellent multidisciplinary text. It is highly readable and delivers an excellent insight into the ongoing management of these patients.

Rating ***


Rating ****

Medicine


This concise text provides structured information on the diagnosis and management of medical emergencies. All systems are covered from cardiovascular to dermatological problems and there are useful additional chapters on shock, pharmacology of emergency drugs, environmental emergencies and practical procedures. Considering the size of this book it contains an amazing amount of detail but this is often in list format. It is probably best used for quick reference in the department or for review of a problem after it has occurred rather than for comprehensive easy reading.

Rating ***


Written for a "broadly based affiliation of health care professionals" this text is clear and easily readable with good quality illustrations to aid understanding. As well as basic and advanced life support in adults the book covers resuscitation in children and special circumstances, acid-base homeostasis, procedures used in resuscitation and the ethical aspects of resuscitation. The algorithms are current. There is little in this book that is not covered in the ALS/PALS/APLS courses but topics are dealt with in greater detail than the manual of the adult course. Paediatric resuscitation would be better dealt with in a separate book.

Rating ***


Rating **


Rating **

Rating ***

OPHTHALMOLOGY


This overview of ophthalmology contains information that is of use to the A&E registrar as well as that which could be considered superfluous. Sections on anatomy and physiology serve as revision and a description of eye examination allows a structured approach to the patients problem. Chapters are arranged by pathology or structure rather than by symptom so there is little to help us differentiate between the causes of the “red eye” so commonly encountered. Although management of then conditions is described I was unable to elicit when expert help is appropriate. There are many detailed illustrations but relatively few photographs for such a visual specialty.

Rating **


Rating ***


ORTHOPAEDICS AND TRAUMA


McRae’s latest addition to his collection of orthopaedic manuals is a concise pocketbook, ideally sized for quick reference in the A&E department. It covers all the aspects of orthopaedic examination and fracture management relevant to the A&E doctor. Unfortunately I found the layout slightly cramped and, as with most texts, the radiographs often difficult to interpret on paper. Worth of mention are the lists of pitfalls of commonly missed fractures and the hints on assessing functional overlay in back pain. In summary it would be an affordable and extremely useful quick reference book for the A&E doctor.

Rating ****


This book delivers concise points of valued information on all aspects of trauma from pathophysiology to patient management and disposition. Reasonably priced and readable, the practical sections on anatomical areas of injury help to consolidate knowledge and aid in informed trauma assessment. There are also relevant sections on resuscitation concepts, radiography, procedural techniques and environmental emergencies. It was pleasing to note that when disposition was discussed referral criteria to specialist centres are defined. A North American text, it lost a little in translation but is applicable to European emergency practice.

Rating **


Rating *

PREHOSPITAL CARE


This is a concise guide for those working in emergency medicine with an interest in prehospital care, and a useful revision text for the Diploma in Immediate Care.

Covering a wide range of common emergencies as well as rarer events such as psychiatric, obstetric and chemical incident emergencies. Clear tables and line diagrams are helpful for quick referral. References are mostly to larger textbooks and commonly used guidelines. The useful appendix covers equipment, BASICS, radio communications and triage exercises. It is a cheap, practical handbook with many chapters useful for uncommon emergencies in the A&E department.

Rating ***


Rating **


Rating *

PAEDIATRICS


This will certainly go some way toward improving the A&E management of paediatric emergencies. There are good sections on respiratory emergencies, shock and cardiac arrest with weaker sections on poisoning, radiology and bereavement; no paediatric resuscitation chart is included. Easy to read and good value for money. The “practical approach” is more apparent on the APLS course and the manual is best used in conjunction with this. A major development would be the provision of a pocket sized formulary of drugs used in paediatric emergencies for day to day convenience. No references are included although suggested reading lists are.

Rating ****

www.emjonline.com

This is a comprehensive textbook dealing with all aspects of the child in the emergency department. It is divided into sections detailing resuscitation, trauma care and various system emergencies. Each section is then subdivided into short readable chapters. The style is clear and informative and provides a basic overview of most conditions although by necessity some of these chapters are somewhat repetitive and there is little discussion of controversies. There are a few illustrations although this is not a book for algorithm lovers. Overall I think this represents value for money and is a useful general text.

Rating ***


This represents good value for money. It highlights areas of many of us overlook or not recognise for what they are. It is well structured and receives contributions from all disciplines relevant to the subject—that is, lawyers, doctors, social services, psychologists. There is a reasonable range of relevant illustrations in a limited space. It is well referenced. This book would, however, be well supplemented by an atlas of child abuse. Appropriate courses of action and legal aspects are set out clearly.

Rating ****


Rating ***


Rating ***


Rating **


Rating **

STATISTICS AND RESEARCH


Aimed at doctors who view statistics as a necessary evil this reassuringly thin volume does not contain vast swathes of unfathomable algebra. It makes easy reading and is divided into eight chapters covering the basics of statistics. These include types of data, how to summarise data, probability, hypothesis testing and power and sample size estimation. Each chapter includes examples to allow ease of understanding followed by questions to test the knowledge acquired. It is lacking in detail on specific statistical tests and will not allow the reader to choose a test to apply to their own data. It does cover most areas required by an A&E trainee to allow sensible interpretation of the statistics in most scientific papers.

Rating ***


Rating ***


Written in the familiar Oxford text style, this is an affordable but brief overview of psychiatric emergencies. The sections on the practical issues, such as treatment refusal and the emergency use of the Mental Health Act, allow for educated liaison with the psychiatric services. It gives advice on the appropriate management of common psychiatric emergencies but it would benefit from having a more readable and practical discussion on mental state assessment.

Rating **

RADIOLOGY


This book should have a place on every A&E SpR’s bookshelf, particularly those who have little previous orthopaedic experience. Each chapter follows the same pattern of essential radiographs, review of the relevant anatomy, an illustration of normal variants and abnormalities and finally a summary of key points. The illustrations are easily understood and well labelled. It devotes more space to illustrations than to text, and focuses on areas of difficulty and frequently missed injuries.

Rating ***


Rating ****


This is a good general text on poisoning. It covers the basic management of the poisoned patient in an easy to follow manner emphasising the importance of “ABC”. However, it does seem dated in its discussion of emesis as a method of gastric decontamination. It proceeds to take the reader through an alphabetical list of drugs (both medical and illicit), common industrial agents, plants and animals, which may cause poisoning giving concise information on the general and specific clinical features, the management and the prognosis for each agent. As a reference for looking up specific poisons the layout is user friendly but not so stimulating as a straight read.

Rating **


Rating *** (but more specialised than may be required).


Rating **


Rating **


Aimed at doctors who view statistics as a necessary evil this reassuringly thin volume does not contain vast swathes of unfathomable algebra. It makes easy reading and is divided into eight chapters covering the basics of statistics. These include types of data, how to summarise data, probability, hypothesis testing and power and sample size estimation. Each chapter includes examples to allow ease of understanding followed by questions to test the knowledge acquired. It is lacking in detail on specific statistical tests and will not allow the reader to choose a test to apply to their own data. It does cover most areas required by an A&E trainee to allow sensible interpretation of the statistics in most scientific papers.

Rating ***


Rating ***


Rating **
tendon suturing, and surprisingly, pretibial laceration is hardly mentioned. The high price is a drawback.
Rating **/*** 

Rating **

Conclusion
Although there are many other books that have not been included in our review process, either because they were not identified in our search process or because they have been published since this project was completed, we hope this serves as a starting point for the A&E specialist registrar. Hopefully, this book will be helpful to many consultants so we do suggest looking for them locally.

It is worth noting that although there is an overlap this list is intended to be different from one for an A&E department library, which by its nature is designed for use by doctors at all levels of training as well as for nurses or paramedical staff.
Happy reading!

Contributors
Helen Law initiated and co-ordinated the review process, defined the review criteria, constructed the paper, edited the reviews and contributed to the reviews and acts as guarantor. Francis Andrews initiated and assisted in the coordination of the review process, defined the review criteria, applied the search strategy to identify the books and contributed to the reviews. The following also undertook the book reviews; Jane Brenchley, Stephen Bush, Jim Butler, Thomas Carrigan, Steven Crane, Gaynor E Creaby, Meg Crossley, Charlotte Doughty, Paul Gaffney, Rob Halstead, Jonathan Jones, Melanie Kavanagh, Adrian Kerner, Gary T Kitching, Andrew S Lockey, Richard Lynch, Amjid Mohammed, Chikezie Dean Okereke, Kirsten Jane Campbell, Richards, Jed Selvakumar, M M S Tan, A Taylor, Alison Walker.

HELEN LAW
FRANCIS ANDREWS
The Yorkshire Deanery,
St James’s University Hospital,
Leeds

ABSTRACT
The following was omitted from the abstracts published in the November 2000 issue of the journal for the Millennium Scientific Meeting hosted by the Faculty of Accident and Emergency Medicine

The ethics of war and police—do 21st century bullets meet 19th century ideals?
R A COCKS, N Y L LAM
Accident and Emergency Medicine Academic Unit, The Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, Hong Kong

Introduction—Explosive, expanding and fragmenting bullets were all outlawed by a series of international conventions during the 19th century, the last of which was the Hague Convention in 1899. Although these international agreements effectively ensured that all military bullets in the 20th century were fully jacketed (to prevent fragmentation and “unnecessary suffering”), they have never been applied to bullets used in civilian law enforcement.

Objective—To examine the wounding potential of 12 types of modern military and police small arms ammunition and to review the ethics of their use.

Methods—Fully jacketed and hollow point versions of .50 cal, .308 and 9 mm ammunition were tested against 15 cm × 15 cm × 30 cm blocks of ballistic gelatin, prepared in accordance with standardised methods. Additionally, we tested 0.357", 0.40" and 0.45" hollow point, and unjacketed 10 mm lead ammunition for comparison. Rifle rounds were tested at 100 m and pistol rounds at 6 m.

Results—For high energy rifle bullets (.50 cal, .308 and 9 mm) there was little difference in wound profile between fully jacketed (FMJ) and hollow point (HP) bullets. Nine mm FMJ and 10 mm unjacketed lead pistol bullets produced classical straight wound tracks with little evidence of damage outside the immediate bullet path. Nine mm HP, 0.357" HP, 0.40" HP and 0.45" HP bullets all showed minor cavitation effects immediately after penetration of the blocks, and many lead core fragments were seen in the track of the 0.40" bullet.

Conclusions—Modern rifle ammunition has extremely high energy and in practical terms, full metal jacketing or modification of the bullet point is probably irrelevant to wounding potential. Our tests and clinical case reports indicate that even FMJ ammunition is prone to fragmentation. Lower energy hollow point pistol ammunition, however, does produce some cavitation effects that have not been previously widely reported, and jacketing does influence bullet behaviour.