Table 3

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Clark RF *et al*, 1993, USA	54 patients who attended with crotalid (rattlesnake) envenomations observed for signs of infection Data available for 41	Prospective observational study	Presence of infection	3% patients without antibiotics developed an infection, compared with 22% (2/9) who were receiving antibiotics	Follow up involved telephone consultation as well as direct observation Very small numbers
Kerrigan KR *et al*, 1997, Ecuador	114 patients–59 randomly assigned to receive antibiotics	PRCT	Presence of infection as shown by abscess formation	10.2% of treated patients developed abscesses compared with 5.5% of the untreated p=0.558	No blinding Not controlled for other variables, for example, antivenin administration or surgical debridement Initiation of antibiotic treatment delayed
Blaylock RS, 1999, South Africa	363 patients presenting with snake bites–both venomous and non- venomous (12%) (310 files available) requiring admission to hospital with swelling	Prospective trial	% receiving antiobiotics Compared the length of stay in the two groups, (antibiotics *v* no antibiotics) further subdivided and analysed depending on main symptomatology–swelling, weakness	84.8% of patients received no antiobiotics No difference in length of stay between the groups–this is interpreted as reflecting no difference in infection rate	Not PRCT ?Comparable groups Extrapolation and interpretation of results is controversial Very little raw result data provided

Search outcome
Altogether 232 papers were identified of which six were relevant.

Comment(s)
Several prospective studies have been done on this topic, and all reach roughly the same conclusion. However, in this potentially disastrous situation all authors are keen to point out that any clinical decision strategy can never be 100% sensitive and should be used on an individual patient basis rather than as an unbendable rule.

▸ CLINICAL BOTTOM LINE
Victims of blunt trauma who are fully alert and show no signs of intoxication can safely forego cervical spine radiography if they have no midline neck tenderness, no neurological deficit and no distracting injury.

Roberge RJ, Wears RC, Kelly M, *et al*. Selective application of cervical spine radiography in alert victims of blunt trauma: a prospective study. *J Trauma* 1988;**28**:784–8.
Roberge RJ, Wears RC. Evaluation of neck discomfort, neck tenderness and neurological deficits as indicators for radiography in blunt trauma victims. *J Emerg Med* 1992;**10**:539–44.
Hoffman JR, Schriger DL, Mower W, *et al*. Low risk criteria for cervical spine radiography in blunt trauma. *Ann Emerg Med* 1992;**21**:1454–60.
Velhamos GC, Theodorou D, Tatevossian R, *et al*. Radiographic cervical spine evaluation in the alert asymptomatic blunt trauma victim: much ado about nothing. *J Trauma* 1996;**40**:768–74.
Gonzalez RP, Fried PO, Bukhalo M, *et al*. Role of clinical examination in screening for blunt cervical spine injury. *J Am Coll Surg* 1999;**189**:152–7.
Hoffman JR, Mower WR, Wolfson AB, *et al*. Validity of a set of clinical criteria to rule out injury to the cervical spine in patients with blunt trauma. National Emergency X-Radiography Utilisation Study Group. *NEJM* 2000;**343**:94–9.

The use of antibiotics in venomous snake bite

Report by Polly Terry, *Specialist Registrar*
Checked by Kevin Mackway-Jones, *Professor*

Abstract
A short cut review was carried out to establish whether antibiotics reduce the incidence of infection after venomous snake bite. Altogether 60 papers were found using the reported search, of which three presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of these papers are shown in table 3. A clinical bottom line is stated.

Clinical scenario
A 26 year old man attends the emergency department having been bitten on his right hand 30 minutes previously by his pet a venomous snake. Examination reveals extensive swelling of his forearm with lymphangitis, hypotension and gingival bleeding. He has no relevant previous medical history and is fully immunised against tetanus. You know there is the potential for infection from the snakes fangs and oropharynx, as well as contamination from the victim's skin and clothing. You thoroughly clean the wound with local wound toilet, and are happy that there is no fang left in situ. You wonder if prophylactic antibiotics are indicated to reduce the risk of infection.

Three part question
In [well adults who have been bitten by a venomous snake] do [prophylactic antibiotics] reduce [the incidence of infection]?

Search strategy
Medline 1966–10/01 using the OVID interface. {(exp snake bites OR snake bite$.mp) AND (exp antibiotics OR anti-biotics OR antibiotic$.mp)} LIMIT to human AND English.

Search outcome
Altogether 60 papers of which three were relevant to the original question.

Comment(s)
Most of the trials involved small numbers and were affected by the use of antivenin, which in itself has antibactericidal activity. There is concern that use of antibiotics prophylacticaly will have little impact on further infection but may give rise to side effects, is not cost effective and may select out more resistant organisms. These studies again confirm the low event rate for infection after snake bite from venomous snakes.

▸ CLINICAL BOTTOM LINE
Prophylactic antibiotics are not required in snake bites from venomous snakes.

Clark RF, Selden BS, Furbee B. The incidence of wound infection following crotalid envenomation. *J Emerg Med* 1993;**11**:583–6.
Kerrigan KR, Mertz BL, Nelson SJ, *et al*. Antibiotic prophylaxis for pit viper envenomation: prospective, controlled trial. *World J Surg* 1997:**21**:369–73.
Blaylock RS. Antibiotic use and infection in snakebite victims. *South African Med J* 1999;**89**:874–6.

Activated charcoal and gastric absorption of iron compounds

Report by Steve Jones, *Specialist Registrar*
Checked by Baha Ali, *Senior Clinical Fellow*

Abstract
A short cut review was carried out to establish whether activated charcoal is effective in iron overdose. Altogether 17 papers were found using the reported search, of which only one was relevant. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of this paper are shown in table 4. A clinical bottom line is stated.

Clinical scenario
A young woman presents to the emergency department having taken an overdose of her iron tablets. She is in an emotionally distressed state but is cardiovascularly stable and requests treatment. It has been less than two hours since she took the tablets and you prescribe activated charcoal. You wonder whether this will actually do her any good.

Three part question
In [a patient with an iron overdose] is [activated charcoal better than nothing] at [reducing gastric absorption, mortality or morbidity]?

Search strategy
Medline 1966–10/01 using the OVID interface. {(exp poisoning OR poisoning.mp OR exp overdose OR overdose.mp)} AND (exp iron OR exp iron compounds OR iron.mp) AND (exp charcoal OR charcoal.mp OR activated charcoal.mp)} LIMIT to human AND English.

Search outcome
Altogether 17 papers found of which only one was relevant to the original question.

Comment(s)
This study partially answers the question and concludes that more work needs to be done. In the doses given to these healthy patients, activated charcoal reduced absorption; this was reduced further by adding desferrioaxamine to the oral solution. Toxic doses are considered to be fourfold higher than the doses used in the study and treatment in this group of patients depends on clinical features.

▸ CLINICAL BOTTOM LINE
Giving oral activated charcoal may well reduce gastric absorption after iron overdose.

Gomez HF, McClafferty HH, Flory D, *et al*. Prevention of gastrointestinal iron absorption by chelation from an orally administered premixed deferoxamine/charcoal slurry. *Ann Emerg Med* 1997;**30**:587–92.

Antibiotics after puncture wounds to the foot

Report by Magnus Harrison, *Clinical Reseach Fellow*
Checked by Martin Thomas, *Research Fellow*

Abstract
A short cut review was carried out to establish whether antibiotics reduce infective complications after puncture wounds to the foot. A totla of 29 papers were found using the reported search, of which none answered the question posed. Further research is needed in this area.

Clinical scenario
A 32 year old man presents with a pedal puncture wound, which was sustained four hours before attending the emergency department. You wonder whether antibiotics should be prescribed to reduce infective complications.

Three part question
In [patients presenting with pedal puncture wounds] does the [administration of antibiotics] reduce [infective complications]?

Search strategy
Medline 1966–10/01 using the OVID interface. [(exp foot injuries OR exp foot OR feet.mp OR foot.mp OR pedal.mp OR plantar.mp) AND {(exp wounds and injuries OR injur$.mp) AND (penetrate$.mp or penetrating.mp OR exp punctures OR puncture$.mp) OR exp wounds, penetrating)}] AND (exp antibiotics OR antibiotic$.mp) LIMIT to human AND English.

Search outcome
Altogether 29 papers found of which none were relevant to the original question.

Comment(s)
While there are many review articles in this area, there appears to be no published evidence to underpin the views expressed.

▸ CLINICAL BOTTOM LINE
Local advice should be followed.

Table 4

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Gomez HF *et al*, 1997, USA	11 healthy adult volunteers	Controlled, prospective crossover study	Maximum serum iron concentration: - iron only - iron plus activated charcoal (AC) - iron plus AC plus desferrioxamine	 150 µg/dl 36 94 µg/dl 23 37 µg/dl 13 (p 0.0017)	Healthy volunteers Strict exclusion criteria Physiological doses of iron rather than toxic doses
			Time to maximum serum iron concentration: - iron only - iron plus AC - iron plus AC plus desferrioxamine	 3.5 h 0.3 3.6 h 0.5 3.0 h 1.0	