Massive subcutaneous emphysema after accidental removal of an intercostal drain

Editor—I congratulate the authors on the management of this difficult case of massive air leak after subclavian vein catheterization for permanent pacemaker insertion.1 This route of access is favoured by cardiologists for placement of pacing wires as it is thought to provide a more stable site with less chance of pacing wire migration.

I would like to raise another facet of the case, which was not raised in the report; namely prevention of the pneumothorax in the first place. Pneumothorax and other procedural complications related to needle insertions for central venous access can be almost completely eliminated by the routine use of ultrasound. This site can be accessed using ultrasound, particularly if screening is available to correct any catheter tip malposition.2 Despite the recommendations of NICE,3 based on a number of clinical publications, there remains reluctance in many centres to invest in appropriate ultrasound devices for this purpose, and it is the continued belief of many clinicians that they do not need the aid of such devices. A somewhat semantic debate continues in the correspondence columns about the cost effectiveness of ultrasound guided central venous catheterization.4

There is an attitude that such complications are minor (not to the patient) and an inherent risk of the procedure. The patient in this report must have suffered considerable stress, discomfort, and disability during convalescence, despite the reported eventual successful outcome. Analysis of this case suggests that the cost of the complication would be in the order of 15 days unnecessary stay on the ward at £300, plus 27 days on ITU at £1500 per day, for a procedure that otherwise would be done as a day-case or perhaps an overnight stay. Such costs total ~£46 000 and would obviously cause further disruption in terms of blocked beds for other cases. The high costs and excess length of stay after iatrogenic pneumothorax have been highlighted previously in a large survey of multiple acute hospitals in the USA.5 Ultrasound machines can be purchased for around £10 000–£15 000 apiece and running costs are low. When viewed in this context their routine use make very good financial, legal and medical sense.

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1 Williams DJ, Jaggar S, Morgan CJ. Upper airway obstruction as a result of massive subcutaneous emphysema following accidental removal of an intercostal drain. Br J Anaesth 2005; 94: 390–2
5 Zhan C, Miller MR. Excess length of stay, charges, and mortality attributable to medical injuries during hospitalization. JAMA 2003; 290: 1868–74

### Table 1 ‘Paedfusor’ propofol pharmacokinetic data set

<table>
<thead>
<tr>
<th>Age</th>
<th>Maximum bolus size</th>
<th>Weight</th>
<th>Weight</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–12 yr</td>
<td>v1=458.4×weight</td>
<td>&lt;15 kg</td>
<td>&lt;30 kg</td>
<td>&gt;30 kg</td>
</tr>
<tr>
<td>13 yr</td>
<td>k1=0.1027×weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 yr</td>
<td>k1=0.1067</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>15 yr</td>
<td>k1=0.095</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 yr</td>
<td>k1=0.119</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td></td>
<td></td>
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</tbody>
</table>

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Moles, weights and potencies: freedom of expression!

Editor—Rosenberg and Schug correctly remind us that there are 12.6% more molecules of bupivacaine in similarly expressed %wt/vol preparations of levobupivacaine (Chirocaine®) when