

## The Review

# A nose for trouble

As clinicians we work in a world of evidence-based care, making diagnoses using history taking and examination skills. In his William Pickles lecture at the 2011 Spring General Meeting, Dr Terry Davies asked whether GPs sometimes put too much emphasis on the 'straight line science approach in their diagnoses' when often their initial 'hunch' is the correct one. I suggest that experienced clinicians sometimes make their judgements based not only on experience, but using all their senses including olfaction; they literally develop a 'nose for trouble'.

In our everyday life we take our sense of smell for granted. In cities we are overwhelmed by sensory overload as we walk past fast-food outlets, coffee shops, bakeries, through throngs of shoppers smelling of soap, shampoo, aftershave, and perfume, and the ever-present smell of vehicle exhaust.

There are many human smells that we simply do not register in our perfumed and deodorised world such as ear wax, sebum, menstrual blood, and even breath, while other smells we note and find offensive, such as stale sweat, flatus, and teenage boys' feet.

However, which mother has not lingered over the head of her new baby, breathing in the very special smell of baby and milk? Sheep and cattle recognise their offspring by scent and I am certain that humans are able to do the same; most mothers will be familiar with the urge to bath their baby if it has been nursed by another person wearing a strong scent. Humans are also unconsciously affected by pheromones, so that the menstrual cycles of women living together become synchronised.<sup>1</sup>

In a world without deodorants, people may have been more attuned to human scents. Shakespeare was clearly aware of the smell of breath, speaking of a sweet lover's breath:

*The forward violet thus did I chide:  
Sweet thief, whence didst thou steal thy  
sweet that smells,  
If not from my love's breath?*  
(William Shakespeare, *Sonnet 99*).

This is in contrast to his mistress' halitosis:

*'And in some perfumes is there more  
delight  
Than in the breath that from my mistress  
reeks.'*  
(William Shakespeare, *Sonnet 130*).

Some of our patients announce their occupation to us, albeit unconsciously; the mechanic smelling of oil, the girl from the chip shop who smells of cooking fat, the stable hand, or the dairy farmer, who can never completely eradicate the smell of cattle, no matter how hard he washes. Other patients unwittingly announce their social pastimes. We are all familiar with alcohol, tobacco, and cannabis, perhaps overlaid by peppermint, parma violets, or mouthwash in those who hope to conceal their habits from others.

Some smells are more complex, but equally useful to us. One such is the 'smell of poverty'; a mixture of damp and cooked cabbage, while others, such as a lingering smell of curry and stale beer, may indicate the cause of a gastritis. All doctors would recognise the smell of a care home (talcum powder and urine), a hospital (talcum powder and disinfectant with a hint of air freshener), or a psychiatric unit (the same as the hospital, but with the added scent of sweat and fear).

In our surgeries, we also use our noses for diagnostic purposes. An older person smelling of urine may prompt us to check for glycosuria or infection, while there is the unforgettable aroma that alerts us to a retained vaginal tampon, especially if the presenting symptom is a vaginal discharge. Likewise, we should all be likely to treat a fishy smelling vaginal discharge or a foul smelling leg ulcer with antibiotics suitable for anaerobes without waiting for bacteriological confirmation.

Other smells which may be useful to us include that of pus from infected lungs or sinuses. In a patient with underlying chest disease this should make us more inclined to prescribe an antibiotic, especially when accompanied by the less well defined smell of a fever, which is probably related to dried sweat.

At medical school we are taught that a foetor on the breath of a patient with

abdominal pain makes the diagnosis of appendicitis more likely, while patients with intestinal obstruction may also have a pervasive smell of vomit on their breath or a faecal odour if they are in extremis.

Severely ill patients often have characteristic smells. Patients with diabetic ketoacidosis have the fruity smell of ketones, although a substantial number of people are unable to detect this. Foetor hepaticus is a feature of severe liver disease; a sweet and musty smell both on the breath and in urine. It is caused by the excretion of dimethyl disulphide and methyl mercaptan (CH<sub>3</sub>SH)<sup>2</sup>, arising from an excess of methionine. In chronic renal failure there is a smell of ammonia from the breakdown of urea in saliva combined with a fishy smell arising from dimethylamine and trimethylamine.<sup>3</sup> The presence of blood in the gut giving rise to melena is also unforgettable.

While humans have a poor sense of smell compared to other mammals, we are still able to detect substances in dilutions of less than one part in several billion parts of air. There is a well recognised link between memory and olfaction. The primary olfactory cortex is linked to the amygdala and hippocampus, which are involved with emotional and short-term memory, and for this reason certain smells can trigger vivid memory recall of people and events. This may explain why a doctor may experience anxiety about a patient if he or she is subconsciously reminded of a previous patient, even if they are unable to articulate the cause of their anxiety.

In general smells are difficult to describe, other than by relating them to something more familiar. This is one reason why it is hard to teach students to recognise smells, especially where perception is blunted by cosmetic scents. There have been studies to identify the chemicals responsible for hepatic foetor using gas chromatography; not exactly a bedside test.<sup>4</sup> However, when

---

*"... experienced clinicians sometimes make their judgements based not only on experience, but using all their senses including olfaction."*

---

# The Review

## Book review

### ADDRESS FOR CORRESPONDENCE

**Bridget Osborne**

Llys Meddyg Surgery, 23 Castle Street, Conwy, LL32 8AY, UK.

**E-mail:** [bvosborne@doctors.org.uk](mailto:bvosborne@doctors.org.uk)

we record our case histories we include that which the patient has told us (auditory) and that which we have seen (visual) or palpated (touch) so why not also record what we have detected with our noses?

Olfaction is possibly our most primitive sense. I believe it can provide a useful contribution to our diagnostic armoury, but first we have to learn to recognise when there is a smell present, the likely source of the smell and the clinical implication. In other words, all doctors should develop a nose for trouble.

**Bridget V Osborne,**

Salaried GP, Llys Meddyg Surgery, Conwy.

### Provenance

Freely submitted; not peer reviewed.

DOI: 10.3399/bjgp12X659394

### Editorial note

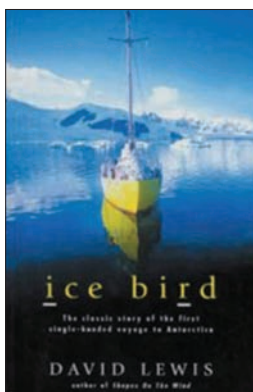
A similar article was published in the July 2012 issue, although this article was submitted and accepted for publication previously.

### REFERENCES

1. Wise J. Pheromones regulate ovulation. *BMJ* 1998; **316**: 797-11.
2. Challenger F, Walshe JM. Methyl mercaptan in relation to foetor hepaticus. *Biochem J* 1955; **59**(3): 372-375.
3. Meyer TW, Hostetter TH. Uremia. *N Engl J Med* 2007; **357**(13): 1316-1325.
4. Van den Velde S, Nevens F, Van Hee P, et al. GC-MS analysis of breath odor compounds in liver patients. *J Chromatogr B Analyt Technol Biomed Life Sci* 2008; **875**(2): 344-348.

### ICE BIRD: THE CLASSIC STORY OF THE FIRST SINGLE-HANDED VOYAGE TO ANTARCTICA DAVID LEWIS

Adlard Coles Nautical, 2002  
PB, 224 pp, £14.99, 9780713664119



David Lewis's *Ice Bird* is reprinted. Simply the most fascinating tale of sailing and adventure I have ever read. No one had ever sailed a small yacht single-handed to Antarctica before. *Ice Bird* describes how he got there.

When he left Sydney in October 1972 he was an experienced seaman. He describes himself as 'a very ordinary middle-aged man'. An understatement and a half. Even before Antarctica he was rather extraordinary. In the previous decade he had circumnavigated the globe, west-about, in an unlikely trimaran, with second wife and two preschool daughters. (His older daughter Susie, aged about 5, put it nicely: 'We like the gales, they are fun, they are the best part!').

*Ice Bird* tells a tale of the terror and occasional joy of sailing deep in the Southern Ocean. Unlike many of the sailing books written during the 1970s Lewis is not afraid of telling us his fears. He worries that he is not brave enough. We sit on the edge of our seats, and with him, in *Ice Bird*'s freezing, wet cabin as he struggles onwards towards his destination following a capsizing and the loss of his mast. He is bailing and frostbitten.

Lewis's thoughts on death, which at times was imminent, and the journey towards it, shows a person familiar with seeing death at close hand. For a GP the

### ADDRESS FOR CORRESPONDENCE

**Liz Peak**

Logan Practice, Wishaw Health Centre, Kenilworth Ave, Wishaw, ML2 7BQ, UK.

**E-mail:** [mewisdish@hotmail.com](mailto:mewisdish@hotmail.com)

book provides an opportunity to reflect how a human can cope with extreme hardship and our mortality.

Things have changed since 1972. We don't use amphetamines to keep our patients awake at night, and use 'double doses of tetracycline' as a prophylactic antibiotic for frostbitten hands. The appendix written on medication for cold weather passages contains many treatments still in use today especially for seasickness.

This is a story about human endurance, hardship, and the beauty of our world and is written with honesty and clarity. And such bravery!

**Liz Peak,**

GP, Wishaw, Lanarkshire and Yacht Pilgrim, Troon, Scotland.

DOI: 10.3399/bjgp12X659402