Follow surgical checklists, especially in a crisis

In June 2008 the World Health Organization launched its second global patient safety challenge, “Safe surgery saves lives” (BMJ 2008;337:a2370). This three part surgical safety checklist aimed to reduce the incidence of wrong site surgeries and increase the surgical team’s preparedness for anaesthetic and surgical complications.

The following January the UK National Patient Safety Agency issued a patient safety alert that required hospitals to institute this three stage checklist for all surgical patients by February 2010: sign in (before anaesthesia); time out (before incision); sign out (after the operation). Many will remember the hilarity and amazement expressed on Radio 4’s Today programme on the morning of the agency’s announcement that such a simple procedure was not already in use to ensure that the right operation was taking place on the right patient.

Nearly two years later, however, many remain only reluctantly compliant with the checklist, and ridicule some aspects of it, such as when team members introduce themselves to each other by name and role for perhaps the third or fourth time that day. Also, in our experience, the checklist may be omitted entirely in an emergency, because the team perceives that it delays urgent surgery.

Our experiences during the recent influenza A (H1N1) pandemic led us to realise the folly of the emergency argument. In the winter of 2010 our hospital was designated as a temporary provider of extracorporeal membrane oxygenation (ECMO) for adults with severe H1N1 related respiratory failure for whom conventional ventilation was failing. Patient retrieval was an integral part of the service. A small team, usually comprising two consultants and a perfusionist, would travel to another hospital to establish the patient on ECMO support before transfer back to our own hospital.

In the operating theatre a 10.3 mm diameter cannula was percutaneously inserted into the inferior vena cava via the right internal jugular vein, superior vena cava, and right atrium, and ECMO support was commenced. The potential for disaster was always palpable: two groups of people who did not know each other or each other’s capabilities; a cannulation procedure that had never before been undertaken in that hospital, and one that carries considerable risks of major vascular damage and cardiac perforation; and the need for speed in a person close to death, navy blue with cyanosis (typically oxygen saturation less than 70%). And all this, it seemed almost always, occurred in the depths of night when all of us were tired.

We quickly learnt that a pause for the so called time out was time extremely well spent. This epiphany occurred to us in the middle of the night just before new year, after a two and a half hour ambulance journey 180 miles north, to rescue a 25 year old patient who had been profoundly hypoxaemic, with an arterial oxygen tension of less than 6 kPa for 24 hours, and who had subsequently developed rapidly progressive cardiovascular instability resulting from acute right ventricular failure. At 2 am, we wanted to open a second emergency theatre, the other occupied by a paediatric orthopaedic team. All of us appreciated the time pressure—there was enthusiastic but disorderly helpfulness.

We called time out; a process familiar to all, despite the unfamiliar scenario. In this pause for breath, the whole team introduced themselves and focus was achieved in a moment. Everyone now knew each other’s names, roles, and the order of events to follow. The procedure went efficiently and without incident, and ended in a true sense of achievement for all when on ECMO the patient’s oxygen saturation rose rapidly from 65% to 95%. All that remained was a return journey of three hours in the ambulance; it was too foggy to fly.

Our appreciation of the value of the time out changed in that moment. It is immensely powerful at focusing and uniting a team just when it needs to perform best. Paradoxically, it is often during emergencies, when most needed, that the time out does not occur. A well rehearsed team can complete the checklist in less than 20 seconds. When is that too long? We believe very rarely and likely never.

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Patient consent obtained.

Cite this as: BMJ 2011;343:d8194

A well rehearsed team can complete the checklist in less than 20 seconds. When is that too long?
The stare of death

Two exhibitions of the seminal war photographer Don McCullin show how photojournalism has the power to alert the world to the horrors of war. Jonathan Kaplan, a surgeon who has also seen war zones first hand, reflects

Shaped by War: Photographs by Don McCullin
Imperial War Museum, London, until 15 April 2012
Open daily 10 am till 6 pm; admission £7
www.iwm.org.uk
Rating: ★★★★★

Don McCullin at Tate Britain
Tate Britain, London, until 4 March 2012
Open daily from 10 am till 6 pm; admission free
www.tate.org.uk
Rating: ★★★★★

Doctors know the feeling of looking into a face and seeing death stare back at you. But it’s seldom as naked and implacable as on the face of the starving albino child clutching an empty corned beef tin, photographed by Don McCullin in an orphanage in Biafra (now part of Nigeria) in 1969. His pictures in the broadsheet press and the images on the television evening news forced humanitarian suffering into global consciousness. Biafra transformed humanitarian thinking. The French doctor Bernard Kouchner was moved to found Médecins sans Frontières, Aegus Finucane established the Irish non-governmental organisation Concern, and Oxfam’s condemnation of the war as a “genocide” began an era of moral humanitarian intervention. Frederick Forsyth (reporting on Biafra for the Times) was inspired to write his novel The Wild Geese, about a group of European mercenaries applying their deadly expertise to help a “good” African leader oust the bad ones and give birth to a nation. McCullin was among the few not to subscribe to this muscular spirit. “I saw 800 children dropping down dead in front of me,” he said. “That turned me away from the gung-ho image of the war photographer.”

Shaped by War is the title of McCullin’s retrospective exhibition at the Imperial War Museum, London. Evacuated as a child from London to Somerset during the blitz, he did his national service in the Egyptian canal zone (seeing French troopships returning from Indochina), in Kenya (during the Mau Mau insurgency), in Cyprus and Aden. Alongside technical training in photography, his service in the Royal Air Force provided a lesson in history: “Crumbling empires and war have been with me all my life,” he notes. Back in bomb site London he had some pictures published in the Sunday Observer, but it took a visit to Berlin in 1960 to show him his calling. “I felt immediately at home,” recalls McCullin, photographing American troops in armed face-off against their Russian counterparts as the wall went up at Checkpoint Charlie. “It was as if I was wearing the right clothes.”

War continued to draw him through the 1960s—the civil war in Cyprus, the mercenary war in Congo, and the American war in Vietnam, which he visited 15 times. In Hue during the 1968 Tet offensive he “mastered the technical difficulties of photographing under heavy fire” to produce his most iconic pictures, alongside clear intimations of his own mortality. “I always knew if you hung around those war zones for long enough you would die,” says McCullin, “and many of my friends and colleagues did.” In Cambodia he was hit by mortar fragments and evacuated under shellfire in a truck full of wounded, continuing to take pictures. He recorded the death of a man beside him and then the agonies of those being treated in the primitive field hospital where he was taken. “When I was wounded in all those conflicts I thought it was good,” says McCullin. “At least you have a glimpse of the suffering endured by the people you are photographing . . . You go away with some conscious obligation.”

Read the biographies of young doctors in non-governmental organisations who work in war zones and they tend to stress their sense of mission, the belief that their intervention makes a difference. Photojournalists sometimes see themselves in a similar position: as recorders of the interface between life and death, wholeness and suffering. The images they bring back may horrify the public, but “I don’t want you to reject and say, ‘I can’t look at those pictures. They are atrocity pictures,’” McCullin says. “Of course they are. But I want to become the voices of the people in those pictures.” Yet like the most dedicated war zone doctors, he is humble about the worth of what his work has achieved. “Have I done any good? I don’t believe I’ve made any difference.”

McCullin has made a difference, as these incomparable pictures show. His unflinching sense of social justice shines through the grudging light of his images. Between war assignments he photographed unemployed miners scavenging on spoil-tips for bits of coal, their faces those of exhausted soldiers. The suffering people to whom he has given voice include men living rough on the streets of London and people dying of AIDS in Africa. The cumulative attrition of his work has left its scars. “I’m ashamed of humanity in many ways,” says McCullin. “There’s a darkness in me. I’m very mistrusting. I’m bound to be after seeing so many men murdered in front of me.” He has retired to Somerset, to the gentle countryside that first gave him sanctuary in 1940, and takes landscape photographs as a form of meditation. These too resemble old battlefields, with flayed hulks of trees and sodden ground reflecting the glimmer of a mean horizon, but the faces etched with pain and death are no longer to be seen. “This is a real privilege,” says McCullin of his new area of work, “because I don’t have to talk to anybody.”

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Cite this as: BMJ 2012;344:d8283
Hospitals from another time

In 1968, the year in which I became a medical student, a rather beautiful anthology of poetry titled Poems from Hospital was published. It was edited by a husband and wife who were teachers, Jean and Howard Sergeant; the latter was also a critic and poet. It contains poems by such famous poets as Dylan Thomas, W H Auden, T S Eliot, John Betjeman, Elizabeth Jennings, and Philip Larkin, but also many by poets of whom I, at any rate, had not heard.

The subject matter is, naturally enough, illness, death, pain, distress, compassion, indifference to suffering, and alleviation. Strangely enough the overall effect is not dispiriting, but one of consolation, even though “The ambulance will always call again,” to quote the opening line of a poem by Alasdair Aston, “And the saved man goes home to die, of health” to quote the last line of another by James Reeves.

Rereading it now, I realise how much has changed in the intervening years, both in the organisation of hospitals and in our moral sensibilities. Francis Newbold, for example, writes of a visiting time that is scarcely recognisable in modern hospitals, in part because of the speed with which patients come and go: “Sun streaming in through ever open windows / On masses of flowers neatly arranged as the patients / Who lie in orderly rows wearing / Their convalescent smiles . . .” Their “Wounds camouflaged by spotless sheets and bandages,” and “Patient and staff co-operate / In putting on this show for us.”

Douglas Gibson reminds us that in those days ambulances did not have sirens: “…the ambulance that shakes / the urgent bell . . .” Thomas Blackburn takes us even further back in Felo da Se: “‘Thirty,’ the doctor said, ‘three grains, each one, / That’s quite a lot of sodium amytol! [sic] / Five . . . ten more minutes and the job was done . . . ‘’ Life saved by the stomach pump! And who knows now what a grain is, or dares to prescribe barbiturates for sleep?

In Therapeutic Abortion by Geoffrey Holloway we learn with what horror this operation was once performed, even to save the life of the pregnant woman even if she has cancer of the breast: “the sweaty surgeon, frozen girl, / go through with their outrageous pact, / their mortal merciful offence. / Keep to kill or kill to keep . . . / the mad alternative . . . ”

Some things do not change, though, and many of the poems had a resonance for me, emotion recalled in tranquillity, for example, Robert Gittings’s The Middle-Aged Man. In this poem, the poet himself is: “Neighboured in plywood cubicles [where] we stripped, / Put on identical clothes, the linen sheet / Silt for its head-hole like an Egyptian priest . . .”

He and the middle aged man (the same age as the poet) are waiting for an x ray and talk of general subjects—the cricket club in the small town where they lived, for example. Then: “Only once, at a mention / Half-joking, clumsy in our predicament, / He spoke of what had brought him into hospital: / ‘I’ve left it too late,’ he said.”

The poet learns two weeks later that he has died. I was reminded of an elderly acquaintance of mine whom I met by chance in my hospital, he was almost orange with jaundice. He knew that he was dying, and he knew that I knew that he was dying. “We’ll just have to do the best we can,” he said, half joking. In two weeks he was dead. Such noble stoicism persists; I hope one day it will be mine.

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Cite this as: BMJ 2012;344:d8349

BETWEEN THE LINES Theodore Dalrymple

MEDICAL CLASSICS

War on Disease: a History of the Lister Institute
A book by Harriette Chick, Margaret Hume, Marjorie MacFarlane
First published 1971

The Lister Institute of Preventive Medicine, established as a research institute in 1891, was the first medical research charity in the United Kingdom (www.lister-institute.org.uk/about.html). In this book the institute’s scientists refer to the Lister as a way of life, “a habit of thought.”

Staff took alarming risks in pursuit of science. In 1905, plague in India killed half a million people. The Lister expedition asked people to hand in dead rats, with a quarter of an anna paid per rat—a now defunct unit of currency equal to 1/16 of a rupee. A street map was drawn linking infected rats to homes of deceased citizens. But how was bacillus pestis transmitted? Not by a rat bite. The answer came when a Lister worker put her arm into the flea cage and saw the height to which they leapt.

Joseph Arkwright (great great grandson of Richard Arkwright, who mechanised 18th century cotton manufacture) joined the institute in 1906, and studied typhus by letting himself be bitten by infected lice. He survived, unlike two others studying this fatal illness—H T Ricketts and S J M Prowazek, who are eponymised in the protozoal agent Rickettsia prowazekii. It was in studying typhoid that Arkwright discovered that bacterial species are not immutable but can mutate.

As well as Arkwright, the institute recruited another scientist with cotton connections—Hannette Chick, whose forebears had made Honiton lace, prized throughout 19th century Europe. Chick was one of the first women to graduate in science from London University. “Two members of the scientific staff implored the Director not to commit the folly of appointing a woman to the staff,” but she was backed by a previous superintendent of the institute, Charles Sherrington (who had recently given the first ever clinical dose of diphtheria antitoxin, saving the life of his acutely ill nephew). Chick demonstrated the irreversibility of coagulation of proteins, showing that death of bacteria by heat or phenols was not loss of mysterious so called vital forces, but a researchable physicochemical reaction.

The first world war spurred investigation into other diseases of poverty. Rickets was attributed by Glasgow physicians and physiologists to overcrowding, lack of exercise, and poor hygiene; the Viennese hypothesised infection; whereas puppy experiments at the Lister Institute suggested nutritional deficiency. In 1919, Chick went to Vienna where Clemens von Pirquet was worried that, even in his well run hospital, rickets could develop. Diets were tested, but the first year results nonplussed the team. In year two, they realised that taking cots outside in fine weather had been a confounding factor. The cure was diet and light; direct sunshine could heal deformed bones. These accounts show serendipity playing its part in medical discovery. But chance favours the prepared mind, and the daring in these unsentimental, unembellished stories helps us not to take for granted what has gone before, inspiring us to be curious.

Competing interests: Harriette Chick was a first cousin of the author’s grandfather. Jonathan Chick is honorary professor, Queen Margaret University, Edinburgh jonathan.chick@gmail.com

Cite this as: BMJ 2011;343:d8209
Lessons from America

Medicine constantly advances. My room is full of electronic gadgets: pulse oximeters, thermometers, blood pressure cuffs, and glucose meters. All were purchased on the pretext of being better, faster and more accurate, than the old ways. But they constantly report error messages; the batteries are always flat; or you run out of the wildly expensive testing strips. Besides, the readouts rarely seem to match the clinical picture. As ever, ultimately you have to go with your clinical instincts.

This year’s great “advance” is the new health bill, which embraces the private sector. The prevailing fundamentalist ideology is that the private sector is better, faster, and more efficient than a state run monolith. There is a litany of examples from manufacturing for which this is true, so it seems a logical extension. And despite repeated assurances, many believe that we will see wholesale privatisation of the NHS by stealth. The NHS is not perfect, but there are three things politicians should know.

Ironically, the US is attempting to disentangle itself from the private sector just as we seek to embrace it. Firstly, the NHS is already very efficient, costing about 9% of gross domestic product, and it delivers highly rated care (http://data.worldbank.org/indicator/SH.XPD.TOTL.ZS, www.commonwealthfund.org/News/News-Releases/2010/Jan/US-Ranks-Last-Among-Seven-Countries.aspx). Secondly, the NHS provides universal coverage, free at the point of access, based on need not wealth. This allows doctors professional freedom that is not compromised by patients’ ability to pay. Thirdly, and perhaps most importantly, the United Kingdom has been spared excessive medical intervention and iatrogenic harm that defines absolutely private medicine wherever it is practised. An NHS surgeon once told me, “My value is not the operations I do, but the operations I don’t do.”

The government should be grateful for what we have and never conflate activity with quality. We must be fearful of changes that will make corporations’ profit dependent on undermining society’s wellbeing by generating a medical economy that depends on unnecessary consumption by consumers. Also, the ultimate goal of free enterprise is to stifle competition through monopoly or cartel. Greed is a deadly medical sin.

But beliefs, political or otherwise, are not open to reasoning because they are visceral. So the only way to highlight the risks to the NHS of private practice is through exploring the narrative and emotions that arise in the land of far from free healthcare, the United States. This is a broken, polarised, unjust, and wantonly inefficient corporate system that damages by providing too much medicine for a few and too little for the many. Ironically, the US is attempting to disentangle itself from the private sector just as we seek to embrace it. So this year I hope to report the problems in the US by speaking directly to practising doctors there.

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Cite this as: BMJ/2012;344:d8352

The feminisation of nature

This year marks the 25th anniversary of the start of a scientific survey of the feminisation of fish in the River Lea in southeast England, which took several years formally to confirm what local anglers had been describing since the late 1970s: that roach living downstream of sewage effluent showed a high prevalence of intersex.

Can you recall the biochemical pathway that begins with cholesterol and progresses through progesterone and various hydroxylations to oestrogen, testosterone, and cortisol? Whether you can or not, you will be able to spot androgenising syndromes in women (from virilising tumours to the hirsute teenager whom you’re not sure whether to reassure or refer) and feminising syndromes in men (from the testosterone insensitive XY female to Homer Simpson’s cushingoid man boobs). Most are subfertile.

I cannot recall a general practice surgery when I did not prescribe the oral contraceptive pill, hormone replacement therapy, or a short course of progesterone to delay menstruation for a honeymoon. Metabolites of such drugs appear in the urine and then in our rivers and lakes.

Intersex is not a natural state in fish, particularly in roach, because the species has only one gonad. Subfertile and transgender fish mean fewer offspring and declining fish stocks, not to mention the reverberations throughout the ecosystem. In the past 25 years, dozens of papers have appeared describing similar syndromes in other species of fish.

As in any problem of an ecological nature, the solution is not simple, and we can’t just stop prescribing steroid hormones. Rather, doctors must engage with the interdisciplinary work being undertaken between ecologists, geographers, chemists, and mathematicians to better understand the delicate equilibrium of the freshwater ecosystem and how pharmaceuticals in human waste contribute to its imperilment. We might, for example, note the research on the widely differing potency of different steroids in the chain of causation of the feminisation of nature and try to ease back on anti-androgens, which are particularly potent. For more, see this review: Journal of Environmental Monitoring 2008;10:1476-85.

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I thank Rob Macfarlane for alerting me to this matter.

Cite this as: BMJ/2011;343:d8348