

THE LIVES OF DOCTORS

Analysis of doctors' experiences during the filming of a documentary in the workplace

Shelby Webster and colleagues explore the effects of working under the eye of the camera

Fly on the wall medical documentaries are increasingly popular in the UK. Our hospital was the base for the second series of *Junior Doctors: Your Life in Their Hands*, a BBC documentary series following the lives of National Health Service junior doctors (foundation trainees) at work and at home. The series has prompted strong opinions and concerns among clinicians, medical educators, and the wider public about issues in medical training and the impact of filming junior doctors at work on the profession and public perception.¹⁻² Indeed, the complexity of starting a new job, in a new hospital with new colleagues is challenging in itself without the added complication of film crews and subsequent public broadcast. We evaluate and explore doctors' experiences during filming of the BBC series.

Ground rules

The interaction between the medical profession and the media is becoming increasingly complex. Guidance relating to how medical professionals interact with different forms of media is increasingly available as traditional

boundaries blur and healthcare professionals become more accessible to patients and the public.³⁻⁴ The ethical and legal framework to support patient confidentiality during filming in a healthcare setting is now well established; however, the ethical considerations for clinician involvement in reality based documentaries is less well described.⁵⁻⁸

During filming of *Junior Doctors*, the hospital followed robust procedures to assure legal and ethical consent processes for patients and staff. A steering group was established, and roadshows, grand rounds, and poster campaigns were used to highlight the filming. Recruitment of foundation doctors was voluntary, and information was provided to them by production staff and previous contributors. The BBC offered all featured doctors the support of an independent psychologist.

We sent an initial survey to hospital staff in September 2011, one month after filming started, to collect their views on how the filming might affect doctors, teams, and patient care. The survey highlighted staff perception that the filming was likely to be stressful and time con-

Doctors who described the highest level of stress during filming attributed it to the constant pressure to be filmed doing something interesting or exciting, combined with the high pressure of a new demanding job

suming for the doctors taking part. We used these findings as themes for semistructured interviews with staff after the filming.

Examining staff reactions

We conducted individual face to face interviews lasting 20-80 minutes with eight featured trainees, seven clinical supervisors, six trainees working in filmed departments, three trainees working in departments not filmed, and a consultant on the trust's board. The interviewer had no involvement with the filming processes. All interviews were audio recorded and transcribed verbatim, and the interviewer also made reflexive notes throughout the interview period.

Transcripts were entered on to NVIVO9 data analysis software and coded for themes using a constant comparison approach. Data were triangulated with survey results, reflexive notes, and trainees' learning portfolios to provide further validity. The table shows the main themes and results.

Effects on the wider clinical team

Some of the clinical teams involved in filming felt underprepared and "thrown into" filming. This resulted in increased anxiety and stress. However, staff seemed to have an overwhelming desire to maintain "normality" wherever possible. The need for some clinical teams to have privacy to focus on patient problems affected the footage allowed to be filmed. In turn, the film crews tried to "encourage" team members to cooperate with filming, which made some feel guilty for withholding their consent to be filmed. One consultant reported: "They asked, 'Would you do one final interview?'" and I said, 'Do you



Lambs to the slaughter?



What should doctors wear? Rhys Clement models his suggestion, p 37

know what, I can't. I really cannot go through that. It's actually quite traumatic.”

Featured trainees and other foundation trainees felt that filming may have affected the distribution of work and the time spent by the featured doctors on everyday tasks. More “interesting” clinical activities may have been allocated to filmed trainees. This was considered annoying but not insurmountable and, in general, there was a sense of collaboration and cohesiveness among the trainees and clinical teams.

Individual doctors

Foundation year 1 trainees who were being filmed generally felt the most stress. Lack of experience and confidence contributed to anxiety about being judged by many potential patients, colleagues, and friends. Professional support structures, although present, were underused. The principle of new graduates taking part in such documentaries was considered “brave” rather than foolish. Trainees were motivated to take part by a sense of curiosity and a desire to engage the public in the challenges of a career in medicine. Trainees not working in filmed departments did not describe the same level and intensity of stress. Trainees and members of staff working in other departments were not significantly affected by the filming.

Filming consumed large amounts of time for those featuring. In general, new graduates were less able to cope with the added time pressure, resulting in stress. Time was taken up doing interviews and retakes. One featured trainee said: “It was like having a part time job really on top of doing medicine.” Privacy and personal time were reduced as filming occurred during social hours too. This, in turn, affected work-life balance and feelings of general wellbeing. Other doctors working near the filming also felt added time pressure—for example, when asked to give commentary or interviews to the film crew.

Participating trainees described how formal training opportunities and levels of supervision and support were at least as good as expected and often better during the filming period. Increased exposure to procedures, frequent reflection, prompting of feedback from seniors, meticulous attention to detail, interview practice, and feeling comfortable being watched were all reported advantages to being involved with the filming. As one consultant explained, filming “was a pressure which was making them go to theatre, but, in fact, the opportunity to go

Summary of findings by main themes, subthemes, and descriptors

| Main theme | Sub themes | Description |
|--------------------------------------|--------------------------------------|---|
| Wider clinical team | Preparedness and stress | Clinical teams need information, time, and opportunities to ask questions about the process. Some teams find being filmed stressful |
| | Distribution of work | Allocation of tasks may be altered and extra demands made of team members during filming |
| Individual doctors | Stress | A few doctors working in filmed departments found it very stressful |
| | Time pressures and work-life balance | Doctors featuring in the filming found it took up considerably more time than expected |
| | Training and development | Training and development may have been enhanced for those featuring and was not affected for other trainees |
| Television agenda or medical agenda? | Ground rules and consent | Establishing ground rules for filming including consent processes is important for staff and patients |
| | Editing tricks | Some doctors felt the accuracy and value of the documentary was affected by editing. |

to theatre is there to all; it's just that some don't bother.” Analysis of trainees' portfolios showed filming did not have a detrimental effect on training and development during this period.

Television agenda or medical agenda?

Doctors seemed generally satisfied that procedures for patient consent were satisfactory. No interviewees were aware of complaints from patients about filming. The consent process for filming of emergency or cardiac arrest situations was not widely understood by non-featuring clinical staff, and this occasionally led to feelings of uncertainty about the appropriateness of filming. The timing of interviews with medical staff during emotive or sensitive medical events was difficult for a few of the featured doctors. Doctors working alongside the filming reported having to be strict with crews about personal consent.

The use of editing to create storylines was more acceptable to some doctors than others. Stereotyping of personalities and junior doctors in general was described, and some thought it reduced the credibility of the programme as an educational tool. Some trainees felt disappointed at the choice of footage used to portray them and thought that it was not a true reflection of their ability or character. Discussions between “characters” were sometimes prompted by the crew. Music and voice over provided interpretation of events that were considered rather sensationalist.

Discussion

Our findings show some of the complexities of introducing film crews into professional workspaces, the potential effect on staff, and the perceptions that can be given to public audiences. Clinical teams are increasingly multidisciplinary and multiprofessional, and junior doctors do not practise independently. The clinical team and

supporting systems for junior doctors need to be involved throughout. The image of the lone house officer, fresh out of medical school and prowling the wards at night is inaccurate and creates public concern.

Junior trainees being filmed are likely to need strong senior direction and support to minimise disruption to clinical teams, especially when established routines may be unfamiliar. Leaders of clinical teams should understand the opinions of all team members about the process and potential effect of filming. Some people are more comfortable in front of camera than others, and this is independent of grade or level of experience. Foundation trainees work closely alongside other healthcare professionals, and the filmed content will depend heavily on their cooperation and willingness to be filmed. Time and logistical constraints meant that we were able to interview only doctors close to the filming, but interviews with other professional groups may provide additional insight into the effect on the wider clinical team.

Most of the doctors who volunteered for filming underestimated the stress and time pressures it would cause. Consultant educational supervisors were mostly not aware of the pressures that junior doctors were experiencing during filming. The pastoral role of educational supervisors conflicts with the teaching and assessing role, and some of the doctors might have benefited from a mentor or personal support tutor.^{9 10} Doctors who described the highest level of stress during filming attributed it to the constant pressure to be filmed doing something interesting or exciting, combined with the high pressure of a new demanding job. As a result, time to become familiar with the working environment, colleagues, and clinical routines would be helpful before starting filming.

Another factor that increased stress for some doctors was the editing and stereotyping of characters. Professionals should be aware of the editing style and targeted audience of the programme for which they volunteer. Equally, broadcasting organisations must be frank and open when informing professionals of expected filming duties including retakes, interviews, and reactions to clinical events. In addition, film makers, must be culturally sensitive and responsible when filming in professional workspaces.¹¹⁻¹⁴

The perceived benefit to training in our study was surprising. Some featured trainees had fewer patient encounters than their non-filmed colleagues, but overall, this was felt to be overcome by intense reflection, increased exposure to training opportunities, and more frequent senior feedback. Reflection and feedback are well known strategies in medical education for recognising strengths and weaknesses.¹⁵⁻¹⁷ The potential value of edited broadcasts as a stimu-

lus for learning at trainee or institutional level needs further evaluation.⁵ The doctors in our study believed that learning opportunities from the broadcast programmes were limited because of editing and were not comparable to video feedback used in formal medical education settings.¹⁸

The ability of the media to shift public perception of healthcare matters is well recognised.^{19, 20} As a result, conflicting broadcasting and medical agendas can be the source of strong discontent among medical staff.²¹ Factors that helped to ease tension at our hospital were the setting of ground rules, the agreement of consent processes, and the respected reputation of the broadcasting agency. Thousands of hours of footage were filmed for each hour of broadcast, suggesting producers have considerable choice and control over scene selection.

At a time when professionalism and medical training are open to public and political scrutiny, this lens into junior doctors' lives must

be interpreted carefully and with appropriate understanding of the processes around it. We hope that our analysis will help patients, medical educators, medical managers, clinicians, and politicians to put issues portrayed in medical documentaries in context and help support our workforce in ever demanding work environments.

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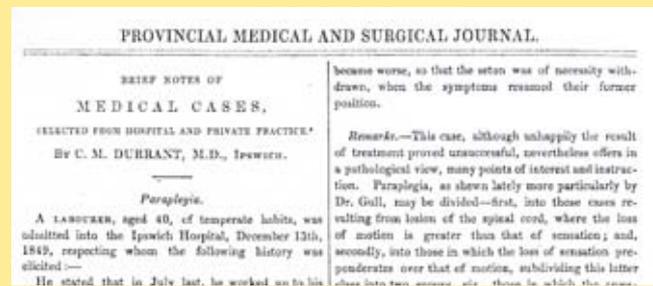
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An early British case of neuromyelitis optica (1850)

The term neuromyelitis optica (Devic's syndrome) refers to the co-occurrence of acute myelitis and optic neuritis. Regarded for many decades as a clinical variant of multiple sclerosis, neuromyelitis optica has only very recently been recognised as a disease in its own right with distinct pathogenesis, prognosis, and treatment.

We would like to draw readers' attention to a now forgotten early British case, which appeared in 1850 in the precursor of the *BMJ*, the *Provincial Medical and Surgical Journal*, as part of a series of "Brief notes of medical cases,"¹ thus predating Jacob August Lockhart Clarke's case in the *Lancet*² by 15 years and Eugene Devic's and Feraud Gault's disease defining research on neuromyelitis optica by more than 40 years.³

The patient, a labourer aged 40 years at disease onset and "previously in good health," was seized with a sensation "as if a tight band were encircling his waist" a few days after exposure to "cold and moisture." This was accompanied by gradually increasing hypoaesthesia and loss of power in both lower extremities, finally resulting in paraplegia. In addition, "automatic movements"



of the legs occurred. Importantly, his eyesight, "which, prior to this attack, had been good," gradually failed, culminating in complete and persisting amaurosis of the right eye and transient amaurosis of the left eye. Subsequently, the right arm was also subject to automatic movement. None of the applied treatments standard at that time—including purging; internal application of mercury, strychnine, iodine, and other "remedies"; counter-irritation by means of a seton at the nape of the neck; thermal treatment; and even "electro galvanism"—resulted in clinical improvement. Instead, the patient's condition grew "rapidly and decidedly worse." Only after the seton was withdrawn did the symptoms stabilise, although the author regarded the patient's prognosis as "peculiarly unfavourable."

because worse, so that the seton was of necessity withdrawn, when the symptoms resumed their former position.

Remarks.—This case, although undubitably the result of treatment proved unsuccessful, nevertheless offers in a pathological view, many points of interest and instruction. Paraplegia, as shown lately more particularly by Dr. Gull, may be divided—first, into those cases resulting from lesion of the spinal cord, where the loss of motion is greater than that of sensation; and, secondly, into those in which the loss of sensation preponderates over that of motion, subdividing this latter class into two groups, viz. those in which the sense

This case, which is clinically highly suggestive of neuromyelitis optica, was related by Christopher Mercer Durrant, MD Edin., FRCP Lond. (1814-1901), then physician to the East Suffolk and Ipswich Hospital.⁴

Little was known about inflammatory diseases of the central nervous system at that time. Although Durrant discussed myelitis as a possible cause, he regarded this diagnosis unlikely, mainly due to the absence of fever and convulsions in his patient (symptoms not usually associated with neuromyelitis optica, as we know today). Instead he speculated that "congestion" of the spinal capillaries, excited by "the influence of cold," might have caused "softening of the spinal cord" by impairing its "nutrition."

The recent discovery of a novel and pathogenic autoantibody

to aquaporin-4 (AQP4-IgG) in patients with neuromyelitis optica has revived interest in the co-occurrence of eye disorders in patients with myelitis.^{5, 6} We believe it is now time to do justice to those who were the first to report on this rare but intriguing coincidence by according them their position in the history of medicine. Durrant's report is one of the earliest on a case of possible neuromyelitis optica in the Western medical literature and deserves to be remembered.

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- Durrant CM. Brief notes of medical cases, selected from hospital and private practice. *BMJ* 1850;14:281-3.
- Jarius S, Wildemann B. An early case of neuromyelitis optica: on a forgotten report by Jacob Lockhart Clarke, FRS. *Mult Scler* 2011;17:1384-6.
- Gault F. De la neuromyélite optique aiguë. *A Rey*, 1894.
- Obituary: Christopher Mercer Durrant M.D. Edin., F.R.C.P. Lond. *BMJ* 1901;1:936-7.
- Lennon VA, Wingerchuk DM, Kryzer TJ, Pittock SJ, Lucchinetti CF, Fujihara K, et al. A serum autoantibody marker of neuromyelitis optica: distinction from multiple sclerosis. *Lancet* 2004;364:2106-12.
- Jarius S, Wildemann B. AQP4 antibodies in neuromyelitis optica: diagnostic and pathogenetic relevance. *Nat Rev Neurol* 2010;6:383-92.

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Is it time for an evidence based uniform for doctors?

Find out about **Rhys Clement's** super idea for a doctor's uniform

The concept of acceptable attire for doctors is constantly evolving.¹ Two hundred years ago doctors wore formal attire for all clinical activity, including surgery, because they had no idea that their clothing could transmit infection. The demonstration of micro-organisms by Pasteur revolutionised the way people thought about infection and paved the way for Lister's concept of antisepsis that has shaped our modern approach towards infection control.

However, Lister did not recognise clothing as a source of infection and continued to operate in formal attire. MacEwan, a student under Lister who became professor of surgery in Glasgow, is credited with introducing the sterile surgical gown. White coats made their appearance on wards and in clinics during the 20th century and are an iconic symbol of the medical profession. They were cited as a defining factor in the emerging role of hospital based care and the acceptance of the sick role outside of the home.²

The white coat remained the status quo until 2007, when the Department of Health (DH) released dress code guidelines that forced doctors to remove their white coats, jackets, ties, and watches and roll up their sleeves.³ These guidelines were based on the findings of two literature reviews known as TVU1 and TVU2,^{4 5} which were commissioned and funded by the DH "to inform policy development."

Critics argue that evidence to support the new dress code is lacking, and the conclusions of TVU1 and TVU2 suggest there may be some merit in their argument.⁶⁻⁸ TVU1 stated that "the hypothesis that uniforms/clothing could be a vehicle for the transmission of infections is not supported by the existing evidence" and TVU2 found "no good evidence to suggest uniforms are a significant risk." TVU2 further warned, "It is essential that the evidence is considered in a balanced way and not over-emphasised in the development of uniform policy."

In 2010 the DH updated the

guidelines with the introduction of three key objectives: patient safety, public confidence, and staff comfort, but the guidance stopped short of introducing a uniform for doctors.⁹

The ideal attributes of a uniform for doctors

I wanted to create an ideal uniform based on existing literature. Starting with the DH's objectives of patient safety, public confidence, and staff comfort I drew up a list of the "ideal attributes" of a new uniform (box). I considered each objective in turn and attempted to fulfil as many of the "ideal attributes" as possible with my proposals, which are backed up with evidence that I have collected through a wide variety of sources in a non-systematic way.

Patient safety

Effective hygiene and prevention of infection are absolutes in all healthcare settings, and my design of the new uniform gives priority to this objective. Several aspects of the uniform could reduce transmission of bacterial pathogens.

Fabric

Human sweat is an excellent culture medium for bacteria,¹⁰ and clothes that are impregnated with sweat rapidly become colonised.¹¹ The build up of sweat could be limited by a new uniform that uses high wicking fabrics to move sweat away from the body.^{12 13} Impregnating nano sized particles of silver into the fabric could go one better and give the uniforms a bactericidal function.¹⁴ For these modern materials to act effectively they must be in direct contact with the skin. Problems arise if there are any "breaks" in the material where the effect is lost and bacteria can spill out. An "all in one" design for the new uniform would minimise this phenomenon.

Limiting airborne spread of infection

Many infectious organisms can be transmitted by coughing

Desirable attributes of a new uniform

Patient safety

Reduces airborne spread of infection

Decreases bacterial load of wearer
Allows efficient hand hygiene (bare below elbows?)

Public confidence

Appearance that inspires trust

Easy to identify practitioner
Instils confidence that uniform is hygienic

Calming effect

Staff comfort

Comfortable

Non-allergenic

Non-iron, allowing easy transport to and from work

Doesn't restrict movement

Additional benefits for the wearer, such as safety features

and sneezing.¹⁵ Facemasks can limit such transmission but have a negative impact on the patient-doctor interaction. Facemasks should therefore be worn only in high risk areas, such as intensive care units.¹⁵⁻¹⁷

The faecal-oral route of infection can spread cholera, hepatitis A, polio, rotavirus, and salmonella.¹⁸ The spill of bacteria and micro-organisms that occurs as a result of flatulence is a realistic source of infection. Flatulence is a taboo subject and little research has gone into its role in the spread of infection. However, a light hearted experiment by "the naked scientists" showed that petri dishes exposed to flatulence cultured *Escherichia coli*.¹⁹ An additional layer of clothing overlying the groin and perineum that incorporates microbial filters could block this route of infection. Patents already exist for antimicrobial underwear, and these could be introduced without delay.^{20 21} The filters could cause localised irritation if worn under clothes and would limit the movement of sweat away from the perineum, leading to an increase in bacterial load in this area. These problems would be solved by wearing this additional layer as an over-garment.

Bare below the elbows?

The necessity to be "bare below the elbows" is possibly the most contentious part of the DH guidelines. The policy was introduced after two papers (one published in the 1991 Christmas *BMJ*) found that white coats became contaminated progressively as they were worn. However, most of the organisms isolated were non-pathogenic environmental bacteria or skin commensals that probably came from the wearer.^{22 23} Critics of the policy have jokingly suggested that it may have emanated from a misinterpretation of a finding in TVU1 that "uniforms have been found to become frequently contaminated below the waist!"

Although the policy is often mocked, there is an emerging body of evidence that clothing can act as a fomite. Watches, ties, and shirt cuffs have all



Yesterday's model



The author (a surgeon—indicated by the letter “S”) demonstrates the ideal new uniform

been shown to harbour bacterial pathogens.^{24 25} Another proposed advantage is that strict hand washing guidelines are less likely to be adhered to by those who are non-compliant. The evidence in support of this claim is questionable. It has been shown that there is no difference in the bacterial flora of the hands of compliant and non-compliant staff and no increase in pathogenic bacteria isolated from glove sweat of those wearing rings compared with those without them.^{10 11}

The policy seems to be theoretically sensible, but more evidence is needed in support of it. An unanswered question is whether the lack of a barrier in short sleeved shirts increases the airborne spread of bacteria from the armpits, where pathogens such as *Staphylococcus aureus* are prevalent.²⁶

Public confidence

People’s perceptions of the standards of care they receive are influenced by the way staff dress.

Maintaining a professional image

Since the bare below the elbows dress code was introduced, a flurry of publications have shown that patients prefer formal attire.^{6-8 27} However, patients vary greatly in what they consider acceptable, and the evidence points to a balanced distribution of opinions.²⁸⁻³⁰ Scrubs are considered by the general public to be the most hygienic option,³¹ so a uniform that resembles them would be appropriate.

Colour

The colour of a uniform can have a subtle psychological effect on the patient’s feelings towards the

practitioner.³² Light blue and green have traditionally been used for medical uniforms because they have a soothing and calming effect. It is important that there is a clear distinction between staff working in exposure prone areas, such as the operating theatre, who should not wear their uniforms elsewhere. A simple choice would be blue uniforms for wards and clinics and green for high risk environments such as intensive care and theatre.

Identification

Patients should be able to identify different members of staff quickly and easily.³³ With an ageing population the number of visually impaired patients is rising and most of these people would not be able to read an ID badge.^{34 35} If neckties are to be banned because of the risk of infection then

the same should apply to ID badges.³⁶ I therefore recommend incorporating an identification system directly into the uniform. A single large letter on the chest that identifies the speciality of the practitioner, such as “A” for anaesthetist or “D” for doctor, could be seen by visually impaired patients from a distance and would be ideal.

Staff comfort

The choice of fabric outlined above should ensure that the uniforms are comfortable, non-allergenic, and allow unrestricted movement. Uniforms would not require ironing, which would reduce labour and allow easy transport to and from work.

Additional benefits

The spread of serious infections including HIV and hepatitis B to healthcare professionals via accidental needlestick inoculation is well documented.³⁷ Despite high profile educational initiatives the rate of needlestick injuries is still high—more than 80% of surgeons in training have had one at some point.³⁸

One proposed factor in needle stick injuries is loss of concentration due to interruptions from other staff. The nursing profession has successfully introduced bright red “do not disturb” tabards for use during their drug rounds, when mistakes can be life threatening.³⁹ Doctors could similarly be protected by a highly visible item of uniform that provides “Care And Protection during Exposure prone procedures.” Because of its function, I will simply refer to this item as a CAPE for short. To limit the impact on the clinical activity and not interfere with the sterile field I recommend that a CAPE should be deficient anteriorly.

The solution

I believe that there is enough evidence to support a transition to the uniform that I have proposed and I hope that it is adopted in the next update of the Department of Health’s dress code policy.

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