Maximising SHO training by inclusion of research fellows into a novel hybrid rota

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ABSTRACT

INTRODUCTION As a result of current government legislation, junior surgical trainees are increasingly working in shift patterns. Night shifts provide few training opportunities and recent debate has focused on the most effective way of providing appropriate surgical training in the face of these working pattern restrictions.

METHODS At York Hospital, we have recently implemented a new hybrid rota in general surgery which uses research fellows to cover the majority of night-time shifts at SHO level.

RESULTS & DISCUSSION Surgical trainees have benefited by spending a much greater proportion of their time working with patients during the day where training is more continuous, better supervised and more uniform. Research fellows have benefited in being able to maintain their clinical skills whilst having sufficient free time to pursue research during the day. Extending the role of the research fellow at night to include registrar duties could also release higher surgical trainees from some night-time service commitments and allow them to benefit from more day-time training.

KEYWORDS

SHO training – Research fellows – Day/night-time working

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Over recent years, there has been a dramatic change in the working patterns of junior doctors in response to a series of government legislation. In 1991, the 'New Deal' was introduced to improve the working patterns and conditions for doctors in training (see Table 1).¹ Trusts had little incentive to implement these changes until the Junior Doctors' Contract was negotiated in 2000, imposing harsh financial penalties for non-compliant jobs. In addition to the New Deal, the government implemented the European Working Time Directive (EWTD) in 1998 to protect the health and safety of all workers in the UK.² Under this Directive, no one is allowed to work more than 48 h/week or without 11 h of rest in every 24 h. Although doctors in training were initially exempt from this legislation, they had to reduce their working week to 58 h by 2004 and have to be fully compliant by 2009 (though this could be extended to 2012). Under the terms of the EWTD, all training doctors must inevitably work in shifts.

To ensure New Deal compliance and to prepare the way for the EWTD, many trusts have already replaced on-call rotas in general surgery with a shift system. Consequently, SHOs training in surgery are frequently removed from their normal clinical duties for up to a week at a time to provide

night-time cover for acute work. In the wake of the national CEPD initiatives,³ the opportunities for learning and gaining valuable clinical exposure during the night have dwindled. Working shift patterns has, therefore, meant the loss of valuable day-time learning and clinical exposure.

In September 2003, the *Bulletin of the Royal College of Surgeons* reported on the introduction of an innovative hybrid rota for general surgery used at York Hospital.⁴ Acute general surgical cover at the SHO level is provided by basic surgical trainees during the day and post-fellowship research fellows at night. The synergistic use of two different surgical doctors not only maintains hours' compliance, but maximises the training opportunities for surgical trainees. Here, we describe the origins and nature of this novel rota and examine its potential for maximising surgical training opportunities in the face of the EWTD.

Origins of the rota

York Hospital covers a population of about 300,000. The department of general surgery and urology is served by seven general surgeons, two vascular surgeons and four urologists. In order to meet the criteria set out in the new

Table 1 Government legislation affecting junior doctors' hours

Legislation	Rota worked	Working restrictions		
		Maximum average hours per week	Maximum hours of continuous duty in any 24 h	Maximum number of consecutive days
New Deal 1991	Full shift	56	14	13
	Partial shift	64	16	13
	On-call	72	32	13
EWTD 1998	Full shift only	58 by 2004	13	12
		48 by 2009		

deal, the department changed its working pattern from a one-in-five on-call to a five-person shift system in 2000. However, the average number of hours worked each week still exceeded 56 h. Funding was, therefore, made available by the trust in 2002 to employ three clinical fellows to bolster the SHO rota. Although this move solved the problems of rota compliance, it generated a surfeit of SHOs during day-time hours which limited training opportunities. In addition, the clinical fellow positions were non-training posts which made them unattractive to potential applicants. Two of the posts had to be filled by a succession of short-term locums.

In parallel with the advent of the new Hull-York Medical School, the department also wanted to develop a clinical

research programme. In the absence of dedicated funding, three research fellows were appointed in place of the clinical fellows using the money already secured to support the SHO rota. This move prompted the development of a new hybrid rota which incorporated the research fellows without jeopardising their research time whilst maintaining New Deal compliance and improving SHO training opportunities.

The rota explained

Acute work is covered by two shifts (08.00 to 20.00 and 19.45 to 20.30). These times allow for a 15-min evening handover

Figure 1. Average hours worked per week by SHOs in each of the four rotas used at York.

Table 1 Pattern of shift cover demonstrated over 14 weeks

Week	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
1	S1	R1	S1	R2	S1	R3	S1	R1	S1	R1	S1	R1	S1	R1
2	S2	R1	S2	R2	S2	R3	S2	R2	S2	R2	S2	R2	S2	R2
3	S3	R1	S3	R2	S3	R3	S3	R3	S3	R3	S3	R3	S3	R3
4	S4	R1	S4	R2	S4	R3	S4	R1	S4	S1	S4	S1	S4	S1
5	S5	R1	S5	R2	S5	R3	S5	R2	S5	S2	S5	S2	S5	S2
6	S1	R1	S1	R2	S1	R3	S1	R3	S1	S3	R1	S3	R1	S3
7	S2	R1	S2	R2	S2	R3	S2	R1	S2	S4	R2	S4	R2	S4
8	S3	R1	S3	R2	S3	R3	S3	R2	S3	S5	R3	S5	R3	S5
9	S4	R1	S4	R2	S4	R3	S4	R3	S4	R1	S4	R1	S4	R1
10	S5	R1	S5	R2	S5	R3	S5	R1	S5	R2	S5	R2	S5	R2
11	S1	R1	S1	R2	S1	R3	S1	R2	S1	R3	S1	R3	S1	R3
12	S2	R1	S2	R2	S2	R3	S2	R3	S2	S1	S2	S1	S2	S1
13	S3	R1	S3	R2	S3	R3	S3	R1	S3	S2	S3	S2	S3	S2
14	S4	R1	S4	R2	S4	R3	S4	R2	S4	S3	R1	S3	R1	S3

S1, S2, S3, S4, S5 = five training SHOs; R1, R2, R3 = three research fellows.

and a 30-min morning post-take ward-round. Day-time shifts during weekdays (Monday to Friday) are covered by five training SHOs, whilst all weekday night-time shifts (Monday to Thursday) are covered by three research fellows. Weekend day and night shifts (Friday night, Saturday and Sunday) are covered by all doctors on a one in eight basis (Table 2).

SHOs work a whole week of acute day shifts alongside one consultant whose elective work is suspended during this period. A CEPD theatre list devoted to general surgical acute patients is made available every weekday afternoon. As a result, SHOs are frequently involved in all stages of the management of acute patients rather than just in initial assessment and resuscitation. This arrangement optimises SHO training in acute patient management.

When not on-call, SHOs are attached to one of five consultant firms for 6 months. This return to a designated firm structure provides better continuity of training and supports a comprehensive timetable of clinics and theatre sessions which complies with Royal College guidelines on SHO training.⁵ SHOs are supernumerary in all these sessions, improving the supervision of training whilst allowing SHOs to be released for acute work when necessary.

In addition to covering individual night shifts on a rota basis, research fellows undertake one clinical session a week to learn and maintain clinical skills (*e.g.* endoscopy). They also have a sessional commitment teaching medical students for the Hull-York Medical School.

Comparison of working patterns and number of hours worked

The average number of hours worked per week by SHOs for each of the four rota patterns used within the trust during the last three years is shown in Figure 1. Alongside each total is a breakdown of the average number of hours per week spent on elective work (normal working day activities), acute work during the day (08.00 to 20.00) and acute work during the night (20.00 to 08.00). The effect of each rota change on the extent and pattern of hours worked is considered in turn.

Five-person shift system

Despite a 10 h reduction in the average total number of hours worked each week to 57.2 h, New Deal compliance is not met. Moreover, 30% less time is spent in elective activities, limiting training opportunities.

Eight-person shift system

The average total number of hour worked per week drops below the New Deal target of 56 h to 50.9 h. Although individual SHOs now spend more time in elective activities, training opportunities are shared amongst more SHOs, diluting clinical experience. In addition, 37% less time is spent managing acute surgical patients compared to previous rotas.

Hybrid rota

The average total number of hours worked per week and the time spent with elective patients remain about the

same, but clinical training opportunities are no longer shared and each SHO is attached to their own firm. The total number of hours working with acute patients also remains the same, but most of this time (86%) is during daylight hours where training opportunities are better.

The number of hours spent working with elective or acute patients during the day where supervision and training is superior are about the same with the hybrid rota as with the original one-in-five on-call rota. The new rota, however, achieves a 16 h reduction in the total number of hours worked each week compared to the one-in-five on-call rota.

Discussion

There is currently no prospect of the massive expansion in trainee SHOs to allow compliance with the EWTD; therefore, alternatives must be considered. The hybrid rota used at York provides a better profile of training hours within the new deal limitations than any of the other shift patterns previously used within this trust and its benefits have been manifold (Table 3). Although in our case the research fellows were newly appointed, many research fellows are currently working locum shifts to help finance their research and could be incorporated into similar rotas. Like our research fellows, they would benefit from continual, targeted clinical experience, which may otherwise be lacking for up to 3 years. Research time is not currently subject to the EWTD and care must be taken that research fellows do not become over-burdened. However, with effective time management, it is possible to devote sufficient time to hospital work and research without working excessive hours.

To comply with the proposed 48-h week and to provide 24-h resident on-call cover on a one-in-six rota, the number of day-time service hours worked by a registrar would drop from 29.5 to 6.2 per week.⁷ It has been suggested that registrars should abandon night-time on-call work to make the most efficient use of the time available for training. However, 'out-of-hours' decision-making is still a valuable skill to acquire and should form

at least part of the surgical training programme. Along with the 'hospital at night initiative', it has been proposed that nurse practitioners or a non-training doctor with critical care experience could provide night-time cover instead of registrars. Since the introduction of the research fellows at night, registrars at York have six or more hours rest on 85% of their nights on-call. Therefore, extending the role of research fellows to fulfil registrar duties after midnight is an alternative solution to reduce, but not eliminate, night-time hours for higher surgical trainees. Although research fellows are less experienced than registrars, the amount of consultant supervision they would require is less than that of alternative personnel. This is important because overextending consultant hours will ultimately affect their ability to train registrars during day-light hours when consultants are subject to the EWTD. Augmenting night-time cover with research fellows is a solution to the training conundrum more suited to larger hospitals. Although research fellows based at research institutions could work shifts in smaller hospitals near by, it is likely that many hospitals will have to consider other alternatives.

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