# Dual practitioners are as engaged in their primary job as their senior colleagues

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## ABSTRACT

**INTRODUCTION:** Dual practice – the combination of a public hospital job with a job held in private health care – is often a source of controversy. Physicians involved in dual practice (dual practitioners) are believed to provide less work input in their public employment than physicians who are not involved in dual practice (single practitioners). This paper compares work behaviour of dual and single practitioners in the public hospitals. We focus on senior physicians in anaesthesiology and surgery.

MATERIAL AND METHODS: Data were collected in a survey of public hospital physicians in Denmark. Bivariate analyses – two-sample Kolmogorov-Smirnov and Fisher's exact tests – were used to test for differences between dual and single practitioners.

**RESULTS:** The sample represents 45% of senior public hospital physicians in 2008. Dual and single practitioners did not differ significantly in terms of the average length of work week, participation in non-mandatory activities or duties outside normal working hours, including duties accepted with short notice. Furthermore, no significant differences were ascertained in their preferences for working hours or turnover intention (i.e. their intention to leave the current workplace) for their public hospital positions. The two groups also did not differ significantly in terms of scholarly activity, viz. the number of research projects in which they participated or the number of publications issued.

**CONCLUSION:** The revealed profile of a dual practitioner is significantly different from that suggested in the current debate. The findings suggest that the dual practice implications for the functioning of the public health-care system are less problematic than expected.

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Physician dual practice means that a physician combines employment in a public hospital with employment in the private health-care sector, a phenomenon observed in numerous countries [1-3]. The fact that some of the public hospital physicians practice in both the public and the private health-care sector is a frequent source of controversy [4]. The past decade has seen much public debate on the phenomenon of dual practice in Denmark in connection with the amendment of the Health Act [5], which has stimulated the growth of the private healthcare sector. Dual practice has been argued to be a threat to the functioning of public health care. Physicians involved in dual practice (dual practitioners) have been believed to provide less work input in their public employment than physicians who are not involved in dual practice (single practitioners). Dual practitioners have been described as working shorter hours, avoiding overtime work and being less available and flexible with regard to duties outside normal working hours. Moreover, they have been believed to limit their involvement in the public practice by neglecting non-mandatory tasks such as work in advisory, professional and representative bodies, research activities or development projects [6-8]. This kind of behaviour is expected to be the result of competition for time and effort between their public and their private employment. A common assumption is that dual practitioners compromise their commitment to their public service because their private practice is relatively more lucrative.

Studies of dual practice and its effects are relatively few and predominantly theoretical due to lack of evidence [9]. The general conclusions in the literature, however, are less clear than in the public debate. Theoretical analyses show that dual practice may have both positive

## **ORIGINAL ARTICLE**

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Dual practitioners are as engaged in their public hospital work as their colleagues who do not hold a second job.

## TABLE 1

Summary statistics for number of working hours, research projects and publications for dual practitioners and single practitioners.

	Surgery		Anaesthesiology	
	dual	single	dual	single
Dublis has with 1	practitioners	practitioners	practitioners	practitioners
Average hours per week				
Mean (SD)	44.8 (5.8)	47.2 (7.0)	44.5 (5.4)	46.6 (7.1)
Median	42.5	47.0	42.5	47.0
No. of obs.	95	300	50	222
Average hours per week: non-mandatory duties				
Mean (SD)	4.7 (3.2)	4.9 (3.6)	3.3 (2.6)	4.7 (3.5)
Median	3.5	3.5	3.5	3.5
No. of obs.	95	298	50	222
Average monthly number of duties outside normal working hours <sup>a</sup>				
Mean (SD)	4.3 (2.3)	4.8 (2.2)	4.6 (1.9)	4.8 (2.2)
Median	3.5	3.5	3.5	3.5
No. of obs.	62	203	45	161
Number of duties outside normal working hours with a short notice <sup>a</sup>				
Mean (SD)	4.1 (6.6)	2.8 (5.1)	3.6 (5.7)	2.3 (4.3)
Median	1.0	0.0	1.5	0.0
No. of obs.	55	181	40	149
Number of research projects				
Mean (SD)	2.2 (2.9)	2.0 (3.1)	1.1 (1.3)	1.7 (2.6)
Median	2.0	1.0	0.5	1.0
No. of obs.	78	252	42	190
Number of publications				
Mean (SD)	1.3 (2.9)	0.9 (3.1)	0.3 (0.7)	0.5 (1.5)
Median	0.0	0.0	0.0	0.0
No. of obs.	91	290	49	216
Private sector				
Average hours per week				
Mean (SD)	5.2 (3.6)	-	4.6 (3.7)	-
Median	4.0	-	3.0	-
No. of obs.	95	-	49	-

SD = standard deviation.

a) Regards only those physicians whose position involves such duties, e.g. on-call duties.

and negative effects for health-care provision [4, 9]. Which effects prevail depends on the characteristics of the health-care system, i.e. the situation on the medical labour market, the public employer's monitoring capabilities and, most importantly, physicians' motivations for doing their duties.

This paper aims to compare the empirically verified work behaviour of senior physicians, i.e. consultants and clinical directors, in the public hospitals who are involved in dual practice with that of their counterparts who are not undertaking dual practice. We focus on anaesthesiology and surgery (including general and orthopaedic surgery), the most active medical specialties in the private health-care sector in Denmark. The two groups are compared in terms of actual and preferred workweek, on-call duties, participation in nonmandatory tasks, and research in the public hospitals. As in other countries where dual practice is being discussed [1], the Danish public debate has developed without evidence of either the extent of the phenomenon or of any differences in the behaviour of dual and single practitioners, respectively, in public hospitals. This article sheds light on the possible differences between the two groups of physicians and informs the debate on the effects dual practice might have on public health care.

## MATERIAL AND METHODS

Quantifying physicians' work input is inherently difficult because of the indirect nature of measures of job involvement, e.g. working hours, including on-call duties and hours devoted to non-mandatory tasks, or output such as publications. Preferences towards working hours and turnover intention (intention to switch job) may also be regarded as indirect measures of job involvement. Another problem is the general lack of data even on such indirect measures.

In the absence of relevant registers, data were col-

lected by means of a specially designed survey of public hospital physicians in Denmark. The survey explored work behaviour in 2008 and was distributed during the first half of 2009 among 12,880 (out of 13,231) members of the Danish Medical Association who were identified as public hospital physicians. Since almost all physicians are members of the Danish Medical Association, the questionnaire was distributed among almost the total population. The respondents were contacted by email and they filled in the questionnaire anonymously online. The analysis focus on the working sample (physicians who participated in the survey) of senior anaesthesiologists and senior surgeons, including general surgeons and orthopaedic surgeons.

In order to identify dual practitioners, respondents were asked whether they were engaged in an extra, paid job outside the public hospital and what the character of that extra job was. Regarding their public hospital job, respondents were asked to indicate the following; average weekly number of working hours (37-40, 41-44, 45-49, 50-54, 55-60, 61-69, above 69), average weekly number of hours spent on non-mandatory tasks (0, 1-2, 3-4, 5-6, 7-10, above 10), and the average monthly number of on-call duties (0, 1-2, 3-4, 5-6, 7-8, 9-10, above 10). Moreover, respondents were asked to provide the number of extraordinary on-call duties (unscheduled on-call duties accepted with short notice), the number of research projects and the number of publications in peer-reviewed journals in 2008. In order to collect data on the preferences towards working hours in the public hospital, respondents were asked to indicate whether they would like to cut down on the actual number of working hours, keep the number of working hours unchanged or increase the number of working hours. A distinction was made between normal work and overtime. In the same manner, questions were asked about preferences towards the number of on-call duties. The respondents were also asked to indicate whether they had strong, some or no intention to leave their current job. Regarding their secondary job, respondents were asked to report an average weekly number of working hours and indicate whether they were facing high, some or no demand for increasing their actual labour supply in the private sector. The questionnaire and summary statistics can be seen in [10].

Due to the cross-sectional character of the data, it is impossible to establish whether dual-practitioners have changed their behaviour in the public hospital after having commenced working in the private practice. Yet, it is possible to test whether as employees dual practitioners differ from single practitioners. Bivariate analyses were used to test for difference on the variables of interest between the two groups of physicians. For the number of working hours, on-call duties, research projects, and publications, the Shapiro-Wilk and Shapiro-Francia tests for normality indicated that the distributions were heavily tailed and skewed. Hence, it was appropriate to use non-parametric methods. We employed the two-sample Kolmogorov-Smirnov (KS) test for equality of distributions; because this test is sensitive to differences in both location and shape of the empirical, cumulative distribution functions of the samples. The two-sample KS test was preferred to the alternative Mann-Whitney two-sample rank-sum test because of

## TABLE 2

Two-sample Kolmogorov-Smirnov test for equality of distribution functions for number of working hours, research projects and publications: dual practitioners and single practitioners.

	Surgery	Anaesthe-
Average hours per week	Suigery	5101059
n	395	272
D	0.14	0.17
p value	0.10	0.18
Average hours per week: non-mandatory duties		
n	393	272
D	0.08	0.17
p value	0.78	0.19
On-duty shifts per month <sup>a</sup>		
n	265	206
D	0.09	0.06
p value	0.78	1.00
Extraordinary on-duty shifts in 2008 <sup>a</sup>		
n	236	189
D	0.15	0.16
p value	0.30	0.37
Research projects in 2008:		
Physicians in university hospitals		
n	185	119
D	0.03	0.18
p value	1.00	0.72
Research projects in 2008: Physicians in non-university hospitals		
n	145	112
D	0.17	0.10
p value	0.59	0.99
Publications in 2008: Physicians in university hospitals		
n	217	141
D	0.123	0.05
p value	0.497	1.000
Publications in 2008: Physicians in non-university hospitals		
n	162	123
D	0.04	0.079
p value	1.000	0.999

 ${\sf n}$  = the number of observations in each test;  ${\sf D}$  = statistic measure of the greatest discrepancy between the empirical distribution functions of the two samples.

 a) Regards only those physicians whose position involves such duties, e.g. on-call duties.

the many tied observations. The null hypothesis was that the two samples were drawn from the same distribution; or, in other words, that there were no differences in the observed variables between the two groups of physicians. Regarding data on preferences for the number of working hours, on-call duties and turnover intention, the null hypothesis was that physicians in both groups were equally likely to have certain preferences towards working hours in the public hospitals and a certain turnover intention. For these variables, we employed Fisher's exact test of association because data were irregularly distributed among the cells of the contingency tables and because there were cells with counts of less than five.

In the current data, respondents have obviously self-selected their group membership. Hence, it is important to ensure that the two groups are comparable; we focused on physicians with equal working obligations with regard to the variables of interest and within the same medical specialty. In Denmark, the working obligations of senior hospital physicians are covered by a single document and they are uniform [11]. We account for the potential differences with regard to actual and preferred work week between genders and research activity between physicians employed at university hospitals and at other hospitals.

Trial registration: not relevant.

Association between		Surgery	Surgery		Anaesthesiology	
physicians' engagement in dual practice and categories of preferences towards working hours and turnover intention in the public hospitals		dual practitioners	single practitioners	dual practitioners	single practitioners	
	Working hours					
	n	95	299	50	221	
	Would like to work shorter hours than currently, %	29.4	26.3	23.1	16.0	
	Would like to work as many hours as currently, %	17.7	17.9	22.2	24.0	
	Would like work more overtime hours with an increased hourly wage, $\%$	48.2	54.7	48.4	60.0	
	Would like to work more hours for a standard hourly wage, %	4.7	1.1	6.3	0.0	
	Fisher's exact p value <sup>a</sup>	0.36	0.36		0.15	
	Duties <sup>b</sup>					
	n	61	204	45	161	
	Would like more duties outside normal working hours, %	0.0	1.0	2.2	1.9	
	Would like as many duties outside normal working hours as currently, %	49.2	45.1	62.2	52.2	
	Would like fewer duties outside normal working hours, %	24.6	38.7	31.1	37.9	
	Would like no duties outside normal working hours, %	26.2	15.2	4.4	8.1	
	Fisher's exact p value <sup>a</sup>	0.09	0.09		0.62	
	Turnover					
	n	95	298	50	221	
	Strong turnover intention, %	5.3	3.7	2.0	5.9	
	Some turnover intention, %	27.4	22.5	38.0	28.1	
	None turnover intention, %	67.4	73.8	60.0	66.0	
	Fisher's exact p value <sup>a</sup>	0.4	0.4		0.29	

n = the number of observations for dual and single-practitioners in each test.

a) Indicates significance of the association between the two categorical variables.

b) Regards only physicians whose position involves such duties, e.g. on-call duties.

## TABLE 4

Association between the demand for physician labour faced by dual practitioners in the private practice and categories of preferences towards working hours in public hospitals.

### Demand for labour in the private practice anaesthesiology (n = 50) surgery (n = 95) Preferences towards working hours in public hospitals high some none high some none Would like to work shorter hours than currently. % 20.7 13.3 14.3 33.4 11.1 33.3 17.2 19.6 13.4 21.4 25.9 22.2 Would like to work as many hours as currently, % 63.0 66.7 44 4 Would like work more overtime hours with an increased hourly wage 62.1 47.1 64.3 Would like to work more hours for a standard hourly wage, % 0.0 0.0 6.7 0.0 0.0 0.0 0.28 0.64

n = the number of observations for dual-practitioners in each speciality.

Fisher's exact p value<sup>a</sup>

a) Indicates significance of the association between the two categorical variables.

## RESULTS

The questionnaire was returned by 5,999 respondents, which after exclusion of empty and invalid questionnaires produced a working sample of 5,091 public hospital physicians. The working sample represents 45% of the senior physicians (2,066/4,586) employed in 2008. At the same time, the sample represents 58% of the population of anaesthesiologists (507/868), 45% of general surgeons (492/1,084) and 49% of orthopaedic surgeons (283/580) in Denmark in 2008 [12]. In total, 14.7% (304/2,066) of the senior physicians who answered the questionnaire stated that they held a second job in private health care, either at a private hospital – 9.6% (198) – or a private specialist practice 4.7% (98) – or a private specialist practice in a public hospital -0.9% (19). Among senior anaesthesiologists, 18.4% (50/272) reported to be engaged in dual practice, while among senior surgeons, 24.1% (95/395) reported so. Table 1 presents basic summary statistics for the working sample.

Dual and single practitioners did not differ significantly in terms of the average length of work week in the public hospitals, including the average number of hours devoted to non-mandatory activities. Moreover, no significant difference was observed in the average number of on-call duties per month in their public position, including extraordinary duties accepted with short notice. Dual- and single-practitioners also did not differ significantly in terms of the number of research projects or peer-reviewed publications in 2008 (Table 2). There might be differences with regard to the actual and preferred work week between genders, as suggested by investigations in labour economics and sociology [13]. The research activity might differ between university hospitals and other hospitals. Since men and women, and university versus non-university hospitals are not equally represented in the samples of dual and single practitioners, we tested for potential differences. Twosample KS tests and Fisher's exact tests did not reveal significant differences between genders with regard to the actual and the preferred work week; hence, the results are not reported separately for men and women. Two-sample KS tests indicated, however, that there are significant differences in terms of the research projects and the publications between physicians at university hospitals and other hospitals; hence, we report the results separately. Concerning age, dual and single practitioners were equally distributed across the age categories (30-39, 40-49, 50-59, 60-66, above 66 years) [10].

There were no significant differences between the preferences for working hours or on-call duties and turnover intention in public hospitals between dual and single practitioners (**Table 3**). Moreover, for dual-practitioners there was no significant association between the

demand for an increase in their actual labour supply in the private sector and the preferences for a shorter work week in their public position (**Table 4**).

## DISCUSSION

It is interesting to notice that the concerns over the potentially negative effects of dual practice rest on the assumption that dual-practitioners' objectives are different from those of physicians who are not involved in dual practice. The former are expected to maximise income at a minimum of work effort, while the latter are expected to be mission-oriented and to voluntarily display a higher work effort [14]. One may, however, make the different, but equally plausible assumption that all physicians are mission-oriented and hence do not compromise their work duties in public hospitals, whether involved in dual practice or not. Alternatively, all physicians might be thought of as striving to maximize income and minimize work efforts. The above results reveal no significant differences in the workplace performance of dual and single practitioners. Thus, the physicians in these two groups may be regarded as employees of equal performance, i.e. either equally mission-oriented or equally profit-oriented.

The results are based on self-reported data that might suffer from various types of bias, e.g. erroneous or strategic responses. Nevertheless, relying on selfreported data does not mean that the findings do not reflect reality. The results are in line with the findings from studies of dual and single job-holding employees of other professions, which point out that the two groups perform equally well in their primary job. The studies conclude that single and dual jobholders simply differ on professional interests, and that dual job-holding might increase professional satisfaction and ultimately produce less frustrated employees [15-18].

## CONCLUSION

The findings suggest that the implications of dual practice for the functioning of public health care are less of a problem than expected. The revealed profile of a dual practitioner is significantly different from the profile suggested in the debate. Still, dual practice is a complex issue and the discussion of whether it produces more advantages or disadvantages for health-care provision would benefit from further empirical research.

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