

The “Rösti”-Study: a time motion study comparing the allocation of time of internal medicine residents in two Swiss hospitals:

A Comparison of a Swiss German Cantonal Teaching Hospital with a University Hospital in the French Speaking Part of Switzerland

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Background

Several factors, such as cultural habits, type of hospital (university vs. non-university), local organization and practice (number of patients per resident) and resident characteristics may influence residents' time allocation.

We thus aimed to evaluate the composition of internal medicine residents' working day in two different teaching hospitals and to assess the proportion of time spent with direct patient care.

Methods

Two different time motion studies were performed in the departments of internal medicine of CHUV and KSB. Trained observers recorded residents' activities during day shifts. To ensure comparability, the same study protocol, tablet-based software and instruction manual were used. Out of 22 recorded activities, we selected for comparison: activities directly related to patients, documentation, supervision, personal time and direct patient contact. The time spent per patient per day was calculated based on patient-equivalents. One patient-equivalent was defined as the presence of a patient during the whole observed shift of an individual resident. We compared mean values using the two-sided, untailed t-test.

Results

Demographic baseline characteristics of residents are shown in table 1. KSB residents had a shorter post-graduate training (21 vs 31 months, $p < 0.001$). Residents were observed during 486.4 hours (43 shifts) in KSB vs 568.2 h (49 shifts) in CHUV. Mean shift duration were similar (11.3 ± 1.1 h in KSB vs 11.6 ± 1.3 h in CHUV, $p = 0.19$). Mean patient-equivalent was 7.4 ± 1.0 in KSB vs 7.8 ± 2.3 at CHUV ($p = 0.27$).

Mean durations of activities are presented in table 2. In CHUV, residents dedicated more time to patients (114.7 ± 44.9 vs. 94.9 ± 31.4 , $p = 0.015$; i.e. 14.6 vs 12.6 minutes/patient/day) and for EMR

documentation, whereas in KSB, residents spent more time writing the discharge letter, performing transmission with the team and for communication with patients and families.

Conclusions

- 1) Despite shorter post-graduate training for KSB residents, allocation of time was similar regarding total working hours, patient-equivalents and supervision.
- 2) Differences in allocation of time for documentation may be due to different computer systems favouring either discharge letter or documentation in EMR.
- 3) These data provide the basis for the implementation of measures to reduce resp. optimize the administrative load and to increase the time spent with patients. No major differences document an excellent Rösti-collaboration rather than a “-Graben”.

Table 1. Baseline characteristics of residents

	KSB		CHUV		p value
	mean	SD	mean	SD	
Age (years)	29.6	3.19	28.8	1.7	0.15
Months postgraduate	20.9	17.7	31.2	11.9	0.002
Months experience in internal medicine	16.1	11.3	27	10.4	< 0.001
Swiss diploma	66.70%		60.70%		
Female gender	57%		63%		

SD = standard deviation

Table 2. Comparison of time spent in different activities (KSB versus CHUV)

		KSB		CHUV		p value
		mean	SD	mean	SD	
Total Time spent with patients	min	94.9	31.4	114.7	44.9	0.015
Activities directly related to patient*	min	112.3	38.1	198.9	61.8	< 0.001
Time with communication	min	25.1	16.18	15.6	14.4	0.004
Delivery of results, decision	min	9.9	9.9	4.6	8.5	0.0067
Communication with family	min	15.19	13.79	11.0	12.78	0.14
Documentation	min	169.89	50.6	140.02	48.67	0.005
Writing in EMR	min	72.52	32.17	110.09	43.23	< 0.001
Discharge letter	min	64.55	37.35	14.08	24.54	< 0.001
Transmission	min	32.82	19.05	15.84	14.50	< 0.001
Supervision	min	60.39	37.43	60.34	34.97	1.00
Personal time†	min	69.37	24.04	31.04	18.22	< 0.001

* entry, discharge, daily round, puncture, out of unit support/emergency. SD = standard deviation.

† toilet, lunch/coffee break, personal talk

EMR: electronic medical records