

The efficacy of stethoscope placement when not in use: traditional versus “cool”

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Abstract

Objective: To determine whether the “cool” or circumcervical placement of the stethoscope when not in use is as efficacious as the traditional placement in terms of transfer time to the functional position.

Methods: Measurement of time taken by 100 health care professionals in each group to transfer stethoscope to functional position.

Results and interpretation: The cool group was much slower than the traditional group, despite their younger years. This wasted time could translate into a substantial financial burden on Canada’s health care system.

The stethoscope was invented in 1816 by René T.H. Laënnec (1781–1826).¹ In the past decade or so placement of the stethoscope when not in use has changed from the traditional position to the cir-

cumcervical or “cool” location² (Fig. 1). Not many health care professionals under the age of 40 wear their stethoscope in the traditional manner. This change seems to have occurred at about the same time that backward-facing baseball caps appeared on the heads of the younger generation (Fig. 1).

Even though recent publications have criticized the auscultatory skills of the younger generation,^{3,4} we wondered whether there was any as yet unrevealed advantage to the new, cool placement of the stethoscope. A review of 623 publications under the heading of “stethoscope” in MEDLINE failed to uncover any research addressing this issue.

It was observed that manoeuvring the stethoscope to the functional position appeared to take longer from the resting “cool” position than from the traditional position. Two hands were required for the former, while the latter could usually be managed with one hand (leaving the other hand free to fend off or hold down recalcitrant patients).



Fig. 1: Traditional (left) and “cool” (right) placements of the stethoscope when not in use.

We conducted a study to determine whether the change to the cool position would affect the efficiency and cost-effectiveness of stethoscope use.

Methods

One hundred subjects were recruited from each "camp" of stethoscope wearers. We were unable to match the groups for age and sex. It was difficult, in fact, to find enough volunteers in the traditional group; however, after a concerted search in such places as retirement homes, nursing homes, golf courses and condos in Florida, a full complement was recruited.

The mean age of subjects in the traditional group was 67.4 (range 45–97, standard deviation [SD] 62) years and of those in the cool group 38.7 (range 24–50, SD 21) years. There were 81 men and 19 women in the traditional group and 59 men and 41 women in the cool group. The subjects included physicians, nurses, respiratory therapists, physiotherapists and medical students. There were no surgeons in either group because most of them were unable to find their old stethoscopes from medical school days.

The functional (F) position was defined as having the stethoscope's ear pieces in the examiner's external auditory canals and the head piece placed on the volunteer patient's chest. The cool or circumcervical (C) and the traditional (T) placements are illustrated in Fig. 1.

The time to transfer the stethoscope from the C or T positions to the F position was measured in seconds by stopwatch (Swiss Army Stopwatch, Model #3075). Each subject was asked to perform this manoeuvre 10 times. A research assistant measured the reaction times, and the mean time for each subject was used in the analysis.

It was anticipated that, because of differences in age between the 2 groups, the overall reaction time of the traditional group would be slower than that of the cool group. We attempted to include a crossover arm in the study whereby the traditional group would start from the C position and the cool group would start from the T position. We postulated that this element might reduce statistical confounding by age in our analysis. However, both groups adamantly refused to participate in this portion of the study, despite our offer of added inducements (see "Acknowledgements").

Results

The mean time for transfer from the C to the F position was 3.2 (range 0.9–5.4, SD 1.1) seconds. The mean time for transfer from the T to the F position was 1.9 (range 0.5–3.7, SD 0.9) seconds. The difference in mean times between the 2 groups was statistically significant ($p < 0.001$).

Interpretation

This proven inefficiency of the cool position could have

far-reaching implications. With approximately 45 000 physicians (excluding surgeons), 127 000 nurses, 13 000 physiotherapists, 6000 respiratory therapists and 6500 medical students in Canada, the mean difference of 1.3 seconds could extrapolate to 256 750 seconds ($197\,500 \times 1.3$), or 71.32 hours, wasted for one stethoscope placement per person per year. Assuming that 80% of these health care practitioners use the cool position and each of them uses his or her stethoscope 20 times on average per day, or 4800 times per year, then the time wasted per year could be as much as 273 869 hours ($71.32 \times 0.8 \times 5200$). At an average hourly earning of \$75, the annual cost would be approximately \$20.5 million. With the current shortage of health care resources, it might be advisable for the respective provincial ministries of health to consider appointing "stethoscope police" to enforce a return to the traditional placement. We do have some concerns, however, that the costs generated by the resultant bureaucracy would negate any positive financial benefit to the health care system.

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Competing interests: None. The authors are equally fond of several other brands of single malt Scotch and beer (see Acknowledgements).

Contributors: The authors contributed equally to the study design, data analysis, distribution and ingestion of rewards, and preparation of the article.

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