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COMMENTARY

Physician "out of office" alert: does it work?

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INTRODUCTION

The rapid expansion of electronic communication has aided in patient care, but it has also increased the amount of time that physicians spend reviewing and responding to e-mail messages[1]. That double-edged sword results in a significant amount of work being performed by the physician outside of traditional work hours—"work creep" that can clearly affect physician wellness, reduce job satisfaction, and potentially contribute to burnout and stress[2,3]. Furthermore, the practice of being electronically available 24/7 for both colleagues and patients affects work–life balance and sets a poor example for trainees. It is essential that validated strategies be developed to more appropriately optimize e-mail use to specific purposes[4].

For many physicians, the out-of-office (ooo) auto-reply function, available in most e-mail programs, is a tool that has the potential to manage the influx of information when they are not at work. In the absence of well-established ooo guidelines, practice varies considerably in terms of the current rigour of ooo implementation. Some physicians view ooo as a polite means of informing senders of an absence and to expect a delay in response; they diligently compose and switch on ooo for even the briefest trip away. Some ooo messages simply indicate that "I am away"; others are longer, describing where the physician has gone and whom to call in the event that issues arise during the absence. Some physicians use an ooo message stating that incoming e-mail will not be read and will be deleted, and that if the communication is important, it should be re-sent after the date of return. Many other physicians rarely use ooo.

However, despite widespread use of ooo, no evidence to demonstrate its effectiveness has been reported to date. We decided to prospectively explore whether the use of ooo is associated with any improvement in the quantity (that is, the total number of messages received) or the quality [that is, the extent of junk messages ("spam") compared with meaningful messages from work] of e-mail messages received when physicians are away from their office. We hypothesized that informing e-mail senders of an absence with an ooo message should lead to a reduction in e-mail volume. Additionally, we hypothesized that a change in the distribution of the quality of e-mail messages received would be observed (similar quantity of spam messages regardless of ooo, but fewer direct actionable requests to the physician given the ooo notification of an absence). The latter issue is significant, because we, as authors, have observed the pervasive use of FYI ("for your information") or CC ("carbon copy") messages that do not require any intervention or reply from the recipient.

METHODS

Seven physicians from three institutions agreed that, before each departure from the office for 24 hours or more for either work-related meetings or vacations, they would be randomized to either an ooo notification group or to a no ooo notification group. Those randomized to the ooo group were to leave a message indicating the duration of the absence and the contact information (telephone numbers or e-mail addresses, or both) for clinical and administrative issues. Physicians could respond to e-mail messages during their absence if that was their usual standard of care. After returning from the absence, the physician tallied the quantity of e-mail messages received (expressed as the number of messages per 24 hours) and also categorized the types of messages received ("quality") by dividing them into classifications describing the level of intervention required in response. The categories were developed, with some modifications, from a previous oncologist study[5]. E-mail quality was rated as

- junk or spam,
- information- or communication-only messages from the cancer centre or university (but not specifically addressed to recipient),
- messages from learned societies and journals that the recipient had registered to receive,
- FYI or CC messages (those requiring some form of action or thoughtful reply, but have already been handled),
- messages requiring some form of personal action or thoughtful reply, and
- others.

Data Analysis

The total number of e-mail messages received and the days of absence associated with each intervention group were tabulated. The daily rate of e-mail messages was estimated using the total e-mail messages received as the numerator and the total days away as the denominator. Rate ratios with corresponding 95% confidence intervals (CIs) were calculated overall. To evaluate differences in the quality of

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e-mail messages associated with both intervention groups, chi-square tests were performed to compare the proportions of spam messages, "communication only" messages, society and journal messages, FYI or CC messages, messages requiring some form of thought or action, and "other" messages. Analyses were performed using the SAS software application (version 9.2: SAS Institute, Cary, NC, U.S.A.).

RESULTS

From 24 March 2016 to 22 June 2016, 4658 e-mail messages were collected, 2584 with and 2074 without the OOO intervention (Table I). The participating recipients were 2 surgical oncologists, 4 medical oncologists, and 1 radiation oncologist. The median time away per absence from work was 2.6 days (range: 1.0–9.6 days) for work-related reasons and 4.6 days (range: 1.6–10.6 days) for vacation. The median number of e-mail messages received per physician per 24 hours was 42 (range: 6–97). Overall, the use of OOO was associated with a significant reduction in the rate of e-mail messages received per physician per 24 hours (to 30 messages from 46.2; rate ratio: 0.65; 95% CI: 0.61 to 0.69). The reduction in messages received when OOO was switched on was apparent whether the absence was vacation- or work-related (Table I).

In assessing the effect of OOO on the quality of e-mail messages received (aggregated for all participating physicians), the overall nature of the messages broke down this way (Table II): junk or spam (n = 843, 18.1% of the total), information or communication from the cancer centre or university (n = 798, 17.1%), communication from learned societies and journals (n = 359, 7.7%), FYI or CC (n = 1155, 24.8%), messages actually requiring some form of action or thoughtful reply (n = 1191, 25.6%), and other messages (n = 224, 6.7%).

When comparing the proportions of e-mail messages in each category between the intervention groups, automatically generated messages such as spam and communications from learned societies and journals were unaffected. Turning on OOO significantly reduced the number of FYI messages (19.2% vs. 31.8% of all e-mail messages received). As a proportion of all e-mail messages received by the relevant group, communications from the cancer centre or university (18.3% OOO vs. 15.7% no OOO) and messages requiring some form of personal attention (28.5% OOO vs. 21.9% no OOO) were also different between the groups.

DISCUSSION

Electronic access to health care information has had many positive effects on patient care overall. Members of clinical health care teams are able to access the latest updates in medical care and are able mutually to communicate and to respond to questions in a far more efficient manner than ever before. However, that improved access to information and the state of always being "plugged in" has come at an increased cost of distractibility, potential loss in productivity, and loss of physician downtime ("never away from work"). In addition, the rapid expansion of so-called spam messages and CC or FYI messages has meant that physicians are spending and wasting more time trying to identify the "wheat" from the ever-increasing "chaff" of less-relevant messages.

The foregoing issues are particularly evident during periods away from the office, when the question of whether to take the time to actually check one's e-mail arises, especially with respect to the whole topic of a physician's life–work balance[4,6]. If the choice is to check e-mail during periods of family time, what can be done to reduce the quantity and increase the quality? And is time away from work without checking e-mail worthwhile when the volume of e-mail and administrative work upon one's return is overly onerous, further eroding work–life balance? It is evident that most oncologists check e-mail during downtime, and therefore strategies are needed to either reduce the number of messages received or to improve their quality. Given that most e-mail software packages contain an OOO

TABLE I Effect of using an out-of-office alert on the quantity of e-mail messages received

Type of absence	Variable	Value (n) by alert status			RR	95% CI
		Overall	On	Off		
Work- and vacation-related combined						
	Messages received	4658	2584	2074		
	Days away	130.7	85.9	44.8		
	Messages received per physician per 24 hours	35.6	30.0	46.2	0.65	0.61 to 0.69
Vacation-related						
	Messages received	2108	1223	885		
	Days away	63.1	45.2	17.9		
	Messages received per physician per 24 hours	33.4	27.1	49.4	0.55	0.50 to 0.60
Work-related						
	Messages received	2550	1361	1189		
	Days away	67.8	40.8	27.0		
	Messages received per physician per 24 hours	37.6	33.4	44.0	0.76	0.70 to 0.82

RR = rate ratio; CI = confidence interval.

TABLE II Effect of using an out-of-office alert on the quality of e-mail messages received

Message category	Value [*n* (%)][a] by alert status			*p* Value
	Overall	On	Off	
All messages	4658	2584	2074	
Spam[b]	843 (18.1)	468 (18.1)	375 (18.1)	1.00
Notes from the cancer centre or university[c]	798 (17.1)	473 (18.3)	325 (15.7)	0.02
Messages from learned societies and journals[d]	359 (7.7)	189 (7.3)	170 (8.2)	0.25
"FYI" messages[e]	1155 (24.8)	495 (19.2)	660 (31.8)	<0.01
Messages requiring some form of personal attention	1191 (25.6)	737 (28.5)	454 (21.9)	<0.01
Other	312 (6.7)	222 (8.6)	90 (4.3)	<0.01

[a] Presented as the total number of e-mail messages of that type received and the percentage that those messages represent of all messages received during the absence.
[b] For example, unsolicited e-mail messages from predatory journals.
[c] Not specifically addressed to the recipient.
[d] Sources from whom the physician has accepted to receive communications.
[e] Requires some form of action; already handled by covering personnel.

function, using that function would seem a logical place to start. We were unable to identify any other prospective studies in this area.

The findings of our study confirm that oncologists receive many e-mail messages when they are away from work and that the use of ooo was associated with a reduction in the number of messages received. However, is statistical significance observed the same as a meaningful outcome for the recipient? We used an arbitrary scoring system to measure e-mail quality based on the amount of thoughtful reply that a particular message required. When looking at all the e-mail messages received, the proportion of actionable or relevant messages was approximately 25%, an incidence similar to that reported in the literature[6]. Given that the larger proportion of e-mail messages received did not require some form of action, those non-actionable messages have many negative implications, including wasted time and lost productivity[7].

There are clearly limitations to the current study. It evaluated the e-mail of a small cohort of self-selected physicians who knew each other well. Also, weekend absences were not separated from weekday absences—a choice that could have introduced bias, because it is less likely that colleagues would be sending e-mail messages on the weekend. Also, the quality assessment was relatively arbitrary, and determination of the categories could have varied between the physicians.

What can be done, then?

Change can come at both the institutional and the individual level. From an institutional standpoint, it is essential that the sheer waste of time and resources be appreciated. If the findings of the present study were to be extrapolated to any organization with thousands of employees, the loss is phenomenal. At the institutional level, resources in tremendous quantity have been dedicated toward attempts to reduce the number of unwanted e-mail messages, and spam in particular, with limited success[1,8]. However, besides spam, the number of other e-mail messages that are sent as a courtesy and that are not requesting specific action from the physician still require precious time to manually review, filter, and reply to or to delete (or both). Perhaps institutional guidelines, with appropriate sanctions, are needed for use of FYI, CC, and "reply all" messages?

Physicians also require guidance on the issue of deleting e-mail messages, given that clinicians are not issued guidelines on which messages can safely be deleted and which should be stored. It would also be interesting to know if any legal ramifications arise connected to deleted messages, given that many e-mail messages (clinical trial notifications, for example) probably have to be kept for 25 years and cannot be deleted even if they don't require a response. Or perhaps ooo activation should automatically block all messages, with a reply to the sender to retransmit the message on or after a specified return date?

SUMMARY

We have presented a collection of prospectively collected data pertaining to the nature of e-mail messages received in modern clinical oncology practice. Despite all the limitations of the study, some useful information emerged. Use of ooo appears to reduce the number of e-mail messages a physician receives. If you use ooo so that people sending you messages of importance recognize that they won't be receiving a reply, then there is value in using it. Further, physicians could have some peace of mind that senders are aware not to expect a response as quickly as they might otherwise anticipate. Perhaps a notification saying "your e-mail message will be deleted; if it is important that I see it, please resend upon my return" might ultimately be the optimal way to manage an inbox during an absence from work?

CONFLICT OF INTEREST DISCLOSURES

We have read and understood *Current Oncology*'s policy on disclosing conflicts of interest, and we declare that we have none.

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