



## Letter to the editor

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# Integration of Slack, a cloud-based team collaboration application, into research coordination

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## ABSTRACT

**Background** Practitioners of epidemiology require efficient real-time communication and shared access to numerous documents in order to effectively manage a study. Much of this communication involves study logistics and does not require the use of Protected Health Information. Slack is a team collaboration app; it archives all direct messages and group conversations, hosts documents internally and integrates with the Google Docs application. Slack has both desktop and mobile applications, allowing users to communicate in real time without the need to find email addresses or phone numbers or create contact lists.

**Methods** We piloted the integration of Slack into our research team of one faculty member, one research coordinator and approximately 20 research assistants. Statistics describing the app's usage were calculated 12 months after its implementation.

**Results** The results indicating heavy usage by both research professionals and assistants are presented. Our Slack group cumulatively included 51 users. Between October 2015 and November 2016, approximately 10,600 messages were sent through Slack; 53% were sent by research assistants (RAs) and 47% were sent by us. Of the 106 files stored on Slack, 82% were uploaded by research staff. In a survey from January 2016, 100% of RAs agreed or strongly agreed that Slack improved communication within the team.

**Conclusion** We demonstrate a model for integration of communication technology into academic activities by research teams. Slack is easily integrated into the workflow at an urban, academic medical centre and is adopted by users as a highly effective tool for meeting research teams' communication and document management needs.

Solutions to challenges presented by the logistics of effective research coordination receive a few discussions in the academic literature. In reality, however, addressing these logistics is fundamental to the success of any research enterprise. Individuals familiar with the day-to-day practice of human subject research would agree that efficient real-time communication and shared access to numerous documents are essential for effective conduct of their projects. In particular, a successful data-gathering phase relies on close collaboration between faculty and research staff who may share neither aligned schedules nor common workspaces. For example, it is sometimes unfeasible to arrange for informal, volunteer or summer research assistants to gain access to shared hospital or university hard drives. Further, text messaging in a professional context is not searchable for future reference and may be perceived as unprofessional; email is known to produce information overload in recipients.<sup>1,2</sup>

We successfully introduced Slack, a cloud-based team social collaboration application, to address these issues in our coordination of numerous concurrent studies at a large, urban academic emergency department. Slack<sup>3</sup> is an application that facilitates communication and collaboration within teams; it archives all direct messages and group conversations, hosts documents internally and integrates with the Google Docs application. Slack has both desktop and mobile applications, allowing users to communicate in real time without the need to find email addresses or phone numbers or create contact lists. Slack has both free and billed configurations; certain versions are compliant with the Health Insurance Portability and Accountability Act of 1996 (HIPAA). While Slack is commonly used in business environments,<sup>4-6</sup> we suggest that adopting Slack in an academic research context enhances the workflow of research teams.

We introduced Slack to our research team, which includes us (one faculty member and one full-time research coordinator) and approximately 20 part-time volunteer research assistants (RAs), in August 2015. The team manages the implementation of 5–10 research protocols in a large, urban academic emergency department. The RAs are participants in a Research Associate Program, common to academic emergency departments.<sup>7</sup> Program leadership

communicates most protocol updates and program logistics using the app's interactive capabilities. RAs use Slack to communicate with each other, program leadership and collaborating research teams external to our department in real time. All protocol instructions and background documents that do not contain Protected Health Information are posted as PDF or Word documents. These documents and all chat histories are easily retrieved on the Slack website or desktop or mobile applications. Contacting other individuals via the app instead of text messages allows for content archiving and does not necessitate exchange of personal phone numbers. Smartphone users who connect via Wi-Fi do not need to use personal data or text message allowances to communicate with their colleagues.

As of February 14, 2017, our Slack group included cumulative 51 users. Between October 2015 and November 2016, approximately 10,600 messages were sent through Slack; 53% were sent by RAs and 47% were sent by us. Twenty-one percent of messages were posted in group messages and 79% were shared in direct messages. An average of 205 (SD, 93) messages was sent each week. Of the 106 files stored on Slack, 18% were uploaded by RAs and 82% were uploaded by program leadership. In a survey from January 2016, 100% of RAs agreed or strongly agreed that Slack improved communication within the team.

While Slack is the dominant cloud-based collaboration app,<sup>8,9</sup> there are many alternatives, each with its own unique features and advantages. Examples include Cisco Spark,<sup>10</sup> HipChat<sup>11</sup> and Mattermost.<sup>12</sup> Clinicians seeking patient-focused collaboration between providers might consider Stitch,<sup>13</sup> a cloud-based app designed for this purpose. Given the rapidity of new app development and publication, practitioners are encouraged to search the internet for the app that best suits their needs.

We demonstrate the model for integration of communication technology into academic activities by research teams. Slack is easily integrated into the workflow of a research team at an academic medical centre and adopted by users as a highly effective tool for meeting research teams' communication and document management needs. We encourage other research practitioners in academic environments to consider integrating use of this type of application into their activities.

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