'SWINEUPDATE': Using EMR charting tools as a clinical decision support tool during the H1N1 outbreak

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BACKGROUND

The emergence of the novel influenza H1N1 virus resulted in a multitude of e-mail updates for providers in our health care system. The e-mails came from different providers and health care organizations and correspondingly contained different types of information. Because of H1N1's novelty, this information changed on a near-daily basis. One day an e-mail may have specified both nasopharyngeal and oropharyngeal swabs were needed for collection, but the next day a new e-mail specified only a nasopharyngeal swab was needed. These kinds of e-mails, which had specific information that is useful for clinical care, were buried amongst other H1N1-related e-mails from the public health department, a local infectious disease expert, the medical director, etc. Also, even though these e-mails contained information useful at the point of care, e-mail was not easily accessible in patient rooms. Therefore, during a situation of rapidly changing clinical protocols, e-mail can be a poor informational technology tool. The report below describes how a simple EHR charting tool was rapidly adapted into an effective clinical decision support tool.

METHOD

At our local organization, a more efficient approach of dispersing clinical protocols was tried in conjunction with the ongoing e-mails described above. The approach depended on 3 elements: (1) an electronic health record (EHR) available in each patient's room (our clinics use Epic; Epic Systems Corporation, Verona, Wisconsin), (2) an EHR charting tool that is "shareable," and (3) individuals who can abstract information from the daily H1N1 e-mails. Within our available EHR is a charting tool (SmartPhrase) that allows providers to create their own shorthand of commonly used phrases, eg typing ".bv" generates the text "bacterial vaginosis" in the patient's chart. Furthermore, this shorthand (".bv") can be accessed and used by any other provider, an important feature for the application we are describing here.

Within the first week of the H1N1 outbreak, we generated a new SmartPhrase ".SWINEUPDATE". Rather than a short phrase, typing ".SWINEUPDATE" would generate the entire H1N1 protocol (who to test, how to test, indications for treatment, etc) within the patient's EHR chart. (See Figure 1.) Once referred to, the SmartPhrase material could be deleted in its entirety from the patient's chart, and the provider could continue with the visit. ".SWINEUPDATE" was kept current by our medical director, who abstracted relevant information from daily e-mails and meetings. As a result, approximately 70 urgent care providers had access to the latest H1N1 protocols within their patient rooms by simply typing ".SWINEUPDATE".

The following are benefits of using a shareable charting tool as a clinical informational tool:

- Point of care. Clinical information is now available in the patient's room where e-mail is not.
- Consistent location of information. Providers do not have to spend time finding and comparing e-mails and/or paper handouts.
- Speed of development. The charting tool can be created in a few minutes, disseminated to multiple providers, and updated multiple times a day by virtually anyone. No work order requests need to be sent to the IT department.
- Customization of the EHR. Whereas most EHR settings must be standardized across the entire institution, this charting tool can be customized and shared among a couple of providers, among a clinic setting, or a whole department.

POST-IMPLEMENTATION SURVEY RESULTS

About 3 months after ".SWINEUPDATE" was implemented, an informal survey was distributed by e-mail. (See Figures 2-5). There was a general positive response from those providers who accessed the charting tool

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Influenza Testing: Order "**RMISC**", where it says "what test would you like performed" put in "**influenza PCR**". In the comments section, list patient's symptoms so that lab can complete the state lab form. Use a **nasopharyngeal swab only. Blue top** medium is preferred, OK to use red top if no blue tops available. Testing will now be done at the state lab.

For high risk outpatients (for example, patients with underlying medical complications, transplant or immunocompromised patients), **DFA testing** should be performed. This can be done on the same swab. Simply add the request, "please perform DFA test" in the comments section of the PCR order.

Sometime in the next 48 hours, we should be notified about the process of accessing the state's supply of antiviral medication.

Figure 1. Portion of the ".SWINEUPDATE" SmartPhrase

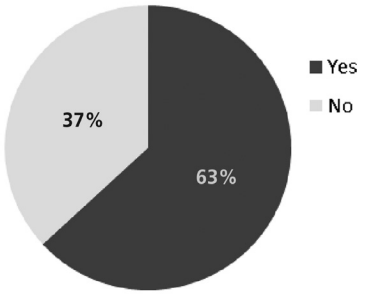

Figure 2. Are you aware of the existence of the EPIC SmartPhrase ".SWINEUPDATE"? *(Total of 36 respondents)*

with approximately 70% answering "yes" to the question "Did '.SWINEUPDATE' save you any time?". Surprisingly, many providers were not even aware of the charting tool adaptation, with 30% answering "No" to "Are you aware of the existence of the EPIC SmartPhrase '.SWINEUPDATE'?" This lack of awareness likely reflects the fact that providers were primarily notified of the charting tool adaptation by e-mail and no formal demonstration was provided. Presumably usage and satisfaction would increase with formal explanation of the rationale and a demonstration of the charting tool adaptation.

CONCLUSION

We describe a workaround method to provide clinical recommendations within a health care system where no formal EHR clinical decision support tools are available. Overall the feedback has been positive within our clinical setting. While our clinical setting uses the EPIC EHR, likely there are similar charting tools in other EHRs and

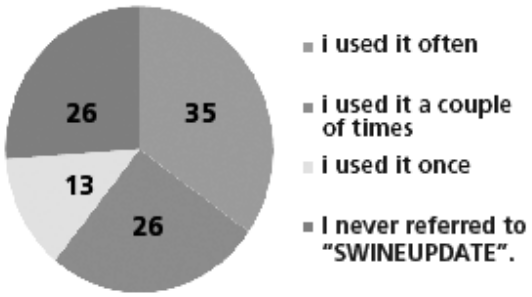

Figure 3. Within the past 3 months, approximately how many times have you referred to ".SWINEUPDATE"? (*n=23, excludes respondents who were not aware of existence of "SWINEUPDATE", n=23*)

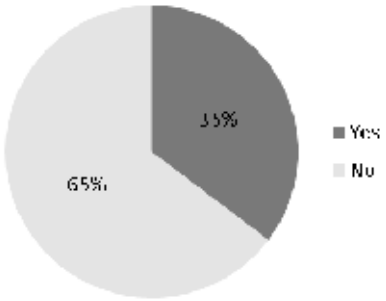

Figure 4. Did you refer to ".SWINEUPDATE" while in the exam room with a patient? (n=17, excludes respondents who never referred to ".SWINEUPDATE)

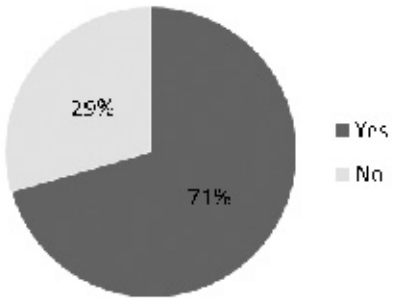

Figure 5. Did ".SWINEUPDATE" save you any time? (*n=17, excludes respondents who never referred to ".SWINEUPDATE*)

that can make this process reproducible. This is 1 more tool to help decrease clinical protocol confusion during the next influenza outbreak.

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