Utilizing Research Electronic Data Capture (REDCap) for Online Case Reporting in Tennessee

Corinne M. Davis, MPH, MS; Shannon M. Harney, MPH; Justine F. Maxwell, DrPH, MPH; Erin Holt, MPH

Tennessee Department of Health

BACKGROUND
- Reporting to public health by health care providers and some laboratorians in Tennessee is currently completed via a paper case report form, faxed or mailed to the local, regional, or state health department.
- Frequently, these reports are missing pertinent information requiring public health to contact the provider/lab to obtain the necessary information required to follow-up on a case.
- In an effort to improve the timeliness, completeness and accuracy of reports, the Tennessee Department of Health (TDH) utilized the Research Electronic Data Capture (REDCap) software to design an online portal for case reporting.
- Leveraging REDCap’s Application Programming Interface (API), the information submitted online is then transformed automatically in SAS, then pushed back into REDCap so that it can be processed by TDH.

METHODS
- Providers/labs submit case reports and upload supporting documents online using REDCap (Figure 1).
- TDH notified immediately via email (Figure 2).
- Reporter can print a confirmation page (Figure 3) or get a de-identified confirmation email.
- Task Scheduler runs a SAS script that exports data from REDCap automatically using the API (Figure 4).
- Case reports are assigned to the appropriate jurisdiction and program (Figure 4).

RESULTS
- From January to May 2017, TDH received 1,445 case reports in REDCap. Majority of the submissions were from healthcare providers, and nearly all had the lab(s) attached.
- Overall, most provider/patient information was filled in or attached to the REDCap form.

CONCLUSIONS
- Utilizing REDCap to implement online case reporting has improved data quality and reduced the burden on reporters. Initial reporters were worried that this process would be time consuming; however, the median completion time is only 6 minutes. In addition, we have generated custom URLs for select reporters, which pre-fills some of the form (median completion 4 minutes). This new process also allows TDH to send monthly audits to reporters (Figure 5).

Figure 1: REDCap Online Case Reporting

Figure 2: Notification Email to TDH

Figure 3: Confirmation Page for Reporters

Figure 4: REDCap to SAS API Script

Figure 5: SAS Monthly Audit Report

Table 1: Provider/Patient Information Filled in

<table>
<thead>
<tr>
<th>Variable</th>
<th>% Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider</td>
<td>93.3%</td>
</tr>
<tr>
<td>Patient</td>
<td>82.2%</td>
</tr>
<tr>
<td>% Complete</td>
<td>99.9%</td>
</tr>
<tr>
<td>Address</td>
<td>97.8%</td>
</tr>
<tr>
<td>Phone</td>
<td>94.2%</td>
</tr>
<tr>
<td>Race</td>
<td>88.1%</td>
</tr>
</tbody>
</table>

Hepatitis B and C, sexually transmitted diseases, and healthcare associated infections were the most common conditions reported in REDCap.

Hepatitis B & C 28%
Sexually Transmitted 27%
Healthcare Associated 26%
Vaccine Preventable 10%
Tuberculosis/Latent TBI 3%
Vectorborne/Zoonotic 2%
Multiple/Other Diseases 1%

Provider vs Patient Information Filled in or Attached to REDCap Form

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