

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

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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).

SAS creates an import file to update REDCap with public health jurisdiction and program area (Figure 4).

Case reports are assigned to the appropriate jurisdiction and program (Figure 4).

FIGURES

Figure 1: REDCap Online Case Reporting

Tennessee Confidential Disease/Event Reporting

Use this online form to submit reportable diseases/conditions/events to the Tennessee Department of Health. All required fields are marked with a red asterisk (*); it is not possible to submit the report without completing all required fields. Complete the other fields when known. **Public Health will follow-up with the reporter for the patient demographics and lab report, if missing.**

Reportable Diseases and Events are declared to be communicable and/or dangerous to the public and are to be reported to the local health department by all hospitals, physicians, laboratories, and other persons knowing of or suspecting a case in accordance with the provision of the statutes and regulations governing the control of communicable diseases in Tennessee (T.C.A. 68 Rule 1200-14 01-.02). For more specific details, visit [Tennessee's reportable disease website](#). If further guidance is needed, contact Communicable and Environmental Disease Services at (615) 741-7247 or (800) 404-3006.

For issues or questions about Tennessee's Disease/Event Reporting Form, please email CEDEP.REDCap@tn.gov.

Reporting Information

Are you a laboratory? Yes (Laboratorian) No (Non-Laboratorian) [reset](#)
* must provide value

Disease/Event [Start typing to search list of reportable diseases](#)
* must provide value

[Click here to add another disease/event](#) [reset](#)

Date of Report M-D-Y
* must provide value

Reporter Full Name
* must provide value

Reporter's Facility Name
* must provide value

Reporter Phone
* must provide value

Lab Report Attached Not Tested Report Unavailable [reset](#)
* must provide value

Upload Lab Report

Figure 2: Notification Email to TDH

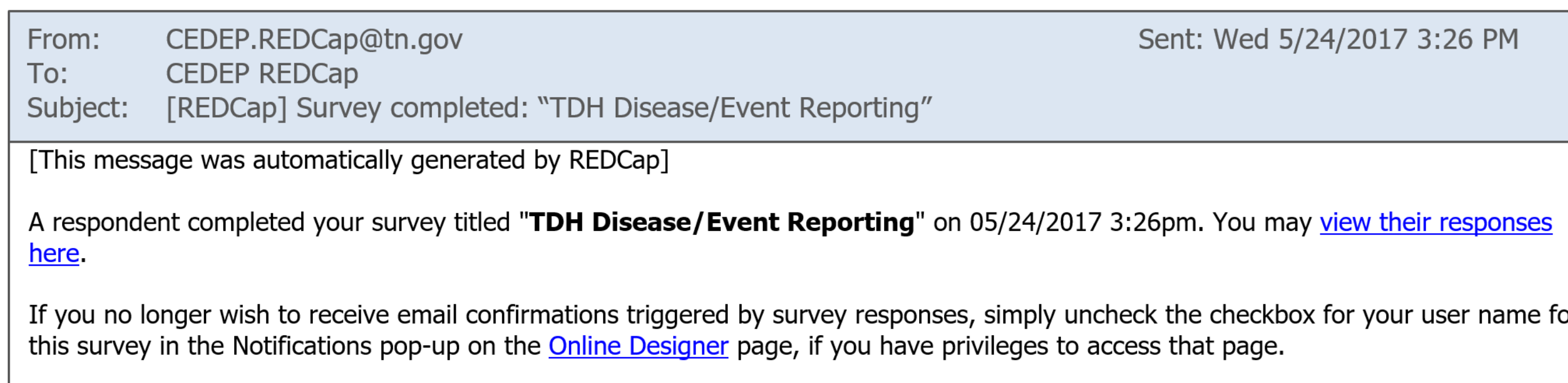


Figure 3: Confirmation Page for Reporters

TN Department of Health

Dear Test Reporter,

Thank you for submitting a disease/event report to the Tennessee Department of Health. You have successfully submitted a report on **05-24-2017** for the provider: **Test Provider (Williamson County Health Department)**. Details of your submission are listed in the table below.

Date of Report/Submission	05-24-2017
Disease(s)/Event(s)	Campylobacteriosis (Campylobacter species)
Reporter	Test Reporter, Tennessee Department of Health, (615) 888-8888
Provider/Facility	Test Provider, Williamson County Health Department
Patient	Jane Doe (DOB: 10-10-1970)
Lab Report	Attached

The reference number for your submission is **10007**. Please note that the Tennessee Department of Health will follow up on incomplete reports as needed. If further guidance is needed, contact Communicable and Environmental Disease Services at (615) 741-7247 or (800) 404-3006. If you need to make corrections to the report you submitted, please email CEDEP.Informatics@tn.gov with the reference number (10007). Please do not include any protected health information in your email inquiry.

Thank you,
Tennessee Department of Health

Figure 4: REDCap to SAS API Script

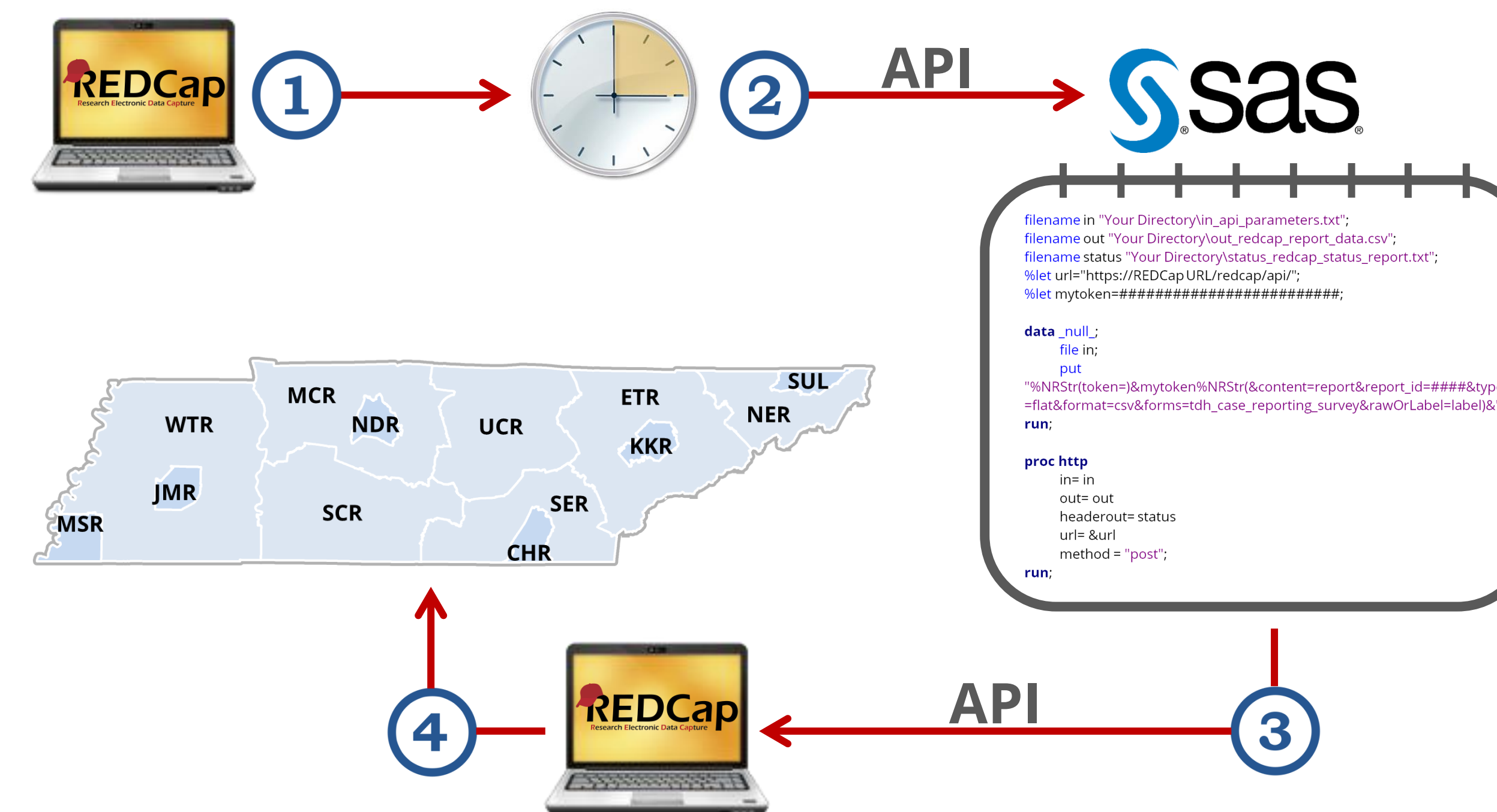
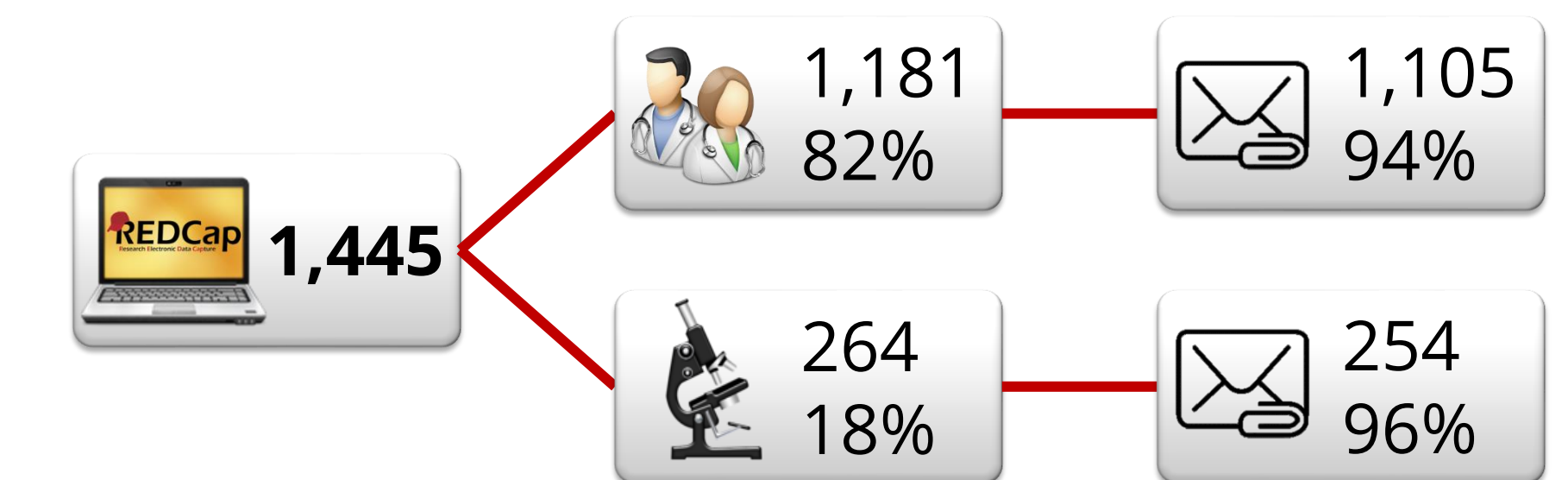


Figure 5: SAS Monthly Audit Report

#	Confirmation	Report Date	Reporter	Lab	Disease/Event
1	10001	05/10/2017	Test Reporter	Attached	Clostridium difficile Infection
2	10002	05/11/2017	Test Reporter	Attached	Campylobacteriosis (Campylobacter species)
3	10003	05/12/2017	Test Reporter	Report Unavailable	Chlamydia (Chlamydia trachomatis)
4	10004	05/12/2017	Test Reporter	Attached	Candida auris
5	10005	05/15/2017	Test Reporter	Attached	Hepatitis, Viral- Type B: Acute
Total Number of Reports: 5					

RESULTS

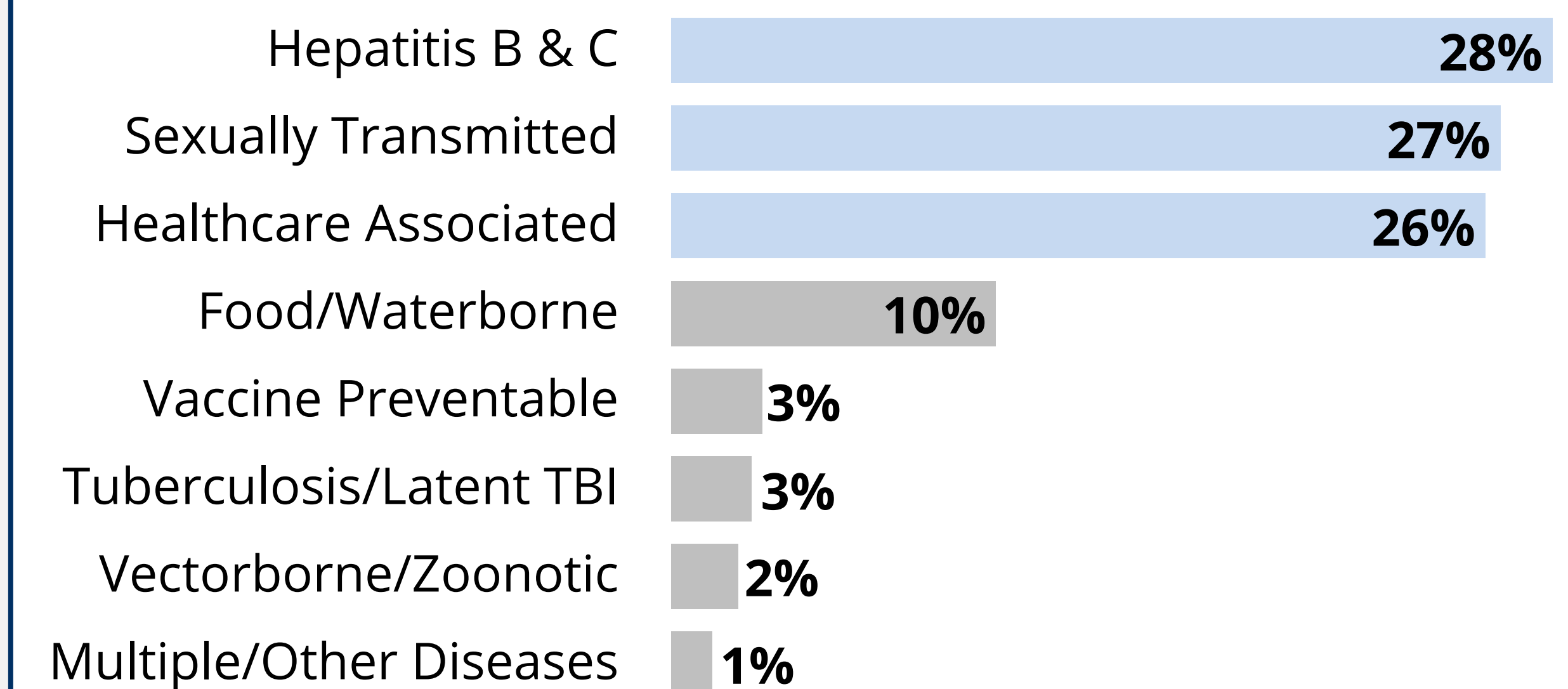
- From January to May 2017, TDH received 1,445 case reports in REDCap. Majority of the submissions were from healthcare providers, and nearly all had the lab(s) attached.



- Overall, most provider/patient information was filled in or attached to the REDCap form.

Variable	Provider		Patient			
	Name	Phone	DOB	Address	Phone	Race
% Complete	93.3%	82.2%	99.9%	97.9%	94.2%	88.1%

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



CONCLUSIONS

- Utilizing REDCap to implement online case reporting has improved data quality and reduced the burden on reporters. Initially, 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).