2024 CTTI REPORT

CLINICAL TRIALS TRANSFORMATION INITIATIVE

Improving Timely, Accurate, and Complete Registration and Reporting of Summary Results Information on ClinicalTrials.gov

INTRODUCTION

Patients, family members, health care professionals, researchers, and the public use ClinicalTrials.gov as a key source of information to learn about clinical trials. For clinical trials that meet the statutory criteria to be considered "applicable clinical trials," responsible parties are required to submit certain clinical trial information, including clinical trial registration and summary results information, on ClinicalTrials.gov.[1] In addition to the regulatory requirements,[1] medical journals[4] and U.S. National Institutes of Health (NIH)[5] have separate policies that require reporting for clinical trials in general. There are clear benefits of timely, accurate, and complete registration and reporting results information (Figure 1). There is also an ethical obligation to honor the participation of individuals by making findings publicly available.[1,2,3] Despite this, multiple publications have reported gaps in clinical trial registration and results information submission to the data bank.[6-7] Thus, the full value of the publicly available data bank has not been achieved.

The Clinical Trials Transformation Initiative (CTTI) investigated factors and barriers to registration and summary results information reporting, and suggestions for improvement of these aspects for applicable clinical trials. This project, which is part of CTTI's public-private partnership with the U.S. Food and Drug Administration (FDA), was undertaken to support and strengthen more systematic timely, accurate, and complete reporting of applicable clinical trial information on ClinicalTrials.gov. CTTI conducted a literature review and qualitative in-depth interviews, and used the information gleaned from these activities to develop a survey about barriers to timely, accurate, and complete registration and summary results information reporting, and to examine proposed solutions.* The work was designed to cover areas under FDA authority and intended to be complementary to the NIH's ClinicalTrials.gov modernization initiative[8] which addresses technical infrastructure, user experience, and application interface of ClinicalTrials.gov.

*Individuals were eligible to participate in interviews and the survey if they were responsible for submitting required clinical trial information into ClinicalTrials.gov and/or managing their organization's compliance with the ClinicalTrials.gov registration and summary results information reporting requirements.

BACKGROUND

Generally, an "applicable clinical trial" (ACT) refers to a controlled interventional trial that involves at least one drug, biological, or device product regulated by the FDA with at least one U.S. trial site, or that is conducted under an investigational new drug application or investigational device exemption, or involves a drug, biological, or device product manufactured in and exported from the U.S. for study in another country. There are some exceptions, as Phase 1 and feasibility trials are excluded from this definition.[1] The National Library of Medicine at the NIH created a checklist, available on the ClinicalTrials.gov website, to assist responsible parties in determining whether a trial is an ACT. The requirements related to clinical trial registration and summary results information apply to "ACTs." There are additional requirements for submitting summary results information by responsible parties who voluntarily register a trial that is not an ACT. Further, ClinicalTrials.gov includes many entries for trials that are not ACTs and are, therefore, not subject to the requirements for reporting summary results information. Consequently, ClinicalTrials.gov may include many trials that do not meet the regulatory definition of ACTs.

Definitions as Used in Evidence Gathering and in this Report

- **Administrative unit**: the entity itself or individual(s) at an organization/institution/company that provides oversight and/or registers and/or reports results information on ClinicalTrials.gov.
- **Principal Investigator (PI)***: The individual responsible for the overall scientific and technical direction of a study.
- **Responsible party***: the person or entity responsible for registering and submitting and updating information about a clinical trial to ClinicalTrials.gov.
- **Sponsor***: the organization or person who initiates the trial and who has authority and control over the trial.
- **Study lead(s)**: the person or group who leads the execution of the clinical trial. Typically, this is a principal investigator/lead investigator/study officer in academic or government settings, or a study team in industry settings.

Note that the definitions marked with * are intended to correspond to the definitions of the same terms in 42 CFR 11.10., although language may vary slightly to allow for brevity.

Figure 1. The Case for Timely, Accurate, and Complete Reporting on Clinical Trials.gov*

Patients

Providers

Sponsors & Investigators

Across all groups: access to current research and evidence is essential

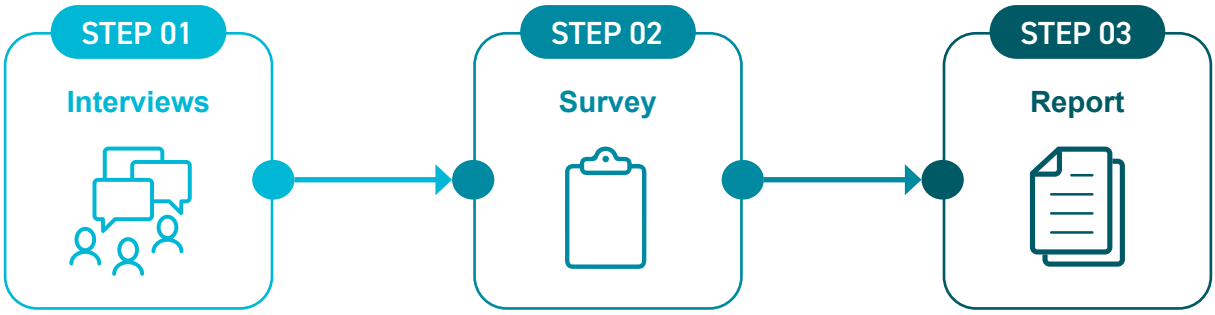
Greater transparency builds trust in the research ecosystem

Patients	Providers	Sponsors & Investigators
Enables access to the latest clinical trial research	Enables public scrutiny of clinical research trials	Visibility of ongoing trials facilitates recruitment and limits redundancy in trials
Improves trust and understanding of research	Improves trust and understanding of research	Identify unmet research needs
Provides local and global pathway for potential recruitment to ongoing clinical research trials		

* Information adapted from What is ClinicalTrials.gov

METHODS

After conducting a literature review to identify potential challenges and opportunities, CTTI conducted 26 qualitative, in-depth interviews from August to December 2021 with individuals from 25 organizations about registration and summary results reporting of ACTs. Although the questions were broad, they generally fell into three categories: (1) describe organizational processes and policies on ClinicalTrials.gov registration and reporting of summary results information, (2) identify challenges that affect the timely, accurate, and complete registration of clinical trials and reporting of summary results information on ClinicalTrials.gov, and (3) propose solutions to enable timely, accurate, and complete registration and reporting of summary results information. See Appendix A for participant demographics.



CTTI project staff contacted groups engaged in clinical trials support activities and related groups, such as the Clinical Trials Registration and Results Reporting Taskforce, the Drug Information Association's (DIA) Clinical Trial Transparency Community, and trade organizations of pharmaceutical biotechnology companies and medical device companies (e.g., PhRMA, BIO, AdvaMed), to assist in identifying potential interview candidates. Twenty-eight interested individuals were asked a series of screening questions by CTTI staff to ensure that individuals met the eligibility criteria, 26 individuals qualified.

Next, CTTI launched a survey to identify the most relevant barriers to timely, accurate, and complete registration and summary results information reporting, and to propose solutions. The survey was distributed through CTTI's website, newsletter and email distributions, and social media as well as the listservs of the Clinical Trials Registration and Results Reporting Taskforce and the Drug Information Association (DIA) Clinical Trials Transparency Community.

The survey was active from December 12, 2022, to February 1, 2023, and of the 191 that initiated the survey, respondents included 92 individuals who completed their responses representing 84 unique organizations. See Appendix B for respondent demographics.

The survey was advertised via CTTI's communication channels (e.g., newsletter, website news, Twitter (X), and LinkedIn). Relevant organizations, such as the Clinical Trials Registration and Results Reporting Taskforce, the DIA Clinical Trial Transparency Community, and AdvaMed, aided CTTI in distributing the recruitment message and survey link through their communication channels. Interested individuals completed the survey.

Data from the interviews and surveys were analyzed separately and findings were combined below for descriptive purposes. See the interview question bank and survey questionnaire to review questions asked in both steps of the evidence gathering process.

RESULTS

APPROACHES TO CLINICALTRIALS.GOV MANAGEMENT

Most participants reported having a single administrative unit in their organization dedicated to monitoring the organization's ClinicalTrials.gov submissions and supporting timely, accurate, and complete registration and submission of summary results information into ClinicalTrials.gov. Of the 25 organizations interviewed, 20 (80%) utilized an administrative unit to interact with study leads and/or study sponsors for most or all of their ClinicalTrials.gov submissions. Similarly, 75 of 92 survey respondents (81.5%) used a centralized administrative unit (either centralized, hybrid, or other approach), while 16 (17.4%) reported that there was more than one group at their organization responsible for ensuring monitoring and compliance (Appendix C). Organizations using a centralized administrative unit had a greater number of clinical trials registered than those without a centralized administrative unit, as shown in the Appendix C. Survey respondents were asked to report on their experience with whichever approach they used.

> *"I think the quality improves significantly [with the centralized approach]. Because we would see records from way before. And we would see PIs who would report results that are not supposed to [be reported]. And they've had problem records for five years ongoing." (Academic AU)*

Interview respondents reported that having a single administrative unit within their organization with expertise (i.e., a centralized approach) helped support teams in complying with requirements, provided consistency and quality, and helped with a higher success rate for submissions and with timeliness of submissions. Disadvantages of a centralized approach included a heavy workload for understaffed administrative units, potential for misunderstandings regarding processes and timelines, and that the units, which do not always have access to data or changes in protocol, must often wait for the responsible party to reply, which may cause delays. The analysis of advantages and disadvantages of management approaches reported in the survey are available in Appendix D.

Survey respondents reported that the number of applicable clinical trials for which their administrative unit registered and reported results information in the past year ranged from zero to more than 40 trials and 20 respondents (26.7%) reported clinical trial information for more than 40 applicable clinical trials over the course of the past year (Table 1).

Table 1. Number of Registered Applicable Clinical Trials Reported in the Survey (2022–2023)

Number of registered applicable clinical trials N=75	n	%
0	4	5.3
1	5	6.7
2 to 5	15	20.0
6 to 15	13	17.3
16 to 40	6	8.0
More than 40	20	26.7
I do not know	12	16.0

CHALLENGES WITH REGISTERING AND REPORTING RESULTS INFORMATION FOR CLINICAL TRIALS

Survey respondents cited that the major challenge when registering and reporting of summary results information for applicable clinical trials was a lack of understanding on the part of the Responsible Party regarding the types of trials that must be registered, when the trial should be registered, and when and for which trials summary results information must be submitted. Survey respondents also reported challenges relating to non-responsive principal investigators or study leads, which hindered both timely registration and reporting of summary results information.

Across all the groups, challenges related to the clarity of the requirements, organizational policies, and lack of harmonization were reported (Table 3). Specifically, respondents noted a lack of harmonization between ClinicalTrials.gov and other regulatory agency's requirements (32.6%) or lack of harmonization in other registry requirements (25%). Notably, respondents cited uncertainty about reporting due to a lack of clear guidance regarding what summary results information would be considered accurate or complete (33.7%). Finally, almost half of respondents noted an absence of well-specified and measurable outcomes that meet ClinicalTrials.gov requirements (51.1%) (Table 2).

Table 2. Challenges Related to Registering Clinical Trials

Registering Challenges N=92	n	%
Responsible Party's understanding of		
• the types of trials that must be registered	48	52.2
• when to register clinical trial	38	41.3
• organizational policies on registering clinical trials	37	40.2
Non-responsive PI/study leads	44	47.8
Lack of concern regarding potential consequences of noncompliance	28	30.4
Absence of well-specified and measurable outcomes in protocol that meet ClinicalTrials.gov requirements	47	51.1
Lack of harmonization between ClinicalTrials.gov		
• and other regulatory agency's requirements*	30	32.6
• and other registries	23	25.0
No or unclear [internal] organizational policies	17	18.5
Unclear who is responsible in general	12	13.0
Unclear who is responsible when multiple entities are involved	13	14.1
No [internal] organizational policies/penalties for noncompliance	21	22.8

*Refers to global statutory/regulatory requirements outside of the United States

For reporting of summary results information, respondents also expressed concerns about waiting until all data are analyzed before reporting summary results information on ClinicalTrials.gov to prevent discrepancies between ClinicalTrials.gov data about results information and results published in journal articles, ability to publish journal articles if ClinicalTrials.gov results information is submitted prior to publication, and disclosure of competitive data (Table 3).

Make sure that your stakeholders know that they are stakeholders and why. Give them context for what's happening and why their input is important. A lot of people are like, 'Oh, this is routine, this is routine.' It's like, 'No, this is a very high-profile element of our company's public presentation of our trials. This is not unimportant. It is very necessary to make sure that our representation is accurate and appropriate.' (Pharmaceutical AU)

Table 3. Challenges for Reporting of Summary Results Information

Reporting Challenges N=92	n	%
Responsible Party's understanding		
• regarding which trial results information must be submitted	52	56.5
• of the regulatory timelines for submitting results information	47	51.1
• about when to report results information for unsuccessful trials	45	48.9
• about why results information needs to be submitted if they have already been published	45	48.9
• of organizational policies on reporting results information of clinical trials	39	42.4
Non-responsive PI/study leads	40	43.5
Lack of concern regarding potential consequences of noncompliance	23	25.0
Responsible Party's concerns about		
• waiting until all data are analyzed before reporting results information to prevent potential discrepancies between ClinicalTrials.gov records and published results	52	56.5
• ability to publish if results information is reported on ClinicalTrials.gov prior to publication	40	43.5
• disclosing competitive data	37	40.2
Lack of understanding/clear guidance on whether the information they provide when reporting would be considered accurate and/or complete	31	33.7
No or unclear [internal] organizational policies	13	14.1
Unclear who is responsible in general	11	12.0
Unclear who is responsible when multiple entities are involved	9	9.8
No [internal] organizational policies/penalties for noncompliance	15	16.3

As part of the survey, CTTI asked "How does your administrative unit become aware that a clinical trial at your organization needs to be registered and/or report results information to ClinicalTrials.gov?" CTTI also clarified that the definition of administrative unit for the survey is the entity or individual(s) at your organization/institution/company that provides oversight and/or registers and/or reports results information on ClinicalTrials.gov.

Survey respondents were asked to check all responses that apply and to identify all mechanisms, including using an internal Clinical Trials Management System (CTMS) and by reviewing Protocol Registration and Results System (PRS) Reports on ClinicalTrials.gov (Table 4). It was then reported that administrative groups (or units) become aware of trials to register or trials needing to have results information reported in various ways, including using an internal CTMS and via contact with the Responsible Party.

Table 4. How Administrative Units Learn of Registering and Reporting of Summary Results Information Needs for a Clinical Trial

Registering	n	%	Reporting	n	%
The administrative unit • tracks records in an internal CTMS • receives an internal notification from within the organization to register a trial • reviews PRS Reports	37 28 25	40.2 30.4 27.2	The administrative unit • reviews PRS Reports • tracks records in an internal CTMS • is notified by an internal CTMS that trials need to be registered and/or results information reported	53 39 15	57.6 42.4 16.3
The Study Lead or Responsible Party • contacts the administrative unit requesting assistance with registering a trial	30	32.6	The Study Lead or Responsible Party • contacts the administrative unit requesting assistance with reporting trial results information	25	27.2
The trials coordinator/clinical operations manager • notifies the administrative unit that a new trial must be registered	26	28.3	The trials coordinator/clinical operations manager • notifies the administrative unit that results information must be reported	20	21.7
An Institutional Review Board (IRB) informs the administrative unit • that a trial must be registered • of an approved trial and the administrative unit determines if the trial must be registered	23 15	25.0 16.3	An external third-party database identifies and notifies the administrative unit's internal database of trials needing results information reported	8	8.7
The trials coordinator/clinical operations manager • notifies the administrative unit that they are registering a new trial	22	23.9			
Through a Notice of Award/Contract	13	14.1			

STRATEGIES FOR ADDRESSING CHALLENGES

Respondents were asked to select all the strategies that could apply to administrative groups and responsible parties that would potentially help mitigate challenges with registration and summary results information reporting on ClinicalTrials.gov. Survey respondents identified that communication is a key driver when addressing challenges to timely, accurate, and complete reporting of results information on ClinicalTrials.gov. Specifically, most endorsed taking a proactive, rather than reactive, approach to complying with ClinicalTrials.gov regulatory requirements (67.4%) (Table 5).

Table 5. Current Internal Strategies for Addressing Challenges*

Strategies for Administrative Groups and Responsible Parties	n	%
Take a proactive, rather than reactive, approach to complying with ClinicalTrials.gov regulatory requirements	62	67.4
Strategies for Administrative Units/Groups		
Escalate to upper levels of leadership for Study Leads and Responsible Parties that are non-responsive to the administrative unit's communication about compliance	58	63.0
Inform PIs/Study Teams/Responsible Parties		
• about the possibility of regulatory actions due to non-compliance with ClinicalTrials.gov regulatory requirements	57	62.0
• that submitting results information to ClinicalTrials.gov is separate from publishing results information	55	59.8
• that per the International Committee of Medical Journal Editors (ICMJE), reporting results information to ClinicalTrials.gov does not preclude publishing results in journals	51	55.4
Provide education, resources, guidance, and support about meeting ClinicalTrials.gov requirements to Responsible Parties and other research personnel	57	62.0
Use a centralized approach to meeting ClinicalTrials.gov requirements	50	54.3
Collaborate with internal group(s) to facilitate communication and compliance	49	53.3
Use an internal database or other tracking system to monitor organizational compliance	48	52.2
Review the purpose of ClinicalTrials.gov requirements during training	42	45.7
Assign Principal Investigator (rather than organization) as Responsible Party	28	30.4
Collaborate with IRB to determine whether trials need to be registered	24	26.1
Use a decentralized approach to meeting ClinicalTrials.gov requirements to put the onus for compliance on Responsible Parties	18	19.6
Link to IRB systems to track trials throughout their lifecycle	15	16.3

*Respondents selected all that applied

As described in the survey summary below, respondents suggest a proactive approach, escalating non-responsive parties to leadership, and communicating with and educating Responsible Parties about the significance and scientific benefits of registering and reporting of summary results information.

Summary of Suggested Practices*

- Responsible parties and administrative units (when an AU is present at the organization) should optimize collaboration, where applicable
  - *Rationale*: Facilitates communication and compliance. Assists with resolving challenges of reporting results information.
- Organizations should take a centralized approach to meeting ClinicalTrials.gov requirements
  - *Rationale*: Administrative units provide a single source of knowledge and assistance for PIs/study teams on the ClinicalTrials.gov registration and results information submission requirements. These units can monitor and control records, conduct quality review, and stay abreast of ClinicalTrials.gov updates
- Study Leads (Principal Investigators/Lead Investigator/ Study Officer/Designee on Study Team) should learn and be invested in the requirements of being the responsible party when designated for the role by the sponsor
  - *Rationale*: Study leads named as the responsible party are accountable for trial registration, trial updates, and reporting results information. The administrative unit typically provides support and continues to oversee compliance with ClinicalTrials.gov requirements.
- Administrative Units should take a proactive approach to registering trials, trial record maintenance, and reporting results information
  - *Rationale*: Alerts PIs/study teams well in advance of updates needed, impending due dates, and informs them about problem records
- Organizations/Administrative Units should provide education, resources, guidance, and support about meeting ClinicalTrials.gov requirements to PIs/study teams and other research personnel
  - *Rationale*: Assists researchers with navigating ClinicalTrials.gov. Provides information about requirements and how ClinicalTrials.gov works (e.g., registration and reporting results information checklists, decision trees for registering trials and reporting results information, posting ClinicalTrials.gov-related SOPs and other written resources on administrative unit's website). Provides one-on-one support when needed.
- Administrative Units should provide prompt and clear communication with study lead
  - *Rationale*: Keeps study lead informed of study record status and needed updates.
- Organizations/Administrative Units should track and trend PRS reviewers' comments to create best practices for organization's data submitters and internal reviewers
  - *Rationale*: Increases success of future submissions by implementing broadly applicable comments across studies. Guides consistent creation and maintenance of trial records through compiling lists/ guidance based on consistent feedback from the PRS staff
- Organizations/Administrative Units should use an internal database or other tracking system
  - *Rationale*: Assists with tracking records, knowing when impending updates or milestones are due, communicating that information to PIs/study teams
- Administrative Units should collaborate with their Human Research Protection Program/Institutional Review Board and link to HRPP/IRB systems, as appropriate, to institute check points with administrative unit on determining if a trial needs to be registered and to track ongoing requirements for applicable clinical trials.
  - *Rationale*: Collaboration facilitates both HRPP/IRB and administrative units' awareness of trial status

* Suggested practices were responses to open ended questions and not all language or terms correspond with accepted regulatory terms or definitions

EXTERNAL RESOURCES AND TOOLS

Over the years, a number of resources have been created to help users with registering and reporting of summary results information on ClinicalTrials.gov. When asked to select all the resources that were helpful, nearly all respondents (96.7%) referred to the ClinicalTrials.gov Protocol Registration and Results System Resources.** A majority of respondents (70.7%) also referred to the ClinicalTrials.gov Training Materials. Other resources selected included:

- NIH Policy on the Dissemination of NIH-Funded Clinical Trial Information (46.7%)
- FDA Guidance on Civil Money Penalties Relating to the ClinicalTrials.gov Data Bank (43.5)
- FDA website on FDA's Role: ClinicalTrials.gov Information (42.4%)
- The Clinical Trials Registration and Results Reporting Taskforce (39.1%)

SUGGESTED FUTURE RESOURCES TO GUIDE RESPONSIBLE PARTIES

To help with timely, accurate, and complete registration and reporting of summary results information in the future, survey respondents were asked to select all that apply from a list of possible resources. Of the responses majority said that more training and tip sheets (71%), and a list of common mistakes made during the PRS review process would be beneficial (64%) (Table 6).

Additionally, when asked what resources the FDA could provide, more than half of respondents requested videos (62%), in-person and virtual events (58.7%), and better communication around FDA guidance (56.5%) and compliance actions (47.8%) (Table 7).

Table 6. Survey Question: What additional resources are needed, if anything, to help you comply with ClinicalTrials.gov regulatory requirements?

Suggested Educational Resources	n	%
Tutorials and tip sheets about changing regulations and adjustments on ClinicalTrials.gov as changes happen	71	77.2
Providing a list of common mistakes made during the PRS review process	64	69.6
Training sessions with ClinicalTrials.gov reviewers to learn from their experiences	59	64.1
Practice environment in PRS where people can practice entering registrations and results information	34	37.0
BESH training (Basic Experimental Studies Involving Humans; note the BESH are not ACTs)	28	30.4

*Respondents selected all that applied

Table 7. Survey Question: What additional resources from the FDA would be helpful for complying with ClinicalTrials.gov regulatory requirements?

Suggested Resources on Compliance	n	%
Pre-recorded informational sessions on ClinicalTrials.gov compliance	57	62.0
Virtual events, conferences, and workshops	54	58.7
Better communication around FDA guidances	52	56.5
Better communications on notices of non-compliance	44	47.8
In-person events, conferences, and workshops	18	19.6

*Respondents selected all that applied

**For example, Quick Start Guide, PRS Users Guide, Guided Tutorials, Hot Off the PRS, Data Element Definitions, ACT Checklist, Frequently Asked Questions.

SUMMARY

As part of its public-private partnership with the FDA, CTTI conducted this project to support and strengthen more systematic timely, accurate, and complete registration and reporting of applicable clinical trial summary results information on ClinicalTrials.gov. The study involved a literature search and in-depth interviews to investigate factors and barriers to registration and reporting of summary results information for applicable clinical trials, and to develop suggestions for improvement. CTTI then used the information gleaned from these activities to develop a survey about barriers to timely, accurate, and complete registration and reporting of summary results information, and to propose solutions. Survey respondents cited that the major challenge when registering and reporting summary results information for clinical trials was a lack of understanding on the part of the Responsible Party regarding the types of trials that must be registered, when the trial should be registered, and when and for which trials results information must be submitted. Challenges related to the clarity of the requirements, organizational policies, and lack of harmonization with requirements for other regulatory agencies and registries were also reported.

To address challenges to timely, accurate, and complete registration and reporting of summary results information on ClinicalTrials.gov, survey respondents identified that communication is a key driver and suggested a proactive centralized approach that includes communicating with and education of Responsible Parties about registering and reporting summary results information on ClinicalTrials.gov.

Survey respondents also suggested that FDA can help by providing resources such as pre-recorded informational sessions, virtual and in-person events, conferences and workshops, and better communication about guidance and compliance actions.

LIMITATIONS

The interview and survey samples included more participants from academic institutions and industry as these groups were purposely recruited due to their large role in entering information into ClinicalTrials.gov. This strategy resulted in fewer responses from other types of organizations that conduct clinical research. Thus, the results primarily reflect the views of stakeholders engaged in ClinicalTrials.gov processes in academia and industry. Additionally, due to the non-probability sampling strategies chosen for this research, none of the findings are generalizable to ClinicalTrials.gov stakeholders overall. Rather, they provide in-depth descriptive information on the experiences of numerous stakeholders who are actively engaged in ClinicalTrials.gov processes. Recognizing the number of interviews and surveys conducted by CTTI compared to the total number of individuals and organizations submitting registration and results information to ClinicalTrials.gov, other stakeholders who did not participate in this research may or may not have similar experiences.

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APPENDIX A. In-depth interview participant demographics (n=26)[1]

Participant characteristics	n	%
Sector		
Pharma	9	35
Academia	8	31
Device/Diagnostics	3	11
Government	3	11
Other	3	11
Administrative Unit		
Compliance and Transparency	12	46
Clinical and Translational Sciences Institute (CTSI)	4	15
Research and Development	3	11
Registry and Operations	3	11
Medical Writing	1	4
Management and Support	1	4
Product Development	1	4
Global Clinical Affairs	1	4
Job Title		
Director/Associate Director	9	35
Manager	8	31
Supervisor	1	4
Principal/Chief	2	8
Coordinator	3	11
Associate/Specialist	2	8
Writer	1	4
Funding[2]		
Industry	19	73
Government	14	54
Foundation	10	38
Internal Organization	7	27
Departmental	3	12
Academia	1	4

[1]We interviewed 26 individuals from 25 organizations. Two individuals were interviewed together from one organization at the request of the organization.
[2]Participant selected all that applied.

APPENDIX B. Survey respondent demographics (n=92)

Organization type	n	%
University/academic research center affiliated with a hospital/medical center	45	48.9
Industry[1]	29	31.5
University/academic research center not affiliated with a hospital/medical center	7	7.6
Hospital/medical center not affiliated with a university/academic research center	6	6.5
Government	3	3.3
Another type of organization	2	2.2
Position		
Supervisory role for regulatory affairs (e.g., PRS administrator, compliance, project or database management)	49	53.3
Staff/Specialist of regulatory affairs	14	15.2
Supervisory/leadership role for scientific/clinical operations but not the PI (e.g., clinician, statistician)	9	9.8
Staff/Specialist of scientific/clinical operations	7	7.6
Another role	6	6.5
Scientific disclosure writer specific to transparency for ClinicalTrials.gov	5	5.4
PI	1	1.1
Choose not to disclose	1	1.1
ClinicalTrials.gov role[3]		
Registering clinical trials on ClinicalTrials.gov	63	68.5
Updating trial information on ClinicalTrials.gov (e.g., change in study status)	61	66.3
Reporting results information on ClinicalTrials.gov	56	60.9
Managing/providing oversight of organization compliance with registering and/or reporting results information on ClinicalTrials.gov	76	82.6
Something else[2]	11	12.0
Choose not to disclose	2	2.2
Length of time engaged in ClinicalTrials.gov compliance activities, years		
1 to 5	42	45.7
6 to 10	31	33.7
11 to 15	13	14.1
16 or more	2	2.2
Unsure	3	3.3
Choose not to disclose	1	1.1

[1]Industry respondents include: pharmaceutical company (n=12), biotechnology company (n=6), medical device company (n=9), and contract research organization (commercial/for profit) (n=2).
[2]Statements include: “advising on ClinicalTrials.gov processes compliance” (n=5) and “administrative assistance” (n=3).
[3]Respondents were able to select multiple answers.

APPENDIX C. Number of Applicable Clinical Trials Registered in Previous Year*

Registering	n	%	n	%
Number of registered applicable clinical trials	Centralized[1] or hybrid[2] or another approach (n=75)		Decentralized[3] approach (n=16)	
0	4	5.3	2	12.5
1	5	6.7	1	6.3
2 to 5	15	20.0	2	12.5
6 to 15	13	17.3	4	25.0
16 to 40	6	8.0	4	25.0
More than 40	20	26.7	0	0.0
I do not know	12	16.0	3	18.8

*The survey was active from December 12, 2022 to February 1, 2023 and included 92 respondents. This question was specific to applicable clinical trials that meet requirements for registration and reporting. One respondent chose not to disclose (1%).
[1]Centralized: A single office or group vets and supports all submissions of clinical trial information to ClinicalTrials.gov and monitors compliance with requirements.
[2]Hybrid: Includes both centralized and decentralized components.
[3]Decentralized: Principal Investigator or another organization employee is solely responsible for meeting clinical trial information registration and reporting requirements.

APPENDIX D. Advantages and disadvantages of the different management approaches to ClinicalTrials.gov compliance

CENTRALIZED/DEDICATED APPROACH

Advantages of a centralized/dedicated approach,[1] n=46	n	%
Improves ability to monitor/control study records	41	89.1
Contributes to more timely submissions	40	87.0
Streamlines/increases efficiency of compliance activities	39	84.8
Improves completeness of submissions	39	84.8
Improves quality of submissions	38	82.6
Functions as a single resource of expertise and support for PI/study teams	37	80.4
Fosters unified/consistent presentation of all records	36	78.3
Facilitates adherence to meeting compliance metrics	35	76.1
Fosters improved compliance by proactively educating stakeholders about updates and changes in ClinicalTrials.gov requirements	32	69.6
Disadvantages of a centralized/dedicated approach,[1] n=46		
Having to rely on the accuracy and completeness of information provided by PIs/study teams since limited or no access to data	24	52.2
Working with other stakeholders who have limited knowledge of ClinicalTrials.gov requirements	19	41.3
Having to keep up with the workload	13	28.3
Lack of PI/study team[2] engagement/accountability for compliance with the ClinicalTrials.gov requirements	12	26.1
Needing more financing of staff and other resources to maintain a centralized/dedicated centralized administrative unit	9	19.6
Other	1	2.2
No disadvantages	9	19.6

[1]Respondents selected all that applied.
[2]Please note that a study team cannot be a Responsible Party

DECENTRALIZED/DISTRIBUTED APPROACH

Advantages of a decentralized/distributed approach,[1] n=16	n	%
PIs are fully responsible and accountable for their research	10	62.5
Contributes to more timely submissions	6	37.5
Fewer staff are required	6	37.5
Improves ability to monitor/control study records	5	31.3
Improves quality of submissions	5	31.3
Streamlines/increases efficiency of compliance activities	4	25.0
The administrative unit does not need to locate PIs/study teams to get information	4	25.0
Improves completeness of submissions	4	25.0
Fosters unified/consistent presentation of all records	2	12.5
No advantages	2	12.5
Choose not to disclose	1	6.3
Disadvantages of a decentralized/distributed approach,[1] n=16		
Steep learning curve for PIs/study teams	11	68.8
Lack of PI/study team[2] engagement/accountability for compliance with the ClinicalTrials.gov requirements	8	50.0
Lower compliance rates	6	37.5
No disadvantages	2	12.5
Choose not to disclose	2	12.5

[1]Respondents selected all that applied.
[2]Please note that a study team cannot be a Responsible Party