Automated Devices & Reports of Select Agent Release

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Medical Device Design-Incorporating Incorporating Safety and Biosafety Planning

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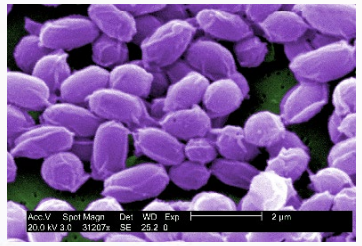
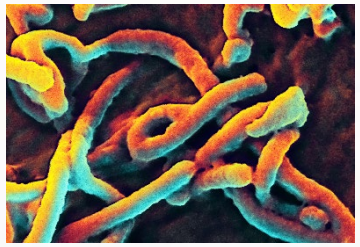
Federal Select Agent Program (FSAP)

- **Regulates the possession, use, and transfer of biological select agents and toxins (BSAT) with the potential to pose a severe threat to public, animal or plant health, or to animal or plant products**
- **Managed jointly by:**
  - The Division of Select Agents and Toxins (DSAT), Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services (HHS)
  - The Division of Agricultural Select Agents and Toxins (DASAT), Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture (USDA)

Select Agent Regulations

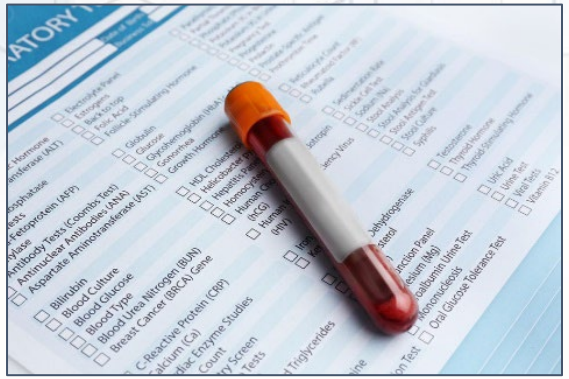
- **Relevant regulations include:**
  - 7 C.F.R. Part 331 (plants and plant products)
  - 9 C.F.R. Part 121 (animals and animal products)
  - 42 C.F.R. Part 73 (public health)
- **List-based regulatory program (currently 68 agents)**
- **Requires review and republication of agent list every two years**





Exemptions

- **Clinical or diagnostic laboratories (and other entities)**
  - BSAT identified through diagnosis, verification, or proficiency testing
  - Upon identification
    - Securely store and report theft, loss, or release
    - Transfer or destroy within 7 days
    - Complete APHIS/CDC Form 4 within 7 days
- **Products approved under certain Federal laws**
- **Investigational products**
  - Must apply for exemption – APHIS/CDC Form 5
- **Public health or agricultural emergency**



USDA

REQUEST FOR EXEMPTION OF SELECT AGENTS AND TOXINS FOR AN INVESTIGATIONAL PRODUCT (APHIS/CDC FORM 5)

FORM APPROVED
OMB NO. 0579-0213
OMB NO. 0920-0576
EXP DATE 10/31/2020

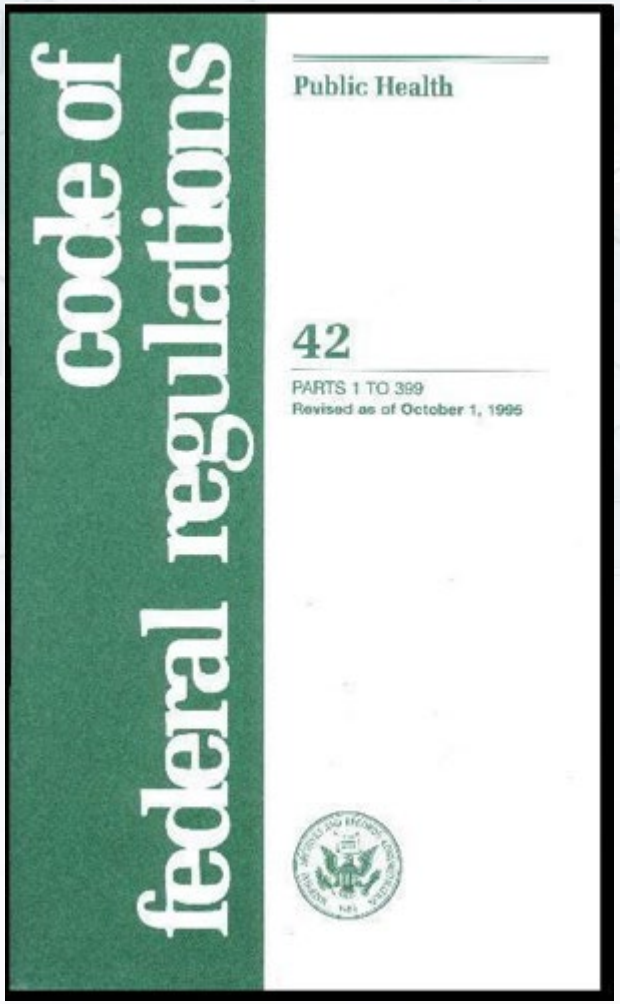
Read all instructions carefully before completing the form. Answer all items completely and type or print in ink. The form must be signed and submitted to either APHIS or CDC:

Animal and Plant Health Inspection Service
Agriculture Select Agent Program
4700 River Road Unit 2, Mailstop 22, Cubicle 1A07
Riverdale, MD 20737
FAX: 301-734-3652
E-mail: AgSAS@aphis.usda.gov

Centers for Disease Control and Prevention
Division of Select Agents and Toxins
1600 Clifton Road NE, Mailstop A-46
Atlanta, GA 30329
FAX: 404-718-2096
E-mail: lrsat@cdc.gov

SECTION 1 – TO BE COMPLETED FOR INVESTIGATIONAL PRODUCT EXEMPTION			
1. Entity name:	2. Entity registration number (if applicable):		
3. Entity address (NOT a post office address):	4. City:	5. State:	6. Zip code:
7. Applicant First: MI: Last:	8. Title:		
9. Telephone #:	10. FAX #:	11. E-mail address:	

Select Agent Regulations: Section 19* (Release)



- *(b) Upon discovery of the release of an agent or toxin causing* ***occupational exposure*****, or** ***release of the select agent or toxin outside of the primary barriers of the biocontainment area*****, an individual or entity must immediately notify CDC or APHIS.**
  - *(2) A completed APHIS/CDC Form 3 must be submitted within 7 calendar days.*

***42 CFR Part 73, 7 CFR Part 331, 9 CFR Part 121**

Background/Methodology of Analyzing 2021 APHIS/CDC Form 3s

Why Examine Benchtop Releases and Occupational Exposures?

Form 3 reports include:

1) description of activities leading up to and following the release event, and

2) entity investigation of root cause, corrective actions implemented

- 104 reports of release submitted to DSAT involving specimen manipulation outside primary containment were analyzed

- Case file specifics (e.g., agent involved) were tabulated directly from the electronic Federal Select Agent Program database (eFSAP)

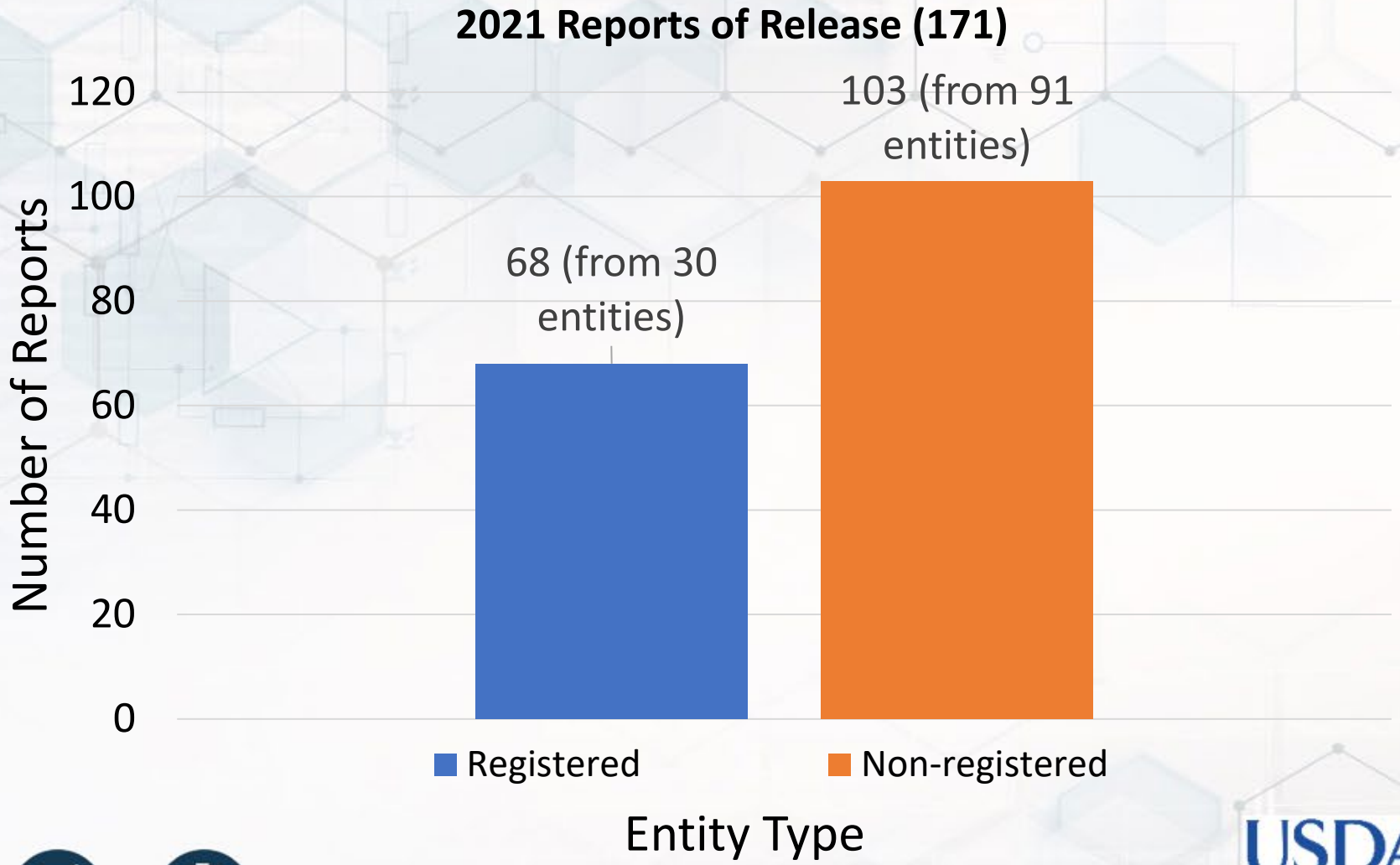
Methodology of Analyzing 2021 Form 3s, continued

- Most data extracted from critical reading of entity narrative in Appendix 1, block C8 (investigation), and response to Request for Information letter

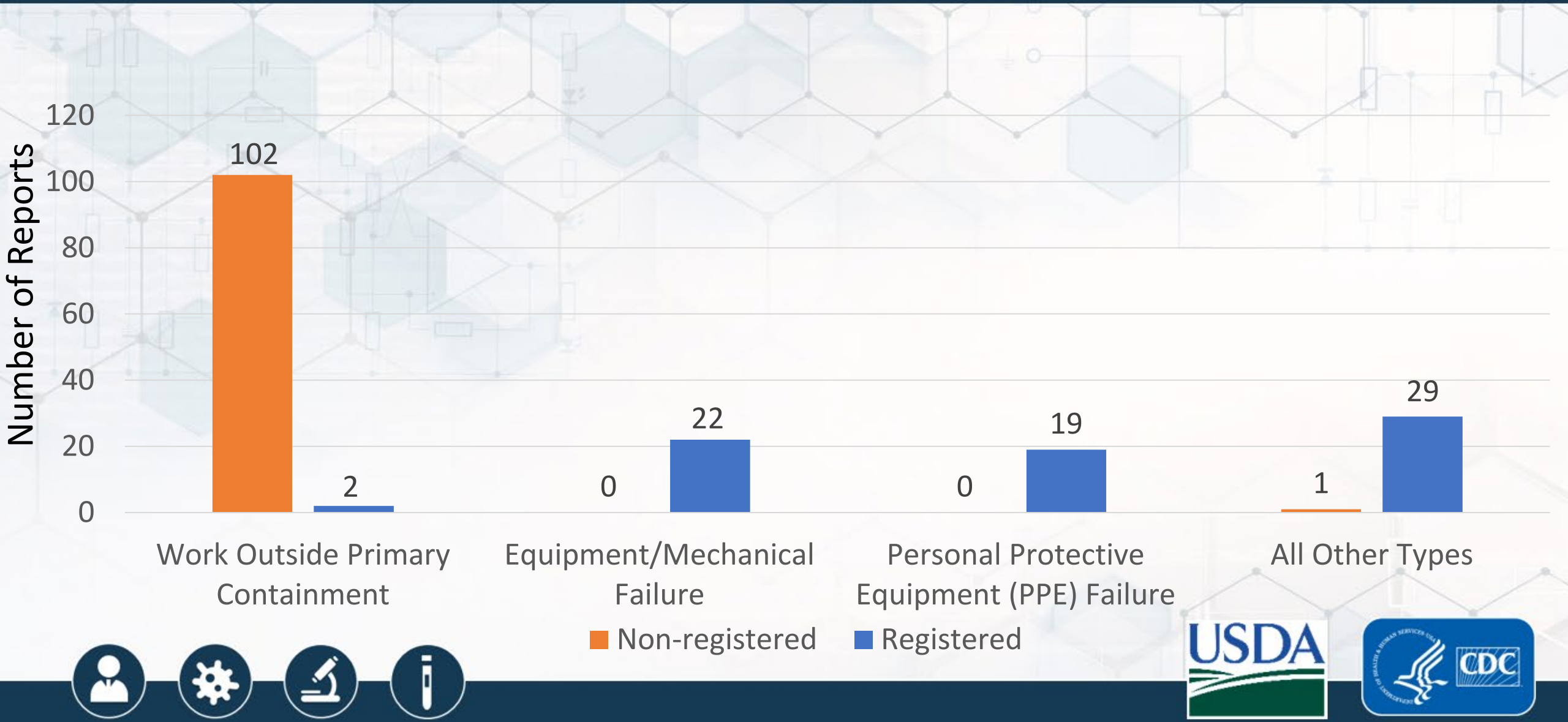
APPENDIX A **EVENTS TIMELINE**
Provide a detailed summary of events, including a timeline of what occurred.
6/12/20 -- Micro lab received order for cultures from patient's liver abscess. Primary culture plates (Blood agar, Chocolate agar, MacConkey agar) setup inside the BSC. 6/13/20 -- Cultures observed for the first time on the open bench and noted to be no growth on MAC. Growth observed on BA, CA. Re-incubated. 6/14/20 -- A gram stain was performed, smeared and read on an open bench (Gram negative rods). 6/15/20 -- MALDI-ID performed on small colonies on plates, along with conventional Microscan panel. Both performed on open bench. 6/16/20 -- MALDI-ID verified for Burkholderia thailandensis, 6/18/20 - culture finalized as Burkholderia species. 6/17/20 -- Tech concerned about misidentification, performs biochemical tests in BSC. Cultures sent off to state lab for identification. 6/21/20 -- State reference lab sends Burkholderia pseudomallei confirmation to hospital lab. All remaining cultures and specimens in hospital lab disposed of by autoclaving. Potential exposures discussed with microbiology techs. Referred to employee health for follow up. 6/22/20 -- A completed APHIS/CDC Form 3, Form 4 sent to DSAT.

Results

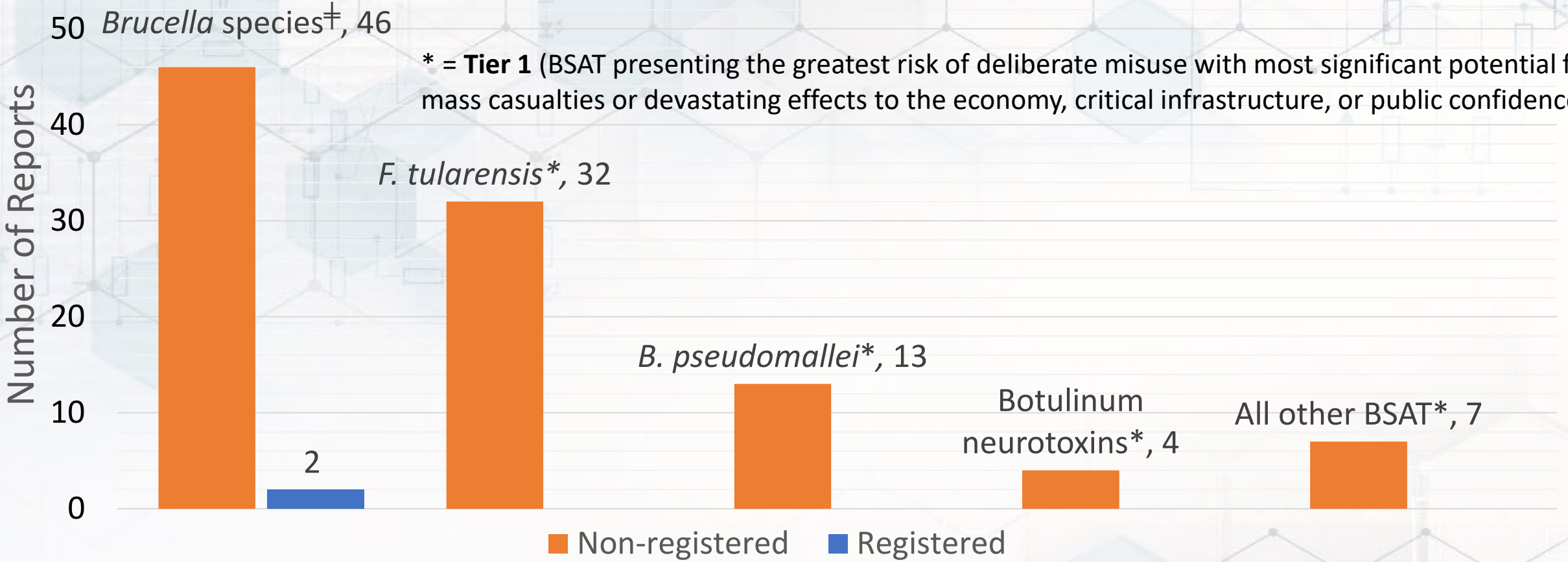
Reports of Release Submitted to DSAT, 2021 (Overview)



Incident Type in Reports of Release, 2021



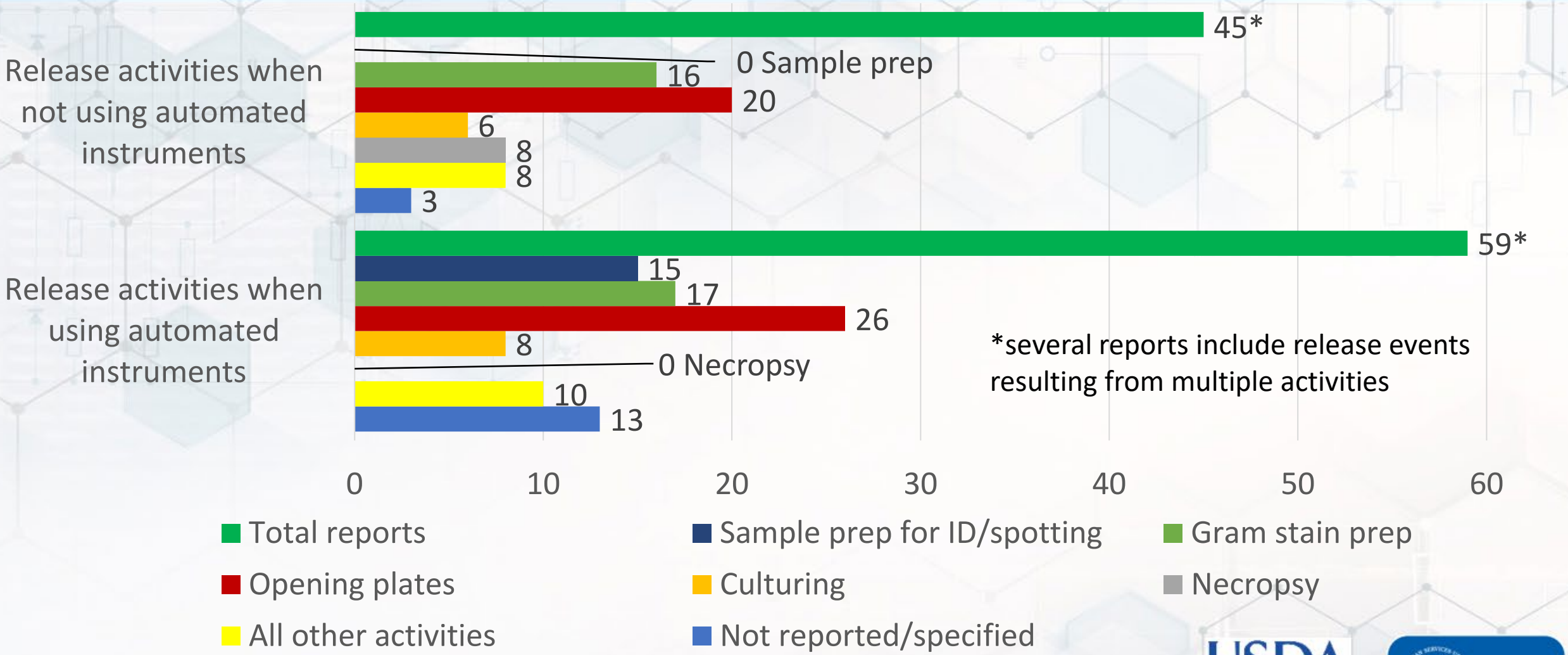
BSAT Reported in 'Work Outside Primary Containment' Releases, 2021



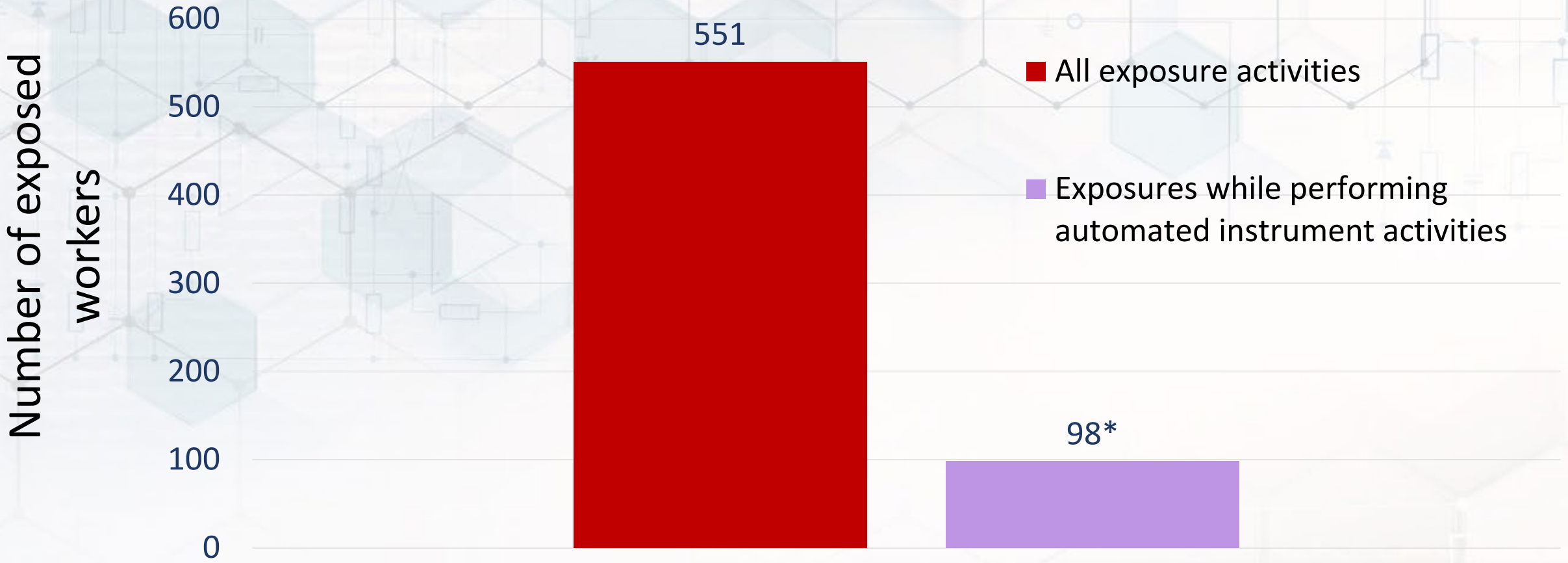
* = **Tier 1** (BSAT presenting the greatest risk of deliberate misuse with most significant potential for mass casualties or devastating effects to the economy, critical infrastructure, or public confidence)

‡ = *B. abortus, B. melitensis, B. suis*

Activities Listed as Release Events



Exposures Associated with Work Outside Primary Containment



*for 21 reports the exact number of exposures associated with automated instruments was not reported (counted as 1 exposure per report)

Selected Quotes Regarding Root Cause

*" The technologist **did not follow the procedure** which states that any culture plates **demonstrating growth of a slow growing** gram negative rod (growth at or after 48 hours) should **be opened in a biological safety cabinet** and should be treated as a potential bioterrorism agent until ruled out (all manipulation of the culture is performed in a biological safety cabinet)"*

Training on existing policy

*"There was **no expected diagnosis for this select agent**. No one knew the patient harboring the select agent was infected"*

Cross communication with providers

In **68 out of 104** reports, the microbiology laboratory did not receive provider suspicions of BSAT. **No suspicions existed in 40 reports**.

*"**Initial** Vitek **ID**: Low discrimination **Corynebacterium / Actinomyces**…*
Repeat** Vitek identification: Low discrimination **Corynebacterium / Actinomyces
*Final identification from Public Health [lab]: **Brucella suis**"*

Reducing misidentification

How Can Reporting Entities Move Forward?

- **Containment:** Properly maintained BSCs, other appropriate personal protective equipment, or other physical containment devices be used whenever procedures with a potential for creating infectious aerosols or splashes are conducted, in accordance with nationally recognized safety standards [BMBL: (BSL-2) B4.a, B4.c].
- **Training:** Select agent growth characteristics, common misidentifications, and rule out algorithms should be emphasized in routine training (e.g., available at the work bench) to facilitate BSAT recognition
- **Communication**: Improve coordination with sample providers to ascertain suspicions of select agent prior to manipulation of **clinical** specimens outside of primary containment, if such suspicions exist.

Highlights

- A majority of releases reported to DSAT in 2021 were submitted by non-registered entities (60%), with ‘work outside primary containment’ the predominant incident type (60.5%)
- ***Brucella* species and *F. tularensis* are the most commonly reported BSAT** in releases involving work outside primary containment
- **Majority of reports (56.7%) include the use of automated instruments as release events**—sample inoculation/spotting most commonly done outside biosafety cabinet
- Automated processes account for at least 17.8% of reported exposures
- None of the releases reported resulted in deaths or transmission of pathogens outside of laboratories

www.selectagents.gov

CDC Contact Information
Division of Select Agents and Toxins
lrsat@cdc.gov
404-718-2000

APHIS Contact Information
Division of Agricultural
Select Agents and Toxins
DASAT@usda.gov
301-851-2070