

# Summary of the 2023 Metric and Review

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Ensuring accuracy and uniformity of records entering the National Cooperator Database

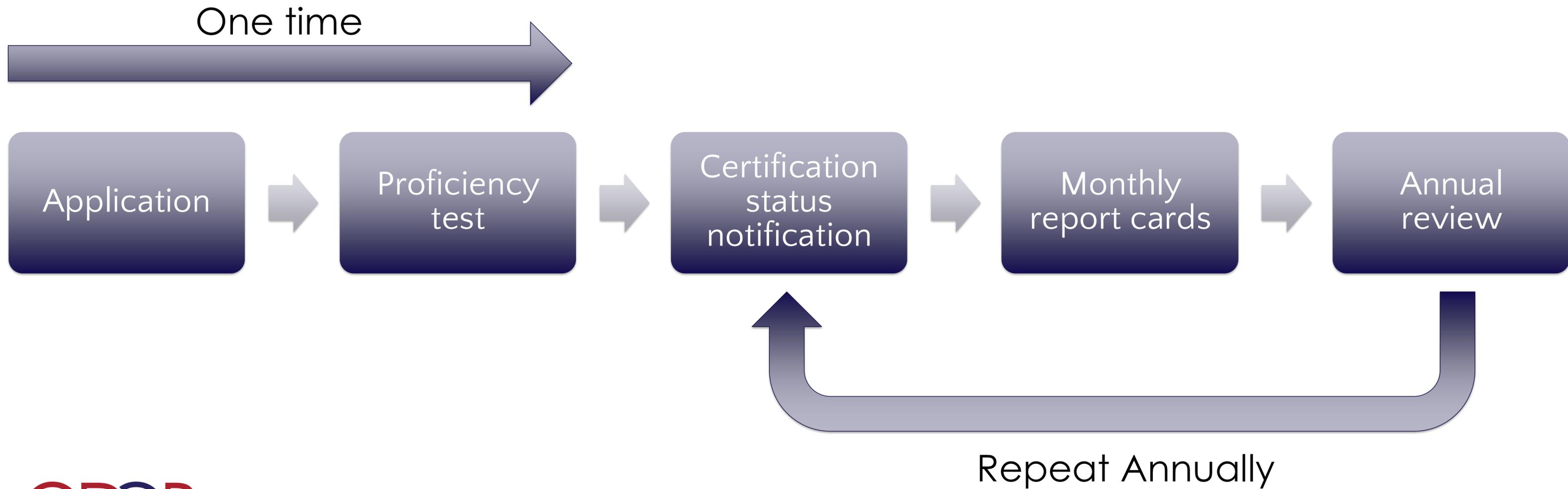
Regular performance monitoring to ensure data quality

CDCB QC Program

Detecting and advising on solutions to correct issues

Facilitate data exchange and improve communication between CDCB and collaborators

# CDCB Genomic Nominator/Laboratory Certification Process



# History of the QC program



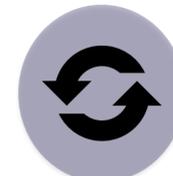
**2017**

- Nominator Annual Review started



**2019**

- Lab Monthly Report Cards
- Lab Annual Review started



**2023**

- Updated metrics



**2018**

- Nominator Monthly Report Cards
- Lab metrics established



**2022**

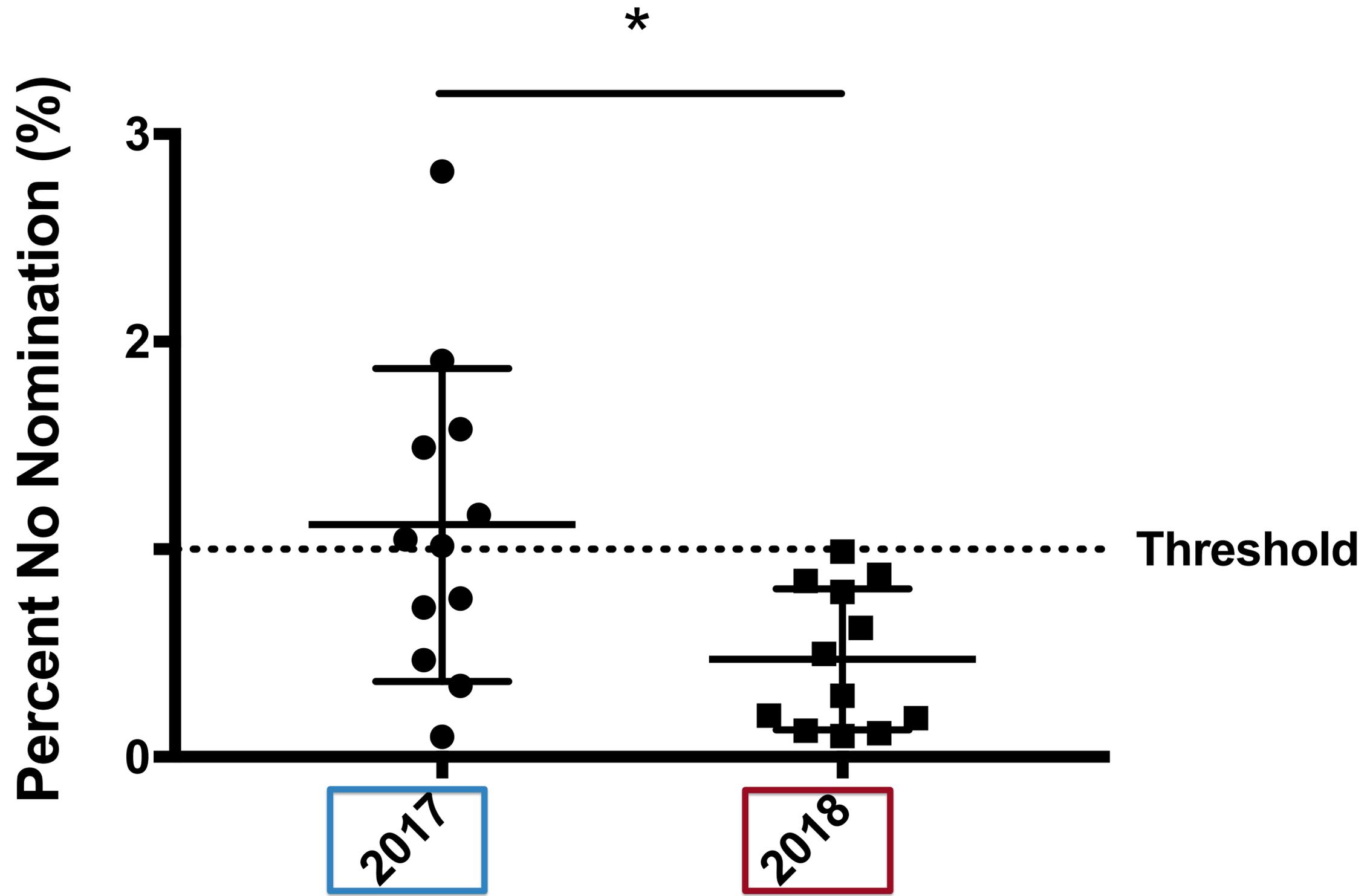
- QC metrics survey



**2024**

- Continued improvement!

# Before vs After Implementation of QC program



# Lessons Learned in Past Seven Years

- **Each organization has a different business model**
  - >> various thresholds/metrics apply differently
- **The communication between CDCB and each organization is key for continued improvements**
  - >> In addition to making nominators/labs aware of issues, CDCB can also learn from the QC program
- **Importance/difficulty to place appropriate thresholds**
  - >> Customized metrics/thresholds are requested, but it is hard to accommodate.

# Changes in Nominator Metrics over time

Class	Metric	Change
Critical	No Nomination when loading	
Critical	Unknown Animal ID	
Major	CDCB blanked dam due to conflict	
Major	Usability=N	
Major	Fee Code=N	
Major	Genotype withdrawn	
Major	Genotype reassigned	
Minor	Changes in pedigree	Threshold changed from 25% to 30% in 2022
Minor	Sire pedigree missing	
Minor	Dam pedigree missing	Metric changed to “Dam ID or pedigree missing” in 2023
Special	“Percentage Exceeds Average of Previous 3 Months by > = 5%”	Added in 2022
info	Herd reason codes	
info	Nomination Fee Codes Changed	Added in 2020
Critical	IDs with 573/574	Obsolete in 2019
Critical	Herd code discrepancy	Obsolete in 2019
Critical	Mismatch in fee code 1 or 2	Obsolete in 2019

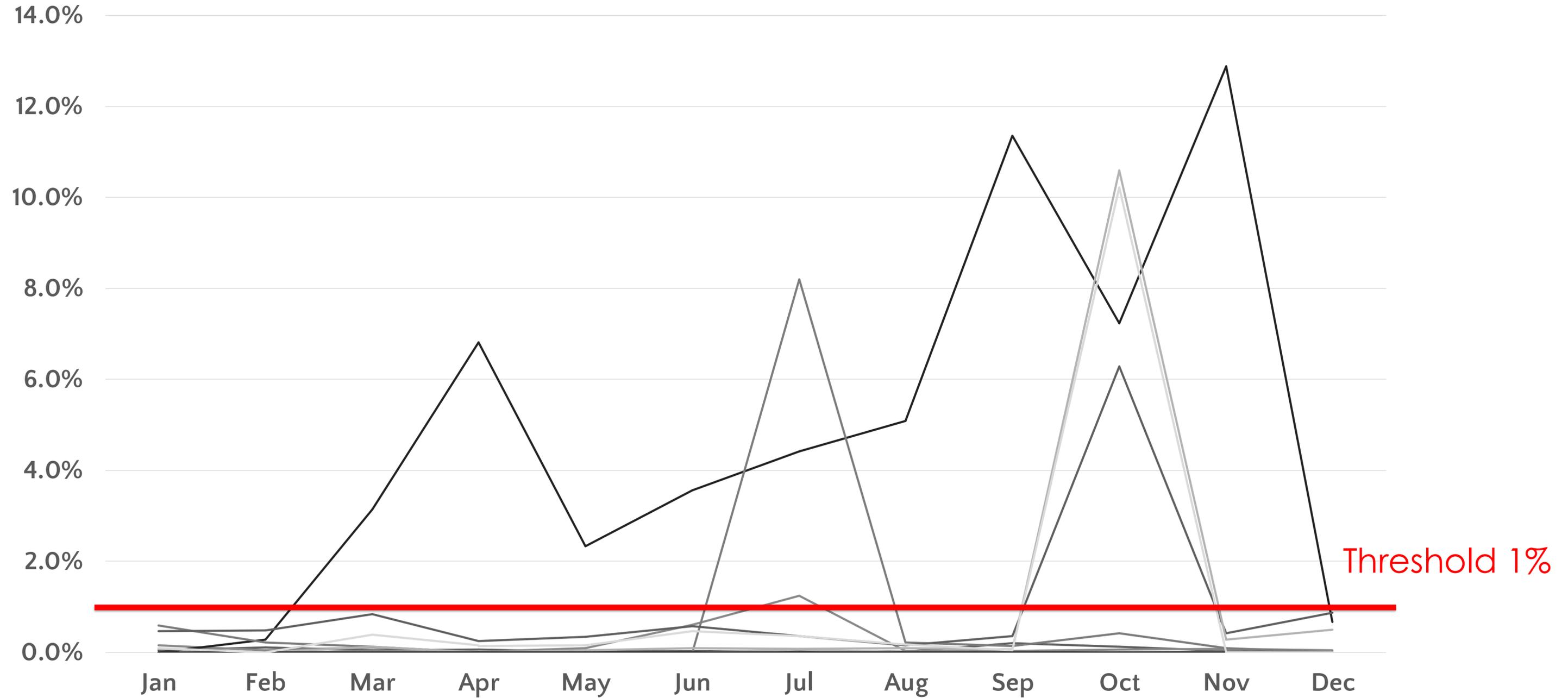
# Changes in Lab Metrics over time

Class	Metric	Change
Critical	Submission with <10 animal genotypes	
Critical	Submission failing on SNP call rate	
Critical	Submissions failing on SNP PPC	
Critical	Submissions failing on HWE	
Major	% of animal GT with no nomination	Class changed to info in 2020
Major	Submissions failing on excessive conflicts per chip	Class changed to info in 2020
Minor	% of animal GT reassigned	Obsolete in 2019
Info	Submissions having low call rate genotypes	Obsolete in 2023

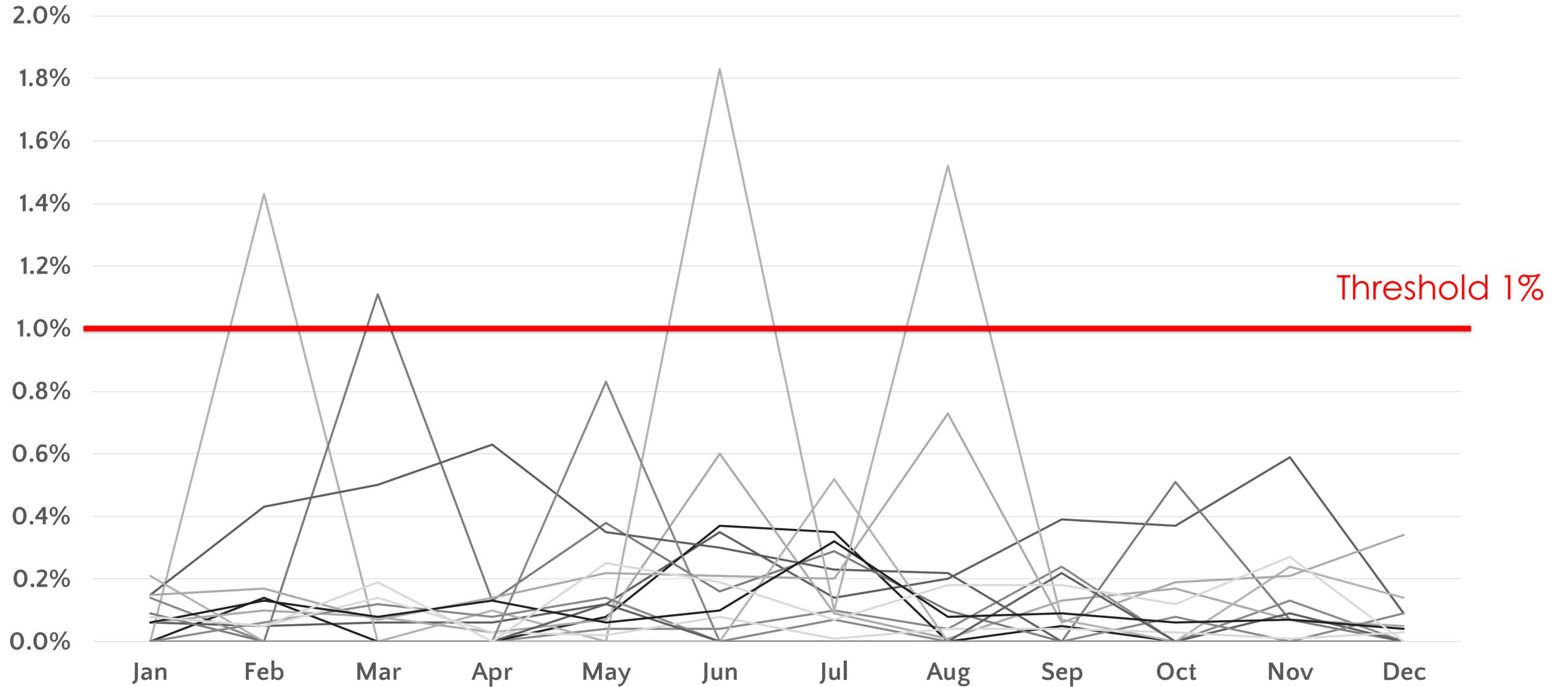
# SUMMARY OF 2023 LAB AND NOMINATOR ANNUAL REVIEW

# 1. Metrics Assessment

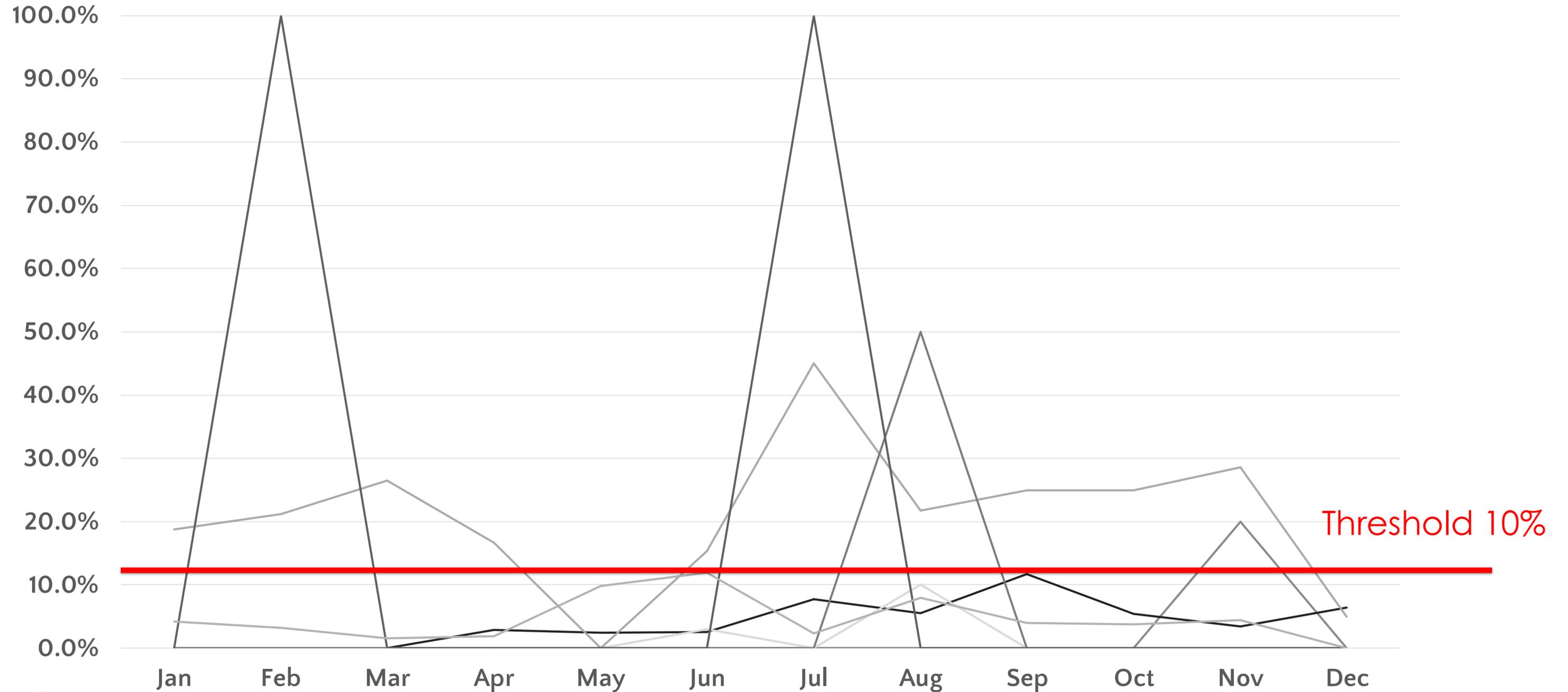
### No Nomination Prior to Genotype Loading (%)

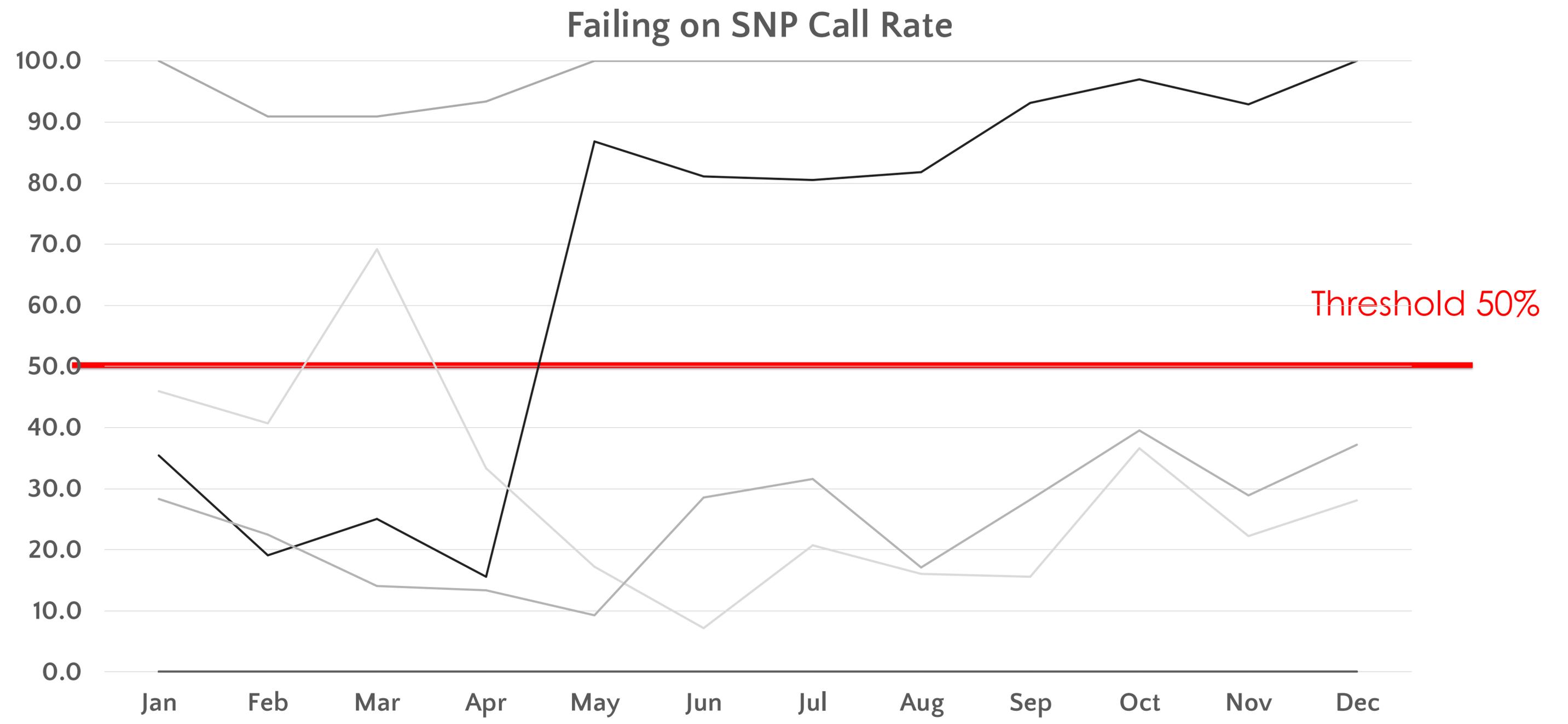


### Unknown ID (%)

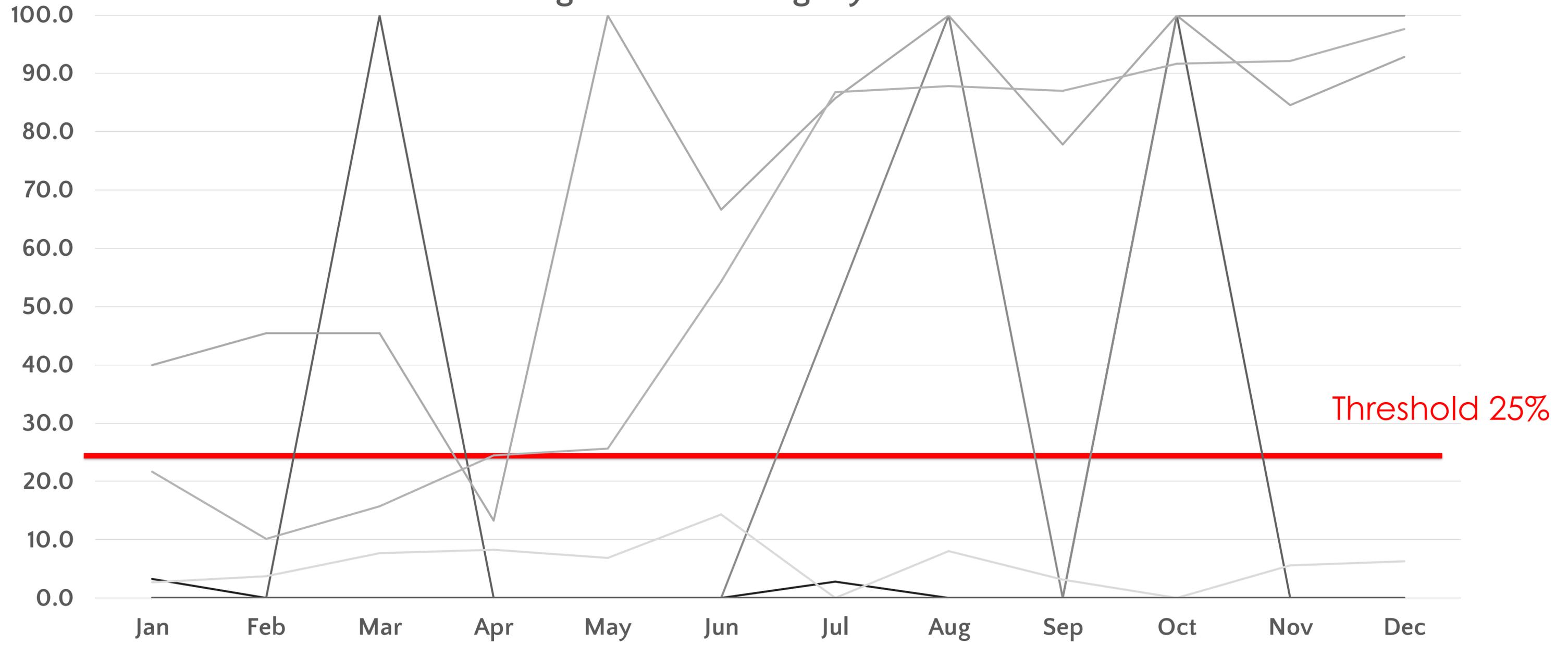


### Submissions with < 10 Genotypes

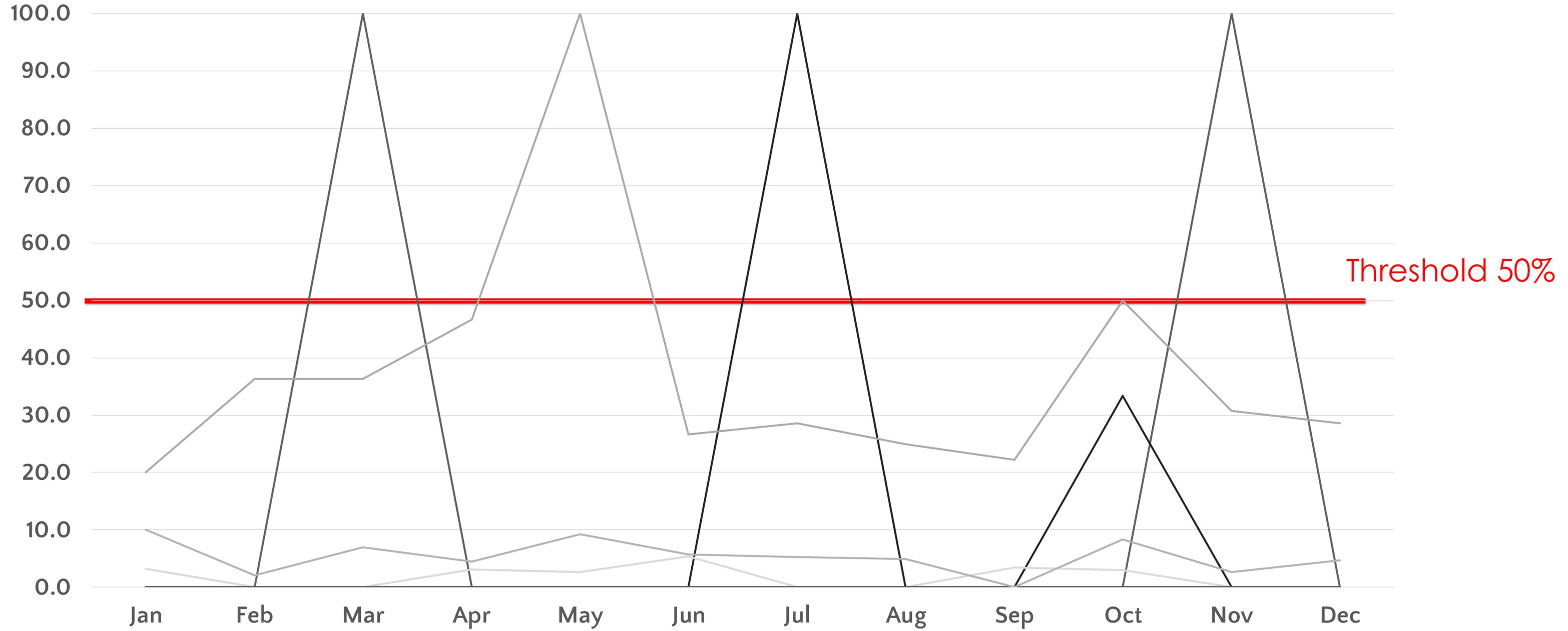




### Failing on Parent Progeny Conflict



### Failing on Hardy Weinberg Equilibrium



# Metrics Assessment Summary

- Majority of nominators has achieved metric thresholds since 2018 implementation
- Metrics are used to find abnormal performance to detect issues
- Small sample sizes complicate the lab metrics
- Some chips had poor SNP performance, which impacted metrics for labs frequently using them

## 2. SOP Review

# SOPs

- Should be updated every year as new changes or improvements are made in the procedures
- Our team compares the updated SOPs with the previous year's to see if you provided sufficient descriptions in your SOP or if our previous suggestions or newly implemented procedures are incorporated in the latest SOP.
- Protocols within the SOPs should be replicable; you should describe the processes in enough detail that a new employee can follow them without trouble.
- Iteration of 2-3 years to be mature. (Most of organizations has been working with CDCB for > 2 years now)

# Take home from 2023 Review...



Three labs experienced issues with poor performing SNP chips that were flagged with our metrics



**13** nominators showed increase in number of nominations in 2023, compared to 2022!



There continued to be communication challenges throughout the year



All MLAs updated

# Follow Up Actions from CDCB

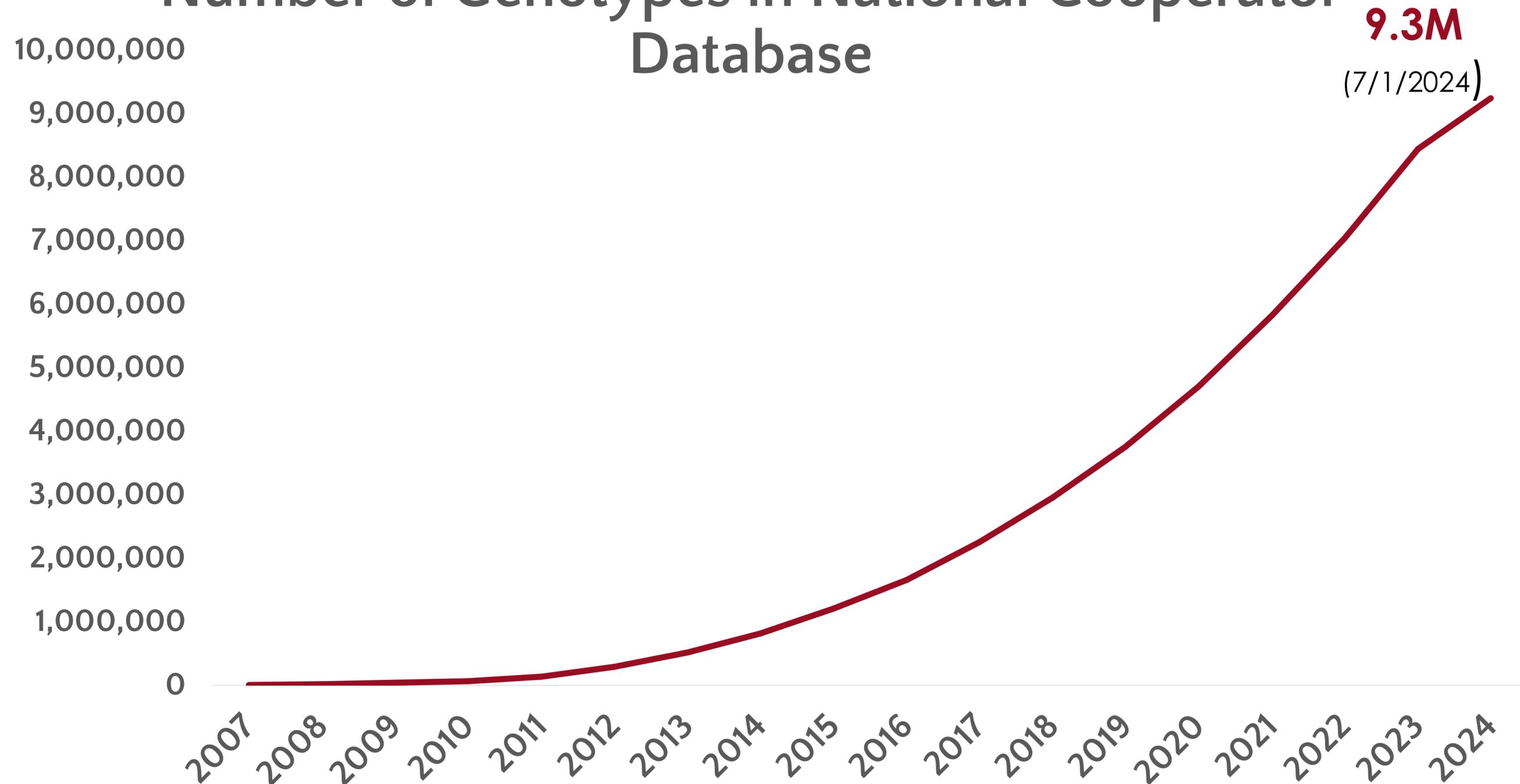
- SNP validation and turning off poor performing SNPs for some of the chips
- Follow up with some collaborators that had issues or raised concerns to resolve the issues
- Check the metrics internally to see if they are still relevant

# QC Program Is Important Because...

- To ensure the accuracy and uniformity of records included in the National Cooperator Database, especially as more and more data comes from different sources with different characteristics
- QC program regulates and monitors collaborator's performance
- Opportunity for communication and information exchange to better understand each other's need
- It helps CDCB to detect possible improvements to provide better service

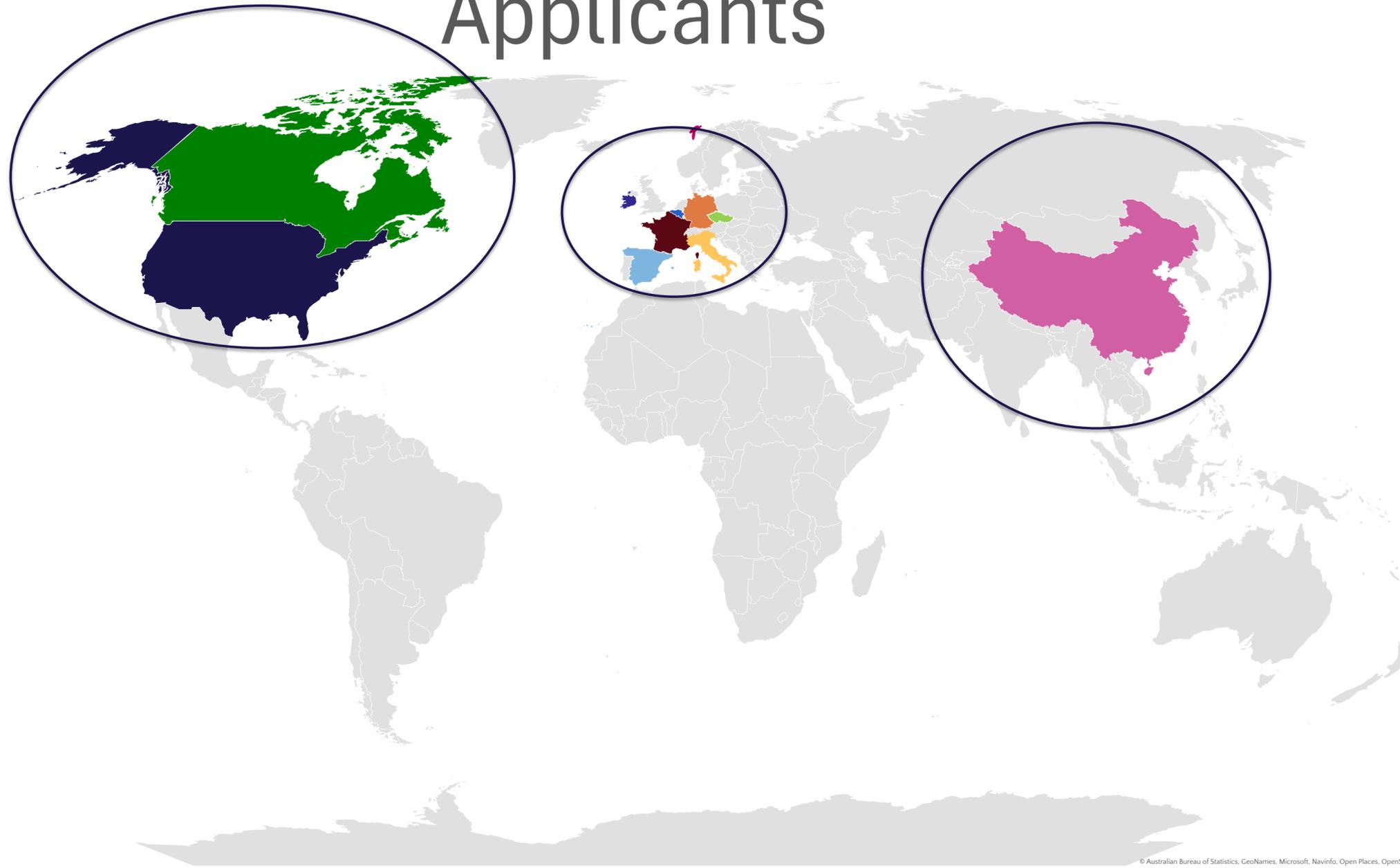
# Where Do We Stand Now?

# Number of Genotypes in National Cooperator Database



—Accum. GT

# Locations of Nominators/Lab and Applicants



- Belgium (1)
- Canada (2)
- China (2)
- Czech Republic (1)
- Denmark (1)
- France (1)
- Germany (1)
- Ireland (1)
- Italy (2)
- Spain (1)
- US (9)

# Current Statistics



21 CDCB-certified nominators  
9 CDCB-certified laboratories



>14,000 Redmine tickets



9.3M Genotypes

# Things that we are working on

- We began working with an external consulting company, **Brevitas**, to support and improve our QC program and annual review process.
- Updating the protocols for routine genotype transfer to **Lactanet** (Canadian National Evaluation Center)
- New ingestion system is under development
- More comprehensive and active SNP performance check (low call, PPC)
- Acceptance of new embryo ID (**HOUSAEMBXX1234567, MBC=6**)

# THANK YOU FOR YOUR ATTENTION

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