Security Evaluation Work Group
Baseline & Summative Self-Report Findings
2013-14

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SEWG Background

- Work Group formed to address test security concerns involving the CPFM exam under ANSI CFP certification

- Dr. Ford, ANSI CAP Assessor, designed and conducted a 5 year evaluation study of past, current and future test security breaches and the impact of remedies that CFP implemented starting in 2011.

- Evaluation proceeded in three stages:

  1. Baseline study of the 2009-10 year to pilot test self-report data collection and establish a pre-assessment point from which to measure progress

  2. Interim study of the 2012-13 year to assess progress in addressing test security issues

  3. **Post-assessment of the 2013-14 year** and future years to measure progress and track trends in CPFM test security

Evaluation Methodology

Single Group Pre-Post Design

M_1 → I → M_2 → M_3

M = measurement (1 = Pre, 2 = Formative 3 = Post) I = Interventions

- Self-reporting via questionnaire
- Data aggregated and reported as single group only (no within-group comparisons)
- Time Periods:
  - Baseline (Pre) – July 2009 – June 2010
  - Pilot (Formative) – July 2012 – June 2013
  - **Post (Summative) - July 2013 – June 2014**
  - Trending – Annually after 2014 as part of ANSI surveillance

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Summary of Evaluation Findings

- Small number of test security violations, but once is one too many

- About 4% of proctors/administrators are disciplinary problems, but numbers are declining
  - Better screening, selection, and discipline are working
  - 100% compliance on retraining achieved

- Test administration and shipping irregularities continue to be problematic
  - Better tracking and enforcement of existing rules needed
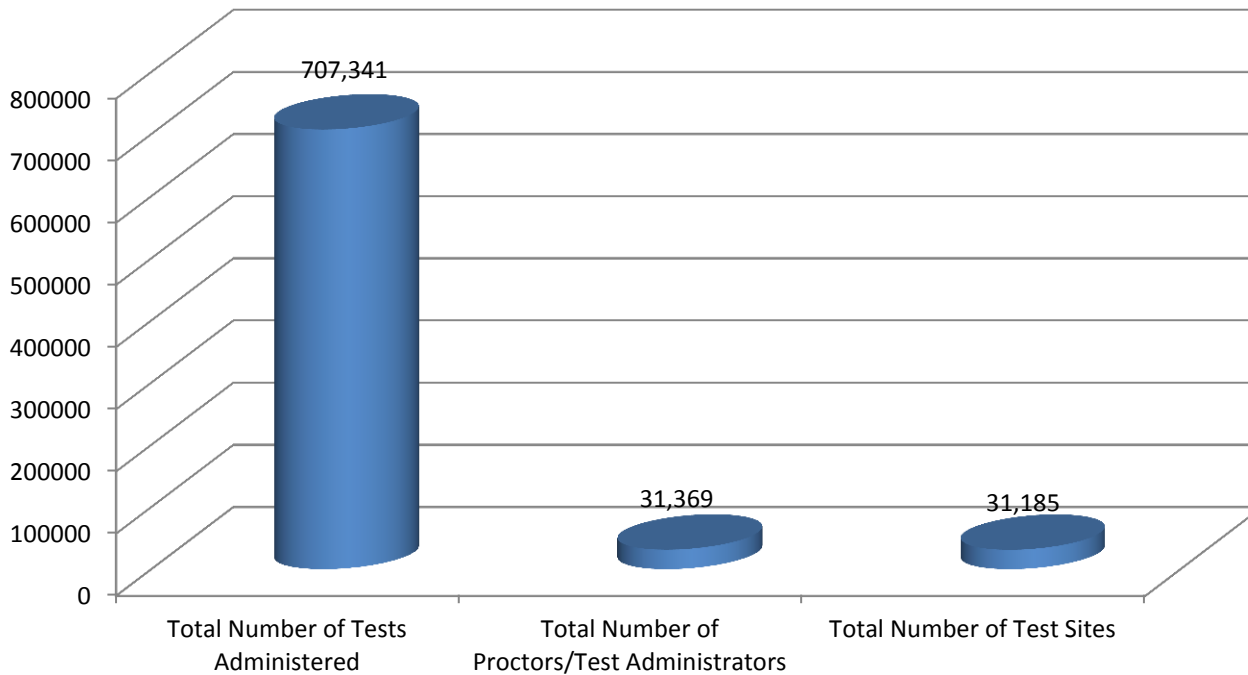 - May be reaching theoretical limits of compliance, given current testing methods

Summary of Evaluation Findings (cont'd)

- Significant efforts being made to prevent test security breaches
  - ➢ Best practices should be disseminated to all providers
- Management QA System fully implemented in 2012-13
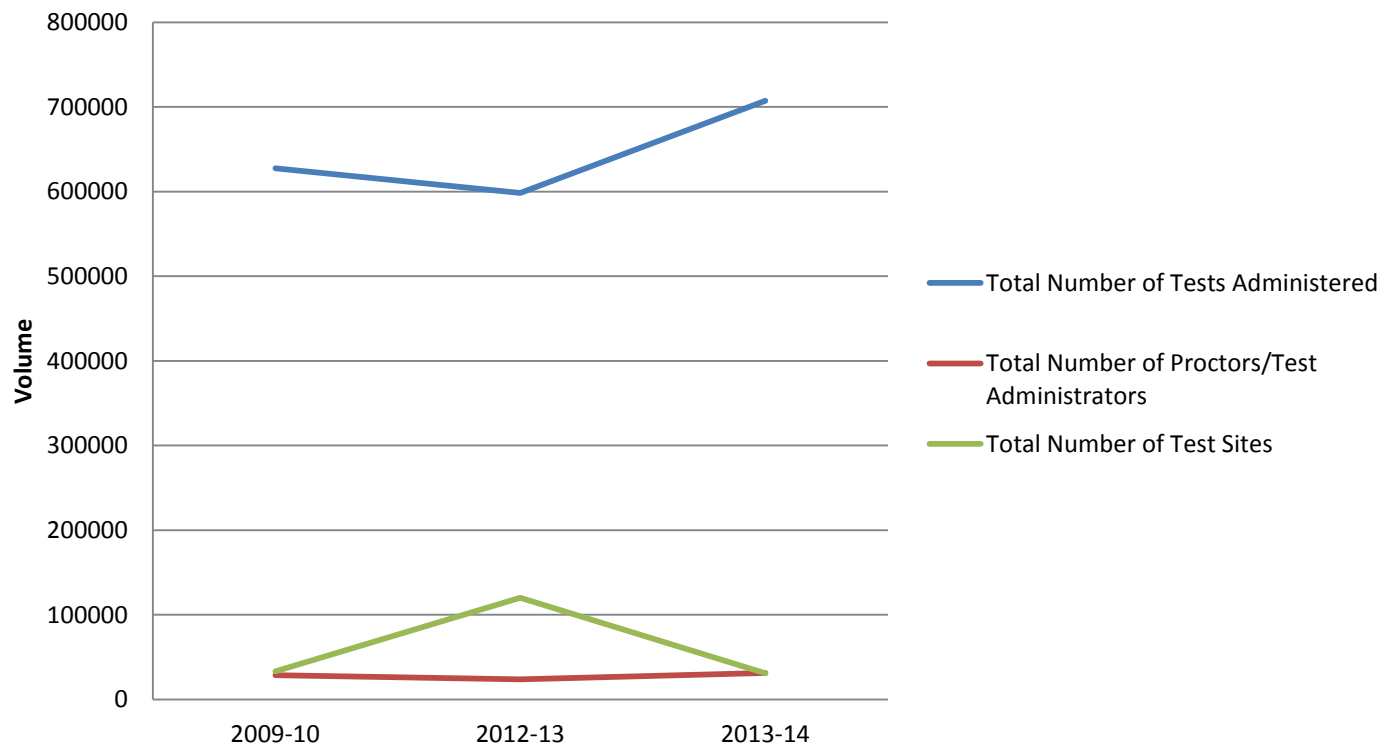- Continue to monitor test security as part of ANSI annual surveillance

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CPFM is a Big Deal

Testing Volume - 2013-14

Chart showing testing volume values:
- Total Number of Tests Administered: 707,341
- Total Number of Proctors/Test Administrators: 31,369
- Total Number of Test Sites: 31,185

Y-axis scale: 0 to 800000

■ Large numbers pose challenges for close policing

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Testing Volume Trend: 2009-2014

Changes in Test Volume

- Total Number of Tests Administered
- Total Number of Proctors/Test Administrators
- Total Number of Test Sites

Volume axis: 0, 100000, 200000, 300000, 400000, 500000, 600000, 700000, 800000

Categories: 2009-10, 2012-13, 2013-14

■ Test Volume and Test Sites show no clear pattern; # of Proctors/Administrators shows little change.

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Goal One: Provide Regular Training for Proctors/Administrators

Proctor/Administrator Training - 2014
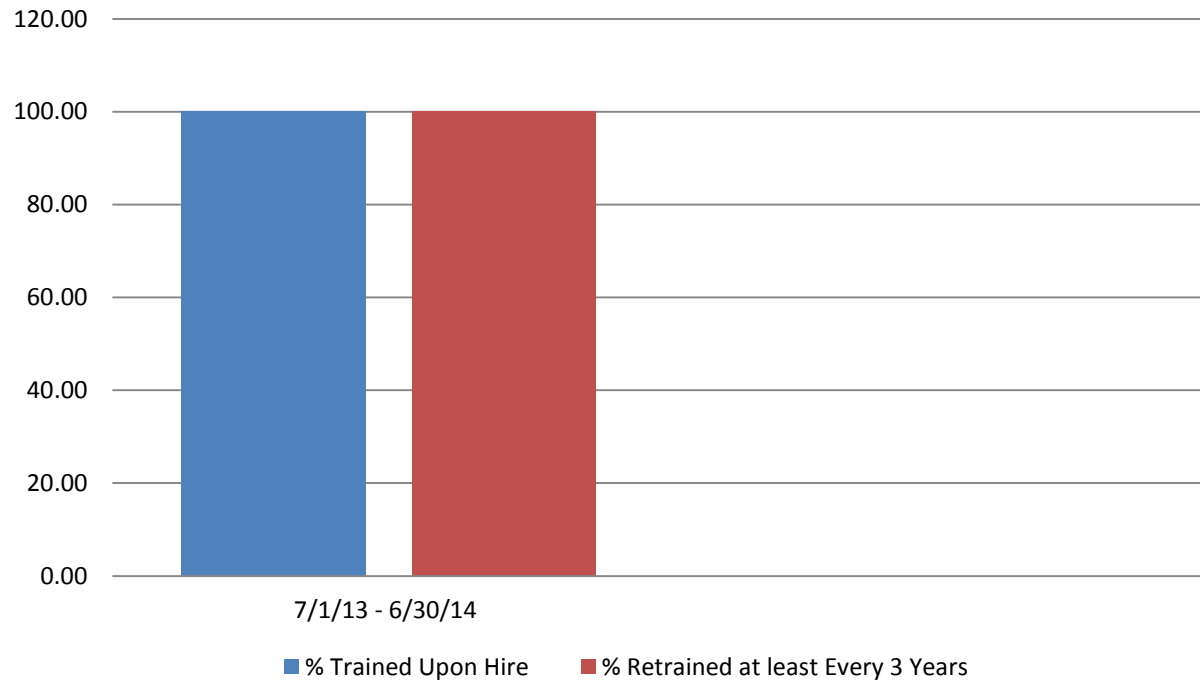
- Goal has been achieved with 100% compliance.

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Change in Retraining: 2009-2014

Proctor/Administrator Training - 2009-2014

- Percentage of proctors and test administrators receiving training upon hire
- Percentage of proctors and test administrators receiving retraining after hire
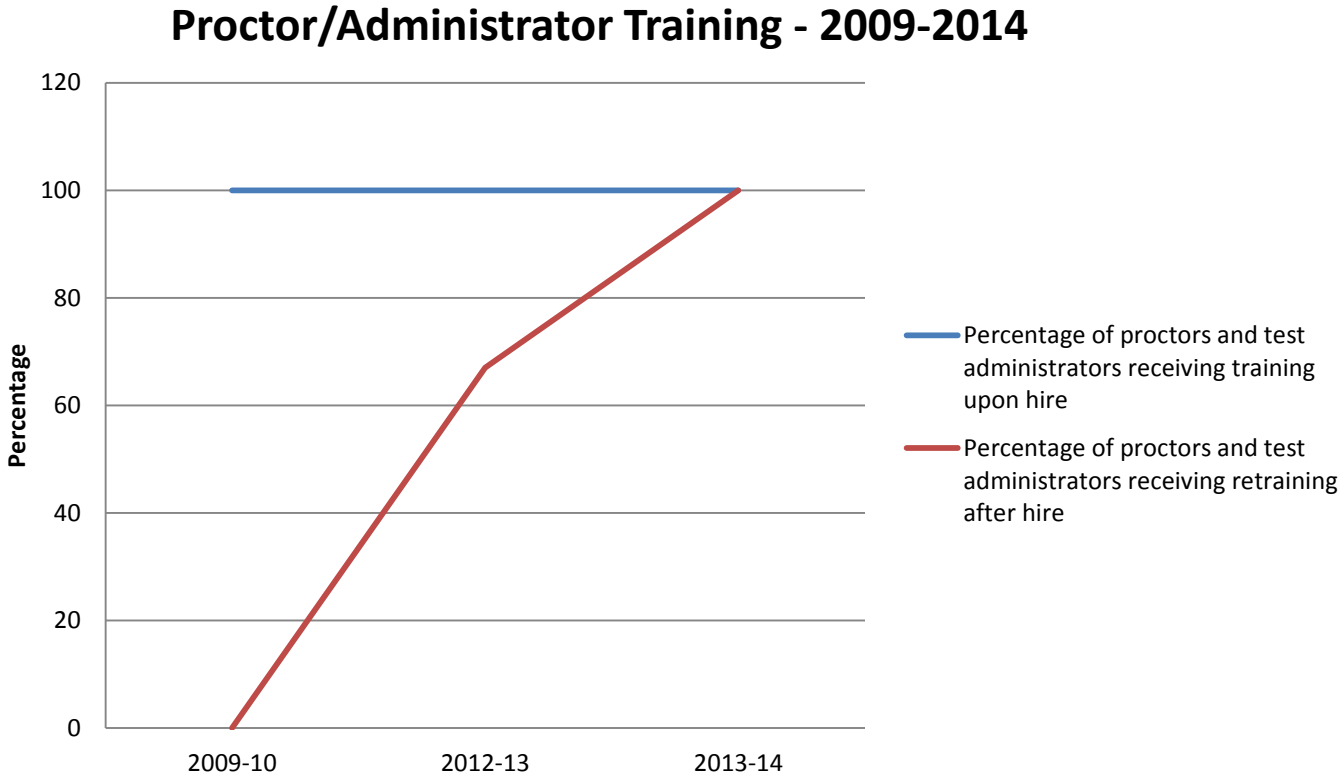
■ All Retraining completed in 2014.

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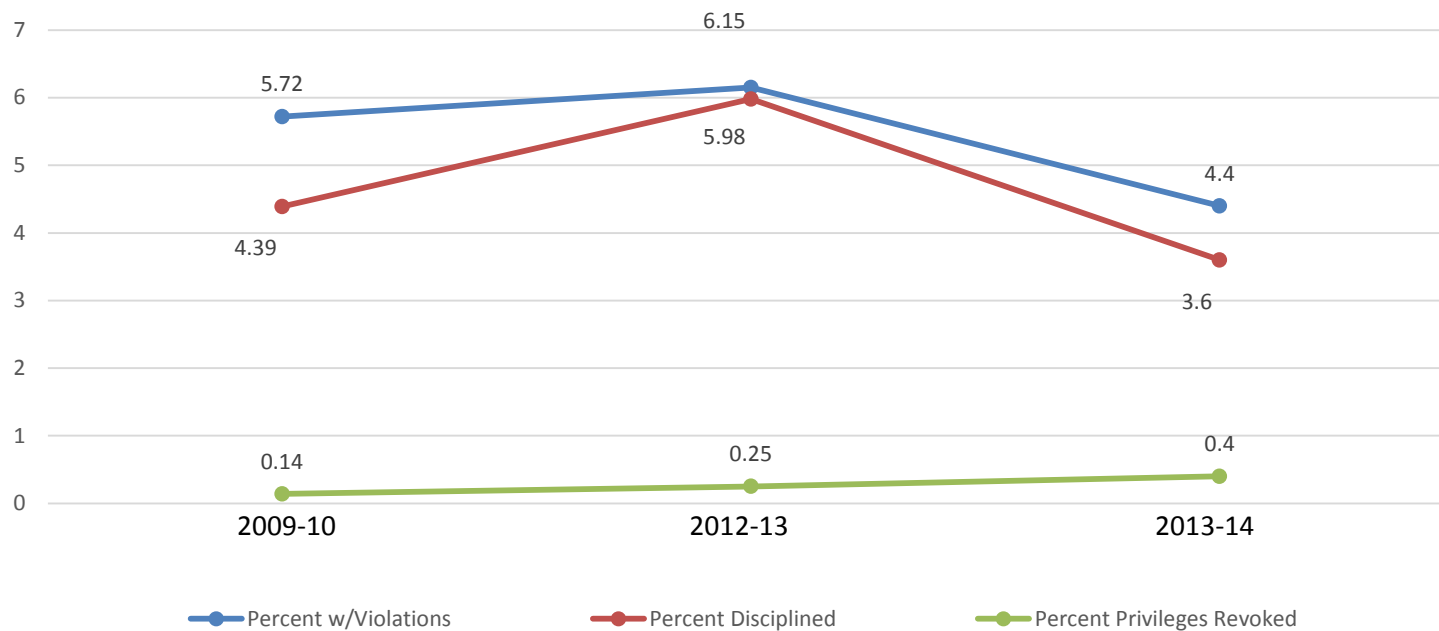# Goal One: Enforce Proctor/Administrator Disciplinary Actions

Percentage of Proctors w/ Disciplinary Issues - 2013-14
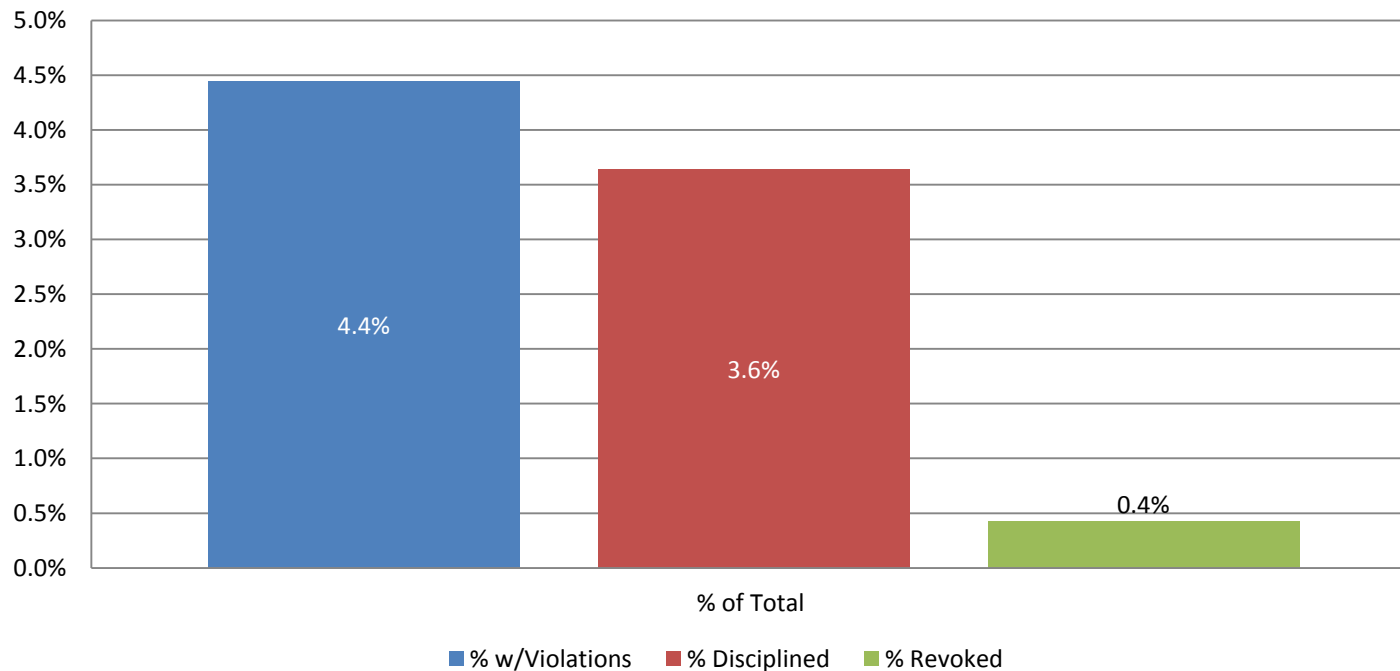
In 2014, violations decreased while revocations increased, indicating greater enforcement.

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Changes in Proctor/Administrator Disciplinary Actions: 2009-2014

Percentage of Proctors/Administrators w/ Disciplinary Issues: 2009-2014

	2009-10	2012-13	2013-14
Percent w/Violations	5.72	6.15	4.4
Percent Disciplined	4.39	5.98	3.6
Percent Privileges Revoked	0.14	0.25	0.4

■ Disciplinary issues initially went up, then down, while revocations have steadily increased.

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Primary Reasons for Violations - 2014

1. Failure to return exams/answer sheets on time
2. Failure to return all materials, or to sign/seal return envelopes
3. Failure to use a traceable shipping carrier
4. Failure to follow proctor guidelines, including not being present the whole time or allowing test-takers to self-proctor
5. Suspected/confirmed cheating or colluding with test takers

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Most Common Disciplinary Actions

1. Warning for 1st offense, probation/suspension/ revocation for repeated offenses
2. One year probation/suspension for second offense
3. Revocation of privileges for colluding in cheating; suspected examinees required to re-test

Most Frequent Reasons for Revocation/ Suspension of Proctors

1. Resignation from the position (about 100 cases)

2. Confirmed/suspected case of cheating with proctor/administrator collusion, such as providing answers/coaching or allowing examinees to discuss test or use notes during exam (about 30 cases)

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Goal Two: Reduce Exam Packaging and Shipping Irregularities

Percentage of Lost Test Booklets/Answer Sheets - 2013-14
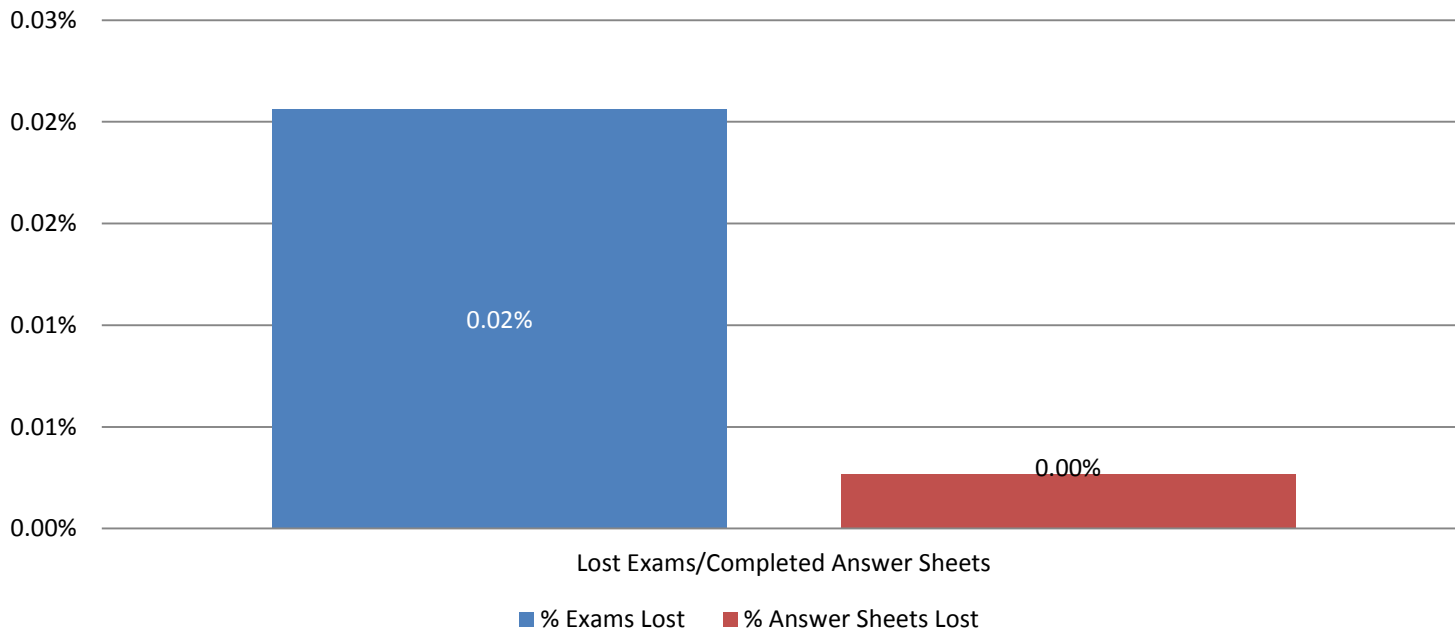
- In 2013-14, 2 out of 10,000 exams lost, the same rate as last year. Lost answer sheets are exceedingly rare.

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Most Frequent Reasons for Lost Exams/ Answer Sheets: 2013-14

1. Proctors improperly disposed of unused exams – shredding or trashing

2. Carrier lost the package
   - Regular mail is not reliable
   - Even traceable carriers lose packages sometimes (19 answer sheets lost in 2013-14)

3. Proctors lost extra exams/answer sheets; presumed stolen

Changes in Lost Materials: 2009-2014

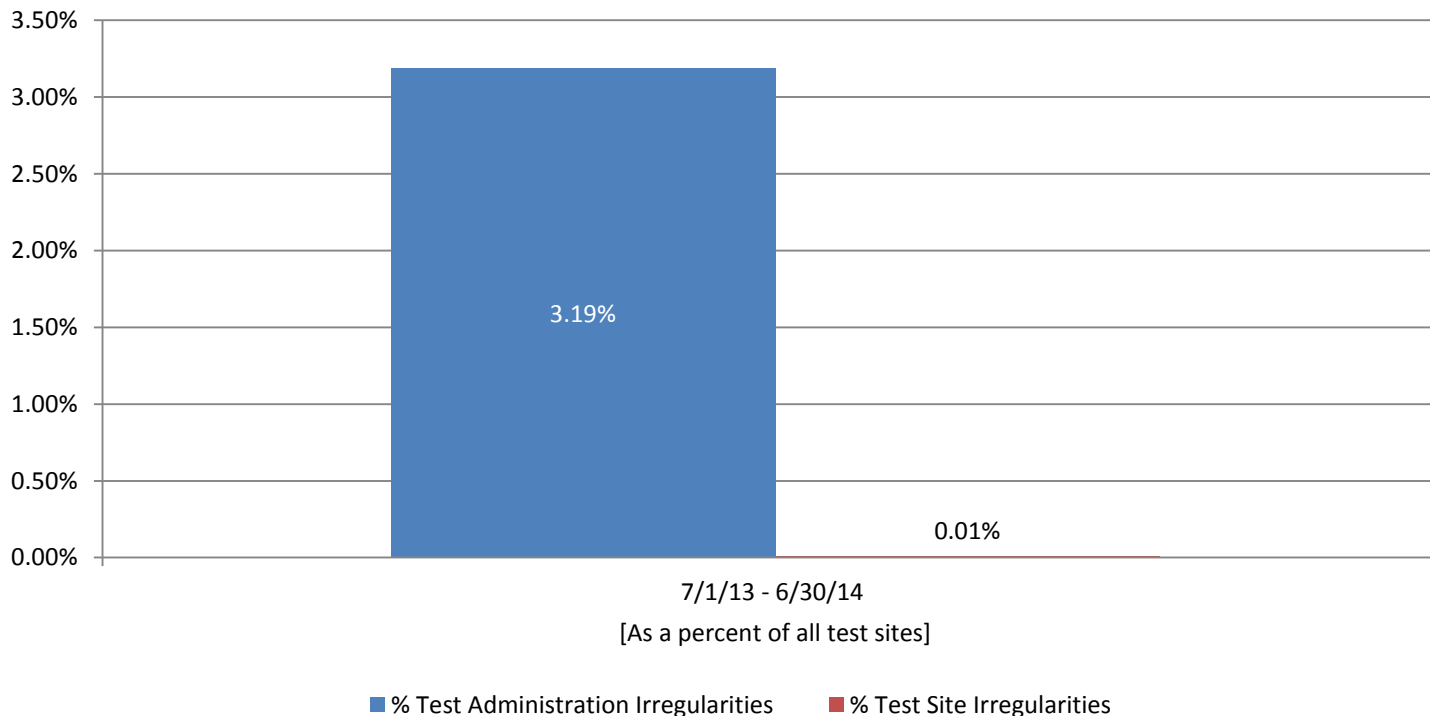**Change in Lost Booklets/Answer Sheets as Percentage of all Test Administrations: 2009-2014**
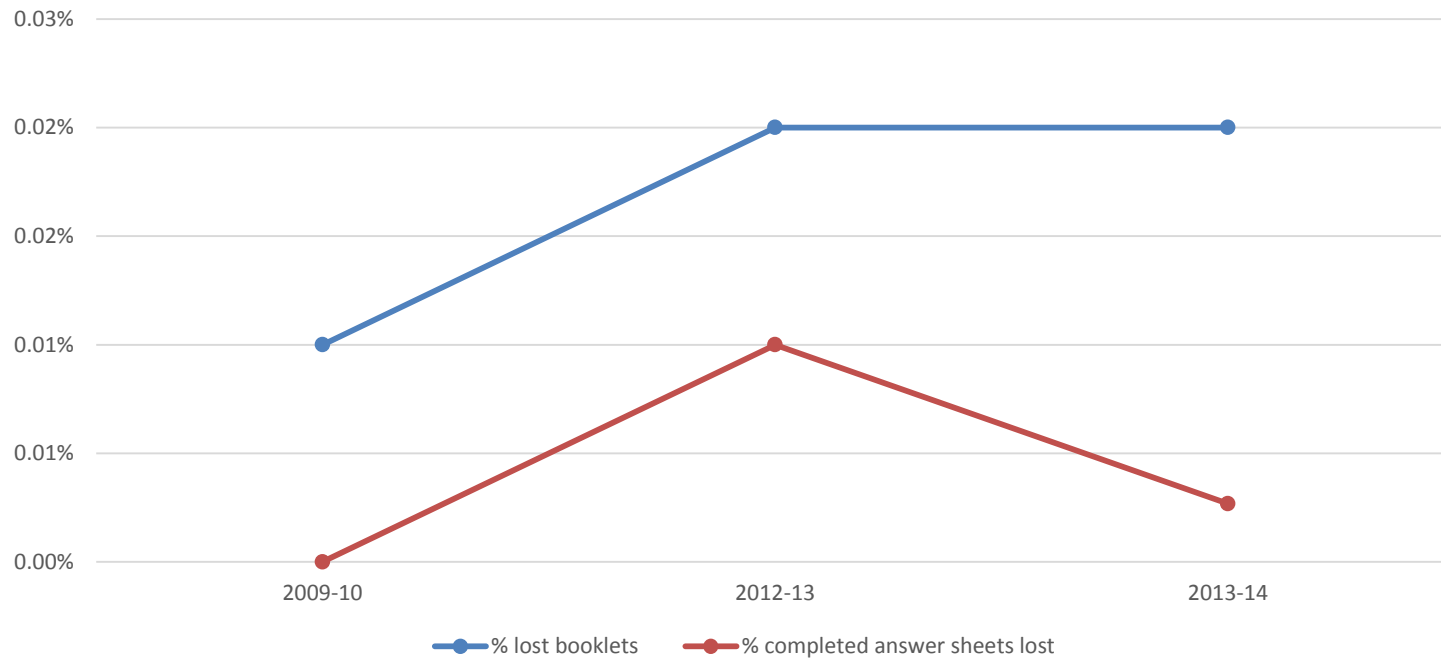
- Increase in reported lost materials from 2009 to 2013, steady to decreasing in 2013-14.

Goal Three: Reduce Test Site Irregularities

TESTING DO NOT DISTURB

Percentage of Test Site and Administration Irregularities - 2013-14

Chart axis values: 3.50%, 3.00%, 2.50%, 2.00%, 1.50%, 1.00%, 0.50%, 0.00%

Bar label: 3.19%
Bar label: 0.01%

7/1/13 - 6/30/14
[As a percent of all test sites]

■ % Test Administration Irregularities   ■ % Test Site Irregularities

- In 2013-14, Test Administration problems show big increase, while test site problems remain small.

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Slide 18

Most Frequent Reasons for Test Administration Irregularities

1. Failure to follow shipping policies for returning materials on time

2. Failure to properly return all materials via traceable carrier

3. Failure to follow policies and procedures for proctoring – partially unproctored or self-proctored exams

4. Cheating or collusion: candidates were allowed to talk in a foreign language during the exam, proctor colluded in cheating, candidates shared notes during exam

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Most Frequent Reasons for Test Site Irregularities in 2014

1. Candidate demographic changes (wrong name or other personal information at registration)

2. Exam was given in a restaurant during service or otherwise interrupted by outside noise

3. Examinees were allowed to sit too close together

4. Technical issue with online testing site hardware

QUIET PLEASE
TESTING IN PROGRESS

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Changes in Test Irregularities as Percentage of all Test Locations
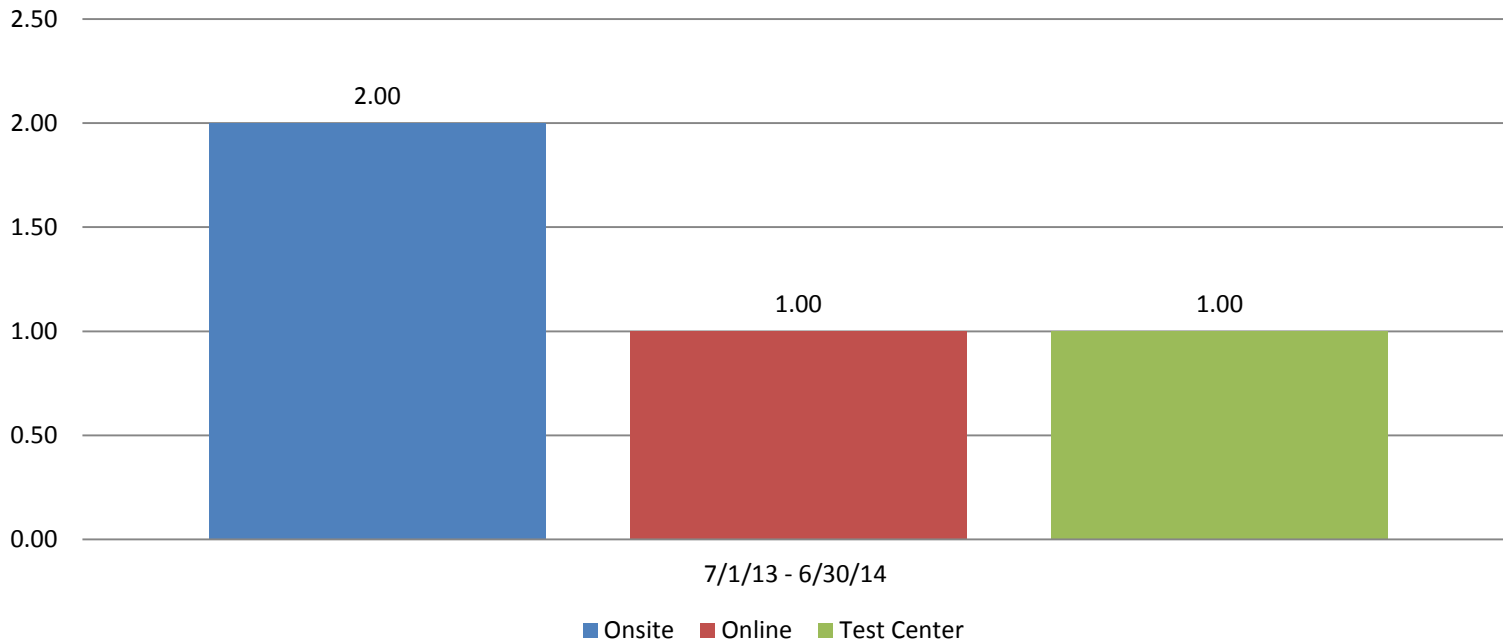
Percentage of Test Site and Administration Irregularities: 2009-14
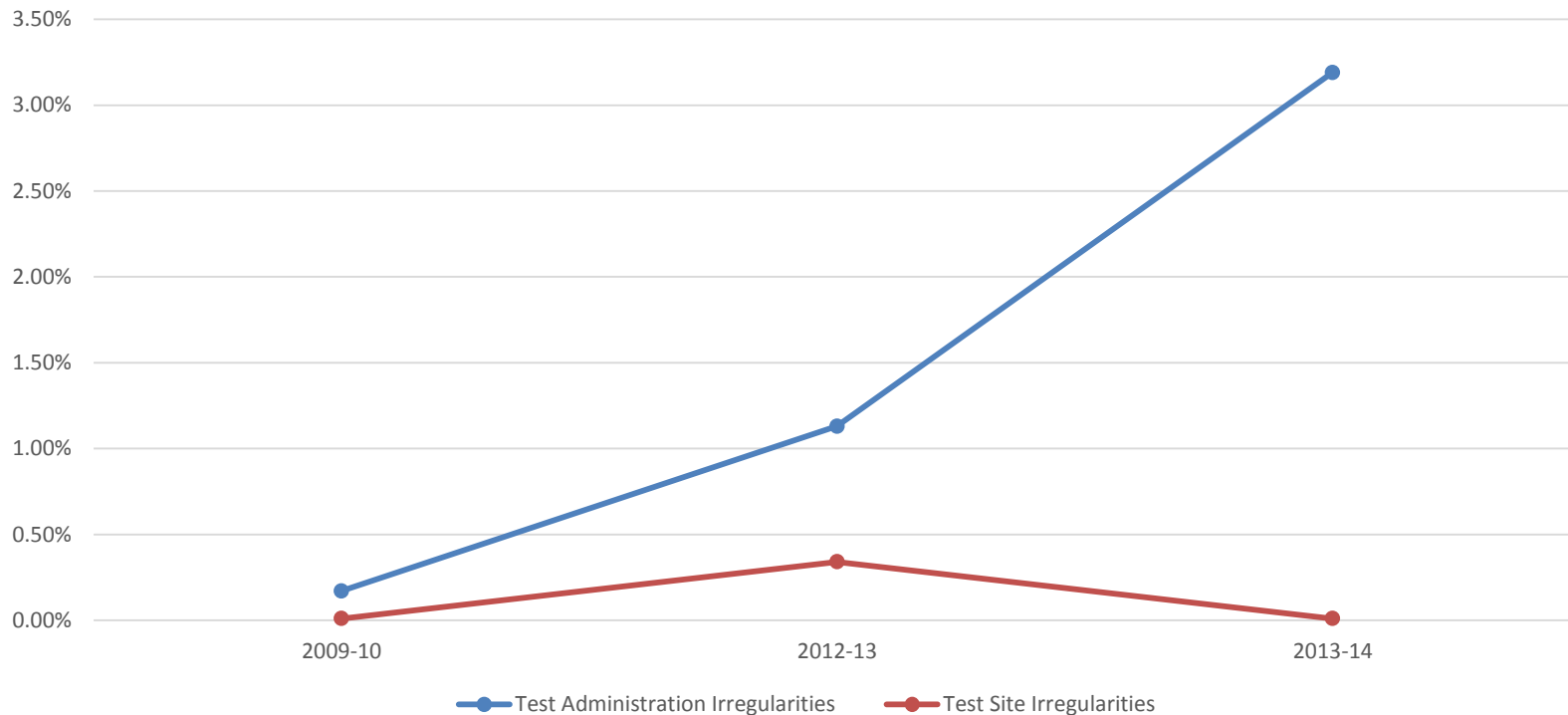
- Increase in reported administration irregularities probably due to increased detection; test site problems decreasing.

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Where Test Site Irregularities Occurred: 2013-14

Number of Test Site Irregularities by Location

- Test site irregularities show decline across all sites.

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Reasons for Site Irregularities – 2014

1. Candidate registration information was wrong – name or other personal information incorrect

2. Exam material delivery problem – materials did not arrive on time or items were missing

3. Testing in a public or noisy venue (restaurant during dining service)

4. Technical issue with online testing hardware/network

# Goal Four: Reduce Cheating and Test Administration Irregularities
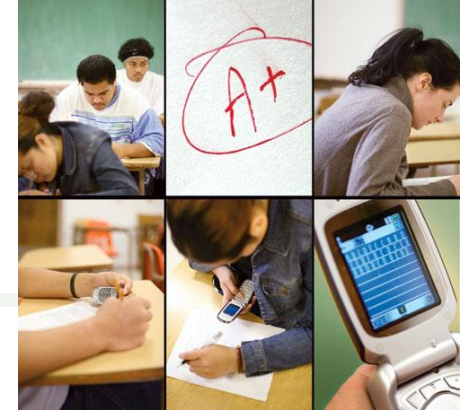
Trend:
Confirmed/ Suspected Cheating
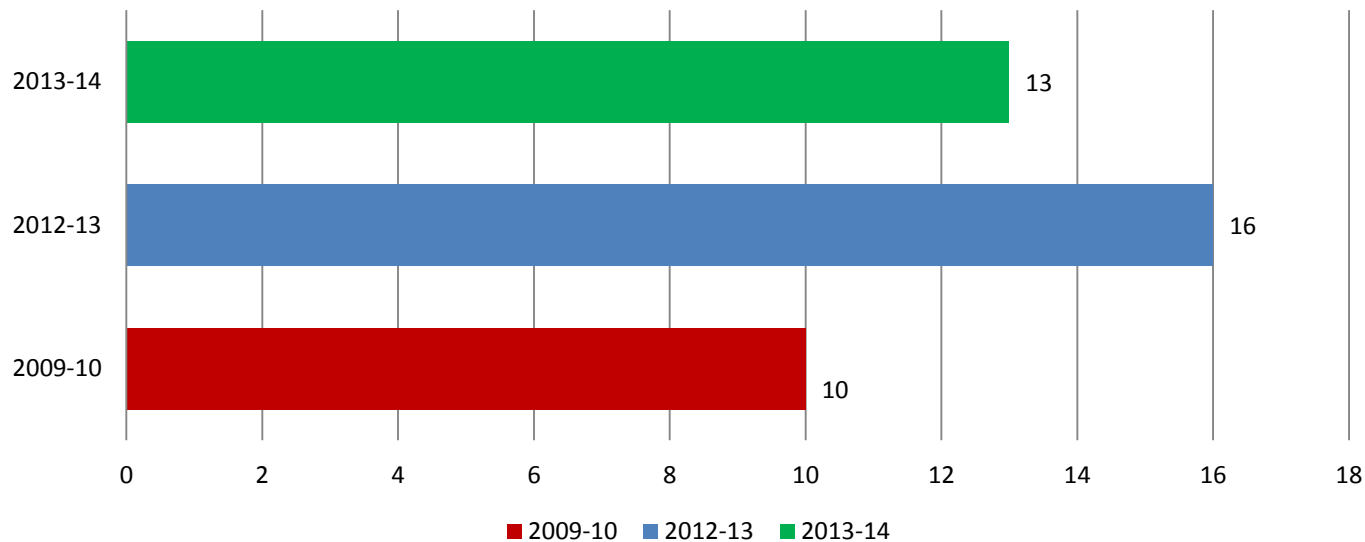
■ Trend was up initially, but down last year. Better detection and enforcement today.

Data Forensics Employed to Combat Cheating

1. Item Analysis (4)*

2. Pass Rate Analysis – compare by group/proctor (2)*

3. Item Difficulty (p-value) Analysis (1)*

4. Point Biserial Correlation (1)*

5. Online exam time Analysis (1)*

6. Incident Response Investigation (3)*
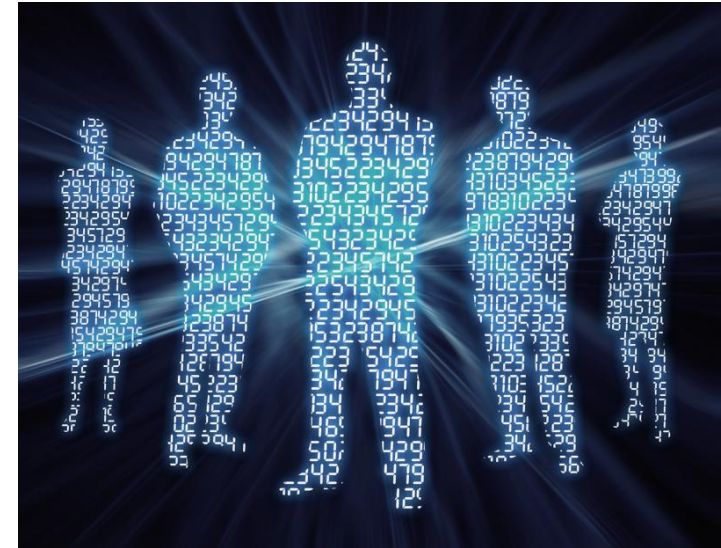
*Numbers in () indicate how many providers report using this.

Most Frequent Corrective Actions Taken To Combat Cheating

1. Use multiple versions of the exam at each administration (4)*
2. Revoke proctor privileges for collusion (3)*
3. Enforce spacing and other environmental guidelines (2)*
4. Use biometrics to verify examinee identify (1)*
5. Require examinees to retest when cheating is suspected (2)*
6. Adopt better exam forensic analysis methods (1)*
7. Increase exam session audits (1)*

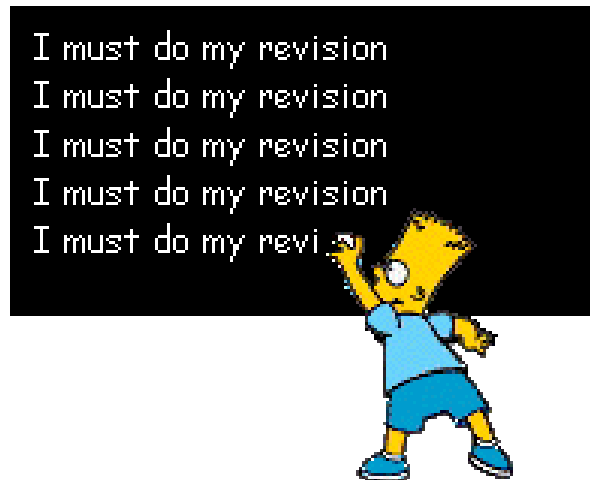*Numbers in () indicate how many providers report using this.

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Test Versions and Revisions

Versions Employed:

- Minimum of 2 versions/administration
- Maximum of 8 versions used
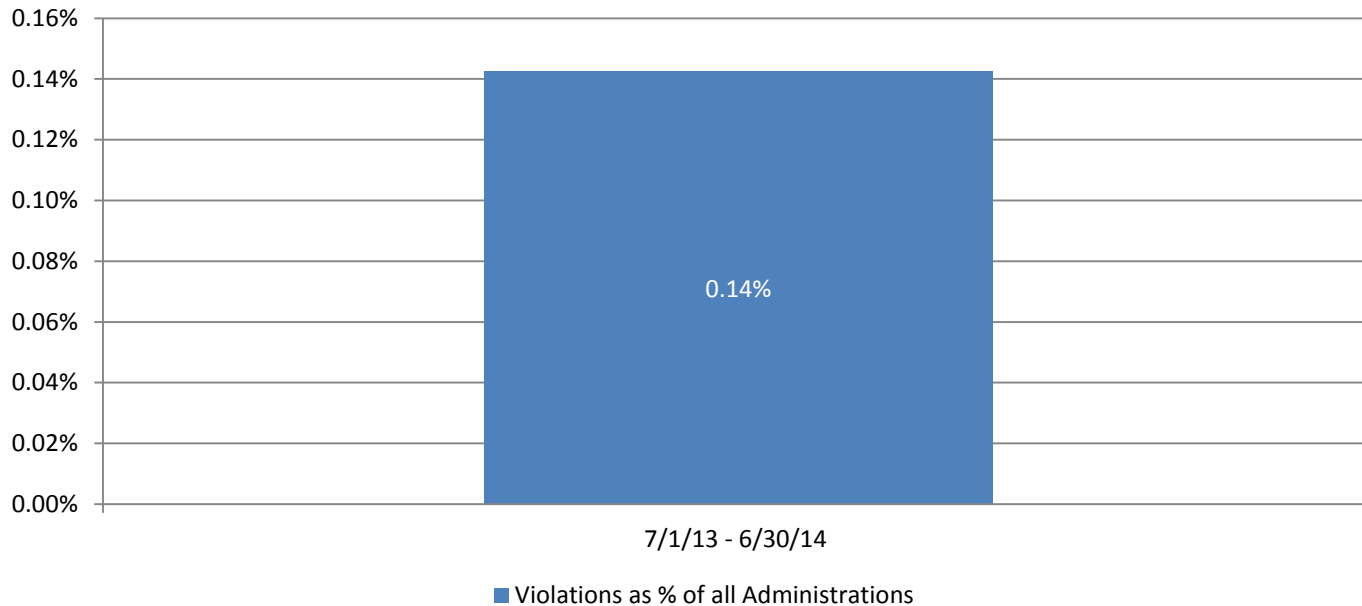- Avg = 4

Revision Frequency:

- Minimum of yearly
- Maximum of monthly
- Avg = quarterly

I must do my revision
I must do my revision
I must do my revision
I must do my revision
I must do my revi...

Test Administration Violations

**Violations as Percentage of all Test Administrations**

- One out of 1400 test administrations contains a violation, though most are minor.

Most Frequent Reasons for Test Administration Irregularities

1. Failure to return all test materials on time
2. More exam booklets opened than answer sheets
3. Failure to monitor examinees during entire exam
4. Self-administration of exam
5. Proctor collusion in cheating

Change in Percentage of Administration Violations: 2009-2014

Violations as a Percentage of All Test Administrations
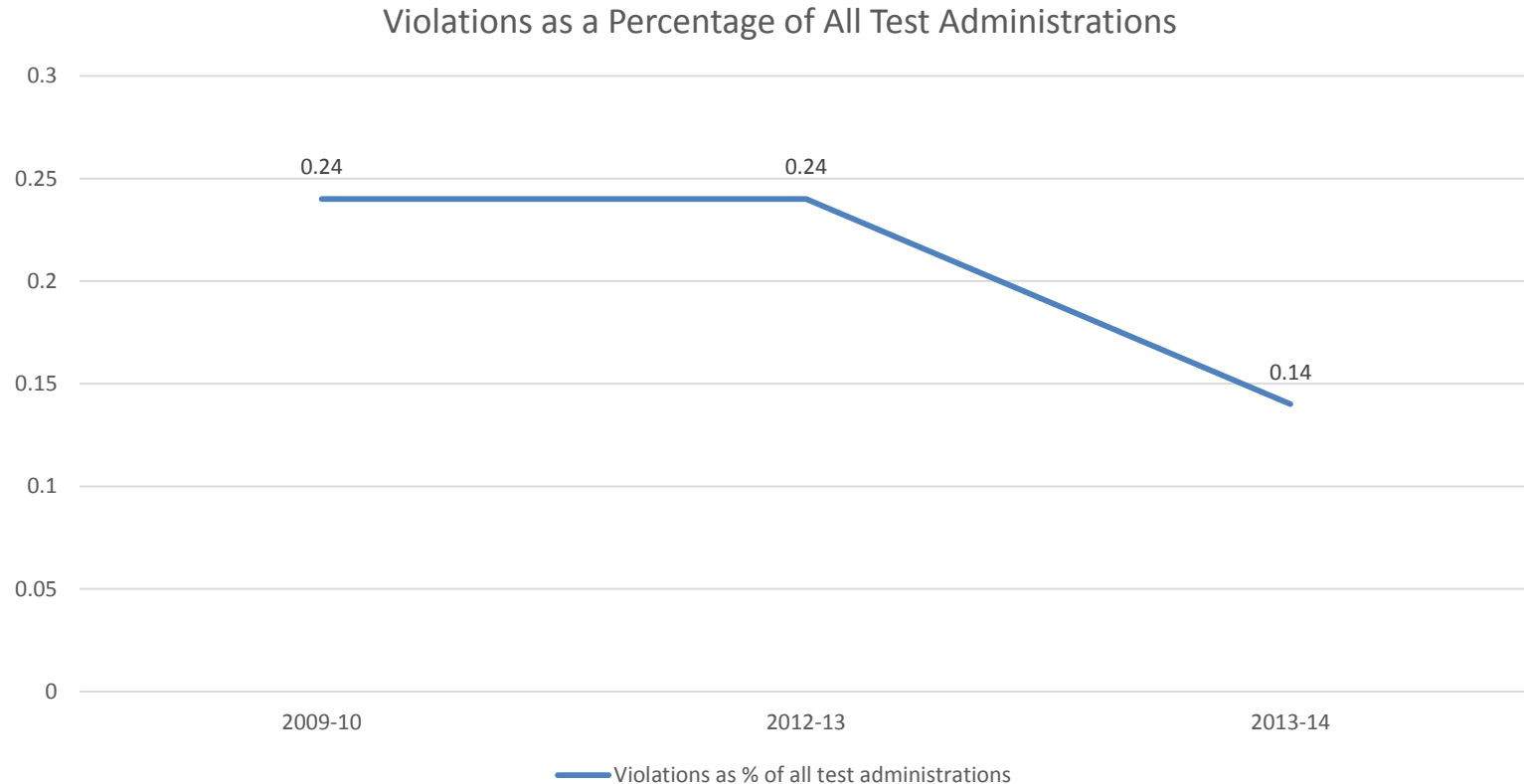
- Decrease in percent of violations over last year shows progress.

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Goal Five: Improve Test Quality Assurance

- 2009-10: Only 1 of 3 providers had QA system installed and it was incomplete
- 2012-13: All 4 providers had QA system in place, but still implementing some features
- 2013-14: QA system fully functional for all providers

This goals has been achieved by 100% of providers.

QA System Elements in Place -2014

- Document control (4)*

- Internal audit (3)*

- Management review (4)*

- Exam security plan (1)*

- External audit/certification (1)*

*Numbers in () indicate how many providers report having this in 2013-14.

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Most Frequent Reasons for QA System Breaches

1. Failure to return test materials on time
2. Lost test booklets/completed answer sheets
3. Candidate demographic information missing/incorrect
4. Forensics uncovered possible cheating/collusion

Provider Perceptions of Test Security Breaches

- "After implementing all the changes [over the past 5 years], our quantity of breaches has dramatically decreased."

- "We are a trusted test development and delivery provider to more than 400 organizations worldwide. On their behalf, we securely deliver an average of 10 million exams per year. We serve as an industry gatekeeper, ensuring that people legitimately earn the credentials they seek to achieve, and thereby guaranteeing a fair testing experience for all who come through our doors."

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Recommendations

- **Proctors/Administrators:**
  - Increase screening, selection and training standards
  - Continue to vigorously apply disciplinary actions against offenders
- **Shipping Irregularities:**
  - Use traceable carriers only, especially those with high reputation for security and reliability
  - Continue to enforce rules for shipping

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Recommendations (cont'd)

- **Test Sites/Administration:**
  - Standardize test site requirements across all providers
  - Share best practices for administration
- **Test Cheating:**
  - Share best practices for data forensics and cheating detection
  - Encourage test-takers to report cheating (whistleblower hotline)
- **QA System:**
  - Fully implement all features for all providers
  - Use it as preventive mechanism and early warning system

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Future Steps

- Present findings to key stakeholders
- Identify areas for further improvement
- Fine tune data collection methods as needed
- Include test security evaluation as part of ANSI annual surveillance and monitor trends

Thank you for the opportunity to work with CFP! Don Ford 🙂