



Checking the Election: Risk-Limiting Audits

By Dylan Lynch

A post-election audit checks that the voting equipment and procedures used to count votes worked properly, and that an election yielded the correct outcome. While these audits are not new, they have gained attention in the last three years as election security has come to the policy foreground. A post-election audit may be able to detect whether any outside interference occurred, and security experts recommend them as one method of protecting the integrity of elections.

While the phrase “post-election audit” can be used to mean a variety of election validation efforts, as a term of art it refers to checking paper ballots (or records) against the results produced by the vote tallying equipment to ensure accuracy. Thirty-four states and Washington, D.C., have some form of a post-election audit [as defined by NCSL](#).

A traditional post-election audit compares the votes tabulated in a small percentage of precincts or on a small number of voting machines against the paper ballot. The percentage is fixed in state law, and regardless of the margin of victory, the same number of ballots are reviewed.

In recent years, researchers have developed statistically based audit techniques, referred to as risk-limiting audits (RLAs). These cut down on the number of ballots that need to be audited, while also providing statistical confidence that an incorrect election result is not certified (i.e., made official). As the name suggests, a risk-limiting audit is designed to limit the risk that a contest is certified with the wrong winner. If any discrepancies are found, they can be investigated and corrected.

An RLA is an incremental audit system: If the margin is wide, very few ballots must be reviewed.

Did You Know?

- Four states have laws requiring the use of risk-limiting audits.
- Colorado was the first state to enact RLA legislation, in 2009, and the first to conduct a statewide RLA, in 2017.
- Ten-sided dice are often rolled during an RLA to help generate a random number for the audit process.

If the margin is narrow, more will be required up to the point that enough evidence is provided to confirm the declared election result.

While there are various methods of conducting an RLA, all include the use of paper ballots, with any number of ways to “sample” the ballots and conduct the audit. Which method is best depends on existing technology and how the jurisdiction scans and counts its ballots.

In one method, called a ballot-level comparison RLA, as each ballot is scanned to be tallied, it is given an anonymous but unique identifier (often a series of numbers). As the ballot is being scanned, its unique identifier is recorded into the cast vote record (CVR). The CVR is the digital representation of every ballot that has been scanned and tallied. It looks like a spreadsheet, recording the ballot’s choice for each office on a cell in each line. The physical ballot is stored and recorded in a log called the ballot manifest. The manifest shows where and how each physical ballot is stored and where it can be retrieved.

After the ballots are scanned, how many and which ones need to be audited for the RLA are based on the margin of error. This is often accomplished with the help of technology, such as RLA software, which provides the calculations for the initial sample size. The ballots to be audited are selected at random. The officials must then locate each physical ballot by its unique identifier in the ballot manifest. The physical copy is then compared against the CVR. If no discrepancies are found, the results of the election are confirmed. If discrepancies are found, it may be necessary to audit more ballots. In the case of a very tight race, it is theoretically possible that an RLA could lead to a full recount, with every ballot examined.

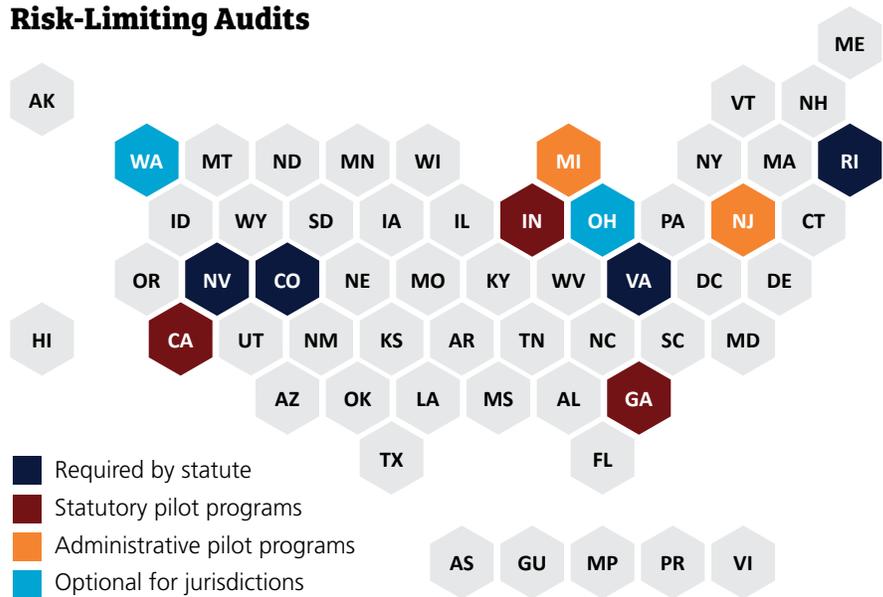
State Action

Four states require RLAs in statute—Colorado, which passed HB 1335 in 2009, followed in 2017 by Rhode Island with SB 413 and Virginia with SB 1254. Nevada passed SB 123 this year.

While Colorado is the only state to fully employ a statewide RLA so far, the concept is catching on. In 2018, California passed AB 2125, which allows local jurisdictions to choose to conduct a RLA. In 2019, Indiana (SB 405) and Georgia (HB 316) enacted legislation allowing RLA pilot programs to be conducted by selected local jurisdictions.

Ohio and Washington have optional RLAs. In Washington, SB 2406 allows local election officials to choose one of three audit methods, an RLA being one. In Ohio, a 2017 secretary of state directive recommended RLAs, but did not mandate them

Risk-Limiting Audits



Source: NCSL, 2019

for local jurisdictions. Several other jurisdictions across the country have participated in RLA pilot programs.

State policymakers looking into RLAs often take into account these policy considerations:

How prescriptive does legislation need to be for implementing an RLA? Sometimes less is more. Providing definitions, implementation deadlines, and outlining how further rules or procedures for an RLA will be established may be sufficient for legislation.

Would conducting a pilot program be beneficial? Is it possible for one or several jurisdictions to conduct a pilot program to test the applicability of an RLA? This could also include provisions that require a report of the pilot program to the legislature before more jurisdictions move forward.

Do local jurisdictions have the necessary equipment to conduct an RLA? If not, what would jurisdictions need to fully conduct one? Colorado’s RLA timeline progressed faster after many counties purchased new voting equipment. Likewise, ballot scanners and an RLA tool/interface may need to be acquired before an RLA is feasible in a jurisdiction.

What do legislators, local election officials and the public need to know about RLAs? Understanding how RLAs works is no easy chore. Do policymakers, election officials and the public know enough about the process to understand and trust the system? What information needs to be prepared and questions ready to be answered?

Additional Resources

- [NCSL’s Post-Election Audits webpage](#)
- [“Post-Elections Audits: The FAQ,” NCSL’s The Canvass](#)
- [“Post-Elections Audits: What’s Next?” NCSL’s The Canvass](#)
- [“A Practical Guide to Risk-Limiting Audits,” Democracy Fund](#)
- [“Risk-Limiting Audit Implementation Workbook,” Democracy Fund](#)

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