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Determining Risk Thresholds for TSA's Risk Based Security PreScreening

An Exploration of Theoretical Options

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Caveats

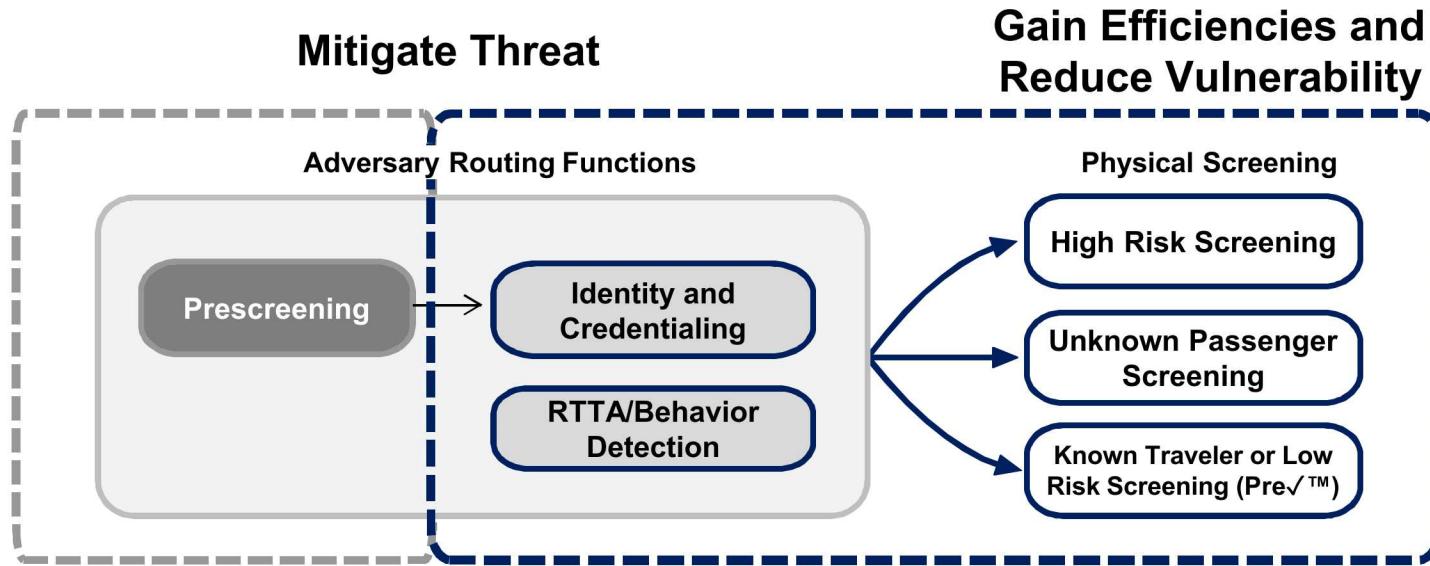
- The author(s) do not represent TSA official position
- The content presented here are theoretical options only...TSA has not made any decisions in these matters as of yet
- All numbers or data in presentation are purely notional

Context

- TSA is well along in implementing its "risk-based security" strategy via Pre✓ .
- By adapting screening to be commensurate with passenger risk, TSA can reallocate resources to improve security and efficiency.
- The RBS strategy includes the introduction of voluntary, information-based "***prescreening***" wherein a passenger voluntarily provides information about themselves to allow TSA to perform a risk assessment which could provide access to expedited screening at the airport.
- TSA recently announced it will allow private sector vendors to conduct prescreening for Pre✓ in the coming year.

A core issue with risk-based screening is determining an appropriate and defensible risk threshold for private sector solution performance.

How Good is “Good Enough”?



How effective do prescreening algorithms need to be in excluding high-risk actors from Pre✓ & including low-risk actors?

Options 1a & 1b: “Holding the Line”



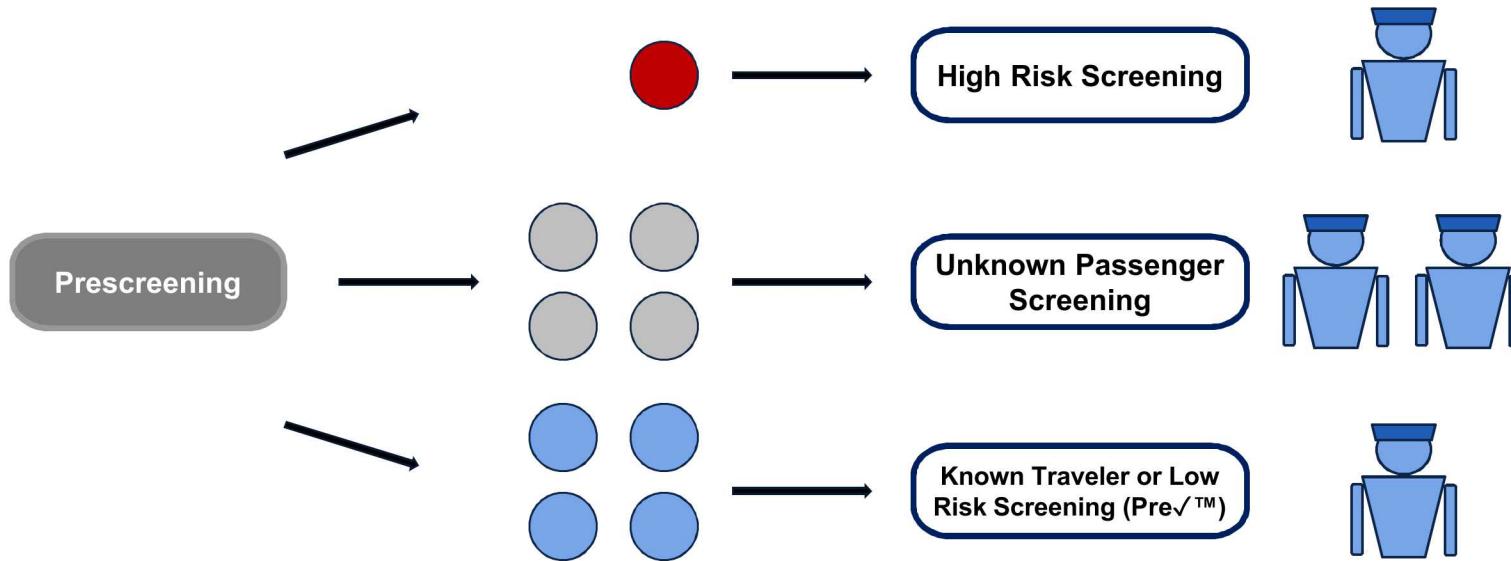
Current Performance Benchmark

- Threshold can be no worse than current Pre✓ prescreening effectiveness
- Guarantees that overall system effectiveness will never be worse

Triangulation

- Threshold can be determined by evaluating the “routing” effectiveness of RTTA/BDO and physical screening effectiveness and then triangulate for the necessary PreScreening threshold.
- Threshold would be “no worse than” current system screening effectiveness. Any improvement in prescreening is gravy.

Option 3: “Min/Max”

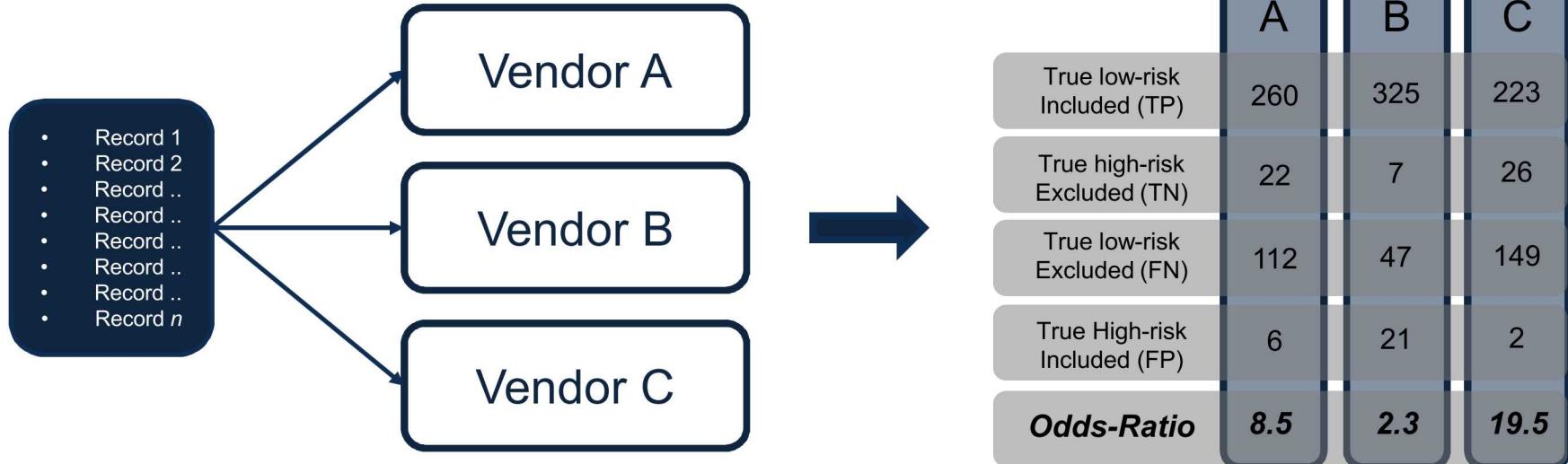


- Prescreening provides risk evaluation; TSA calculates how many resources it can spare to screen the highest risk while devoting the rest of resources to keeping wait times under standard.
- Takes resources as a given and allocates them optimally across the given risk landscape.

Option 4: “Rising Tide”

Create a recurring testing process that...

- Uses a common test-set representative of adversaries and the traveling public
- Uses a standard set of shareable performance metrics (e.g. Odds Ratio, F1)
- Does NOT share proprietary algorithm elements

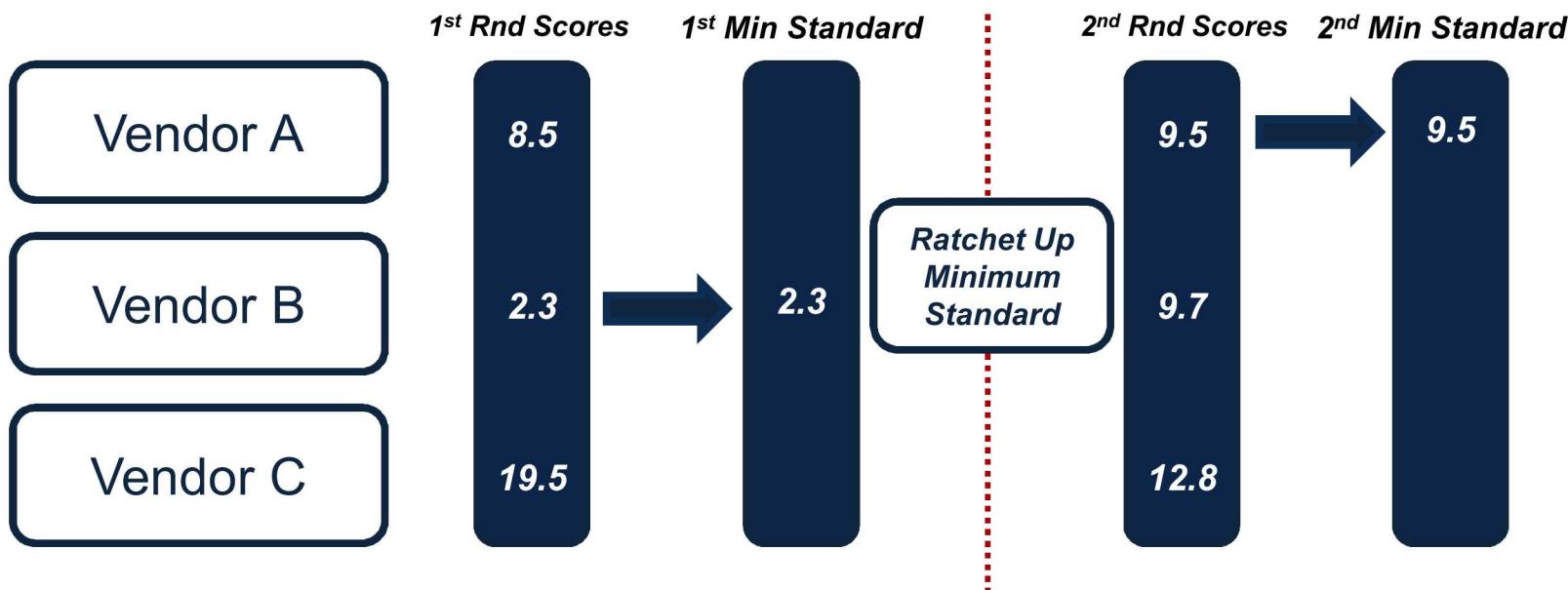


The testing process creates an unbiased method of understanding performance across each aspect of pre-screening (including low-risk & excluding high-risk)

Option 4: “Rising Tide”

Use the minimum score for each round of testing as the minimum standard for certification as a TPV

- Mitigates explicit or implicit collusion
- Does not punish the worst performing TPV unless they slide backwards



Providing a minimum standard linked to certification creates a disincentive for backsliding and an incentive to continue to improve.

Others?