

Ten-Year Trends in Right-Heart Strain Reporting on CTPA in Acute Pulmonary Embolism: A Single Center VA System Analysis

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BACKGROUND

- Pulmonary embolism (PE) continues to have a high mortality rate despite increasing use of catheter directed interventions.¹
- Efforts to identify patients that benefit most from advanced therapies are critical.²
- Computed Tomography-Pulmonary Angiography (CTPA) has been demonstrated to have high-sensitivity for right-heart strain (RHS), identifying patients that may benefit from advanced therapy^{3,4}
- Few studies have documented the frequency of RHS reporting on CTPA reporting, especially among VA populations.

PURPOSE

- Investigate patterns of CTPA reporting RHS among acute PE cases over a 10-year period at the Dayton VA Medical Center to elucidate possible gaps in medical evaluation.

METHODS

- Between 2013-2022, 375 cases of acute PE were identified via ICD codes from the VA Informatics and Computing Infrastructure and manually reviewed.
- Of these, 334 cases had CTPA reports available for review. 142 were read by in-house radiologists and 192 were read by teleradiologists via the VA National Teleradiology Program (NTP).
- CTPA reports were reviewed for reporting of RHS, regardless of the presence or absence of strain present.

RESULTS

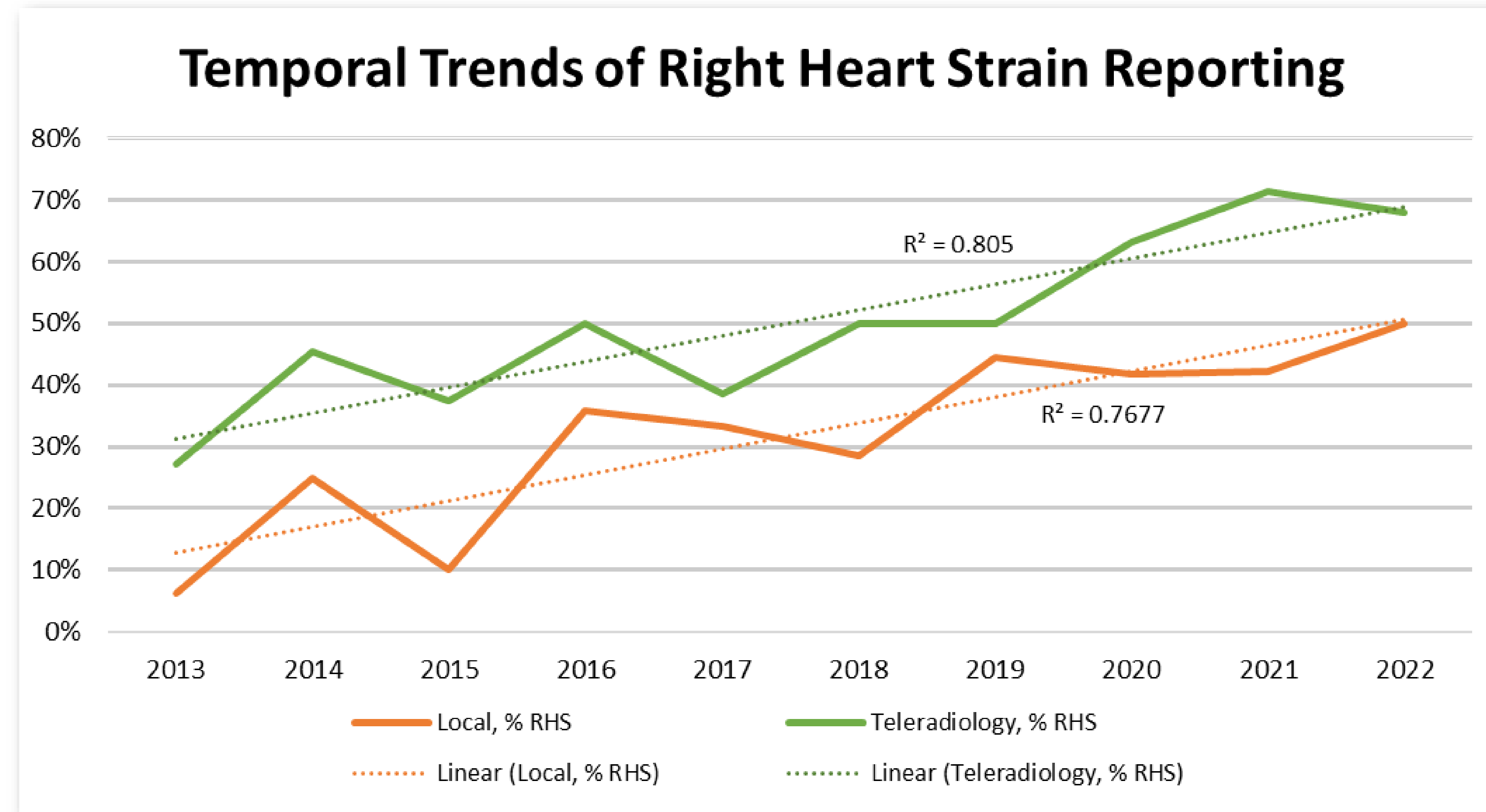


Figure 1: Annual percentage of computed tomography pulmonary angiography (CTPA) reports for patients with acute pulmonary embolism that included any mention (qualitative or quantitative) of right heart strain (RHS), either present or absent, from 2013 to 2022. For each year, the percentage was calculated as: (number of CTPA reports with RHS mentioned ÷ total number of CTPA reports for acute PE) × 100.

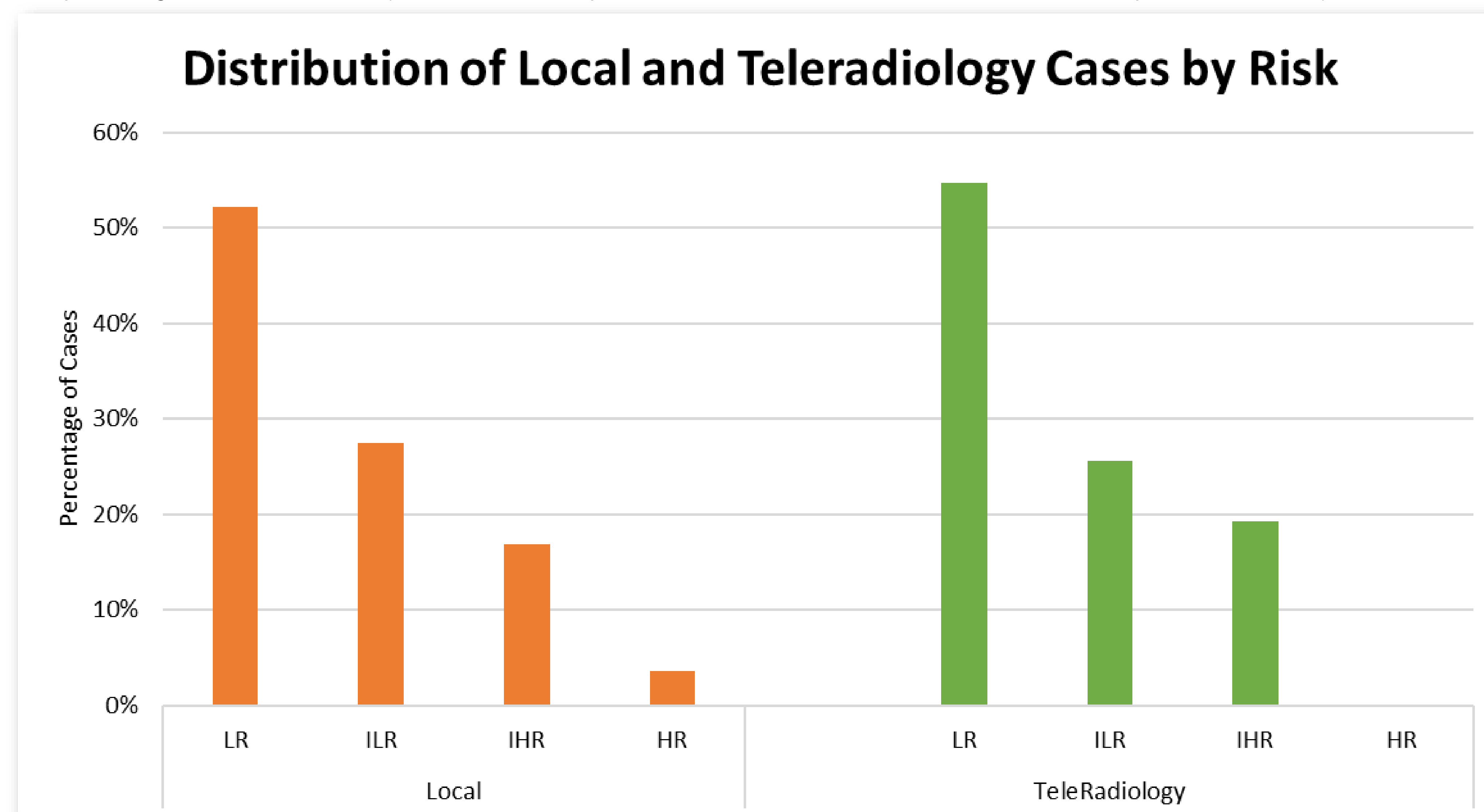


Figure 2: Distribution of acute pulmonary embolism cases by type of radiology reporting (local and teleradiology) and by risk, defined by European Society of Cardiology 2019 guidelines.⁵ Risk categories include low-risk (LR), intermediate-low risk (ILR), intermediate-high risk (IHR), and high-risk (HR). For each risk category, the percentage was calculated as: (number of cases of pulmonary embolism within each risk category ÷ total number of cases within each type of radiology reporting) × 100.

DISCUSSION

- Over a period of 10 years at the Dayton VA, reporting of RHS on CTPA increased in a linear fashion with a strong association between year and percent of RHS reporting.
- This may be related to newly developed guidelines that include CTPA-RHS in categorization of risk-stratification.
- Interestingly, teleradiology reporting was consistently higher than local reporting in every year, despite preserved distribution of acute PE risk stratification.
- While this could reflect differences in institutional culture, other barriers may be present within the local institution that should be investigated further.

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