

Radiology as a Vanguard for Multidisciplinary Care Team Activation: Pulmonary Embolism Response Team Development

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Background

Pulmonary Embolism Response Teams (PERTs) were first implemented by Massachusetts General Hospital in 2011, as a novel multidisciplinary team structured response to a common clinical problem throughout healthcare.¹ Given the complex treatment algorithm for PE which spans across numerous medical specialties, a standardized and unified system has the potential to optimize patient care. The multidisciplinary team goal is to result in coordinated, most appropriate treatment in the lowest timeframe possible.

The Rush multidisciplinary PERT is available at any time and day, and meets the following criteria in accordance with the PERT consortium by-laws²:

1. Ability to rapidly assess and provide treatment for patients with acute pulmonary embolism.
2. Formal mechanism to exercise a full range of medical, surgical, and endovascular therapies.
3. Provide appropriate multidisciplinary follow-up of patients.
4. Willingness to collect, evaluate, and share data regarding the effectiveness of treatment rendered.

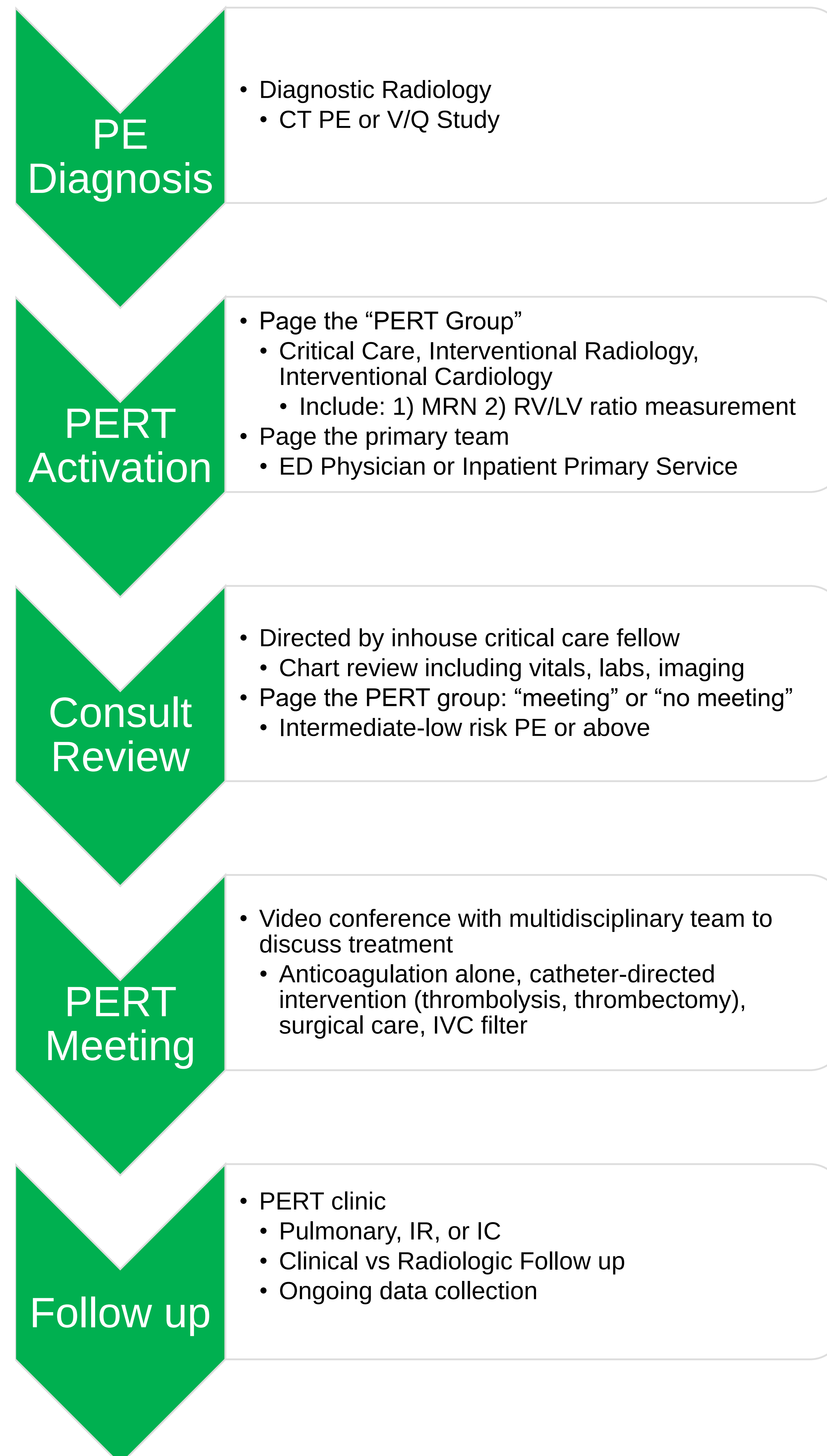
Here we present an alternative initiation of the PERT multidisciplinary team via department of primary imaging diagnosis – diagnostic radiology.

Materials and Methods

PERT activation occurred at the time of radiographic diagnosis, with the diagnostic radiology (DR) team identifying a positive PE on chest CT or V/Q scan. The DR would contact (1) the ordering provider with the findings, as well as (2) notify the PERT via a group-paging system. The PERT page would include the patient medical record number and RV:LV ratio.

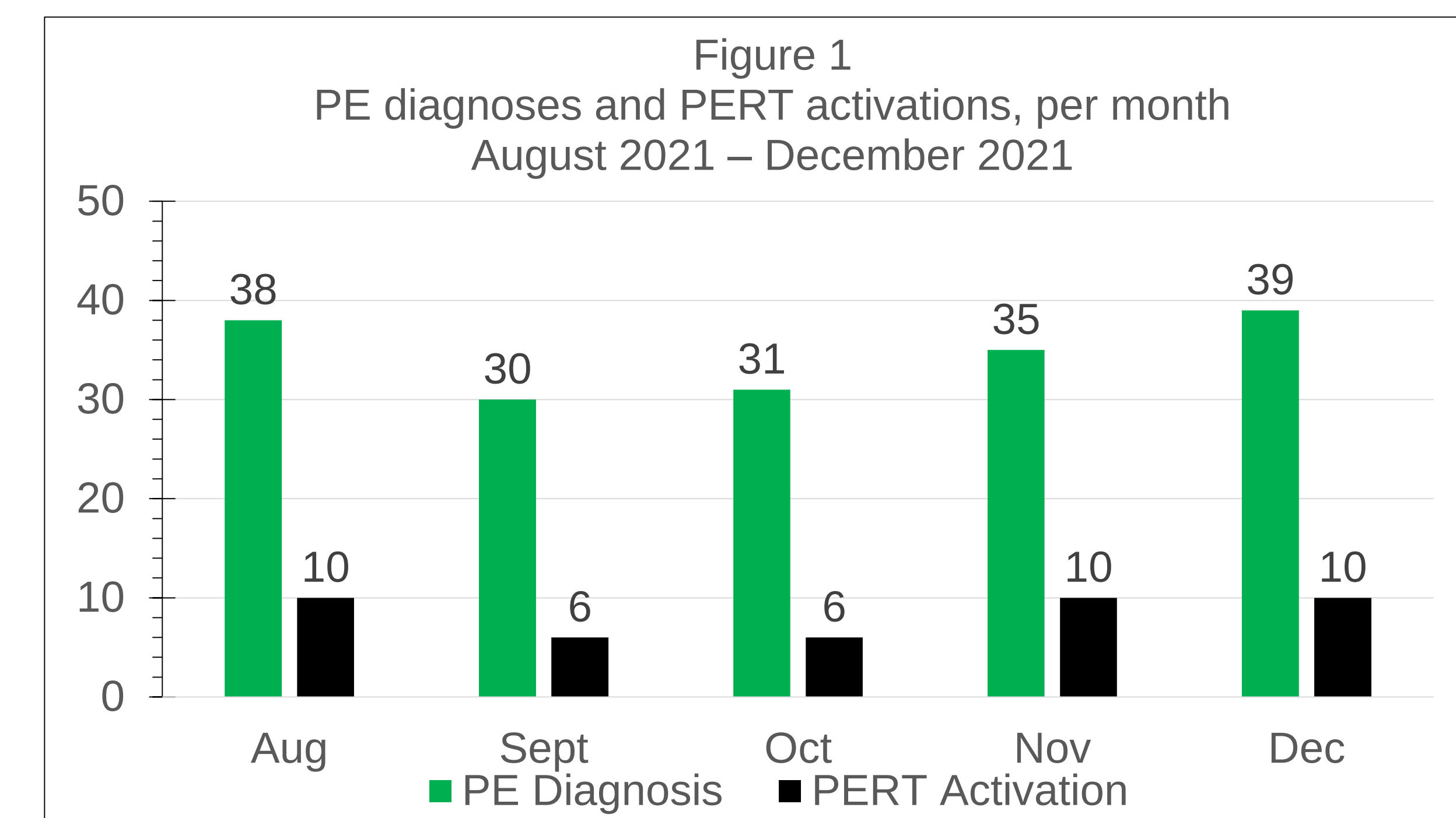
The PERT consists of the in-house ICU provider, interventional radiology (IR), and interventional cardiology (IC). After review by the pulmonary/critical care fellow, if warranted (e.g. low-intermediate risk PE or above), a virtual conference call occurs within 15 minutes to discuss additional diagnostic workup, treatment, and follow-up for the patient. If further workup or interventions are recommended, the ICU team communicates to the primary team to ensure rapid, closed-loop communication of PERT recommendations. The patient is then followed by the appropriate team(s) to monitor for decompensation that could require escalation of care, as well as appropriate long-term follow-up.

PERT Sequence

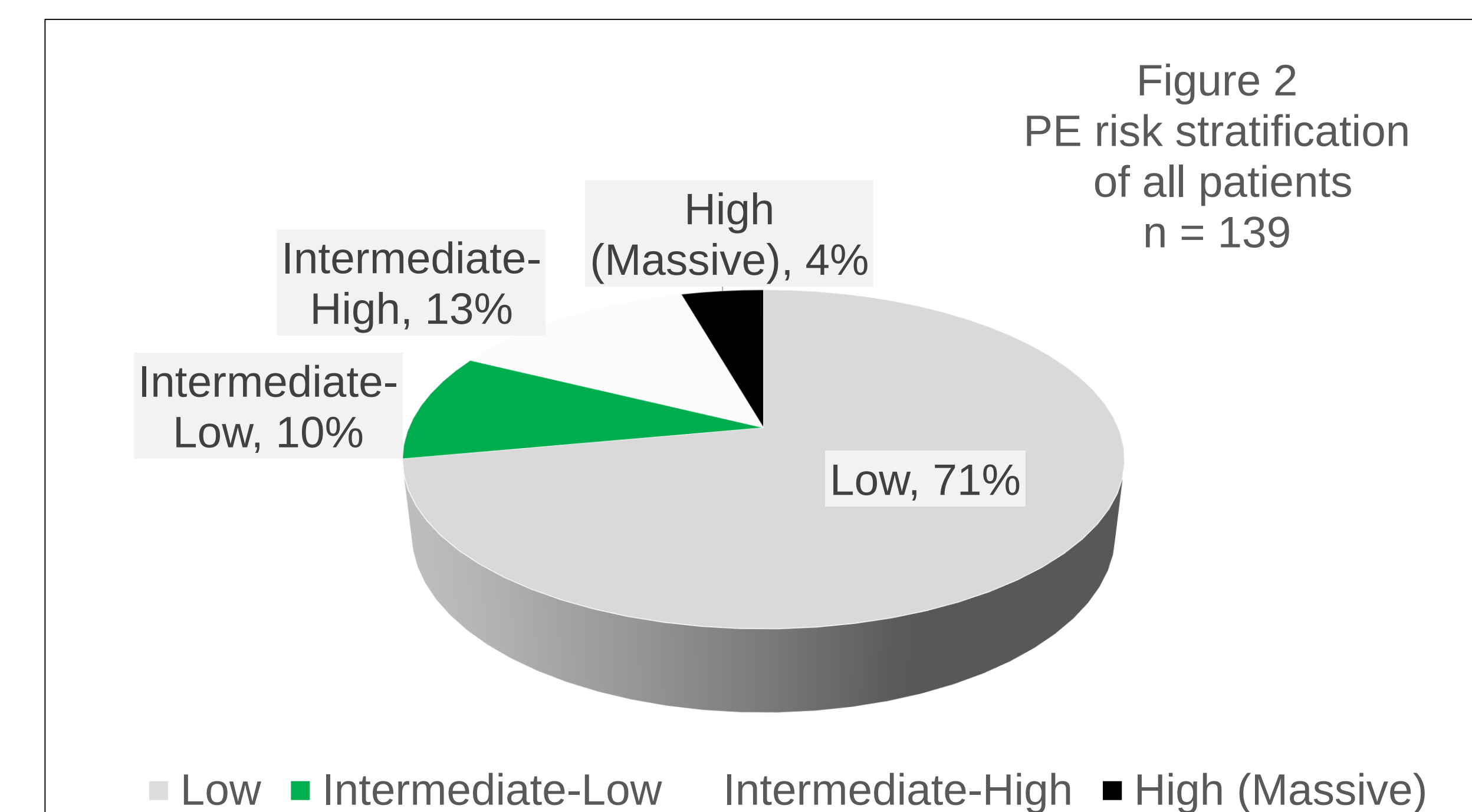


Results

The PERT went live August 1 and in the first 5 months through end of December 2021, a total of 139 individual patients were diagnosed with acute PE and reported by the diagnostic radiology service. Between 31-39 acute PE were diagnosed per month for our 732-bed academic institution (Figure 1). The PERT multidisciplinary team was activated and met via virtual conference call between 6-10 times per month (Figure 1). There were a total of 3 additional PE patients which were not captured by this protocol, due to direct transfer for higher level of care, thereby bypassing our PERT diagnosis paging system.



For each diagnosis of PE, the critical care fellow performed a chart review and determined risk status of the patient in question. Of the 139 total patients, 71% were classified as Low Risk PE, 10% Intermediate-Low Risk PE, 13% Intermediate-High Risk PE, and 4% High-risk (Massive) PE (Figure 2).



Conclusions

Creation of a multidisciplinary PERT can have meaningful impact on a common clinical ailment, and there are a variety of methods to organizing the response team.³ Here we describe and share the formation and early experience of a radiology-based multidisciplinary team activation. This allows the most rapid workup of each PE-confirmed patient. Another benefit of our PERT design is that it allows data collection of every PE diagnosed at our medical center, streamlining follow up care and future avenues of data collection. As technological advances and multidisciplinary care teams increase, DR and IR are uniquely positioned to synergistically create and lead these teams to improve time to evaluation, treatment, and follow-up of various patient populations.

References

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2. Rosovsky R, Zhao K, Sista A, Rivera-Lebron B, Kabrhel C. Pulmonary embolism response teams: Purpose, evidence for efficacy, and future research directions. *Res Pract Thromb Haemost*. 2019;3(3):315-330.
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For further information

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