

How should you decide between available therapies in acute pulmonary embolism

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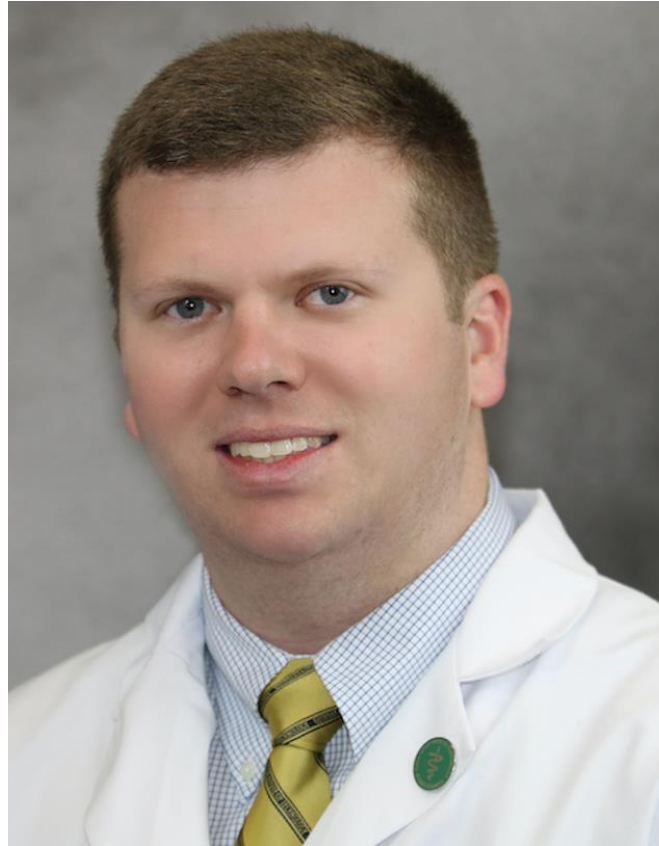
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Disclosures

Vikas Aggarwal: I have no relevant relationships with commercial interests to disclose.

Andrew Dicks: I have no relevant relationships with commercial interests to disclose.

Ido Weinberg: Consultant for Magneto Thrombectomy Solutions



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CASE: A 59 Year Old Man with Chest Pain

PMHx: Spinal surgery for lumbar stenosis **10 days** ago

Vitals: BP – 110/60, HR - **110 bpm**, RR – **24**, SpO2 – **96%** on 4L NC

Exam: well developed male, **dyspneic while talking**, noticeably tachypneic

Troponin T: 0.4 (**Positive**)

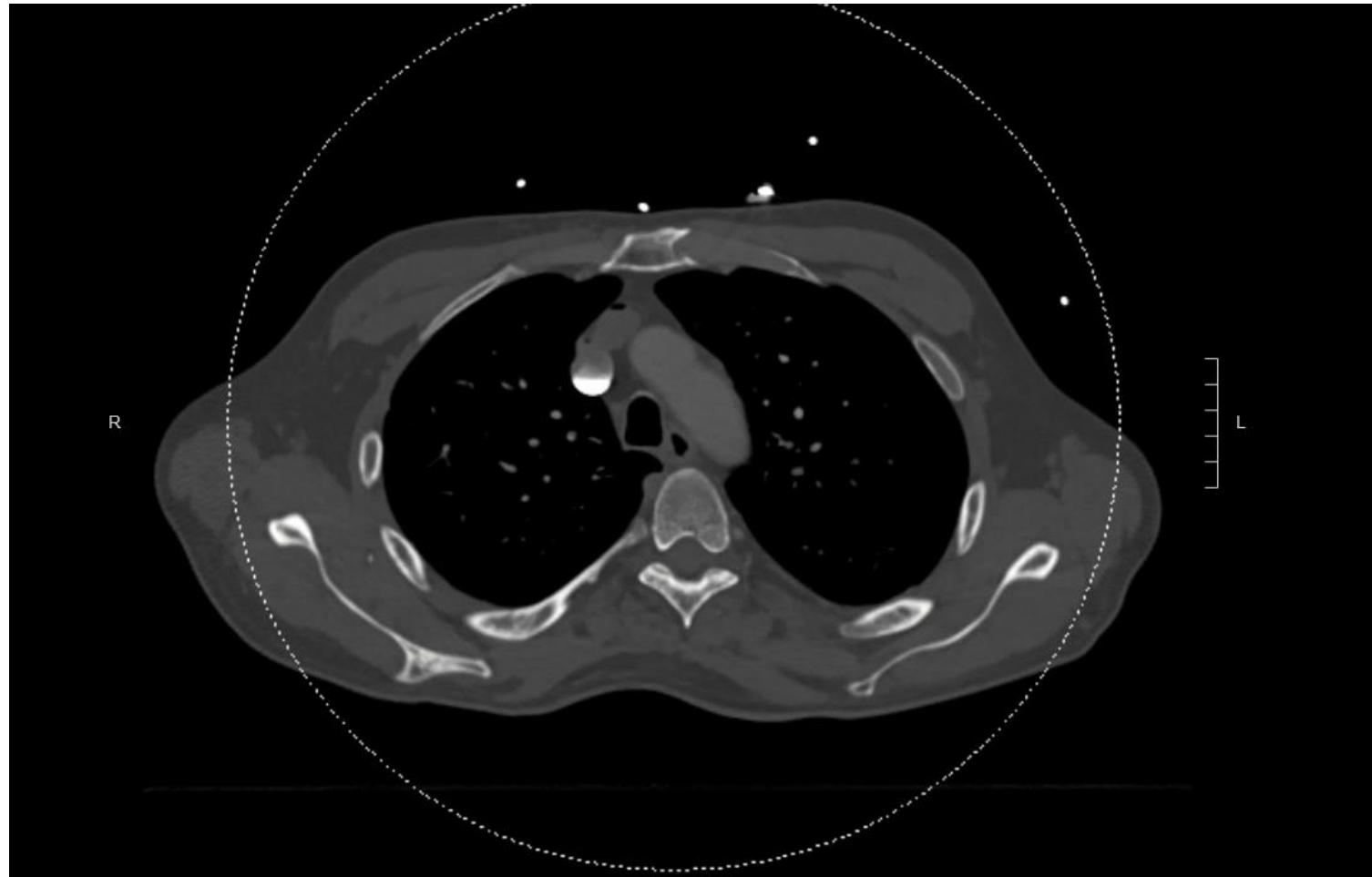
BNP: 1511 (**Positive**)

Echocardiogram: RV dilatation and dysfunction



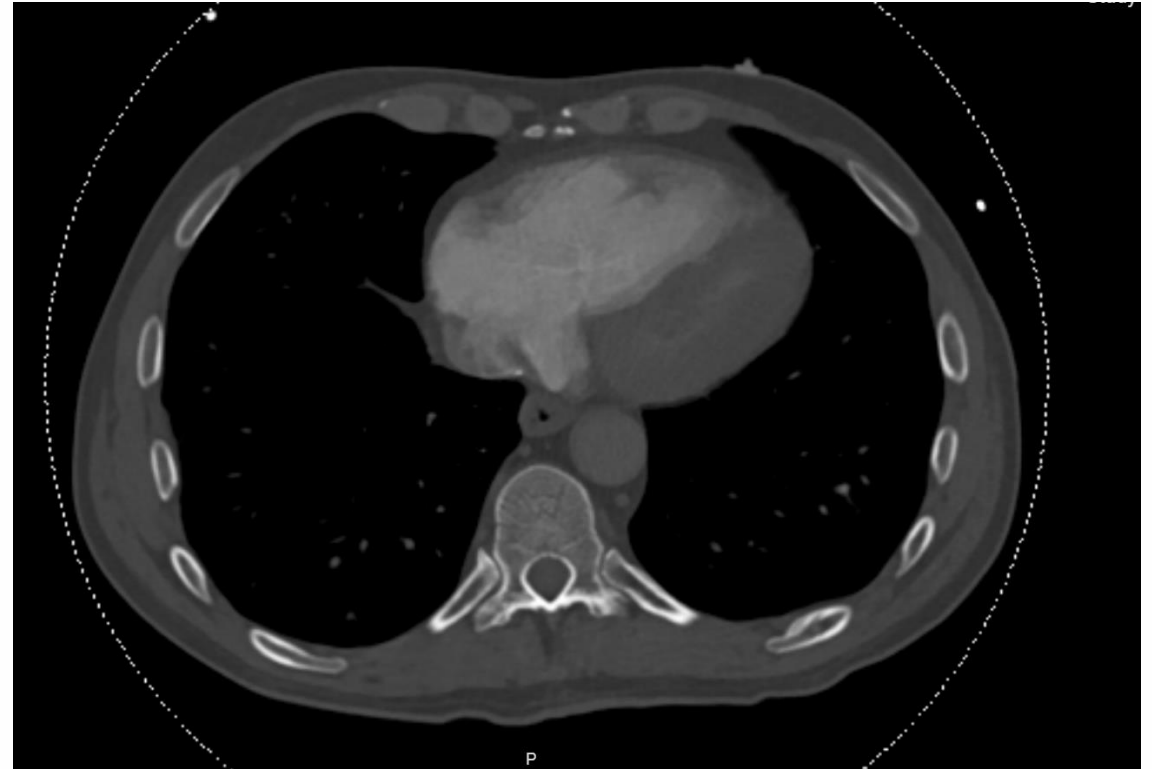
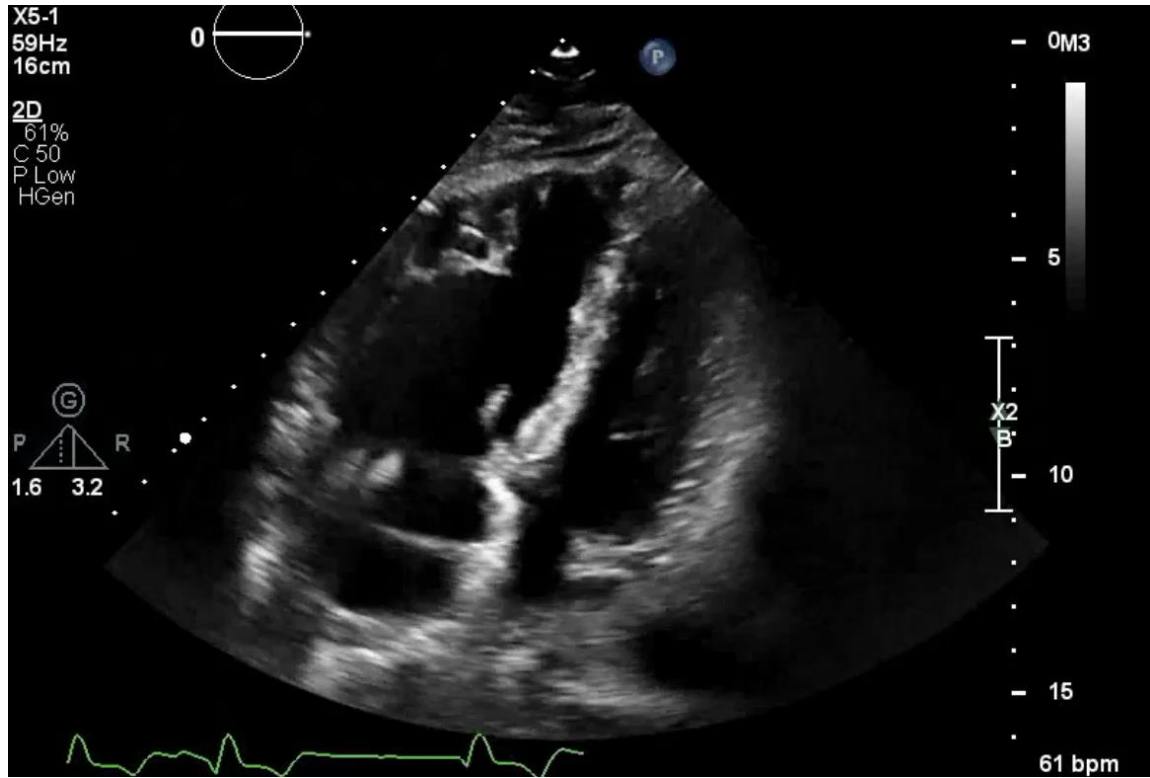
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How Do We Risk Stratify This Patient?

Early mortality risk		Risk parameters and scores			
		Shock or hypotension	PESI class III-V or sPESI $\geq 1^a$	Signs of RV dysfunction on an imaging test ^b	Cardiac laboratory biomarkers ^c
High		+	(+) ^d	+	(+) ^d
Intermediate	Intermediate-high	-	+	Both positive	
	Intermediate-low	-	+	Either one (or none) positive ^e	
Low		-	-	Assessment optional; if assessed, both negative ^e	

Eur Heart J. 2014 Nov 14;35(43):3033-69

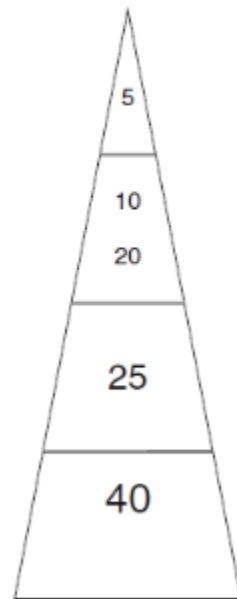


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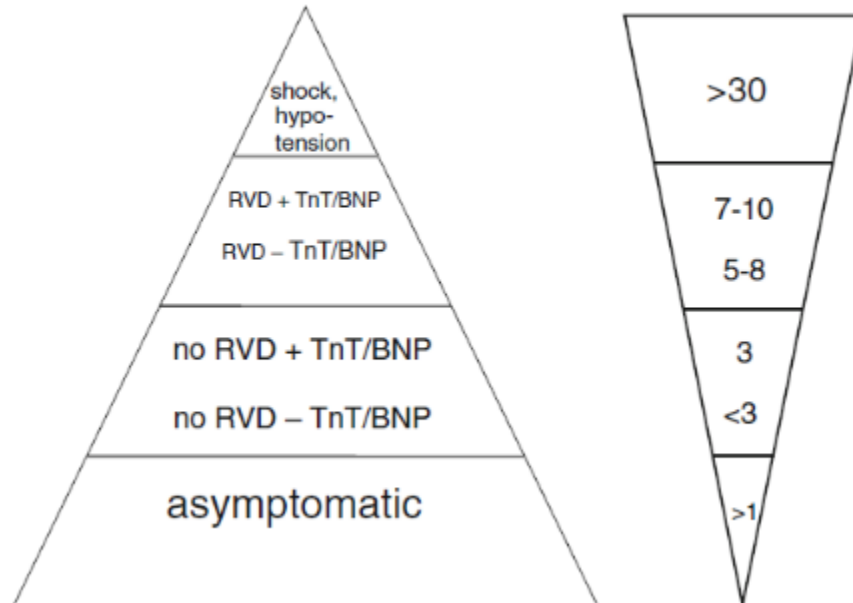
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However, Not All Intermediate-Risk PEs Are The Same...

Estimated prevalence (%)



Estimated mortality (%)



Becattini C, Agnelli G. Predictors of mortality from pulmonary embolism and their influence on clinical management. *Thromb Haemost.* 2008; 100(5): 747-751

Abrahams van-Doorn P. and Hartmann IJC. *Imaging Insights.* 2011; 2: 705-715

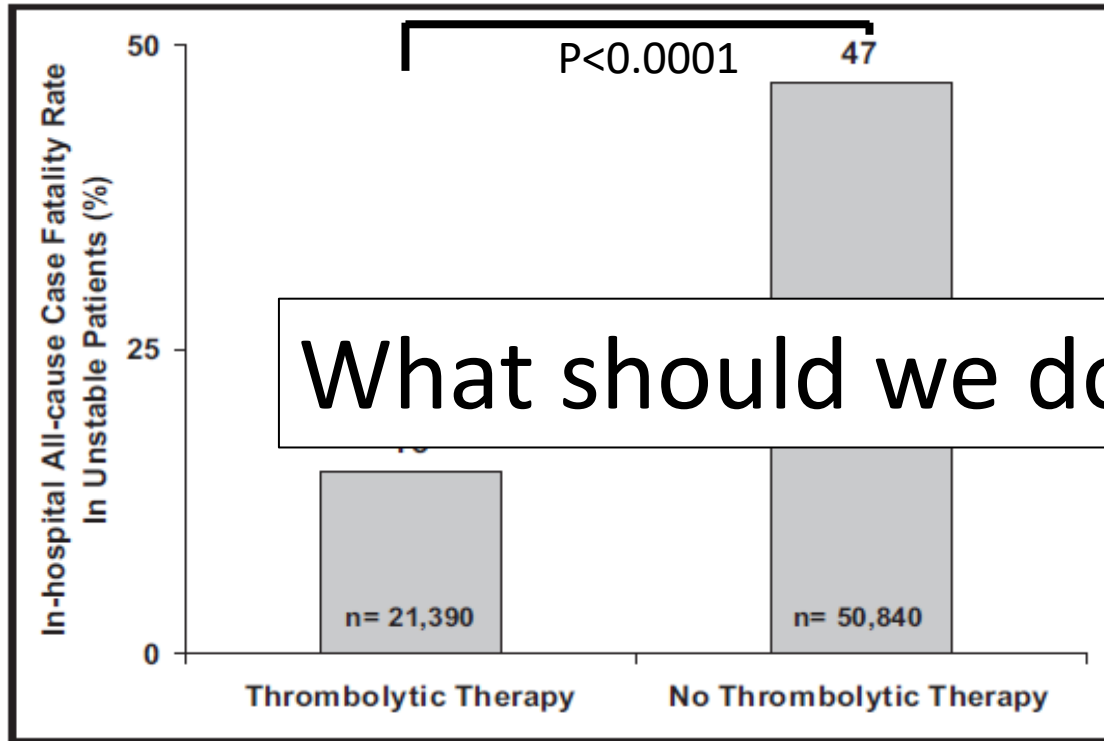
Dalen JE. *Chest.* 2002; 122: 1801-17



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When Should We Offer More Advanced Therapies?



Submassive (Intermediate Risk) PE

- Best treatment option still remains unknown

What should we do for our patient?

Stein PD. and Matta F. AJM. 2012; 125: 465-470



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Catheter Directed Thrombolysis

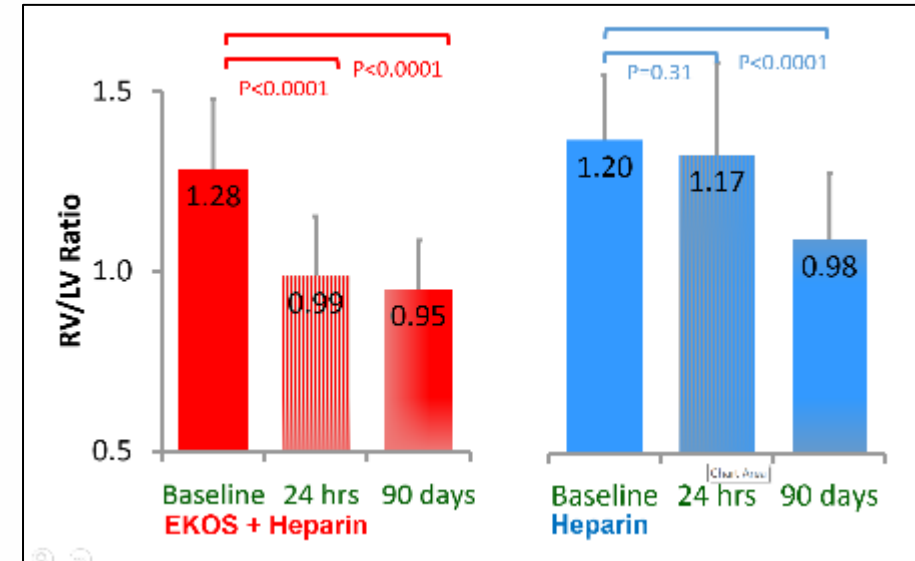
PIETHO

No mortality advantage

Less treatment escalation

	Tenecteplase (n=506)		Placebo (n=499)		P value
	n	(%)	n	(%)	
All-cause mortality within 7 days	6	(1.2)	9	(1.8)	0.43
Hemodynamic collapse within 7 days	8	(1.6)	25	(5.0)	0.002
Need for CPR	1		5		
Hypotension / blood pressure drop	8		18		
Catecholamines	3		14		
Resulted in death	1		6		

ULTIMA



N Engl J Med 2014;370:1402-11

Circulation. 2014 Jan 28;129(4):479-86



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CDT – But At What Expense?

PIETHO

Subgroup	Tenecteplase (N=506) no. of events/total no. (%)	Placebo (N=499) no. of events/total no. (%)	Odds Ratio (95% CI)	P Value for Interaction
Age				
≤75 yr	14/344 (4.1)	5/335 (1.5)		
>75 yr	18/162 (11.1)	1/164 (0.6)		
Sex				
Male	11/242 (4.5)	4/231 (1.7)		
Female	21/264 (8.0)	2/268 (0.7)		

Given the patient's recent spinal surgery, catheter directed thrombolysis was felt to not be safe. Where does that leave us?

ULTIMA

- No major bleeding

- 1 patient in the heparin group (3%): Muscular hematoma

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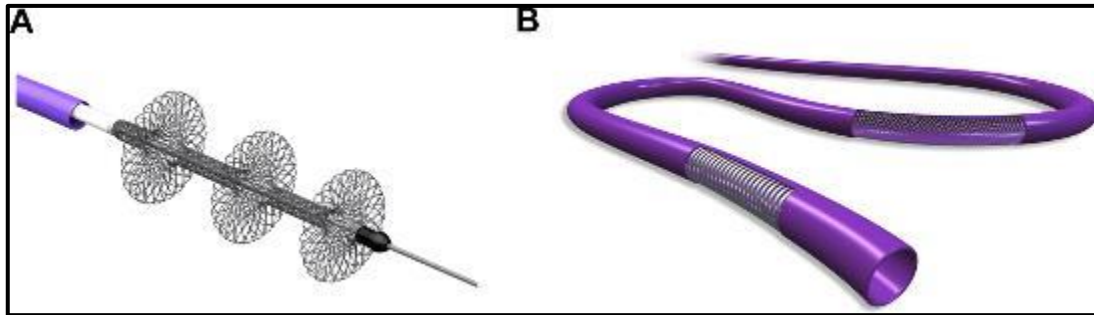


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Catheter Based Thrombectomy

Inari Flowtriever



AngioDynamics AngioVac



Indigo Penumbra



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Back To Our Patient

- Patient was taken to cath lab for mechanical suction thrombectomy
 - PASP reduced from 45 to 24
 - PAM reduced from 26 to 15
 - Oxygenation improved from 96% on 4L to 100% on 1L
 - Improvement in tachypnea and subjective dyspnea
- Admitted to ICU post-procedurally
 - ICU LOS 1 day



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Follow Up?

- All patients who have PERT consults are followed up in vascular medicine clinic within 4 weeks of discharge
 - Monitoring for symptoms
 - Evaluate for CTEPH?
 - Consider enrollment in pulmonary/cardiac rehab
 - Anticoagulation plan



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