Sri Lakshmi Narayana Institute of Medical Sciences

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Date: 05/11/2017

From

Dr.Vijay Kumar
Assistant Professor and Head,
Department of TB & Chest,
Sri Lakshmi Narayana Institute of Medical Sciences
Bharath Institute of Higher Education and Research,
Chennai.

To

The Dean,
Sri Lakshmi Narayana Institute of Medical College
Bharath Institute of Higher Education and Research,
Chennai.

Sub: Permission to conduct value-added course: Diagnosis and Management of Pulmonary embolism

Dear Sir,

With reference to the subject mentioned above, the department proposes to conduct a value-added course titled: **Diagnosis and Management of Pulmonary embolism** . We solicit your kind permission for the same.

Kind Regards

Dr.Vijay Kumar

FOR THE USE OF DEANS OFFICE

Names of Committee members for evaluating the course:

The Dean: **Dr. Jaya lakshmi**

The HOD: **Dr. Vijay Kumar**

The Expert: **Dr. Prakash Rao Balan**

The committee has discussed about the course and is approved.

Dean

Dr. G. JAYALAKSHMI, M.Sc., MBBS., DTCD., M.D.,
DEAN
Sri Lakshmi Narayana Institute of Medical Sciences
Osudu, Agaram, Kudapakkam Post,
Villianur Commune, Puducherry - 605502.

Subject expert

Dr Prakash Rao Balan

Coordinator

Dr Vijay kumar

OFFICE OF THE DEAN
Sri Lakshmi Narayana Institute of Medical Sciences
OSUDU, AGARAM VILLAGE, VILLIANUR COMMUNE, KUDAPAKKAM POST,
PUDUCHERRY - 605 502.
[Recognised by Medical Council of India, Ministry of Health letter No. U/12012/249/2005-ME (P -II) dt. 11/07/2011]
[Affiliated to Bharath University, Chennai - TN]

Circular

15.11.2017

Sub: Organising Value-added Course Diagnosis and Treatment of Pulmonary embolism

With reference to the above mentioned subject, it is to bring to your notice that Sri Lakshmi Narayana Institute of Medical Sciences, **Bharath Institute of Higher Education and Research** is organizing **"Diagnosis and Treatment of Pulmonary embolism"**. The course content is enclosed below."

The application must reach the institution along with all the necessary documents as mentioned. The hard copy of the application should be sent to the institution by registered/ speed post only so as to reach on or before 30th November 2017. Applications received after the mentioned date shall not be entertained under any circumstances.

Dean

Dr. G. JAYALAKSHMI, BSC., MBBS., DTCD., M.D.,
DEAN
Sri Lakshmi Narayana Institute of Medical Sciences
Osudu, Agaram, Kudapakkam Post,
Villianur Commune, Puducherry - 605502.

Course Proposal

Course Title: **Diagnosis and Management of Pulmonary Embolism**

Course Objective: To diagnose and treat Pulmonary embolism patients
Course Outcome: Improvement in management of Pulmonary embolism patients among interns

Course Audience: Medical Interns of 2017 Batch

Course Coordinator: Dr.Vijay Kumar

Course Faculties with Qualification and Designation:
1.Dr. Vijay kumar Assistant Professor & HOD
2.Dr. Prakash rao balan ,Senior resident

Course Curriculum/Topics with schedule (Min of 30 hours)

SlNo	Date	Topic	Resource faculty	Time	Hours
1.	2.12.2017	Introduction	Dr..Vijay kumar	2-6 p.m	4
2.	9.12.17	Predisposing factors	Dr.Prakash rao balan	2-6 p.m	4
3.	16.12.17	General rules for diagnosis:	Dr.Vijay kumar	2-6 p.m	4
4.	23..12.17	Revised geneva clinical prediction rule for risk assessment:	Dr.Prakash rao balan	2-6p.m	4
5.	30.12.17	Imaging tests for diagnosis fo pulmonary embolism	Dr.Vijay kumar	2-6p.m	4
6.	6.01.2018	Adjusted management stratergies	Dr.Prakash rao balan	2-6 p.m	4
7.	13.01.2018	Drugs used in the management of pulmonary embolism:	Dr.Vijay kumar	2-6 pm	4
8.	20.01.2018	Recent advances in pulmonary embolism	Dr.Prakash rao balan	2-6 p.m	4

9.	27.01.2018	Multiple choice questions and discussion	Dr.iVjay kumar	2-4 p.m	2
		Total			34 hrs

REFERENCE BOOKS:

1. 1. Mazzolai L, Aboyans V, Ageno W, Agnelli G, Alatri A, Bauersachs R, Brekelmans MPA, Buller HR, Elias A, Farge D, Konstantinides S, Palareti G, Prandoni P, Righini M, Torbicki A, Vlachopoulos C, Brodmann M. Diagnosis and management of acute deep vein thrombosis: a joint consensus document from the European Society of Cardiology working groups of aorta and peripheral vascular diseases and pulmonary circulation and right ventricular function. Eur Heart J 2018;39:42084218.

2. Raskob GE, Angchaisuksiri P, Blanco AN, Buller H, Gallus A, Hunt BJ, Hylek EM, Kakkar A, Konstantinides SV, McCumber M, Ozaki Y, Wendelboe A, Weitz JI. Thrombosis: a major contributor to global disease burden. Arterioscler Thromb Vasc Biol 2014;34:23632371.

3. Wendelboe AM, Raskob GE. Global burden of thrombosis: epidemiologic aspects. Circ Res 2016;118:13401347.

4. Keller K, Hobohm L, Ebner M, Kresoja KP, Munzel T, Konstantinides SV, Lankeit M. Trends in thrombolytic treatment and outcomes of acute pulmonary embolism in Germany. Eur Heart J 2020;41:522529.

5. de Miguel-Diez J, Jimenez-Garcia R, Jimenez D, Monreal M, Guijarro R, Otero R, Hernandez-Barrera V, Trujillo-Santos J, Lopez de Andres A, Carrasco-Garrido P. Trends in hospital admissions for pulmonary embolism in Spain from 2002 to 2011. Eur Respir J 2014;44:942950.

VALUE ADDED COURSE

1. Name of the programme & Code

Diagnosis and Management of Pulmonary embolism CT06

2. Duration & Period

34 hrs & December 2017-January 2018.

3. Information Brochure and Course Content of Value Added Courses

Enclosed as Annexure- I

4. List of students enrolled

Enclosed as Annexure- II

5. Assessment procedures:

Assessment Evolution by DOPS method - *Enclosed as Annexure- III*

6. Certificate model

Enclosed as Annexure- IV

7. No. of times offered during the same year:

1 time December 2017- January 2018

8. Year of discontinuation: 2018

9. Summary report of each program year-wise

Value Added Course- December 2017-January 2018					
Sl. No	**Course Code**	**Course Name**	**Resource Persons**	**Target Students**	**Strength & Year**
1	CT06	**Diagnosis and Management of Pulmonary embolisim**	Dr. Vijay kumar Dr. Prakash rao balan	CRRI Interns	8 students DEC 2017 – JAN 2018

10. Course Feed Back

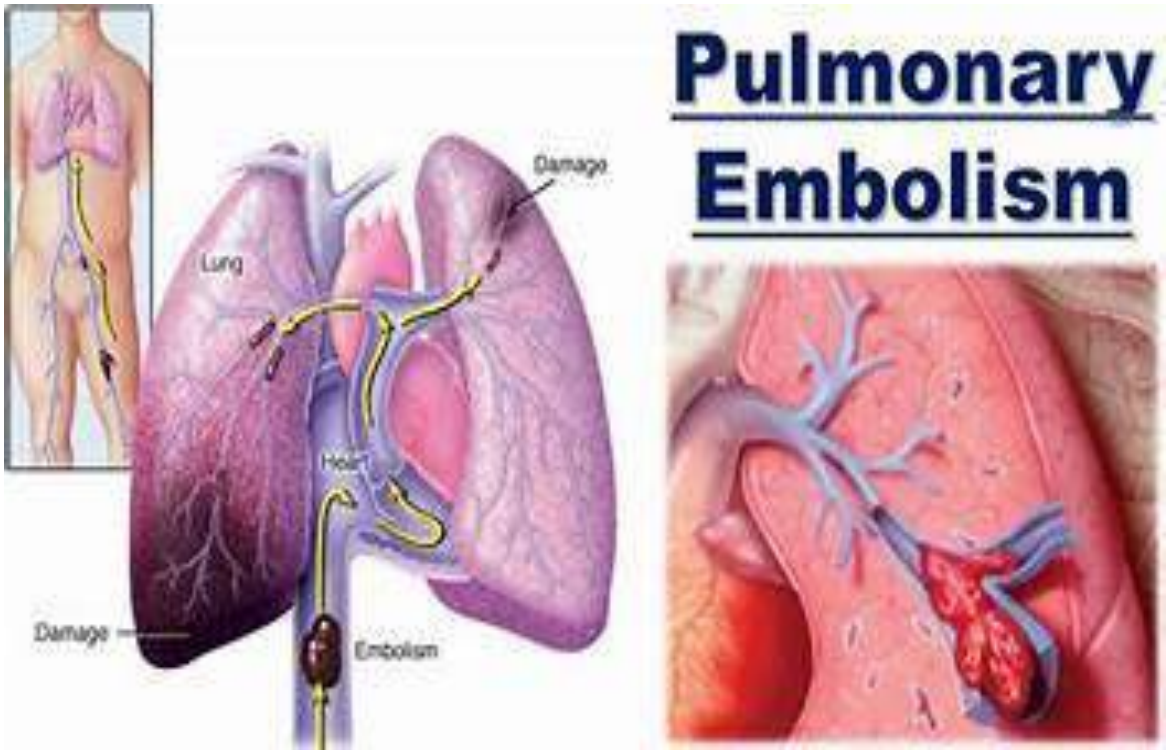
Enclosed as Annexure- V

RESOURCE PERSON
Dr.Prakash Rao Balan

COORDINATOR
Dr .Vijay kumar

Annexure_1

DIAGNOSIS AND TREATMENT OF PULMONARY EMBOLISM



PARTICIPANT HAND BOOK

COURSE DETAILS

Particulars	Description
Course Title	DIAGNOSIS AND TREATMENT OF PULMONARY EMBOLISM
Course Code	CT06
Objective	1.Introduction 2.Predisposing factors 3.General rules for Diagnosis: 4.Revised Geneva Clinical Prediction rule for risk assessment: 5.Imaging tests for Diagnosis for Pulmonary Embolism 5.Risk adjusted management stratergies 6.Drugs used in the management of Pulmonary Embolism 7.Recent updates in Pulmonary Embolism
Key Competencies	On successful completion of the course the students will have skill in managing a pulmonary embolism patient
Target Student	Interns
Duration	34hrs Every December 2017 – January 2018
Theory Session	32hrs + 2 hours of Multiple choice questions
Assessment Procedure	Multiple choice questions

1.INTRODUCTION :

Venous thromboembolism (VTE), clinically presenting as DVT or PE, is globally the third most frequent acute cardiovascular syndrome behind myocardial infarction and stroke.

In epidemiological studies, annual incidence rates for PE range from 39-115 per 100 000 population; for DVT, incidence rates range from 53-162 per 100 000 population.

Cross-sectional data show that the incidence of VTE is almost eight times higher in individuals aged >_80 years than in the fifth decade of life.

In parallel, longitudinal studies have revealed a rising tendency in annual PE incidence rates 4-7 over time.

Together with the substantial hospital associated, preventable, and indirect annual expenditures for VTE (an estimated total of up to e8.5 billion in the European Union), these data demonstrate the importance of PE and DVT in ageing populations in Europe and other areas of the world.

They further suggest that VTE will increasingly pose a burden on health systems worldwide in the years to come.

2.PREDISPOSING FACTORS:

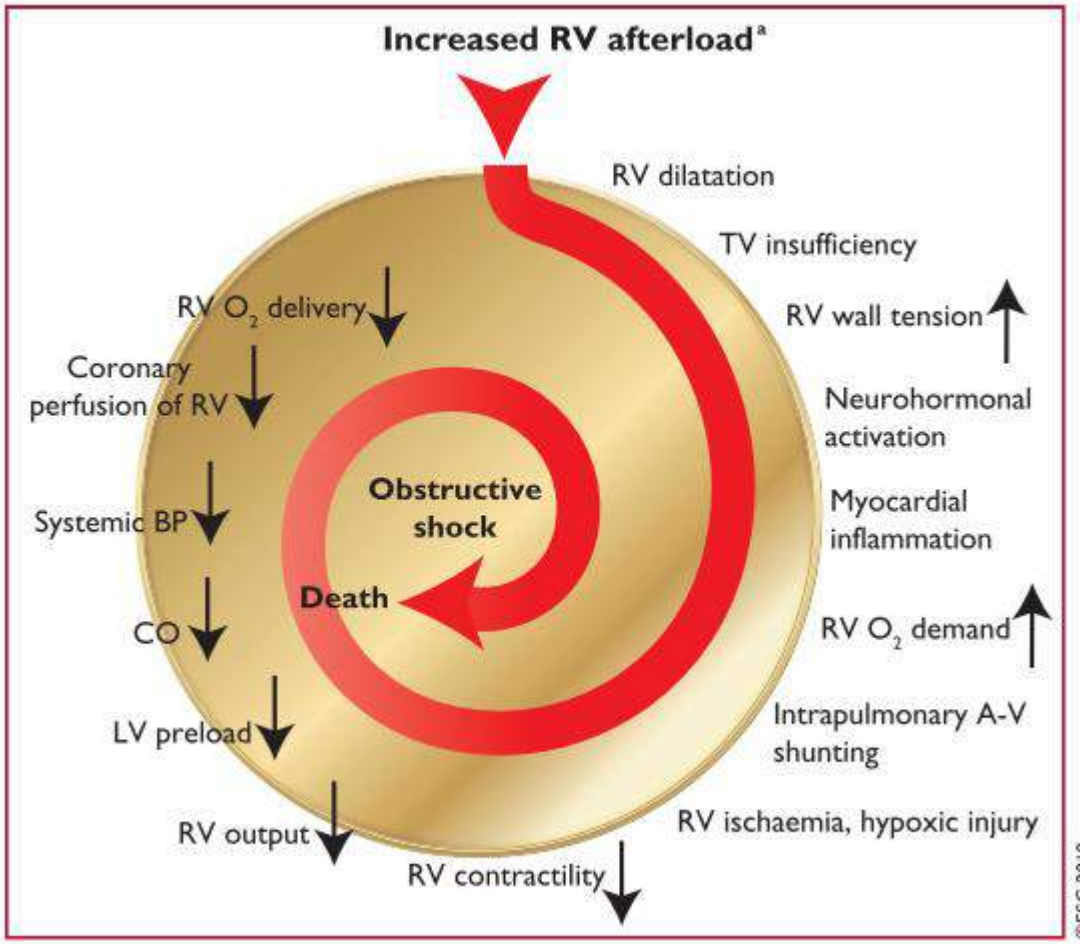
Strong risk factors (OR > 10)
Fracture of lower limb
Hospitalization for heart failure or atrial fibrillation/flutter (within previous 3 months)
Hip or knee replacement
Major trauma
Myocardial infarction (within previous 3 months)
Previous VTE
Spinal cord injury

Moderate risk factors (OR 2–9)
Arthroscopic knee surgery
Autoimmune diseases
Blood transfusion
Central venous lines
Intravenous catheters and leads
Chemotherapy
Congestive heart failure or respiratory failure
Erythropoiesis-stimulating agents
Hormone replacement therapy (depends on formulation)
In vitro fertilization
Oral contraceptive therapy
Post-partum period
Infection (specifically pneumonia, urinary tract infection, and HIV)
Inflammatory bowel disease
Cancer (highest risk in metastatic disease)
Paralytic stroke
Superficial vein thrombosis
Thrombophilia
Weak risk factors (OR < 2)
Bed rest >3 days
Diabetes mellitus
Arterial hypertension
Immobility due to sitting (e.g. prolonged car or air travel)
Increasing age
Laparoscopic surgery (e.g. cholecystectomy)
Obesity
Pregnancy
Varicose veins

HEMODYNAMIC COLLAPSE IN PULMONARY EMBOLISM:

(1) Cardiac arrest	(2) Obstructive shock[68–70]	(3) Persistent hypotension
Need for cardiopulmonary resuscitation	Systolic BP < 90 mmHg or vasopressors required to achieve a BP ≥90 mmHg despite adequate filling status	Systolic BP < 90 mmHg or systolic BP drop ≥40 mmHg, lasting longer than 15 min and not caused by new-onset arrhythmia, hypovolaemia, or sepsis
	And	
	End-organ hypoperfusion (altered mental status; cold, clammy skin; oliguria/anuria; increased serum lactate)	

BP = blood pressure.



3.GENERAL RULES FOR DIAGNOSIS:

Pre-test clinical probability of PE should be objectively assessed in each patient

D-dimer should be determined if pre-test probability of PE is low or intermediate

Diagnostic imaging of the chest should be used to assess post-test probability of PE in most patients; further testing is necessary when post-test probability of PE is neither sufficiently low nor sufficiently high to permit therapeutic decisions

Diagnostic strategies for PE could differ significantly in different clinical contexts and special conditions

4.REVISED GENEVA CLINICAL PREDICTION RULE FOR RISK ASSESSMENT:

Items	Clinical decision rule points	
	Original version[91]	Simplified version[87]
Previous PE or DVT	3	1
Heart rate		
75—94 b.p.m.	3	1
≥95 b.p.m.	5	2
Surgery or fracture within the past month	2	1
Haemoptysis	2	1
Active cancer	2	1
Unilateral lower-limb pain	3	1
Pain on lower-limb deep venous palpation and unilateral oedema	4	1
Age >65 years	1	1
Clinical probability		
Three-level score		
Low	0—3	0—1
Intermediate	4—10	2—4
High	≥11	≥5
Two-level score		
PE-unlikely	0—5	0—2
PE-likely	≥6	≥3

Items	Clinical decision rule points	
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Two-level score		
PE-unlikely	0—5	0—2
PE-likely	≥6	≥3

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5.PULMONARY EMBOLISM SEVERITY INDEX:

Parameter	Original version[226]	Simplified version[229]
Age	Age in years	1 point (if age >80 years)
Male sex	+10 points	—
Cancer	+30 points	1 point
Chronic heart failure	+10 points	1 point
Chronic pulmonary disease	+10 points	
Pulse rate ≥110 b.p.m.	+20 points	1 point
Systolic BP <100 mmHg	+30 points	1 point
Respiratory rate >30 breaths per min	+20 points	—
Temperature <36°C	+20 points	—
Altered mental status	+60 points	—
Arterial oxyhaemoglobin saturation <90%	+20 points	1 point
	Risk strata[a]	
	Class I: ≤65 points very low 30 day mortality risk (0—1.6%) **Class II: 66—85 points** low mortality risk (1.7—3.5%)	**0 points** = 30 day mortality risk 1.0% (95% CI 0.0—2.1%)
	Class III: 86—105 points moderate mortality risk (3.2—7.1%) **Class IV: 106—125 points** high mortality risk (4.0—11.4%) **Class V: >125 points** very high mortality risk (10.0—24.5%)	**≥1 point(s)** = 30 day mortality risk 10.9% (95% CI 8.5—13.2%)

6.RECOMMENDATIONS FOR DIAGNOSIS OF PULMONARY EMBOLISM:

Suspected PE with haemodynamic instability
In suspected high-risk PE, as indicated by the presence of haemodynamic instability, bedside echocardiography or emergency CTPA (depending on availability and clinical circumstances) is recommended for diagnosis.[169]
It is recommended that i.v. anticoagulation with UFH, including a weight-adjusted bolus injection, be initiated without delay in patients with suspected high-risk PE.
Suspected PE without haemodynamic instability
The use of validated criteria for diagnosing PE is recommended.[12]
Initiation of anticoagulation is recommended without delay in patients with high or intermediate clinical probability of PE while diagnostic workup is in progress.

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It is recommended that i.v. anticoagulation with UFH, including a weight-adjusted bolus injection, be initiated without delay in patients with suspected high-risk PE.
Suspected PE without haemodynamic instability
The use of validated criteria for diagnosing PE is recommended.[13]
Initiation of anticoagulation is recommended without delay in patients with high or intermediate clinical probability of PE while diagnostic workup is in progress.
Clinical evaluation
It is recommended that the diagnostic strategy be based on clinical probability, assessed either by clinical judgement or by a validated prediction rule.[89,91,92,103,134,170–172]
D-dimer
Plasma D-dimer measurement, preferably using a highly sensitive assay, is recommended in outpatients/emergency department patients with low or intermediate clinical probability, or those that are PE-unlikely, to reduce the need for unnecessary imaging and irradiation.[101–103,122,144,171,173,174]
As an alternative to the fixed D-dimer cut-off, a negative D-dimer test using an age-adjusted cut-off (age × 10 μg/L, in patients aged >50 years) should be considered for excluding PE in patients with low or intermediate clinical probability, or those that are PE-unlikely.[106]
As an alternative to the fixed or age-adjusted D-dimer cut-off, D-dimer levels adapted to clinical probability[c] should be considered to exclude PE.[107]
D-dimer measurement is not recommended in patients with high clinical probability, as a normal result does not safely exclude PE, even when using a highly sensitive assay.[173,175]
CTPA
It is recommended to reject the diagnosis of PE (without further testing) if CTPA is normal in a patient with low or intermediate clinical probability, or who is PE-unlikely.[101,122,144,171]
It is recommended to accept the diagnosis of PE (without further testing) if CTPA shows a segmental or more proximal filling defect in a patient with intermediate or high clinical probability.[135]
It should be considered to reject the diagnosis of PE (without further testing) if CTPA is normal in a patient with high clinical probability or who is PE-likely.[171]
Further imaging tests to confirm PE may be considered in cases of isolated subsegmental filling defects.[115]
CT venography is not recommended as an adjunct to CTPA.[115,164]
V/Q scintigraphy
It is recommended to reject the diagnosis of PE (without further testing) if the perfusion lung scan is normal.[75,122,134,174]
It should be considered to accept that the diagnosis of PE (without further testing) if the V/Q scan yields high probability for PE.[134]
V/Q SPECT
V/Q SPECT may be considered for PE diagnosis.[121,126–128]
Lower-limb CUS
It is recommended to accept the diagnosis of VTE (and PE) if a CUS shows a proximal DVT in a patient with clinical suspicion of PE.[164,165]
If CUS shows only a distal DVT, further testing should be considered to confirm PE.[177]
If a positive proximal CUS is used to confirm PE, assessment of PE severity should be considered to permit risk-adjusted management.[178,179]
MRA
MRA is not recommended for ruling out PE.[139,140]

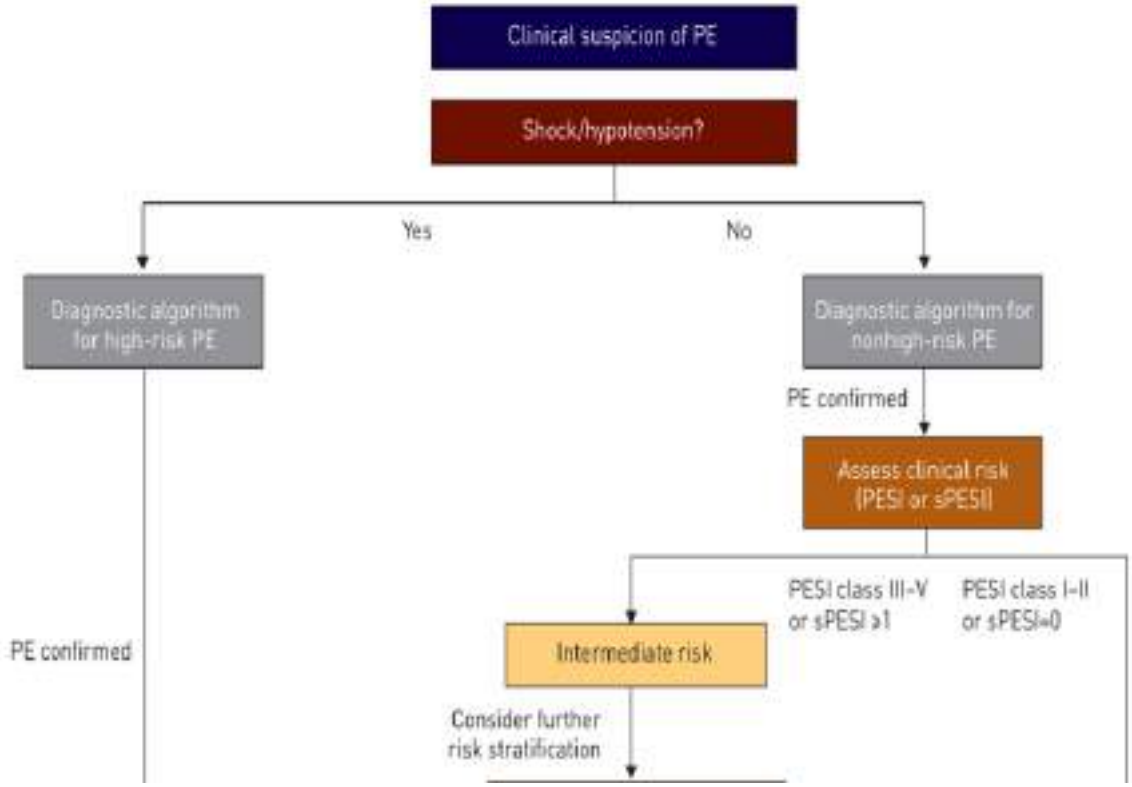
Recommendations
Initial risk stratification of suspected or confirmed PE, based on the presence of haemodynamic instability, is recommended to identify patients at high risk of early mortality.[218,219,235]
In patients without haemodynamic instability, further stratification of patients with acute PE into intermediate- and low-risk categories is recommended.[179,218,219,235]
In patients without haemodynamic instability, use of clinical prediction rules integrating PE severity and comorbidity, preferably the PESI or sPESI, should be considered for risk assessment in the acute phase of PE.[178,226,229]
Assessment of the RV by imaging methods[e] or laboratory biomarkers[f] should be considered, even in the presence of a low PESI or a negative sPESI.[226]
In patients without haemodynamic instability, use of validated scores combining clinical, imaging, and laboratory PE-related prognostic factors may be considered to further stratify the severity of the acute PE episode.[218–221]

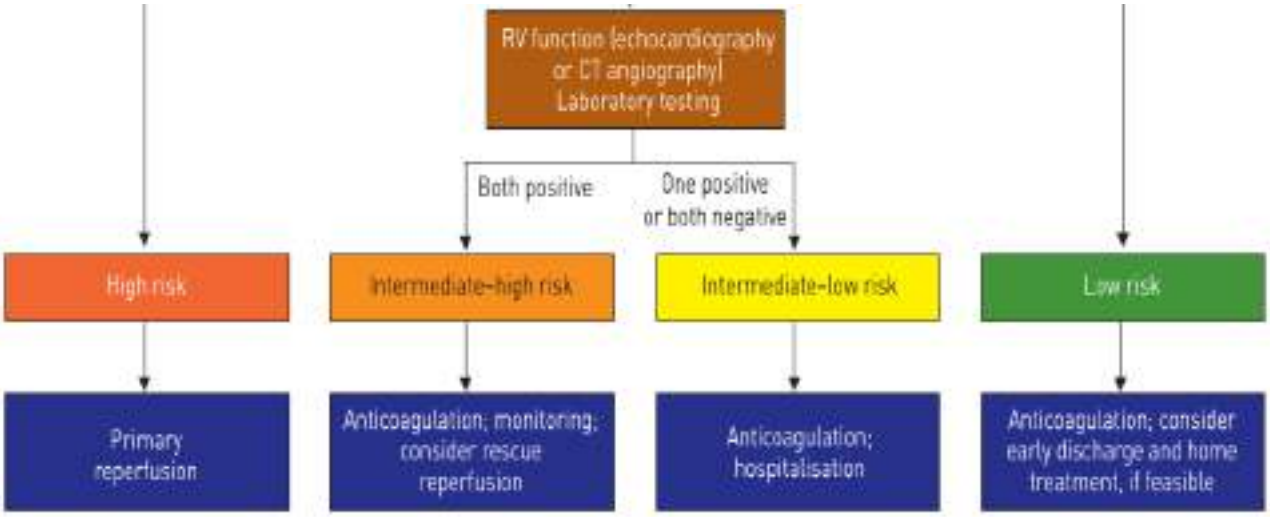
7..IMAGING TESTS FOR DIAGNOSIS OF PULMONARY EMBOLISM:

	Strengths	Weaknesses/limitations	Radiation issues[a]
CTPA	• Readily available around the clock in most centres • Excellent accuracy • Strong validation in prospective management outcome studies • Low rate of inconclusive results (3–5%) • May provide alternative diagnosis if PE excluded • Short acquisition time	• Radiation exposure • Exposure to iodine contrast: ○ limited use in iodine allergy and hyperthyroidism ○ risks in pregnant and breastfeeding women ○ contraindicated in severe renal failure • Tendency to overuse because of easy accessibility • Clinical relevance of CTPA diagnosis of subsegmental PE unknown	• Radiation effective dose 3–10 mSv[b] • Significant radiation exposure to young female breast tissue
Planar V/Q scan	• Almost no contraindications • Relatively inexpensive • Strong validation in prospective management outcome studies	• Not readily available in all centres • Interobserver variability in interpretation • Results reported as likelihood ratios • Inconclusive in 50% of cases • Cannot provide alternative diagnosis if PE excluded	• Lower radiation than CTPA, effective dose ~2 mSv[b]

V/Q SPECT	• Almost no contraindications • Lowest rate of non-diagnostic tests (<3%) • High accuracy according to available data • Binary interpretation ('PE' vs. 'no PE')	• Variability of techniques • Variability of diagnostic criteria • Cannot provide alternative diagnosis if PE excluded • No validation in prospective management outcome studies	• Lower radiation than CTPA, effective dose ~2 mSv[b]
Pulmonary angiography	• Historical gold standard	• Invasive procedure • Not readily available in all centres	• Highest radiation, effective dose 10–20 mSv[b]

8.RISK ADJUSTED MANAGEMENT STRATERGIES:





It is recommended that anticoagulation with UFH, including a weight-adjusted bolus injection, be initiated without delay in patients with high-risk PE.
Systemic thrombolytic therapy is recommended for high-risk PE. [282]
Surgical pulmonary embolectomy is recommended for patients with high-risk PE, in whom thrombolysis is contraindicated or has failed.[d] [281]
Percutaneous catheter-directed treatment should be considered for patients with high-risk PE, in whom thrombolysis is contraindicated or has failed.[d]
Norepinephrine and/or dobutamine should be considered in patients with high-risk PE.
ECMO may be considered, in combination with surgical embolectomy or catheter-directed treatment, in patients with PE and refractory circulatory collapse or cardiac arrest.[d] [252]

9.DRUGS USED IN THE MANAGEMENT OF PULMONARY EMBOLISM:

Molecule	Regimen	Contraindications to fibrinolysis
rtPA	100 mg over 2 h	**Absolute**
	0.6 mg/kg over 15 min (maximum dose 50 mg)[a]	History of haemorrhagic stroke or stroke of unknown origin
Streptokinase	250 000 IU as a loading dose over 30 min, followed by 100 000 IU/h over 12–24 h	Ischaemic stroke in previous 6 months
	Accelerated regimen: 1.5 million IU over 2 h	Central nervous system neoplasm
Urokinase	4400 IU/kg as a loading dose over 10 min, followed by 4400 IU/kg/h over 12–24 h	Major trauma, surgery, or head injury in previous 3 weeks
	Accelerated regimen: 3 million IU over 2 h	Bleeding diathesis
		Active bleeding
		Relative
		Transient ischaemic attack in previous 6 months
		Oral anticoagulation
		Pregnancy or first post-partum week
		Non-compressible puncture sites
		Traumatic resuscitation
		Refractory hypertension (systolic BP >180 mmHg)
		Advanced liver disease
		Infective endocarditis
		Active peptic ulcer

10.NEW CONCEPTS IN PULMONARY EMBOLISM:

Diagnosis
D-dimer cut-off values adjusted for age or clinical probability can be used as an alternative to the fixed cut-off value.
Updated information is provided on the radiation dosage when using CTPA and a lung scan to diagnose PE (*Table 6*).

Risk assessment
A clear definition of haemodynamic instability and high-risk PE is provided (*Table 4*).
Assessment of PE severity and early PE-related risk is recommended, in addition to comorbidity/aggravating conditions and overall death risk.
A clear word of caution that RV dysfunction may be present, and affect early outcomes, in patients at 'low risk' based on clinical risk scores.
Treatment in the acute phase
Thoroughly revised section on haemodynamic and respiratory support for high-risk PE (Section 6.1).
A dedicated management algorithm is proposed for high-risk PE (*Supplementary Figure 1*).
NOACs are recommended as the first choice for anticoagulation treatment in a patient eligible for NOACs; VKAs are an alternative to NOACs.
The risk-adjusted management algorithm (*Figure 6*) was revised to take into consideration clinical PE severity, aggravating conditions/comorbidity, and the presence of RV dysfunction.
Chronic treatment after the first 3 months
Risk factors for VTE recurrence have been classified according to high, intermediate, or low recurrence risk (*Table 11*).
Potential indications for extended anticoagulation are discussed, including the presence of a minor transient or reversible risk factor for the index PE, any persisting risk factor, or no identifiable risk factor.
Terminology such as 'provoked' vs. 'unprovoked' PE/VTE is no longer supported by the Guidelines, as it is potentially misleading and not helpful for decision-making regarding the duration of anticoagulation.

VTE recurrence scores are presented and discussed in parallel with bleeding scores for patients on anticoagulation treatment (Supplementary Tables *13* and *14* respectively).
A reduced dose of apixaban or rivaroxaban for extended anticoagulation should be considered after the first 6 months of treatment.
PE in cancer
Edoxaban or rivaroxaban should be considered as an alternative to LMWH, with a word of caution for patients with gastrointestinal cancer due to the increased bleeding risk with NOACs.
PE in pregnancy
A dedicated diagnostic algorithm is proposed for suspected PE in pregnancy (*Figure 7*).
Updated information is provided on radiation absorption related to procedures used for diagnosing PE in pregnancy (*Table 12*).
Long-term sequelae
An integrated model of patient care after PE is proposed to ensure optimal transition from hospital to community care.
Recommendations on patient care have been extended to the entire spectrum of post-PE symptoms and functional limitation, not only CTEPH.
A new comprehensive algorithm is proposed for patient follow-up after acute PE (*Figure 8*).

VALUE ADDED COURSE

Annexure- II

DIAGNOSIS AND TREATMENT OF PULMONARY EMBOLISM & CT06

List of Students Enrolled DEC 2017- JAN 2018

1st Year MBBS Student			SIGNATURE
Sl No	Name of the Student	Roll No	
1	SAI KOWSHIK.M.B.	U13MB248	
2	SAINI. S.A.	U13MB249	
3	SAKTHI.S	U13MB250	
4	SANGAVI. I	U13MB251	
5	SANKARANANTH. M.	U13MB252	
6	SANTHOSH KUMAR.A	U13MB253	
7	SARUMATHY. K	U13MB254	
8	SATHEESH.S	U13MB255	

RESOURCE PERSON

COORDINATOR

SRI LAKSHMI NARAYANA INSTITUE OF HIGHER EDUCATON AND RESEARCH

Annexure - III

DIAGNOSIS AND TREATMENT OF PULMONARY EMBOLISM

MULTIPLE CHOICE QUESTIONS

Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry

10/10

CANDIDATE AND ASSESSOR INFORMATION

Course code: CT 06

Candidate Name	Sitaramraja Satyaraj	Assessor Name	Dr. VIJAY KUMAR
ate of Assessment	21.07.2018	Assessor Position	ASSISTANT PROFESSOR

1)A 25 year old woman complains of shortness of breath after 10 hours of travel by air. In the Emergency Ward her respiratory rate is 25/min. BP 110/70. P = 90. Pulmonary embolism is suspected. Her D-Dimer is 200 mg/ml fibrinogen units. What is the next step:

A Start anticoagulation
✓B. Order a V/Q scan
C. Order a pulmonary angiogram
D. Offer reassurance and discharge

2)In diagnosing pulmonary embolism which of the following signs is most reliable:

✓A. Pulse rate
B. Respiratory rate
C. Blood pressure

D. Nail bed cyanosis

3)Lytic therapy is recommended in acute pulmonary embolism when:

A. Patient complains of shortness of breath
B. Patient complains of chest pain
C. BP is 60/40
D. Venogram is positive
E. There is blood-tinged sputum

4)Pulmonary Embolism is a life threatening condition commonly seen in the ICU setting. Which of the following is not a feature of Echocardiography in patients with pulmonary embolism

A)Right ventricular dilatation with increased RV/LV diameter

B)Mitral Regurgitation

C)Bowing of interventricular septum

D)Pulmonary artery dilatation

5)Which of the following is accurate about the etiology of pulmonary emboli?

A)Most pulmonary emboli originate in the pelvic, renal, or upper extremity veins

B)Small thrombi typically travel less distally and are less likely to produce pleuritic chest pain

C) Most pulmonary emboli are single

D) The lower lobes of the lung are more commonly involved with emboli than the upper lobes

6)Of the following, which is considered the more significant risk factor for pulmonary embolism?

A)Hypercystinuria

B)Mild bradycardia

C) Hemolytic anemia

D)Hypolipidemia

7)Which of the following statements is accurate about physical examination findings in patients with pulmonary emboli?

A)Temperature in excess of 103° F is common in patients with pulmonary emboli

B)Tachypnea is among the most common physical signs of pulmonary emboli

C)Chest wall tenderness as the sole physical finding indicates a cause other than pulmonary embolism

D)Patients with massive pulmonary embolism display signs of systemic hypertension

8)Which of the following tests is generally the next step after clinical prediction rule results indicate that a patient has a low or moderate pretest probability of pulmonary embolism?

A)D-dimer measurement

B)Troponin level measurement

C)Brain natriuretic peptide (BNP) measurement

D)Activated partial thromboplastin time (aPTT) measurement

9)Which of the following is accurate about the treatment of pulmonary embolism?

A)Thrombolytics are the treatment of choice in most children with pulmonary emboli

B)When possible, thrombolytic therapy should be used in patients with acute pulmonary embolism associated with hypotension

C)Most patients with acute pulmonary embolism should receive IV unfractionated heparin (UFH) instead of low-molecular-weight heparin (LMWH)

D)Subcutaneous (SC) UFH is preferred to fondaparinux in patients with acute pulmonary embolism

10) A 54 year old female smoker was admitted with gradually worsening breathlessness over the last 10 days. She reported a cough but no obvious fever or discoloured sputum. Her past medical history included an unprovoked DVT 5 years previously. She was not taking any regular medication. There were no findings on review of systems and nothing abnormal on clinical examination apart from breathlessness. Her blood results and chest X-ray were normal. A subsequent CT pulmonary angiogram was performed and showed bilateral proximal pulmonary emboli with no evidence of right heart strain. She was started on low molecular weight heparin and Warfarin. For how long should she be anticoagulated?

A)3 months

B)6 months

C)12 month

D)Depends on her DASH Score

E)Indefinitely

SRI LAKSHMI NARAYANA INSTITUE OF HIGHER EDUCATON AND RESEARCH

Annexure - III

DIAGNOSIS AND TREATMENT OF PULMONARY EMBOLISM

MULTIPLE CHOICE QUESTIONS

Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry

10/10

CANDIDATE AND ASSESSOR INFORMATION

Course code: CT 06

Candidate Name	Saini S.A.	Assessor Name	Dr VIJAY KUMAR
ate of Assessment	29.01.2018	Assessor Position	ASSISTANT PROFESSOR.

1)A 25 year old woman complains of shortness of breath after 10 hours of travel by air. In the Emergency Ward her respiratory rate is 25/min. BP 110/70. P = 90. Pulmonary embolism is suspected. Her D-Dimer is 200 mg/ml fibrinogen units. What is the next step:

A Start anticoagulation
B. Order a V/Q scan
✓C. Order a pulmonary angiogram
D. Offer reassurance and discharge

2)In diagnosing pulmonary embolism which of the following signs is most reliable:

✗A. Pulse rate
B. Respiratory rate
C. Blood pressure

D. Nail bed cyanosis

3)Lytic therapy is recommended in acute pulmonary embolism when:

A. Patient complains of shortness of breath
B. Patient complains of chest pain
C. BP is 60/40
D. Venogram is positive
E. There is blood-tinged sputum

4)Pulmonary Embolism is a life threatening condition commonly seen in the ICU setting. Which of the following is not a feature of Echocardiography in patients with pulmonary embolism

A)Right ventricular dilatation with increased RV/LV diameter

B)Mitral Regurgitation

C)Bowing of interventricular septum

D)Pulmonary artery dilatation

5)Which of the following is accurate about the etiology of pulmonary emboli?

A)Most pulmonary emboli originate in the pelvic, renal, or upper extremity veins

B)Small thrombi typically travel less distally and are less likely to produce pleuritic chest pain

C) Most pulmonary emboli are single

D) The lower lobes of the lung are more commonly involved with emboli than the upper lobes

6)Of the following, which is considered the more significant risk factor for pulmonary embolism?

A)Hypercystinuria

B)Mild bradycardia

C) Hemolytic anemia

D)Hypolipidemia

7)Which of the following statements is accurate about physical examination findings in patients with pulmonary emboli?

A)Temperature in excess of 103° F is common in patients with pulmonary emboli

B)Tachypnea is among the most common physical signs of pulmonary emboli

C)Chest wall tenderness as the sole physical finding indicates a cause other than pulmonary embolism

D)Patients with massive pulmonary embolism display signs of systemic hypertension

8)Which of the following tests is generally the next step after clinical prediction rule results indicate that a patient has a low or moderate pretest probability of pulmonary embolism?

A)D-dimer measurement

B)Troponin level measurement

C)Brain natriuretic peptide (BNP) measurement

D)Activated partial thromboplastin time (aPTT) measurement

9)Which of the following is accurate about the treatment of pulmonary embolism?

A)Thrombolytics are the treatment of choice in most children with pulmonary emboli

B)When possible, thrombolytic therapy should be used in patients with acute pulmonary embolism associated with hypotension

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A)3 months

B)6 months

C)12 month

D)Depends on her DASH Score

E)Indefinitely

Sri Lakshmi Narayana Institute of Medical Sciences

This is to certify that __ Sangavi (U13MB251)_ has actively participated in the Value Added Course on DIAGNOSIS AND TREATMENT OF PULMONARY EMBOLISM held during December 2017 - January 2018 Organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr.Prakash Rao Balan
RESOURCE PERSON

Dr. Vijay Kumar
COORDINATOR

Sri Lakshmi Narayana Institute of Medical Sciences

This is to certify that __ Sai Kowshik(U13MB248)_ has actively participated in the Value Added Course on DIAGNOSIS AND TREATMENT OF PULMONARY EMBOLISM held during December 2017 - January 2018 Organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr.Prakash Rao Balan
RESOURCE PERSON

Dr. Vijay Kumar
COORDINATOR

Student Feedback Form

Course Name: **DIAGNOSIS AND TREATMENT OF PULMONARY EMBOLISM**

Subject Code: **CT 06**

Name of Student: SHANMUGA SATHYANAR.S Roll No.: 113MB260

We are constantly looking to improve our classes and deliver the best training to you. Your evaluations, comments and suggestions will help us to improve our performance

Sl. NO	Particulars	1	2	3	4	5
1	Objective of the course is clear					✓
2	Course contents met with your expectations				✓	
3	Lecturer sequence was well planned					✓
4	Lectures were clear and easy to understand					✓
5	Teaching aids were effective					✓
6	Instructors encourage interaction and were helpful				✓	
7	The level of the course					✓
8	Overall rating of the course	1	2	3	4	✓

** Rating: 5 – Outstanding; 4 - Excellent; 3 – Good; 2– Satisfactory; 1 - Not-Satisfactory*

Suggestions if any:

VERY INFORMATIVE

Signature

Date: 21.01.2018

Student Feedback Form

Course Name: **DIAGNOSIS AND TREATMENT OF PULMONARY EMBOLISM**

Subject Code: **CT 06**

Name of Student: SAINI · S · A Roll No.: U13MB250

We are constantly looking to improve our classes and deliver the best training to you. Your evaluations, comments and suggestions will help us to improve our performance

Sl. NO	Particulars	1	2	3	4	5
1	Objective of the course is clear				✓	
2	Course contents met with your expectations					✓
3	Lecturer sequence was well planned					✓
4	Lectures were clear and easy to understand				✓	
5	Teaching aids were effective					✓
6	Instructors encourage interaction and were helpful					✓
7	The level of the course					✓
8	Overall rating of the course	1	2	3	4	✓5

** Rating: 5 – Outstanding; 4 - Excellent; 3 – Good; 2– Satisfactory; 1 - Not-Satisfactory*

Suggestions if any:

EXCELLENT

Saini S

Signature

Date: 31 · 01 · 2018

Date: 27.01.2018

From

Dr.Vijay Kumar
Assistant Professor and Head,
Department of TB & chest,
Sri Lakshmi Narayana Institute of Medical Sciences
Bharath Institute of Higher Education and Research,
Chennai.

Through Proper Channel

To

The Dean,
Sri Lakshmi Narayana Institute of Medical Sciences
Bharath Institute of Higher Education and Research,
Chennai.

Sub: Completion of value-added course: Diagnosis and Management of Pulmonary embolism & CT06

Dear Sir,

With reference to the subject mentioned above, the department has conducted the value-added course titled: : Diagnosis and Management of Pulmonary embolism & CT06 Dec 2017- Jan 2018 for 8 interns . We solicit your kind action to send certificates for the participants, that is attached with this letter. Also, I am attaching the photographs captured during the conduct of the course.

Kind Regards,

Dr. Vijay Kumar

Encl: Certificates

Photographs