1 PATIENT INFORMATION

1 PATIENT DETAILS

NAME
Raymond K. Delacroix

DOB
07/30/1965

AGE/SEX
61 / Male

MRN / PATIENT ID
RKD-3381956

DATE OF SERVICE
11/05/2026

PROVIDER
Natalia Ferreira

CREDENTIALS
MD, FCCP (Pulmonary Vascular Disease)

VISIT TYPE
Pulmonary Hypertension Consultation — right heart catheterization review

CARE SETTING
Outpatient — Pulmonary Hypertension Clinic

PRIMARY PULMONOLOGIST, IF APPLICABLE
None

PRIMARY CARDIOLOGIST, IF APPLICABLE
Brian Oduya, MD

PRIMARY CARE PROVIDER, IF APPLICABLE
Teresa Lindqvist, DO

REFERRING PROVIDER, IF APPLICABLE
Brian Oduya, MD

INTERPRETER USED, IF APPLICABLE
Not required

CC CHIEF COMPLAINT

2 PRIMARY CONCERN

"I've been on blood thinners since my second clot, but I still can't walk to the mailbox without stopping. Last month I nearly passed out on the stairs. My cardiologist said the pressure in my lungs is high."

S SUBJECTIVE

3 PATIENT-REPORTED HISTORY

3a SYMPTOMS & FUNCTIONAL LIMITATION

Reason for Pulmonary Hypertension Evaluation:

Initial PH evaluation for suspected CTEPH: review of RHC, V/Q scan, and CTPA; operability triage; start of therapy.

Dyspnea / Functional Limitation:

Exertional dyspnea has worsened over 14 months, despite 3 months of anticoagulation after his second PE. Now stops after about 50 m on level ground or half a flight of stairs. No rest dyspnea. Independent in ADLs but slow. Took medical leave from his job as a bus mechanic in 08/2026.

Right Heart Failure Symptoms:

Ankle swelling by evening; gained 4 kg over 2 months. Early satiety and abdominal bloating. Bendopnea when tying shoes. No orthopnea or PND. Marked fatigue.

Chest Pain / Syncope / Palpitations:

Exertional chest pressure ×3 in the past month, settles with rest. Near-syncope climbing stairs 10/12 (greyed out, sat down; no loss of consciousness). No palpitations.

3b PULMONARY HYPERTENSION CONTEXT

Pulmonary Hypertension History:

Echo 08/2026 (cardiology): RVSP 78 mmHg, dilated RV with reduced function. RHC 10/22/2026 confirmed precapillary PH. Suspected group 4 (CTEPH). No PH hospitalizations. No prior PH specialist care.

Pulmonary Arterial Hypertension Risk Factors:

None found. No CTD symptoms, liver disease, HIV, stimulant or anorexigen use. No family history of PH. Echo bubble study: no shunt.

Chronic Thromboembolic Disease Risk:

Unprovoked L leg DVT + PE 03/2023 — apixaban for 6 months, then stopped. Recurrent unprovoked bilateral PE 05/2025 — apixaban 5 mg BID since. Antiphospholipid antibodies negative ×2. V/Q 10/2026: multiple mismatched segmental defects. CTPA 10/2026: chronic webs and bands, R lower lobe and L lower lobe segmental occlusions, mosaic perfusion.

Lung Disease / Hypoxia Context:

Former smoker, 18 pack-years (quit 2010). PFTs 10/2026: normal spirometry and volumes; DLCO 62%. No ILD or emphysema on CT. Mild OSA on home study 2024 (AHI 9), not treated.

Left Heart Disease Context:

Hypertension. LVEF 60%, grade I diastolic dysfunction, normal LA size. No valve disease or AF. Coronary CTA 2024: minimal plaque. PAWP 10 on RHC — no meaningful left heart contribution.

Oxygen Use / Saturation Trends:

No oxygen. Home oximeter: 92–94% at rest, 84–86% on stairs.

Sleep-Related Breathing Symptoms:

Snores; wife has seen occasional pauses. Epworth 8. Mild OSA (AHI 9) in 2024; declined CPAP.

3c TREATMENT & BACKGROUND

Medication History and Response:

Apixaban 5 mg BID (adherent, no missed doses per pill box). Furosemide 20 mg daily (started by cardiology 09/2026) — some relief of edema. Lisinopril 10 mg. Atorvastatin 20 mg. No PH-targeted therapy yet.

Prostacyclin / Infusion Therapy, if applicable:

Not applicable.

Diuretic / Volume Status History:

Not weighing daily. Estimated dry weight about 88 kg; today 92.4 kg. Furosemide 20 mg with partial response. High-sodium diet (fast food at work). K and Cr stable.

Prior Testing and Procedures:

Echo 08/2026; RHC 10/22/2026; V/Q 10/09/2026; CTPA 10/14/2026; PFTs 10/2026; home sleep test 2024; NT-proBNP series; 6MWT today. No pulmonary angiography yet.

Relevant Medical History:

Recurrent unprovoked VTE, hypertension, mild OSA, prediabetes. Age-appropriate cancer screening up to date (colonoscopy 2024). No thyroid, kidney, or liver disease.

Family History:

Brother — DVT at 50. No PH, sudden death, or autoimmune disease.

Social / Exposure History:

Former smoker (see above). No stimulant use. Lives at sea level. Married; wife drives him to appointments. Commercial insurance; specialty pharmacy access confirmed.

Pertinent Negatives:

No full syncope, rest dyspnea, hemoptysis, unilateral leg swelling, or fever. Positive for near-syncope, exertional chest pressure, and desaturation.

ROS PULMONARY HYPERTENSION REVIEW OF SYSTEMS

4 PERTINENT POSITIVES & NEGATIVES

Dyspnea, exercise intolerance, fatigue, chest pain, palpitations, dizziness, presyncope, or syncope
Positive — dyspnea, exercise intolerance, fatigue, exertional chest pressure, near-syncope.

Edema, abdominal bloating, weight gain, orthopnea, early satiety, or reduced urine output
Positive — edema, bloating, 4 kg weight gain, early satiety. No orthopnea.

Cough, wheezing, hemoptysis, oxygen desaturation, or sleep-related breathing symptoms
Positive — exertional desaturation, snoring. No hemoptysis.

Joint pain, Raynaud symptoms, rash, skin thickening, sicca symptoms, oral ulcers, or autoimmune symptoms
Negative.

Calf pain, unilateral leg swelling, pleuritic chest pain, thromboembolic symptoms, or anticoagulation concerns
Negative; edema symmetric.

Medication side effects, headache, flushing, jaw pain, diarrhea, nausea, hypotension, or infusion-site issues
Negative (no PH therapy yet).

Anxiety, functional limitation, sleep disruption, work limitation, or quality-of-life impact
Positive — on medical leave; anxious about the near-syncope.

O OBJECTIVE

5 CARDIOPULMONARY EXAMINATION

5a VITALS

TEMPERATURE	BLOOD PRESSURE	HEART RATE
97.9 °F	118/74 mmHg	98 bpm
RESPIRATORY RATE	**OXYGEN SATURATION**	**OXYGEN FLOW RATE, IF APPLICABLE**
20 /min	93% RA at rest	None
HEIGHT	**WEIGHT**	**BMI**
180 cm	92.4 kg	28.5
PAIN SCORE, IF APPLICABLE	**WHO FUNCTIONAL CLASS, IF DOCUMENTED**	

0/10	III

5b EXAMINATION

General Appearance:

Alert, no distress at rest. Full sentences. Visibly short of breath after walking from the waiting room. Overweight.

Neck:

JVP 12 cm with prominent v waves. Positive hepatojugular reflux. Neck circumference 43 cm.

Cardiovascular:

Regular, mildly tachycardic. Loud P2. Left parasternal RV heave. Grade 2/6 holosystolic murmur at the left lower sternal border (tricuspid regurgitation), louder on inspiration. Right-sided S3. Pulses normal; capillary refill under 3 s.

Pulmonary:

Clear to auscultation. No crackles or wheeze. Faint flow murmur over the R posterior lower lung field (pulmonary bruit).

Abdomen:

Mildly distended. Liver edge 3 cm below the costal margin, tender. No obvious ascites.

Extremities:

2+ pitting edema to mid-shin, symmetric. Mild L leg venous stasis changes (prior DVT). No clubbing, cyanosis, or digital changes.

Skin:

No telangiectasias, sclerodactyly, or rash. A few small bruises on the forearms (apixaban).

Neurologic:

Alert and oriented. Normal gait. No focal deficits.

RF PULMONARY HYPERTENSION RISK / FUNCTIONAL ASSESSMENT

6 SEVERITY & RISK PROFILE

WHO FUNCTIONAL CLASS

III

6-MINUTE WALK DISTANCE AND OXYGEN DESATURATION

312 m; nadir SpO2 84% on RA

BNP OR NT-PROBNP TREND

NT-proBNP 620 (08/2026) → 1,840 pg/mL (10/2026)

ECHOCARDIOGRAPHIC RIGHT VENTRICULAR SIZE/FUNCTION

Dilated RV; TAPSE 14 mm; RV FAC 26%

RIGHT ATRIAL SIZE AND ESTIMATED PULMONARY PRESSURES

RA area 24 cm²; RVSP 78 mmHg

RIGHT HEART CATHETERIZATION HEMODYNAMICS

mPAP 44, PAWP 10, PVR 7.4 WU, CI 2.0

SYNCOPE OR PRESYNCOPE HISTORY

Exertional near-syncope ×1

HEART RATE, BLOOD PRESSURE, AND OXYGEN REQUIREMENT

HR 98, BP 118/74; exertional desaturation

VOLUME STATUS

Hypervolemic (+4 kg above dry weight)

HOSPITALIZATION HISTORY

None for PH

MEDICATION TOLERANCE AND ADHERENCE

RISK CATEGORY WHEN DOCUMENTED

Adherent to apixaban and furosemide

ESC/ERS 4-strata: intermediate-high

FUNCTIONAL TRAJECTORY COMPARED TO PRIOR VISITS

Declining over 14 months

RHC HEMODYNAMIC / RIGHT HEART CATHETERIZATION ASSESSMENT

7 INVASIVE HEMODYNAMICS

DATE OF RIGHT HEART CATHETERIZATION

10/22/2026 (R internal jugular, at rest)

RIGHT ATRIAL PRESSURE

11 mmHg

RIGHT VENTRICULAR PRESSURE

76/12 mmHg

PULMONARY ARTERY PRESSURE

76/28 mmHg

MEAN PULMONARY ARTERY PRESSURE

44 mmHg

PULMONARY CAPILLARY WEDGE PRESSURE

10 mmHg

CARDIAC OUTPUT AND CARDIAC INDEX

CO 4.6 L/min (thermodilution); CI 2.0 L/min/m²

PULMONARY VASCULAR RESISTANCE

7.4 Wood units

TRANSPULMONARY GRADIENT AND DIASTOLIC PRESSURE GRADIENT WHEN RELEVANT

TPG 34; DPG 18 mmHg

MIXED VENOUS OXYGEN SATURATION

58%

VASOREACTIVITY TESTING RESULTS IF PERFORMED

Not performed — not indicated in CTEPH

INTERPRETATION AND PH GROUP IMPLICATIONS

Severe precapillary PH; with V/Q and CTPA findings, consistent with group 4 (CTEPH)

LIMITATIONS OR NEED FOR REPEAT CATHETERIZATION

Repeat with pulmonary angiography at the CTEPH center for surgical planning

MT MEDICATION / THERAPY MONITORING

8 PH THERAPY STATUS

CURRENT PH-TARGETED MEDICATION REGIMEN

None — riociguat to start today

DOSE AND TITRATION STATUS

Riociguat 1 mg TID, increase by 0.5 mg TID every 2 weeks to 2.5 mg TID

ADHERENCE AND MISSED DOSES

Not applicable yet

SIDE EFFECTS AND TOLERABILITY

Not applicable yet

DRUG-DRUG INTERACTIONS

No nitrates or PDE-5 inhibitors (contraindicated); no strong CYP3A4/P-gp inhibitors

REMS OR PREGNANCY TESTING REQUIREMENTS WHEN APPLICABLE

Not applicable (male)

LIVER FUNCTION OR HEMOGLOBIN MONITORING WHEN APPLICABLE

Baseline LFTs and Hb normal

BLOOD PRESSURE AND HYPOTENSION SYMPTOMS

BP 118/74 — monitor for hypotension during titration

ANTICOAGULATION STATUS IF APPLICABLE

Apixaban 5 mg BID — lifelong

DIURETIC RESPONSE AND ELECTROLYTE MONITORING

Partial response; increase dose (see Plan)

PROSTACYCLIN PUMP/CATHETER STATUS IF APPLICABLE

Not applicable

SPECIALTY PHARMACY ACCESS AND REFILL BARRIERS

Prior authorization submitted; specialty pharmacy confirmed

NEED FOR ESCALATION, DE-ESCALATION, COMBINATION THERAPY, OR ADVANCED THERAPY REFERRAL

Referral to CTEPH center for PEA or balloon angioplasty evaluation

DX DIAGNOSTIC TESTING / IMAGING ASSESSMENT

9 TESTING REVIEWED

ECHOCARDIOGRAM FINDINGS

Dilated RV, TAPSE 14 mm, RVSP 78, moderate TR, D-shaped septum, no pericardial effusion

RIGHT HEART CATHETERIZATION FINDINGS

See Hemodynamic Assessment

EKG FINDINGS

Sinus rhythm 96; right axis deviation; RV strain pattern

BNP/NT-PROBNP

1,840 pg/mL

6-MINUTE WALK TEST

312 m; nadir 84%; Borg 6

PULMONARY FUNCTION TESTS

Normal spirometry and lung volumes

DLCO

62% predicted

CT CHEST / HRCT

No parenchymal lung disease; mosaic perfusion

CT PULMONARY ANGIOGRAM

Chronic webs/bands, bilateral lower-lobe segmental occlusions, enlarged PA (36 mm), bronchial artery collaterals

V/Q SCAN

Multiple bilateral mismatched segmental defects — high probability for chronic thromboembolism

SLEEP STUDY

Home study 2024: AHI 9 (mild OSA)

OXYGEN TESTING

Qualifies for exertional oxygen

AUTOIMMUNE SEROLOGIES

ANA, Scl-70, centromere negative

HIV TESTING WHEN INDICATED AND CONSENTED

Negative (consented)

LIVER DISEASE OR PORTAL HYPERTENSION EVALUATION

LFTs normal; ultrasound: mild hepatic congestion, no cirrhosis

COMPARISON TO PRIOR TESTING

RVSP 52 (2025 echo, during PE) → 78 now

NEED FOR ADDITIONAL TESTING OR REFERRAL

Pulmonary angiography at the CTEPH center; repeat sleep study

ST SCREENING / ASSESSMENT TOOLS

10 SCORES & INTERPRETATION

WHO FC III. 6MWD 312 m (no prior baseline). Borg 6 at end of walk. REVEAL Lite 2: score 9 (intermediate-high risk). ESC/ERS 4-strata: intermediate-high (WHO III, 6MWD 312, NT-proBNP 1,840). mMRC 3. Oxygen desaturation to 84% on exertion. emPHasis-10 score 34/50 (high symptom burden). Epworth 8; STOP-Bang 5 (high OSA risk). PHQ-9 7, GAD-7 9 (mild). Adherence: pill box, no missed apixaban doses in 3 months.

L LABORATORY AND DIAGNOSTIC RESULTS

11 REVIEWED & ORDERED

Cardiopulmonary Testing:

Echo 08/2026 and RHC 10/22/2026 as above. EKG today: RV strain. Cardiac MRI not done. CPET not needed.

Functional Testing:

6MWT today: 312 m, nadir 84% RA. Oxygen titration: 3 L/min pulsed keeps SpO2 ≥90% during the walk.

Pulmonary Testing:

PFTs, V/Q, and CTPA as above. Overnight oximetry ordered. CXR: enlarged central PAs, cardiomegaly.

Laboratory Testing:

NT-proBNP 1,840. Hb 15.8. Na 136, K 4.2, Cr 1.1 (eGFR 74). AST/ALT normal; bilirubin 1.3. TSH 1.8. Ferritin 64, TSAT 19% (iron-deficient). HIV and hepatitis B/C negative.

Autoimmune / Thromboembolic Workup:

ANA, ENA, Scl-70, centromere negative. Lupus anticoagulant (tested off apixaban 2023), anticardiolipin, and β2-glycoprotein negative ×2. Factor V Leiden heterozygous (2023). CRP normal.

Medication Monitoring:

Baseline LFTs, Hb, Cr, and K normal before riociguat. Renal function suits apixaban 5 mg BID.

Prior Records Reviewed:

Cardiology notes, RHC report and tracings, echo images, V/Q and CTPA images, 2023 and 2025 PE discharge summaries, hematology note (2023), and medication list.

A ASSESSMENT

12 PULMONARY HYPERTENSION INTERPRETATION

1) Chronic thromboembolic pulmonary hypertension (group 4), newly confirmed. Basis: severe precapillary PH (mPAP 44, PAWP 10, PVR 7.4 WU) with mismatched V/Q defects and chronic thromboembolic changes on CTPA after more than 3 months of therapeutic anticoagulation. Two unprovoked PEs; factor V Leiden heterozygous. 2) Severity:

WHO FC III, intermediate-high risk, with RV dysfunction (TAPSE 14, CI 2.0, SvO2 58%) and exertional near-syncope — a high-risk feature needing prompt referral. 3) Volume: decompensated right heart failure, about 4 kg above dry weight, with hepatic congestion. 4) Other contributors: no meaningful left heart disease (PAWP 10) or parenchymal lung disease. Untreated mild OSA and iron deficiency may add to symptoms. 5) Disease looks proximal-to-segmental on CTPA — potentially operable. Pulmonary endarterectomy (PEA) is the treatment of choice if operable; balloon pulmonary angioplasty or medical therapy if not. 6) Exertional hypoxemia: needs ambulatory oxygen. 7) No current signs requiring hospitalization (BP stable, no rest symptoms, normal renal function).

P PLAN

13 MANAGEMENT BY PROBLEM

Diagnostic classification plan

Classification complete — group 4. Repeat sleep study (in-lab) given STOP-Bang 5 and PH. Pulmonary angiography with repeat RHC at the CTEPH center.

PH-targeted therapy plan

Start riociguat 1 mg TID (bridging therapy given high-risk features while awaiting the CTEPH center), increasing every 2 weeks to 2.5 mg TID if systolic BP ≥95 with no hypotension symptoms. Counseled: dizziness, headache, GI upset, no nitrates or sildenafil/tadalafil. Specialty pharmacy enrolled; nurse calls for titration.

Right heart failure / volume plan

Increase furosemide to 40 mg BID ×5 days, then 40 mg daily. Add spironolactone 25 mg daily. Daily morning weights — call if up 1 kg in a day or 2 kg in a week. Sodium under 2 g/day; fluids 1.5–2 L/day. BMP in 1 week.

Oxygen plan

Portable oxygen concentrator, 3 L/min pulsed with exertion; target SpO2 ≥90%. Overnight oximetry for nocturnal need. Oxygen safety reviewed.

CTEPH plan

Urgent referral to the regional CTEPH center (expert multidisciplinary team) for PEA evaluation — images sent electronically. Balloon pulmonary angioplasty if inoperable or residual PH after PEA. Riociguat continues until the surgical decision.

Lung disease or sleep-disordered breathing plan

Sleep medicine referral; likely CPAP. No inhaler therapy needed. Pulmonary rehab after the surgical decision.

Left heart disease plan

Stop lisinopril to allow room for riociguat titration (BP 118/74) — discussed with Dr. Oduya. Cardiology will continue to follow.

Connective tissue disease or autoimmune plan

Not applicable — serologies negative, no CTD features.

Anticoagulation plan

Lifelong anticoagulation. Continue apixaban 5 mg BID for now; the CTEPH center may switch to warfarin (INR 2–3) given recurrent VTE. Bleeding precautions reviewed. Hold instructions for procedures will come from the CTEPH center.

Functional and rehabilitation plan

Light walking with oxygen only; no heavy lifting, straining, or stair climbing without rest. Sit or lie down at once for lightheadedness. No driving until no near-syncope for 4 weeks and cleared. Extended medical leave paperwork completed.

Advanced therapy or transplant plan

Not needed now. If inoperable and high-risk despite BPA and combination therapy, consider parenteral prostacyclin and transplant evaluation.

Patient education

Explained CTEPH as scarred clots blocking lung arteries that may be curable with surgery. Written plan given. Call 911 for fainting, chest pain at rest, or severe dyspnea. Call clinic for rapid weight gain, worse swelling, or dizziness on riociguat. Iron: IV ferric carboxymaltose ordered.

F FOLLOW-UP

14 REASSESSMENT PLAN

PH nurse phone call every 2 weeks for riociguat titration (BP, symptoms). BMP and weight check in 1 week. Clinic visit in 4 weeks for volume status and titration. CTEPH center visit expected in 2–4 weeks. Repeat NT-proBNP, 6MWT, and echo at 3 months. Urgent return precautions as above.

TB TIME DOCUMENTATION & BILLING

15 TIME DOCUMENTATION (IF APPLICABLE)

TOTAL TIME SPENT
78 minutes

PULMONARY HYPERTENSION COUNSELING TIME
25 minutes

MEDICATION / SPECIALTY PHARMACY COORDINATION TIME
12 minutes

OXYGEN COUNSELING TIME, IF APPLICABLE
6 minutes

CARE COORDINATION TIME
15 minutes (CTEPH center, cardiology)

RECORDS REVIEW TIME, IF APPLICABLE
12 minutes

TEST REVIEW TIME, IF APPLICABLE
8 minutes (RHC tracings, CTPA, V/Q)

15a BILLING CONSIDERATIONS — E/M / PULMONARY HYPERTENSION CODING

E/M LEVEL
99205 + G2211

6-MINUTE WALK / OXYGEN TESTING CODE(S), IF APPLICABLE
94618

RIGHT HEART CATHETERIZATION REVIEW / COORDINATION, IF APPLICABLE
Review included in E/M (performed by cardiology)

MEDICATION MANAGEMENT / REMS COORDINATION, IF APPLICABLE
Specialty pharmacy enrollment; no REMS

CARE COORDINATION CODE(S), IF APPLICABLE
Not separately billed

BASIS FOR BILLING
Medical Decision Making (high) + Test interpretation

ICD-10 DIAGNOSIS CODES

I27.24 — Chronic thromboembolic pulmonary hypertension

[SECONDARY RIGHT HEART FAILURE / DYSPNEA / HYPOXEMIA / THROMBOEMBOLIC / CARDIAC / LUNG DISEASE DIAGNOSIS CODE(S), IF APPLICABLE]

I50.810 — Right heart failure, unspecified; R09.02 — Hypoxemia; Z86.711 — Personal history of pulmonary embolism; D68.51 — Activated protein C resistance (factor V Leiden); Z79.01 — Long-term use of anticoagulants; D50.9 — Iron deficiency anemia, unspecified

SO SIGNATURE

16 PROVIDER SIGN-OFF

PROVIDER NAME	CREDENTIALS	SPECIALTY
Natalia Ferreira	MD, FCCP	Pulmonary Hypertension / Pulmonology / Cardiology

DATE	TIME
11/05/2026	15:30

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