Appendix to Gibson et al. “Application of a decision rule and a D-dimer assay in the
diagnosis of pulmonary embolism” (Thromb Haemost 2010; 103.4)

Case 1
You are paged by an emergency room physician, who has just seen a 68-year-old woman who
had a curative hemicolecotomy four weeks earlier because of a Dukes B colon carcinoma. She
now complains of a swollen left leg and shortness of breath. Upon the physical exam, the
respiratory rate was 24/minute, the tension 110/75 mmHg, heart rate was 108/minute and the
left leg looked very suspect for deep-vein thrombosis. The EKG shows a new right bundle
branch block and on the chest X-ray some pleural effusion can be seen in the right pleural
cavity.

CDR score: ………… points

A. You perform an ultrasound of the leg. If positive for thrombosis, you perform no further
diagnostic tests.
B. You ask for a D-dimer test and let further diagnostic actions depend on the outcome of this
test.
C. You perform a CT scan to exclude or diagnose pulmonary embolism.
Case 2 – version A
You see a 63-year-old Indian man. His medical history contains a knee operation in 1980, complicated by deep vein thrombosis of that leg. He also has diabetes and mild hypertension. The patient explains he’s been having a severe flu for almost a week, but that he now also has shortness of breath and chest pain. Upon physical examination you find his body temperature is 37.7°C, the blood tension is 145/90 mmHg, he has an elevated heart rate (110/minute), his respiratory rate is 20/minute. The chest X-ray is normal. Besides tachycardia, the ECG shows no abnormalities.

CDR score: …………… points

A. You do not perform diagnostic testing for pulmonary embolism, because you believe this diagnosis is unlikely for this patient.
B. You ask for a D-dimer test and let further diagnostic actions depend on the outcome of this test.
C. You perform a CT scan to exclude or diagnose pulmonary embolism.

Case 2 – version B
Same case as version 1, only ‘D-dimer 1.8 mg/l’ was added to the information.

A. You request a troponin assay and ask the cardiologist to examine the patient.
B. You perform a CT scan to exclude or diagnose pulmonary embolism.
C. You perform an ultrasound of the leg. If this is negative for thrombosis, you perform a spiral CT-scan.
Case 3
A man, 68 years old, who has an active carcinoma of the prostate, comes to see you in the outpatient clinic complaining of chest pain, cough, shortness of breath and a cold. With physical examination you find the following parameters: body temperature 37.5°C, tension 120/60 mmHg, heart rate 88/minute. Auscultation of the lungs is normal and so are the chest X-ray and the EKG. Laboraroty test: D-dimer 0.3 mg/l.

CDR score: ............ points

A. You do not perform diagnostic testing for pulmonary embolism, because you believe this diagnosis is unlikely for this patient.
B. You ask the patient to come back in two days, because you do not fully trust the D-dimer and the clinical decision rule with his underlying malignancy.
C. You perform a CT scan to exclude or diagnose pulmonary embolism.
Case 4 – version A
You see a woman aged 61 years who stopped smoking two years ago. After her second pregnancy she had a DVT in the left leg. During the following three years she used oral contraceptives without any complications. The patient reports she has been coughing a lot more than usual during the past week. Five days ago, she had a fever when she measured her body temperature at home (38.4°C), but this was gone soon afterwards. Since one day, she has shortness of breath and a mild pain on the lateral side of the left thorax. With physical examination you find a body temperature of 37.2°C, her blood tension is 151/94 mmHg, the heart rate is 108/minute, the respiratory rate is 22/minute, on auscultations of the lungs no abnormalities. Both the chest X-ray and the EKG are normal. The D-dimer test is 2.4 mg/l.

CDR score: ………… points

A. You thoroughly re-examine the patient and the chest X-ray to exclude a rib fracture or pneumothorax.
B. You perform a CT scan to exclude or diagnose pulmonary embolism.
C. You refer the patient to a cardiologist.

Case 4 – version B
Same case as version 1, except for leaving out the D-dimer result.

A. You do not perform diagnostic testing for pulmonary embolism, because you believe this diagnosis is unlikely for this patient.
B. You ask for a D-dimer test and let further diagnostic actions depend on the outcome of this test.
C. You perform a CT scan to exclude or diagnose pulmonary embolism.
Case 5
A 73-year-old woman with no medical history reports to your outpatient clinic. After she fell with her rollator while doing groceries a week earlier, she had to rest several days because of a painful right knee. Since two days, she also developed some chest pain and coughed up a little bit of blood. Body temperature 36.8°C, tension 115/68, heart rate 72/minute. Normal breath sounds. Lab: D-dimer 0.95 mg/l. There is some pleural effusion on the left side on the chest X-ray.

CDR score: ………… points

A. You perform an ultrasound of the right knee, and also check for deep-vein thrombosis of the right leg.
B. You perform a CT scan to exclude or diagnose pulmonary embolism.
C. You refer the patient to a pulmonologist to perform a bronchoscopy.