Semiologia bazată pe dovezi

Prof Cristian Baicus

semiologie

- Parte a medicinei care studiază semnele și simptomele în vederea diagnosticării

- Ex fizic (anamneza)
- Diagnostic

Anamneza

- Istoricul
- limba greacă „anamnesis” = *aducere aminte*
- interviul cu bolnavul

- 65-80% din informațiile necesare diagnosticului

Simptomul

- element subiectiv al unei afecțiuni și este simțit și relatat de bolnav în cursul anamnezei

- durerea , parestezia, dispneea, astenia

Semnul

- Manifestare obiectivă a bolii, identificată de medic la examenul fizic

- Paloarea, icterul, febra

Sindromul

- complex de semne și simptome
- sdr de venă cavă superioară

Semne, simptome

- Generale (constituționale)
- Specifice (conduc spre un aparat/sistem)

medicina bazată pe dovezi

- studii ⇔ opinii (experiența proprie)
- evidence / eminence based medicine)
- tipuri de studii

designul studiului

Nivelul dovezii (EBM)

I. Studii clinice randomizate

II. Studii de cohortă

III. Studii caz-martor

IV. Studii transversale/studii ecologice

V. Studii de caz & serii de cazuri

VALIDITATE

Cel mai bun tip de studiu in functie de tipul intrebarii

Nivel	Tratament	Prognostic	Diagnostic	Etiologie
I	*Analiza sistematica a …*	*Analiza sistematica a …*	*Analiza sistematica a …*	*Analiza sistematica a …*
II	RCT	Cohorta (Inception)	Transversal	Cohorta
III				Caz-martor

Surse de nesiguranţă/variabilitate

- **Instrument de măsură:** imprecizia analitică (acelaşi test aplicat aceluiaşi pacient să dea acelaşi rezultat).
- **Variabilitatea subiectului:** intraindividuală (regresia către medie - fluctuaţii fiziologice)/interindividuală
- **Variabilitatea interpretării examenului:** Intraindividuală/interindividuală (coeficient de concordanţă **κ**)
- **Validitatea intrinsecă a testului** (Sn, Sp, LR).
- **Prevalenţa bolii** (probabilitatea pretest)**.**

Variabilitatea interpretarii examenului

		Clinician II		
		Retinopatie-	Retinopatie+	
Clinician I	Retinopatie-	46	10	56
	Retinopatie+	12	32	44
		58	42	100

Acord observat= (46+32)/100 = 78%

Variabilitatea interpretarii examenului

- Acordul observat (simplu) = 78%
- Acordul asteptat datorat intamplarii = 51%
- Acordul efectiv excluzand intamplarea = 78%-51% = 27%
- Acordul potential excluzand intamplarea = 100%-51% = 49%
- Coef de concordanta (κ) = 27/49 = 0,55

Kappa	Acord
>0,75	Excelent
0,40-0,75	Intermediar/bun
<0,40	slab

TABLE 4-1 Interobserver Agreement and Physical Signs

Finding (Reference)	κ-statistic*
GENERAL APPEARANCE	
Mental Status Examination	
Mini-Mental Status Examination[1]	0.28-0.80
Clock-drawing test (Wolf-Klein method)[2]	0.73
Confusion Assessment Method for delirium[3-6]	0.70-0.91
Altered mental status[7]	0.71

Kappa	Acord
>0,75	Excelent
0,40-0,75	Intermediar/bun
<0,40	slab

Decreased tactile fremitus[14,38]	0.24-0.86
Increased tactile fremitus[14]	0.01
Subxiphoid point of maximal cardiac impulse[40]	0.30
Paradoxic costal margin movement[39]	0.56
Percussion	
Hyperresonant percussion note[14,35,40]	0.26-0.50
Dull percussion note[14,35,38,41]	0.16-0.84
Diaphragm excursion more or less than 2 cm, by percussion[40]	−0.04
Diminished cardiac dullness[40]	0.49
Auscultatory percussion abnormal[38,42]	0.18-0.76
Auscultation	
Reduced breath sound intensity[14,35,36,38,40,41,43,44]	0.16-0.89

Kappa	Acord
>0,75	Excelent
0,40-0,75	Intermediar/bun
<0,40	slab

		BOALA		TOTAL
		+	-	
TEST DG.	+	RP	FP	
	-	FN	RN	

Evaluarea testelor diagnostice (Sn&Sp)

- Sn
  - proportia celor cu test + printre bolnavi
  - PID
  - 1-Sn = proportia FN
  - SnNout

TABLE 3-1 Constrictive Pericarditis*†

Physical Finding	Frequency (%)‡
NECK VEINS	
Elevated neck veins	98
Prominent *y* descent (Friedreich's sign)	57-100
Kussmaul's sign	50
ARTERIAL PULSE	
Irregularly irregular (atrial fibrillation)	36-70
BLOOD PRESSURE	
Pulsus paradoxus >10 mm Hg	17-43
AUSCULTATION OF HEART	
Pericardial knock	28-94
Pericardial rub	3
OTHER FINDINGS	
Hepatomegaly	87-100
Edema	63

Autoanticorpi la pacienţii cu LES

	Prevalenta (Sn) %
ANA	98
Anti-ADN dc	70
Anti-Sm	30

Evaluarea testelor diagnostice (Sn&Sp)

- Sp
  - proportia celor cu test (-) printre sanatosi
  - NIH
  - 1-Sp = proportia FP
  - SpPin

Evaluarea testelor diagnostice (valori predictive)

- VPP = probabilitatea ca un pacient cu testul diagnostic pozitiv sa aiba boala

- VPN = probabilitatea ca un pacient cu testul diagnostic negativ sa nu aiba boala

- depind de prevalenta bolii (probabilitatea pre-test) - teorema lui Bayes

		BOALA		TOTAL
		+	-	
TEST DG.	+	a	b	a+b
	-	c	d	c+d
		a+c	b+d	a+b+c+d

Sensibilitatea = a/(a+c)
Specificitatea = d/(b+d)
Probabilitatea pretest (prevalenţa) = (a+c)/(a+b+c+d)
Valoare predictivă pozitivă = a/(a+b)
Valoare predictivă negativă = d/(c+d)

Teorema lui Bayes

Prev	**99**	**95**	**90**	**80**	**70**	**60**	**50**	**40**	**30**	**20**	**10**	**5**	**1**	**0,5**	**0,1**
VPP	**99,9**	**99,7**	**99,4**	**99**	**98**	**97**	**95**	**93**	**89**	**83**	**68**	**50**	**16**	**9**	**2**
VPN	**16**	**50**	**68**	**83**	**89**	**93**	**95**	**97**	**98**	**99**	**99,4**	**99,7**	**99,9**	**99,9**	**99,9**
p. boala post test neg	**84**	**50**	**32**	**17**	**11**	**7**	**5**	**3**	**2**	**1**	**0,6**	**0,3**	**0,1**	**0,03**	**0,01**

Probabilitatea posttest pentru un test diagnostic cu Sn si Sp = 95%

Evaluarea testelor diagnostice (Likelihood ratio)

- LR+
  - $\frac{\text{probabilitatea test + bolnav}}{\text{probabilitatea test + sanatos}}$
  - Sn/(1-Sp)

- LR-
  - $\frac{\text{probabilitatea test - sanatos}}{\text{probabilitatea test - bolnav}}$
  - Sp/(1-Sn)

LR - proprietati:

- **Fiind, calculate, ca si Sn si Sp pe verticala, nu se modifica odata cu prevalenta (probabilitatea pretest) bolii tinta.**

- **Pot fi calculate pe mai multe nivele ale semnului, simptomului sau testului de laborator, si numai pe doua (+/-); acest lucru le face mai stabile decat Sn si Sp la modificarile prevalentei.**

- **Stiind probabilitatea pretest (prevalenta), se ajunge usor la probabilitatea posttest.**

- **Se poate calcula usor probabilitatea posttest dupa o secventa de teste diagnostice.**

Likelihood Ratios

- Dimensionless numbers
- Definition:
  The percentage of diseased patients with a given test result divided by the percentage of well people with the same test result.

Positive likelihood ratio

$$\frac{\textbf{TPR}}{\textbf{FPR}} \text{ or } \frac{\textbf{sensitivity}}{\textbf{1 - specificity}}$$

Negative likelihood ratio

$$\frac{\textbf{FNR}}{\textbf{TNR}} \text{ or } \frac{\textbf{1 - sensitivity}}{\textbf{specificity}}$$

Evaluarea testelor diagnostice (Likelihood ratio)

- **LR >10 sau < 0.1** genereaza modificari mari, deseori decisive de la probabilitatea pre- la post-test;
- **LR de 5-10 si 0.1-0.2** genereaza modificari moderate ale probabilitatii;
- **LR de 2-5 si 0.5-0.2** genereaza modificari mici (dar uneori importante) ale probabilitatii;
- **LR de 1-2 and 0.5-1** modifica probabilitatea intr-un grad f. mic (si rareori important).

EBM BOX 7-1 Findings Predicting Hepatocellular Disease in Patients with Jaundice*

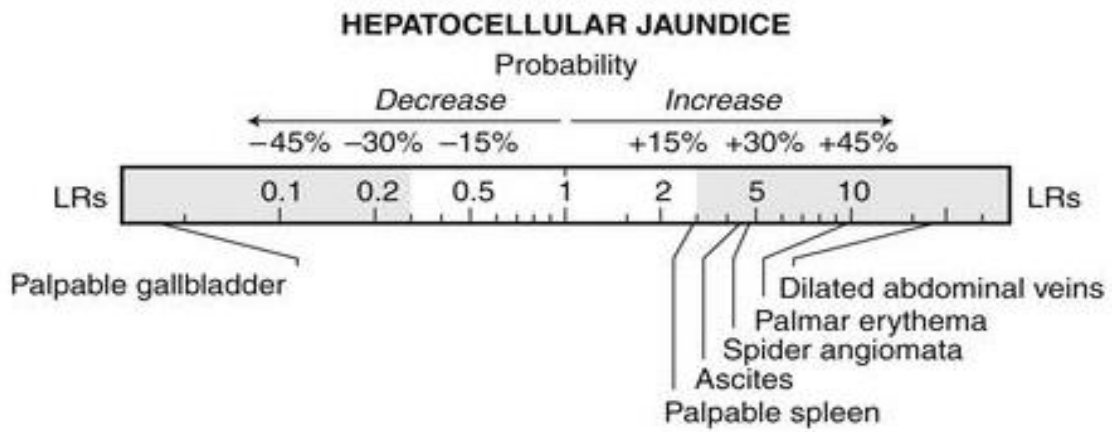
Finding (Reference)†	Sensitivity (%)	Specificity (%)	Likelihood Ratio‡ if Finding Is	
			Present	*Absent*
General Appearance				
Weight loss[25,27]	10-49	21-97	NS	NS
Skin				
Spider angiomas[25,27]	35-47	88-97	4.7	0.6
Palmar erythema[25]	49	95	9.8	0.5
Dilated abdominal veins[25]	42	98	17.5	0.6
Abdomen				
Ascites[25]	44	90	4.4	0.6
Palpable spleen[25,27]	29-47	83-90	2.9	0.7
Palpable gallbladder[25]	0†	69	0.04	1.4
Palpable liver[25,27]	71-83	15-17	NS	NS
Liver tenderness[25,27]	37-38	70-78	NS	NS

*Diagnostic standard: For *nonobstructive (vs. obstructive) jaundice*, needle biopsy of liver, surgical exploration, or autopsy.

†None of the 41 patients with medical jaundice in this study had a palpable gallbladder; for calculation of the LRs, 0.5 was added to all cells of the 2×2 table.

‡Likelihood ratio (LR) if finding present = positive LR; LR if finding absent = negative LR. NS, not significant.

Click here to access calculator.

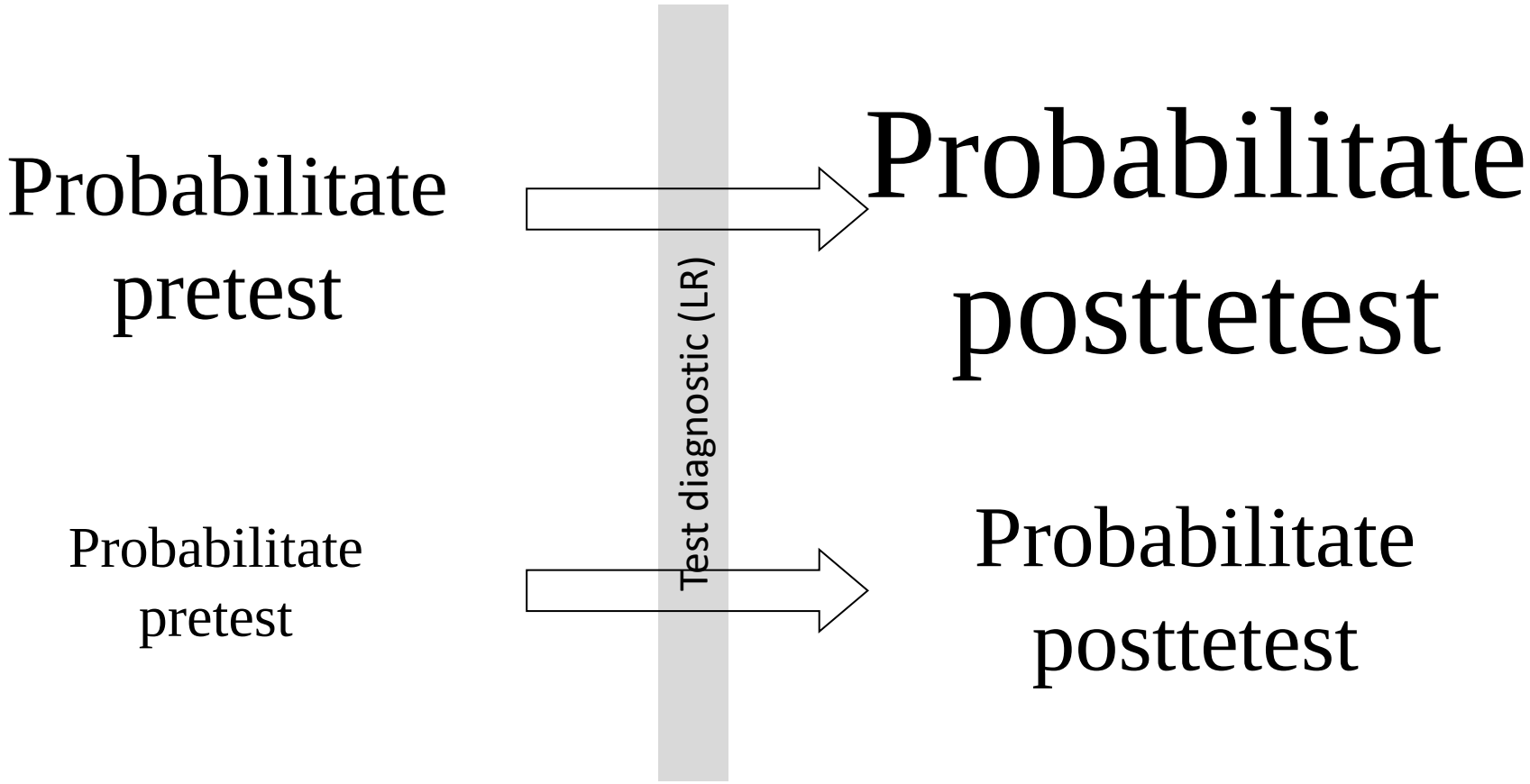


Ex: subdenivelare ST la ECG effort:

Subdenivelare (mm)	LR
> 2,5	39
2-2,49	11
1,5-1,99	4,2
1-1,49	1
0,05-0,99	0,92

Teorema lui Bayes

Probabilitatea **post**test ~ Probabilitatea **pre**test
~ LR



Baterii de teste

- Aplicate in paralel - cresc Sn
  - + cand macar unul dintre ele este pozitiv
  - - cand toate sunt negative

- Aplicate in serie - cresc Sp
  - + cand toate sunt pozitive
  - - cand macar unul este negativ

Tabelul XVIII.3. Anemia, VSH şi scăderea ponderală ca teste diagnostice în cancer (simplificat din[1]) (sunt date intervalele de încredere 95%). Se vede cum aplicarea în paralel creşte sensibilitatea, iar cea în serie specificitatea.

TEST	**Sensibilitate**	**Specificitate**
ANEMIE	37 (CI=36-39)	92 (CI=91-93)
VSH	52 (CI=51-54)	89 (CI=88-90)
SLĂBIT	46 (CI=45-48)	94 (CI=93-94)
Testele în paralel	87 (CI=86-88)	79 (CI=78-81)
Testele în serie	9 (CI=9-10)	99,6 (CI=99-100)

1. Baicus C, Tanasescu C, Ionescu R. Has this patient a cancer? The assessment of weight loss, anemia and erythrocyte sedimentation rate as diagnostic tests in cancer. A retrospective study based in a secondary care university hospital in Romania. *Rom J Intern Med.* 1999; 37:261-7.

Test	Sn (%)	Sp (%)
Anti-CCP	**56**	**90**
IgM RF	**73**	**82**
IgM RF & anti-CCP	**48**	**96**

- 2 semne și un simptom, fiecare cu Sn=85%
- Așadar, fiecare dintre ele va fi absent la câte 15% dintre bolnavi
- Toate trei vor fi absente la mai puțin de 1% dintre bolnavi (0,15x0,15x0,15)

Reguli de predicție clinică

Search Results

Showing **1-1** of **1** for: streptococcal infections

Sort by Relevance | Summary View | Expanded View

Refine your results by:

Content

- Epidemiology (0)
- Diagnosis (1)
- Screening and Prevention (0)
- Treatment (0)
- Prognosis (0)

Resource

- Essential Evidence Topics (32)
- Evidence (37)
  - Cochrane Systematic Reviews (15)
  - POEMs research summaries (22)
- **Calculators (1)**
  - Decision Support Tools (0)
  - **History and Physical Calculators (1)**
  - Diagnostic Test Calculators (0)

Sore throat (children) -> Group A strep pharyngitis
HISTORY AND PHYSICAL CALCULATORS, 1-AUG-2012

Sore throat (children) -> Group A strep pharyngitis

History and Physical Exam | Printer Friendly | 2012-08-01

Determine the likelihood of a patient having a disease based on information gathered during a history and physical evaluation.

Preferred Units: **Metric** | SI

Symptom: Sore throat (children)
Disease: Group A strep pharyngitis

Select a Test:

4.0 - Scarlatiniform rash

» Show test summary

LR+: 4.0 Sensitivity: 8%
LR-: 0.9 Specificity: 98%

Sort tests by:

Rule In (LR+)

definitions

Pre-test probability (%): 25 help

Positive test result: **57.1%** probability of disease.

Negative test result: **23.9%** probability of disease.

More Info

External Links

View article via PubMed

Understanding the concept

Diagnostic test calculator

Explore the effect of Sensitivity and Specificity on likelihood ratios and probabilities.

Sore throat (children) -> Group A strep pharyngitis

History and Physical Exam | Printer Friendly | 2012-08-01

Determine the likelihood of a patient having a disease based on information gathered during a history and physical evaluation.

Preferred Units: **Metric** | SI

Symptom: Sore throat (children)
Disease: Group A strep pharyngitis

Select a Test:

4.0 - Scarlatiniform rash

- 4.0 - Scarlatiniform rash
- 3.0 - Palatal petechiae
- 2.1 - Chills
- 1.8 - Pharyngeal exudate
- 1.8 - Vomiting
- 1.7 - Tender cervical nodes
- 1.6 - Anorexia
- 1.6 - Sibling with sore throat
- 1.5 - Halitosis
- 1.4 - Tonsillar and/or pharyngeal exudate
- 1.4 - Large cervical nodes
- 1.4 - Lack of cough
- 1.4 - Tonsillar exudates
- 1.3 - Tonsillar swelling
- 1.2 - Dysphagia
- 1.2 - Headache
- 1.2 - Lack of coryza
- 1.1 - Abdominal pain
- 1.1 - Red tonsils and/or pharyngx
- 1.1 - Fever (subjective)

Sort tests by:

Rule In (LR+)

definitions

ility of disease.

ility of disease.

External Links

View article via PubMed

Understanding the concept

Diagnostic test calculator

Explore the effect of Sensitivity and Specificity on likelihood ratios and probabilities.

Sore throat (children) -> Group A strep pharyngitis

History and Physical Exam | Printer Friendly | 2012-08-01

Determine the likelihood of a patient having a disease based on information gathered during a history and physical evaluation.

Preferred Units: **Metric** | SI

Symptom: Sore throat (children)
Disease: Group A strep pharyngitis

Select a Test:

4.0 - Scarlatiniform rash

1.4 - Large cervical nodes
1.4 - Lack of cough
1.4 - Tonsillar exudates
1.3 - Tonsillar swelling
1.2 - Dysphagia
1.2 - Headache
1.2 - Lack of coryza
1.1 - Abdominal pain
1.1 - Red tonsils and/or pharyngx
1.1 - Fever (subjective)
1.1 - Red tonsils
1.1 - Red pharynx
1.0 - Fever (measured)
0.9 - Summer (season)
0.9 - Arthralgia
0.8 - Conjunctivitis
0.7 - History of tonsillectomy
0.6 - Hoarseness
0.5 - Acute otitis media
0.4 - Diarrhea

Sort tests by:

Rule In (LR+)

definitions

ility of disease.

ility of disease.

M

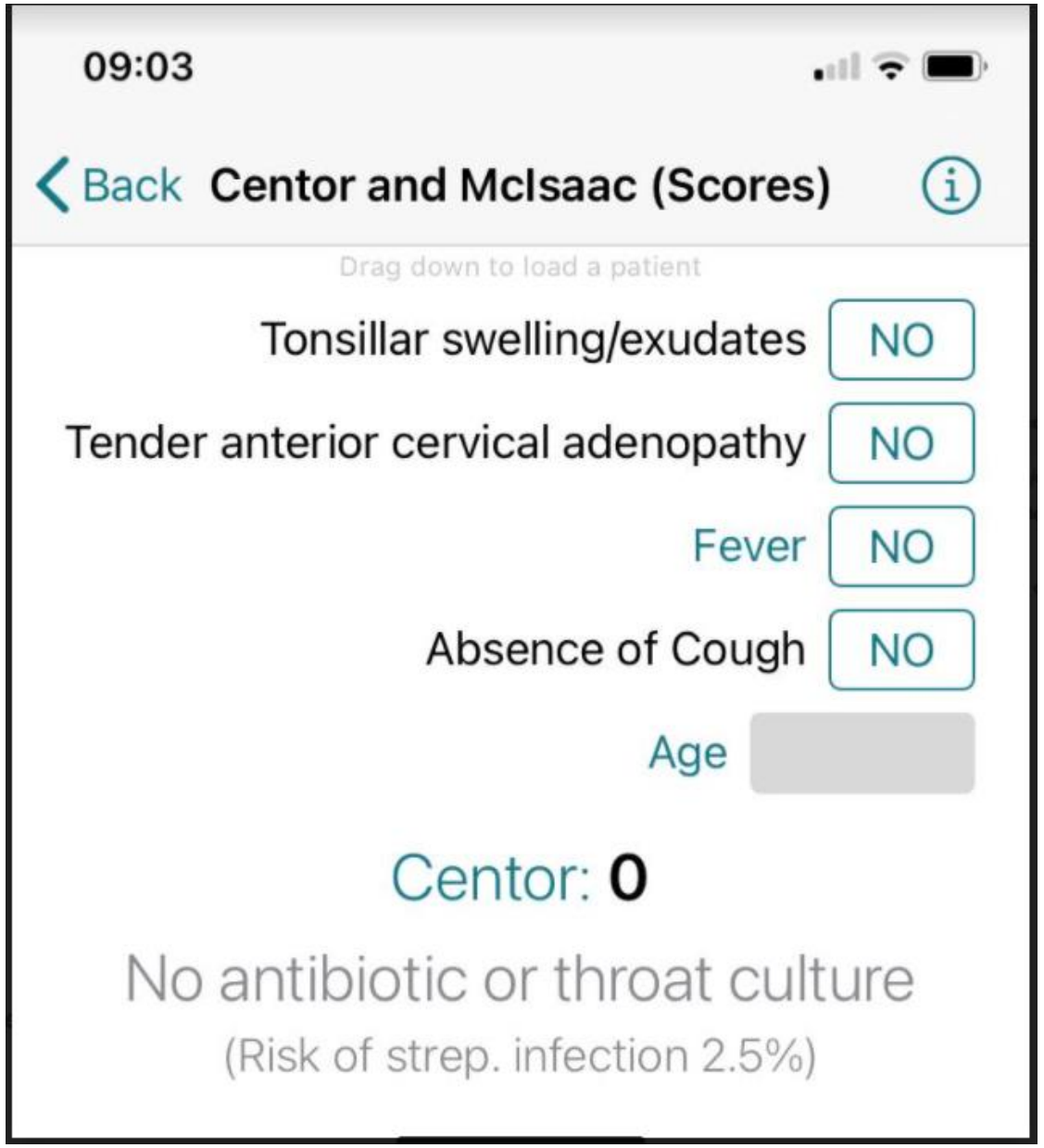
External Links

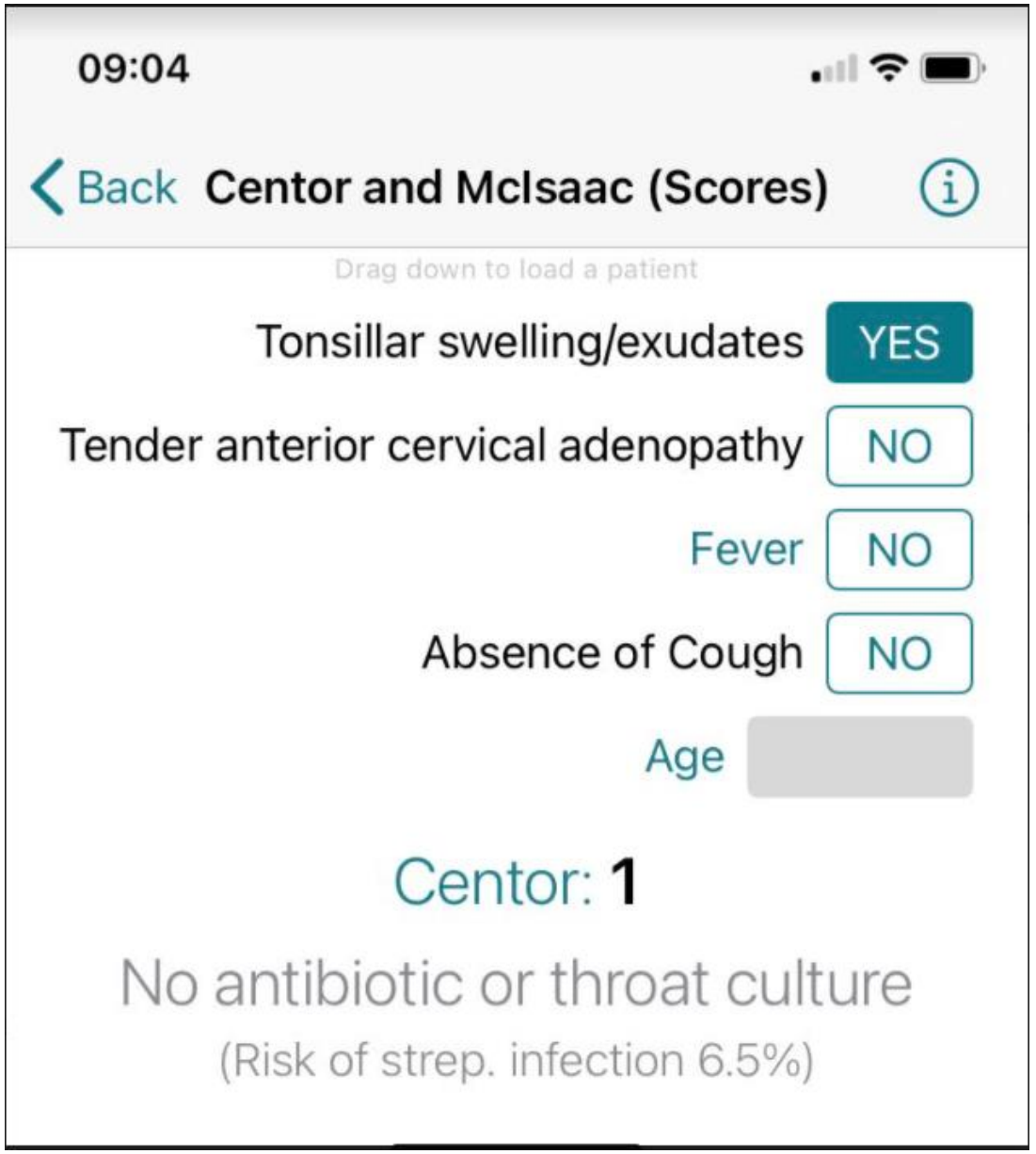
View article via PubMed

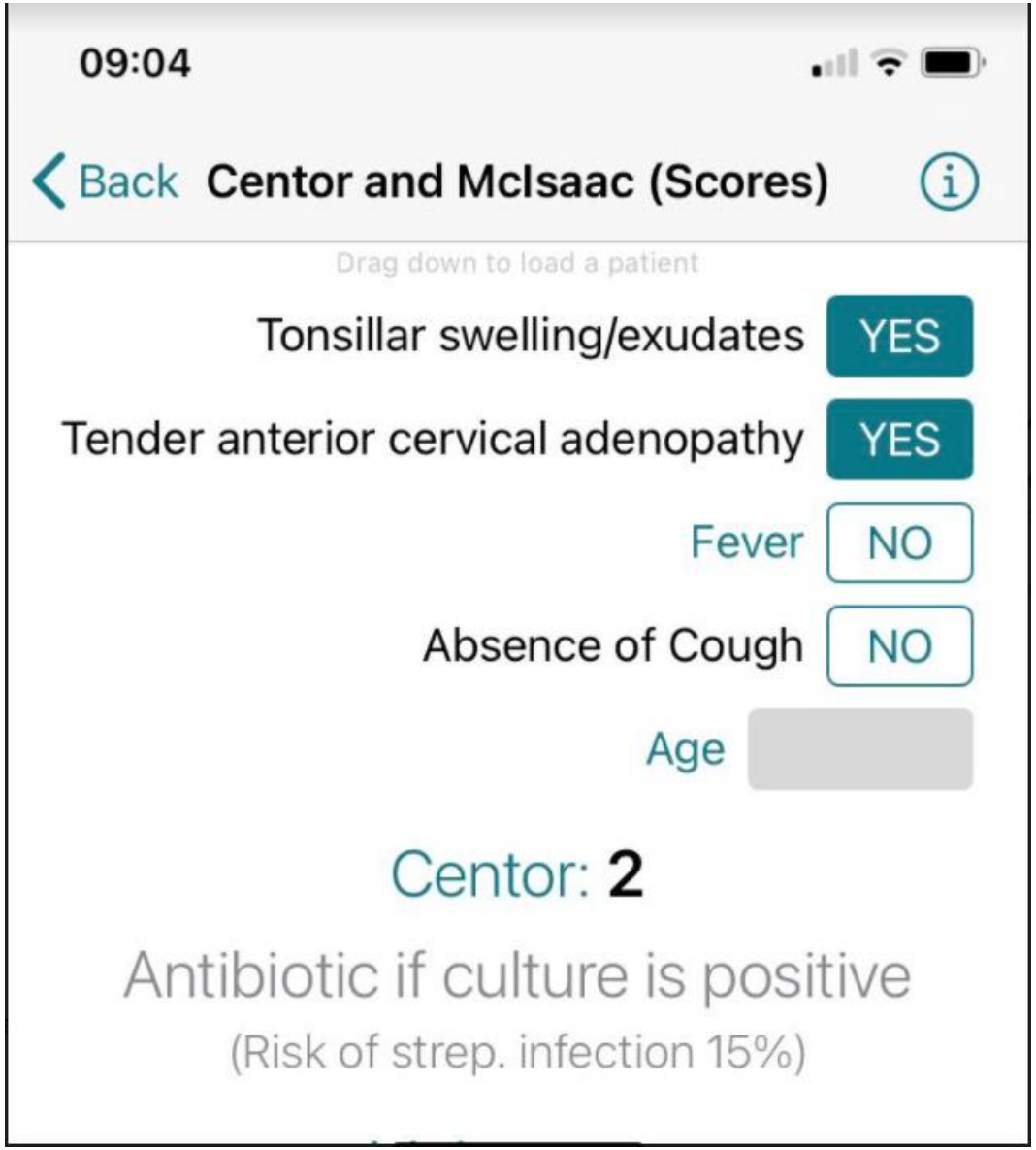
Understanding the concept

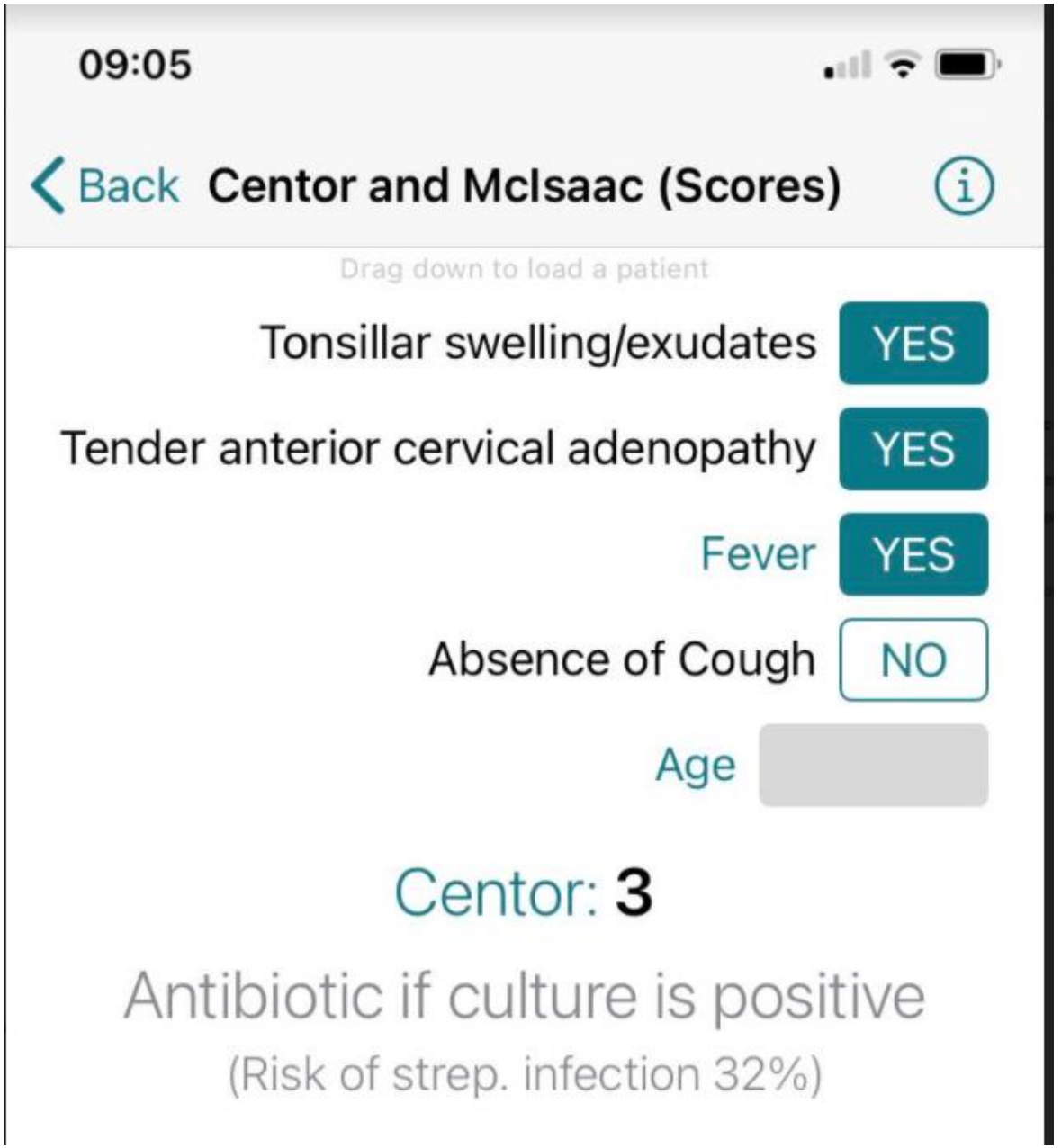
Diagnostic test calculator

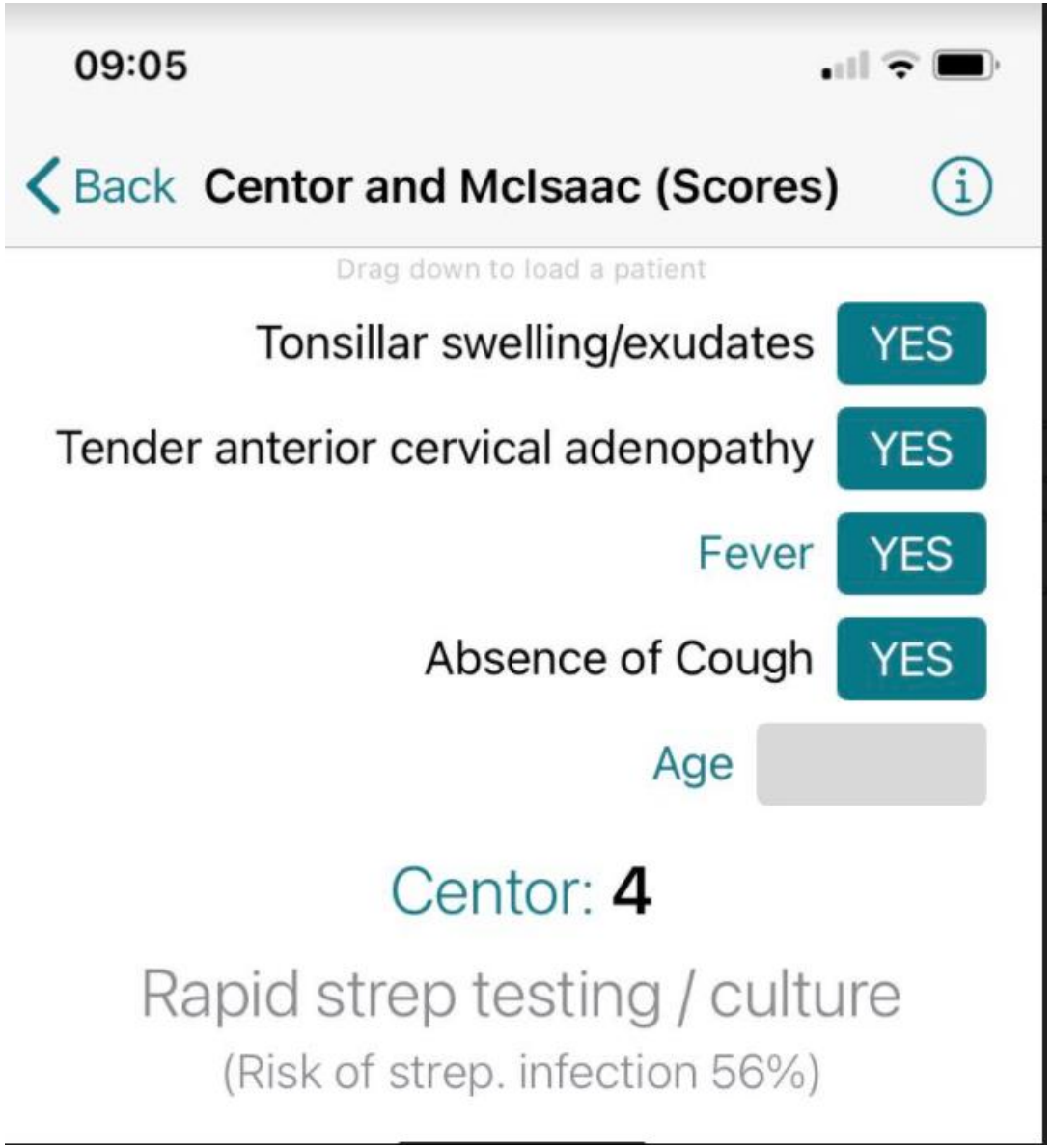
Explore the effect of Sensitivity and Specificity on likelihood ratios and probabilities.

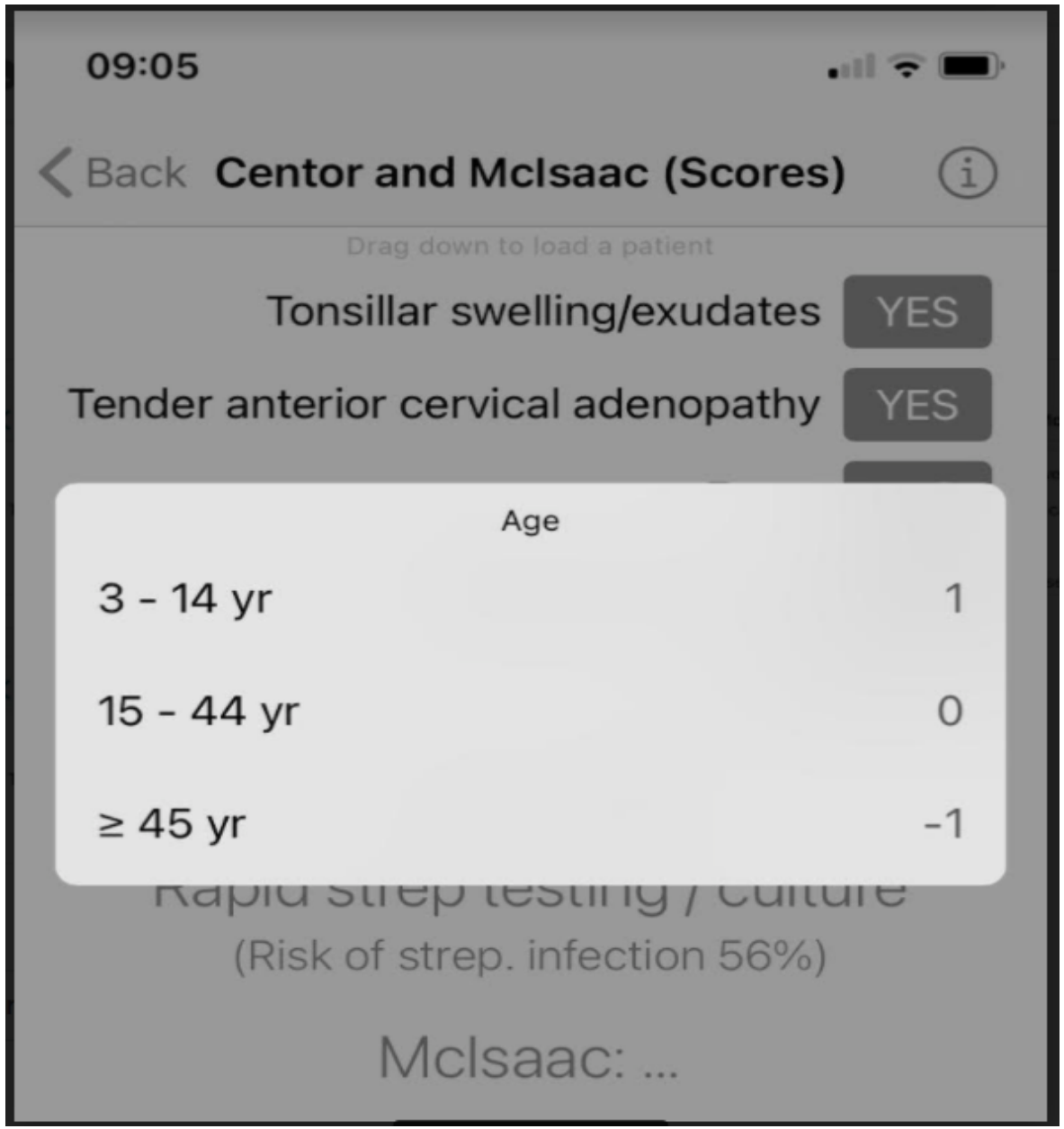

09:03
Back
Centor and McIsaac (Scores)
Drag down to load a patient
Tonsillar swelling/exudates
NO
Tender anterior cervical adenopathy
NO
Fever
NO
Absence of Cough
NO
Age
Centor: 0
No antibiotic or throat culture
(Risk of strep. infection 2.5%)

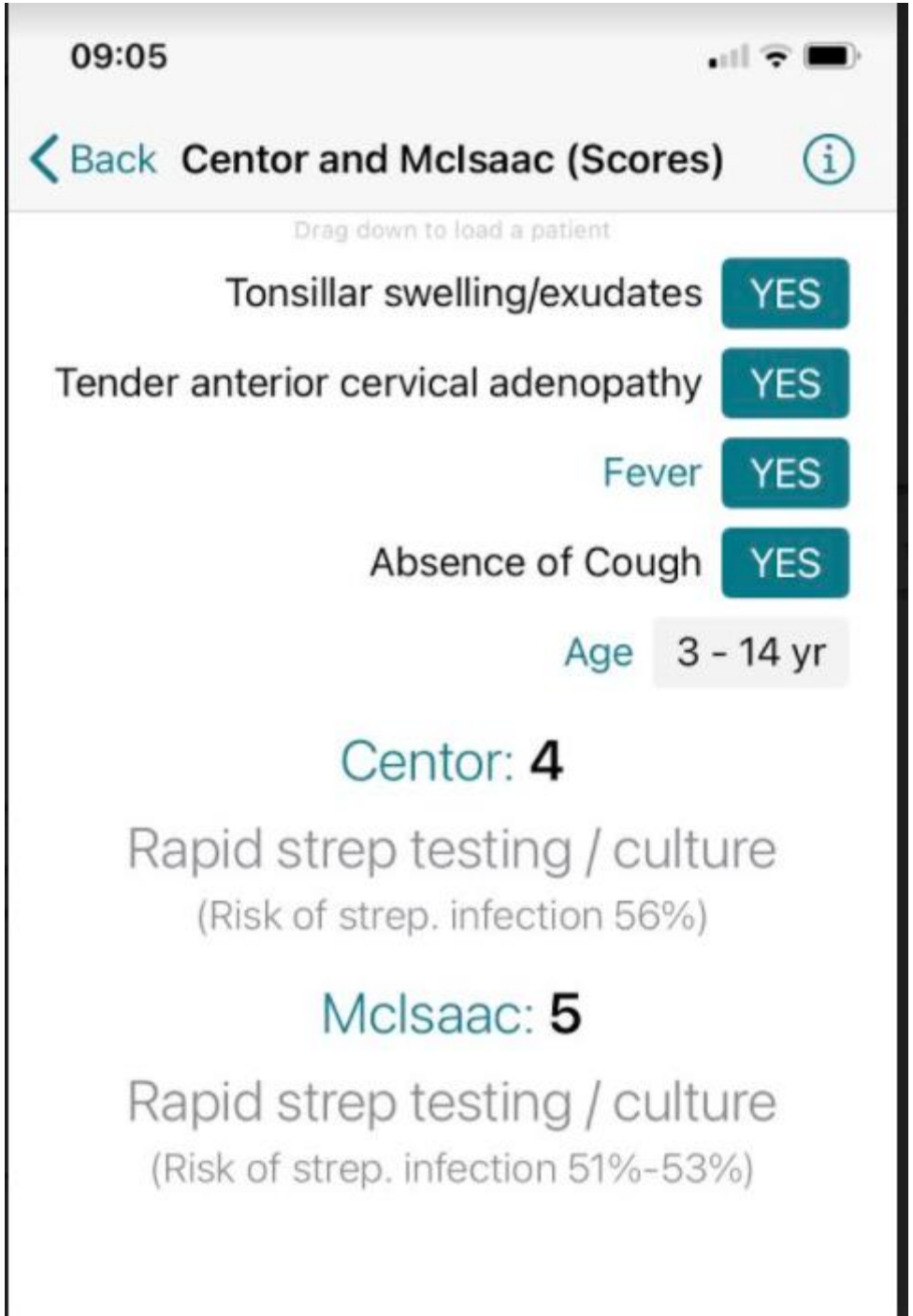

09:04
Back
Centor and McIsaac (Scores)
Drag down to load a patient
Tonsillar swelling/exudates
YES
Tender anterior cervical adenopathy
NO
Fever
NO
Absence of Cough
NO
Age
Centor: 1
No antibiotic or throat culture
(Risk of strep. infection 6.5%)

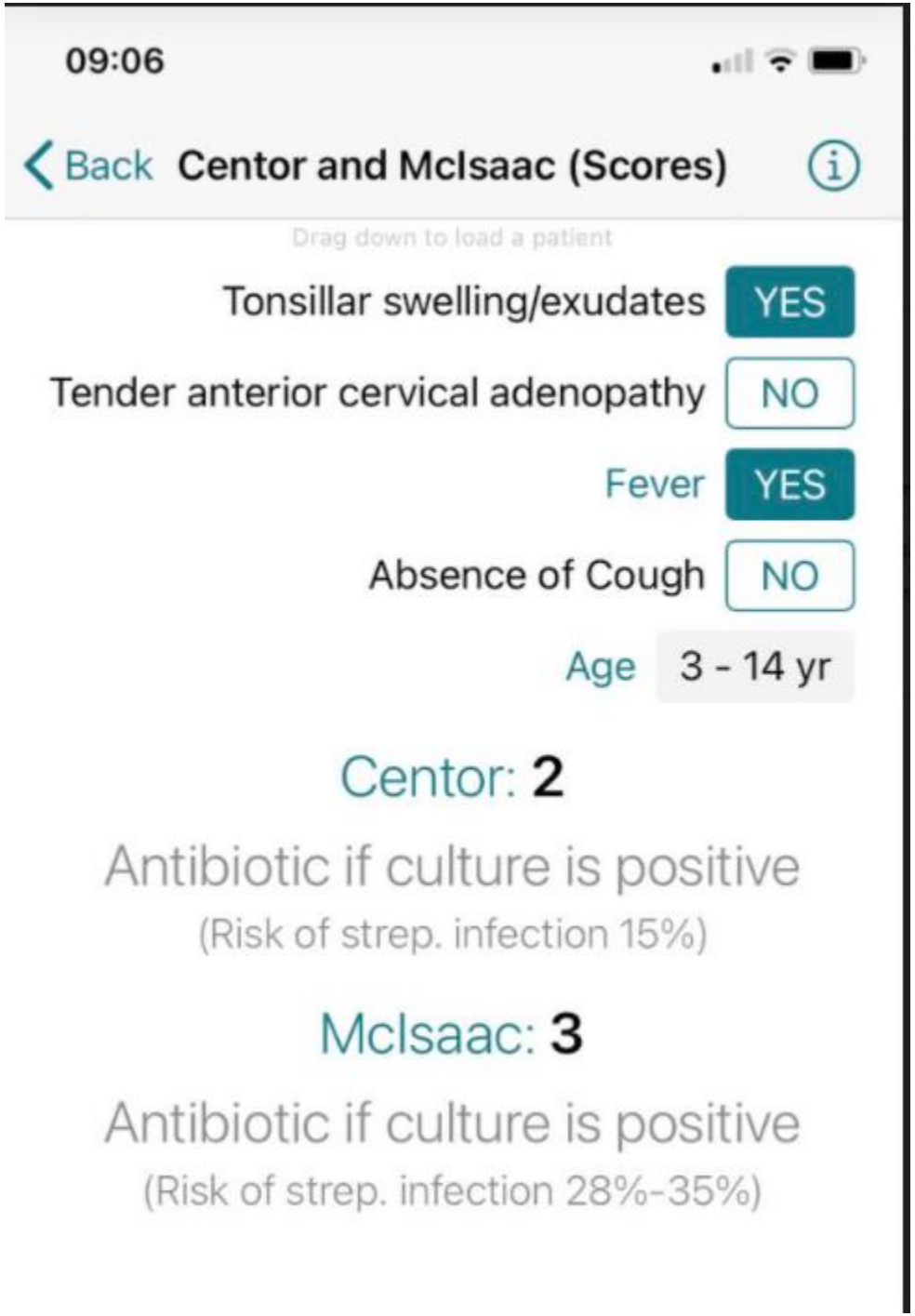

09:04
Back
Centor and McIsaac (Scores)
Drag down to load a patient
Tonsillar swelling/exudates
YES
Tender anterior cervical adenopathy
YES
Fever
NO
Absence of Cough
NO
Age
Centor: 2
Antibiotic if culture is positive
(Risk of strep. infection 15%)

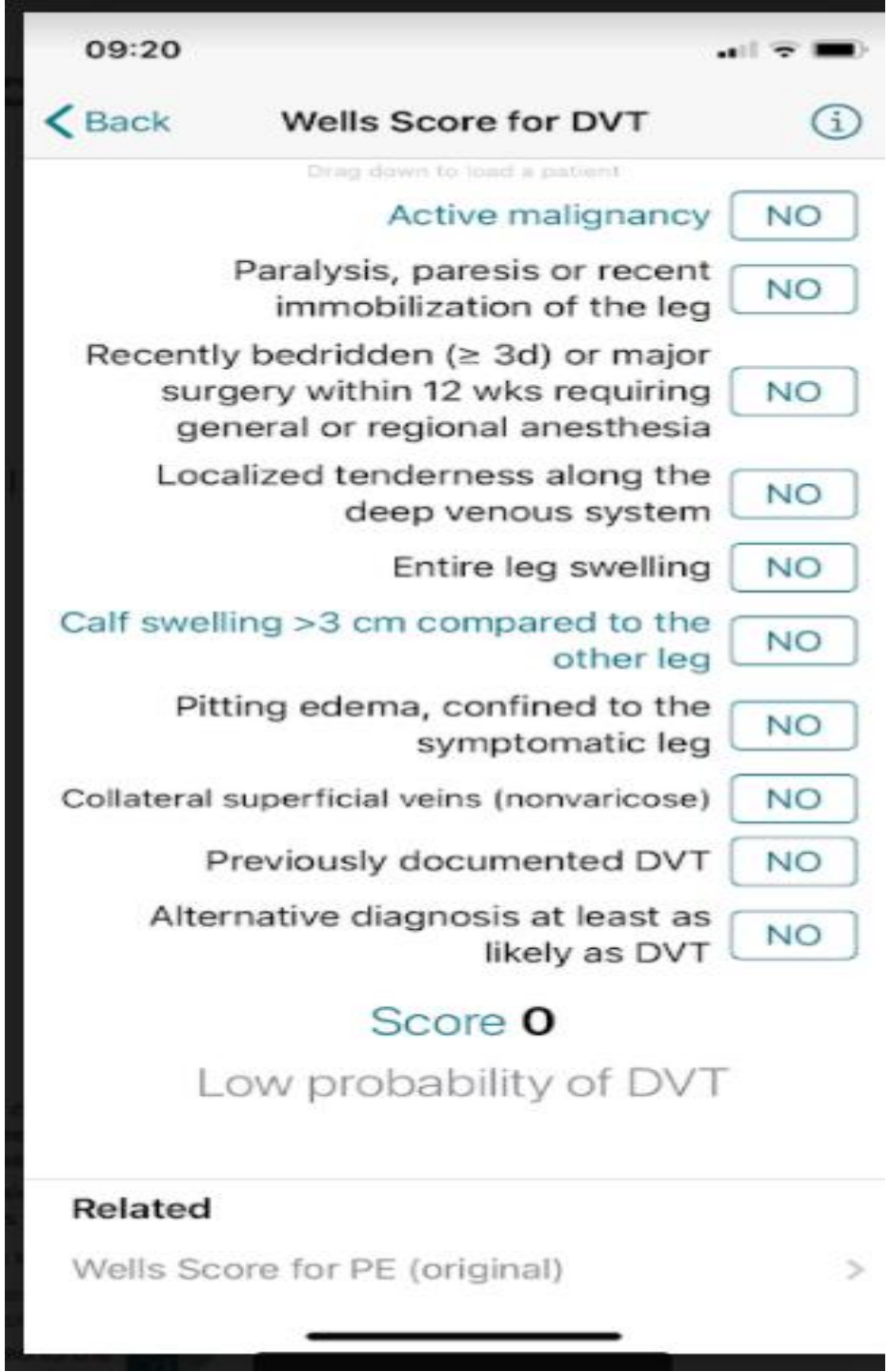

09:05
Back
Centor and McIsaac (Scores)
Drag down to load a patient
Tonsillar swelling/exudates
YES
Tender anterior cervical adenopathy
YES
Fever
YES
Absence of Cough
NO
Age
Centor: 3
Antibiotic if culture is positive
(Risk of strep. infection 32%)

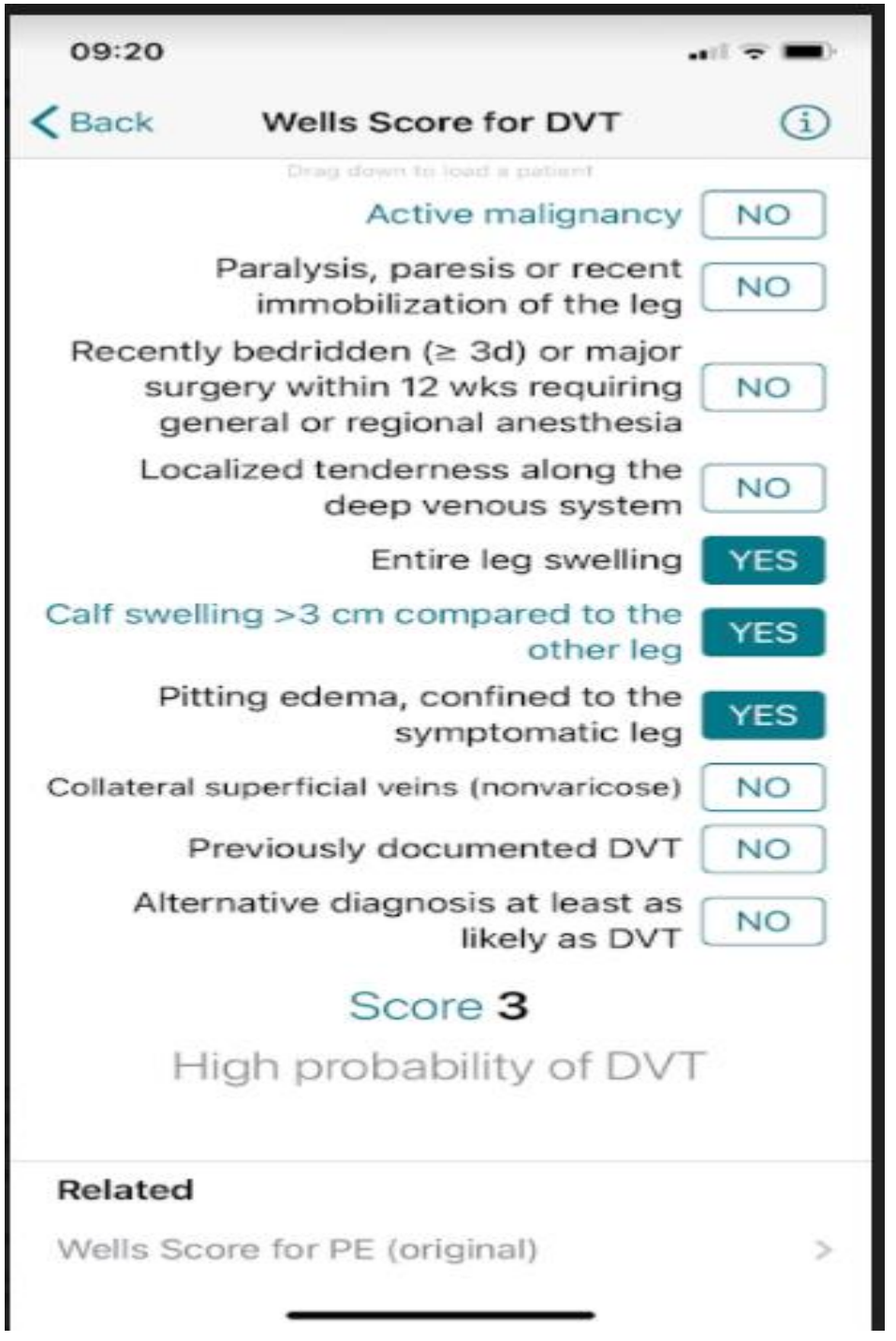

09:05
Back
Centor and McIsaac (Scores)
Drag down to load a patient
Tonsillar swelling/exudates
YES
Tender anterior cervical adenopathy
YES
Fever
YES
Absence of Cough
YES
Age
Centor: 4
Rapid strep testing / culture
(Risk of strep. infection 56%)


09:05
Back
Centor and McIsaac (Scores)
Drag down to load a patient
Tonsillar swelling/exudates
YES
Tender anterior cervical adenopathy
YES
Age
3 - 14 yr
1
15 - 44 yr
0
≥ 45 yr
-1
(Risk of strep. infection 56%)
McIsaac: ...


09:05
Back
Centor and McIsaac (Scores)
Drag down to load a patient
Tonsillar swelling/exudates
YES
Tender anterior cervical adenopathy
YES
Fever
YES
Absence of Cough
YES
Age
3 - 14 yr
Centor: 4
Rapid strep testing / culture
(Risk of strep. infection 56%)
McIsaac: 5
Rapid strep testing / culture
(Risk of strep. infection 51%-53%)


09:06
Back
Centor and McIsaac (Scores)
Drag down to load a patient
Tonsillar swelling/exudates
YES
Tender anterior cervical adenopathy
NO
Fever
YES
Absence of Cough
NO
Age
3 - 14 yr
Centor: 2
Antibiotic if culture is positive
(Risk of strep. infection 15%)
McIsaac: 3
Antibiotic if culture is positive
(Risk of strep. infection 28%-35%)


09:20
Back
Wells Score for DVT
Drag down to load a patient
Active malignancy NO
Paralysis, paresis or recent immobilization of the leg NO
Recently bedridden (≥ 3d) or major surgery within 12 wks requiring general or regional anesthesia NO
Localized tenderness along the deep venous system NO
Entire leg swelling NO
Calf swelling >3 cm compared to the other leg NO
Pitting edema, confined to the symptomatic leg NO
Collateral superficial veins (nonvaricose) NO
Previously documented DVT NO
Alternative diagnosis at least as likely as DVT NO
Score 0
Low probability of DVT
Related
Wells Score for PE (original)


09:20
Back
Wells Score for DVT
Drag down to load a patient
Active malignancy NO
Paralysis, paresis or recent immobilization of the leg NO
Recently bedridden (≥ 3d) or major surgery within 12 wks requiring general or regional anesthesia NO
Localized tenderness along the deep venous system NO
Entire leg swelling YES
Calf swelling >3 cm compared to the other leg YES
Pitting edema, confined to the symptomatic leg YES
Collateral superficial veins (nonvaricose) NO
Previously documented DVT NO
Alternative diagnosis at least as likely as DVT NO
Score 3
High probability of DVT
Related
Wells Score for PE (original)