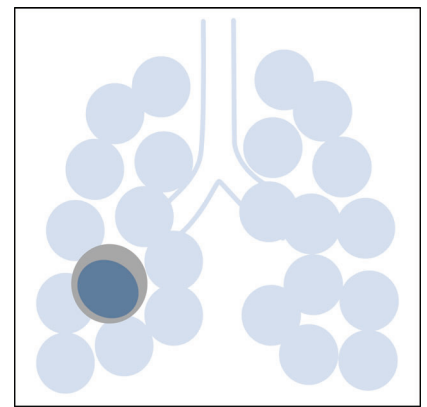# EQUAL CPA Score 2022: An ECMM Score to measure QUALity of the clinical management of Chronic Pulmonary Aspergillosis

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Oliver A. Cornely[1,2,3], Danila Seidel[1,2,3]

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Background

The EQUAL CPA Score 2022 weighs recommendations from current guidance documents for the complex management of chronic pulmonary aspergillosis (CPA).[1][2] The score can be used to measure guideline adherence and adjust clinical management.[3]

CPA is a destructive chronic fungal infection of the lungs. It affects immunocompetent and mildly immunocompromised individuals with an underlying pulmonary condition. Diagnosis is challenging as the clinical picture is non-specific and radiological findings are heterogeneous. Some comorbidities should raise suspicion of CPA when unexplained pulmonary or systemic symptoms occur. These include **tuberculosis** and **non-tuberculous mycobacterial disease**, **chronic obstructive pulmonary disease**, **lung cancer**, and **sarcoidosis**. The infection may lead to formation of pulmonary nodules, cavities, secondary pleural thickening and fibrosis. Five overlapping forms of CPA have been defined by clinical and radiological features:
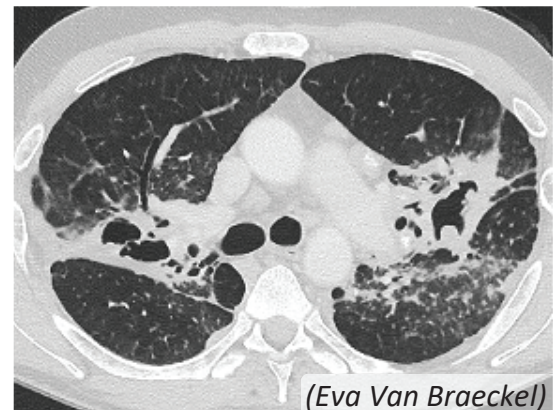
Single aspergilloma
(post-tuberculosis)
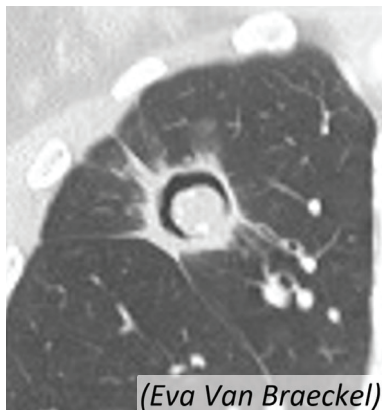
(Eva Van Braeckel)

Chronic cavitary pulmonary aspergillosis (CCPA)
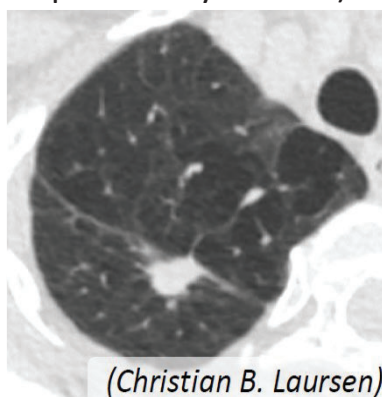(emphysema, post-tuberculosis)
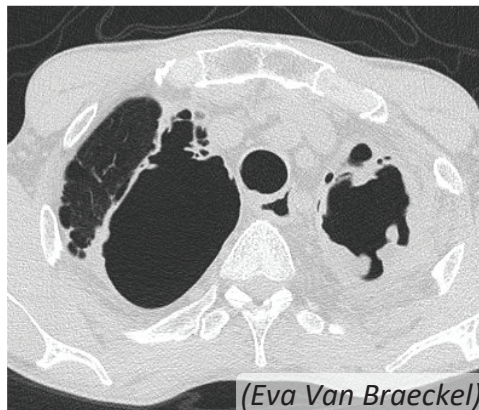
(Eva Van Braeckel)

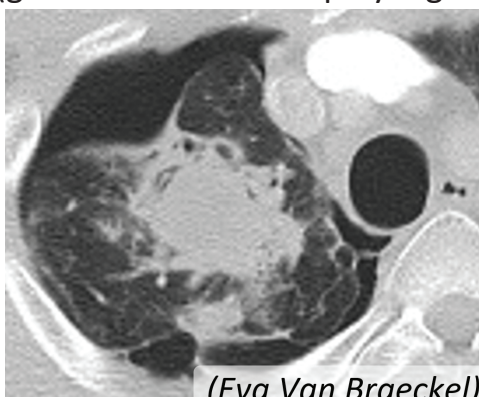**Chronic fibrosing pulmonary aspergillosis** (CFPA) bilateral
(sarcoidosis)

(Eva Van Braeckel)

Aspergillus nodules
(chronic obstructive pulmonary disease)

(Christian B. Laursen)

Subacute invasive aspergillosis (SAIA)
(granulomatosis with polyangiitis)

(Eva Van Braeckel)

References

[1] Denning DW. **Eur Respir J. 2016** Jan;47(1): 45-68. doi: 10.1183/13993003.00583-2015.
[2] Alastruey-Izquierdo A. **Respiration. 2018**; 96(2):159-170. doi: 10.1159/000489474.
[3] Sprute R. **J Antimicrob Chemother. 2022** Nov 14:dkac378. doi: 10.1093/jac/dkac378.

Item	Score	🔪	🚫🔪
Diagnosis			
Case discussion in multidisciplinary team conference	3		
Respiratory sample (BAL preferred)			
Direct microscopy for hyphae	3		
Fungal culture	3		
Galactomannan on respiratory sample	2		
Aspergillus-specific PCR	1		
Biopsy			
Histology	3		
Fungal culture	2		
Susceptibility testing			
Antifungal susceptibility testing (antimycogram or PCR)	1	27	
Serology			
Aspergillus-specific IgG antibody or precipitins	3		
Aspergillus-specific IgE antibody	2		
Galactomannan in serum	1		
Aspergillus-specific IgM / IgA antibody (if IgG not done)	-1		
Imaging			
Chest CT scan	3		
Treatment — Combination of antifungal drugs is discouraged			
Surgery (where indicated)			
Surgical resection	3	3	0
1st line treatment			
Itraconazole 200 mg bid or voriconazole 200-300 mg bid	3		
Posaconazole 300 mg qd delayed release tablets	2	6	
Posaconazole 400 mg bid suspension	1		
TDM and regular screening for adverse drug reactions	3		
2nd line (if progressive disease, azole intolerance or resistance)			
Echinocandin eg caspofungin 50-70 mg qd or micafungin 150 mg qd	2		
Liposomal amphotericin B 3 mg/kg qd (or lipid-complex)	2	2	
Isavuconazole 200 mg qd tablet or IV	2		
Amphotericin B deoxycholate 0.7-1.0 mg/kg qd	-1		
Treatment duration			
At least 6 to 12 months of antifungal therapy	3	3	
Follow-up			
Initial follow-up 3 or 6 months of treatment or with status change	3		
Response assessment via imaging (eg CT scan, FDG-PET/CT scan)	3	10	
Response assessment via culture from respiratory samples	2		
Response assessment via serology	2		
Total			
First-line		49	46
Second-line		51	48

Abbrev: BAL, bronchoalveolar lavage; bid, two times a day; CT, computed tomography; FDG-PET, fluorodeoxyglucose-positron emission tomography; IV, intravenous; qd, once a day; TDM, therapeutic drug monitoring

🔪 surgery indicated

🚫🔪 surgery not indicated