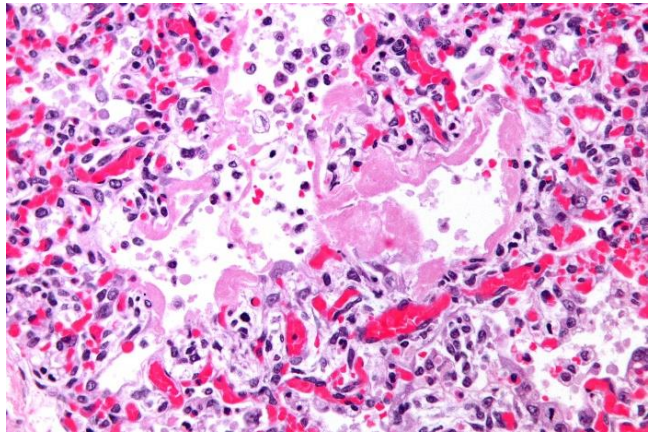
Folkert Brijker, longarts

Cracklongen: Diagnostiek en behandeling.

Cracklongen

Acute Pulmonale Cocaine Toxiciteit

Folkert Brijker, 17-03-2026



Disclosures Folkert Brijker

Geen (potentiële) belangenverstrengeling	
Voor bijeenkomst mogelijk relevante relaties:	
• Sponsoring of onderzoeksgeld	
• Honorarium of andere (financiële) vergoeding	AstraZeneca, Chiesi, GSK, Sananet, Sanofi
• Aandeelhouder	
• Andere relatie, namelijk …	

Inhoud

✓ Casus

✓ Klinische presentatie

✓ Diagnostiek

✓ Behandeling

✓ DD COPD

Wat Is De Diagnose?

Casusnummer 36.1: 57-jarige man komt met acute benauwdheid

Anamnese:

Patient is in toenemende mate kortademig. Hij was al kortademig, maar vanavond toename. Geen pijn op de borst, geen palpitaties. Hoest niet productief. Geen pijn tussen de schouderbladen, geen hemoptoë. Geen koorts. Heeft op straat geslapen, kan de 5 trappen van z'n huis niet op vanwege benauwdheid.

Lichamelijk onderzoek:

A: vrij, enig sputum

B: SpO2 77% bij KL, verminderd VAG L>R met fors wheezing, AH 30/min,

C: P 116bpm, RR 199/123 (146) mmHg, CRT 2 sec, soepele buik

D: EMV max, PEARRL, glucose 6.1

E: 37.0

Casusnummer 36.1: 57-jarige man komt met acute benauwdheid

Aanvullend onderzoek:

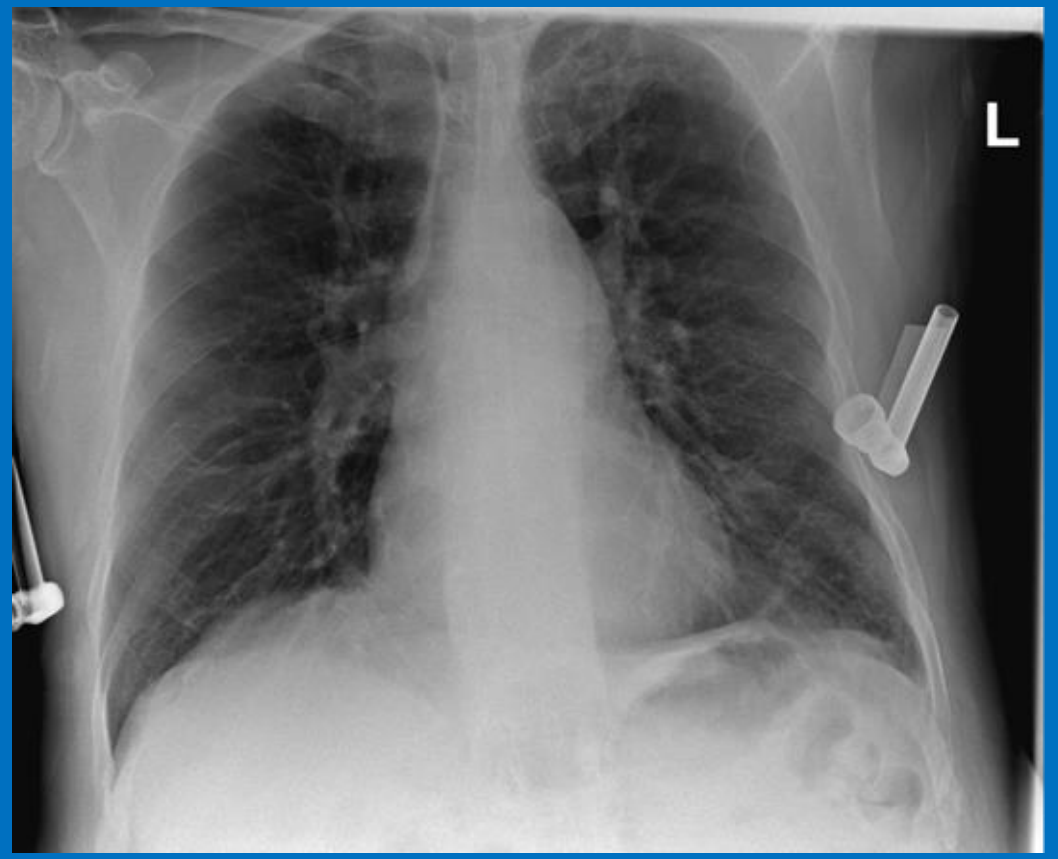
Leukocyten: 15.1 x10^9/L (4.0-10.0), CRP: 9 mg/L (<8), Natrium: 137 mmol/L (135-145), Kalium: 4.5 mmol/L (3.2-4.7), Kreatinine: 115 µmol/L (65-115)

Bloedgas Arterieel: pH: 7.24 (7.35-7.45), pO2: 6.9 kPa (11.0-14.4), pCO2: 10.7 kPa (4.7-6.4), O2-verzadiging: 78.4% (94.0-98.0), Bicarbonaat: 27.5 mmol/L (21.0-27.0), Base excess: 7.8 mmol/L (-2.3-2.7), Koolmonoxide Hb: 3.1 (H) %

Keel-neus swab RSV negatief, influenza negatief, covid negatief

ECG: 121/min, linker as op grens van extreem, nl geleidingstijden, geen ST-elevatie of -depressie

X-thorax (AP opname, geen laterale beschikbaar)



Wat is de diagnose?

Definitie Cracklongen?

Acute pulmonaal syndroom dat optreedt binnen 48 uur na inhalatie van crack

- Diffuse alveolaire schade en hemorrhagische alveolitis
- Veroorzaakt door thermische, toxische en barotraumatische effecten
- Kan progressief verlopen naar respiratoir falen

Anamnese

- Respiratoir: dyspneu, hoesten, hemoptoe, kan escaleren naar respiratoir falen
- Thoracaal: thoracale pijn, ongemak bij ademhaling
- Systemisch: koorts, malaise, vermoeidheid

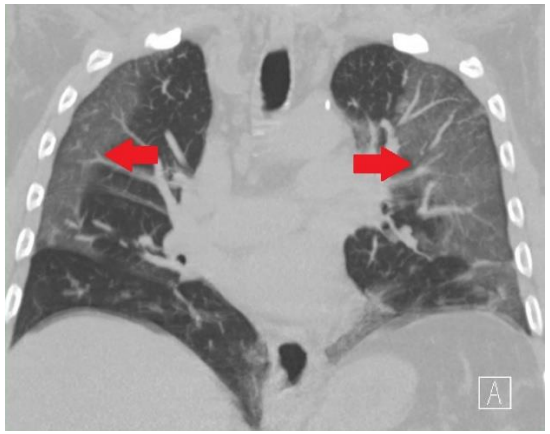
- Symptomen binnen 24-48 uur na inhalatie
- Afwezigheid alternatieve diagnose
- Klinische respons op supportieve zorg

Lichamelijk onderzoek

- Tachycardie en tachypneu
- Verminderde zuurstofverzadiging (hypoxemie)
- Crepitaties bij longonderzoek
- Bronchospasme (diffuse wheeze)
- Respiratoire distress

Diagnostiek: X-Thorax

- Diffuse alveolaire infiltraten bilateraal
- Patroon: meestal bilateraal, soms bovenste longvelden
- Geen cardiomegalie: onderscheid van pulmonale oedeem
- Geen pleurale effusie: meestal afwezig



Diagnostiek: CT-Thorax

- Matglasafwijkingen (meest typisch)
- Luchtbronchogram aanwezig
- Consolidaties mogelijk
- Locatie: perihilair, multifocaal, doorgaans subpleurale sparing
- Sluit longembolie en pneumothorax uit

Aanvullend onderzoek

- **Arteriële bloedgassen:** gemengde respiratoire/metabole acidose
- **Bloedkweek:** meestal negatief (uitsluiten infectie)
- **Urinescreening:** kan cocaine metabolieten aantonen

Aanvullend onderzoek; BAL (broncho-alveolaire lavage)

- Koolstofhoudend debris: rookdeeltjes
- Hemosiderine-beladen macrofagen: recente bloedingen
- >25% eosinofielen: wijst op acute eosinofiele pneumonie
- Helpt infecties uitsluiten en diffuse alveolaire hemorrhagie bevestigen

Bisconti et al. J Clin Med 2025 16;14:5054

Complicaties

- Barotrauma
  pneumothorax, pneumomediastinum, pneumopericardium, subcutaan emfyseem

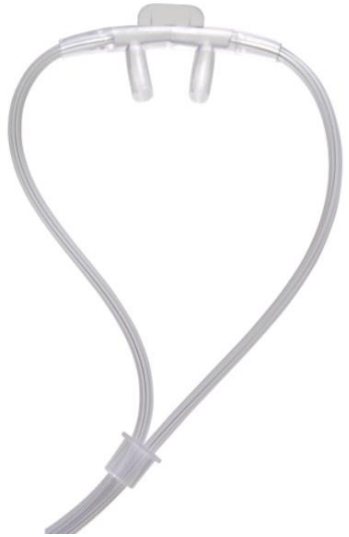
- Cardiovasulair
  myocard infarct, aritmieën, trombo-embolie

- Neurologisch
  vasculitis, CVA/TIA, convulsies, lange termijn: cerebrale atrofie bij chronisch gebruik

Behandeling

- **Bronchodilatoren:** salbutamol/ipratropium voor bronchospasme
- **Corticosteroïden:** methylprednisolon IV (omstreden, maar in ernstige gevallen)
- **Vocht suppletie:** conservatief (geen overbelasting)
- **Infectie preventie:** antibiotica alleen indien infectie waarschijnlijk
- **LMWH:** voor trombo-embolie preventie in ernstige gevallen

- **Maar vooral supportive care!**: O2, nasal high flow, noninvasive ventilation (NIV)

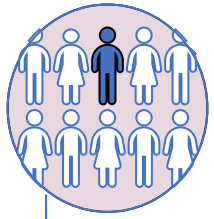


Preventie & Prognose

- **Preventie:** Volledig stoppen met crackinhalatie is essentieel
- **Prognose:** Bij afwezigheid van complicaties: zelfgenezend
- **Timing:** Symptomen verdwijnen meestal binnen 24-48 uur met ondersteunende zorg
- **Follow-up:** Beoordeling op lange termijn long schade en verslaving

DD met COPD

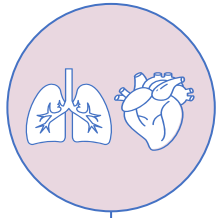
In Nederland hebben **600.000-800.000** mensen COPD



26.000 ziekenhuisopnames voor COPD per jaar

Wereldwijd is COPD doodsoorzaak nummer 4

1. Ischemische hartziekte
2. Cerebrovasculair accident
3. COVID
4. COPD



COPD patiënten overlijden met name aan respiratoire oorzaken, cardio-vasculaire oorzaken en longkanker

1. nza.nl/actueel/nieuws/2024/02/10; 2. World Health Organization. The top 10 causes of death3. vzinfo.nl/copd/zorg. 4. Mannino DM et al. Respir Med. 2006;100:115-122

COPD ranks as the third global cause of death* with ~3.5 million deaths in 2021 alone

Severe exacerbations resulting in hospitalisations are associated with increased mortality[3]

1 in 10

die within an index hospital stay†[3]

1 in 4

die **within a year**†[4]

1 in 2

die **within 5 years**†[4]

Due to the high prevalence and mortality rate of COPD, directs costs account for 6% of the total healthcare spend in the EU and 56% of the total cost of treating respiratory disease[5]

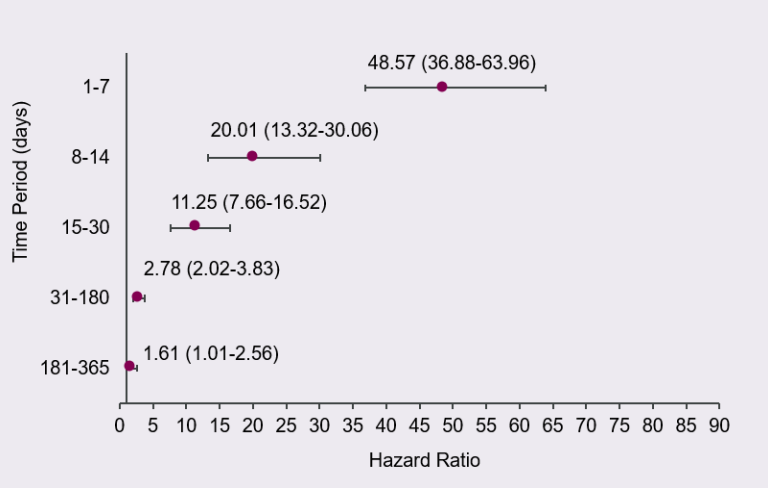
*Excluding COVID-19.[1] †Approximate values.[3,4]
COPD, chronic obstructive pulmonary disease; EU, European Union.

1. WHO. The top 10 causes of death. Available at: https://www.who.int/news-room/fact-sheets/detail/the-top-10-causes-of-death [accessed August 2025]; 2. WHO. Chronic obstructive pulmonary disease (COPD). Available at: https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-(copd) [accessed August 2025]; 3. Waeijen-Smit K, et al. *ERJ Open Research.* 2024;10:00838-2023; 4. Sánta B, et al. *Pulmonology.* 2023;29:284–291; 5. FIRS. The global impact of respiratory disease. Available at: https://firsnet.org/wp-content/uploads/2025/01/FIRS_Master_09202021.pdf [accessed August 2025].

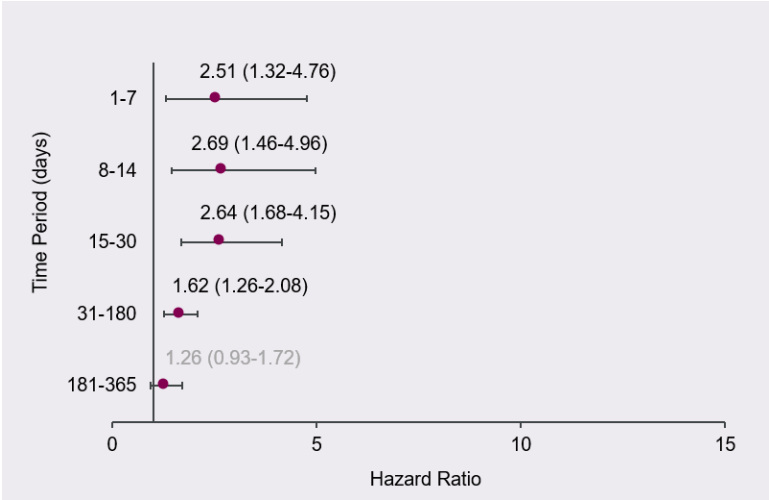
Longaanval en risico op cardiovasculaire events

EXACOS-CV studie

Risico na een ernstige longaanval (klinisch)



Risico na een matig ernstige longaanval



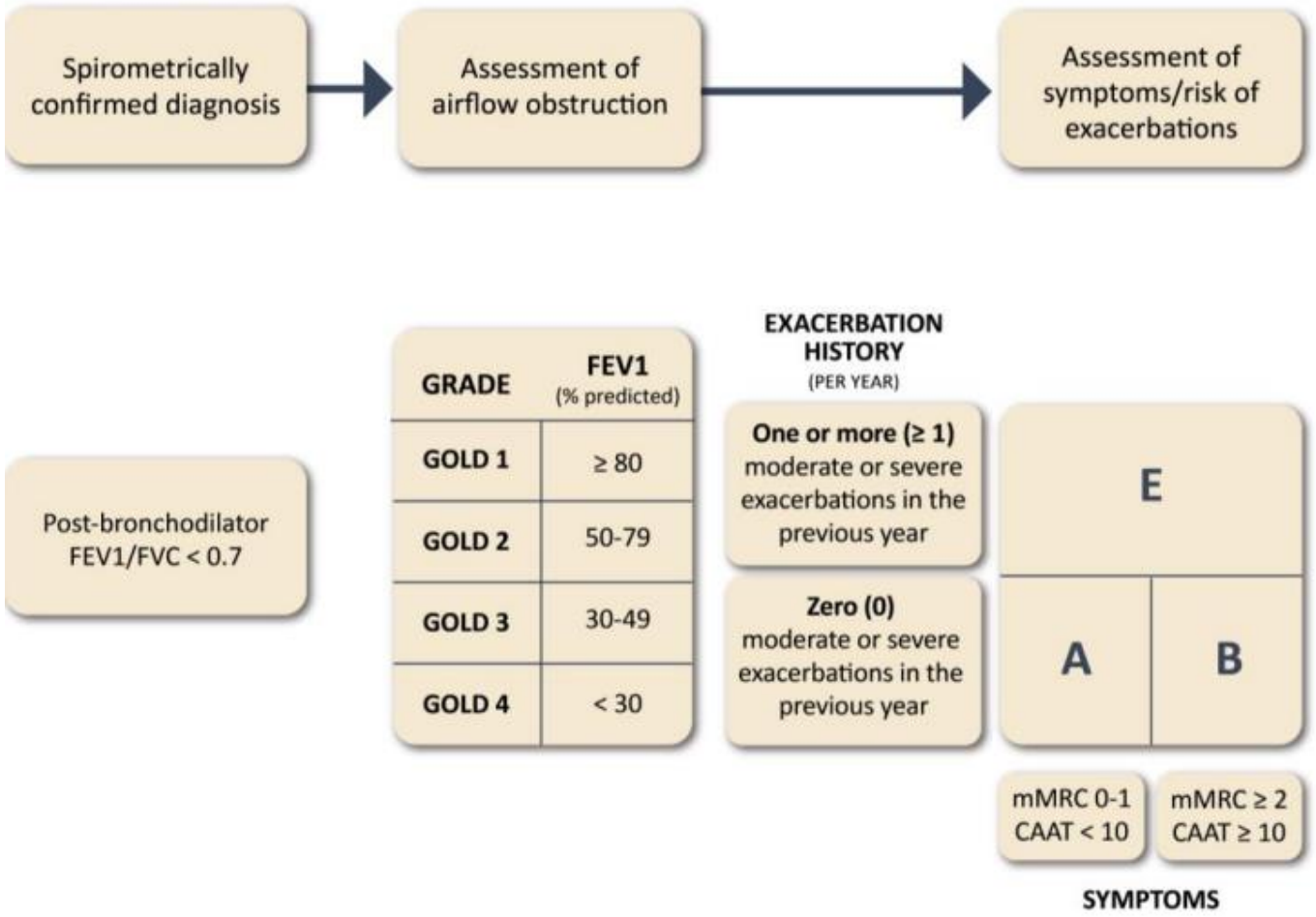
Nederlandse studie op basis van 8.020 patiënten met nieuwe diagnose COPD en 3 jaar follow up

*Risico op een ernstig cardiovasculair event of mortaliteit in de periode na een longaanval ten opzichte van periodes zonder longaanval

Swart & Simons et al. Respiratory Research (2023) 24:293

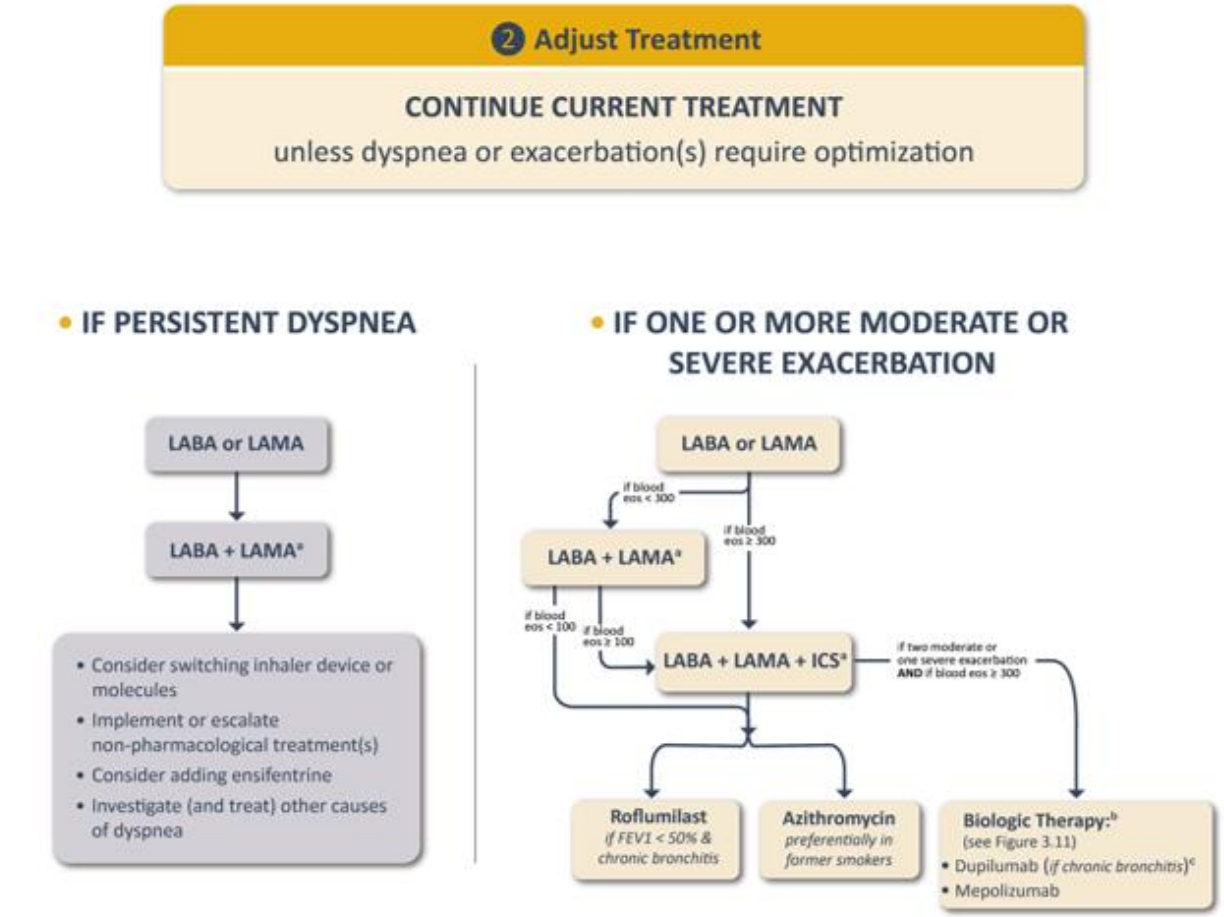
GOLD ABE Assessment Tool

Figure 2.13



Follow-up Pharmacological Treatment

Figure 3.9



[a]Single inhaler therapy may be more convenient and effective than multiple inhalers; single inhalers improve adherence to treatment.

[b]Listed in order of approval in the US.

[c]Patient-reported history of chronic bronchitis (chronic productive cough) for 3 months in the year up to screening, absent other known causes.

Consider de-escalation of ICS if pneumonia or other considerable side-effects. In case of blood eosinophils ≥ 300 cells/µl de-escalation is more likely to be associated with the development of exacerbations.

GOLD rapport 2024: mortaliteitsreductie met therapie

Internationale GOLD richtlijnen

Goals for Treatment of Stable COPD

Figure 3.1

Evidence Supporting a Reduction in Mortality with Pharmacotherapy and Non-pharmacotherapy in COPD Patients

Figure 3.17

Therapy	RCT*	Treatment effect on mortality	Patient characteristics
Pharmacotherapy			
LABA+LAMA+ICS[1]	Yes	Single inhaler triple therapy compared to dual LABD therapy relative risk reduction: IMPACT: HR 0.72 (95% CI: 0.53, 0.99)[1a] ETHOS: HR 0.51 (95% CI: 0.33, 0.80)[1b]	Symptomatic people with a history of frequent and/or severe exacerbations
Non-pharmacological Therapy			
Smoking cessation[2]	Yes	HR for usual care group compared to intervention group (smoking cessation) HR 1.18 (95% CI: 1.02, 1.37)[2]	Asymptomatic or mildly symptomatic
Pulmonary rehabilitation[3#]	Yes	Old trials: RR 0.28 (95% CI 0.10, 0.84)[3a] New trials: RR 0.68 (95% CI 0.28, 1.67)[3b]	Hospitalized for exacerbations of COPD (during or ≤ 4 weeks after discharge)
Long-term oxygen therapy[4]	Yes	NOTT: ≥ 19 hours of continuous oxygen vs ≤ 13 hours: 50% reduction[4a] MRC: ≥ 15 hours vs no oxygen: 50% reduction[4b]	PaO_2 ≤ 55 mmHg or < 60 mmHg with *cor pulmonale* or secondary polycythemia
Noninvasive positive pressure ventilation[5]	Yes	12% in NPPV (high IPAP level) and 33% in control HR 0.24 (95% CI 0.11, 0.49)[5]	Stable COPD with marked hypercapnia
Lung volume reduction surgery[6]	Yes	0.07 deaths/person-year (LVRS) vs 0.15 deaths/person-year (UC) RR for death 0.47 (p = 0.005)[6]	Upper lobe emphysema and low exercise capacity

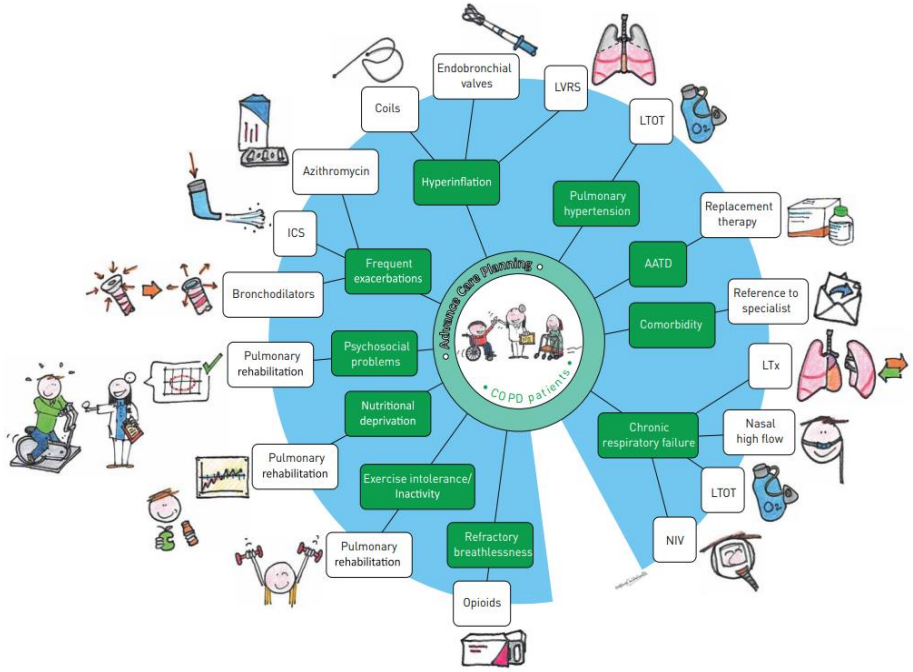
*RCT with pre-specified analysis of the mortality outcome (primary or secondary outcome); #Inconclusive results likely due to differences in pulmonary rehabilitation across a wide range of participants and settings.

1. a) IMPACT trial (Lipson et al. 2020) and b) ETHOS trials (Martinez et al. 2021); 2.Lung Health Study (Anthonisen et al. 2005); 3. a) Puhan et al. (2011) and b) Puhan et al. 2016; 4. a) NOTT (NOTT, 1980) and b) MRC (MRC, 1981); 5. Kohlein trial (Kohlein et al. 2014); 6. NETT trial (Fishman et al. 2003)

ICS: inhaled corticosteroid; IPAP: inspiratory positive airway pressure; LABA: long-acting beta$_2$-agonist; LABD: long-acting bronchodilator; LAMA: long-acting anti-muscarinic; LTOT: long-term oxygen therapy; NPPV: noninvasive positive pressure ventilation; LVRS: lung volume reduction surgery; UC: usual treatment control group.

Keerpunt(en) in COPD zorg?

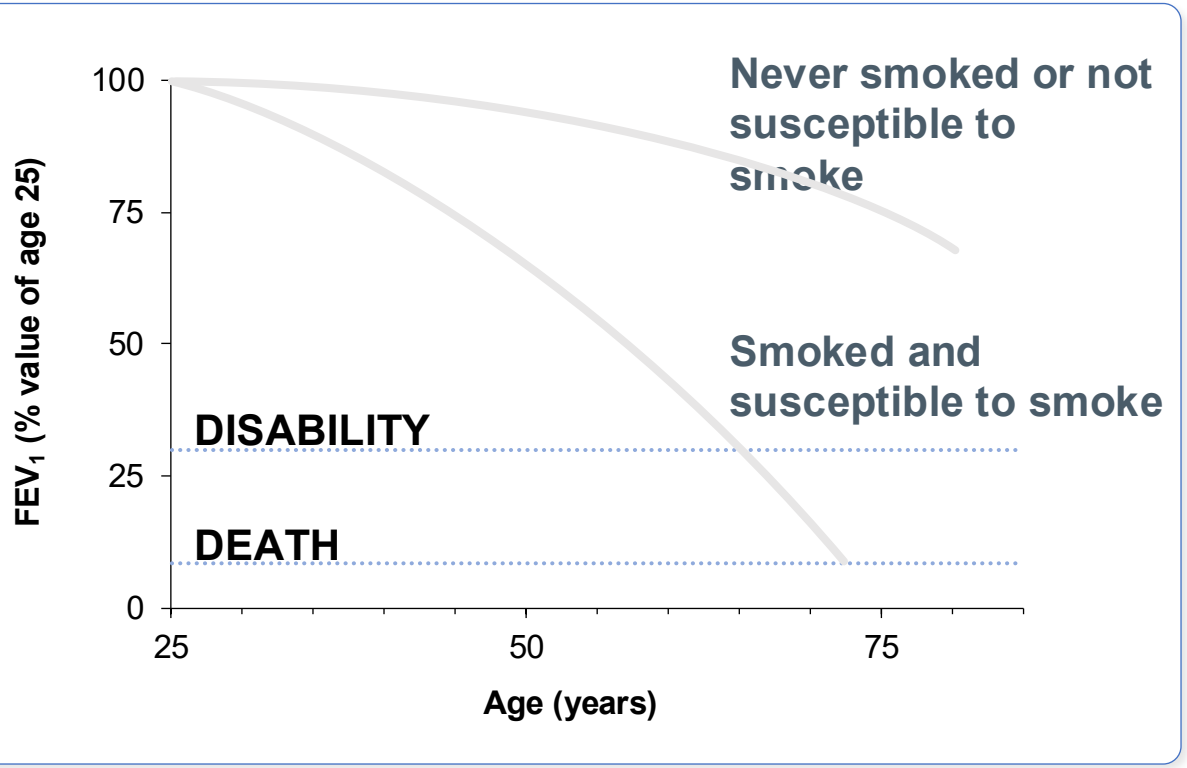
- Rol inflammatoir endotype wordt steeds belangrijker
- ‘Treatable Traits’
- Behoefte definitie gecontroleerd vs ongecontroleerd (ernstig) COPD
- Wordt vroeg diagnostiek / case finding dan ook steeds belangrijker?



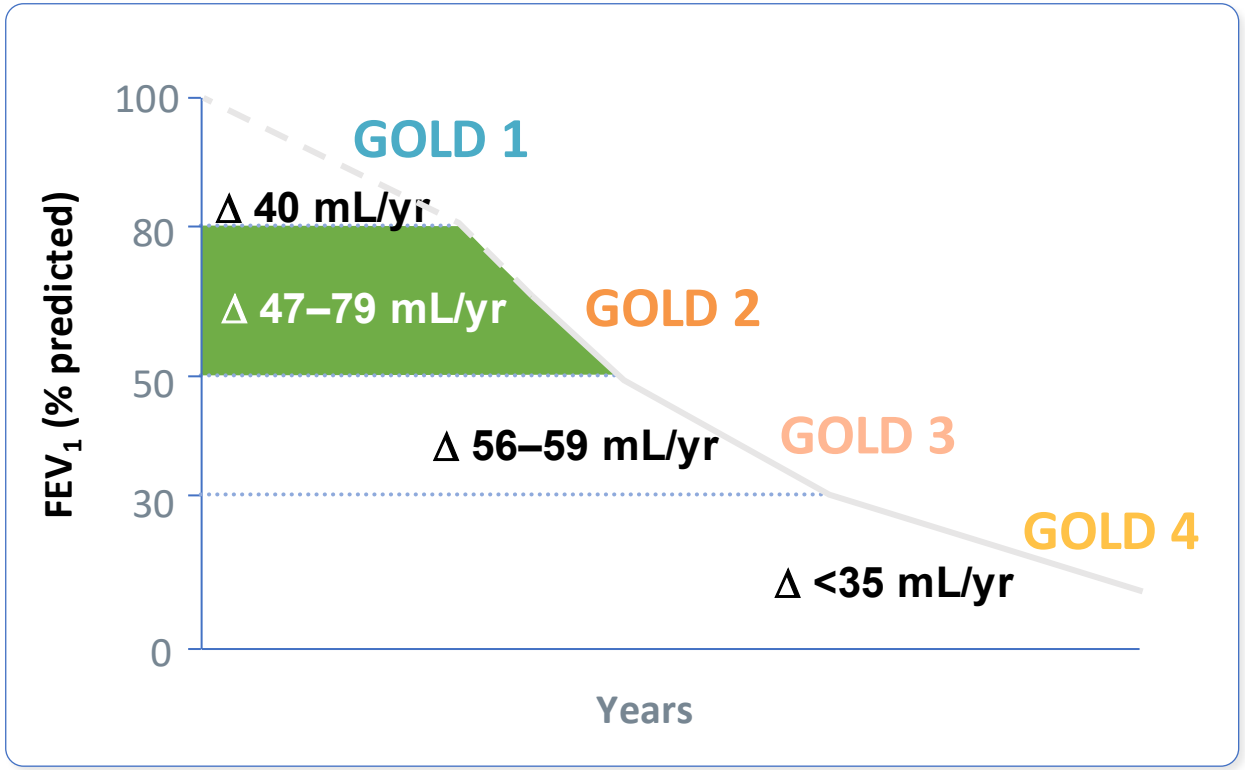
van Dijk M, Gan CT, Koster TD, et al. ERJ Open Res 2020

Lung Function Declines at an Accelerated Rate in Early Stages of COPD

Traditional View



Current View



Adapted from Fletcher C, Peto R. *BMJ* 1977; 1: 1645-1648;
Adapted from Tantucci C, Modina D. *Int J Chron Obstruct Pulmon Dis* 2012; 7: 95-99.

Missed Opportunities to Diagnose COPD Earlier in the Disease Course

Patient utilization of healthcare resources in the years preceding a diagnosis of COPD			
	0-5 years (n=38,859)	6-10 years (n=22,286)	11-15 years (n=9,351)
Lower respiratory consultation*	85%	58%	42%
Lower respiratory Rx consultation**	68%	48%	34%
Rx oral steroids	40%	17%	10%
Rx antibiotics	55%	39%	27%
Chest x-ray	38%	15%	7%
Outpatient consultation	11%	7%	4%
Hospital admission	2%	1%	1%

*All consultations coded for lower respiratory complaints including infections asbestosis, chronic respiratory failure, and respiratory symptoms (breathlessness, hyperventilation, cough, wheezing).
**Consultations for lower respiratory symptoms with a course of antibiotic drugs or oral steroids prescribed on the same day.

Jones RM, *et al. Lancet Respir Med* 2014; 2(4):267-276

Early Diagnosis and Treatment of COPD and Asthma — A Randomized, Controlled Trial

Aaron et al. N Engl J Med 2024;390:2061-2073

The NEW ENGLAND JOURNAL of MEDICINE

Early Diagnosis and Treatment of COPD and Asthma

A PLAIN LANGUAGE SUMMARY

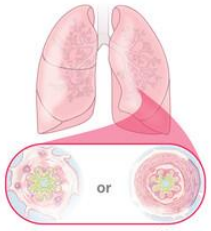
Based on the NEJM publication: Early Diagnosis and Treatment of COPD and Asthma — A Randomized, Controlled Trial by S.D. Aaron et al. (published May 19, 2024)

In this trial, researchers evaluated whether early diagnosis of chronic obstructive pulmonary disease (COPD) or asthma, coupled with pulmonologist-directed treatment, reduces the need for subsequent health care to treat respiratory illness.

As many as 70% of persons with COPD or asthma do not receive a diagnosis of the condition. The global health burden of COPD and asthma is thus likely to be underestimated.

WHY WAS THE TRIAL DONE?

Identification of symptomatic persons with undiagnosed COPD or asthma might allow for preventive interventions and reduce the need for future acute care. Data on the clinical benefits of early diagnosis and treatment of undiagnosed COPD or asthma are needed.



PARTICIPANTS

WHO: 508 adults; Mean age, approximately 63 years; Men: 61%; Women: 39%

CLINICAL STATUS: Previously undiagnosed COPD or asthma

HOW WAS THE TRIAL CONDUCTED?

Researchers first used a case-finding approach to identify adults in the community with respiratory symptoms without diagnosed lung disease. 508 adults found to have undiagnosed COPD or asthma on spirometry were then assigned to receive either guideline-based care from a pulmonologist and an asthma–COPD educator (intervention group) or usual care by their primary care practitioner (usual-care group).

The primary outcome was the annualized rate of health care utilization initiated by the participant for respiratory illness over 1 year of follow-up.

TRIAL DESIGN

- CASE-FINDING STUDY
- RANDOMIZED
- CONTROLLED
- PROSPECTIVE FOLLOW-UP: 1 YEAR
- LOCATION: 17 SITES IN CANADA

Intervention
Pulmonologist and asthma–COPD educator

Usual Care
Primary care practitioner

253 Participants

255 Participants

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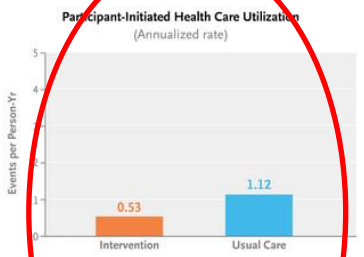
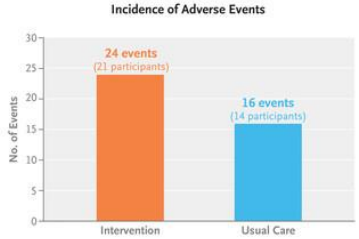
RESULTS

Over a 1-year period, the annualized rate of health care utilization initiated by the participant for respiratory illness was lower in the intervention group than in the usual-care group.



Both trial groups showed clinically important reductions in symptoms and improvements in disease-specific quality of life at 1 year, which were secondary outcomes.

The incidence of adverse events was similar in the two groups.



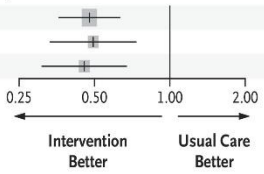
LIMITATIONS AND REMAINING QUESTIONS

- Thousands of telephone interviews were used to identify symptomatic persons with undiagnosed COPD or asthma. A more efficient case-finding method might have identified persons most in need of the intervention.
- The trial did not have sufficient power to detect differences in secondary outcomes or differences within subgroups.
- Older persons were more likely to volunteer to participate.
- Since the trial was restricted to the Canadian health care system, the results may not be generalizable to other systems.

CONCLUSIONS

Among symptomatic adults with previously undiagnosed COPD or asthma, pulmonologist-directed treatment led to less health care utilization for respiratory illness over 1 year of follow-up than usual care from a primary care practitioner.

Group	Intervention	Usual Care	Incidence Rate Ratio (95% CI)	P Value
	no. of participants/events per person-yr			
Overall	253/0.53	255/1.12	0.48 (0.36–0.63)	<0.001
Asthma subgroup	123/0.61	127/1.23	0.49 (0.33–0.73)	
COPD subgroup	130/0.46	128/1.01	0.46 (0.31–0.67)	



Terug naar de casus ‘Wat Is De Diagnose?’

Antwoord casusnummer 36.1:

Exacerbatie COPD obv het roken van crack (crackpijpje op x-thorax)

Take home messages

- Cracklongen = acute toxische longschade na inhalatie
- Ontstaat binnen 48 uur
- Denk eraan bij dyspneu + recente crack
- Lage verwijzingsdrempel bij hypoxie
- Herkenning voorkomt ernstige complicaties
- Straatzorg = sleutelpositie in vroege detectie
- Let op DD COPD

Vragen?

Dank voor uw aandacht