



Meld je aan met de QR-code



Practopics

Praktische topics voor de huisarts

Of klik op de link in de Q&A rechtsboven.





Practopics

Praktische topics voor de huisarts



Het penicilline allergie label

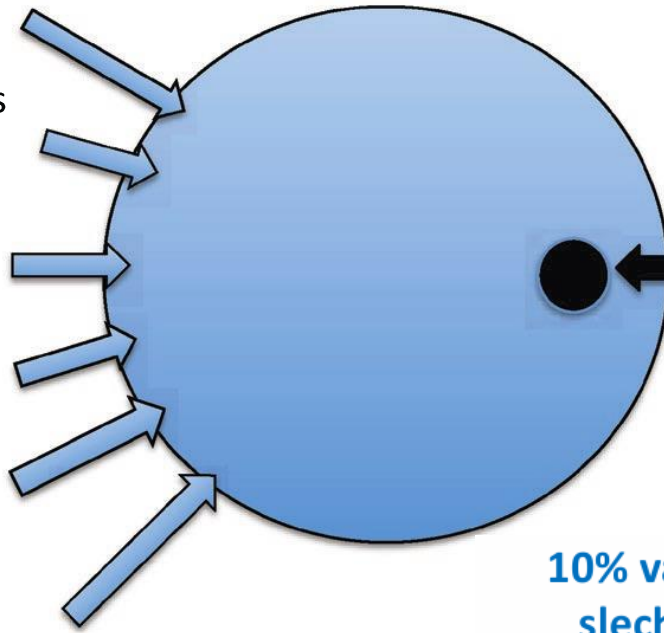
Practopics 24/04/2026

Sebastiaan Tuyls

ZIEKENHUIS aan
de STROOM

Unnecessary labels:

- Viral exanthemata
- Drug/virus interactions
(E.g: Epstein-Barr virus
and amoxicillin)
- Benign penicillin
exanthemata
- Nonallergic minor side
effects
- Family history of
penicillin adverse
event
- Fear of the drug



Necessary labels:

True penicillin
hypersensitivities

**10% van de patiënten rapporteert een “penicilline-allergie”
slechts 10% hiervan heeft een reël beta-lactam allergie**

- penicillines meest frequent geïmpliceerde betalactams ¹
- amoxicilline (+clavulanaat) maken ongeveer 50% van alle DHR uit ¹
- studies in UK, US en Australie schatten prevalentie BL allergie tussen de 8-25% ²⁻⁴
- reël peni-allergie na huidtest en provocatie is 1-10%, recente studies zelfs 4% ⁵
- levensbedreigende anafylactische reactie: 0.02%-0.04% van alle blootstellingen ⁶⁻⁷
- cutane eruptie = meest frequent ⁶⁻⁷
- prevalentie van IgE gemed. reacties lijkt af te nemen – minder parenterale penicilline gebruik ⁸

¹ Torres et al – JAC in Practice 2019

² Macy et al – Curr Allergy Asthma Rep 2014

³ Trubiano et al – BMC Infect Dis 2015

⁴ Kerr et al – Br J Clin Pract 1994

⁵ Blanca et al – Allergy 2009

⁶ Gonzalez-Estrada et al – Cleve Clin J Med 2015

⁷ Har et al – Immunol Allergy Clin North Am 2017

⁸ Shenoy et al – JAMA 2019

Stone et al – Allergy 2019

GEEN KENNIS VAN KRUISREACTIVITEIT

“Patients with a label of penicillin allergy invariably get **all β -lactams** crossed off their list,”



MOEILIJK TE ONTKRACHTEN

“However, once an individual is labeled as having a penicillin allergy, it’s rarely questioned, and **the label sticks**, increasing the patient’s risk of receiving suboptimal antibiotic therapy.”

Toegenomen gebruik breedspectrum antibiotica

- toegenomen *C. difficile* infecties
- toegenomen methicillin-resistente *Staphylococcus aureus* (MRSA) infecties
- toegenomen vancomycine resistente *Enterococcus* (VRE) infecties
- multidrug resistentie (MDR)

Toegenomen kost voor de gezondheidszorg

- langere duur ziekenhuisopname
- kostprijs alternatieve antibiotica
- meer opnames ICU
- meer heropnames

Toegenomen morbiditeit (en mortaliteit?)

- delay in opstart antibiotica
- onderbehandeling met alternatieve antibiotica
- toxiciteit alternatieve antibiotica

Macy et al – JACI 1998

Sade et al – Clin Exp Allergy 2003

Raja et al – Ann Emerg Med 2009

Unger et al – Pharmacotherapy 2013

Macy et al – JACI 2014

Li et al J Clin Pathol 2014

King et al – Ann Allergy Asthma Immunol 2016

Mattingly et al – JACI in practice 2018

Rubin et al – JAMA 2018

Moran et al – B J Clin Pharmacology 2018

Blumenthal et al – BMJ 2018

Blumenthal et al – Infect Control & Hosp Epid 2019

NUANCE!

Impact of antibiotic allergy labels on timely and appropriate antibiotics for sepsis in the emergency department

JAC Antimicrob Resist
<https://doi.org/10.1093/jacamr/dlad120>

> J Allergy Clin Immunol Pract. 2021 Jun;9(6):2415-2425.e8. doi: 10.1016/j.jaip.2021.01.047.

Epub 2021 Feb 16.

Prevalence of Antibiotic Allergy Labels in a Tertiary Referral Center in Belgium

Liesbeth Gilissen¹, Isabel Spriet², Karin Gilis³, Willy E Peetermans⁴, Rik Schrijvers⁵

Conclusion: With an overall prevalence of 3%, the burden of AAL is less in our Western European center compared with US reports. However, this prevalence most likely still represents an overestimation of genuine AB allergic patients since most labels lack confirmation and/or specifications. Our work indicates knowledge on the local epidemiology of AAL is necessary to estimate the impact of better allergy labeling and delabeling strategies.

Clinical Outcome Associated With Beta-Lactam Allergy Labels in Hospitalized Patients in Belgium

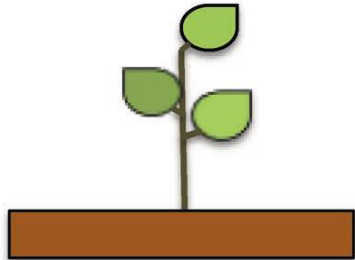
Liesbeth Gilissen¹, Greet Van De Sijpe^{2 3}, Annouschka Laenen⁴, Peter Declercq^{2 3}, Dries Wets^{1 5}, Ileana Ghiordanescu^{6 7}, Anca Mirela Chiriac^{8 9}, Willy E Peetermans^{10 11}, Paul De Munter^{10 11}, Isabel Spriet^{2 3}, Rik Schrijvers^{1 5}

Results: We included 21,999 patients accounting for 23,842 admissions. A BLAL was recorded in 1394 (6.3%) patients, with 1113 (5.1%) having an unspecified PenAL. An increased use of next-line antibiotics was observed among patients with BLAL or PenAL. However, BLAL or PenAL were not associated with altered in-hospital or 3-month post-hospitalization mortality, LOS or ICU admission.

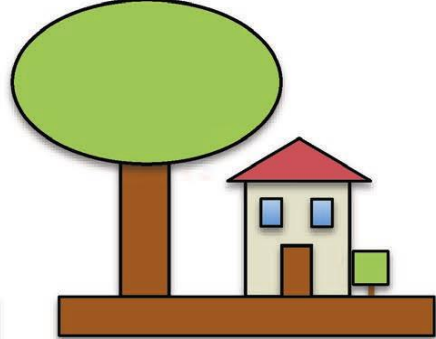
Conclusion: Despite altered antibiotic use, we observed no association of BLAL or PenAL with clinical outcome parameters, highlighting regional differences and limiting transferability of non-EU findings to guide EU delabeling protocols.



Label acquisition



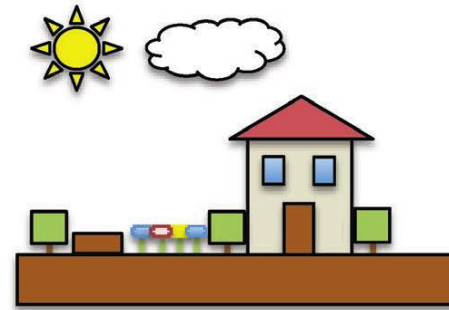
Labels persist and grow in significance



Consequences of a label



Testing/ removal of unnecessary label



Stone et al – Allergy 2019

2017 American Academy of Allergy, Asthma and Immunology (AAAAI) position statement ¹

“... recommending routine penicillin allergy testing in patients who report having the allergy...”

Controversies in Drug Allergy: Beta-Lactam Hypersensitivity Testing



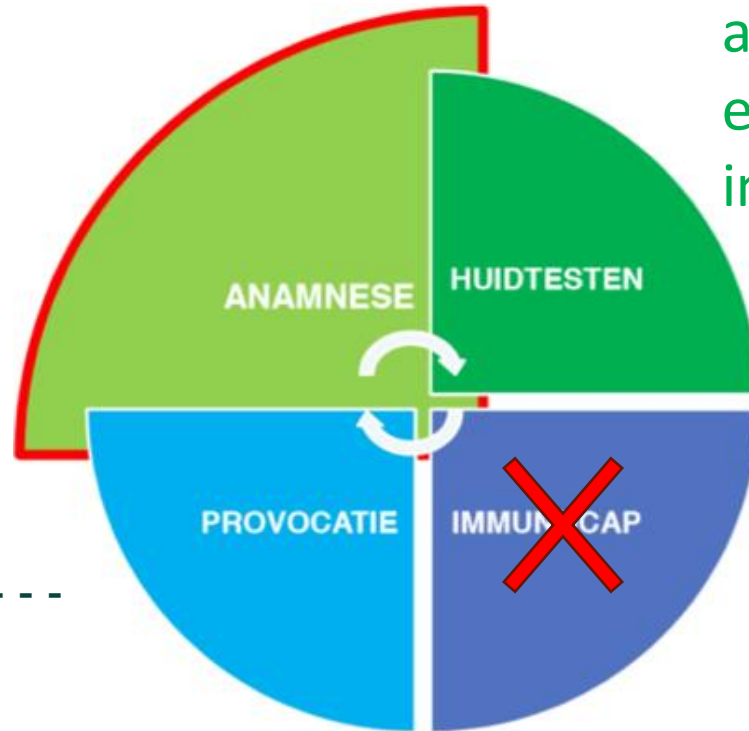
Maria J. Torres, MD, PhD^{a,b,*}, N. Franklin Adkinson, Jr., MD, FAAAAI^c, Jean-Christoph Caubet, MD^d, David A. Khan, MD^e, Mona I. Kidon, MD, FAAAAI^{f,g}, Louis Mendelson, MD, FAAAAI^h, Eva Rebelo Gomes, MDⁱ, Ticha Rerkpattanapipat, MD^j, Shuchen Zhang, MD^k, and Eric Macy, MD, MS, FAAAAI^{l,*}; for the AAAAI/WAO 2018

Although there is a consensus that DHRs to BLs is a global health problem and that delabeling is a need, there are still controversies on how to do so.



fundament tijdsintensief

- aard van klachten
- temporele relatie
- reproduceerbaarheid
- medicatie/behandeling



afhankelijk van ernst reactie
afhankelijk van wat we testen
expertise bij plaatsen
interpretatie



risicovollere testing – risico op anafylaxie
tijdsintensief – multistep toediening, olopend



Can we skip skin prick testing?

grote hoeveelheid studies

directe provocatie = veilig in **“low-risk patiënten”**

Trubiano et al – JAMA 2020
Mustafa et al – JACI in Practice 2020
Mill et al – JAMA 2016
Tucker et al – JACI 2017



RISICO INSCHATTING!

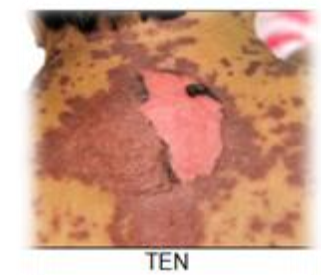
I en IV
meest frequent

onmiddellijk vs. uitgesteld



Types of Hypersensitivity Reactions

	Type I	Type II	Type III	Type IV
Mediators	IgE-Mediated	IgG or IgM Cytotoxic	Immune Complex-Mediated	T-Cell-Mediated
Onset	Within 1 Hour	Hours to Days	1-3 Weeks	Days to Weeks
Examples	Anaphylaxis	Hemolytic Anemia	Serum Sickness SLE	Rash SJS



histaminerg vs. bradykinerg

URTICARIA

oedeem van de superficiele dermis
jeukend
verheven
vluchting – verdwijnen na 24u
kan overal op het lichaam
vaak diffuus

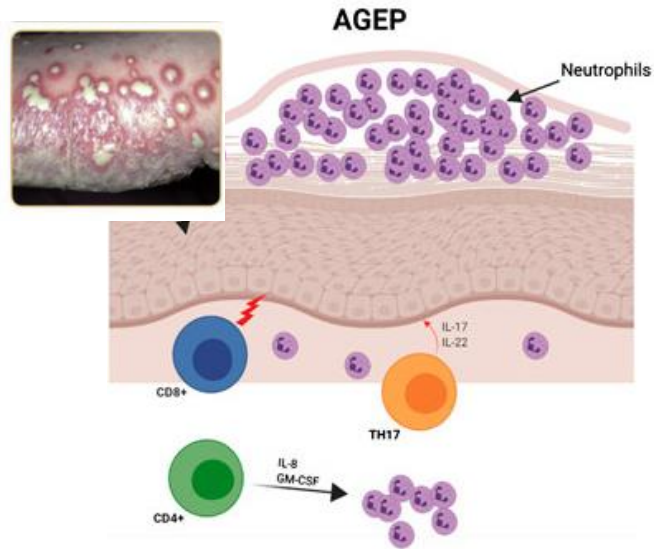


JEUK!

ANGIO-OEDEEM

oedeem in de diepere dermis +/- subcutis
trage resolutie, niet-vluchtig
vaak asymmetrisch
pijn, warmtegevoel

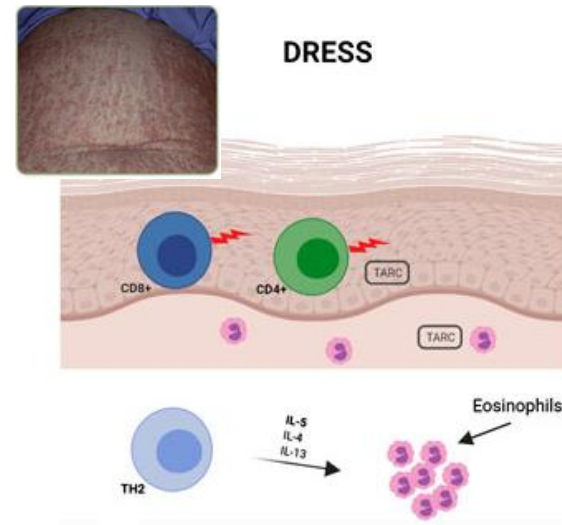




24-72u

neutrofilie+++ , eosinofilie +

steriele pustels (flexuraal)
gelaat/intertrigo > romp/ledematen
diffuse of patchy distributie

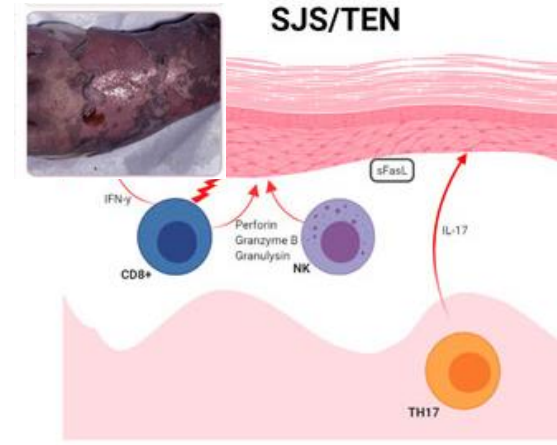


2-8 weken

eosinofilie +++ (niet altijd!)

adenopathieën
orgaanweerslag: lever ++

morbiliform exantheem
(faciaal) oedeem
occasional vesikels en purpura



4-28 dagen

prodromaal "flu-like"

lesies > pijnlijke blaren
mucosale aantasting (mond, ogen)
huidloslating (Nikolsky+)

ANAMNESE * DRUG TIMELINE * KLINISCH ONDERZOEK * HUIDBIOPSIE

WHAT DO WE WANT?



DELABELLEN



bijwerkingen, vage verhalen, familiale voorgeschiedenis

WHAT NOT TO MISS?



ernstige type IV allergie
type I of IgE gemedieerde allergie

Tijdsverloop?



Onmiddellijk? Meteen na inname van (1^e) tablet?

Uitgesteld? Was u al op het einde van de kuur? Hoeveel pilletjes?

Hoe lang geleden voorgedaan?

Ernst?



Huiduitslag? Hoe uitgebreid? Heel het lichaam? Blaren? Mond/vagina betrokken?

Systeemklachten zoals koorts? Orgaanbetrokkenheid?

Angio-oedeem? Wheezing? (Pre)syncope? Stridor?

Opgelost?



Medische interventie? Medicatie toegediend? IV/IM? Adrenaline?

Spontane resolutie? Lang blijven voortduren?

Herexpositie!

Ik weet het niet goed meer, zo lang geleden... **Vraag naar context!**

Waarom kreeg u antibiotica? Waar was u? Wie was erbij?



PEN	Penicillin allergy reported by patient	<input type="checkbox"/> If yes, proceed with assessment
F	Five years or less since reaction ^a	<input type="checkbox"/> 2 points
A	Anaphylaxis or angioedema	<input type="checkbox"/> 2 points
	OR	
S	Severe cutaneous adverse reaction ^b	
T	Treatment required for reaction ^a	<input type="checkbox"/> 1 point
		<hr/>
		<input type="checkbox"/> Total points

Interpretation

Points

0	Very low risk of positive penicillin allergy test <1% (<1 in 100 patients reporting penicillin allergy)
1-2	Low risk of positive penicillin allergy test 5% (1 in 20 patients)
3	Moderate risk of positive penicillin allergy test 20% (1 in 5 patients)
4-5	High risk of positive penicillin allergy test 50% (1 in 2 patients)

Trubiano et al – JAMA 2020

PEN-FAST = NPV 96%
< 3 non-inferior tot SOC

n= 622

ontstaan van urticaria

- binnen 1 uur
- na de 1e dosis
- resolutie binnen 1 dag

frequenter geassocieerd positieve allergie testing

Sabato et al – JAIP 2021

n= 410

I-I-I criterion for optimized risk stratification in β -Lactam allergy delabeling



IGGI richtlijn 2025



Approach to patients with a penicillin allergy label

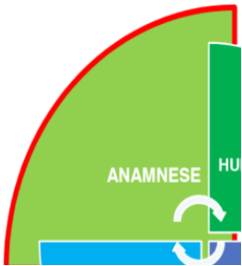
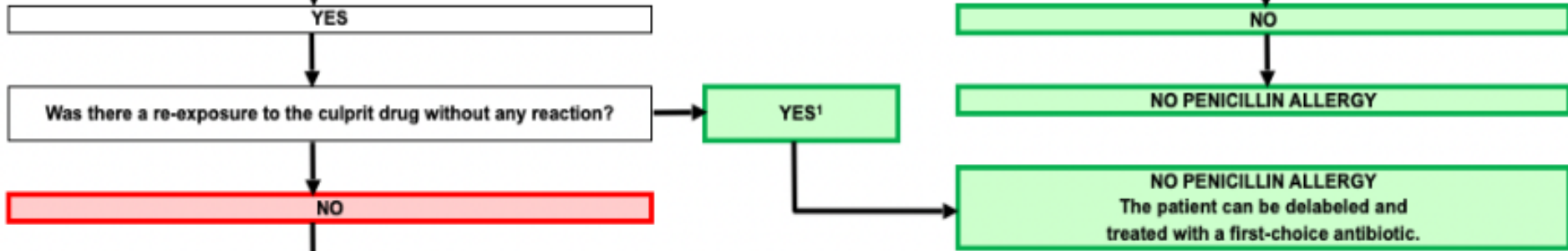
FLOWCHART FOR PATIENTS WITH AN UNSPECIFIED PENICILLIN ALLERGY LABEL

DID THE PATIENT EXPERIENCE A POSSIBLE ALLERGIC REACTION IN THE PAST?

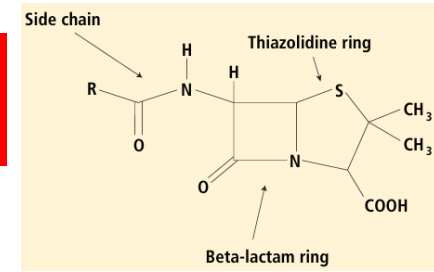
- * Which was what the culprit drug (the specific antibiotic, not the class)?
- * Which were the complaints at the time of the reaction?
- * When did the reaction occur? A long time ago or recently (exact date)?
- * How much time elapsed between the administration of the drug and the start of the reaction (< 1 hour, 1 to 6 hours, > 6 hours) and how many doses were administered to the patient before the reaction started?
- * Why was the drug administered?
- * How was the reaction treated?
- * Was the administration of the drug discontinued and, if not, did the reaction progress?
- * How long did the reaction last?
- * Was there tolerated re-exposure to the drug since the reported reaction?



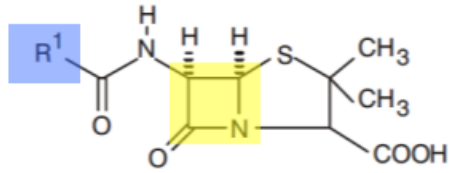
bijwerkingen, vage verhalen, familiale voorgeschiedenis



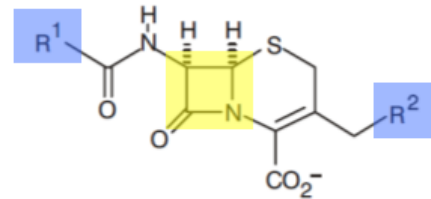
KRUISREACTIVITEIT β -LACTAMS



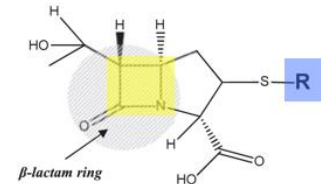
Penicillines



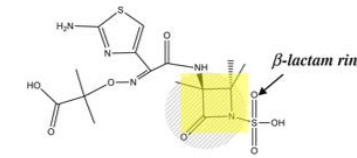
Cefalosporines



Carbapenems



Monobactams



vraag over mag/mag niet toediening vaak betrekking op **kruisreactiviteit penicillines > cefalosporines**

allergie voor beta-lactam ring zeldzaam, **quasi steeds zijketens betrokken**

Type I, IgE gemedieerd = oude opvatting 30%

meta-analyse [Picard et al](#)

1269 bevestigde penicilline allergische personen (21 studies tussen 1980-2019)

- 16% voor cefalosporines met "high-similarity-score"
- **2.1%** voor cefalosporines met "low-similarity-score" = **cefazoline en onze 2^e generatie cefalosporines en hoger**

Romano et al – JAIP 2018

Picard et al – JAIP 2019

Caruso et al – J Asthma Allergy 2021

CAVEATS

- studies kruisreactiviteit (met huidtesten): extrapolatie algemene populatie?
- bestaat zoiets als co-allergie of co-activiteit

7. **1-step challenge procedure:** administration of a single dose of amoxicillin (500 mg to 1 g) followed by close patient observation for at least 30 minutes (up to 60 minutes).

8. **2-step challenge procedure.**

- Administration of a first dose of the antibiotic (10% of the therapeutic dose, liquid oral formulation if available), followed 30 minutes later by a second dose (remaining 90% of the therapeutic dose). Not necessary when cefazolin is used in the operating room.
- Vital parameters must be measured at the start and every 30 minutes until 1 hour after the administration of the entire second dose.
- In case of parenteral administration, the antibiotic must be injected slowly (bolus administration must be avoided).

SWAB richtlijn 2025



legalistic, maximal risk avoidance strategy
vs a practical approach of treating when the risk is
not prohibitive

Recommendations

Recommendations for Immediate type allergy	Strength	Quality of evidence
17. We recommend that patients with a suspected or proven immediate type allergy to penicillins can receive cephalosporins with dissimilar side chains, <u>irrespective of severity of and time since the index reaction.</u>	Strong	Moderate
18. Cefazolin does not share any side chains with the currently available penicillins and can be used in cases of suspected or proven immediate type allergy to a penicillin, irrespective of severity or time since the index reaction.	Strong	Moderate

The difficulty in answering your question is the meaning of “safe” and the meaning of “penicillin allergic patient”

Praktische aanpak binnen ZAS

Geen allergie voor penicillines
Informatiebrochure voor patiënten

Toevoegen Ernst allergie ZAS
Auteur: Sebastiaan Tuyts (17/08/2025 12:19)

Algemeen

• Allergie omschrijving: PENICILLINES

• Bent u allergisch voor een antibioticum? ja nee

Overzicht penicilline antibiotica

• Overzicht penicilline antibiotica

- penicilline (Penicilline®, Penicilline G Sandoz®, Extencin®)
- feneticilline (Broxil®)
- flucloxacilline (Floxapen®, Staphycid®)
- amoxicilline (Clamoxyl®, Delamoxyle®)
- amoxicilline-clavulaanzuur (Amoclane®, Amoxiclav®, Augmentin®, Levmentin®)
- temocilline (Negaban®)
- piperacilline-tazobactam (Tazocin®)

• Bent u allergisch voor een penicilline antibioticum vermeld in bovenstaande lijst? ja nee

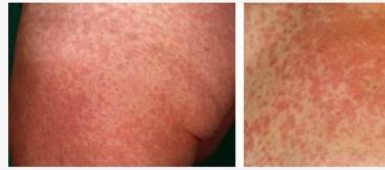
Allergisch aan penicilline antibiotica

• Welke symptomen traden op na blootstelling aan het antibioticum? ...

- Hoofdpijn
- Geïsoleerde gastro-intestinale symptomen (zuuroprispingen, braken, diarree, misselijk)
- Gewrichtsklachten
- Schimmelinfectie
- Familielid met gekende penicilline-allergie, maar NOOIT zelf reactie gehad
- Ongekende reactie
- Jeuk zonder huiduitslag
- Maculopapuleus exantheem (rode huiduitslag zonder verhevenheid/blaarvorming)
- Andere huiduitslag (urticaria/netelroos, rode huiduitslag met blaarvorming)
- Angio-oedeem (zwellen van gezicht-lippen-tong-keel-oogleden)
- Ademhalingsklachten (piepende ademhaling, stridor, heesheid, hoesten)
- Shock

Maculopapuleus

o Voorbeeld rode huiduitslag



• Hoe lang is dit geleden? ... > 10 jaar < 10 jaar

• Symptomen: Maculopapuleus exantheem (rode huiduitslag zonder verhevenheid)

• Ernst: Mild

• Reden: Resultaat peni-allergie anamnese: Dit betreft een laag risico op ernstige reactie

• Score: 1



index

Wat is een penicilline-allergie? 01

Wat is géén penicilline-allergie? 02

Waarom is dit belangrijk? 03

Hoe stellen we dit vast? 04

Wat kan jij als patiënt doen? 05

allergie@zas.be

Nood aan integratie 1^e lijn!

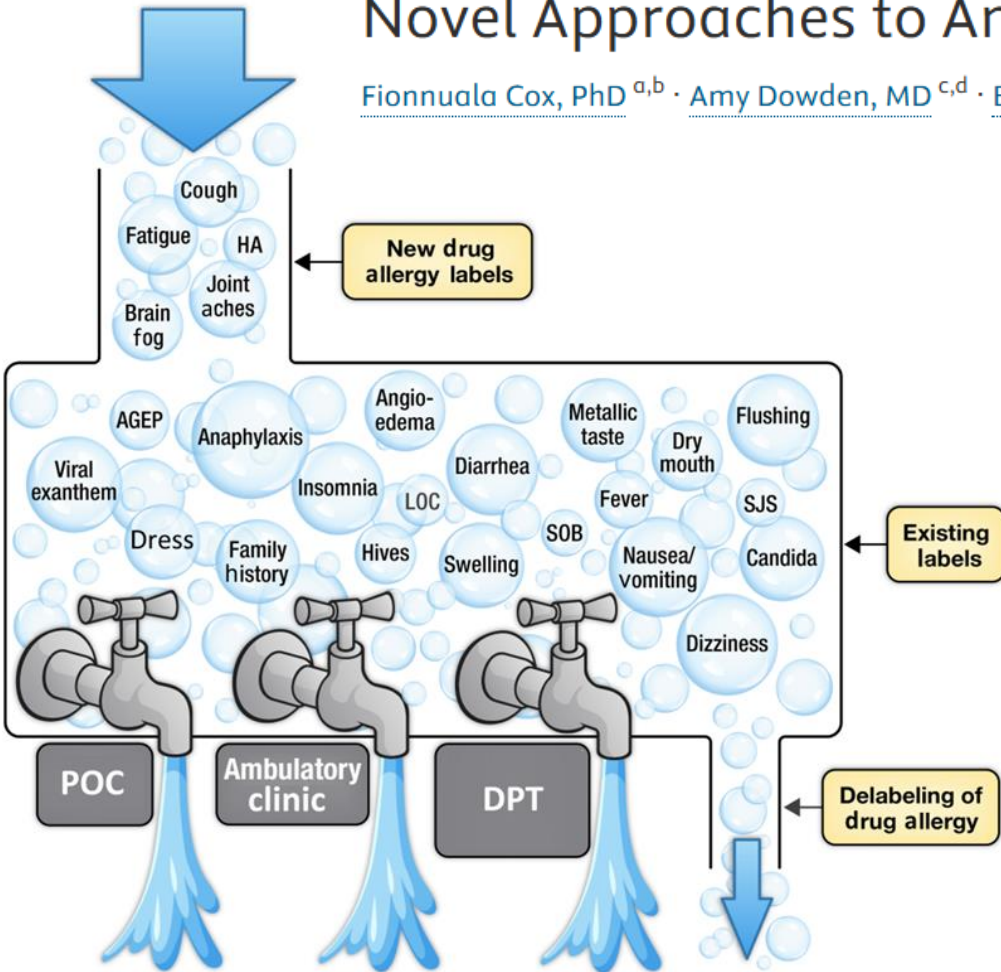
CLINICAL COMMENTARY REVIEW · Articles in Press, December 19, 2025

Novel Approaches to Ambulatory Antibiotic Allergic Clinics

Fionnuala Cox, PhD ^{a,b} · Amy Dowden, MD ^{c,d} · Bernardo Sousa-Pinto, PhD ^{e,f} · Philip H. Li, MD ^{g,h} ✉



“wheel-and-spoke”



Prospective, Multicenter, Head-to-Head Comparison Between Allergists Versus Nonallergists in Low-Risk Penicillin Allergy Delabeling: Effectiveness, Safety, and Quality of Life (HK-DADI2)

Jane C.Y. Wong, MBBS^{a,*}, Andy K.C. Kan, MBBS^{a,*}, Thomas S.H. Chik, MBChB^b, M.Y. Chu, MBBS^c, Timothy C.M. Li, MBChB^d, Hugo W.F. Mak, MBBS^a, Valerie Chiang, MBBS^a, and Philip H. Li, MBBS, MD^a Pokfulam, Hong Kong

allergie@zas.be

Take home

penicilline allergie label: niet zomaar aannemen!

aanpakken = vaak onjuist = bevragen!

kruisreactiviteit cefalosporines en penicillines laag voor 2^e generatie en hoger

denk aan kapstok

pluk het laag hangend fruit

verwijs bij twijfel

allergie@zas.be



I

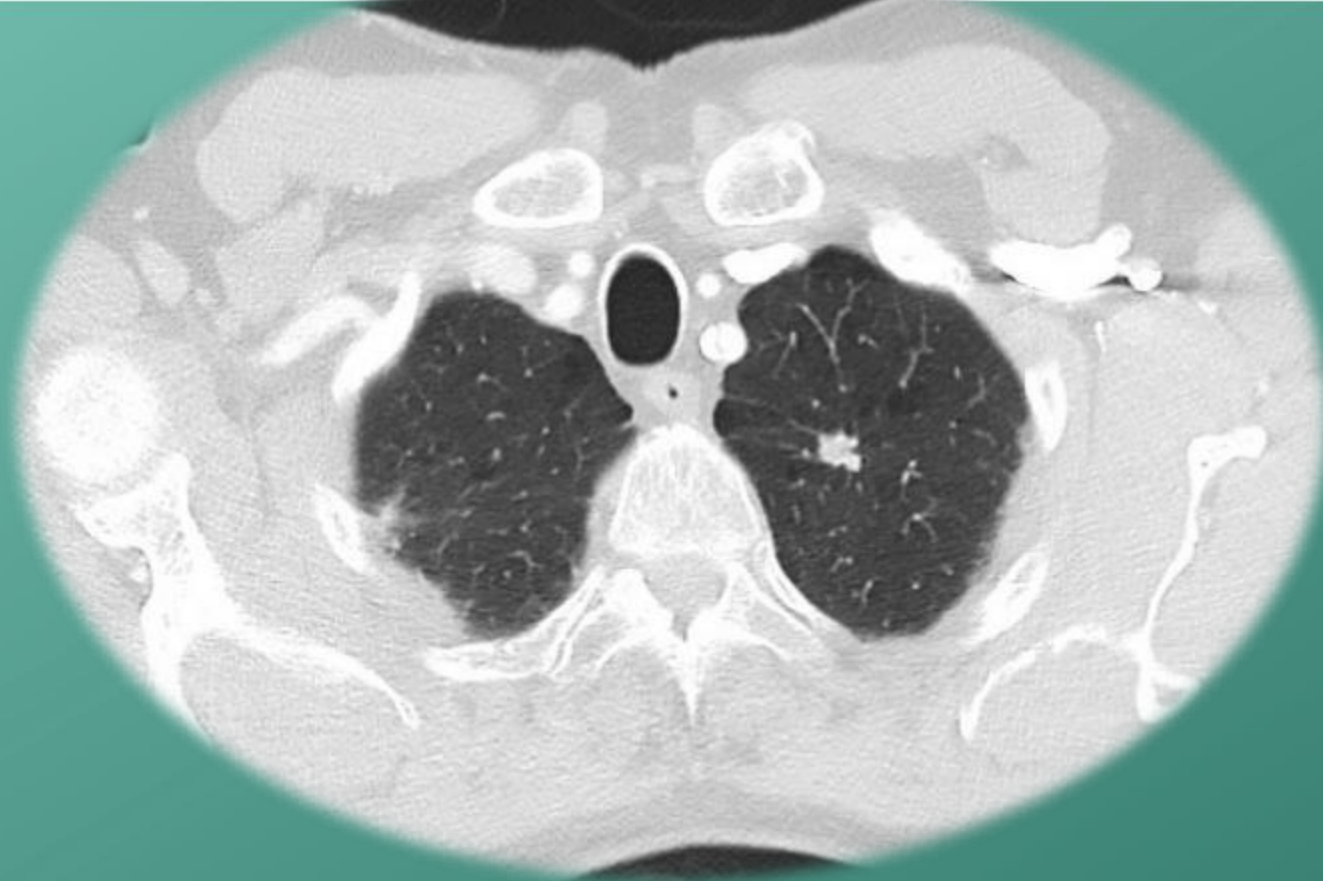


VS



IV





Practopics pneumologie

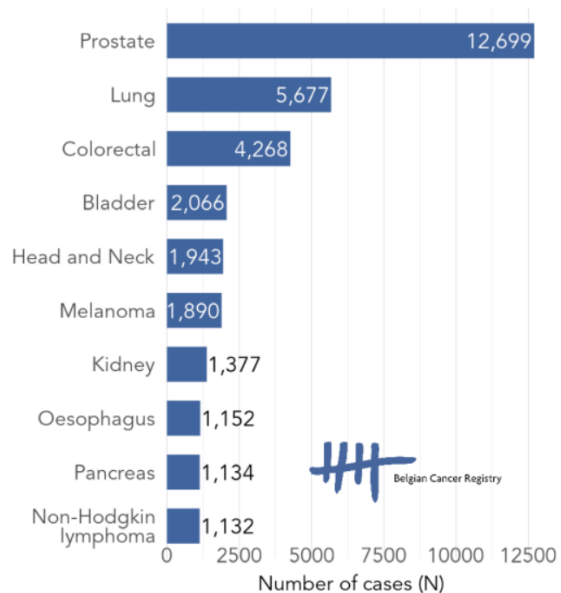
Nodule(s) in de long

Dr. Karolien Viskens – pneumoloog respiratoir oncoloog

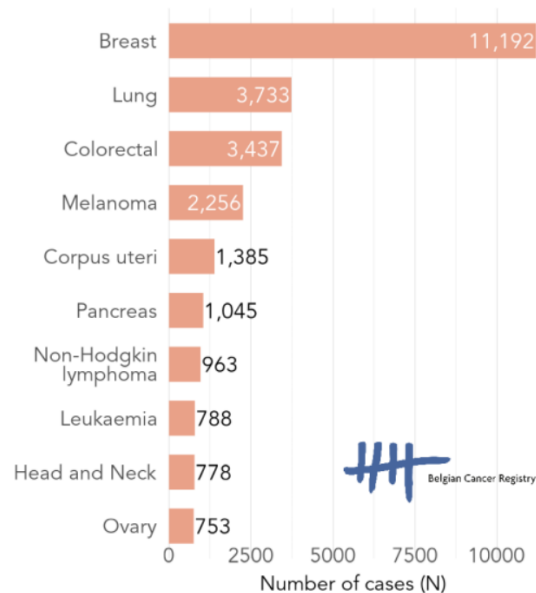
Incidentie longkanker in België

10 most frequent cancers, 2022

Males



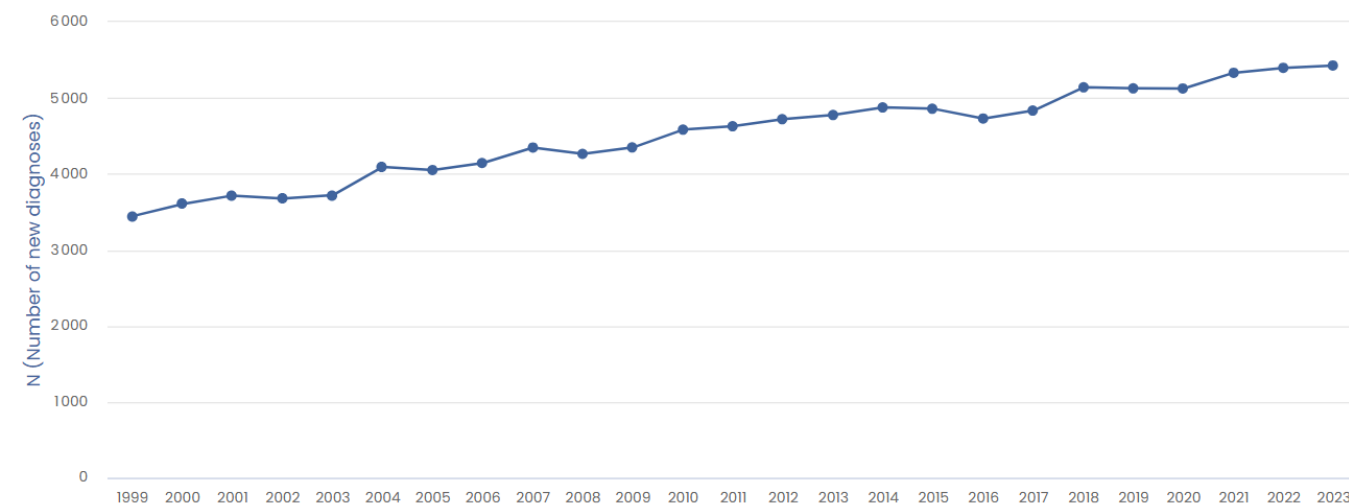
Females



Incidence by year (Number of new diagnoses)

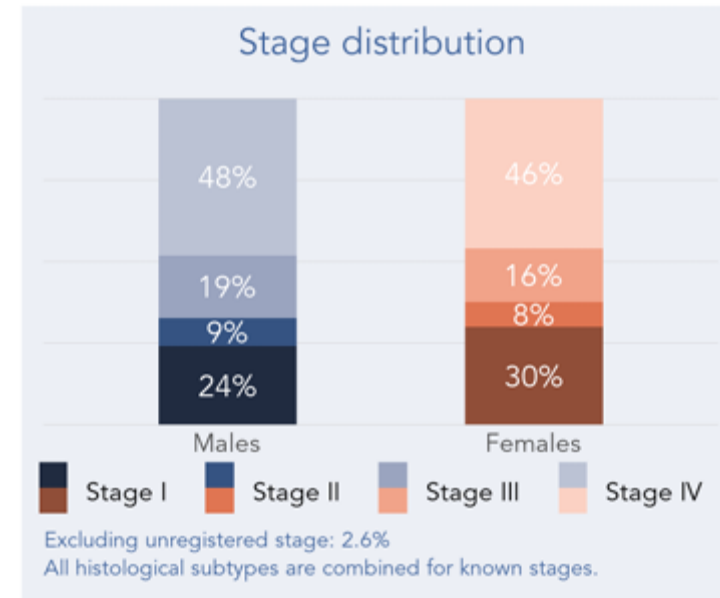
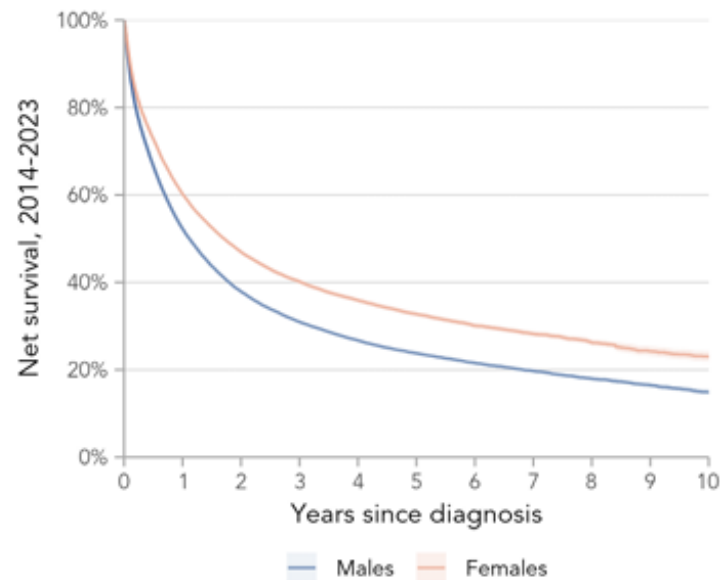
Sex: Males and Females Age: All ages Region: Flemish Region Cancer: Lung

Source: Belgian Cancer Registry (04-2026)



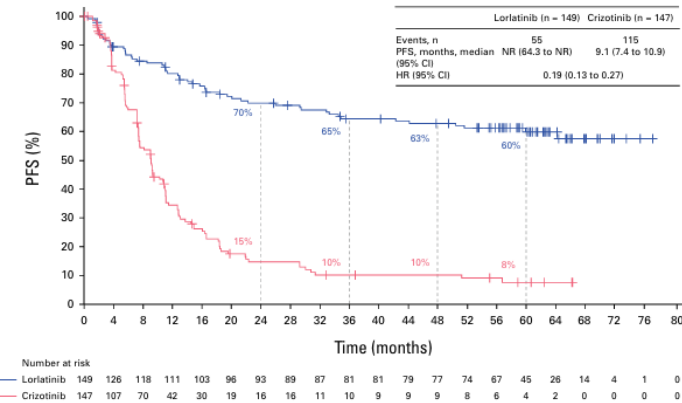
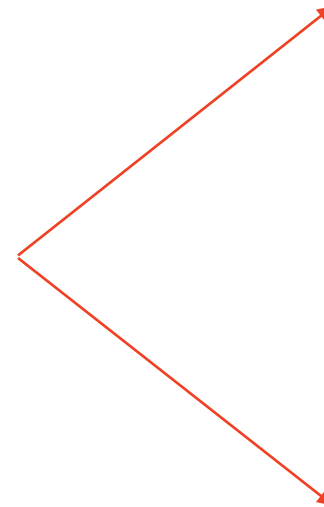
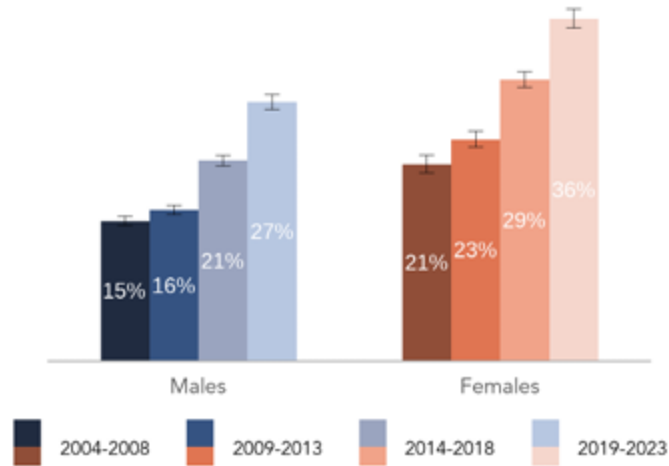
Uit: Belgisch kankerregister

Incidentie longkanker in België

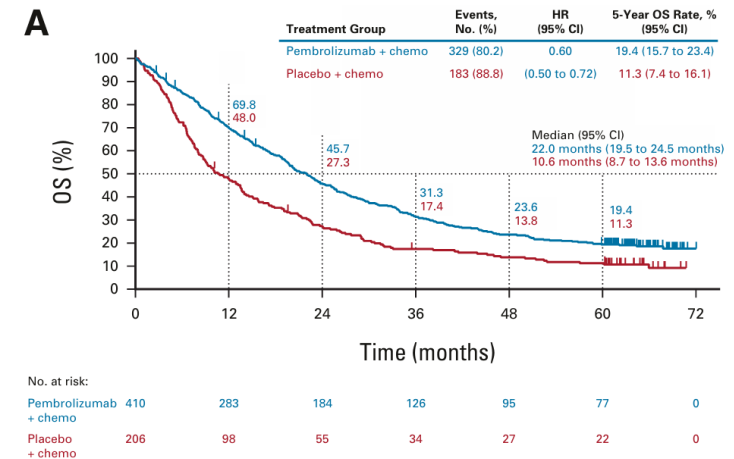


Incidentie longkanker in België

5-year net survival over time



Solomon B et al JCO 2024



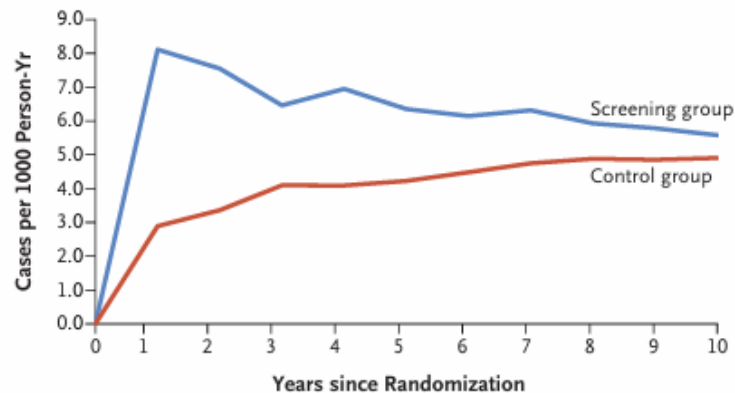
Garassino M et al. JCO 2023



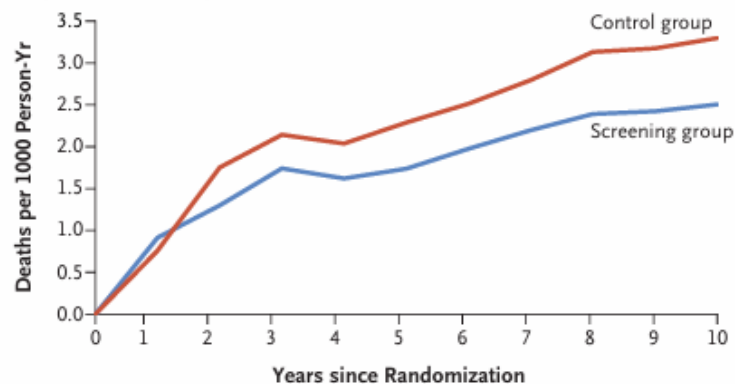
Uit: Belgisch kankerregister

Nelson trial

A Lung-Cancer Incidence



B Lung-Cancer Mortality



Patients: n = 13.195 male, 2594 female, age 50-74 years

Intervention: CT screening at baseline, year 1, year 3 and year 5,5; n = 6583

Comparison: no screening, n = 6612

Outcome:

- referral rate: 2,1%
- 10 year follow-up: incidence of lung cancer: 5,58/1000 versus 4,91/1000
- lung cancer mortality: 2,5 deaths/1000 person-years versus 4,91/1000 person-years

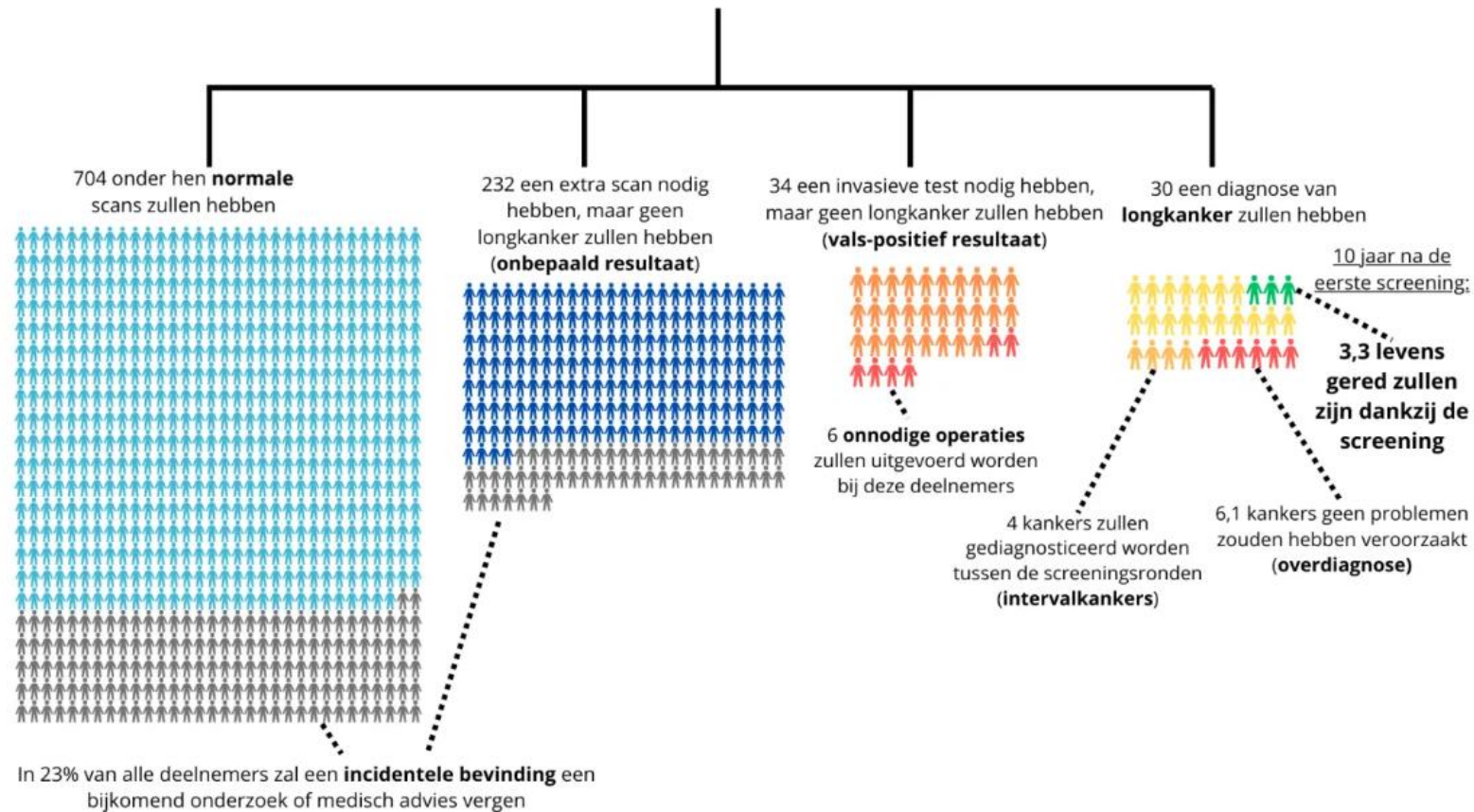


Er gaan steeds meer stemmen op om personen met een hoog risico op longkanker, zoals bv. zware (ex-)rokers, regelmatig te screenen met een CT-scan met lage stralingsdosis. Wanneer de kanker in een vroeg stadium wordt ontdekt, zijn de behandelmogelijkheden en overlevingskansen immers beduidend beter. Aan het Federaal Kenniscentrum voor de Gezondheidszorg (KCE) werd gevraagd om de doeltreffendheid, veiligheid en kosteneffectiviteit van een dergelijke screening te onderzoeken. Longkankerscreening blijkt aanzienlijke voor- en nadelen te hebben, die de overheid en vervolgens de hoogerisicopersonen goed tegenover elkaar moeten afwegen. Longkankerscreening kan kosteneffectief zijn als de bereidheid van de overheid om te betalen zich bevindt boven de €20 000 per gewonnen levensjaar in goede gezondheid.

Uit: <https://kce.fgov.be/nl>

Figuur die de impact weergeeft van een screening van 1000 personen

Er zijn potentiële voor- en nadelen verbonden aan longkankerscreening. Wanneer 1000 hoogrisicopersonen 3 maal gescreend worden, schatten we in dat:



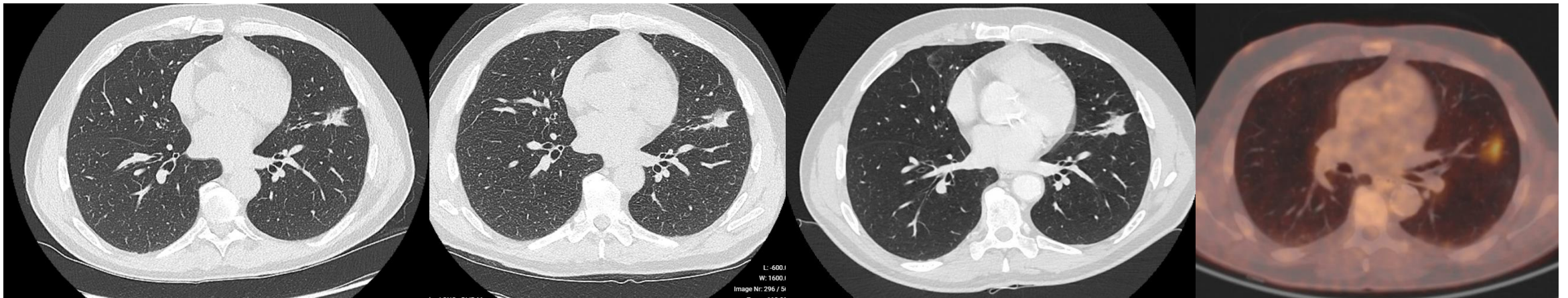
Longkankerscreening: ZORALCS

- Studie voor longkankerscreening:
 - Zuid-Oost Rand Antwerpen: Boechout, Kontich, Lint, Mortsel, Edegem en Hove
 - Langdurig roken of gerookt hebben
 - Tussen 55-74 jaar oud
 - Gratis lage dosis CT scan + ondersteuning bij stoppen met roken

NB sinds 1 maart 2026 is de eerste scanronde van de ZOARLCS studie afgerond.

Longkankerscreening: ZORALCS

Man, 64 jaar, ex-roker 30 pakjaren:



08-2025

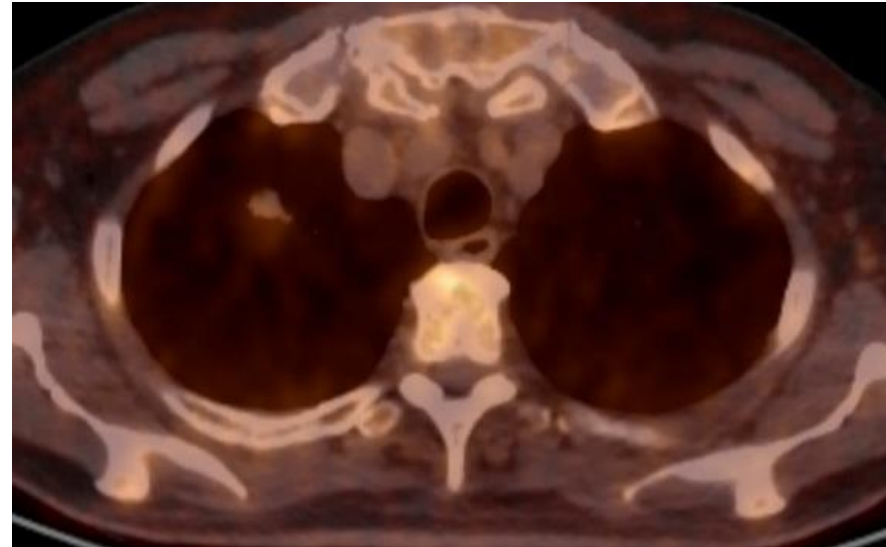
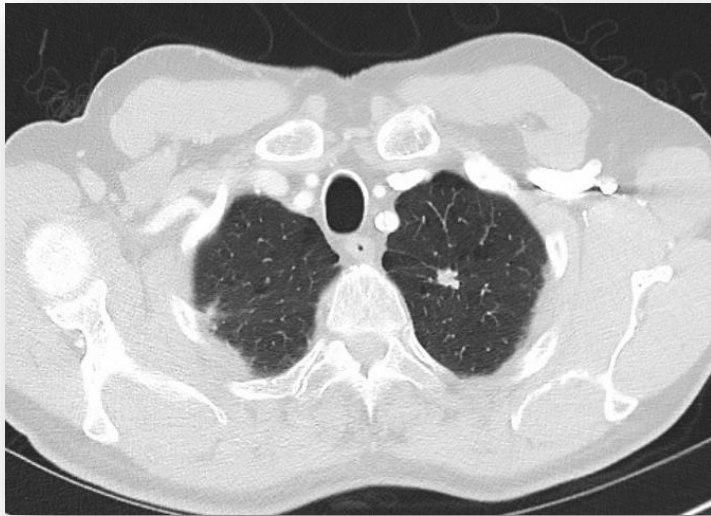
12-2025

03-2026

03-2026

VATS Lobectomie superior: adenocarcinoom pT1bN0

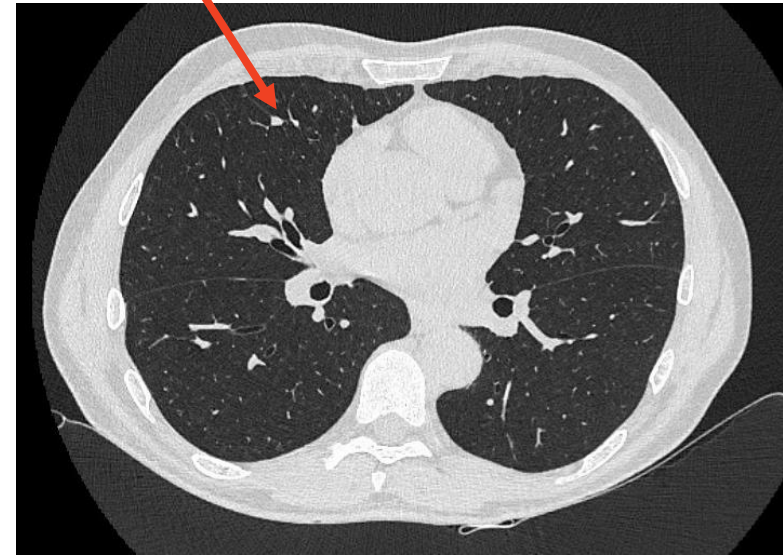
Help, beschrijving van een longnodule?!



STAP I: Karakteristieken van een longnodule



Aanwezigheid van vet en calcificatie = popcorn patroon, suggestief voor granuloma/hamartoma

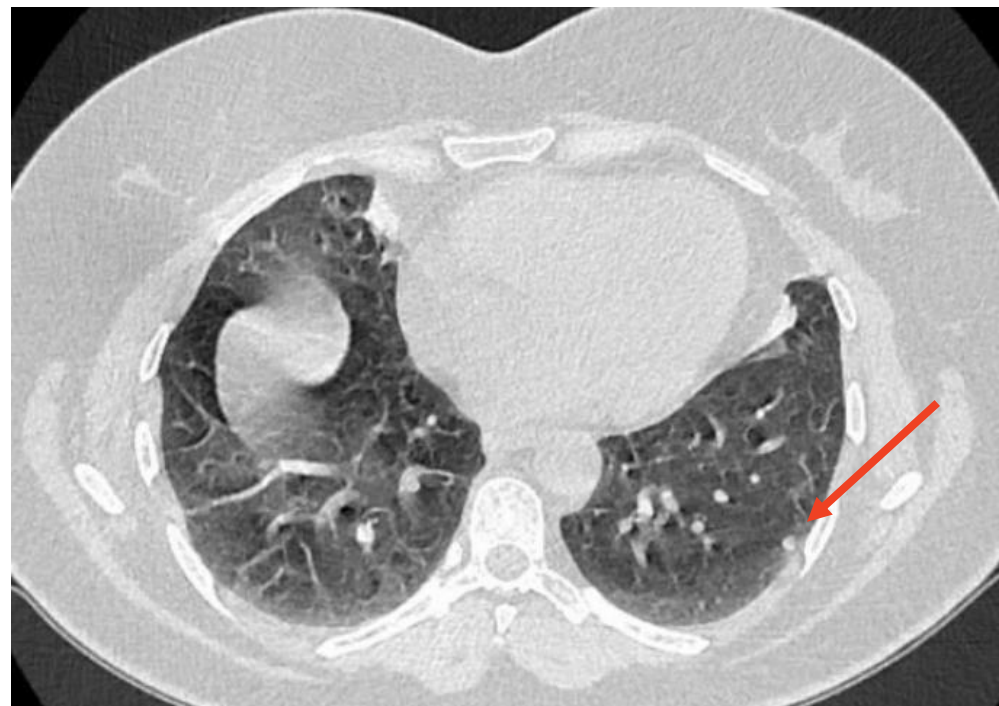


Perifissurale nodule

STAP 2: is er voorgaande beeldvorming?



03-2026



07-2021

STAP 3: Fleischner criteria:

Fleischner Society 2017 Guidelines for Management of Incidentally Detected Pulmonary Nodules in Adults

A: Solid Nodules*

Nodule Type	Size			Comments
	<6 mm (<100 mm ³)	6–8 mm (100–250 mm ³)	>8 mm (>250 mm ³)	
Single				
Low risk [†]	No routine follow-up	CT at 6–12 months, then consider CT at 18–24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Nodules <6 mm do not require routine follow-up in low-risk patients (recommendation 1A).
High risk [†]	Optional CT at 12 months	CT at 6–12 months, then CT at 18–24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Certain patients at high risk with suspicious nodule morphology, upper lobe location, or both may warrant 12-month follow-up (recommendation 1A).
Multiple				
Low risk [†]	No routine follow-up	CT at 3–6 months, then consider CT at 18–24 months	CT at 3–6 months, then consider CT at 18–24 months	Use most suspicious nodule as guide to management. Follow-up intervals may vary according to size and risk (recommendation 2A).
High risk [†]	Optional CT at 12 months	CT at 3–6 months, then at 18–24 months	CT at 3–6 months, then at 18–24 months	Use most suspicious nodule as guide to management. Follow-up intervals may vary according to size and risk (recommendation 2A).

STAP 3: Fleischner criteria

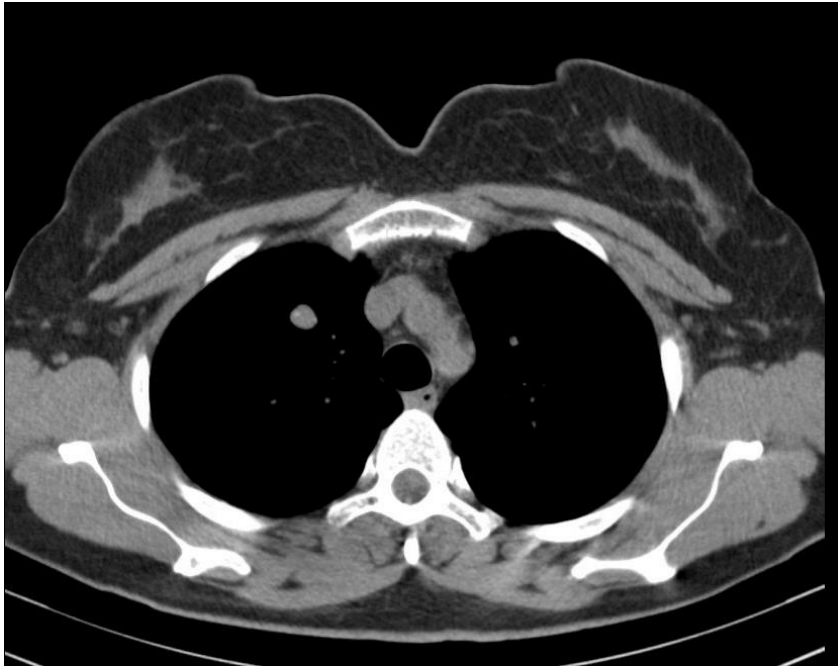
B: Subsolid Nodules*			
Nodule Type	Size		Comments
	<6 mm (<100 mm ³)	≥6 mm (>100 mm ³)	
Single			
Ground glass	No routine follow-up	CT at 6–12 months to confirm persistence, then CT every 2 years until 5 years	In certain suspicious nodules < 6 mm, consider follow-up at 2 and 4 years. If solid component(s) or growth develops, consider resection. (Recommendations 3A and 4A).
Part solid	No routine follow-up	CT at 3–6 months to confirm persistence. If unchanged and solid component remains <6 mm, annual CT should be performed for 5 years.	In practice, part-solid nodules cannot be defined as such until ≥6 mm, and nodules <6 mm do not usually require follow-up. Persistent part-solid nodules with solid components ≥6 mm should be considered highly suspicious (recommendations 4A-4C)
Multiple	CT at 3–6 months. If stable, consider CT at 2 and 4 years.	CT at 3–6 months. Subsequent management based on the most suspicious nodule(s).	Multiple <6 mm pure ground-glass nodules are usually benign, but consider follow-up in selected patients at high risk at 2 and 4 years (recommendation 5A).

STAP 4: Volume doubling time

- Bij solide tumoren: tussen de 100-400 dagen
- Bij subsolide tumoren: tussen de 3-5 jaar
- VDT van <400 dagen of significante groei van >25% dient verder geïnvestigeerd te worden.
- Berekening kan via de volumetrische methode of diametrische methode



STAP 4: Volume doubling time



2013 (1,3cm)

=>



2025 (1,6cm)

Fleischner criteria: risicofactoren:

- Grootte van de nodule
- Morfologie van de nodule:
 - solide, subsolide, matglas
 - Spiculair longletsel, pleurale invasie, vasculaire convergentie, ...
- Lokalisatie in de bovenkwab
- Aantal noduli: verhoogd risico tussen 1 tem 4
- Aanwezigheid van emfyseem of fibrose
- Leeftijd, geslacht, familiaal voorkomen, ras
- Rokers >30 pakjaren +/- rookstop binnen de 15 jaar
- Aanwezigheid van primair neoplasma, niet-pulmonale origine



STAP 4: Brock calculator:

Calculator: Solitary pulmonary nodule malignancy risk in adults (Brock University cancer prediction equation)

Input

Age years

Sex Female (0.6011)
 Male (0)

Family history of lung cancer (0.2961)

Emphysema (0.2953)

Nodule size mm

Nodule type Nonsolid or ground-glass (-0.1276)
 Partially solid (0.377)
 Solid (0)

Nodule in upper lung (0.6581)

Nodule count #

Spiculation (0.7729)



STAP 5: Herder model:

1. Select model:

Herder score

Age: years

Nodule size: mm

Current or former smoker: Yes No

Past history of extra-thoracic cancer: Yes No

Upper lobe tumour location: Yes No

Spiculation: Yes No

FDG-PET uptake: PET unavailable

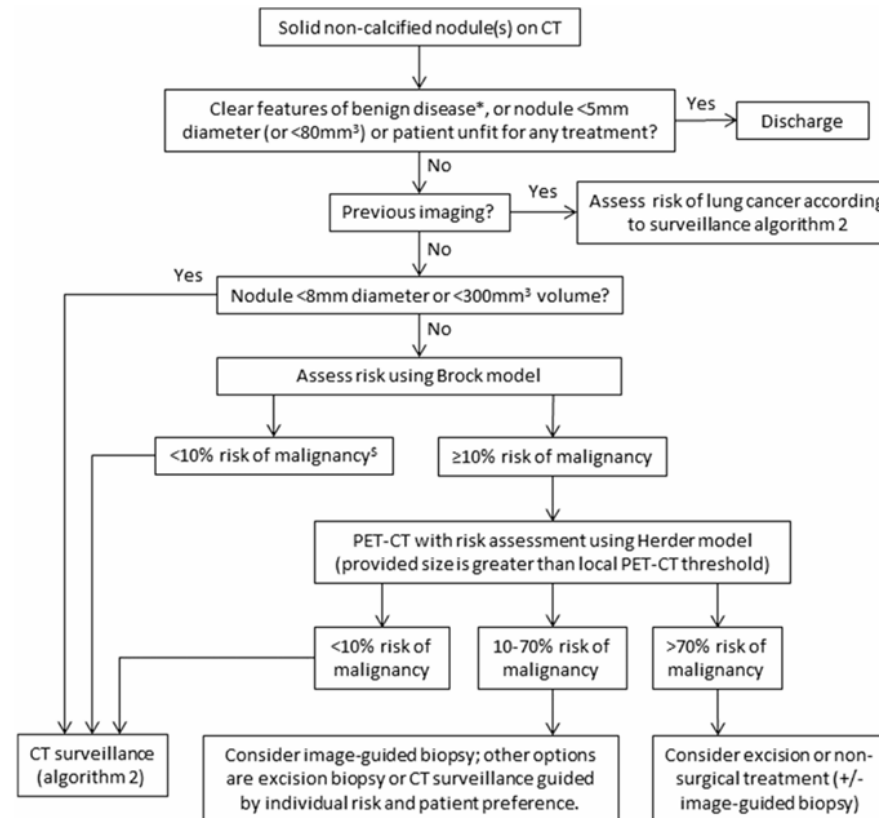
No uptake

Faint uptake

Moderate uptake

Intense uptake

BTS guidelines for the investigation and management of pulmonary nodules.



*e.g. hamartoma, typical peri-fissural nodule

⁵ Consider PET-CT for larger nodules in young patients with low risk by Brock score as this score was developed in screening cohort (50-75 years) so performance in younger patients unproven.

BTS guidelines for the investigation and management of pulmonary nodules.

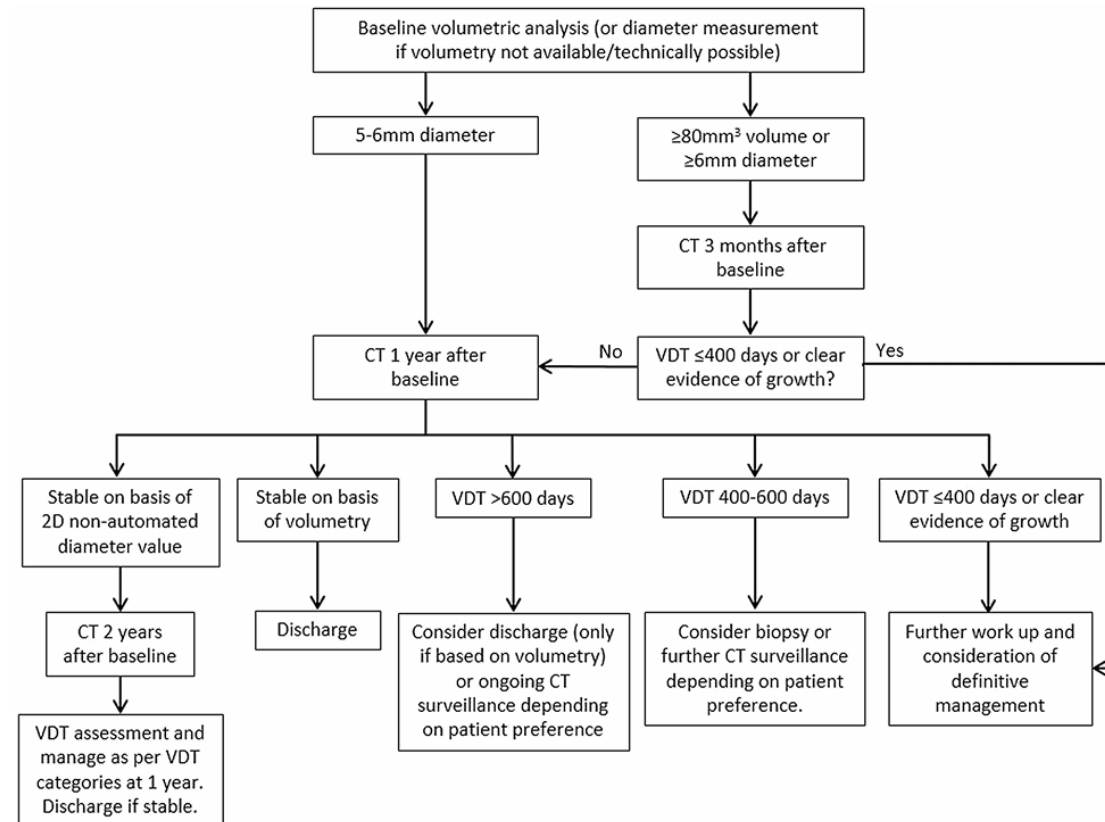
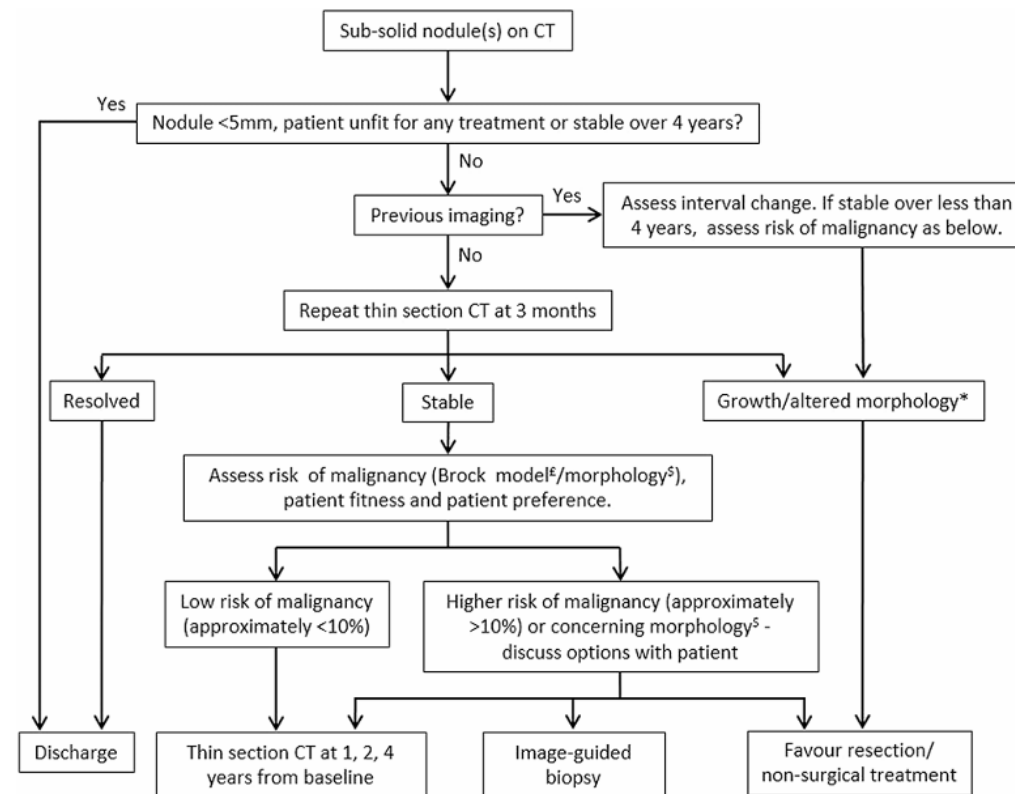


Figure 2 Solid pulmonary nodule surveillance algorithm. VDT, volume doubling time.

BTS guidelines for the investigation and management of pulmonary nodules.



* Change in mass/new solid component

£ Brock model may underestimate risk of malignancy in SSN that persist at 3 months

§ Size of the solid component in PSN, pleural indentation and bubble-like appearance

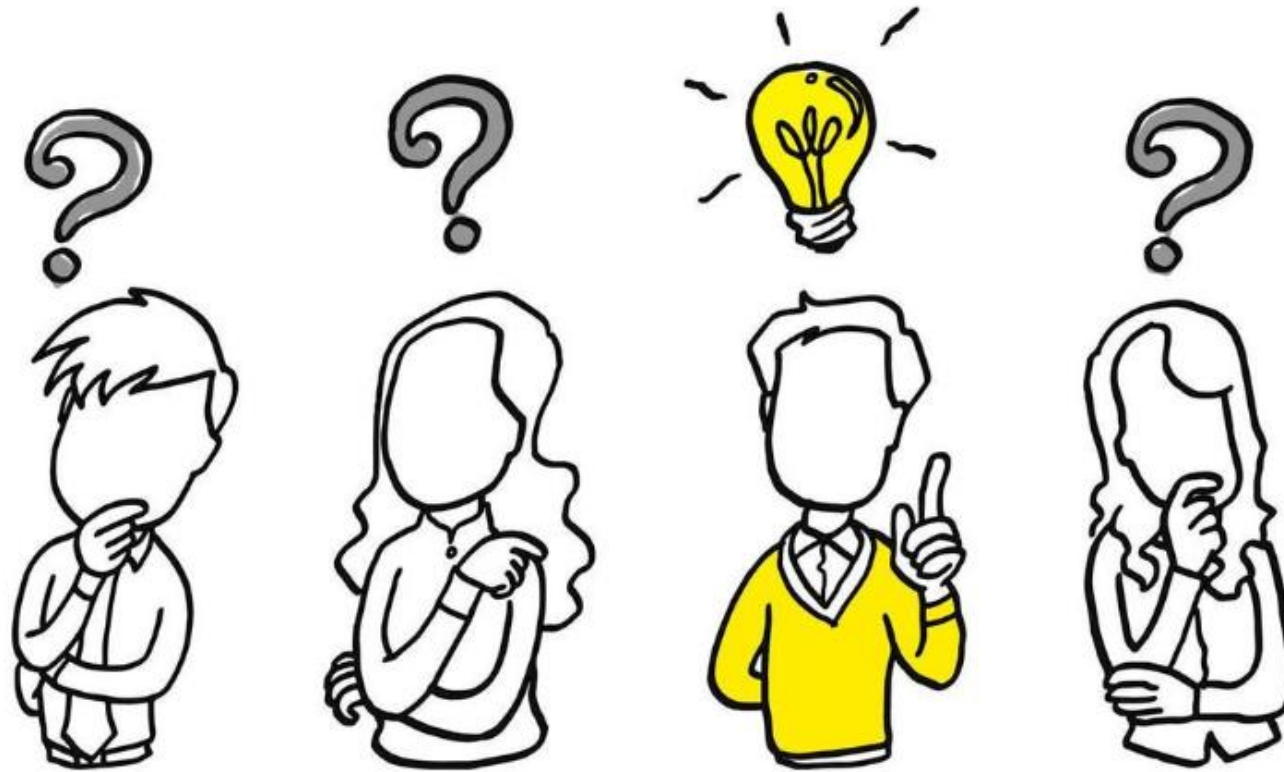
Figure 3 Sub-solid pulmonary nodules algorithm. PSNs, part solid nodules; SSN, sub-solid nodules.

Uitwerking bij vermoeden van longcarcinoom:

Table 1. Work-up for diagnosis and staging		
	Mandatory	Optional
General	Medical history Physical examination Assess comorbidities, weight loss and PS	
Imaging	FDG–PET and contrast-enhanced CT Brain MRI (for clinical stage II-III)	Contrast-enhanced brain CT if MRI not possible
Laboratory	CBC Chemistry profile	
Preoperative cardiopulmonary evaluation	FEV ₁ DLCO CPET	
Tissue acquisition	Bronchoscopy EBUS or EUS CT-guided biopsy US-guided biopsy	Mediastinoscopy
Pathology	TTF-1 IHC staining p40 IHC staining EGFR molecular testing ALK molecular testing PD-L1 testing	

CBC, complete blood count; CPET, cardiopulmonary exercise testing; CT, computed tomography; DLCO, diffusing lung capacity for carbon monoxide; EBUS, endobronchial ultrasound; EUS, endoscopic ultrasound; FDG, [¹⁸F]2-fluoro-2-deoxy-D-glucose; FEV₁, forced expiratory volume in the first second; IHC, immunohistochemistry; MRI, magnetic resonance imaging; NSCLC, non-small-cell lung cancer; PD-L1, programmed death-ligand 1; PET, positron emission tomography; PS, performance status; TTF-1, thyroid transcription factor 1; US, ultrasound.

Help: ik weet het even niet?!



Contactgegevens: HERODI-dagziekenhuis



Nieuw oncologisch dagziekenhuis voor hematologie, respiratoir oncologie en digestief oncologie, open sinds 01-2026

Locatie: ZAS Augustinus

Bereikbaarheid:

- Route 241
- 03/443.35.07

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