

Appendix 3 Specification of included medication codes

STOPP criterion A3 *Loop diuretics as a first-line therapy for hypertension*

C02 anti-hypertensives *	C03 Diuretics (excl loop diuretics)
C02AC01 = clonidine C02LC01 = “, + diuretics C02LC51 = “, + diuretics + other drugs C02AC05 = moxonidine C02LC05 = “, + diuretics C02AB = methyldopa C02LB01 = “, + diuretics C02CA04 = doxazosin C02CA06 = urapidil C02DB02 = hydralazine C02LG02 = “, + diuretics C02DB01 = dihydralazine C02LG01 = “ + diuretics C02LG51 = “ + diuretics + combinations with other drugs C02DC01 = minoxidil C02KD01 = ketanserin C02LN = “, + diuretics C02N = combinations of antihypertensives in ATC-gr. C02	C03A = low-ceiling diuretics, thiazides C03B = low-ceiling diuretics, excl thiazides C03D = potassium sparing agents C03E = “, + diuretics in combination C03X = other diuretics
C07 = all beta- blockers	C08 =all Calcium channel blockers
C09 = all ACE-inhibitors + AT_{II}-antagonists	

* Included are those anti-hypertensives from group C02 which have an indication for essential hypertension and available in the Netherlands. The reason for no complete inclusion of the C02 group is the fact that, for example bosentan (C02KX01) has only an indication for pulmonary hypertension and not for essential hypertension, it would therefore be an incorrect inclusion.

References:

1. Dutch pharmacotherapeutic database (www.fk.cvz.nl)
2. www.who.org ATC/DDD index

STOPP criterion A4 *thiazide diuretic with a history of gout*

Thiazide diuretic and combinations *	
C03EA01 = triamtereen/hydrochlorothiazide	C09DA01 = losartan/hydrochlorothiazide
C03EA01 = amiloride/hydrochlorothiazide	C09DA02 = eprosartan/hydrochlorothiazide
C07BB02 = metoprolol/hydrochlorothiazide	C09DA03 = valsartan/hydrochlorothiazide
C07BB07 = bisoprolol/hydrochlorothiazide	C09DA04 = irbesartan/hydrochlorothiazide
C09BA01 = captopril/hydrochlorothiazide	C09DA06 = candesartan/hydrochlorothiazide
C09BA02 = enalapril/hydrochlorothiazide	C09DA07 = telmisartan/hydrochlorothiazide
C09BA03 = lisinopril/hydrochlorothiazide	C09DA08 = olmesartan/hydrochlorothiazide
C09BA05 = ramipril/hydrochlorothiazide	C09DX01 = amlodipine/valsartan/hydrochlorothiazide
C09BA06 = quinapril/hydrochlorothiazide	C09DX03 = olmesartan/amlodipine/hydrochlorothiazide
C09BA09 = fosinopril/hydrochlorothiazide	C09XA52 = aliskiren/hydrochlorothiazide
	C03AA03 = hydrochlorothiazide

* Included are those thiazide diuretics and combinations available in the Netherlands. The reason for this is the fact that the WHO ATC database refers to combinations without a specification of the combination. For example C09DA06 = candesartan + diuretics according to the WHO database, according to the Dutch pharmacotherapeutic database C09DA06 = candesartan/hydrochlorothiazide. Because in this STOPP criterion we only want to include the thiazide diuretics (to minimize the false positive alerts) Therefore we followed in this criterion the Dutch database en could only include those available in the Netherlands.

References:

1. Dutch pharmacotherapeutic database (www.fk.cvz.nl)
2. www.who.org ATC/DDD index

STOPP criterion B7 *Long-term (> 1 month) long-acting benzodiazepines.*

Long-acting benzodiazepines	Elimination half-life (hrs)
N05BA08 bromazepam	15-22
N05BA02 chlordiazepoxide	5-30 (42-100)*
N05BA09 clobazam	18 (42)*
N05BA05 clorazepate	2-3 (42-100)*
N05BA01 diazepam	20-48 (42-100)*
N05CD01 flurazepam	47-100
N05CD02 nitrazepam	18-34
N05CD03 flunitrazepam	16-35
N05BA11 prazepam	42-100

*In parenthesis the elimination half-life of active metabolites

Decided was to consider benzodiazepines as long acting if they have a half of life of 15 hours or more.

References:

- 1) Dutch pharmacotherapeutic database (www.fk.cvz.nl)
- 2) Gray SL, LaCroix AZ, Hanlon JT *et al.* Benzodiazepine use and physical disability in community-dwelling older adults. J Am Geriatr Soc 2006; 54: 224-230

3) www.who.org ATC/DDD index

STOPP criterion B13 *Classic antihistamines during > 1 week.*

In the Netherlands the list of classic antihistamines is the following, plus the antihistamines particularly named in the Irish version. (diphenhydramine, chlorpheniramine, cyclizine, promethazine)

Classic antihistamines (= First-generation histamines / sedating antihistamines)	
R06AA02 = diphenhydramine	R06AE03 = cyclizine
R06AA52 = “, combinations	R06AE53 = “, combinations
R06AA04 = clemastine	R06AE04 = chlorcyclizine
R06AA54 = “, combinations	R06AE05 = meclozine
R06AB02 = dexchlorpheniramine	R06AE05 = “, combinations.
R06AB52 = “, combinations	R06AE06 = oxatomide
R06AB03 = dimetindene	R06AX02 = cyproheptadine
R06AB04 = chlorphenamine	R06AX15 = mebhydrolin
R06AB54 = “, combinations	R06AX17 = ketotifen
R06AC04 = tripelennamine	N05BB01 = hydroxyzine
R06AD01 = alimemazine	N05BB51 = “, combinations
R06AD02 = promethazine	N07CA02 = cinnarizine
R06AD52 = “, combinations	N07CA52 = “, combinations
R06AD08 = oxomemazine	

References:

- 1) Dutch pharmacotherapeutic database (www.fk.cvz.nl)
- 2) www.drugbank.ca
- 3) www.who.org ATC/DDD index
- 4) Dutch informatorium medicamentorum

STOPP criterion E1 *NSAID with moderate-severe hypertension*

M01AX (other anti-inflammatory and anti-rheumatic agents, non-steroids) is not included as complete group because for example M01AX26 stands for soyabean oil. Nabumetone is the only one available in the Netherlands and therefore included. The other NSAID's are included as a complete group, including those not available in the Netherlands. This results in the following table.

NSAID's included
M01AA = butylpyrazolidines
M01AB = acetic acid derivatives and related substances
M01AC = oxicams
M01AE = propionic acid derivates
M01AG = fenamates
M01AH = coxibs
M01AX01 = nabumetone
N02BA = salicylic acid and derivates (analgesics)

References:

1. Dutch pharmacotherapeutic database (www.fk.cvz.nl)

2. www.who.org ATC/DDD index
3. www.drugbank.ca

STOPP criterion F5 *selective alpha1-blockers in men with one or more episodes of incontinence daily.*

Selective alpha-1-receptor blockers
G04CA01 = alfuzosin
G04CA02 = tamsulosin
G04CA03 = terazosin
G04CA04 = silodosin
G04CA51 = alfuzosin/finasteride
G04CA52 = tamsulosin/dutasteride
G04CA53 = tamsulosin/solifenacin
C02CA04 = doxazosin *
C02CA06 = urapidil *
C02KD01 = ketanserine*

Group G04CA = alpha-1 receptor antagonists (indication benign prostatic hypertrophy)

* = selective alpha-1 receptor antagonists (indication hypertension)

References:

1. Dutch pharmacotherapeutic database (www.fk.cvz.nl)
2. www.who.org ATC/DDD index
3. Dutch multidisciplinary guideline Polypharmacy in the elderly. NHG 2012
4. www.drugbank.ca

STOPP criterion G3+ G4 *Oestrogens with a history of breast cancer or venous thrombo-embolism. +*

STOPP criterion G5 *Oestrogens without progestogen in patients with a intact uterus.*

Oestrogens
G03AA = progestogens and estrogens; fixed combinations
G03AB = progestogens and estrogens; sequential preparations
G03C = estrogens
G03EA = androgens and estrogens
G03EB = androgens, progestogens and estrogens
G03F = progestogens and estrogens
G03HB = anti-androgens and estrogens
L02AA = estrogens (antineoplastic and immunomodulating agents)
G03XC01= raloxifene *
G03XC02= bazedoxifene*

* selective estrogen receptor modulators (estrogen agonistic effect on bone and cholesterol, complete estrogen antagonist effect on mammary gland and uterine tissue) therefore not included in criterion G3(breastcancer) but included in criterion G4. (venous thrombo-embolism) Although there is an antagonistic effect on the uterine tissue, raloxifene and bazedoxifene are contraindicated for endometrium carcinoma because of the lack of safety evidence. Therefore they are both included for criterion G5.

Progestogens
G03A = progestogens (hormonal contraceptives for systemic use)
G03D = progestogens
G03EB = androgens, progestogens and estrogens
G03F = progestogens and estrogens
G02BA03 = plastic IUD with progestogen
G02BB01 = vaginal ring with progestogen and estrogen
L02AB = progestogens (antineoplastic and immunomodulating agents)

References:

1. Dutch pharmacotherapeutic database (www.fk.cvz.nl)
2. www.who.org ATC/DDD index
3. www.drugbank.ca

STOPP criterion H5 *Vasodilator drugs with a history of postural hypotension*

Vasodilator drugs. *	
<i>Selective alpha-1-receptorblockers</i>	<i>Direct vasodilators</i>
G04CA01 = alfuzosin G04CA02 = tamsulosin G04CA03 = terazosin G04CA04 = silodosin G04CA51 = alfuzosin/finasteride G04CA52 = tamsulosin/dutasteride G04CA53 = tamsulosin/solifenacin C02CA04 = doxazosin C02CA06 = urapidil C02KD01 = ketanserine	C02DB01 = dihydralazine C02LG01 = " + diuretics C02LG51 = " + diuretics + combinations with other drugs C02DB02 = hydralazine C02LG02 = " + diuretics C02DC01 = minoxidil
<i>AT₁-antagonists</i>	<i>ACE-inhibitors</i>
C09C = AT ₁ -antagonists C09D = AT ₁ -antagonists + combinations	C09A = ACE-inhibitor C09B = ACE-inhibitor + combinations
C08 = <i>Calcium channel blockers (CCB)</i>	

* C04 = peripheral vasodilators are not included.

* C01DA = organic nitrates; nitrates are also (strong) vasodilators, but should not be included in this particular criterion. The indication for nitrates ((acute)angina pectoris and (acute) heartfailure) outweighs the risk of postural hypotension and is therefore excluded.

References:

- 1) Dutch pharmacotherapeutic database (www.fk.cvz.nl)
- 2) Dutch multidisciplinary guideline Polypharmacy in the elderly. NHG 2012
- 3) www.who.org ATC/DDD index