

DARF = Renal Adjustment in Renal Failure

The **Q₀ value** represents the fraction of a drug that is excreted by extrarenal elimination when renal function is normal.

Drugs are eliminated renal and extrarenal in different percentage rates, so the Q₀ values vary. The more the kidney eliminates of a drug the more this drug accumulates in case of renal failure.

Note:

- If there is no renal elimination for a specific drug: Q₀ = 1.
- 1-Q₀ is the fraction that is eliminated by the kidney.
- The higher Q₀, the less you have to adjust the dose.
- (Q₀) in brackets is used for the active metabolite (see table).

Individual elimination capacity Q

The **Q value** enables the calculation of a dose adjustment in patients suffering from renal insufficiency (Dettli equation):

$$Q = Q_0 + (1 - Q_0) \times \text{eGFR}/100\text{ml/min}$$

2 DARF – Introduction

DARF = Renal Adjustment in Renal Failure

In order to judge the individual renal function, you have to find out the glomerular filtration rate (GFR), which is closely correlated with creatinine clearance. You can also estimate the GFR (→ eGFR) with the Levey equation, that includes age, serum creatinine, gender, and race factoring:

eGFR = 186 x crea x age x (0.742 if female) x (1.210 if African American)

A dose adjustment may be obtained either by lowering the maintenance dose or by prolonging the dosage interval:

Maintenance dose RI / dosage interval RI = Q x (maintenance dose KH / dosage interval KH).

RI: for patient with renal insufficiency; KH for a patient with healthy kidneys.
This equation should not be used for antibiotics with a low Q0-value.

Drug	Q0	DARF
Alfentanil	1.0	
Alfuzosin	0.9	not req
Aliskiren		caution advised in severe RF
Allopurinol	0.8 (0.1)	GFR: 10–20: 200mg/d, < 10: 100mg/d
Almotriptan		ini 6.25mg, max 12.5mg/24h
Alprazolam	> 0.7	
Alteplase	1.0	
Aluminium + Magnesium Hydroxide		req in severe RF
Aluminium Hydroxide		req in severe RF
Amantadine	0.1	ini 200mg, then GFR 50: normal dose 30–50: 100mg q d, 15–29: 100mg q d, < 15: 200mg q 7d

6 Amikacin – Amoxicillin

Drug	Q0	DARF
Amikacin	0.02	GFR > 50: 60–90% q 12h, 10–50: 30–70% q 12–18h, < 10: 20–30% q 24–48h
Amiloride	0.25	
Aminocaproic Acid		Suggested
Aminoglutethimide	0.9	
Amiodarone	1.0	not req
Amitriptyline	1.0	not req
Amlodipine	0.85	not req
Amlodipine + Benazepril		GFR > 30: 100%, < 30: not rec
Amoxicillin	0.12	GFR < 10: 250–500mg PO q 24h
Amoxicillin + Clavulanate		GFR: 10–30: 250–500 + 125mg q 12h; < 10: 250–500 + 125mg PO q 24h

Amphotericin B – Ascorbic Acid 7

Drug	Q0	DARF
Amphotericin B	0.95	GFR > 50: 100% q 24h, 10–50: 100% q 24h, <10: 100% q 24–36h
Ampicillin	0.1	GFR > 50: q 6h, 10–50: q 6–12h, < 10: q 12–16h
Ampicillin + Sulbactam		GFR: > 30: q 6–8h; 15–29: q 12h; 5–14: q 24h
Anidulafungin		not req
Apomorphine		ini 1mg
Aprepitant		not req
Arformoterol		not req
Argatroban		not req
Aripiprazole		not req
Ascorbic Acid (Vit. C)	0.3	