Quick Reference Tool: Anticancer Drug Dosing in Kidney Dysfunction (ADDIKD)

Use $eGFR_{CKD\text{-}EPI}$ to guide the assessment of kidney function, except when a directly measured glomerular filtration rate is clinically necessary

Where the anticancer drug dose is dependent on kidney function, use $eGFR_{CKD\text{-}EPI}$ to guide dosing, except in speci ic clinical circumstances or in a select group of anticancer drugs (carboplatin, cisplatin, methotrexate ≥ 500 mg/m^2)

Use the internationally accepted KDIGO chronic kidney disease categories to guide stepwise dose adjustments of anticancer drugs in kidney dysfunction and for monitoring of drug-related adverse events

$eGFR_{CKD\text{-}EPI}$ is a more accurate and precise estimation of directly measured glomerular filtration rate (mGFR) than other estimation methods of kidney function. $eGFR_{CKD\text{-}EPI}$ is reported automatically in pathology results, accounts for creatinine assay standardisation, and aligns with international nephrology recommendations.

Directly mGFR is preferred to guide the initial dose of anticancer drugs whose dose is dependent on kidney function where patients are of extremes of body size or muscle mass, amputees, persons with paraplegia or conditions of skeletal muscle.

Body surface area (BSA)-adjusted $eGFR_{CKD\text{-}EPI}$ is a suitable alternative to directly mGFR for use in the Calvert formula when dosing carboplatin, especially where eGFR 45 -125 mL/min/1.73 m^2, treatment intent is non-curative and patients are neither amputees, paraplegics or have conditions of skeletal muscle and is without extremes of body size or muscle mass. See eviQ's online calculators for $eGFR_{CKD\text{-}EPI}$ and dosing carboplatin using BSA-adjusted $eGFR_{CKD\text{-}EPI}$

Drug Specific Recommendations

These are proposed doses under specific circumstances (see ADDIKD guideline for individual drug details)

✓	Full dose
👁	Full dose with monitoring for adverse events
⚠	Dose reduction and/or alternative protocol and/or full dose in certain situations
C	Target AUC using Calvert formula
✕	Avoid and consider an alternative protocol
🚻	Consult a multidisciplinary team consisting of oncology/haematology with nephrology and/or clinical pharmacology for the management of dosing
●	Recommended (strength of statement is strong and most patients should receive the recommended course of action)
◐	Suggested (strength of statement is conditional as different choices will be appropriate for different patients)

Anticancer drug dose recommendations in kidney dysfunction

Drug	Strength of statement	eGFR (mL/min/1.73 m²)				
		45–59	30–44	15–29	< 15 (without KRT)	KRT
Azacitidine	◐	✓	✓	👁	🚻	🚻
Bendamustine	◐	✓	✓	👁	👁	🚻
Bevacizumab	◐	👁	👁	👁	👁	🚻
Bleomycin	●	👁	⚠	⚠	✕	🚻
Bortezomib	◐	✓	✓	👁	👁	🚻
Cabazitaxel	●	✓	✓	✓	👁	🚻
Capecitabine	●	⚠	⚠	✕	✕	🚻
Carboplatin	◐	C	C	C	🚻	🚻
Cetuximab	●	✓	✓	✓	✓	🚻
Chlorambucil	●	✓	👁	👁	🚻	🚻
Cisplatin	●	⚠	✕	✕	✕	🚻
Cyclophosphamide	◐	✓	✓	⚠	🚻	🚻
Cytarabine (< 1000 mg/m²)	◐	✓	✓	✓	✓	🚻
Cytarabine (≥ 1000 mg/m²)	◐	⚠	⚠	✕	✕	🚻
Dabrafenib	●	✓	✓	✓	🚻	🚻
Dacarbazine	◐	✓	✓	⚠	🚻	🚻
Dactinomycin	◐	👁	👁	👁	🚻	🚻
Daunorubicin *(including liposomal daunorubicin)*	◐	👁	👁	⚠	🚻	🚻
Docetaxel	●	✓	✓	✓	✓	🚻
Doxorubicin	●	✓	✓	✓	✓	🚻
Doxorubicin *(pegylated liposomal)*	◐	✓	✓	👁	🚻	🚻
Durvalumab	◐	✓	✓	✓	✓	🚻
Epirubicin	●	✓	✓	✓	🚻	🚻
Etoposide *(including etoposide phosphate)*	●	👁	⚠	⚠	🚻	🚻
Everolimus	◐	👁	👁	👁	🚻	🚻

Fludarabine	●	⚠	⚠	✕	✕	
Fluorouracil	◐	⚠	⚠	⚠		
Gemcitabine	◐	👁	👁	👁		
Idarubicin	◐	✓	✓	⚠		
Ifosfamide	◐	👁	⚠	⚠		
Irinotecan	◐	👁	👁	⚠		
Lenalidomide	●	⚠	⚠	⚠	⚠	
Melphalan	◐	⚠	⚠	⚠		
Mercaptopurine	◐	⚠	⚠	⚠		
Methotrexate	●	⚠	⚠	✕	✕	
Mitomycin	◐	👁	👁	✕	✕	
Nivolumab	●	✓	✓	✓	✓	
Obinutuzumab	●	👁	👁	⚠		
Oxaliplatin	◐	✓	✓	⚠		
Paclitaxel	●	✓	✓	✓	👁	
Paclitaxel (nab)	◐	✓	✓	👁		
Panitumumab	●	✓	✓	✓	✓	
Pembrolizumab	●	✓	✓	✓	✓	
Pemetrexed	◐	👁	⚠	✕	✕	
Pertuzumab	◐	✓	✓	✓	✓	
Procarbazine	◐	✓	⚠	⚠		
Raltitrexed	●	⚠	⚠	✕	✕	
Rituximab	◐	✓	✓	✓	✓	
Temozolomide	◐	✓	✓	👁		
Thalidomide	●	✓	✓	👁	👁	
Thiotepa	◐	👁	👁	👁		
Topotecan	●	⚠	⚠	✕	✕	
Trastuzumab	◐	✓	✓	✓	✓	
Trastuzumab emtansine	◐	✓	✓	✓	✓	
Venetoclax	●	👁	👁	⚠	⚠	
Vinblastine	●	✓	✓	✓	✓	
Vincristine	●	✓	✓	✓	✓	
Vindesine	●	✓	✓	✓	✓	
Vinflunine	◐	⚠	⚠	⚠		
Vinorelbine	●	✓	✓	✓	✓	

Abbreviations: eGFR, estimated glomerular filtration rate via the Chronic Kidney Disease – Epidemiology Collaboration equation; KRT, kidney replacement therapy; nab, nanoparticle albumin-bound.

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