Table 1. Properties and licensed indications of NOACs

	Dabigatran	Rivaroxaban	Apixaban	Edoxaban
Mechanism of action	**Direct thrombin inhibitor**	**Factor Xa inhibitor**	**Factor Xa inhibitor**	**Factor Xa inhibitor**
T_{max}	2 hours	2–4 hours	1–4 hours	1–2 hours
Elimination half-life	12–17 hours	5–9 hours (young) 11–13 hours (elderly)	12 hours	10–14 hours
P-gp re-secretion	Yes	Yes	Yes	Yes
CYP3A4 metabolised	No	Yes	Yes	Minimal
Renal excretion	Up to 80 %	66 %	25 %	35 %
Plasma protein binding	35 %	>90 %	>90 %	>90 %
Intake with food required	No	Mandatory	No	No
Hepatic impairment	Not recommended in patients with elevated liver enzymes (>2×ULN)	Contraindicated in hepatic disease associated with coagulopathy and clinically relevant bleeding risk, including cirrhotic patients classified as Child-Pugh B and C.	Contraindicated in hepatic disease associated with coagulopathy and clinically relevant bleeding risk; not recommended severe hepatic impairment (Child-Pugh C); use with caution in patients with mild (Child-Pugh A) or moderate (Child-Pugh B) hepatic impairment or in patients with elevated liver enzymes (>2×ULN)	Contraindicated in patients with hepatic disease associated with coagulopathy and clinically relevant bleeding risk; not recommended In patients with severe hepatic impairment; use with caution in patients with mild to moderate hepatic impairment and patients with elevated liver enzymes (>2×ULN)
Antidote available	Yes	No	No	No
NICE approved indications and doses				
NVAF	150 mg bd, 110 mg bd[1]	20 mg od[2]	5 mg bd[3]	60 mg od[3]
VTE treatment and secondary prevention	150 mg bd (following ≥5d LMWH)	15 mg bd (initial 21 days), 20 mg od after 21 days	10 mg bd (initial 7 days), 5 mg bd (up to 6 months); 2.5 mg bd after 6 months)	60 mg od (following ≥5 days LMWH)
Prevention of VTE after elective hip or knee replacement	150 mg od	10 mg od	2.5 mg bd	Not licensed
ACS	Not licensed	2.5 mg od	Not licensed	Not licensed

[1]Dabigatran 110 mg bd dose in NVAF where ≥80 years; consider where CrCl 30–49 mL/min
[2]Dose reduction rivaroxaban in NVAF: 15 mg od where CrCl 30-49 mL/min
[3]Dose reduction apixaban in NVAF: 2.5 mg bd where CrCl 15–29 mL/min or where two of serum creatinine ≥1.5 mg/dL, age ≥80 years, body weight ≤60kg
[4]Dose reduction edoxaban in NVAF and VTE: 30 mg od where one of CrCl 15–49 mL/min, body weight ≤60kg, concomitant use of cyclosporin, dronedarone, erythromycin or ketoconazole

ACS = acute coronary syndrome; bd = twice per day; CrCl = creatinine clearance; LMWH = low molecular weight heparin; NICE = National Institute for Health and Care Excellence; NOAC = non-vitamin K oral anticoagulant; NVAF = non-valvular atrial fibrillation; od = once daily; P-gp = P glycoprotein; T_{max} = time to peak level post ingestion; ULN = upper limit of normal; VTE = venous thromboembolism