

# Improving DOAC safety AF WAY Project

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# AF WAY: Detect, Perfect, Protect

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# Background

- 2020 increased use in DOACs
- Leeds audit 2022
- Highlighted inaccuracies in DOAC dosing and monitoring



# DOAC safety


> Am J Cardiol. 2021 Apr 1;144:52-59. doi: 10.1016/j.amjcard.2020.12.062. Epub 2020 Dec 29.

## Inappropriate Dosing of Direct Oral Anticoagulants in Patients with Atrial Fibrillation



Alan Sugrue <sup>1</sup>, David Sanborn <sup>2</sup>, Mustapha Amin <sup>1</sup>, Medhat Farwati <sup>1</sup>, Haarini Sridhar <sup>1</sup>, Azza Ahmed <sup>1</sup>, Ramila Mehta <sup>1</sup>, Konstantinos C Siontis <sup>1</sup>, Siva K Mulpuru <sup>1</sup>, Abhishek J Deshmukh <sup>1</sup>, Bernard J Gersh <sup>1</sup>, Samuel J Asirvatham <sup>1</sup>, Malini Madhavan <sup>3</sup>

### Rates of Potentially Inappropriate Dosing of Direct-Acting Oral Anticoagulants and Associations With Geriatric Conditions Among Older Patients With Atrial Fibrillation: The SAGE-AF Study

Saket Sanghai , Cecillia Wong, Ziyue Wang, Pia Clive, Wenisa Tran, Molly Waring, Robert Goldberg, Robert Hayward, Jane S. Saczynski and David D. McManus

Originally published 9 Mar 2020 | <https://doi.org/10.1161/JAHA.119.014108> | Journal of the American Heart Association. 2020;9:e014108

## Direct-acting oral anticoagulants (DOACs): reminder of bleeding risk, including availability of reversal agents

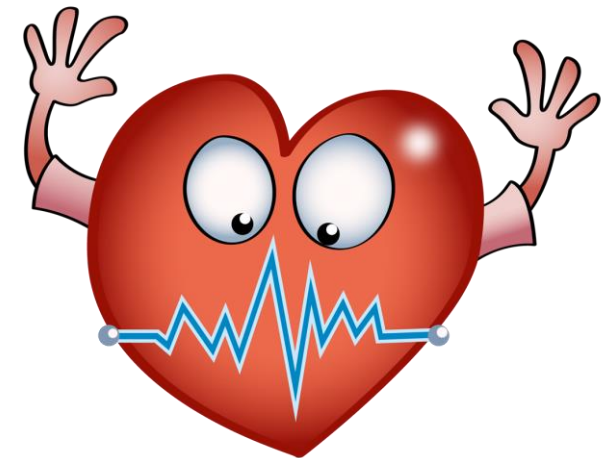
Remain vigilant for signs and symptoms of bleeding complications during treatment with DOACs (apixaban, dabigatran, edoxaban, rivaroxaban), especially in patients with increased bleeding risks. Specific reversal agents are available for dabigatran (Praxbind ▼, idarucizumab), and apixaban and rivaroxaban (Ondexxya ▼, andexanet alfa).

## Leeds data:

**9-11%** on incorrect dose  
**55-60%** not being monitored appropriately

# AF WAY Project

- Project to detect, protect and perfect treatment for those who could benefit from life-saving anticoagulation
- [Atrial fibrillation \(AF\) - information for professionals :: West Yorkshire Health & Care Partnership \(wypartnership.co.uk\)](#)
- [Home \(mydiagnostick.com\)](#)



# AF Way Purpose

In Jan 2024 West Yorkshire Integrated Care Board (WY ICB) began the West Yorkshire Atrial Fibrillation (AF) project – AF WAY.



Develop and roll out model of integrated care for anticoagulation in AF



Upskill workforce



Increase rates of anticoagulation prescribing for AF



Reduce dosing errors



# Methods



Deliver training



Staff engagement



Develop and deliver a virtual advice service



Explore and expand advice and guidance provision



Further develop and roll out DOAC dosing tool



# Innovative collaboration



Multi-organisation  
collaboration



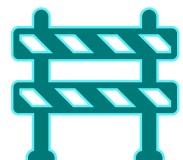
Sharing local area and  
sector knowledge



Theory of change



Skill mix optimisation



Understanding of barriers





# Flexible approach

- Webinars
- Face to face training session
  - Local data
- One to one help with DOAC Tool
- Collaboration with other specialities (Renal/Frailty)
- Using connections
- Responding to training evaluation
- Feedback to PCNs



# Webinars

- [Atrial fibrillation \(AF\) - information for professionals : West Yorkshire Health & Care Partnership \(wypartnership.co.uk\)](http://wypartnership.co.uk)
- Phase 1 webinars:-
  - Update DOAC choice, safe prescribing and DOAC AF Tool
  - Management of patients with high thrombotic or bleed risk
  - DOAC AF Tool
  - DOAC prescribing and managing patients with CKD and AF
- Face to face training



# Learning and support offer

## Webinars

- Four webinars
- 160 attendees

## In house learning events

- 27 in house events (virtual/in person)
- 152 attendees

## Own time virtual learning

- Eight YouTube recordings: 600 views
- Anticoagulation and lipid modification E-learning - 118 licenses gifted

## Web page

- Dedicated web page - links to all education resources, training event bookings and FAQ's

## Detection

- Users in Community Pharmacy, VCSE, PCN's
- Created user guides, protocol, SOP, bi-monthly user group
- 1524 AF tests

## Advice service

- Started May 2024
- Promoted at all learning events, web and emails

100%

LEARNING OBJECTIVES MET



100%

TRAINER ENGAGEMENT



98%

RATED GOOD - EXCELLENT



# DOAC Tool

## Missing/incorrect weight or serum creatinine

	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Age	Latest weight (kg)	Date of latest weight	Serum creatinine (umol/L)	Date of latest serum creatinine	Date of latest LFTs	Date of FBC	Date of GFR	Date of last medication review	Age risk factor (80 and over)	Weight risk factor (60Kg and under)	Serum creatinine risk factor (133 and over)	CrCl risk factor (under 30)	Theoretical dose using calculation tool (twice daily)	Prescribed dose (twice daily)	Dose correction per SF
24								02-Oct-23	44	Unable to calculate	Unable to calculate	Unable to calculate	Unable to calculate	Apixaban 5mg tablets	Unable to calculate
24	104.1	23-Jan-24	62	26-Feb-24	26-Feb-24	26-Feb-24	26-Feb-24	04-Jan-24	59	104	62	167	5mg	Apixaban 5mg tablets	Yes
24	96	06-Sep-23	129	26-Jan-24	26-Jan-24	26-Jan-24	26-Jan-24	05-Jun-23	68	96	129	66	5mg	Apixaban 5mg tablets	Yes
24	91.1	13-Sep-22	117	01-Mar-24	23-Feb-24	04-Aug-23	01-Mar-24	28-Nov-23	81	91	117	57	5mg	Apixaban 5mg tablets	Yes
24	75	24-May-23	73	10-Oct-23	16-Nov-23	10-Oct-23	10-Oct-23	28-Dec-23	50	75	73	114	5mg	Apixaban 5mg tablets	Yes
24	113?	14-Aug-23	88	14-Aug-23	14-Aug-23	14-Aug-23	14-Aug-23	28-Mar-23	51	#VALUE!	88	Unable to calculate	#VALUE!	Apixaban 5mg tablets	#VALUE!
23	76	28-Jun-23	58	18-Apr-23	18-Apr-23	18-Apr-23	18-Apr-23	04-Jul-23	56	76	58	135	5mg	Apixaban 5mg tablets	Yes
24	88	22-Feb-24	65	22-Feb-24	20-Jun-23	20-Jun-23	22-Feb-24	10-Jan-24	59	88	65	114	5mg	Apixaban 5mg tablets	Yes
24	80	12-Jan-24	74	12-Jan-24	17-May-23	21-Sep-22	12-Jan-24	23-Jan-24	59	80	74	108	5mg	Apixaban 5mg tablets	Yes
24	80	07-Aug-23	75	07-Aug-23	07-Aug-23	25-Aug-22	07-Aug-23	03-Apr-24	60	80	75	105	5mg	Apixaban 5mg tablets	Yes
24	85	01-Mar-23	61	02-Aug-23	07-Mar-23	24-Apr-23	02-Aug-23	08-Apr-24	61	85	61	114	5mg	Apixaban 5mg tablets	Yes

- Any missing data such as weight or serum creatinine are shown in red. Once the data is entered the risk factors and dosing will automatically update
- If data is entered with a ? Excel will not recognise and #VALUE! will be shown.

# Risk factors and checking the dosing

	N	O	P	Q	R	S	T	U	V	W
of last ation ew	Age risk factor (80 and over)	Weight risk factor (60Kg and under)	Serum creatinine risk factor (133 and over)	CrCl risk factor (under 30)	Theoretical dose using calculation tool (twice daily)	Prescribed dose (twice daily)	Dose correct as per SPC	Under-dosed as per SPC	Over-dosed as per SPC	Weight ov t
Jan-24	79	101	95	80	5mg	Apixaban 5mg tablets	Yes	No	No	
Feb-24	80	71	146	36	2.5mg	Apixaban 2.5mg tablets	Yes	No	No	
Apr-23	80	90	114	58	5mg	Apixaban 5mg tablets	Yes	No	No	
Mar-24	81	45	55	50	2.5mg	Apixaban 2.5mg tablets	Yes	No	No	
Feb-24	81	72	68	65	5mg	Apixaban 5mg tablets	Yes	No	No	
Jul-23	81	58	55	65	2.5mg	Apixaban 5mg tablets	No	No	Yes	
Jan-24	81	96	92	76	5mg	Apixaban 5mg tablets	Yes	No	No	
May-23	82	82	126	39	5mg	Apixaban 2.5mg tablets	No	Yes	No	
Jun-23	82	91	144	45	2.5mg	Apixaban 2.5mg tablets	Yes	No	No	
Nov-23	82	79	95	59	5mg	Apixaban 5mg tablets	Yes	No	No	
Feb-24	82	100	93	77	5mg	Apixaban 5mg tablets	Yes	No	No	
Aug-23	83	76	125	36	5mg	Apixaban 2.5mg tablets	No	Yes	No	
Mar-24	83	68	62	65	5mg	Apixaban 5mg tablets	Yes	No	No	
Mar-24	83	63	135	33	2.5mg	Apixaban 2.5mg tablets	Yes	No	No	
Apr-24	83	75	129	41	5mg	Apixaban 2.5mg tablets	No	Yes	No	
Apr-24	83	74	98	53	5mg	Apixaban 5mg tablets	Yes	No	No	
Mar-24	83	74	95	55	5mg	Apixaban 5mg tablets	Yes	No	No	
Feb-24	84	57	79	42	2.5mg	Apixaban 2.5mg tablets	Yes	No	No	
Mar-24	84	64	114	33	5mg	Apixaban 5mg tablets	Yes	No	No	

- Where there is a risk factor that will contribute to a reduced dose the number is highlighted in red
- The theoretical dose according to SPC is next to the risk factors and the prescribed dose making it easy to check any discrepancies



# Monitoring

Dose correct as per SPC	Under-dosed as per SPC	Over-dosed as per SPC	Weight 120kg and over - use height to calculate CrCl	CrCl under 15 or cannot be calculated consider warfarin	CrCl over 95 not as effective as warfarin	6 or 12 monthly monitoring	Monitoring in date	Medication review done in last 12 months
Yes	No	No	Yes	No	Yes	12	No	Yes
Yes	No	No	No	No	Yes	12	Yes	No
No	No	Yes	No	Yes	No	6	No	Yes
No	No	Yes	No	No	No	6	No	Yes
Yes	No	No	No	No	Yes	12	Yes	Yes
Yes	No	No	No	No	No	12	Yes	No
Yes	No	No	No	No	No	12	Yes	No
Yes	No	No	No	No	Yes	12	Yes	Yes
Yes	No	No	No	No	Yes	12	No	Yes
Yes	No	No	No	No	No	12	No	Yes
Yes	No	No	No	No	Yes	12	Yes	Yes
Yes	No	No	No	No	No	12	Yes	No
Yes	No	No	No	No	No	12	Yes	Yes

A column shows if the monitoring should be 6 or 12 monthly. The next column shows if this is in date

# Rivaroxaban

M	N	O	P	Q	R	S	
Date of last medication review	CrCl risk factor (50 and under)	Theoretical dose using calculation tool (once daily)	Prescribed dose (once daily)	Dose correct as per SPC	Under-dosed as per SPC	Over-dosed as per SPC	We over c
-Feb-24	53	20mg	Rivaroxaban 20mg tablets	Yes	No	No	
-Aug-23	59	20mg	Rivaroxaban 20mg tablets	Yes	No	No	
-Dec-23	62	20mg	Rivaroxaban 15mg tablets	No	Yes	No	
1-Jan-24	46	15mg	Rivaroxaban 2.5mg tablets	Unable to calculate	Unable to calculate	Unable to calculate	
-Apr-23	112	20mg	Rivaroxaban 20mg tablets	Yes	No	No	
-Sep-21	69	20mg	Rivaroxaban 20mg tablets	Yes	No	No	
1-Jun-22	74	20mg	Rivaroxaban 20mg tablets	Yes	No	No	
-Dec-23	112	20mg	Rivaroxaban 20mg tablets	Yes	No	No	
-Mar-24	71	20mg	Rivaroxaban 20mg tablets	Yes	No	No	
-Mar-23	65	20mg	relto 20mg tablets (Bayer F	Yes	No	No	
-Feb-24	78	20mg	Rivaroxaban 20mg tablets	Yes	No	No	
-Dec-22	44	15mg	Rivaroxaban 15mg tablets	Yes	No	No	
2-Jul-23	36	15mg	Rivaroxaban 15mg tablets	Yes	No	No	
1-Jan-24	52	20mg	Rivaroxaban 15mg tablets	No	Yes	No	
1-Oct-23	161	20mg	Rivaroxaban 20mg tablets	Yes	No	No	
-Feb-24	130	20mg	Rivaroxaban 20mg tablets	Yes	No	No	
-Mar-24	134	20mg	Rivaroxaban 20mg tablets	Yes	No	No	
-Mar-23	143	20mg	Rivaroxaban 20mg tablets	Yes	No	No	
7-Jul-23	89	20mg	Rivaroxaban 10mg tablets	Unable to calculate	Unable to calculate	Unable to calculate	
-May-23	168	20mg	Rivaroxaban 20mg tablets	Yes	No	No	

Only 15mg and 20mg are licensed doses for AF so it appears the coding for AF is incorrect



# Checking the dosing of alternative DOAC

Branch Surgery (Systmone) or practice name (Emis)	Age	Sex	Edoxaban prescribed dose	Edoxaban latest issue date	Latest weight (kg)	Date of latest weight	Serum creatinine (umol/L)	Date of latest serum creatinine	Date of latest LFTs	Date of FBC	Date of GFR	Date of last medication review
The Light NHS GP Surgery	80	Male	Edoxaban 30mg tablets	22-Mar-24	84	22-Nov-22	121	13-Oct-23	13-Oct-23	13-Oct-23	13-Oct-23	22-Oct-23
Park Road Medical Centre	73	Female	Edoxaban 30mg tablets	19-Mar-24	58	05-Jul-23	61	29-Jan-24	05-Jul-23	05-Jul-23	29-Jan-24	08-Apr-24
Park Road Medical Centre	73	Female	Edoxaban 30mg tablets	11-Apr-24	60	05-Apr-24	73	05-Apr-24	05-Apr-24	05-Apr-24	05-Apr-24	11-Apr-24
Park Road Medical Centre	74	Male	Edoxaban 30mg tablets	21-Mar-24	58	19-Oct-23	80	15-Sep-23	15-Sep-23	15-Sep-23	15-Sep-23	17-Jul-19
Park Road Medical Centre	76	Female	Edoxaban 30mg tablets	21-Mar-24	61	29-Nov-23	100	29-Nov-23	29-Nov-23	29-Nov-23	29-Nov-23	09-Oct-23
Park Road Medical Centre	77	Female	Edoxaban 30mg tablets	20-Feb-24	64	19-Mar-24	77	19-Mar-24	19-Mar-24	19-Mar-24	19-Mar-24	27-Mar-24

- Apart from the prescribed dose of DOAC all the other data entered into the DOAC tool is the same for each drug
- Data from any DOAC can be copied from one DOAC sheet to another to check potential dosing
- Here the data for five patients on edoxaban 30mg is copied



# Checking the dosing of alternative DOAC

Date of latest LFTs	Date of FBC	Date of GFR	Date of last medication review	Age risk factor (80 and over)	Weight risk factor (60Kg and under)	Serum creatinine risk factor (133 and over)	CrCl risk factor (under 30)	Theoretical dose using calculation tool (twice daily)	Prescribed dose (twice daily)	Dose correct as per SPC	Und
13-Oct-23	13-Oct-23	13-Oct-23	22-Oct-23	80	84	121	51	5mg	Edoxaban 30mg tablets	Unable to calculate	Unab
05-Jul-23	05-Jul-23	29-Jan-24	08-Apr-24	73	58	61	66	5mg	Edoxaban 30mg tablets	Unable to calculate	Unab
05-Apr-24	05-Apr-24	05-Apr-24	11-Apr-24	73	60	73	57	5mg	Edoxaban 30mg tablets	Unable to calculate	Unab
15-Sep-23	15-Sep-23	15-Sep-23	17-Jul-19	74	58	80	59	5mg	Edoxaban 30mg tablets	Unable to calculate	Unab
29-Nov-23	29-Nov-23	29-Nov-23	09-Oct-23	76	61	100	41	5mg	Edoxaban 30mg tablets	Unable to calculate	Unab

- It has been pasted here into the apixaban sheet
- From the data the tool calculates that the dose for all patients should be 5mg
- It is unable to check dosing as the prescribed dose is edoxaban 30mg

# Improvements and Challenges

- Engagement
- Leeds established advice helpline
- 33 PCN's Bradford/ Calderdale/ Kirklees/Wakefield
- Increase in No patients on correct dose (380 in 4 months)



# Phase two to include

- **Webinar 1:** AF Prescribing, monitoring and use of the DOAC tool webinar (including DOAC tool demo) – Targeted invites to Priority one (practices who have not engaged, are below target and have a large number of patients on a DOAC) and priority two (those who have engaged, have a large number of patients on a DOAC and are below target).
- **Webinar 2:** Managing/monitoring patients with AF and frailty (including DOAC tool demo).
- **Webinar 3:** AF webinar for commissioned pharmacists: Prescribing, monitoring and use of the DOAC tool. (including DOAC tool demo).
- **Web pages:** Continuous updates to resources, recorded webinars, YouTube playlist.
- **Secondary Care:** Work with Integrated Stroke Delivery Network (ISDN) programme
- **AF advice service:** Re advertise the AF advice service, increase awareness.
- **E-Learning:** Continue to offer Anticoagulation and Lipid modification licenses.

**AF WAY Webinars**

West Yorkshire Health and Care Partnership

**Register here to book your place today.**

**Webinar 1 - AF Prescribing, monitoring and use of the DOAC tool webinar (including DOAC tool demo).**

- Wednesday 20th November 2024 at 10:30-11:45
- Wednesday 26th January 2025 at 12:00-13:15

**Webinar 2 - Managing/monitoring patients with AF and frailty (including DOAC tool demo).**

- Wednesday 27th November 2024 at 12:00-13:15

All education resources including previously recorded webinars can be found on our website.

[West Yorkshire Health and Care Website](#)

Over 300 people have attended the webinars, in person and virtual AF education events. **Book your webinar place here.**

DOAC LEARNING OBJECTIVES MET: 100%  
TRAINER ENGAGEMENT: 100%  
NEW TO THE TOPIC: 100%

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West Yorkshire Health and Care Partnership

**Register here to book your place today.**

**Webinar 3 - AF WAY webinar for commissioned pharmacists: Prescribing, monitoring and use of the DOAC tool. (including DOAC tool demo).**

- Wednesday 11th December 2024 at 11:00-12:15

All education resources including previously recorded webinars can be found on our website.

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NEW TO THE TOPIC: 100%

# NEED AF ADVICE?

Are you based in Wakefield, Bradford, Kirklees or Calderdale and need anticoagulation advice for a patient with AF? Contact our consultant pharmacists for advice using this form:

**[AF WAY advice form](#)**

**DETECT - PROTECT - PERFECT**

West Yorkshire  
Health and Care Partnership



# Questions and Answers

