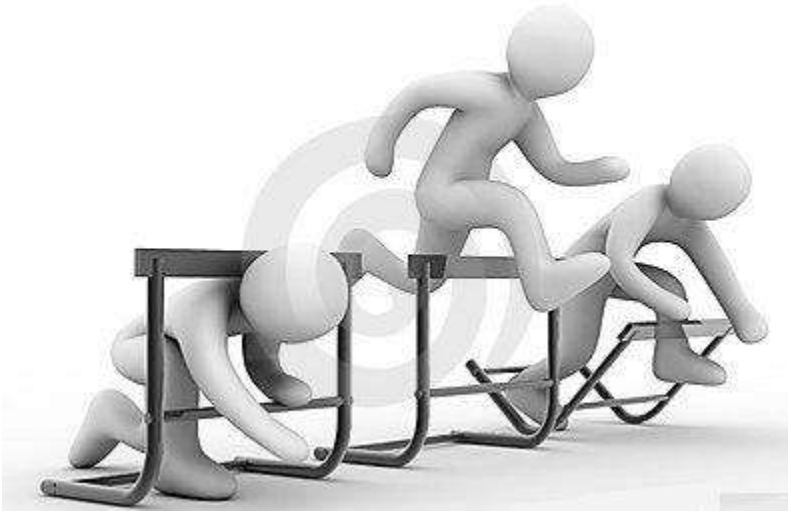
Cloyne Pharmacy
Anticoagulation Clinic

What were the drivers for setting up the clinic and how it started

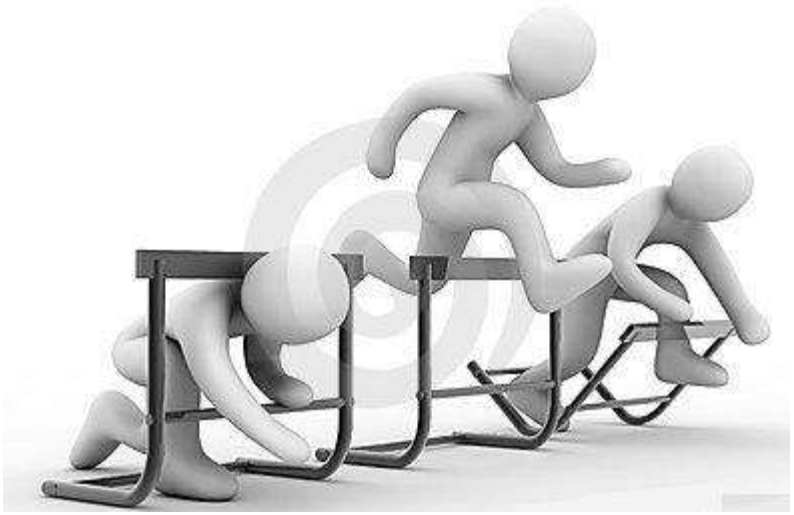
How it operates
Results achieved

WARfarin UPFRONT
Benefits


PHARMACY
Poitigéir
STOP
PROPERTYPARTNERS
Butler Wall



- Theoretical Knowledge
- Practical Knowledge
- Consent
- Protocols
- Insurance
- Quality Assurance



Patient's GP's

The Pharmaceutical Society

External Assessment

Continuous Professional Development

A second pharmacist to perform the service when I am on leave

More acceptable than venepuncture for many patients – GP referrals to us.

Possibly improved compliance in face to face rather than over phone service.

Treating patients at the lowest level of complexity in Primary care- freeing up resources in secondary care.

A single healthcare practitioner involved in the consultation, facilitating patient education and engagement with their treatment

Results from INR and management at same sitting – no delay.

First Year – regular weekly communication with Consultant Haematologists at CUH and their support team regarding dosing patients.

Effectively a satellite clinic.

Protocols allowed measurement of INR and dose adjustment in range >1.5 and <5.0. Paper based system.

Year 2: External Assessment of Clinic and my knowledge at this stage.

Clinic now operates independently of CUH.

Computer based system.

We communicate with CUH on a less frequent basis but touch base by email and phone now.

Working closely with providers of the software to improve its functionality.

Results to date (12/10/13)

Patients from over 10 different towns and villages attending.

Regularly review Time in Therapeutic Range (TTR) and look at outliers.

Since inception (February 2010) over 80 patients have attended.

The Clinic has measured over 2000 INR's.

Age profile from 3 to 83 years with private and medical card patients attending.

Time in Therapeutic range those still attending clinic 77.1% (Target+/- 0.5)

Same population YTD 78.9%. BSCH guidelines recommend standard of time-in-range of 60%

Number of patients = 32 ; 36 attending , 4 are new so not included here

Visit Statistics Summary

HiruMed® Ltd

Date Range: 04/02/10 To 26/11/13

Total Patients: 76

Total Visits: 2,079

Totals

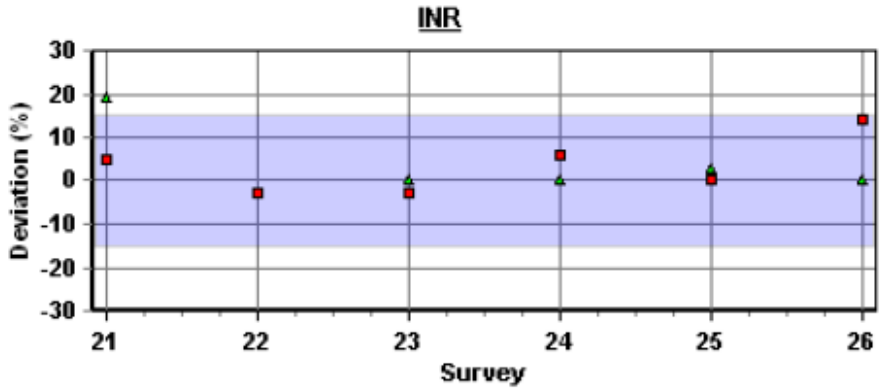
INR Records: 2,079

Min INR:	1.10	Mean INR:	2.64
INR Std Dev:	0.73	Max INR:	8.00
INR >= 5 < 8:	17	% INR >= 5 < 8:	0.82%
< Target INR -1:	40	% < Target INR -1:	1.92%
INR > 8:	0	% INR > 8:	0.00%
INR's In Range:	1,371	% INR's In Range:	65.95%
Mean TTR:	392.49 Days	Mean % TTR:	76.46%

Dose Records:	2,051	Stop Days:	147
Lowest Dose:	0.00	Highest Dose:	32.00
Mean Dose:	3.86	Dose Std Dev:	2.49

UK NEQAS

Your Results: Detailed Analysis	INR	
Sample No	**XS13:05**	**XS13:06**
Your Instrument	CoaguChek XS Plus	
Batch/Code Chip Number	N/S	
Participants in your group	3155	3205
Your INR	**5.6**	**1.6**
Instrument Median INR	**4.9**	**1.6**
% Deviation	14.3	0
Target Range	4.2 - 5.6	1.4 - 1.8
Your performance	**Within consensus**	**Within consensus**
Your previous % deviation	0	2.6
Non-participation code 1 2		



EQA leads to validation of the equipment used from a precision and accuracy point of view.

What about the people performing the dosing?

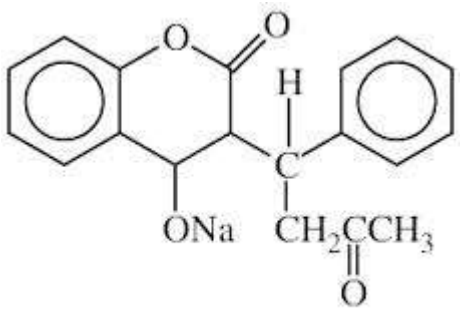
Who standardises what they do?

How do they review the standard of their work?

How do they document same?

Quis custodiet ipsos custodes?

WARFARIN ***UPFRONT*** *TM*



WARFARIN (SODIUM)

Weekly

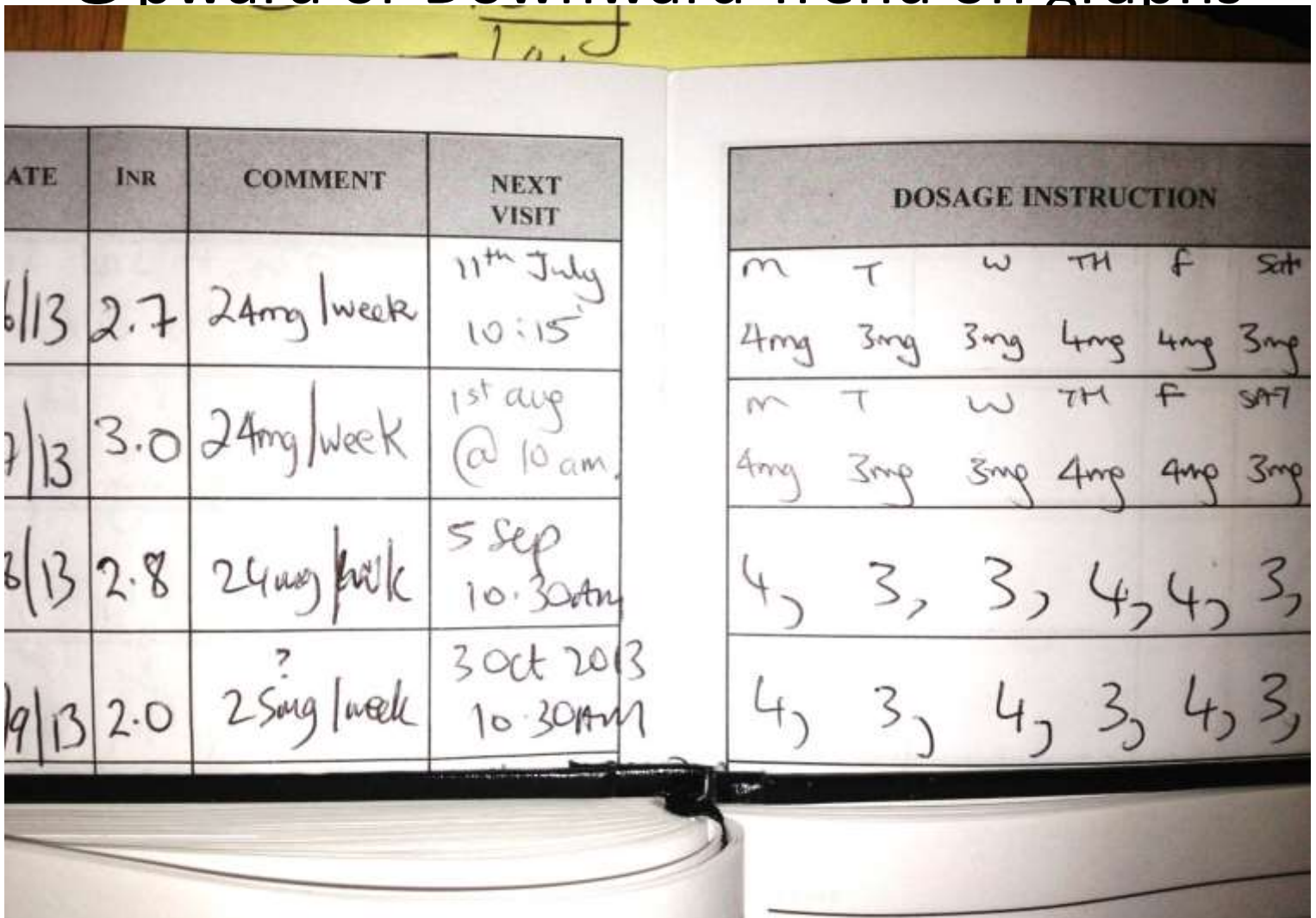
monday	tuesday	wednesday	thursday	friday	saturday	sunday
what's on?	what's on?	what's on?	what's on?	what's on?	what's on?	what's on?
breakfast						
lunch						
dinner						
extras						

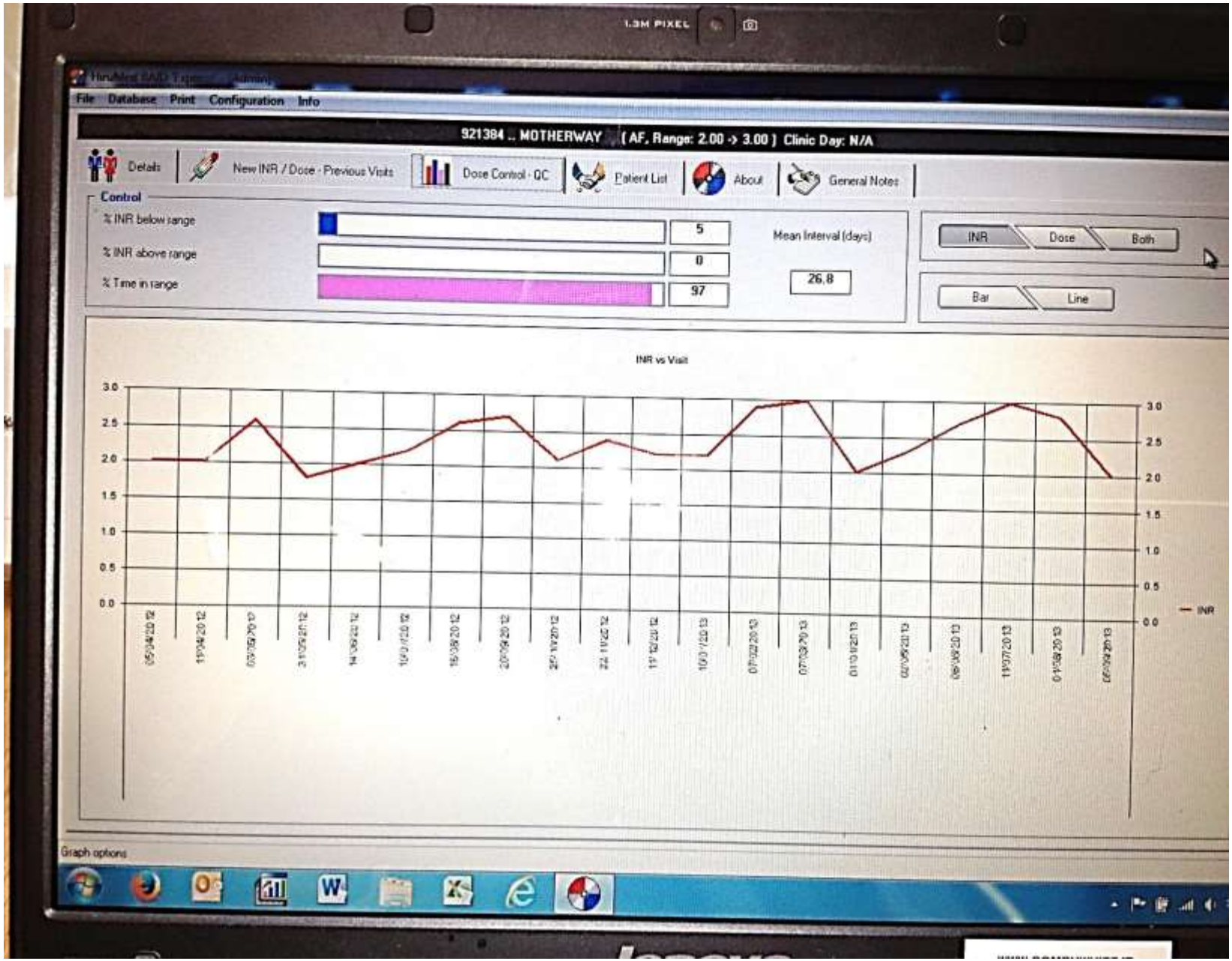
Availability

Ready to help with other healthcare issues

UPFRONT – more specific to warfarin dosing

Upward or Downward Trend on graphs




File Database Print Configuration Info
921384 .. MOTHERWAY (AF, Range: 2.00 -> 3.00) Clinic Day: N/A
Details
New INR / Dose - Previous Visits
Dose Control - QC
Patient List
About
General Notes
Control
% INR below range
5
% INR above range
0
% Time in range
97
Mean Interval (days)
26.8
INR
Dose
Both
Bar
Line
INR vs Visit
3.0
2.5
2.0
1.5
1.0
0.5
0.0
INR
Graph options

DATE	INR	COMMENT	NEXT VISIT
6/6/13	2.7	24mg/week	11th July 10:15
11/7/13	3.0	24mg/week	1st aug @ 10 am
1/8/13	2.8	24mg/week	5 Sep 10.30Am
5/9/13	2.0	? 25mg/week	3 Oct 2013 10.30Am
3/10/13	2.5	25mg/week	31st Oct 2013 10.15Am

The drug you are taking is WARFARIN.
You should only use Brown (1mg) tablets.

DOSAGE INSTRUCTION						
M	T	W	TH	F	Sat	S
4mg	3mg	3mg	4mg	4mg	3mg	3
M	T	W	TH	F	SAT	S
4mg	3mg	3mg	4mg	4mg	3mg	3
4,	3,	3,	4,	4,	3,	
4,	3,	4,	3,	4,	3,	
4,	3,	4,	3,	4,	3,	

Blue (3mg) and Pink (5mg) tablets are different strength and are not advised.

Database Print Configuration Info

921384 .. MOTHERWAY (AF, Range: 2.00 -> 3.00) Clinic Day: N/A

Details | New INR / Dose - Previous Visits | Dose Control - QC | Patient List | About | General Notes

Control

INR below range 4

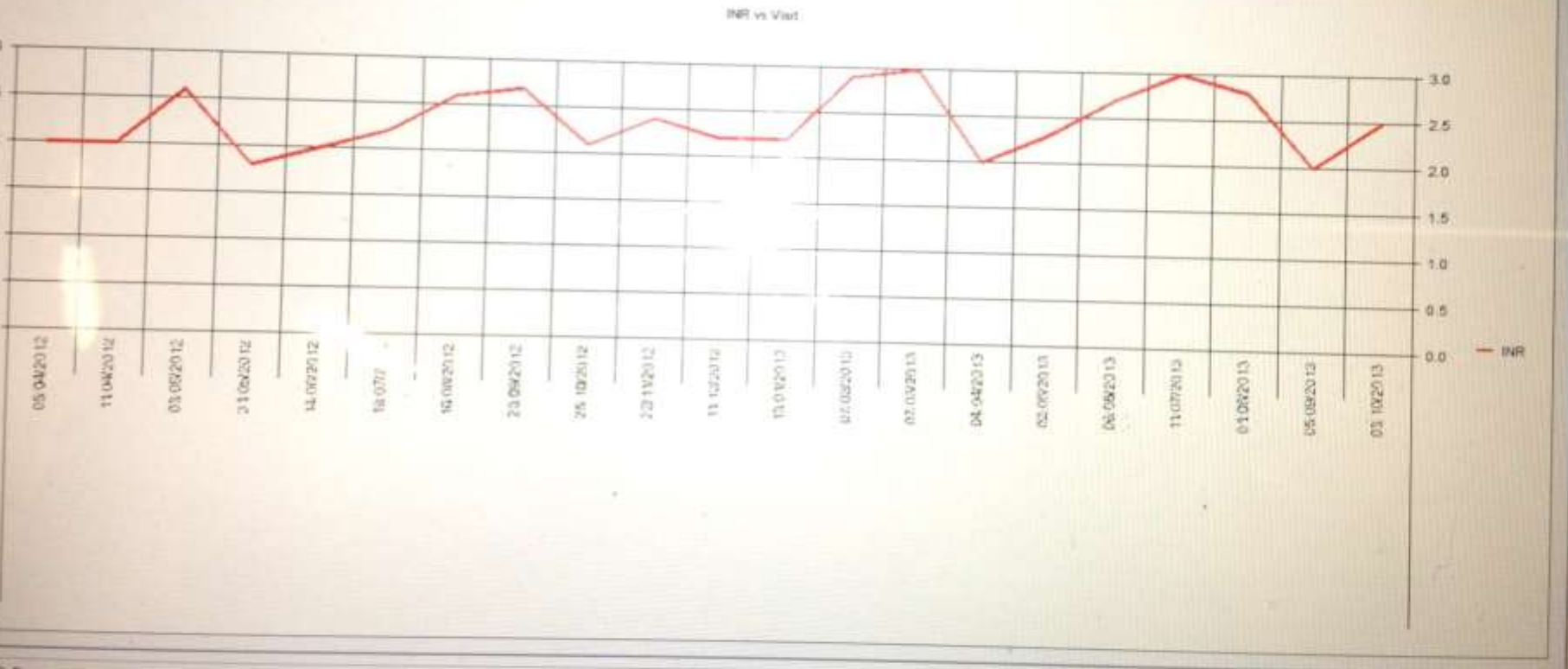
INR above range 0

Time in range 97

Mean Interval (days) 26.8

INR | Dose | Both

Bar | Line



D-Express

10:33
03/10/201

lenovo

Past History – a good indicator of future INR's

Female Patient (recurrent P/E): INR went to 3.8 from 2.8 after steroid injection into shoulder;

had a similar pattern June 2012 when she last got similar injection – INR increased from 2.5 to 3.9 in that case but

we got it back within range the following week by simply omitting warfarin x 1 day and reducing weekly dose by 2mg from 12mg to 10mg- applied same pattern here.

INR back in range within two weeks.

Frontload changes to get the desired effect

- IF INR outside range , need to omit dose(s) If on the high side and
- Boost doses if on the Low side.

Relevant Communication with other healthcare professionals

GP's, Consultants, Previous warfarin clinic attended by patient at changeover.

Can be by email, phone or text.

Key especially re Start/Stop dates.

Weekly communication with cardiac coordinators at Cork hospitals prior to cardioversion of their patient.

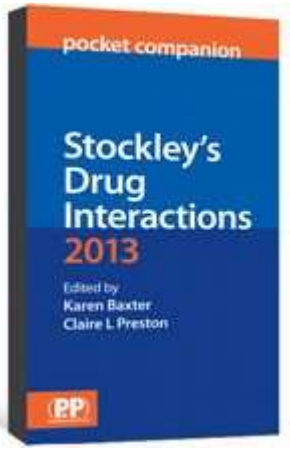
Patient with provoked DVT managed for 3 months on warfarin in Cloyne;

INR control was good and no further events noted.

I communicated with Consultant at end of period who was happy for him to cease warfarin.

I informed patients GP.

Other Factors that may affect INR



Need to log reasons for changes on the patient record

Test Frequency

- Especially for new or complicated patients

Complicated medicines regimen having multiple affects on INR

Male A Fib Patient with multiple myleomas:

INR on 18/6/11 2.2

INR on 23/6/11 2.0

Got iodine-131 five days previous (decreases INR)

Restarted eltroxin 75mcg x 1week then 150mcg thereafter (increases INR)

Started Thalidomide (no affect on INR in literature)

Dexamethasone 20mg alt days x 8 days (can increase INR)

INR 28/6/11 2.4

Time in THEREAPEUTIC RANGE

File Database Print Configuration Info

2307170 .. HIGGINS (AF CV, Range: 2.00 -> 3.00) Clinic Day: N/A

Details | New INR / Dose - Previous Visits | Dose Control - QC | Patient List | About | General Notes

Control

% INR below range 9

% INR above range 0

% Time in range 93

Mean Interval (days) 88.3

INR | Dose | Both

Bar | Line

INR vs Visit

2.5
2.0
1.5
1.0
0.5
0.0

23/05/2011
30/05/2011
07/07/2011
21/07/2011
25/07/2011
25/08/2011
22/09/2011
22/10/2011
24/11/2011
22/12/2011
28/01/2012
04/02/2012
23/02/2012
22/03/2012
14/04/2012
17/05/2012
14/06/2012
18/07/2012
16/08/2012
20/09/2012

INR

Weekly

Availability

Ready to help with other healthcare issues

Upward or downward trends need to be looked at

Past History a good guide to future trends

Frontload changes – when outside of range

Relevant communication with other healthcare professionals

Other factors that may affect INR

Need to log changes on the PMR

Test frequency; Time in thereaputic range

Warfarin remains the recommended first line agent reimbursed (including for newly diagnosed patients). Dabigatran and Rivaroxaban should be reserved for:

1. Existing patients on Warfarin with poor INR control despite adhering to monitoring and lifestyle requirements and documented attempts to optimise Warfarin therapy.
2. Existing patients who require regular periodic treatment with medicines that are known to interact with warfarin.
3. Patients with a documented allergy to Warfarin.

"Can we, just for a moment, Your Honor, ignore the facts?"

Results for the clinic have been in the High 70%'s TTR

Not once have we had to send a patient to CUH because on an extreme INR or because we couldn't manage their care.

Not once have we had to administer or dispense vitamin K due to extreme high INR's.

No time has been lost in at least 8 patients undergoing cardioversion; INR has been kept >2.0 for all these . The rate limiting step then has been bed availability and not INR control.

Patients unable to travel to the clinic in the pharmacy have on occasion had the INR measured in the comfort of their own home.

Patient satisfaction in a recent survey has been 100%

We have successfully managed patients discharged from hospital after 3 doses of warfarin

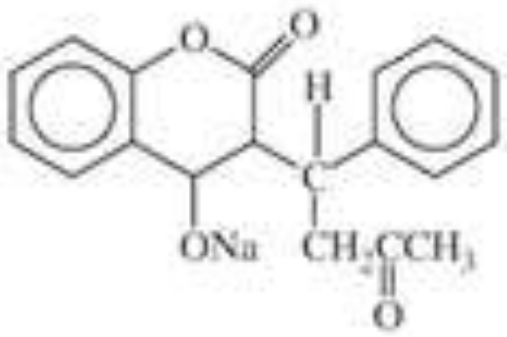
We are in regular communication with the provider of our software package to ascertain ways of improving the service.

In summary using **WA**Rfarin **UPFRONT** we are exceeding international standards leading to an overall reduction in strokes while also minimising the risk of bleeds.

This leads to increased patient safety with the provision of a local and accessible service.

This service leads to reduced costs in the secondary care setting and if run well a decreased need for as many NOAC's being prescribed**.**

WARFARIN ***UPFRONT*** *TM*



WARFARIN (SODIUM)