

Warfarin

Paint a Better Picture

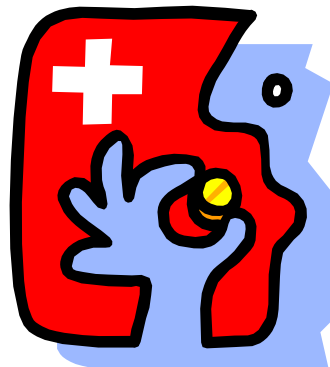


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Board / *HealthWEST*

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Board

Warfarin facts

- One of 5 high risk medicines internationally
- Narrow therapeutic index
- Potentially interacts with other medicines changing the clotting time
- A systems approach will improve safety



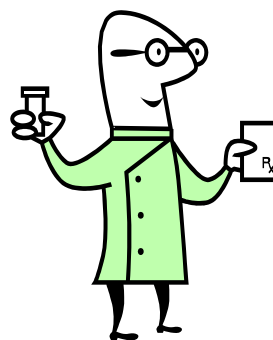
Clinical audits in 2002 triggered innovation

- In-Patient Audit-62 patients
 - Identified that junior medical staff were not routinely following regional protocols for anticoagulation
- Discharge Audit – 38 patients
 - Identified inconsistent discharge processes and poor communication about warfarin therapy
 - Both brands prescribed together, which are not bioequivalent



Waitemata District-Wide Innovation Objectives

- A **district-wide systems approach** to manage prescribing and support people on warfarin
- To find simple and effective ways to **standardise** hospital and community practice
- To improve **patient/consumer** understanding through increased education and consistent practice by health professionals accepted and in wide use by 2005



How did we do this?

- Working group
- District wide stocktake
 - Development of user friendly guidelines
 - Multidisciplinary learning PHO and DHB's
 - Systematic medication approach for hospital discharge



Waitemata District Stocktake From GP teams we found.....

- 2500 patients on warfarin
- 97% on Marevan®
- GP Feedback:
 - 71% support for 1mg discharge prescription
 - 77% support Marevan® only
 - 67% practice nurses review warfarin results
 - 13% alter doses independently



Waitemata District Stocktake From pharmacists we found.....

- 1% dispense both brands to same patient
- 43% check patient has red book
- 40% have a supply of red book
- 66% check patient has regular blood tests
- Liaison with GP?
 - Often 14%
 - Infrequent 69%
 - Never 14%



Can we do better?

More consistent warfarin management?

Yes! INNOVATION

such as

- Practitioner guidelines
- Hospital discharge process improvements focused on communication between specialist and primary care
- Video for consumers



Development of Waitemata Warfarin Toolkits

- Paper-based and video tools
- Electronic tools
 - Hospital
 - Primary care including community pharmacy



Toolkits Paper and Video Solutions

- Published guidelines for health professionals- doctors, pharmacists, nurses
- Consumer information
 - Brochures, leaflets
 - Take home video for patient and family



Toolkits Paper solutions

- Practitioner guidelines
 - Points for prescribers commencing warfarin
 - Evidence based dosing regimens and recommended duration of treatment
 - Frequency testing , INR ranges and variations
 - Interactions
 - Guidelines for severe over anticoagulation
- Hospital and Community Pharmacy guidelines



Toolkits Electronic (a) Hospitals

- Electronic discharge
 - Warfarin sub-section
 - Medicine specific template
- Robotic dispensing machines at ward level (Pyxis Medstations)



Medication Template:

Medication on admission

Aspirin Soluble 300mg mane
 Felodipine ER 2.5mg mane
 Metoprolol CR 23.75mg mane

Medication on discharge

- Aspirin (Solprin) 300mg Soluble Tablets, 1 tablet mane, 3 Months
- Diltiazem hydrochloride (Cardizem CD) 120mg Controlled Delivery Capsules, 1 capsule mane, 3 Months
- Metoprolol succinate (Betaloc CR) 47.5mg Controlled Release Tablets, 1 tablet mane, 3 Months
- Warfarin sodium (Marevan) 1mg Tablets, Take as per INR, 100 Tablets

Reasons for change of medications

Admitted in fast AF; stopped Felodipine and started Diltiazem; Increased dose of Metoprolol as resting HR 80bpm. Started Warfarin - GP to follow up until therapeutic (See Warfarin Information Below)

Allergies and adverse reactions

Rx	Sig	Mitte	
Aspirin (Solprin) 300mg Soluble Tablets		1 tablet mane	3 Months <input checked="" type="checkbox"/>
Diltiazem hydrochloride (Cardizem CD) 120mg Controlled Delivery Capsules		1 capsule mane	3 Months <input checked="" type="checkbox"/>
Metoprolol succinate (Betaloc CR) 47.5mg Controlled Release Tablets		1 tablet mane	3 Months <input checked="" type="checkbox"/>
Warfarin sodium (Marevan) 1mg Tablets	Take as per INR	100 Tablets	<input checked="" type="checkbox"/>

Search for the medication from the bottom box below, or just enter it manually here:

+ Rx* Warfarin sodium (Marevan) 1

Sig* Enter Instructions Here...

Mitte* Enter Quantity to Send...

Found 3 medications
 Warfarin sodium (Marevan) 1mg Tablets, .
 Warfarin sodium (Marevan) 3mg Tablets, .
 Warfarin sodium (Marevan) 5mg Tablets, .

Warfarin

Guidelines for ongoing treatment (if applicable) :

Atrial fibrillation: Target INR 2.0-3.0
 Duration indefinite

Cardioversion: Target INR 2.0 - 3.0
 For at least 3 weeks before and

DVT or PE: Target INR 2.0-3.0 *

Recurring DVT whilst on Warfarin or recurring PE whilst on Warfarin: Target INR 3.0 - 4.0 *

Mural thrombus: Target INR 2.0 - 3.0
 For at least 3 months, decision to stop should be made in consultation with

Heart valve INR Target 2.0 to 3.0
 Duration indefinite

Heart valve INR Target 2.5 to 3.5
 Duration indefinite

INR at discharge
 Date

INR Result

INR History for the previous 3 days
 Date Day 1
 INR Result Day 1
 Date Day 2
 INR Result Day 2
 Date Day 3
 INR Result Day 3
 Date of next INR

Dose of Warfarin at discharge

Individual Responsible for INR Monitoring: * :

General Practitioner
 Anticoagulant Nurse

Discharge Checklist :

Warfarin education completed
 Patient has Warfarin booklet
 Laboratory form provided for next INR
 Warfarin prescribed

Brand of Warfarin prescribed (Marevan preferred) :

Marevan
 Coumadin

Additional Comments :

Unusual Dose / Additional Comment
 Please record unusual doses or additional comments here.

High Risk Patient
 Patients with mechanical heart valves and an associated high risk

Patients with Prosthetic Valves:
 Please consider contacting the patient's usual cardiologist/cardiac

Advice to the Patient
 Regular bloodtests are required while on Warfarin. If you have any signs or symptoms

Electronic Dispensing

- Automated medication distribution system
- Interfaced with Patient Management Systems (hospital)
- Aims to reduce medication error
- Programmed to identify all patients commencing on warfarin



Toolkits Electronic (b) Primary Care

- Many software programmes-computer aided decision support
 - RAT
 - INRstar
- Include on-site testing to improve quality and safety (Henderson pilot)
- Community pharmacy alerts



Setup

Conditions | Practice | Password

Guidelines

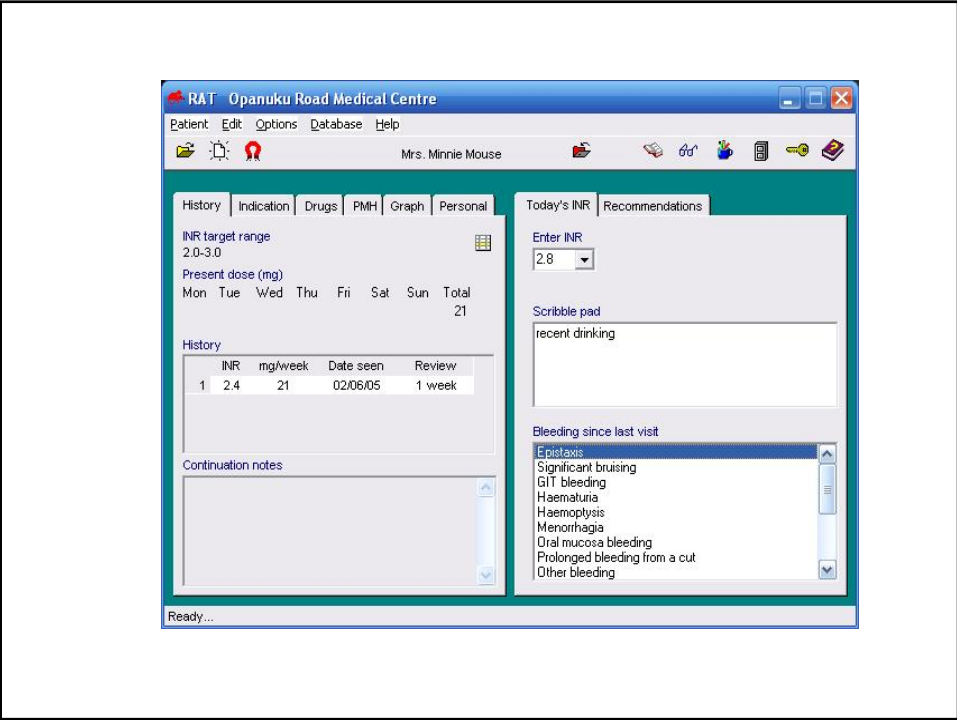
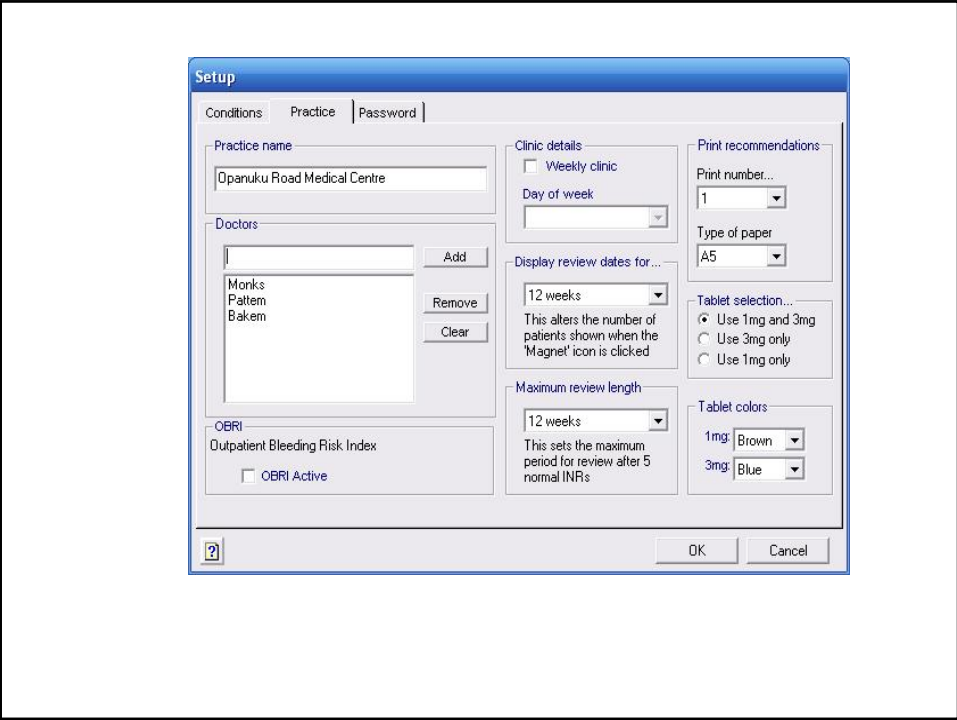
National Practice

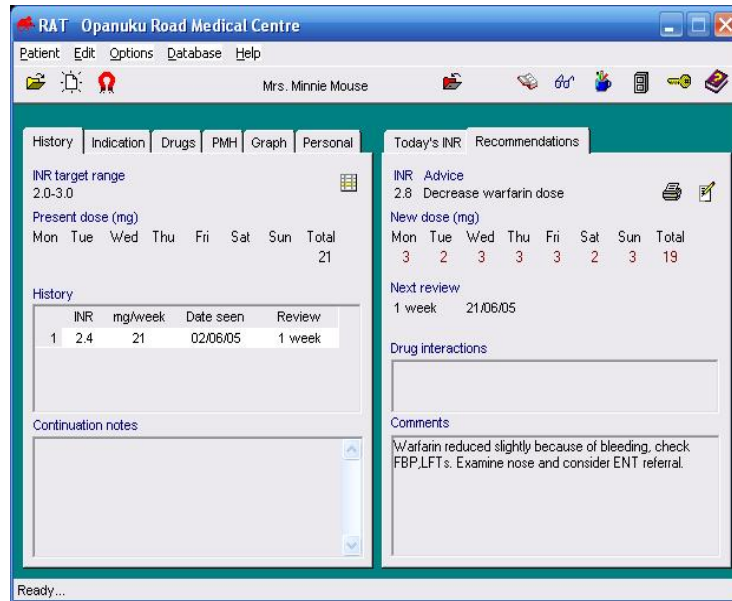
	Range	Rx length
Prophylaxis of DVT.....	2.0-2.5	6 months
Spontaneous calf DVT.....	2.0-3.0	4 months
Post-op calf DVT.....	2.0-3.0	2 months
Proximal DVT.....	2.0-3.0	6 months
Pulmonary embolism.....	2.0-3.0	6 months
Systemic embolism.....	2.0-3.0	6 months
Recurrent DVT or PE.....	3.0-4.0	Long term

DVT and Embolism | Cardiac | Grafts | Coagulopathies

?

OK Cancel



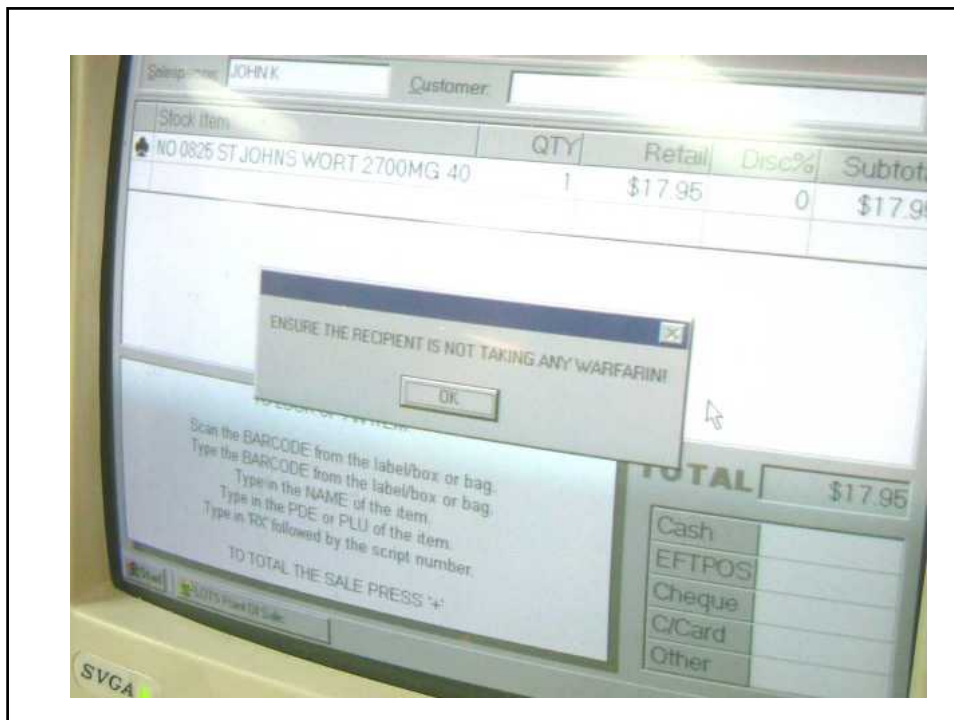


and

integrated innovation in
community pharmacy

**ENSURE THE RECIPIENT IS NOT
TAKING ANY WARFARIN**

When selling complementary therapies



Are these innovative changes making a difference ?

- Consumer awareness ✓
- GP team awareness: audit of INR reports ✓
- Post-implementation feedback about guidelines and use in Waitemata District ✓
- Collaborative & regional benchmarking ✓



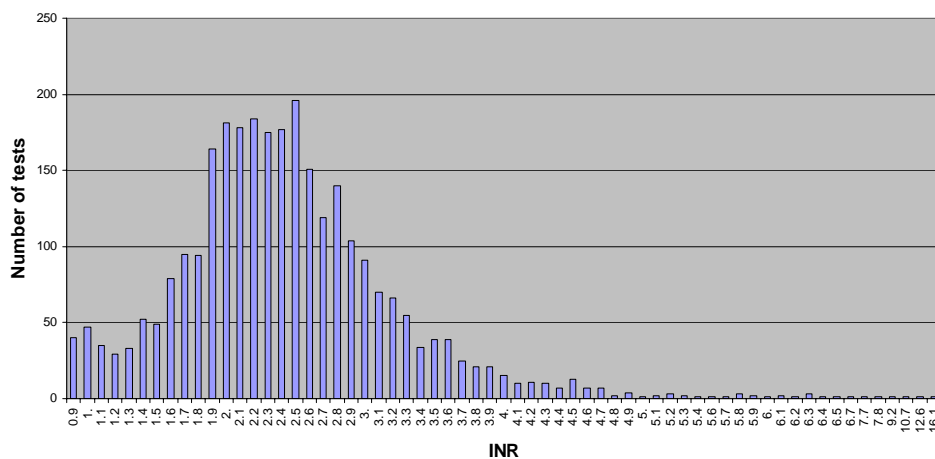
Audit of INR reports

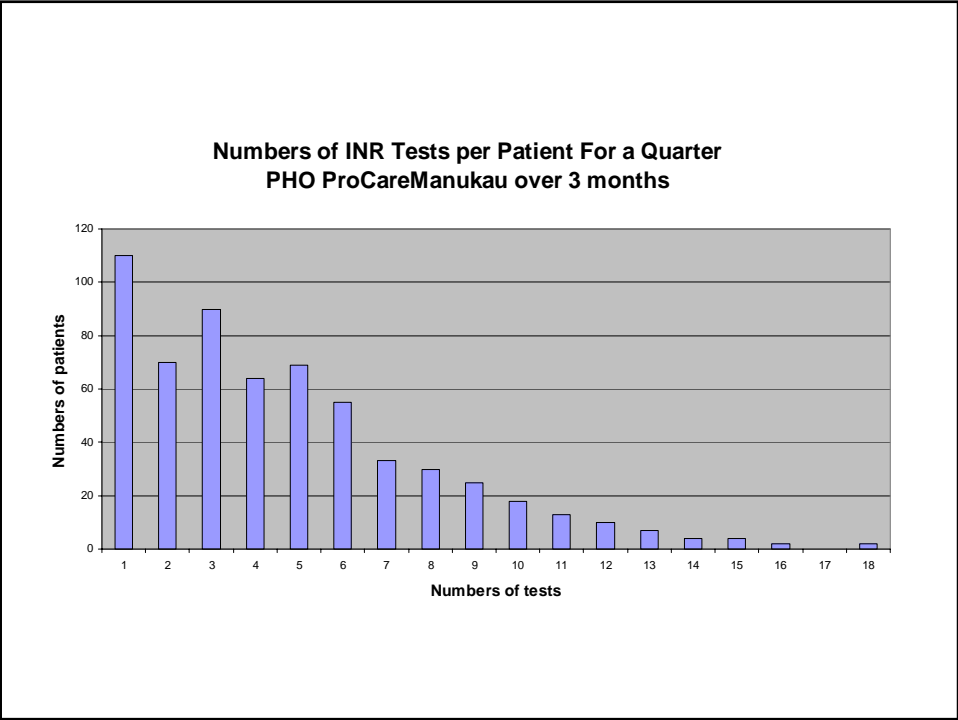
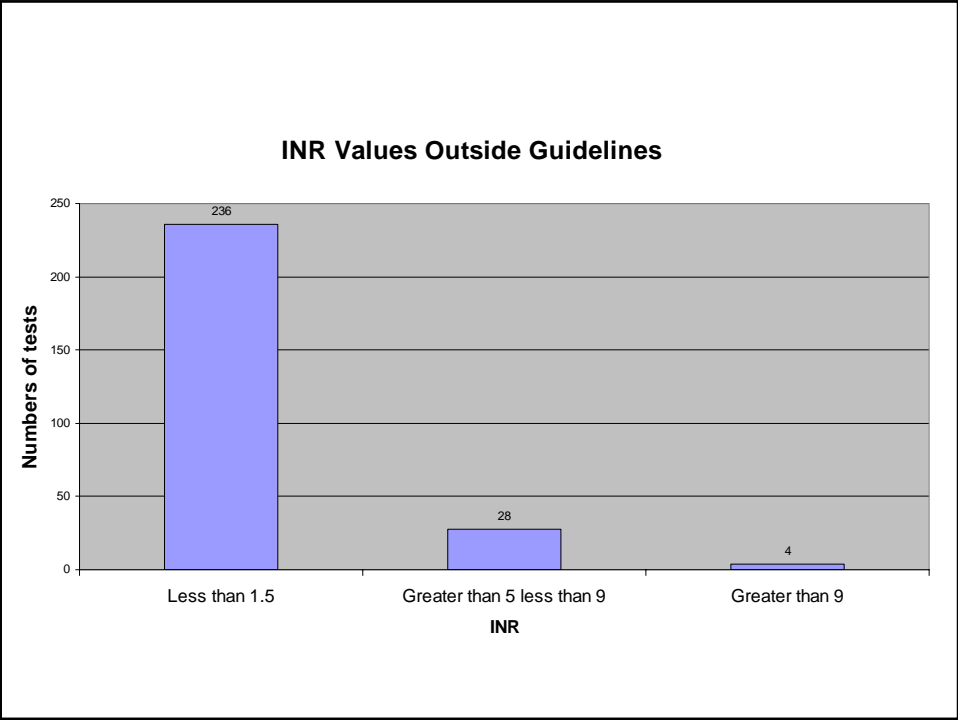
EastHealth &
ProCare Network PHO South

- Regional collaboration....
 - A three month period 1/3/05 to the 31/05/05
 - The results from ProCare included 2990 INR results in 612 patients



INR Results





INR audit demonstrates

- There are a number sub-therapeutic INR results
- A small number of patients with raised INR
- There is wide variance in terms of number of tests per consumer

Dissemination of the innovation Is behaviour changing?

4th year pharmacy project to

- Assess adherence to warfarin initiation guidelines
- Assess communication between hospital and GP regarding warfarin
- Assess patient knowledge on warfarin



What have we found?

41 patients followed up

- In-patient management
 - Still room for improvement
 - 32% patients no baseline INR
 - 50% incomplete record of INR's
- Discharge information
 - GPs more satisfied
- Patient knowledge
 - All patients knew why they take warfarin and how to monitor
 - 81% knew what to do if missed a dose
 - Only 29% knew to discuss when purchasing other medicines
- GPs and pharmacists still building teamwork skills, determining roles and most effective teamwork for improvement



Learnings can apply locally , regionally and nationally

- Ongoing quality improvement
- Safer services built around consumer and community focus
- Providers and disciplines working together



Innovative
Integration
for Health