

Om utvärdering av antikoagulationsvård

2012-09-13



Erfarenheter från diabetesvården

Utvärdering är en del av lärandet.

Dataprogram ska vara redskap för bättre kommunikation med våra patienter. Individualisering genom spegling. Bli sedd och se sig själv. Samla detaljer och följ informationen!

SHARING INFORMATION WITH THE PATIENT IN A DIABETES MANAGEMENT SYSTEM

Fahlén.M (1), Cooper.J (2), Eliasson.B (3), Hallgren.P (4), Odén. A (5), Ramebäck. J(6)

1.Hospital of Kungälv, Sweden (e-mail martin.fahlen@mailbox.hogia.net), 2. Stavanger hospital, Norway, 3.Sähtjrenska, Gothenburg, Sweden, 4. Falu lasarett, Sweden, 5. Statistician, Romelanda, Sweden 6. Journals Inc, Sweden.

Introduction
The system will be used in a home or a diabetes management system. Its content and functionality was designed to promote patient involvement in the diabetes care process as well as to ensure continuous collection of clinical and professional data. Being in front of the PC together with the nurse or doctor the patient will be guided through a sequence of the desktop screens in the following topics:

1. Professional barriers to treatment (PBT)



2. Hypoglycemia



3. Hypoglycemia



4. New self-management activities (NOMA)



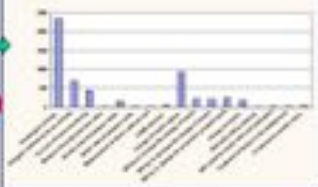
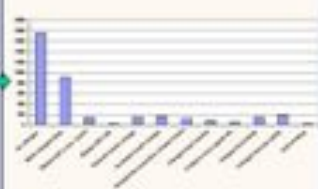
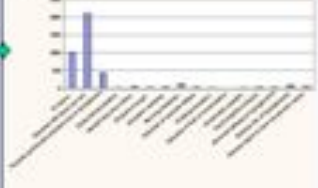
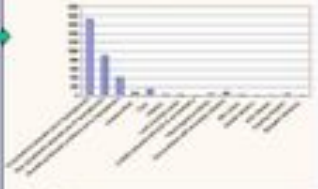
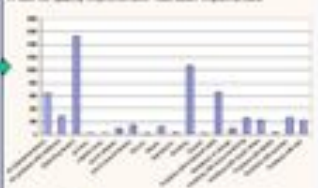
5. New plans and agreements (NPA)



Materials and methods
After one year feasibility and data from the test visit in 2012 patients were analyzed. Mean age was 52 years. 50% were treated with insulin and of these 50% used pump. A mean average score on quality of life (QoL) was also tested in 123 patients.

Results
The test had been used in 37% of the patients. PBT were reported in 15%, hypoglycemia in 64%, hypoglycemia in 71%, NOMA were reported in 24% and NPA in 30%. A shift to long-acting analogue insulin therapy was seen in 1%. Insulin pump was installed in 23%. 4% of the research patient employed. QoL was significantly related to receiving new treatment and UH.

Conclusion
A tool for quality improvement has been implemented.

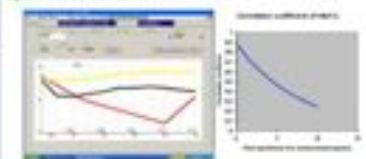


PC= A mirror with plans

Feedback during visit
The photo above is from 1980 when we started using the screen as an educational tool for patients with diabetes. Obviously the system was improved to become a comprehensive diabetes management system. Today you can click on "Quality" and several tables will be visible in understanding that each screen, exercise, theory and table are not on or a green telling that something is wrong with the patient in front of the screen discusses individualized goals, history and treatment. By clicking on "History" you view through the screens open in the left column of this paper. The test screen includes plans for the test visit.



Take home written feedback
Home left to the medical record, contacted with by physician or nurse. It is compared from table screens and other tables together with feedback. Home right one link a "Diabetes table" with individual goals given to the patient together with a printed table.



Feedback with risk to activate and prediction of risk
Home to this visit or not a table with a single patient using insulin pump compared to the group of pump users allowing the data screen in detail. The presentation can be seen during the visit. The yellow line shows that is below start on insulin pump in the group.

When 1000 data are collected from all clinics it is possible to estimate the correlation coefficient of risk to all the occasions with a time lag of 1 year shown above to the right. This curve could be used in order to study the relationship between HbA1c and risk of complications in a long perspective. What is the impact of modifying the risk to avoid during a long period?



Feedback to redesign the system
The architecture of the system and the infrastructure is not fixed but can be changed to satisfy the needs of the patient as well as for continuous innovation and research.



Evaluation is educational !

Scientification of education.

Learning during work!

(ingen skola)

Royal Profile

Arkiv Redigera Bryt Sök Format Inför Ta bort Gå till Mera

SV Svenska (Sverige) Hjäl

L5KOLAVK.1

Skriv in frågorna

Skapa frågehäfte
Spara skolan

Skola
AVK-SKOLA

Frågenr
20

Fråga
Alkohol

Text

Vad kan hända om man dricker för mycket alkohol samtidigt med AVK-medicinering ?

Bild



1. Lättare att få proppar.

2. Lättare att få blödning.

3. INR-värderna sjunker.

Sätt evärsn.å

Gratis-App om INR ACCP guidelines

CHEST Journal App



Released August 2012 The new, upgraded CHEST app includes access to the fully searchable journal archive back to 1935, quick access to ACCP guidelines and consensus statements, and playable CHEST podcasts. Subscribers and ACCP members also receive to full-text articles in iOS and PDF formats through Apple® devices. Download the new app for **FREE** from iTunes®, Available for the iPhone®, iPad®, and iPod touch®.

Download the new CHEST App

[Learn More](#)

Om ACCP



Evidence lacking on anticoagulation therapy practices, guidelines say

The pharmacists and physicians who recently revised the anticoagulation management guidelines from the American College of Chest Physicians (ACCP) found little high-quality evidence for many accepted practices.

“There is just really not a whole lot out there to guide decision-making,” said Daniel M. Witt, senior manager of clinical pharmacy research and applied pharmacogenomics for Kaiser Permanente of Colorado. “These are drugs that have

Self-testing

3.6. For patients treated with VKAs who are motivated and can demonstrate competency in self-management strategies, including the self-testing equipment, we suggest patient selfmanagement rather than usual outpatient INR monitoring (Grade 2B)

.

2B = Weak recommendation,
moderate-quality evidence

Attityd:

**Självmätningsmetoden
liksom all utbildning har
inget värde i sig utan ett
värde för någon.**

**Vem är någon? Vad
frågar patienten? Hur
följer vi informationen?**

-Dosnivån kan vara mer eller mindre riskfylld.

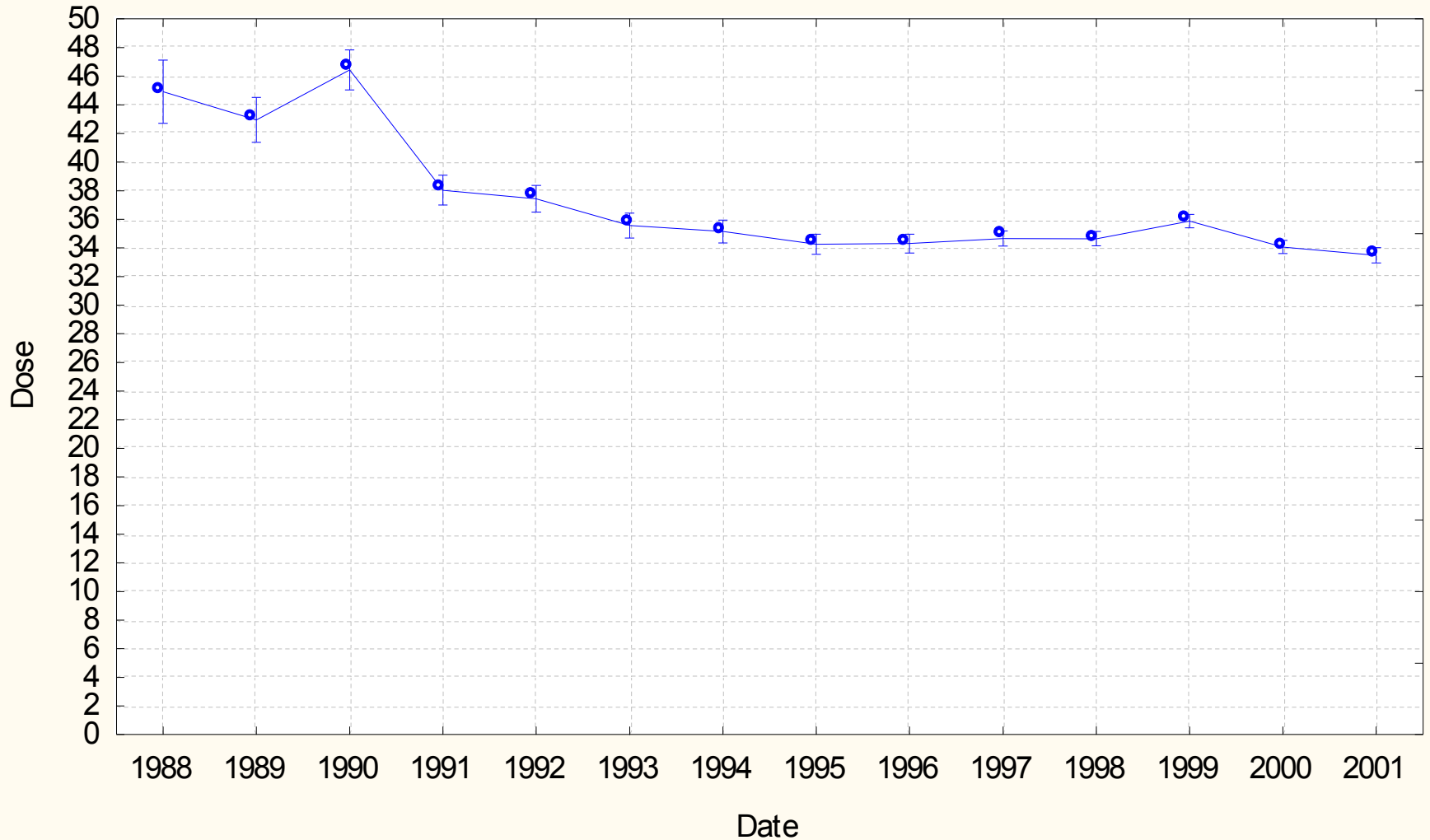
-Varierande doser är riskfyllt.

-Instabila INR är riskfyllt.

**AVK-vården
utvecklas med
åren.**

**Vilken utveckling
leder Coagucheck
till?**

Warfarin mg/week in one clinic (60-70 years of age)



Utveckling av metoder för att mäta kvalitet

1. Proportion av INR inom terapimråde.
2. TTR (Percent Time in Therapeutic Range)
3. Andel patienter som haft $INR > 4$ eller $< 1,5$
4. SD (Standarddeviation)

Skilj mellan

beskrivning

och

förståelse

Vi vet inte tillräckligt

Hur tar vi då hem kunskap för att få veta mer? Vilka frågor ska vi ställa så att vi lättare kan fatta beslut?

Vad finns i fruktkorgen?

Om allt vi vet är att du spenderat 10 kronor på äpplen och apelsiner och att 1 apelsin kostar 2 kronor och 1 äpple kostar 1 krona vet jag att du inte köpt 6 apelsiner eller 11 äpplen men jag vet inte om du köpt en apelsin och 8 äpplen eller 2 apelsiner och 6 äpplen och så vidare.



Hur mycket hänsyn tar vi till

”instabilitet”



och hur mycket till

”dosnivå”?

Är det fler dimensioner?

Om ACCP igen



The second strongly backed recommendation is to use a target INR value of 2.5, with a range of 2.0–3.0, when treating patients with vitamin K antagonists.

In general, the authors' analysis found little evidence to support higher or lower INR targets or ranges.

Avser period

Plats

X=Deltar

Grafik

Välj jämför

Utskrift

2011-01-01

2011-12-31

Sahlgrenska universit

Antal behandlade patienter, även de som bara behandlats under delar av perioden.	4198
Antal behandlingsår (patientår)	3488
Antal prover under perioden.	55396
Antal prover inom målområdet.	42414
Andel prover inom målområdet, %	76.6
Andel av behandlingstiden inom 2.0 - 3.0 och målvärde %	85.0 79.0
Komplikationer under perioden	
Antal mindre blödningar	458
Blödningar som krävt slutenvård	7
- Därav cerebrala, icke-letala	2
Tromboser	
Samtliga avlidna under perioden.	88
Målvärde standard	2.4±0.4
Andel målvärden ej standard %	16.0

Beh.orsak	Andel %	INR	Förd. %	Stand. dev.
FF	61.5	<1.8	0.6	0.13
LE	7.1	1.8-1.9	2.1	0.22
M-klaff A	5.7	2.0-2.1	23.3	0.17
DVT	4.8	2.2-2.3	20.6	0.28
DVT R	4.0	2.4-2.5	18.9	0.37
Övrigt	3.0	2.6-2.7	13.6	0.45
LE R	1.9	2.8-2.9	8.1	0.58
M-klaff Ö	1.8	3.0-3.1	4.8	0.73
M-klaff M	1.3	3.2-3.3	2.9	0.98
B-klaff	1.1	3.4-3.5	1.7	1.11
Kardiomyopati	1.0	3.6-3.7	1.1	1.27
DVT > poplitea	1.0	3.8-3.9	0.7	1.36
Övrigt	5.0	>3.9	1.5	1.70

Beh.orsak. Endast den först angivna orsaken räknas.
 Förd. % Den procentuella fördelningen av tiden med ett visst INR-värde.
 Stand. dev. Standarddeviationen för de senast 5 prc
 Dagar. Antalet dagar till nästa prov för respektive INR-värde

Andel patienter som någon gång haft INR

< 1.5	> 4.0	> 6.0
5.7	25.8	4.0

Medelvärden för de tre inledande proverna

1.0	1.7	2.2
>3.0 %	21.4	19.6
>4.0 %	14.6	9.8

Andel med kort behandlingstid

92.2

Antal registrerade mediciner/patient

2.75

Antal registrerade meddelanden/patient

7.86

De 5 senaste proverna/patient

Antal pat.	Medelv	Stand. dev.
3814	2.54	0.43

Andel patienter med stand. dev <0.35

49.7

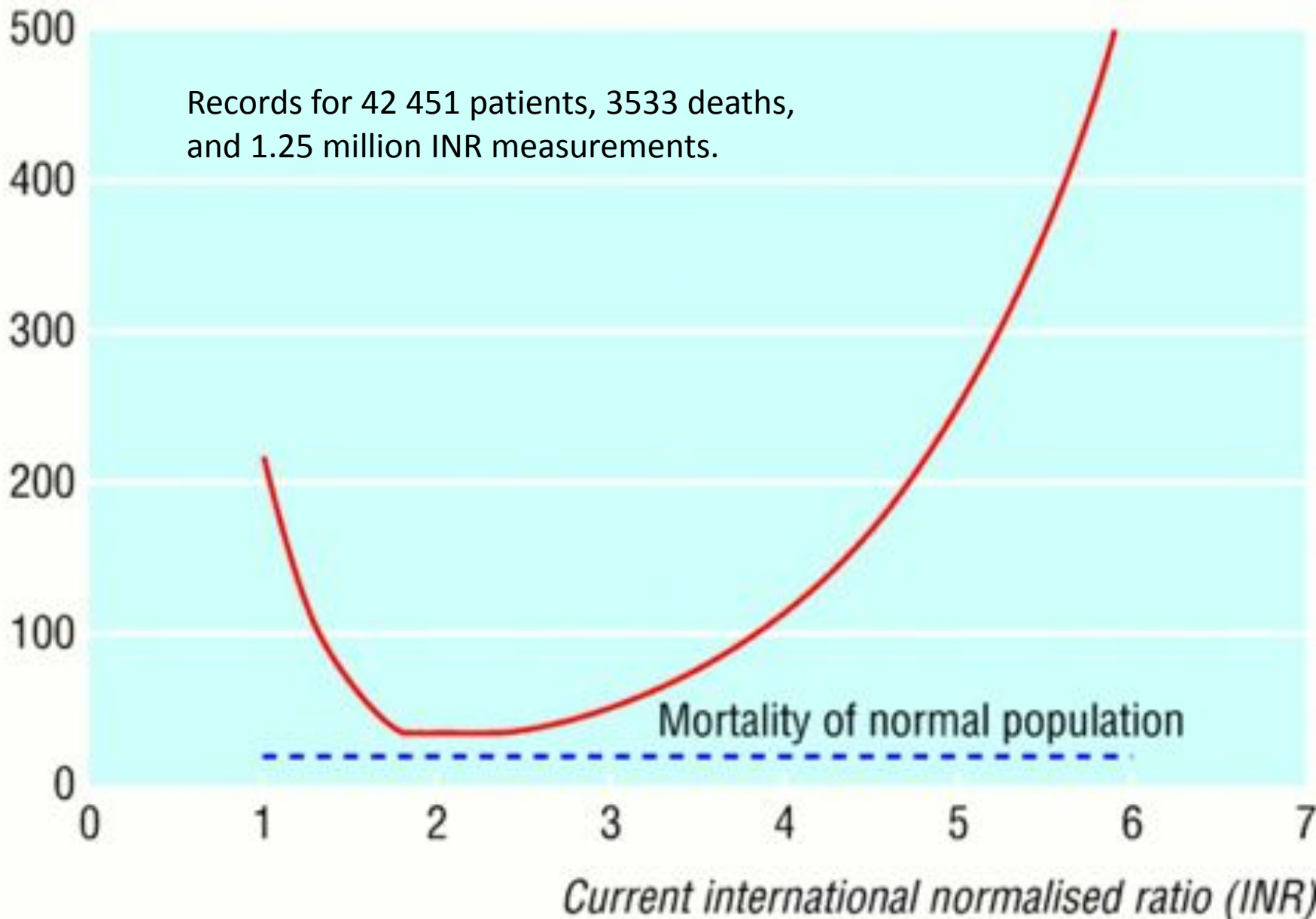
Antal ändr. veckodos/patient

0.9

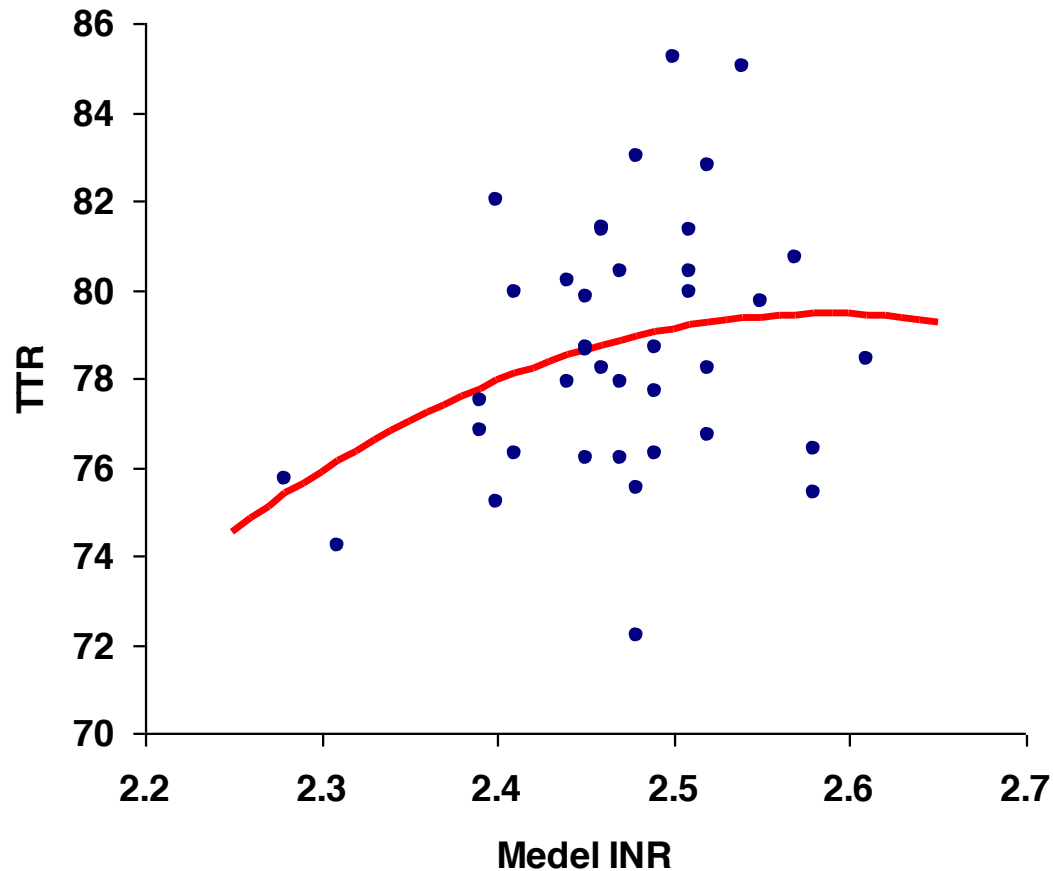
Senaste körning (se

83

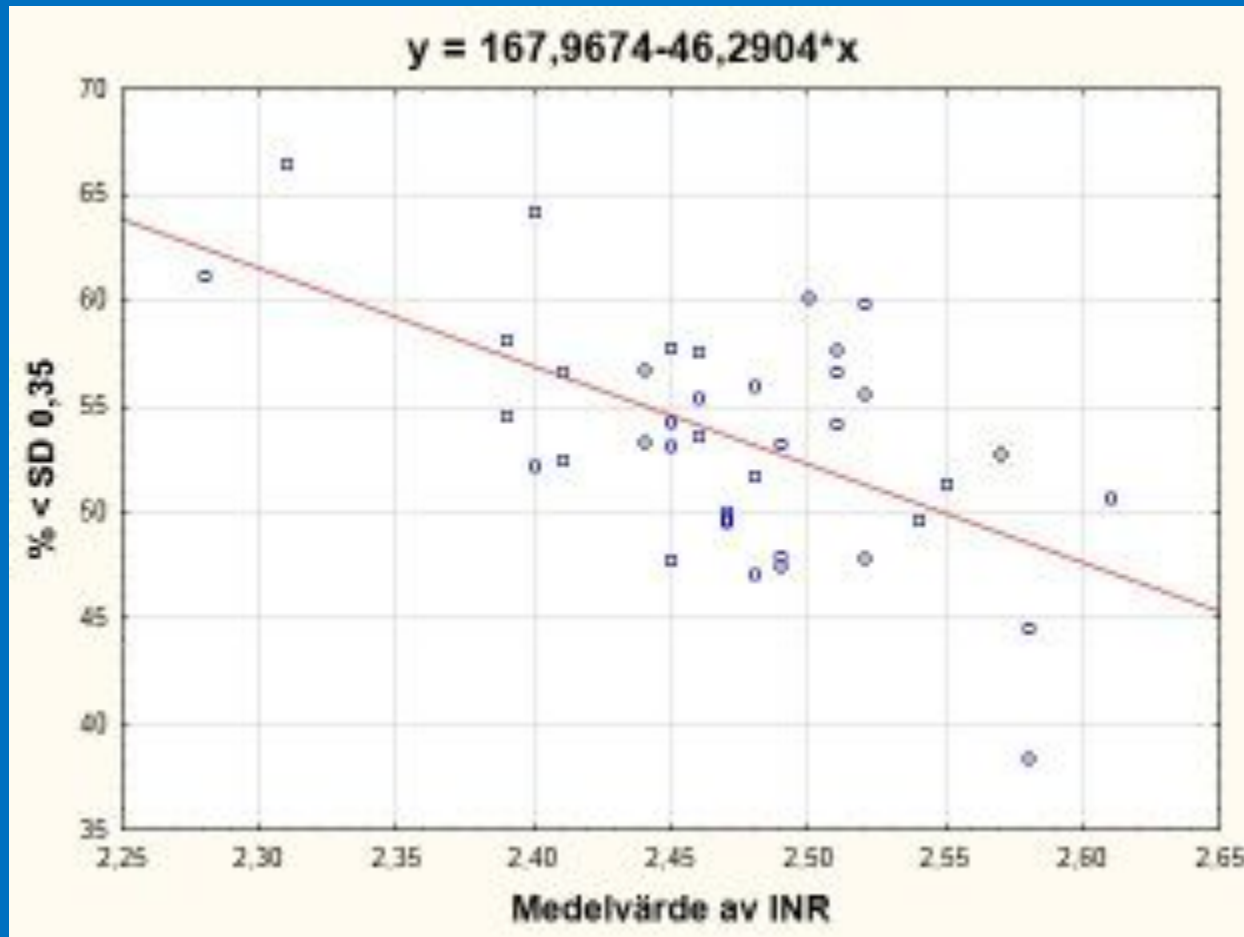
Mortality/1000 patient years



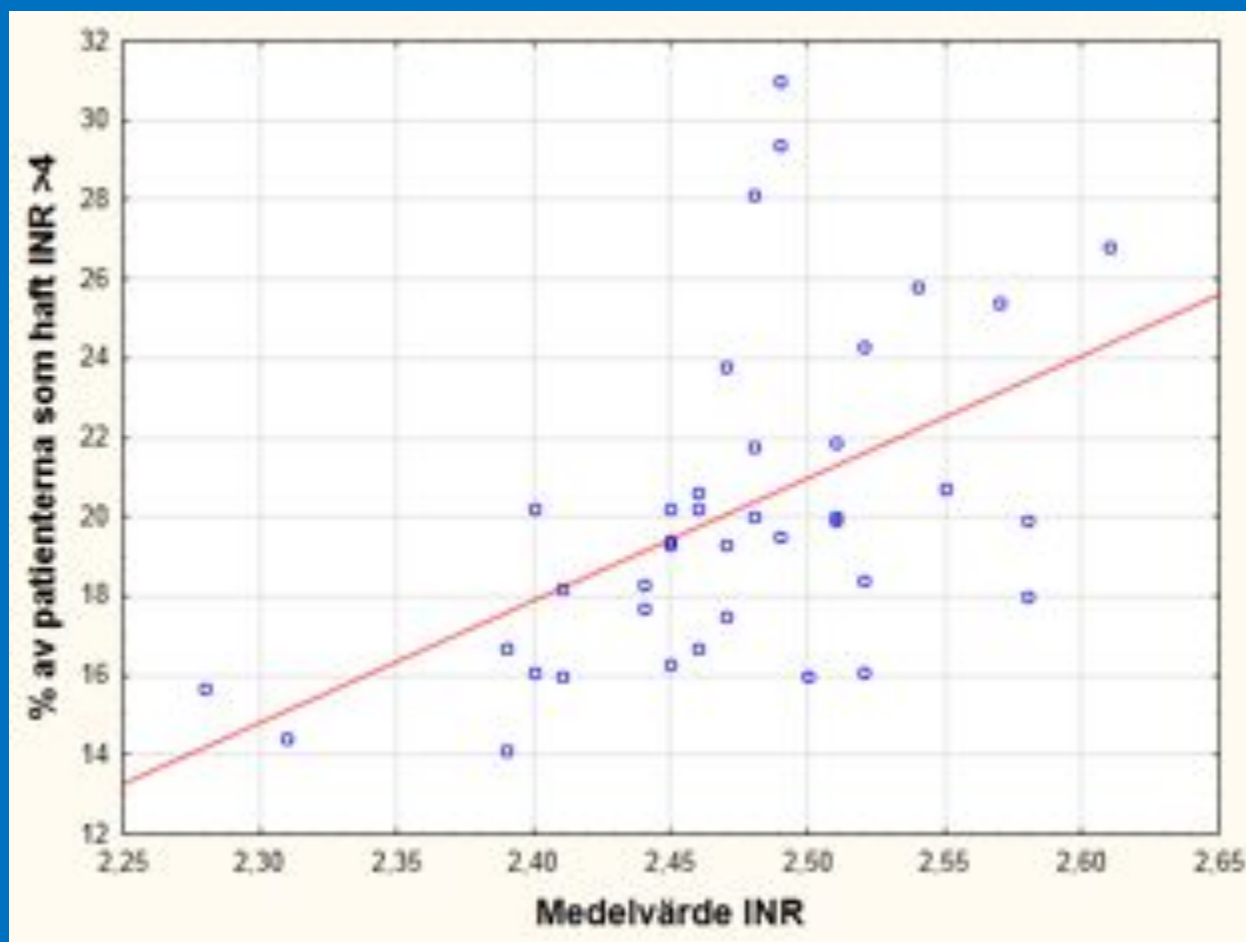
TTR högst omkring 2,5. Måste det vara $>80\%$?



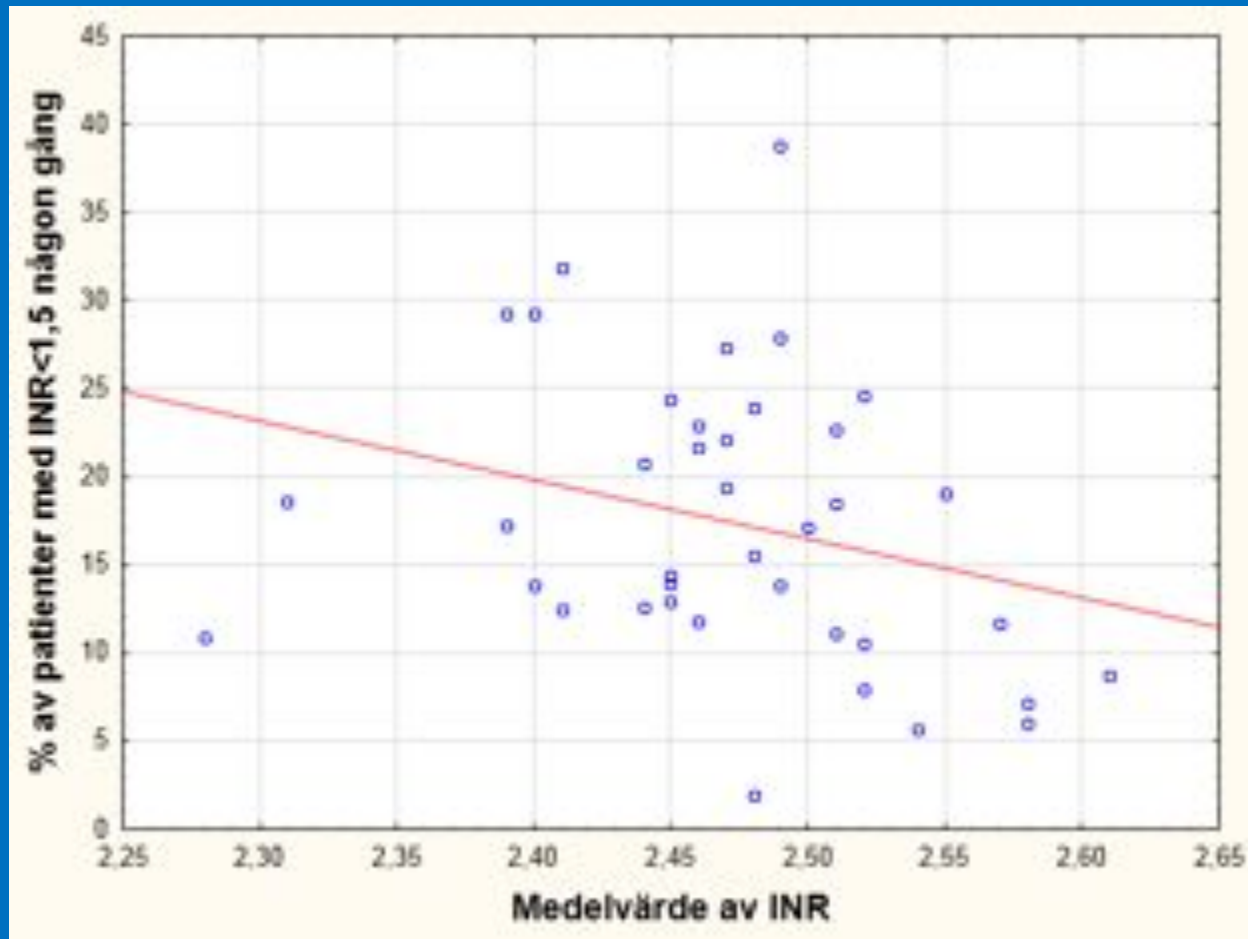
Ju lägre INR-värden desto stabilare



Ju lägre INR-värden desto stabilare



Ej fler utanför behandling



Dossänkning ökar stabilitet

Table 3 Oral anticoagulation therapy parameters in group A patients before and after the PT/INR target reduction

	Before	After	<i>P</i>
PT/INR target	2.5	2.0	–
PT/INR (median)	2.49	1.95	–
95% CI	2.24–2.60	1.92–2.02	
PT/INR target deviation (median)	0.436	0.042	<0.0001
95% CI	0.320–0.494	0.022–0.060	
TTR (%)	53.05	72.59	<0.0001
95% CI	47.01–59.09	68.60–76.57	
PT/INR test interval (d)	18.67	19.85	NS
95% CI	17.85–19.49	18.59–20.86	
PT/INR > 5 (%)	1.72	0.68	<0.001
Warfarin dosage (median mg/wk)	23.48	20.05	<0.001
95% CI	18.43–29.98	15.80–23.45	
Adverse events	6 (H)	2 (H)	

P, paired samples *t*-test; H, haemorrhage; INR, international normalised ratio; TTR, time in the therapeutic range.

K-Vitamin ökar stabilitet

Table 2. Comparison of measures of anticoagulation control prior to and during the intervention period between the vitamin K- and placebo-treated groups of patients

Variable	Vitamin K group			Placebo group		
	Before study	Intervention period	Difference	Before study	Intervention period	Difference
SD of INR	0.72 ± 0.11	0.47 ± 0.17	-0.24 ± 0.14*	0.7 ± 0.11	0.59 ± 0.15	-0.11 ± 0.18*
Time in range, %	59 ± 10	67 ± 14	28 ± 20†	63 ± 18	78 ± 17	15 ± 20†
No. of dose changes, median (range)	5 (3-7)	2 (0-5)	-2 (-5-0)*	5 (3-8)	3 (1-8)	-1 (-3-3)*

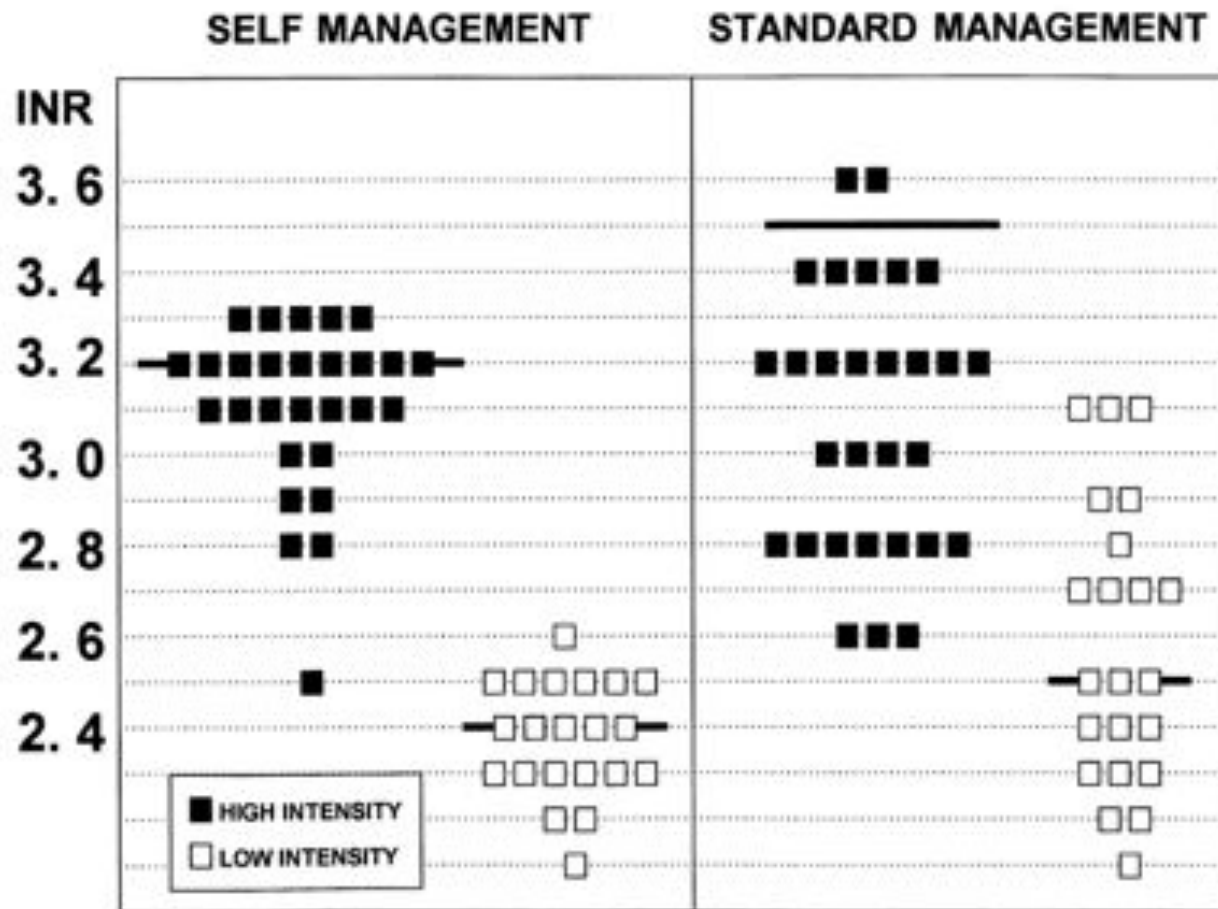
For the vitamin K group, n = 35; for the placebo group, n = 33.

*Significant difference ($P < .001$).

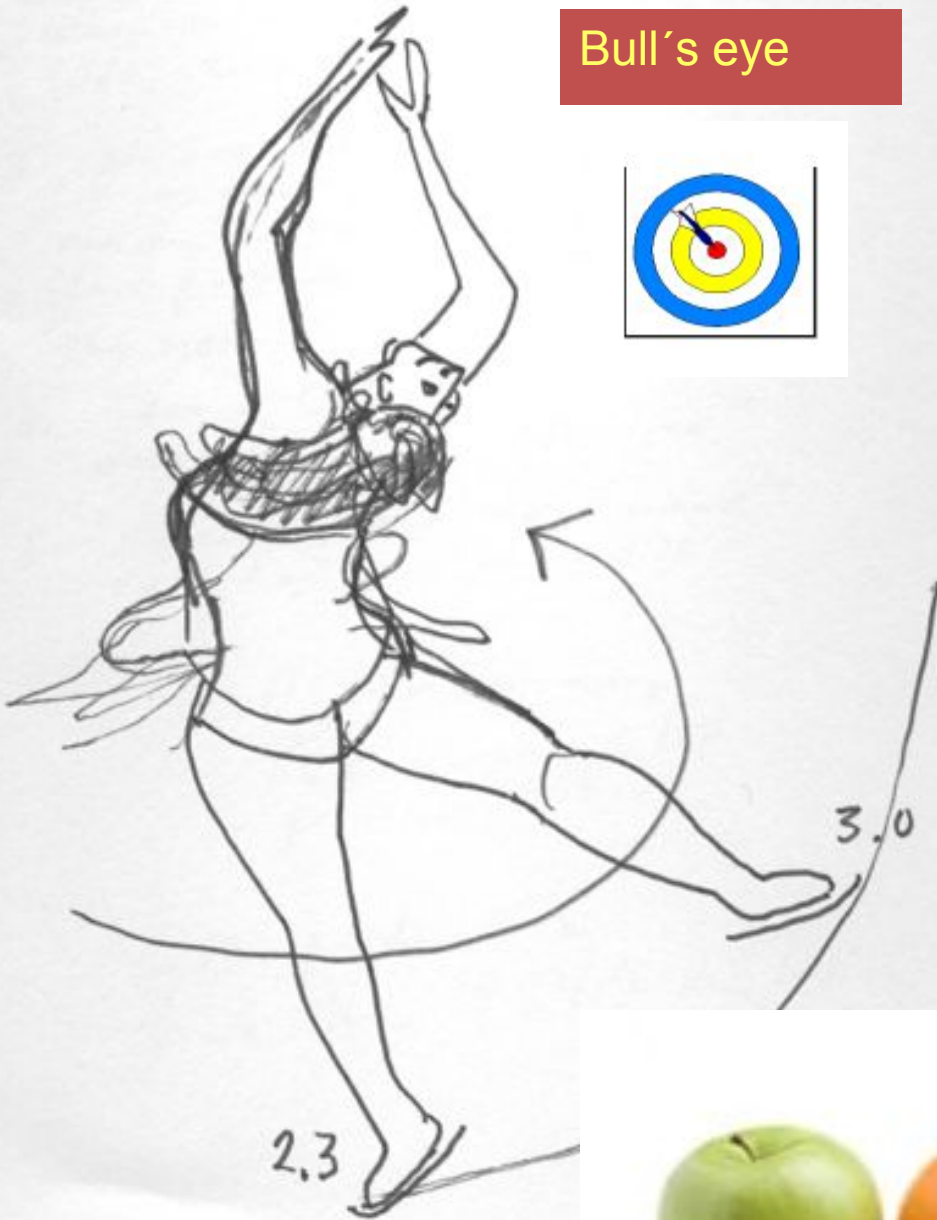
†Significant difference ($P < .01$).

Sonce BLOOD, 15 MARCH 2007 VOLUME 109, NUMBER 6 2419

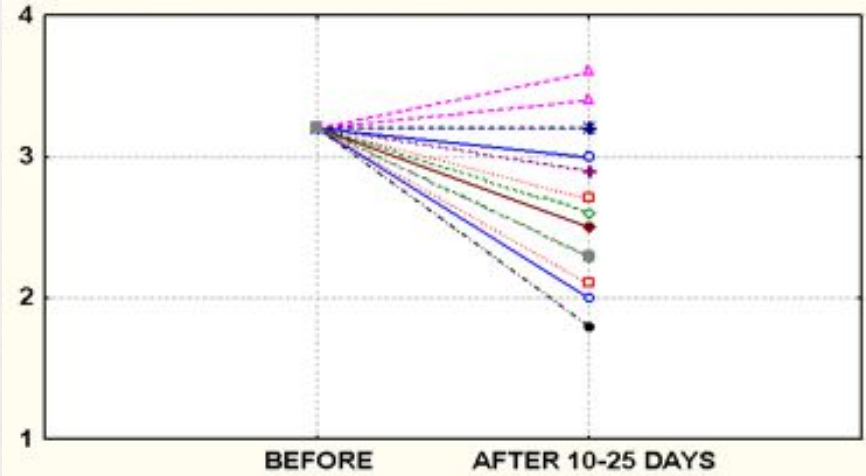
Egenmätning ökar stabilitet



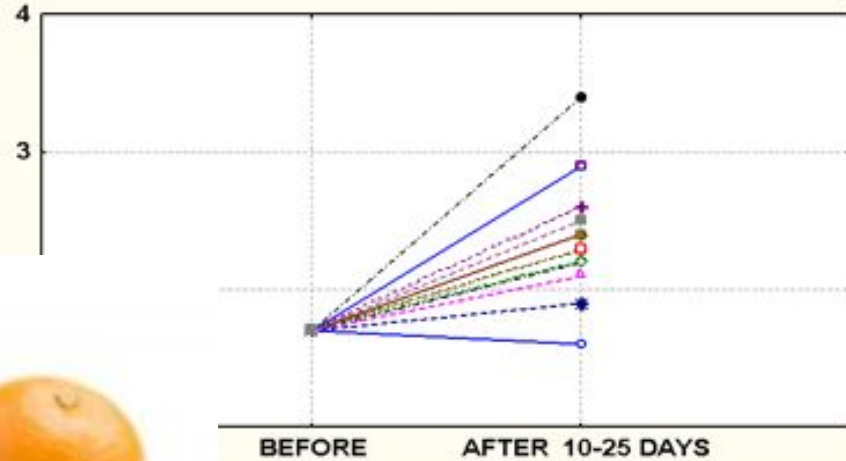
Bull's eye



CHANGE OF INR AFTER DECREASE OF DOSAGE (M=4.9%)



CHANGE OF INR AFTER INCREASE OF DOSAGE (M=5.5%)



Feedback loop - empowerment

Kontroll av ändrad dos

Kontroll vid interaktion

Kontroll av kostförhållanden som ändras

Kontroll vid långsam INR stegring

Kontroll vid sjukdom, diarre, kräkningar.

Kontroll vid missad dos

Kontroll vid blödning

Kontroll av eget intag av waran

– ger trygghet

AK Antikoagulantia

Personnr: 19400228-0014 Namn: Bo Johansson Alder, kön: 72 M Vär: Reg.datum: 2012-09-05 14:53 Registrerare: INS

Behandlingsorsak: FF Primärprev. AK-läkemedel: Warfarin Orion 2.5 PAL/Enhet: P E

Startdatum: 2007-12-21 Behandlingstid: Till ablation (1v) Datum Eikoniv./Abla.: Slut-kontroll-datum: 2008-03-20 Brevkopla till annan enhet:

Mått	Datum	Prov	Dos/v mg	Antal tabletter
*Å	2012-01-16	3.1 >	27.50	2 1 2 1 2 1 2 11.00 3 BRILA
	2012-02-06	2.2 *	27.50	2 1 2 1 2 1 2 11.00 2 BRILA
	2012-06-18	3.1 >	26.25	1% 1 2 1 2 1 2 10.50 2 INS
	2012-08-22	2.0 *	26.25	1% 1 2 1 2 1 2 10.50 1 INS
	2012-08-24	2.0	26.25	

Senaste ordination: 2012-09-01 2.1 30.00 Må Ti On To Fr Lø Sø Totalt Vi Doserat av Dosensv.

LMH-gräns: 2.0 - 3.0 Fax-Ring: %-tabl: Kommenter till senaste prov: COAG Projekt:

Veckor: 1 Datum: 2012-09-08 Viktigt! Viktiga saker... Ven/Kap: INF Plats:

194002280014

Mediciner	Omprövning	Avslut	Anmärkning	Översikt	Extra utskrift	Utskrift
Bevakning	Nypa / Kreatinin	Risker	Information/Länkar	Labtest	CoaguChek®	Direkt utskrift
Blödning	Retrombos	Påminnelse	Extra LMH	Eikonverterad	Tele	Överkan
Checklista	CC Återbesök	Blodsmitta	Tele-reg	FAX-besked		

19400228-0014

Bo Johansson

Statusbeskrivning

Klart att börja. CoaguChek © XS Connect är ansluten.

1. Lägg mätaren "öga mot öga" med konnektorn.
2. Sätt på mätaren.
3. Tryck på knappen "Läs av mätaren" i detta fönster.
4. I Explorerfönstret, som öppnas automatiskt, tryck "Read device"
5. När det är klart stäng Explorerfönstret.

Om du vill avbryta läsningen tryck Esc.

Läs av
mätarenKontrollera
ConnectornVisa inlästa
dataVisa
statistik

Gren AK Antikoagulantia

AK CoaguChek © Visa

A12

A10

19400228-0014

Bo Johansson

A17

KL

INR

2012-06-02	18:04	1.0
2012-06-03	07:06	0.9
2012-06-03	07:10	1.0
2012-06-03	11:31	1.1

Gren **AK Antikoagulantia**

AK CoaguChek © Statistik

A12

19400228-0014

A10

Bo Johansson

Startdatum

2012-01-01

Slutdatum

2013-01-01

Ny statistik

Antal prover

< 1 dag mellan prover:

2

1 dag mellan prover:

1

2 dagar mellan prover:

3 - 5 dagar mellan prover:

6 - 8 dagar mellan prover:

9 - 14 dagar mellan prover:

> 14 dagar mellan prover:

Antal prover:

4

Antal prover <2.0:

4

Antal prover >3.0:

Medelvärde prover:

1.02

Standarddeviation:

0.08

Om ACCP igen

Rather than endorsing a particular type of care, the group adopted a best practices statement recommending that anticoagulation therapy providers use a “systematic and coordinated” approach that includes INR testing, tracking, and follow-up and effective communication with patients.

“My hope would be that people who are doing anticoagulation therapy monitoring, that they figure out a way to add to that knowledge base” so that the information can be used in the next update of the guidelines, Witt said.

—*Kate Traynor*

Hemmätning ger
bättre kontakt med
vården där
sjuksköterskan
som samlar data
har fått ett ännu
mer stimulerande
arbete med lyckliga
balansmästare vi
kallar patienter.