Making a measurable impact on health and healthcare through electronic systems

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Why focus on data in general practice…

… data provides the opportunity to instigate change

… any intervention should not occur isolated from data

… data give reassurance that change is occurring or has occurred

… data creates an environment of accountability and increased chance of critical thinking and judicious decision making

Three levels to general practice data:

1. Patient level:

… clinical care is focused on the individual patient.

… missing patient data leads to a greater risk of harm or less than best care as decision support systems (human and machines) are not given the best opportunity to function.

… poor individual data limits the capacity for practice and Divisional views.

Three levels to general practice data:

2. Practice level:

… clinical care of the practice population is best served by interested clinicians.

… individuals get the benefit from practice wide strategies, that assist in the individual care of the patient.

… the effectiveness of practice wide strategies will be limited to the quality of data available for individuals.

… if any one individuals data is poor than there is a risk of missing out on the practice strategy as they slip through the net.

Three levels to general practice data:

3. Division level:

… clinical care by GPs and the total population level is the interest of the Division.

… the Division needs to engage individual clinicians rather than focus on individual patients.

… data should initiate and evaluate intervention strategies to ensure appropriateness and sustainability.

… sustainable divisional level data collection must be a by product of routinely collected "valued" clinical care data.

General Practice Research Network

… Began August 2000
… First year had panel of 175 GPs from 78 practices
… Second year approximately 297 GPs provided data
… Third year expanded to maintain 300 GPs
… Anonymous data extracts from Medical Director - earliest data from January 1999
… Opportunity to investigate use of patient management systems, post marketing surveillance, the capabilities of decision support and electronic systems for population health monitoring

Health Communication Network
GPRN Research

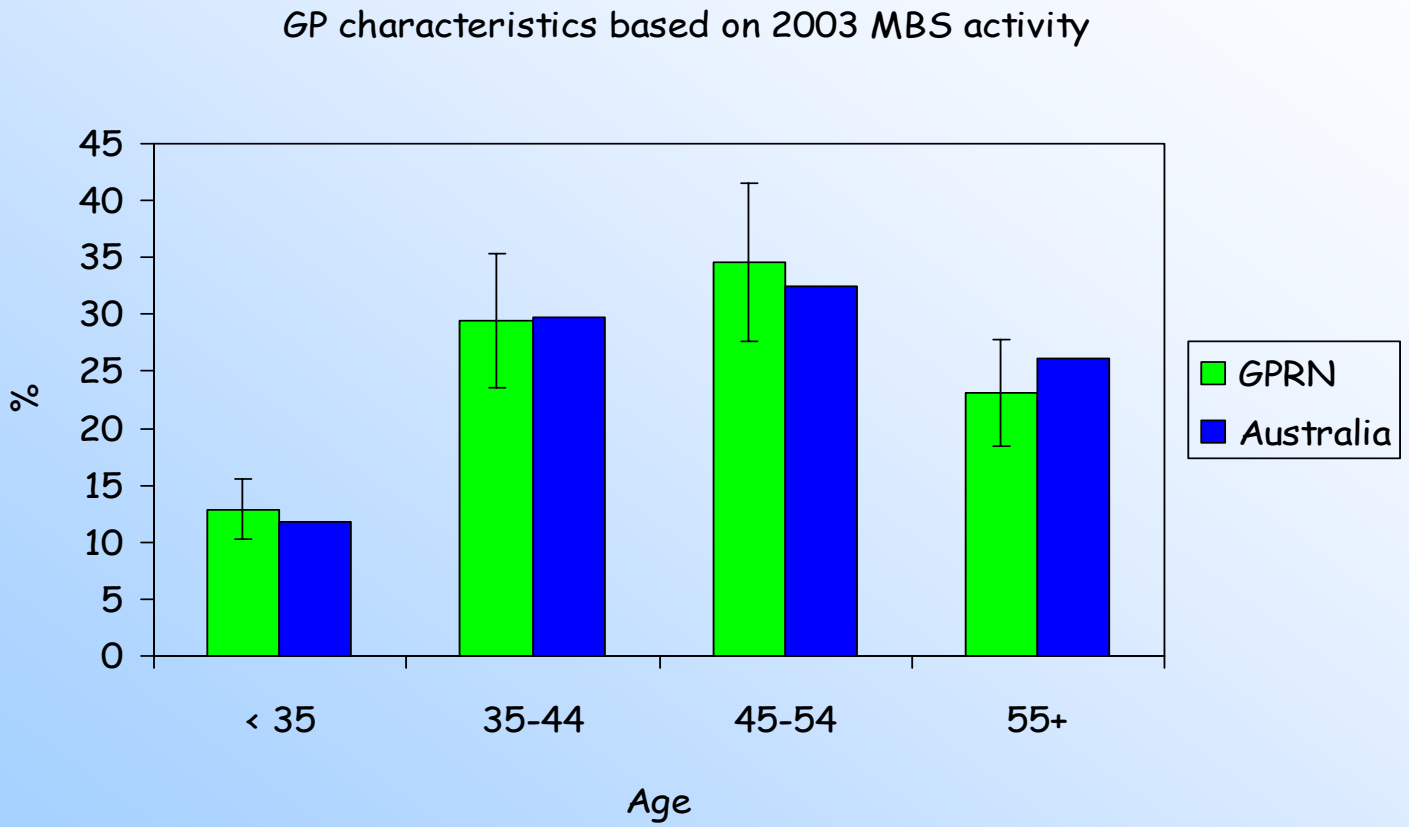
What is novel about GPRN?

- … It's behavioural data – observational cohort
- … Longitudinal nature of database – data from January 1999
- … Size & quality of numbers – 9+ million prescriptions and encounters
- … It's "virtually" live – data from last week
- … The methodology and approach is replicable at a local level

Data collected

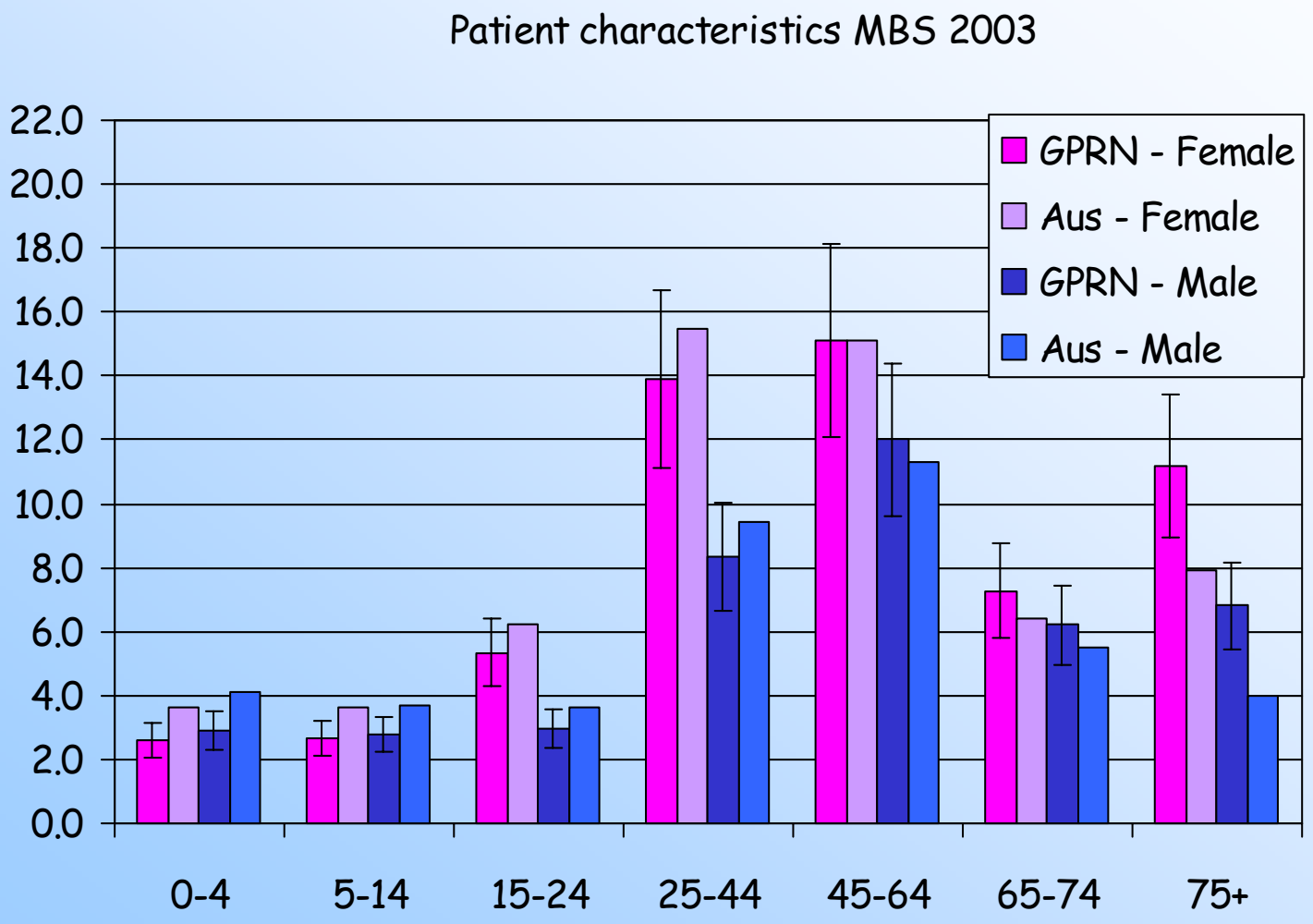
- … Patient demographics
- … Prescriptions
- … Reasons for prescribing, reasons for visit, diagnosis and past medical history
- … Diagnostic requests (e.g. x-rays, blood tests)
- … Diagnostic results
- … Clinical measurements (e.g. BP, height, weight)
- … Doctor and practice demographics

The GPs



Gender	GPRN	Australia
Male	69.5	63.4
Female	30.5	36.6

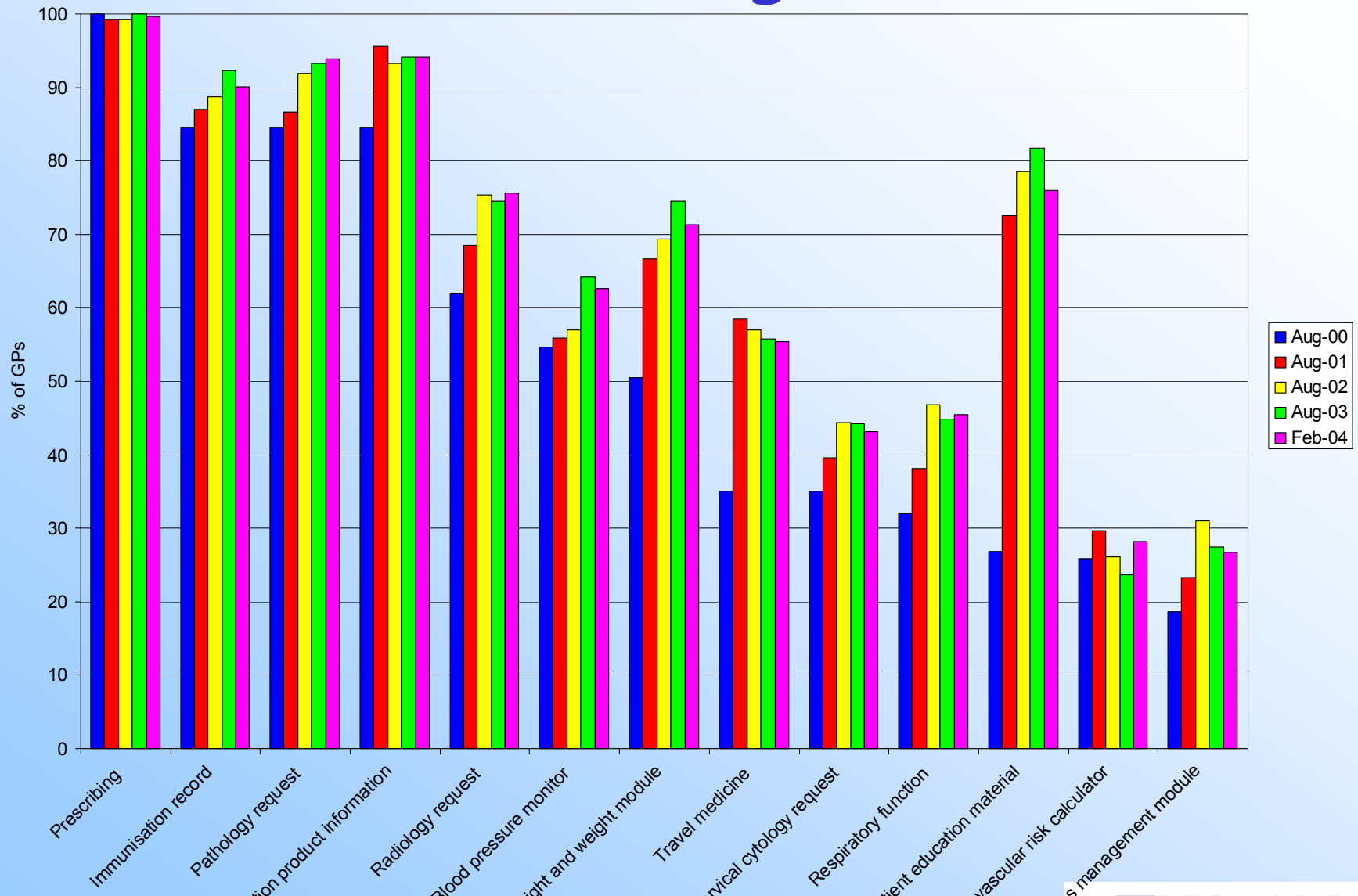
The patients



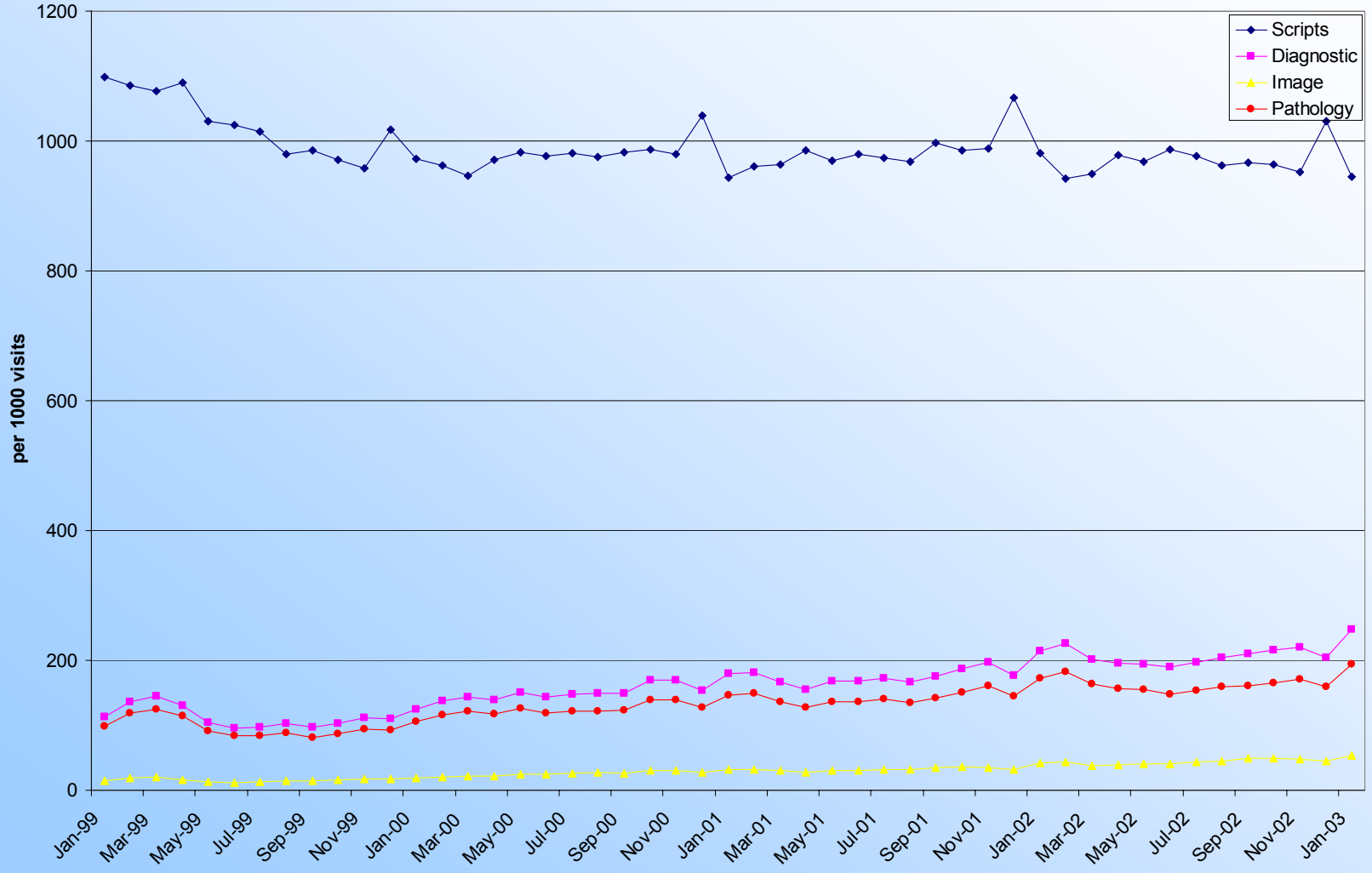
How computerised…

	Medical Director		Computers for Clinical Use	
Years	**N**	**%**	**n**	**%**
1	19	6.5	8	2.7
2	18	6.2	15	5.1
3	31	10.6	22	7.5
4	69	23.6	63	21.4
5	93	31.9	101	34.4
6	25	8.6	20	6.8
7	18	6.2	17	5.8
8	8	2.7	14	4.8
9	8	2.7	17	5.8
10+	3	1.0	17	5.8

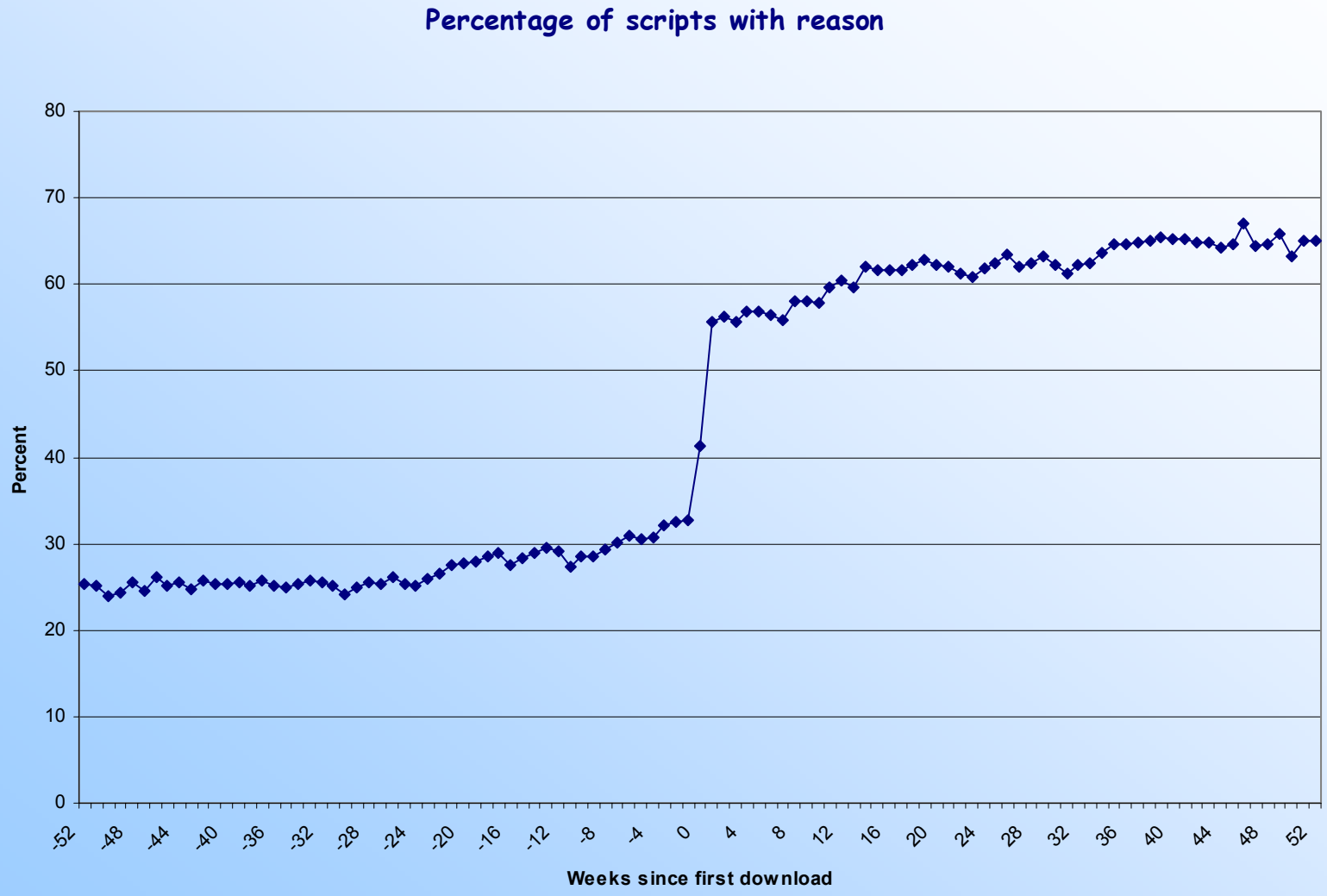
Medical Director usage



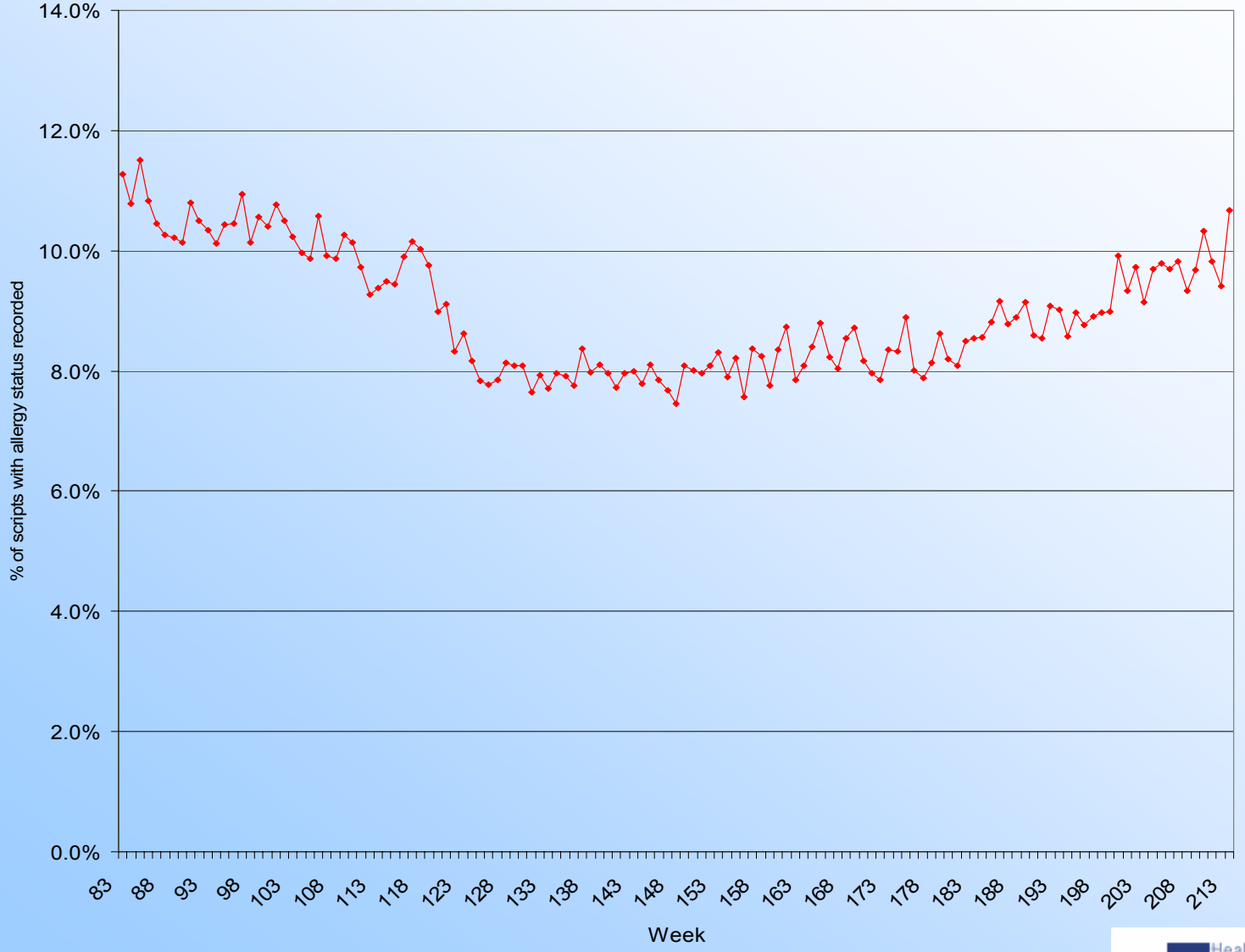
Electronic prescribing and diagnostics



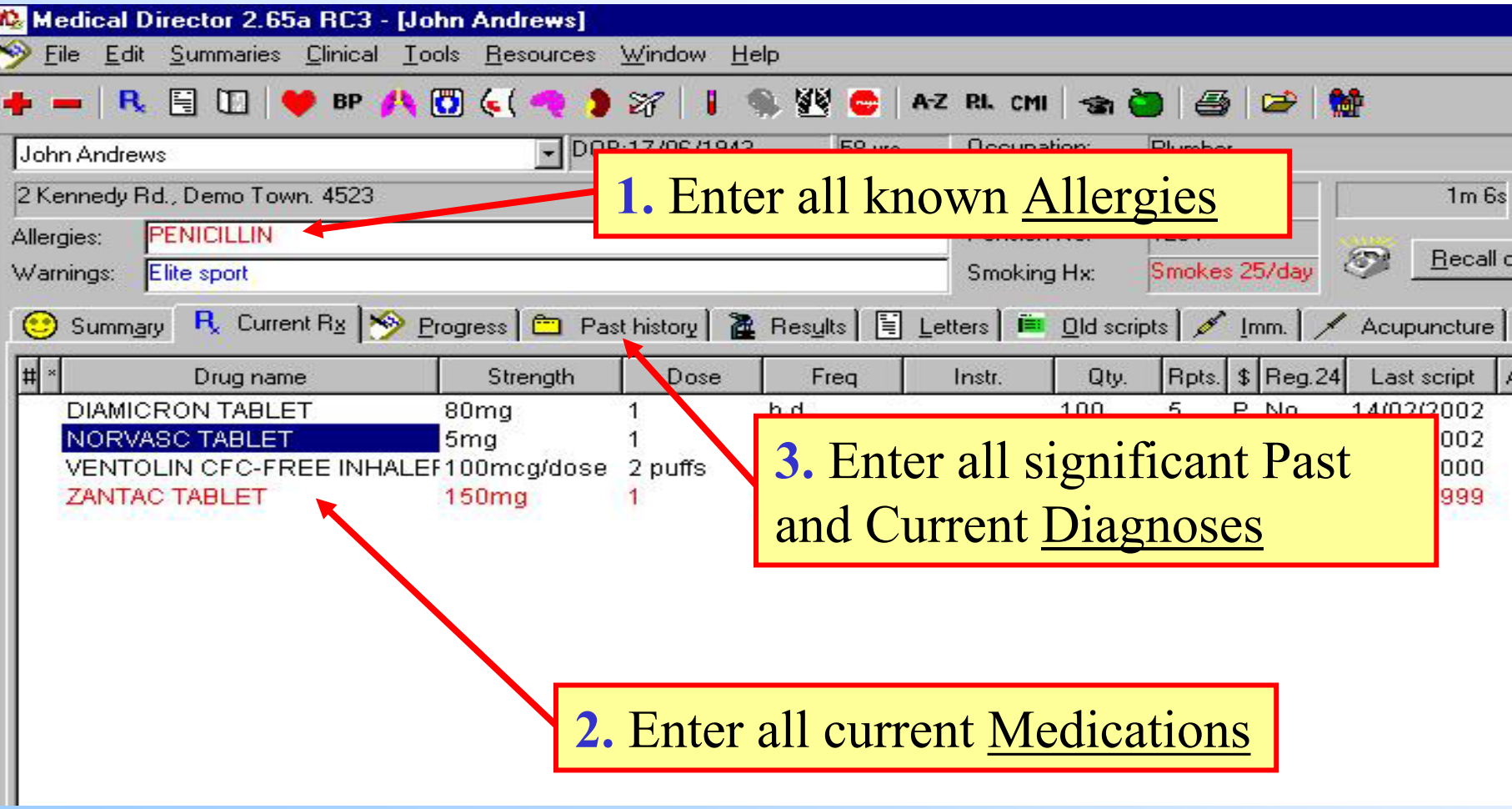
Results



Drug allergy recording



What are the three data elements?



There is more to this than patient data for research…

Lack of patient *Disease*, *Allergy*, and *Medication Data* will impede the progress of developments such as:

… chronic disease management,

… disease registers,

… EDQUM,

… doctor communication,

… population health activities,

and

… virtually all future IT based Decision Support

The reasons …

Problems Managed and Reasons for Prescribing and/or Visit – General Practice Research Network 2003

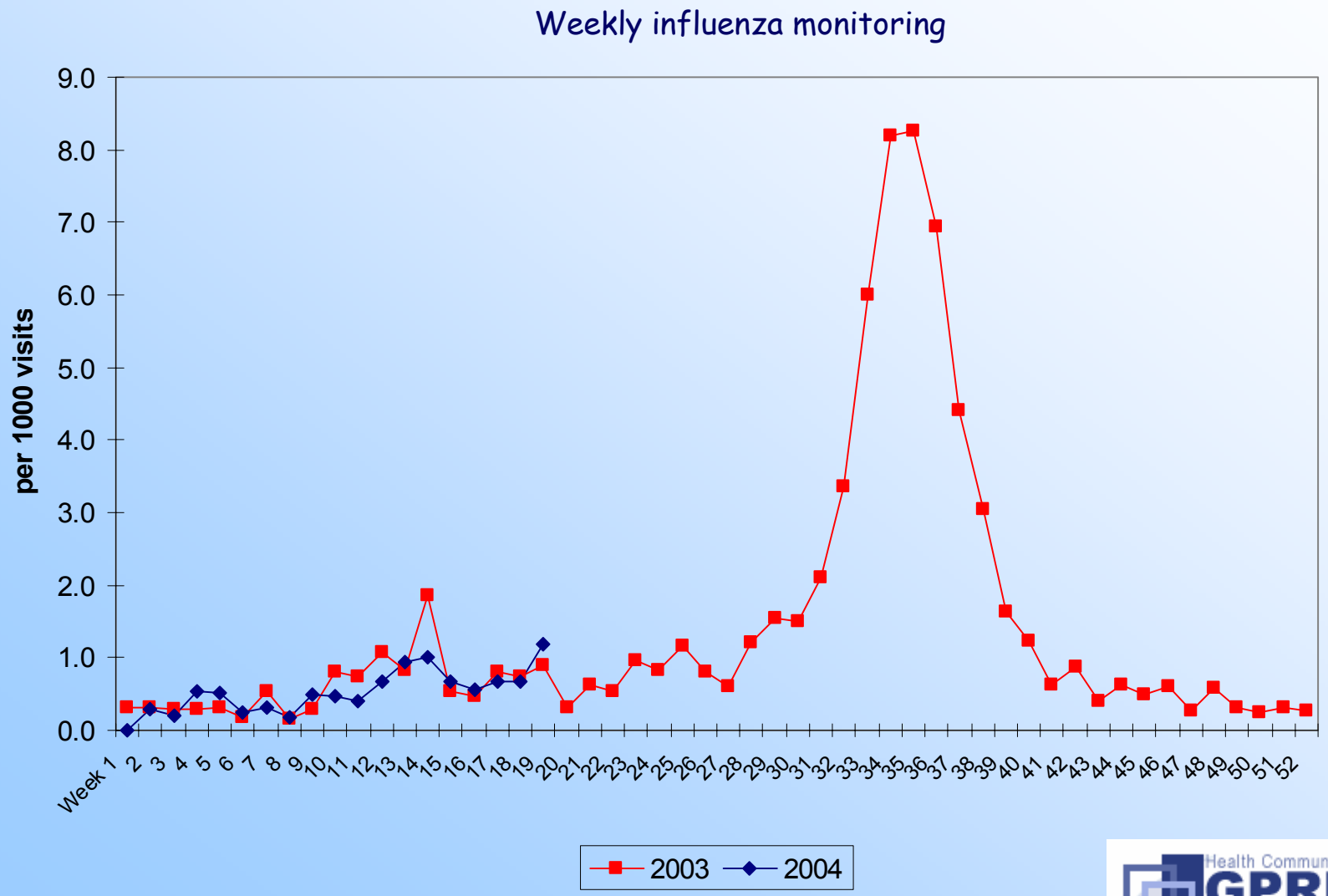
Rank	ICPC2	Label	GPs	% GPs	n	%	per 1000 encs	L95%CI	U95% CI
1	K86	Hypertension, uncomplicated	304	98.7	105,168	6.6	87	81.7	92.2
2	A50	Medication/script/request/renew/inject NOS	283	91.9	102,236	6.4	84.5	72.7	96.4
3	R74	Upper respiratory infection, acute	295	95.8	50,205	3.2	41.5	36.7	46.3
4	P06	Sleep disturbance	300	97.4	49,368	3.1	40.8	37.3	44.3
5	T93	Lipid disorder	300	97.4	43,826	2.8	36.2	33.9	38.6
6	P76	Depressive disorder	303	98.4	41,409	2.6	34.2	31.6	36.9
7	R96	Asthma	303	98.4	38,693	2.4	32	30	33.9
8	L91	Osteoarthrosis, other	298	96.8	37,626	2.4	31.1	28.3	33.9
9	D84	Oesophagus disease	300	97.4	34,179	2.1	28.3	26.2	30.3
10	A44	Preventive immunisation/medication NOS	290	94.2	33,945	2.1	28.1	25.5	30.7
11	T90	Diabetes, non-insulin dependent	298	96.8	30,543	1.9	25.3	23.1	27.5
12	S88	Dermatitis, contact/allergic	300	97.4	26,061	1.6	21.5	20.2	22.9
13	A29	General symptom/complaint, other	294	95.5	24,356	1.5	20.1	16.6	23.7
14	L02	Back symptom/complaint	297	96.4	22,679	1.4	18.8	16.5	21
15	K74	Ischaemic heart disease with angina	287	93.2	20,634	1.3	17.1	14.9	19.3
16	A91	Abnormal results investigation NOS	294	95.5	19,449	1.2	16.1	15.1	17
17	P74	Anxiety disorder/anxiety state	293	95.1	17,969	1.1	14.9	13.3	16.4
18	R75	Sinusitis acute/chronic	295	95.8	17,357	1.1	14.4	12.8	15.9
19	R78	Acute bronchitis/bronchiolitis	294	95.5	17,315	1.1	14.3	12.3	16.3
20	U71	Cystitis/urinary infection, other	299	97.1	16,259	1	13.4	12.7	14.2

The medications …

Most frequent medications prescribed – General Practice Research Network 2003

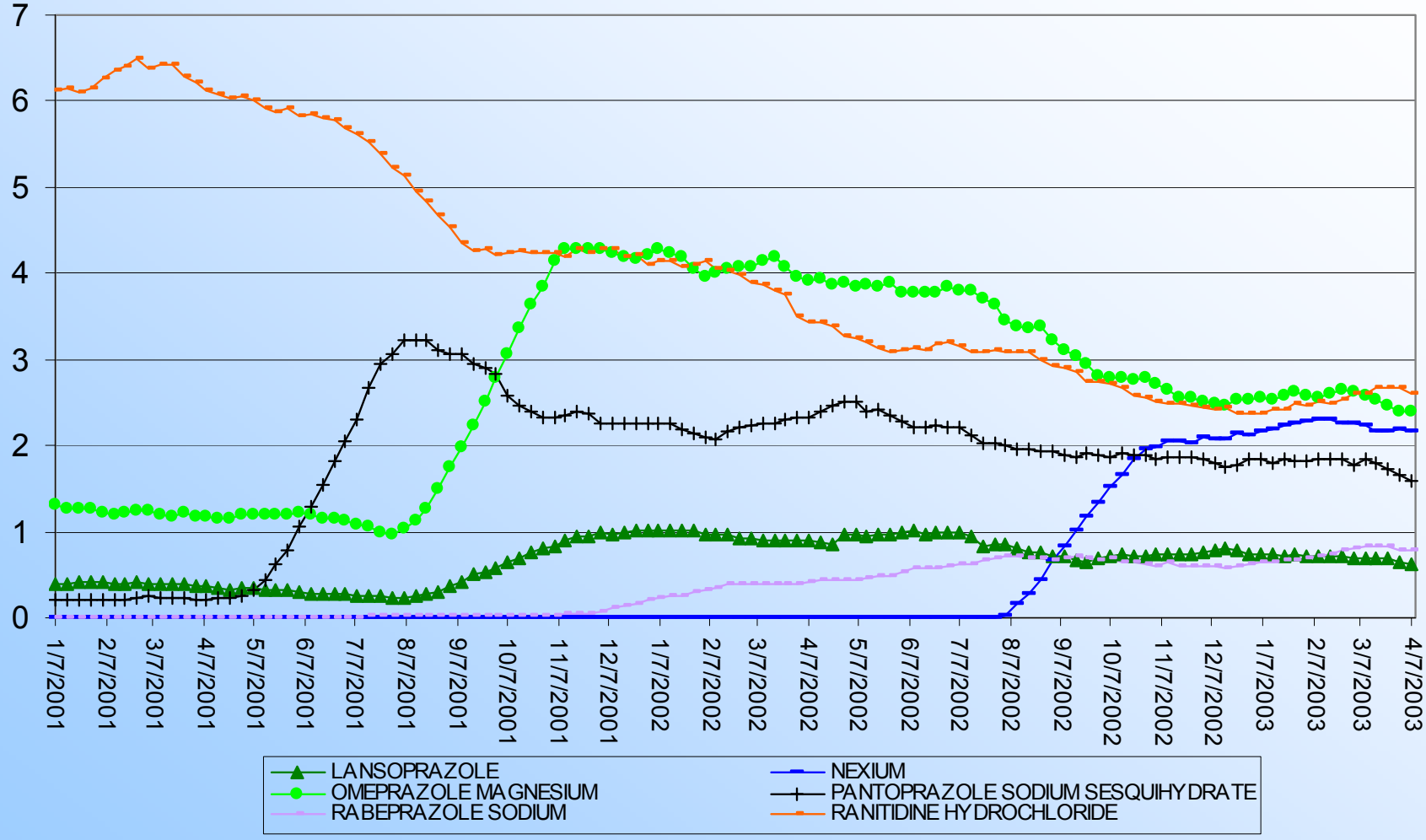
Rank	Generic medication	GPs	% GPs	n	%	per 1000 encs	L95%CI	U95%CI
1	PARACETAMOL	301	97.7	43,294	3.2	29.7	27.1	32.3
2	AMOXYCILLIN	303	98.4	41,012	3	28.2	25.5	30.8
3	TEMAZEPAM	301	97.7	38,753	2.8	26.6	24.2	29
4	PARACETAMOL/CODEINE PHOSPHATE	302	98.1	38,739	2.8	26.6	24.1	29.1
5	CEPHALEXIN	304	98.7	26,673	2	18.3	16.4	20.2
6	SALBUTAMOL SULFATE	302	98.1	23,963	1.8	16.5	15.2	17.7
7	DIAZEPAM	298	96.8	23,866	1.8	16.4	14.5	18.3
8	TRAMADOL HYDROCHLORIDE	297	96.4	22,970	1.7	15.8	14.3	17.3
9	AMOXYCILLIN/POTASSIUM CLAVULANATE	300	97.4	22,499	1.7	15.5	13.2	17.7
10	ATORVASTATIN	302	98.1	22,392	1.6	15.4	14.2	16.6
11	OXAZEPAM	285	92.5	21,007	1.5	14.4	12.6	16.2
12	SIMVASTATIN	295	95.8	19,296	1.4	13.3	12.1	14.4
13	CELECOXIB	299	97.1	18,390	1.3	12.6	11.5	13.8
14	LEVONORGESTREL/ETHINYLOESTRADIOL	305	99	16,913	1.2	11.6	10.7	12.5
15	ROFECOXIB	296	96.1	16,871	1.2	11.6	10.5	12.7
16	ASPIRIN	288	93.5	16,694	1.2	11.5	10.5	12.5
17	ROXITHROMYCIN	294	95.5	16,683	1.2	11.5	10.1	12.8
18	MOMETASONE FUROATE	297	96.4	15,708	1.2	10.8	9.9	11.6
19	WARFARIN SODIUM	290	94.2	14,252	1	9.8	9.1	10.5
20	OMEPRAZOLE MAGNESIUM	296	96.1	13,704	1	9.4	8.7	10.1

Infectious disease…



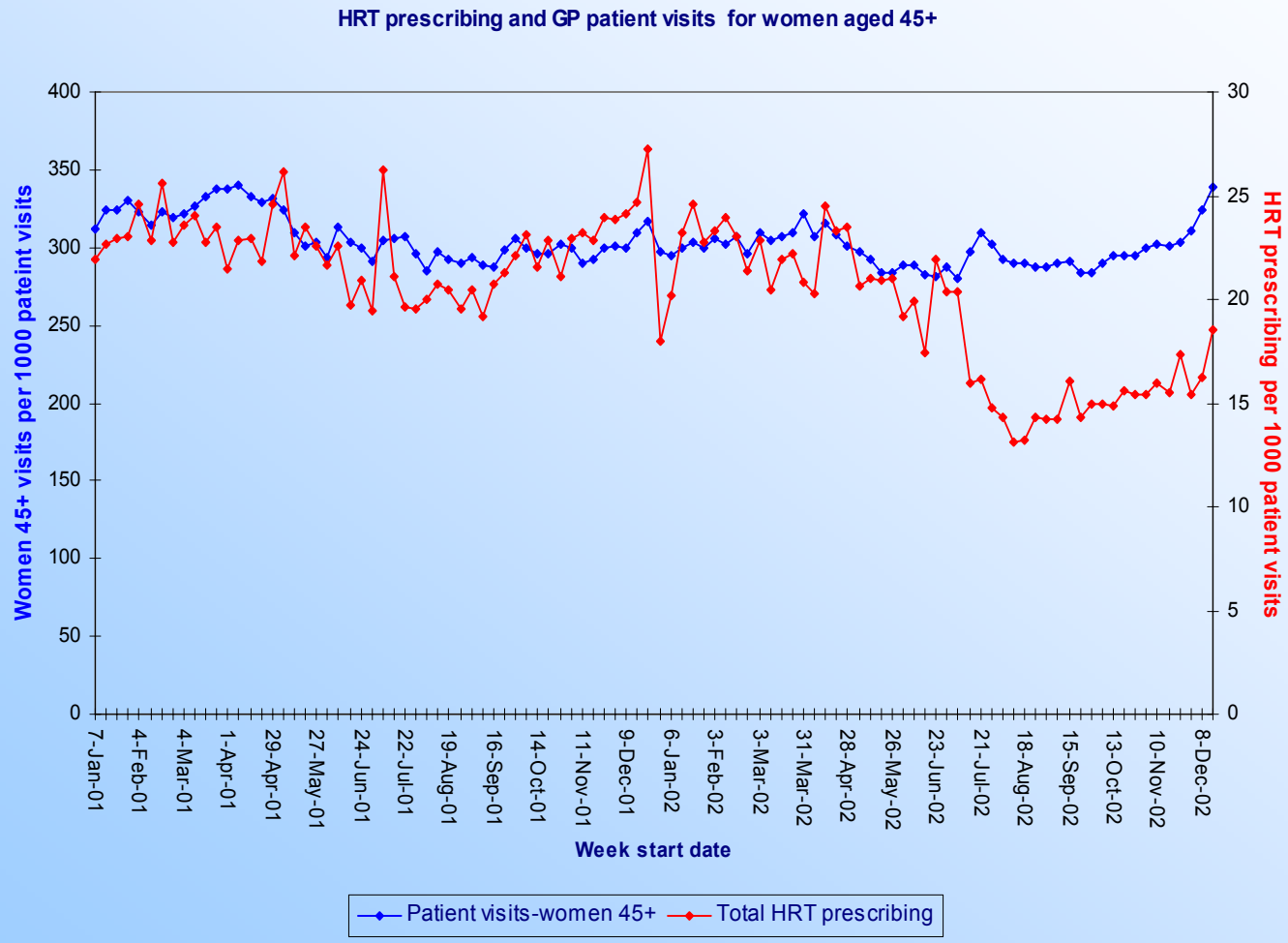
Pharmacoepidemiology

Rate of initiated prescriptions per 1000 patient visits per week - 3 month moving average

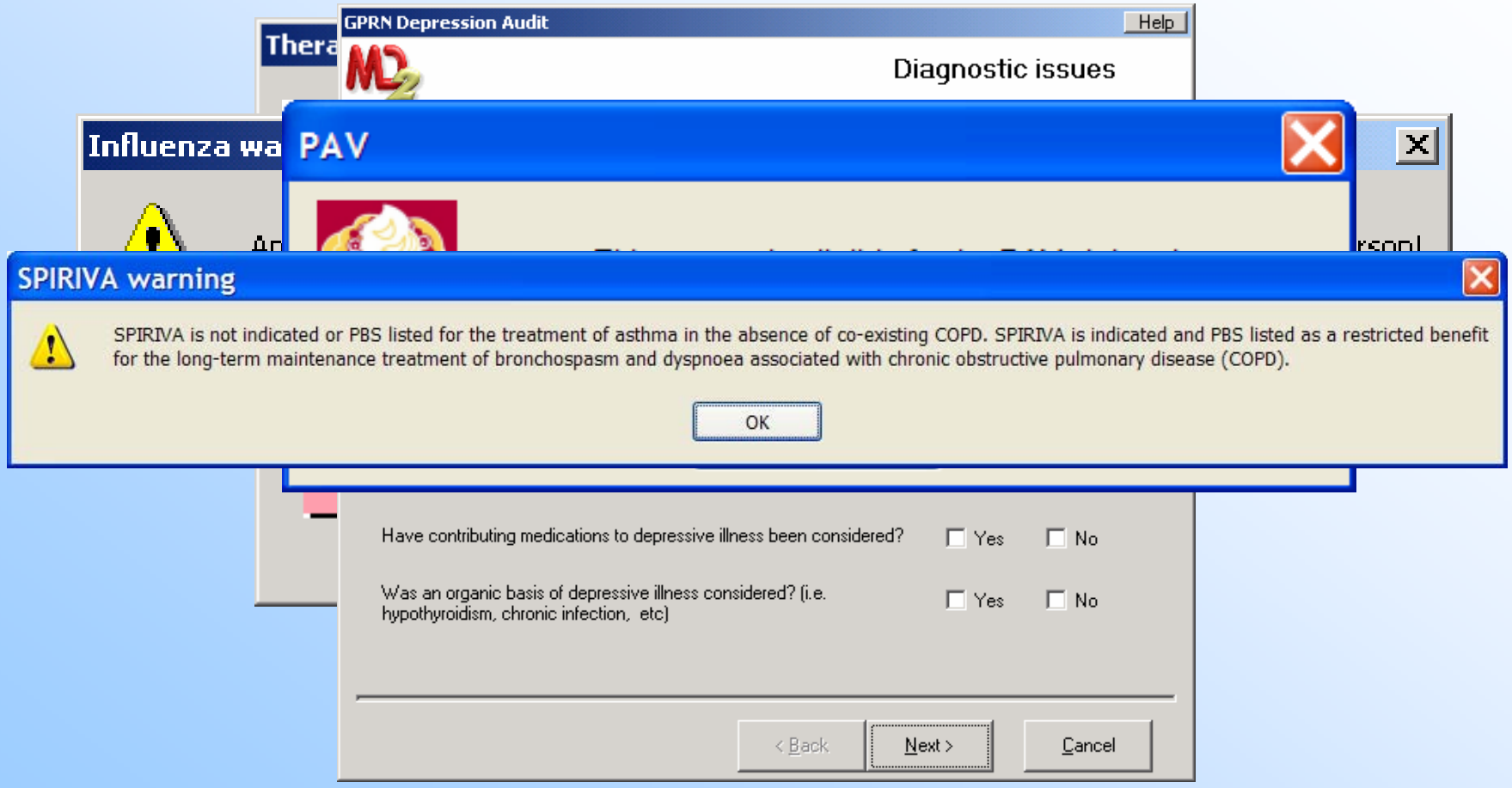


GPRN is sensitive to PBS listing changes and monitoring the impact on GP prescribing.

Use of data in pharmacoepidemiology



Data to instigate change…



K.D.S

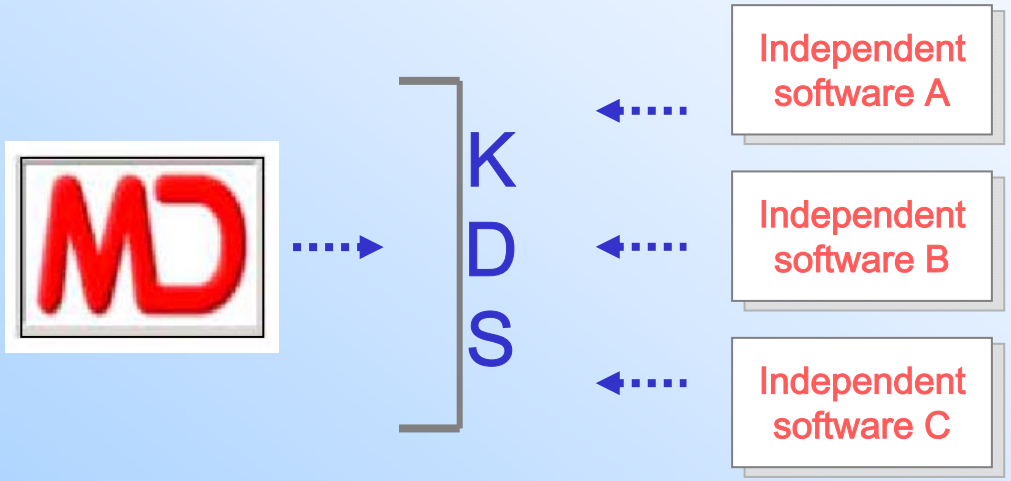
=

knowledge deployment system

* *independent*
* *invisible*
* *integration*

What is K.D.S ?

- K.D.S (knowledge deployment system) is a bridge that links independent software (Knowledge Objects) to a patient management systems (eg Medical Director).



H···C···N
HEALTH COMMUNICATION NETWORK

K.O

=

knowledge object

** simple ……..*

** precise …….*

** effective ……*

K.O examples

- PPI audit and reminder system
- Benchmarking QUM statistics
- Uncover – identifies & flags long term aspirin patients for medication review, presenting an interactive review screen to the clinician when the patient presents.
- Electronic Surveillance Network – monitors & collates disease rates in a defined population on a daily basis, sending an alarm to health officials if rates exceed expected levels.
- Diabetes audit – electronic version of NPS paper form

H…C…N
HEALTH COMMUNICATION NETWORK

What should Division's concentrate on?

Strategies that get GPs to value their own data for the care of their patients.

Strategies that get GPs to think about their practice population.

Strategies that get GPs to see data as a means to instigate, maintain or cease interventions.

Strategies that collect Division Level data as a by product of routine and sustainable data collections.

Questions for the day…

1. What is HCN's position on GPs extracting data from Medical Director?

2. What is the potential for any collaboration between HCN and Divisions with respect to data extraction and aggregation?

3. What is HCN position on providing Divisions with de-identified extracted data from their constituent practices?

4. Does HCN have any plans to go down a path of epidemiological investigation or examination of population health matters?

5. How "valuable" is general practice data?

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