

Getting the medicines right: does the system help or hinder?



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Feb 2011

Guideline Implementation:



Assumptions

- Recommendations will be adopted because they are:
 - evidence-based
 - promoted by reputable agencies/people
- Implementation will be relatively easy, rational and linear

Reality

- Large gap between recommendations and practice
- Size of the gap is known to vary with the nature of the recommendation

(Sheldon 2004)

Principles of implementation

NHS

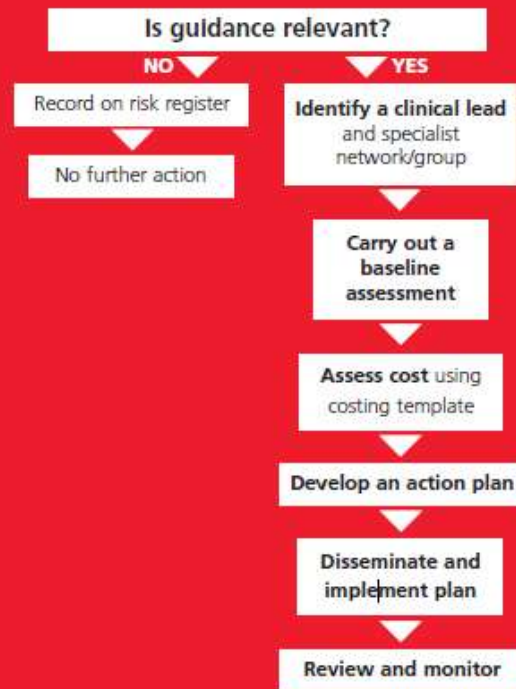
National Institute for Health
and Clinical Excellence

How to put
NICE guidance
into practice

- Board support and clear leadership
- Provision of a dedicated resource
- Support from a MDT
- Systematic financial planning
- Systematic approach to guideline implementation
- **Process to evaluate uptake**

Practicalities of implementation

Diagram 2.
Process for implementing clinical guidelines



- Large number of recommendations
- **Focus required**
- Baseline audit against key standards
- Targeted interventions
- Re-audit
- Targeted interventions
- Re-audit

Prescribing Observatory for Mental Health



- Founded 2005 (Health Foundation grant)
- Independent from pharmaceutical industry
- Based at the CCQI at the RCPsych
- Aim is to **improve use of medicines in mental health services** through focused Quality Improvement Programmes (QIPs)
- 11 QIPs to date
 - CAMHS, ALD, adult psychiatry (hospital and community), forensic services, old age.
 - Prescribing practice, side effect assessment and monitoring.

POMH Quality Improvement Programmes;

the process and the focus



- Topics chosen in consultation with member Trusts/services
- Expert clinical group convened
- Draft standards and audit tool developed
- Discussed with clinicians at regional workshops (and refined)
- On-line data submission
- Benchmarked audit report
- Targeted interventions followed by re-audit
 - High dose and combined antipsychotics in acute adult inpatient settings (5 audits)
 - Medicines reconciliation (1 audit cycle)

Prescribing of **high-dose and combination antipsychotics** for patients on adult acute and psychiatric intensive care wards

2009

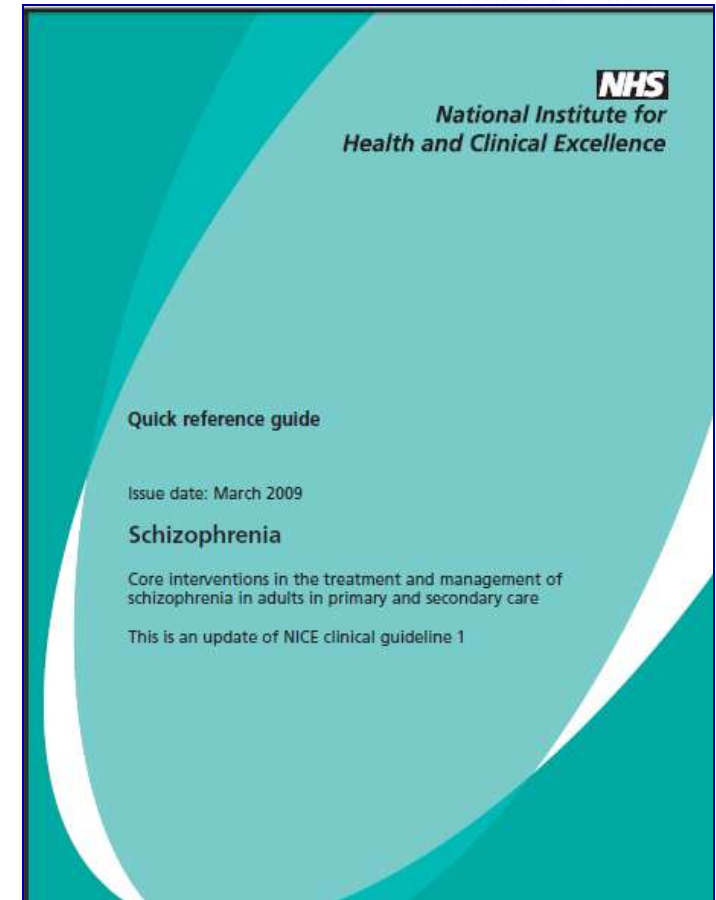
- All prescriptions for antipsychotic medication should be in the context of an individual therapeutic trial

Dosage within standard range

- At start of treatment give a dose at the lower end of the licensed range and slowly titrate upwards within the dose range given in the British National Formulary (BNF) or SPC.
- Justify and record reasons for dosages outside the range given in the BNF or SmPC.

Avoid combined antipsychotics

- Do not initiate regular combined antipsychotic medication, except for short periods (e.g. when changing medication).



Method



Participating Trusts

- Self-selected

Eligible patients

- On acute adult or psychiatric intensive care ward
- Prescribed one or more antipsychotic drugs

Data collected for each patient:

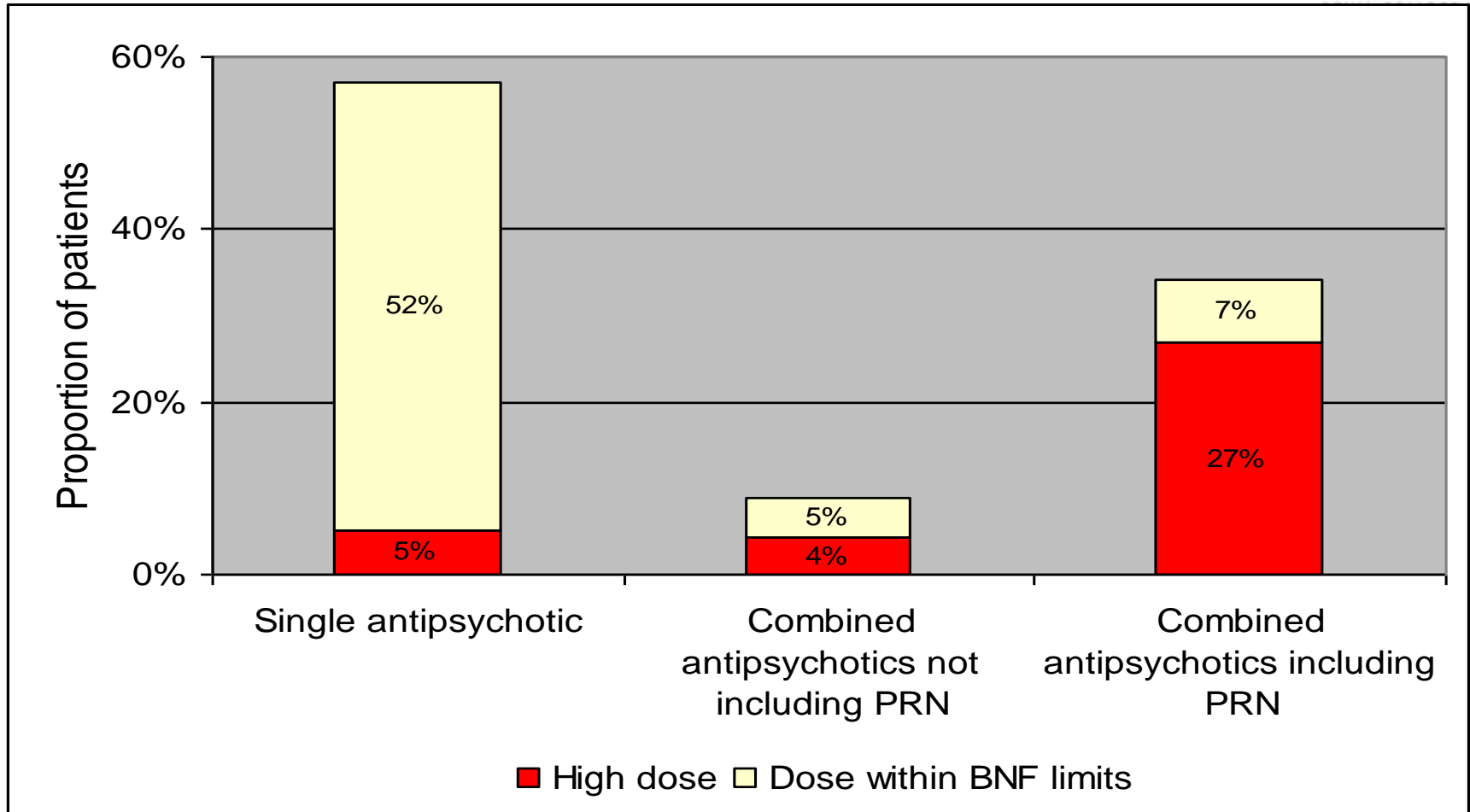
- Basic demographic (age, gender, ethnicity).
- Basic clinical (diagnosis, MHA status)
- Prescription details (names & doses of antipsychotic drugs prescribed)
- Clinical team's reasons for prescribing combined antipsychotics.

Data collection

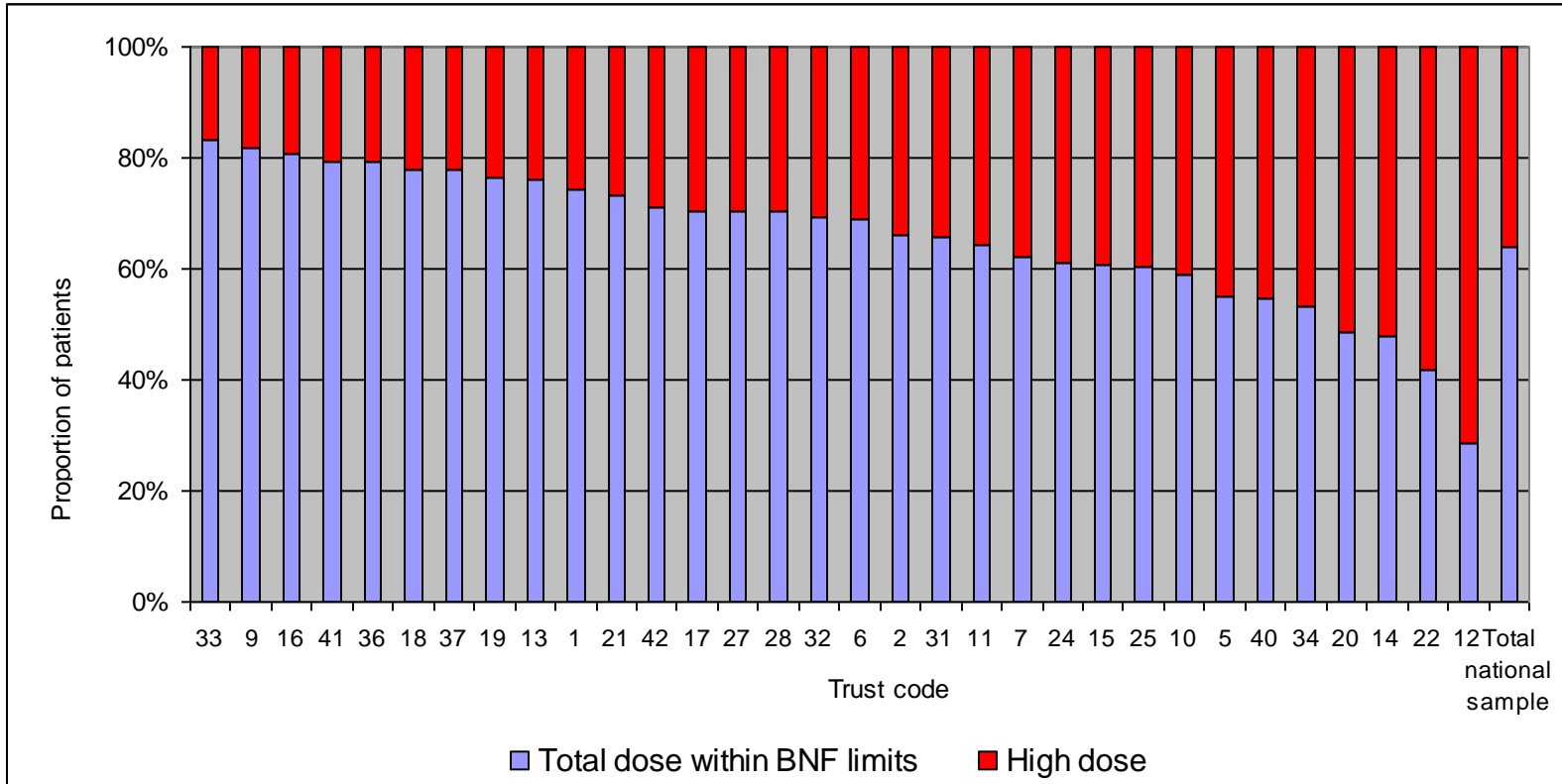
- Collected on a single census day (in Jan 06 for the baseline audit and Jan 07 for the re-audit) for each ward
- Entered on-line & analysed using SPSS.

ACUTE INPATIENTS: BASELINE AUDIT

Proportion prescribed single or combined antipsychotics in standard or high dose at baseline (n=3,492)



Proportion of patients prescribed a total antipsychotic dose within the BNF limits from each Trust and the total national sample at baseline





Prescribing of high dose and combination antipsychotics for patients on adult acute and psychiatric intensive care wards

POMH-UK Topic 1: baseline report March 2006
Oxleas Mental Health NHS Trust

Prepared by the Prescribing Observatory for Mental Health-UK (POMH-UK) for member Trusts/organisations. This report will be of interest to Executive Teams, Drugs & Therapeutics (D&T) Committees, Clinical Governance Committees, POMH-UK Local Project Teams, clinicians from participating wards and service user groups.

Benchmarked audit report and customised slide set



The slide set contains 17 numbered slides:

- Slide 1:** POMH-UK Topic 1: Prescribing of high-dose and combination antipsychotics for patients on adult acute and psychiatric intensive care wards (12-month re-audit). Includes logos for RC PSYCH and CCOI.
- Slide 2:** Combined antipsychotic: Details on clinical recommendations, high-dose antipsychotics, and adverse effects.
- Slide 3:** Potential reasons for combined antipsychotics: Lists factors like cross-titration, poor communication, and different routes of administration.
- Slide 4:** Audit standards: Lists audit objectives and standards for high-dose and combination antipsychotic prescribing.
- Slide 5:** Topic 1 quality-improvement audit cycle: Describes a baseline audit against standards, quality improvement changes, and a re-audit after 12 months.
- Slide 6:** Method: Details the sampling frame, response rates, and data analysis methods.
- Slide 7:** National sample: combining TGA and SGA antipsychotics. Includes a bar chart showing the percentage of patients on high-dose or combination antipsychotics.
- Slide 8:** National sample: reasons for prescribing combined antipsychotics (n=1287). Includes a bar chart showing reasons like 'Poor communication between services'.
- Slide 9:** National sample: combination prescribed due to poor response to monotherapy (n=1287). Includes a bar chart showing the percentage of patients on combination antipsychotics due to poor response.
- Slide 10:** Local level comparison: high-dose. Includes a bar chart comparing high-dose prescribing across different diagnostic groups.
- Slide 11:** Local level comparison: RCP10 diagnostic group. Includes a bar chart comparing RCP10 diagnostic group prescribing across different diagnostic groups.
- Slide 12:** Local level comparison: single antipsychotic, regular or high-dose. Includes a bar chart comparing single antipsychotic prescribing across different diagnostic groups.

Targeted interventions

ANTIPSYCHOTIC DOSAGE READY RECKONER

POMH UK

Commonly used antipsychotics

Oral IM dose in mg/day
Inject dose in mg/week

Percentage of BNF maximum adult daily dosage

	5	10	15	20	25	30	35	40	45	50	55	60	67	70	75	80	85	90	95	100%
Amisulpride Oral								200		300		400		500		600	1000 (83%)			1200
Aripiprazole Oral								15		15		20		20		300				30
Chlorpromazine Oral		100				300		600		900		1200		1500		1800				2400
Clozapine Oral			100 (17%)			300	400 (44%)	400		600		800		1000		1200				1600
Haloperidol Oral	1.5	3	3 (17%)			15		15		20		20		25 (24%)		30				40
Olanzapine Oral					5		7.5 (37.5%)			10		10		10		12				20
Quetiapine Oral		75	100	100				200	275	300	400		400		400					750
Risperidone Oral		2 (12.5%)			4		5 (17.5%)			8					12					16

Combining antipsychotics

Can it be justified?

Also

High dose labels

Academic detailing workshop

workbook

Combining Antipsychotics?

Why?	How good is the evidence that two antipsychotics are better than one?	
To manage acute behavioural disturbance (oral PRN)	Poor	Some studies show that some oral antipsychotics are effective in managing behavioural disturbance. See appendix 10 for details.
To manage acute behavioural disturbance (IM-RT)	Poor	RCT treatments for olanzapine or haloperidol in patients whose behaviour is driven by psychosis. That evidence is in patients not receiving regular antipsychotics. A meta-analysis shows that the effects are not clear.
To manage chronic behavioural disturbance	None	Some evidence supports the effectiveness of olanzapine (transdermal) in managing chronic aggression.
To manage relapse in a patient previously stabilised on a single antipsychotic	Poor	Studies have shown that increasing the dose of an established antipsychotic to a maximal value is no more effective than withdrawing the same dose. Combinations have not been systematically studied.
While switching from one drug to another	Limited	The dose of some antipsychotics (eg clozapine) needs to be increased slowly and close monitoring is essential. This should be complete in 4-6 weeks.
To speed up the onset of effect or enhance the size of the therapeutic effect	Poor	Response takes time. High initial doses do not speed up the onset of response. Combinations have not been studied. There is no evidence that combinations improve outcome.
To target different symptoms/symptom domain	Poor	Antipsychotics have different effects on sleep but there is limited evidence to support clinically meaningful differences on some psychotic symptoms.
To reduce side effects	Poor	In most patients it is likely that side effects will be increased.
To allow administration by a different route	Uncertain	Very few antipsychotics are available in short acting IM, depot or controlled release formulations. Reasonable attempts should be made to choose and use one route of administration. Combinations may be useful in some clinical circumstances.
Individual patient/career's choice	Limited	Choice is not real choice unless it is informed. If the patient can understand the potential benefits and risks of antipsychotic combination and come to a reasoned decision, this should be supported.
Treatment resistance	Equivoal	Combinations involving olanzapine should be considered before those involving other antipsychotic drugs.

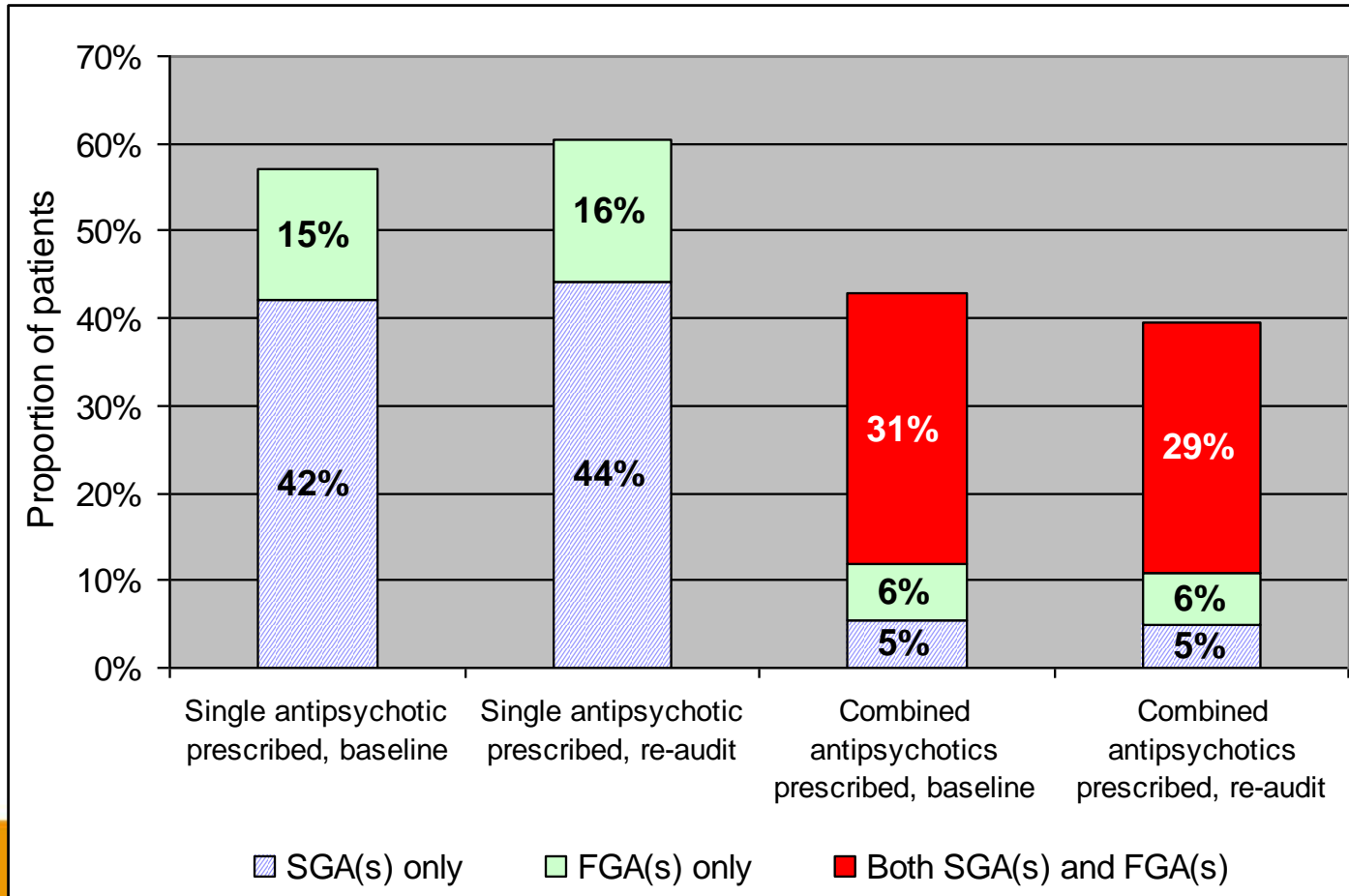
Overall, there is a lack of evidence supporting benefit

What do guidelines recommend?	What happens in practice?
<ol style="list-style-type: none"> First line, single (usually atypical) antipsychotic within the licensed dosage range for an adequate period of time. Second line, different single antipsychotic within the licensed dosage range. Third line, olanzapine. Fourth line, olanzapine augmented with a second antipsychotic. <p>5. PRN low, some guidelines recommend that other combinations should be considered if the patient has highlighted that this approach is only justified following lack of response to all antipsychotics listed above.</p>	<ul style="list-style-type: none"> Prescribing surveys show that 10-20% of outpatients with antipsychotics and an average of 30% of inpatients are prescribed a combination of antipsychotic drugs. In a high proportion of cases, the second antipsychotic is PRN. PRN (usually low) is used in many patients being potentially exposed to high doses of antipsychotics. These findings are consistent across different countries (UK, USA, throughout Europe) and have been consistent over time.

What are the potential problems?	How good is the evidence for this?
Difficulty determining cause and effect	Not knowing which antipsychotic has helped in the short term may lead to the patient receiving a higher than necessary dose and more side effects in the longer term.
Higher than necessary total dosage	There is no evidence that high doses of antipsychotics are more effective than standard doses. The major cause of high dose prescribing is combinations of antipsychotics.
Complex regime increasing the risk of non-adherence	In the general population, chronic medication regimens involving a small number of tablets are more likely to be taken than complex regimens.
Increased cost	Some antipsychotics are expensive (£150-£250/month). They cost more than some other antipsychotics.
Increased side effects (acute or long term)	All antipsychotics have side effects. One study shows that patients with multiple combinations have 50% more side effects than those who receive 1 drug.
Drug interactions (pharmacokinetic and pharmacodynamic)	The safety of combinations of antipsychotics has not been studied extensively but there are many published case reports of serious side effects such as cardiac arrhythmias and neuroleptic malignant syndrome.
Increased duration of hospitalisation	One study found that the average length of hospital stay was more than 30% longer in patients who were prescribed combinations of antipsychotics.
Increased mortality	One study found that patients who were prescribed combinations were twice as likely to die over a 10 year period than those who took 1 antipsychotic.

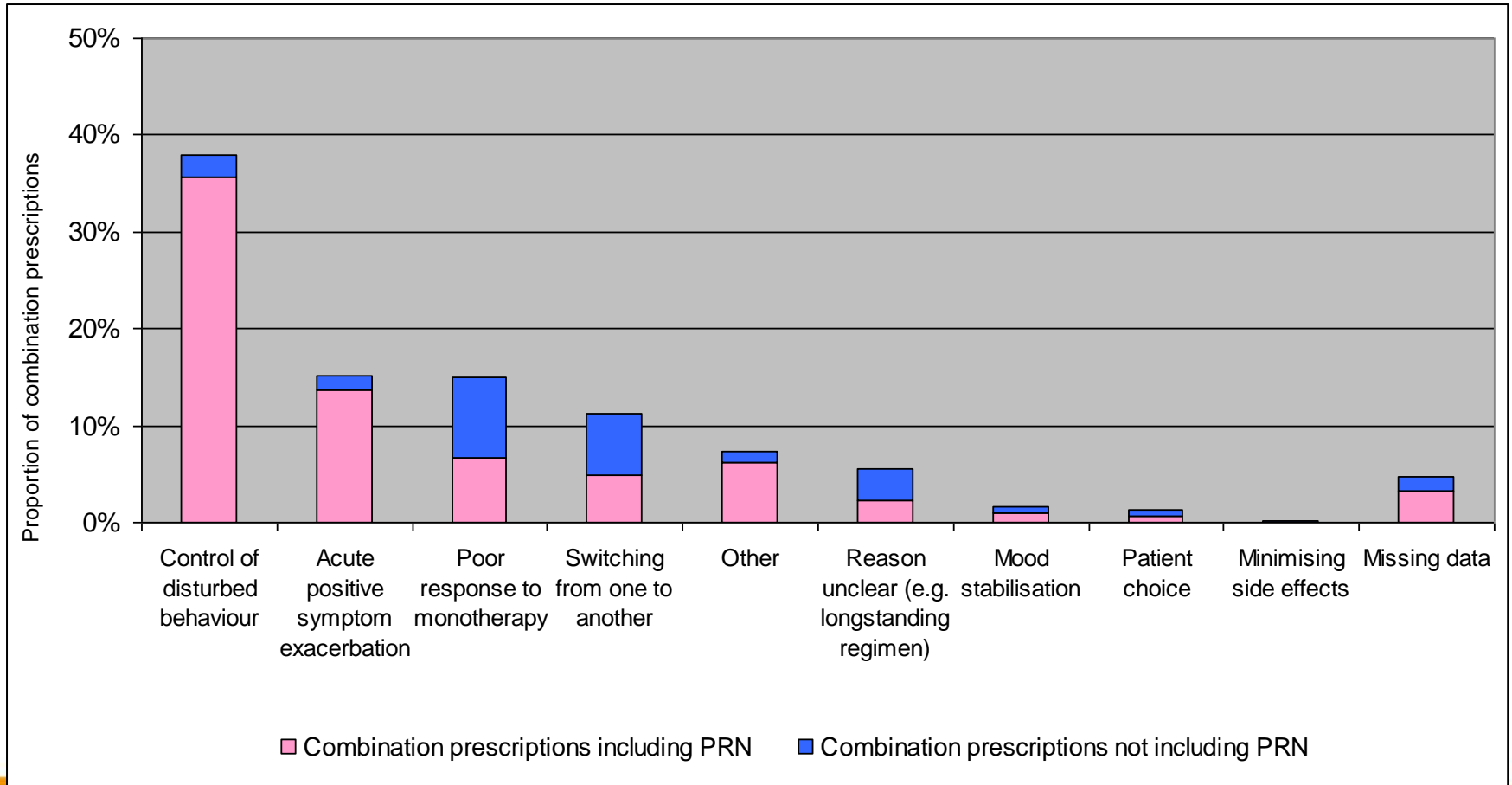
Did prescribing practice change?

Proportion of the total national sample prescribed a first generation antipsychotic (FGA), second generation antipsychotic (SGA) or combination of FGAs, SGAs or FGA and SGA at baseline (n=3492) and re-audit (n=3271)



Why not?

Reasons for prescribing combined antipsychotics N=1287



PRN prescribing of antipsychotics is established custom and practice and resistant to change



It is **common practice** to prescribe combined and high dose antipsychotics in acute inpatient settings. A major cause of both is PRN

Prescribing practice is relatively consistent over time and **did not change** with the quality improvement interventions provided; at least in the majority of services in the short term

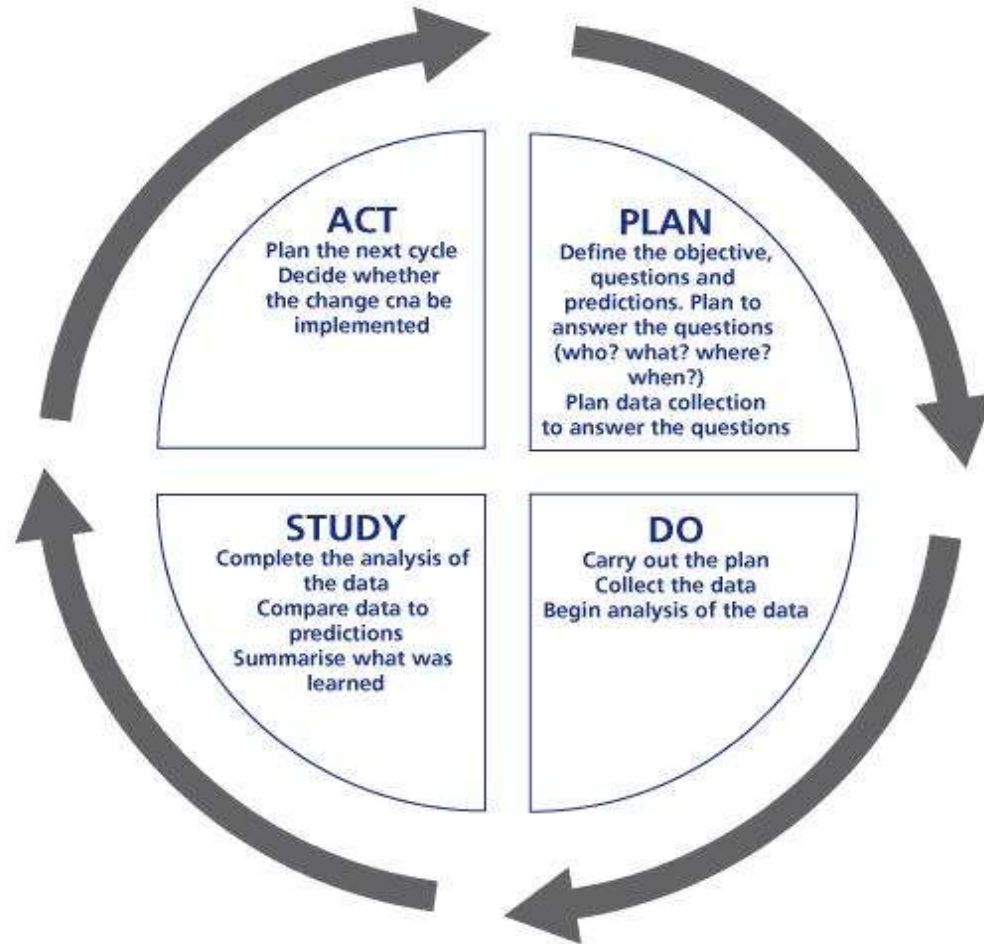
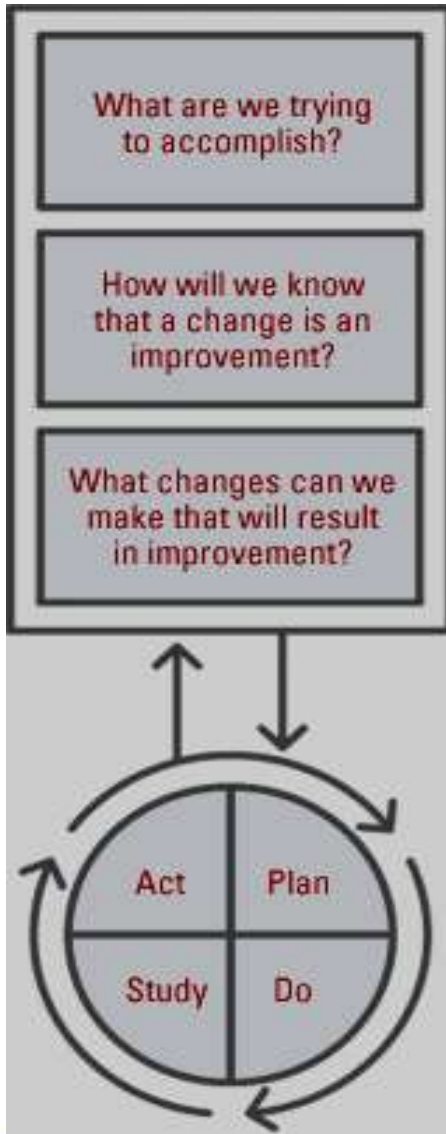
Clinicians **may not agree** with the standards or **systems may make implementation difficult** (pressure to get patients well quickly and discharge, low staffing, difficulty accessing expert clinical support and advice)

Future efforts to align practice with clinical guidelines **need to specifically target the culture and practice of PRN** prescribing

Summary of prescribing practice: compliance with the audit standards at each time point since the baseline audit in 2006

Date	Jan 2006 (baseline)	Jan 2007 (re-audit)	Jan 2008 Supplementary 1c	Jan 2009 Supplementary 1d	Feb 2010 Supplementary 1e		
					Trusts that have participated in this Topic previously	Trusts participating in this Topic for the first time	Total National Sample
No. of participating Trusts	32	32	12	35	31	3	34
Total no. of patient records audited nationally	3,492	3,271	1,505	4,269	3,603	277	3,880
Adherence to standards (% of national sample)							
Standard 1: The dose of an individual antipsychotic should be within its SPC/BNF limits	64% (n=2,227)	66% (n=2,151)	62% (n=939)	69% (n=2,960)	67.3% (n=2,424)	57% (n=157)	66.5% (n=2,581)
Standard 2: Individuals receive only one antipsychotic at a time.	57% (n=1,991)	61% (n=1,984)	60% (n=908)	66% (n=2,806)	64% (n=2,317)	52% (n=143)	63% (n=2,460)

The Plan-Do-Study-Act (PDSA) cycle.



Management of acute behavioural disturbance – how to

2 Offer oral treatment

If the patient is prescribed a regular antipsychotic;

lorazepam 1-2mg alone avoids the risks associated with combining antipsychotics, as does

buccal midazolam, 10 – 20mg
which may avoid the need for IM treatment.

Note that this preparation is unlicensed.

Either can be repeated after 45-60min if required

Go to step 3 if two doses fail or sooner if the patient is placing themselves or others at significant risk.

An oral antipsychotic is an option in patients not already taking a regular oral or depot antipsychotic

- olanzapine 10mg or
- risperidone 1-2mg or
- haloperidol 5mg

Note that the SPC for **haloperidol** recommends;

1. **avoid concomitant antipsychotics**
2. **a pre-treatment ECG**

3 Consider IM treatment

From this point on:

Consider

- The patient's legal status.
- Consulting a senior colleague.

Lorazepam 1-2mg

or

Promethazine 50mg

or

Olanzapine 10mg

or

Aripiprazole 9.75mg

or

Haloperidol 5mg

Repeat after 30 – 60 minutes if insufficient effect.

Combinations

Lorazepam or promethazine + haloperidol but note ECG requirements.

IM Have flumazenil to hand in case of benzodiazepine induced respiratory depression.

IM promethazine is a useful option in a benzodiazepine tolerant patient

IM olanzapine should NOT be combined with an IM benzodiazepine

Less hypotension than olanzapine but probably less effective

Haloperidol should be the last drug considered

- The incidence of acute dystonia is high; combine with IM promethazine OR ensure IM procyclidine is available
- The SPC recommends a pre-treatment ECG.

Service user vets Oxleas' use of medication

Stewart Tight has been putting his perspective on medications to good use by taking part in a national quality improvement programme.

The national Prescribing Observatory for Mental Health (POMH-UK) aims to help specialist mental health services improve prescribing practice. Based at the Royal College of Psychiatrist's Centre for Quality Improvement, it is funded from subscriptions by member trusts. Oxleas is one of over 50 mental health trusts participating in the programme.

Stewart, who uses our services, was part of the local Oxleas project team that looked at two topics: the prescription of antipsychotic medications in acute adult wards, and the routine health screening of patients prescribed antipsychotic drugs. The team measured how the trust performed in each topic over the period January 2006 to

January 2009, and Stewart reports that Oxleas scored well above the national average for both.

For the first topic, areas looked at included minimising the prescription of high dose antipsychotics, ensuring that a single antipsychotic rather than a combination is prescribed and that typical and atypical antipsychotics are not prescribed together.

Oxleas showed marked progress in all these areas, however improvements in the second topic were even more dramatic. Measuring blood pressure increased from 23% in 2006 to 84% in 2009, and there were similar improvements for the measurement of weight, blood glucose and lipids (fat). Smoking cessation advice went from 28% to 86%.

Stewart says that he is very interested in a further POMH-UK topic on lithium (a drug used to treat mood disorders) monitoring: “I

do hope that a lithium monitoring pack will soon be issued to service users. I know from my own talks with service users that this will be very much welcomed.”

There is lots of information about medicines in the Advice and guidance section of our website www.oxleas.nhs.uk

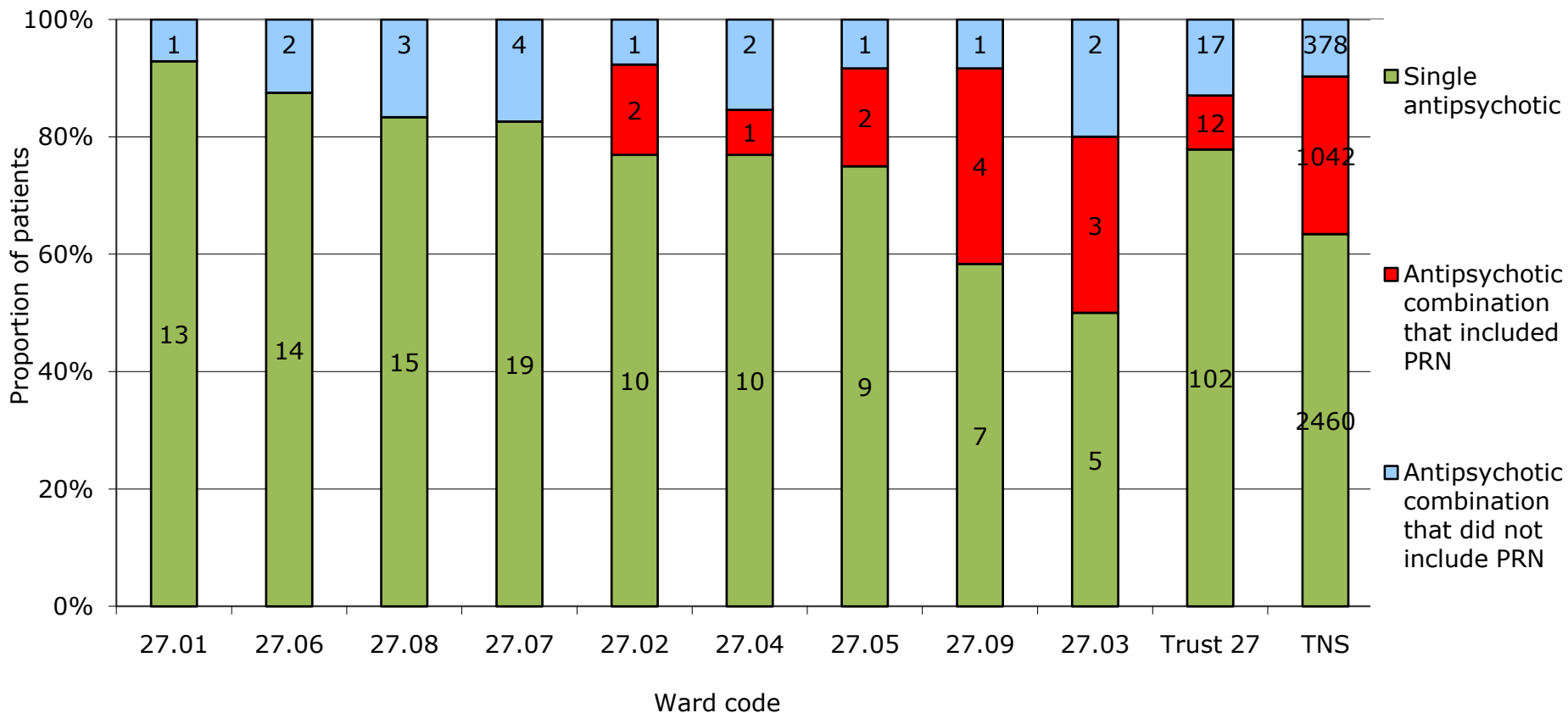


Stewart Tight

What happened in this Trust over time?

Date	Jan 2006	Jan 2007	Jan 2008	Jan 2009	Jan 2010
Number of participating Trusts	32	32	12	35	34
Total number of patient records audited nationally	3429	3271	1505	4269	3889
Number of Oxleas patient records audited	141	171	137	136	131
Adherence to standard national (<i>Oxleas</i>)					
Standard 1. A standard (not high) antipsychotic dose should be prescribed.	64% (70%)	66% (73%)	62% (80%)	69% (83%)	67% (85%)
Standard 2. A single antipsychotic (not a combination) should be prescribed.	58% (60%)	60% (71%)	60% (74%)	66% (79%)	63% (78%)

Ward level comparison: contribution of PRN to combination prescriptions



Medicines reconciliation

Medication errors can occur at the point a medicine is:

- prescribed (usually by a doctor)
- dispensed (usually by a pharmacist)
- administered (usually by a nurse)

Medication errors are:

- a recognised common cause of avoidable morbidity and mortality
- responsible for approximately 20% of clinical negligence claims in hospitalised patients (Audit Commission, 2001)

The point of transfer between care settings (in particular hospital admission) is a known period of high risk for prescribing errors (NICE, NPSA, 2007)

NICE/NPSA define medicines reconciliation as:

- Collecting information on medication history
- Checking this list against the current prescription chart
- Ensuring any discrepancies are accounted for and actioned
- Documenting any changes, omissions or discrepancies



*“The **aim of medicines reconciliation** on hospital admission is to ensure that **medicines prescribed on admission correspond to those that the patient was taking before admission**. Details to be recorded include **the name of the medicine(s), dosage, frequency, and route of administration**. Establishing these details may involve discussion with the patient and/or carers and the use of records from primary care. This does not include medicines review”*

(NICE, NPSA, 2007).

Benchmarking the quality of medicines reconciliation



Participating Trusts and clinical teams: acute adult, acute elderly and forensic wards (self-selected).

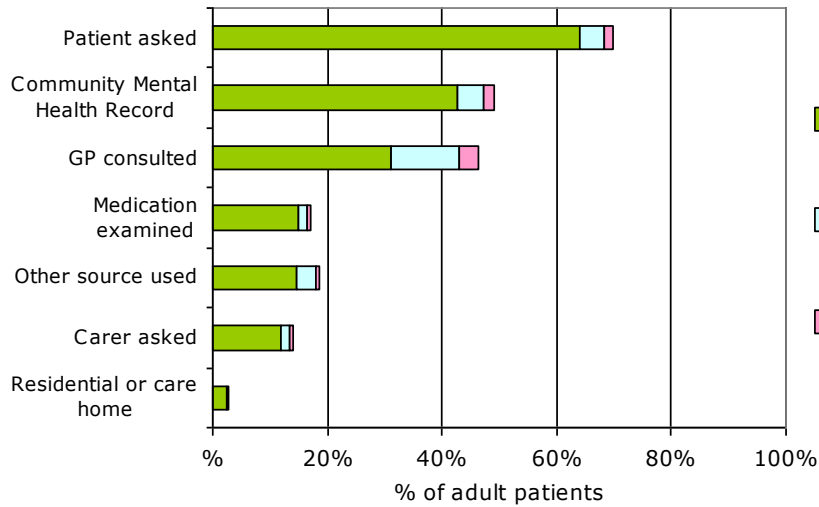
Audit inclusion criteria: patients recently admitted to ward and stayed for at least 7 days; minimum of 5 patients per ward advised.

Data collected for each patient:

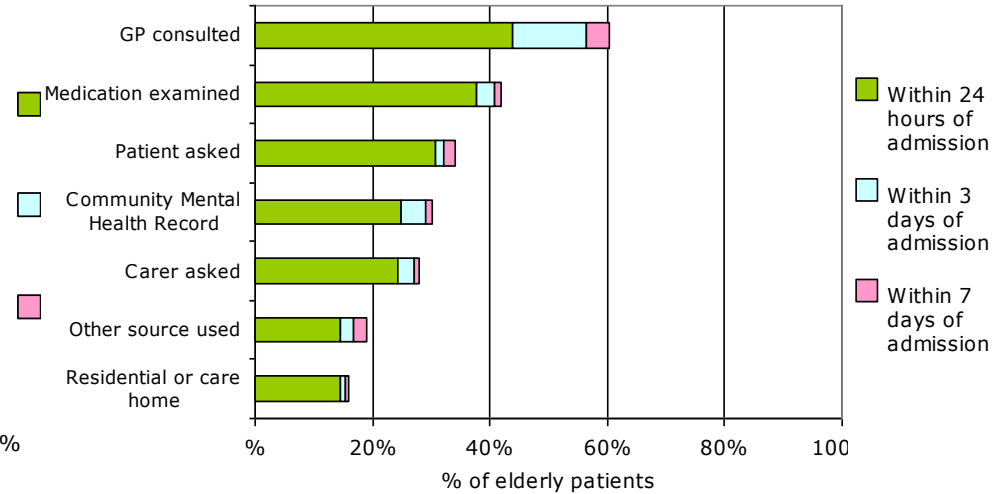
- Age, gender, ethnicity, diagnostic grouping, time of admission, detainment under the Mental Health Act & ward type
- Documented details of medicines prior to admission (prescribed and non-prescribed), and adherence
- Details of sources checked and discrepancies identified – from discussion with the clinical team
- Documentation of the reconciliation process
- Time period of pharmacist and/or medicines management technician involvement

Sources of information checked

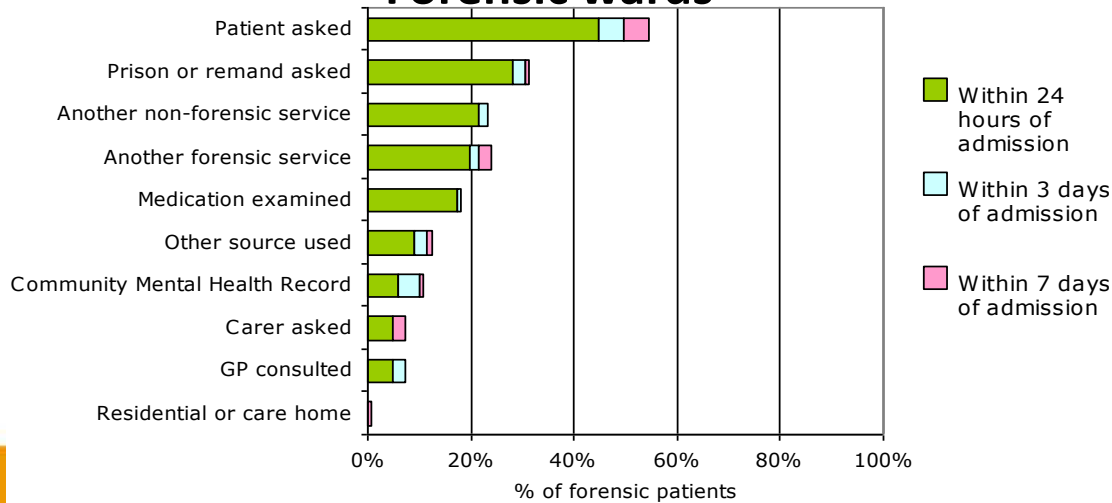
Adult wards



Elderly wards



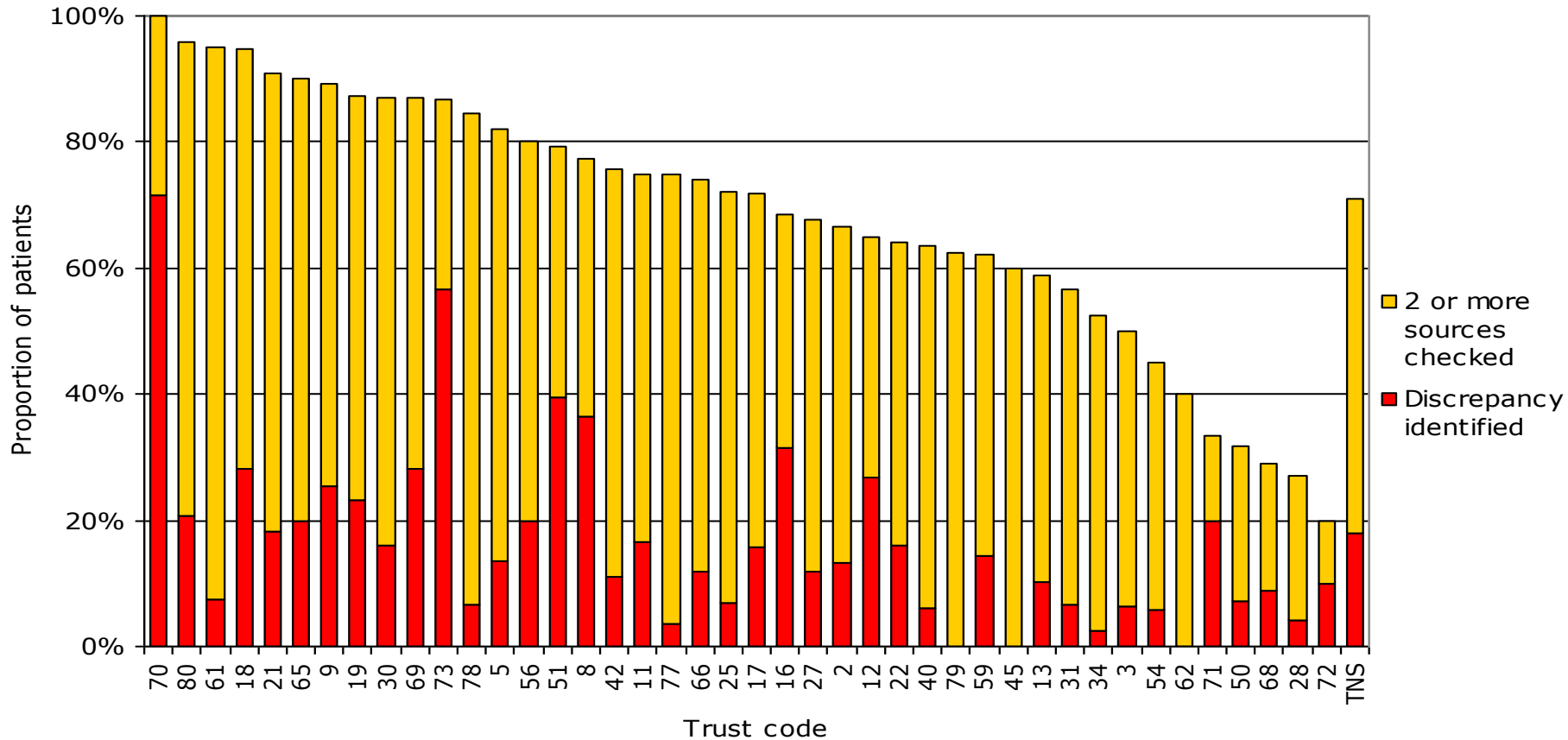
Forensic wards



These three Figures show the sources checked by clinical teams within 24 hours, 3 days and 7 days of admission in each setting.

Discrepancies identified

The proportion of patients in each Trust for whom two or more sources were checked (i.e. medicines reconciliation was possible), and the proportion for whom one or more discrepancies were identified at baseline (n=1,271).



Clinical significance of the discrepancies identified

A small number of the discrepancies identified were clearly clinically significant

- Omission of low molecular weight heparin
- Wrongly transcribed lithium dose

Some had the potential to be clinically significant in the short/medium term

- Omission of inhalers for asthma/COPD
- Omission of oral antidiabetic medicines

The clinical significance of the majority of discrepancies was difficult to determine

- Changes in the time of administration of psychotropic medicines
- Missing medicines for minor ailments (creams etc)

Targeted interventions



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USING MEDICINES SAFELY how carers can help



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FOR MENTAL HEALTH

How can patients and carers help?

- Bring all medicine the patient is taking or should be taking into hospital for the doctor to see. This includes:
 - Medicines prescribed by the GP
 - Medicines prescribed by another hospital doctor
 - Medicines that the patient has bought without a prescription
 - Herbal, natural or alternative remedies

POMH UK

IMPROVING THE QUALITY OF MEDICINES MANAGEMENT IN MENTAL HEALTH

Date:

Tuesday 1st December
2009

Time:

9-10 Registration
16-18 Close

Location:

Royal Society of Medicine,
1 Wimpole Street,
London

This free one-day conference focuses on two specific areas of medicines management in mental health;
lithium monitoring
medicines reconciliation

Programme will include

Launch of Patient Lithium Pack

Patient safety incidents relating to lithium prescribing and medicines reconciliation
Dr Kevin Clark, Medical Director NPSA

Sharing good practice via members area of POMH website

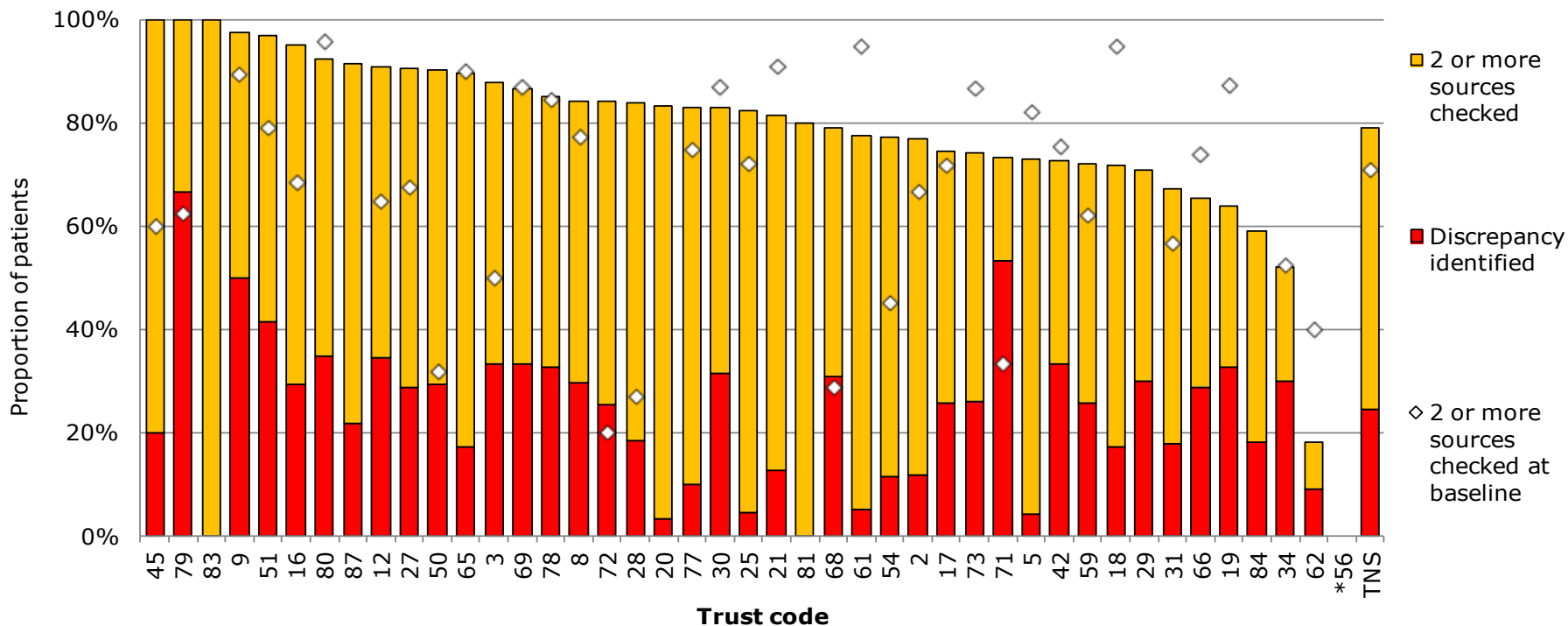
Article written by a service user for a service user publication

POMH-UK
PRESCRIBING OBSERVATORY
FOR MENTAL HEALTH-UK



Discrepancies identified

The proportion of patients in each Trust for whom two or more sources were checked (i.e. medicines reconciliation was possible), and the proportion for whom two or more discrepancies were identified (n=1,811)



Clinical significance of the discrepancies identified

A small number of the discrepancies identified were clearly clinically significant

- Omission of phenytoin, low molecular weight heparin, insulin
- Wrongly transcribed dose of frusemide, lithium
- Methadone prescribed at full treatment dose (prescription had been discontinued some time ago and tolerance lost)

Some had the potential to be clinically significant in the short/medium term

- Omission of eye drops for glaucoma
- Omission of inhalers, antihypertensives, B12

The clinical significance of the majority of discrepancies was difficult to determine

- Changes in the time of administration of psychotropic medicines
- Missing medicines for minor ailments (creams etc)

Proportion of discrepancies identified during medicines reconciliation by particular clinical team members

Discrepancies identified by:	Acute Adult		Acute Elderly		Forensic	
	Baseline	Re-audit	Baseline	Re-audit	Baseline	Re-audit
Pharmacist	168 (49%)	252 (48%)	80 (43%)	165 (57%)	16 (73%)	15 (71%)
Doctor	83 (24%)	75 (14%)	63 (34%)	38 (13%)	3 (14%)	3 (14%)
Pharmacy/medicines management technician	43 (13%)	170 (32%)	28 (15%)	68 (24%)	3 (14%)	0 (0%)
Other (including patient, nurse, ward clerk, or other member of team)	47 (14%)	31 (6%)	17 (9%)	17 (6%)	0 (0%)	3 (14%)

Medicine reconciliation – how to



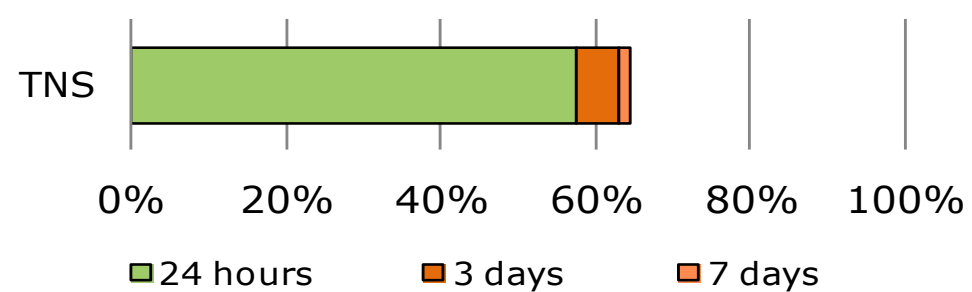
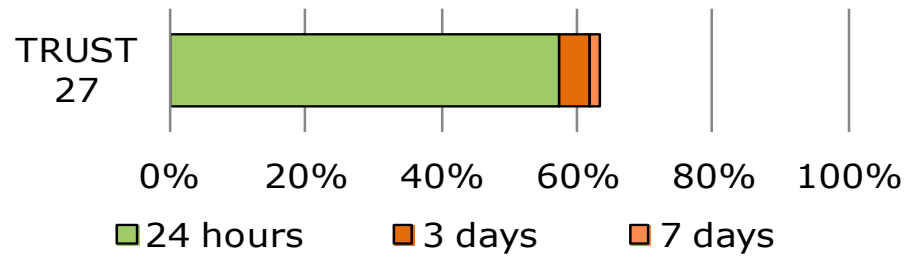
Process

At the point of admission to hospital

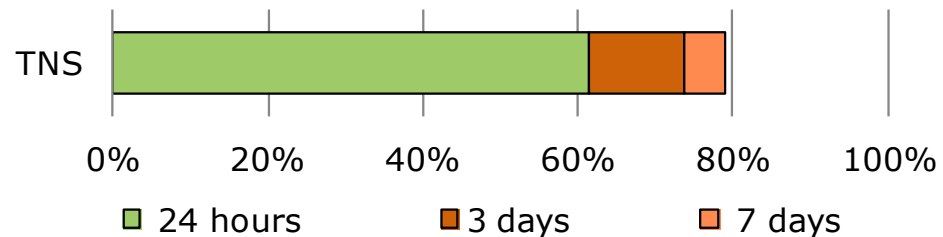
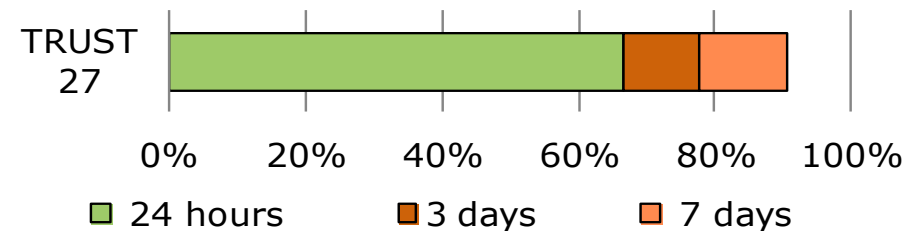
- Any medication brought in by the patient should be examined.
- The clerking interview conducted by the admitting doctor should include systematic enquiry about current medication. If the patient is unable to provide this history, the carer should be asked if available.
- The above information should be documented in the ***core assessment referral related 'current interventions including medication'*** section on RIO and used to inform the prescription written on admission. The rationale for any discrepancies between the history obtained and the inpatient prescription should be documented.
- The ward clerk (or other nominated person in the absence of a ward clerk) should fax an admission letter to the patient's GP; this letter contains a request for the patient's Encounter Record and details of prescriptions issued. A template admission letter can be found in ***clinical documentation editable letters on the case record*** on RIO.
- Receipt of the above information should be documented in the ***core assessment referral related 'current interventions including medication'*** section on RIO, any additional physical health diagnoses recorded on RIO and the inpatient prescription amended if required (reconciliation). The paper Encounter Record and GP prescription record should be signed by the doctor as having been seen and acted on, and then filed in the secondary paper record.
- A pharmacist will provide a second check that reconciliation has taken place within one week of the patient's admission. Any discrepancies that appear to be unintentional will be recorded in the ***core assessment referral related 'current interventions including medication'*** section on RIO and brought to the attention of the prescribing doctor.

Key findings: Clinical Practice

Baseline



Re-audit



Can the quality of medicines use in mental health services be improved?



YES BUT this requires

- understanding of the **barriers**/perceived barriers
- solutions which may be team **specific**
- **time**