Pharmacist Intervention in Electronic Discharge Prescribing in Acutely Ill Patients

Anna Yortt

John Farrell, Sally Dootson

Martina Hennessy

Departments of Pharmacy and Clinical Pharmacology

Royal Free Hospital

London

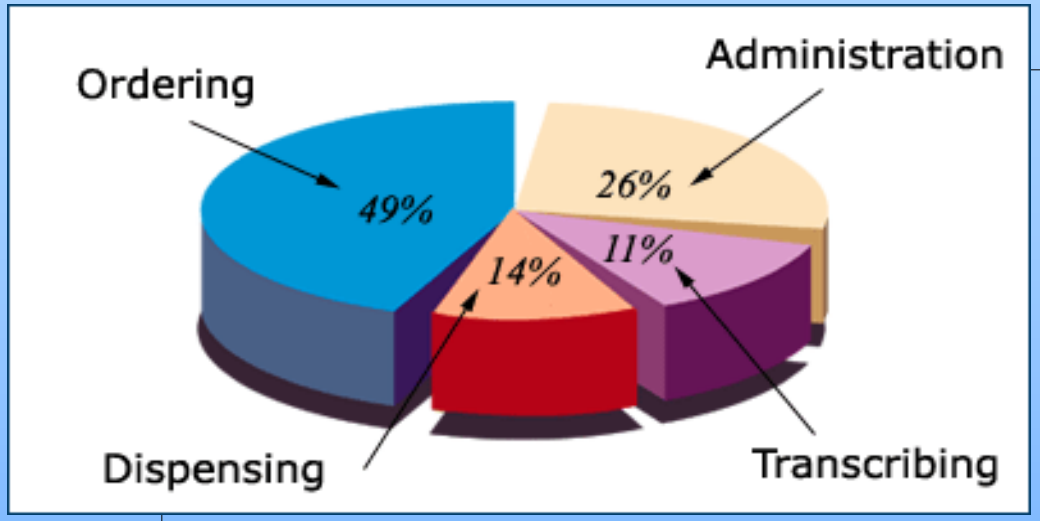
Royal Free Hampstead

NHS Trust

The Changing Face of Acute Medicine

- 4 to 5% p.a. rise in the number of acute medical admissions in U.K.
- 44% episodes coded as GIM
- 80-90% are acute
- 26% > 3 admissions.
- RCP “unequivocal support the role of specialist MAU Pharmacist”

Medicines Management in AMU ?



- Error rates (discharge prescriptions) range from 5-37%

30% involve GIM Physicians, patients at risk include:

- Those with complex conditions
- Those in the emergency room
- Those looked after by inexperienced doctors
- Older patients

Royal Free Response

- 2003: Introduction of 32 bedded AMU
  - *Clinical pharmacy should move "towards proactive involvement in direct patient care and the anticipation of errors"*

    Audit Commission 2001

- 2004 the Royal Pharmaceutical Society PS (HPG) recognised focus has remained on medication history and supply (*Hosp Pharm 2004 11; 72-77)*

- Limited data available regarding prescribing trends in AMU

Royal Free: The Issues

- Poor transfer of discharge information to primary care
- Poor quality coding
- Absence of clinical data for screening & lack of input to the discharge process

- 2004 eTTA system introduced:
  - Medical discharge summary
  - Discharge prescription (TTA)
- TTA's screened by pharmacists with clinical data
- Summary faxed to GP, copy to patient & notes

GP Letters - Reports.htm

GP Letters - Reports 1.htm

freenet - the intranet of the Royal Free Hampstead NHS Trust.htm

Aims & Methods

- AIM: to assess discharge prescribing trends in acutely ill patients
- To examine value of person specific data in this setting

A live intranet link was established between the MAU pharmacist, and the eTTA database

- 30 day data analysed with respect to:
  - Demographics, diagnosis, length of stay, prescription items, dispensing time
  - Concordance
  - Medication error (after screening)
  - Medication/ diagnoses discrepancy

Methods 2

- Random independent data review (>95% agreement)
- Data analysed non parametrically (population skewed by age)
- Post hoc analysis (Dunns)
- Spearman Correlation where appropriate

- Discrepancy: drug without a corresponding diagnosis
- Error: prescription,dose, administration.
- Concordance: medication issue referred to in summary
- LOS: admission & discharge on same date - LOS =1day

Results : Demographics

331 acute patients admitted / 30 days; 146 discharged home

		Male (n=77)	Female (n=69)	All (n=146)
Age (Years)	Median	66	75	71
	Mean (SD)	62.8±16.5	71.8±20	67±18.7
	Range	19-89	18-103	18-103
Length of Stay (Days)	Median	2	3	2
	Mean (SD)	2.8±1.4	3.4±2	3.2±2.3
	Range	1-8	1-8	1-8
Diagnoses (n)	Median	3	5	4
	Mean (SD)	3.7±2.3	4.6±2.1	4.1±2.3
	Range	1-11	1-10	1-11
Prescription Items (n)	Median	5.5	6	6
	Mean (SD)	5.7±2.9	6.3±3.4	6±3.2
	Range	1-14	1-15	1-15

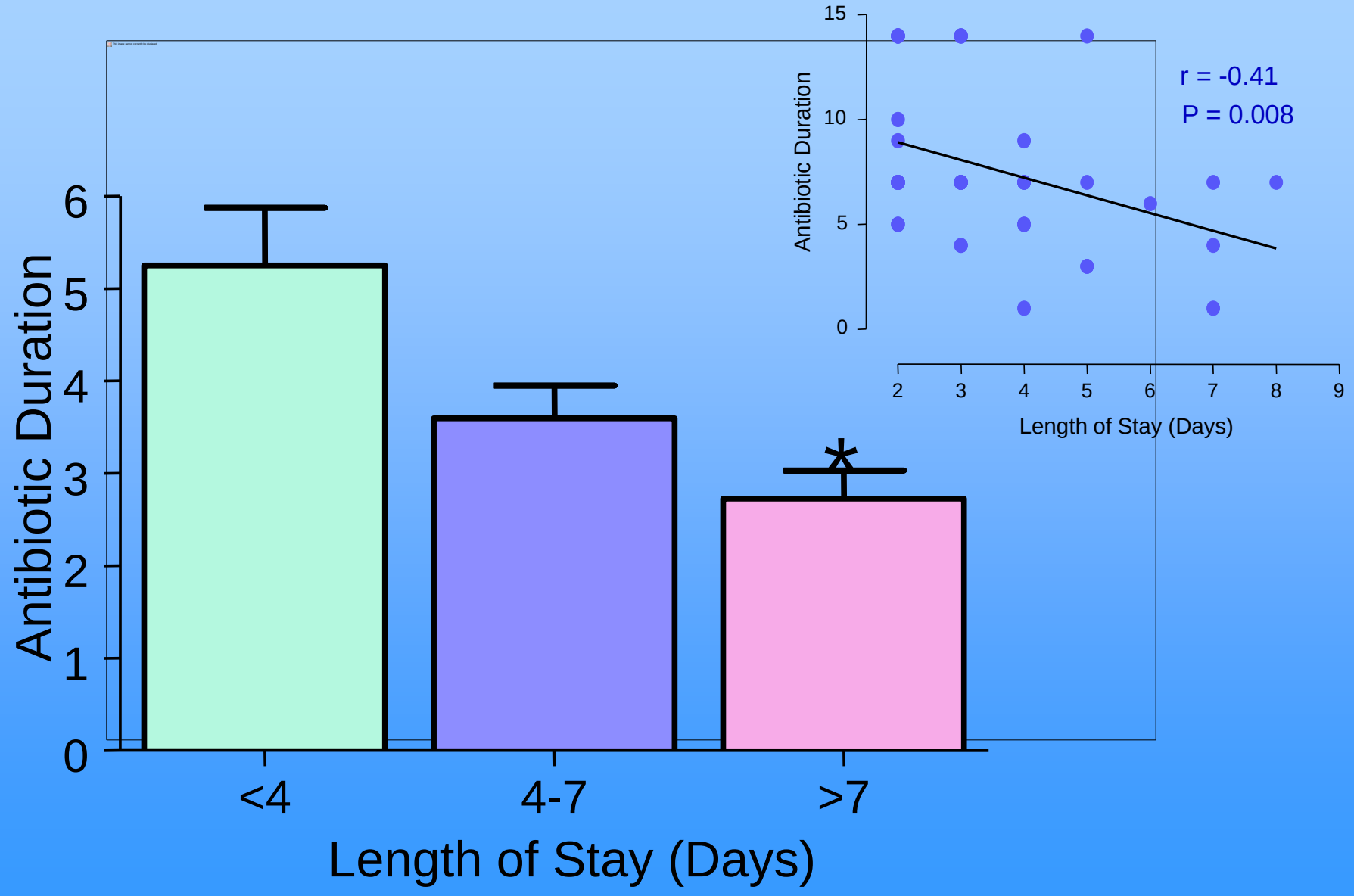
Results 2

- 70% prescribed >4 medications
- Patients with LOS =1 day (N=18) closely reflected the mean
  - No requirement for antibiotic
- Typical Diagnosis
  - Troponin neg ACS, Vomiting/gastritis/ GI bleed x 1
  - 10/18 further follow up arranged
- Patients with LOS > 5 days: older (NS), more diagnoses (5.0 vs 3.9 ;P< 0.02)
- 11% identified with concordance issues (med review clinic)
- 4% error rate compared with 20% previous study
- Time to dispense TTA's increased (2.18h to 3.82h)

Antibiotics

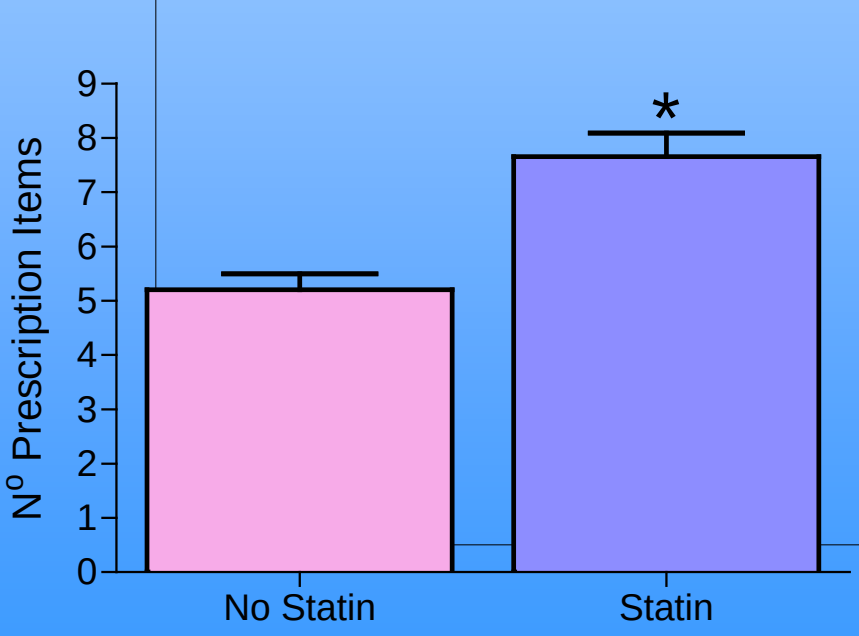
- 30% prescribed oral antibiotics at discharge
- Diagnoses:
  - LRTI-19
  - UTI/ Pyelonephritis - 9
  - Helicobacter eradication – 4
  - PUO/ Miscellaneous-7
  - RUTI -3
  - Cellulitis –2
- Duration of Tx discrepant with antibiotic policy

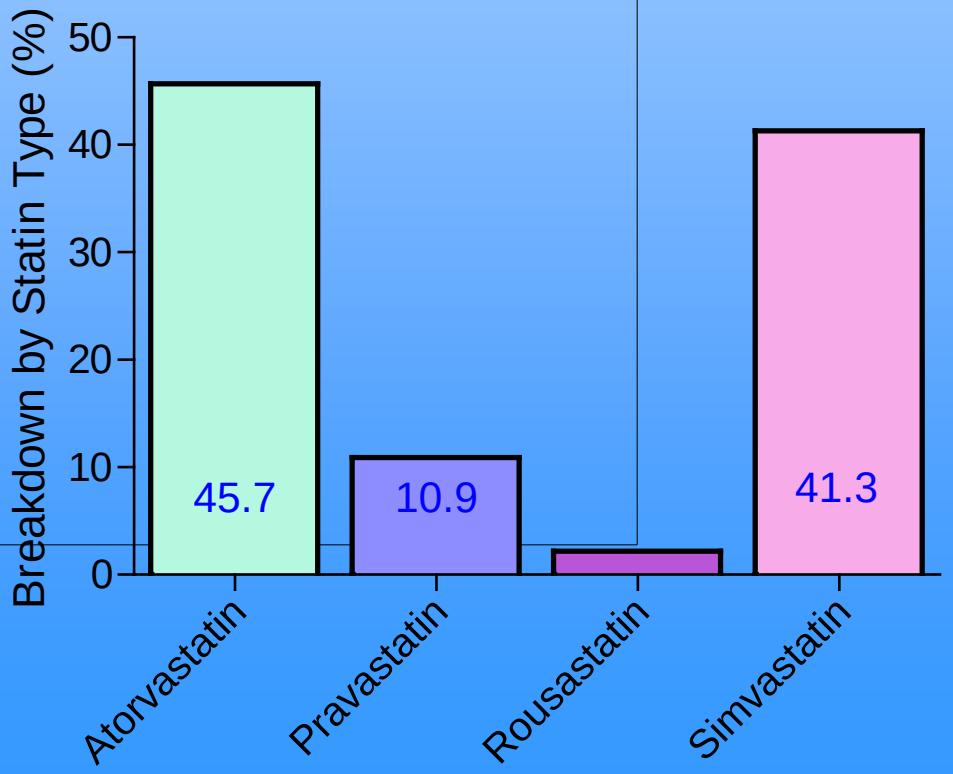
Antibiotic Duration vs Length of Stay



Statins

- >32 % on statin at discharge
- Relationship between statins and prescription items (7.7 ± 3.0 vs 5.2 ± 2.8; p< 0.001)? reflects chronic Dx





ATORVA-SECTOMY AT the Royal Free
Generic simvastatin- now 30-times cheaper than atorvastatin
Now even Cheaper than smarties
Brought to you by the Drugs & Therapeutics committee

Proton Pump Inhibitors

- 35% overall on PPI
- 43% had no corresponding diagnosis
  - GORD, PUD,GI bleed, NSAID induced gastritis
- >90% no limit to duration of PPI therapy
- Majority 72% of diagnosis/medication discrepancy related to PPI
- 24/51 on PPI were also on low dose aspirin
- Potential to highlight this to primary care

Controversial Issues

- No cox 2 inhibitors
- 9 pts on clopidogrel and aspirin (all on a PPI)
- 5 clopidogrel & no aspirin
  - Clopidogrel for aspirin intolerance not recommended

    NEJM 2005 jan20: 352(3): 238-44
- 3 indications clearly appropriate (remainder mainly ACS)
- 11/14 troponin results available (10 negative)
- No duration ascribed to any clopidogrel prescription

"Clopidogrel recommended for patients with ACS (NST elevation) at > mod risk (ECG changes/trop positive) in combination with aspirin for 1yr only, thereafter to return to low dose aspirin only"

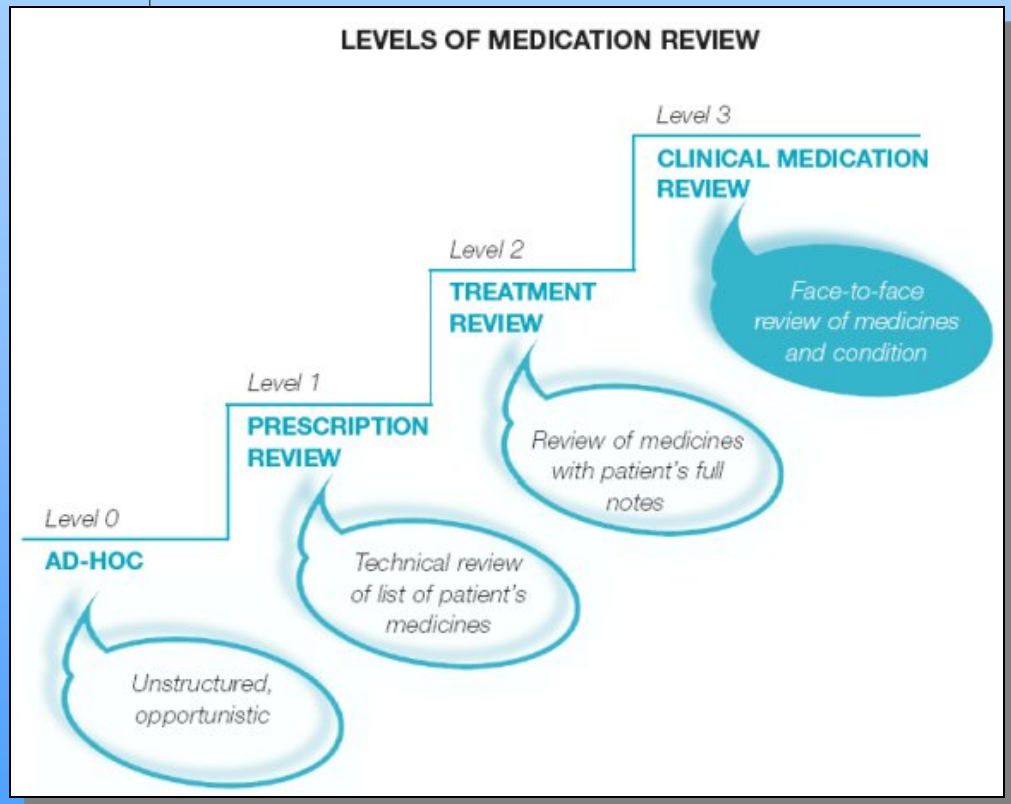
NICE 2004

Conclusions

Person specific clinical data matched to TTA

- allowed characterization of typical MAU patient
- Reduced the medication error rate
- Improved communication with GP and patient
- Identified patients with medication issues facilitating pharmacist-led medication review clinic
- Increased dispensing time (temporarily)
- In the future:
  - eTTA's facilitate the acquistion of quantitative data on the quality of discharge prescribing

Medication Review 2

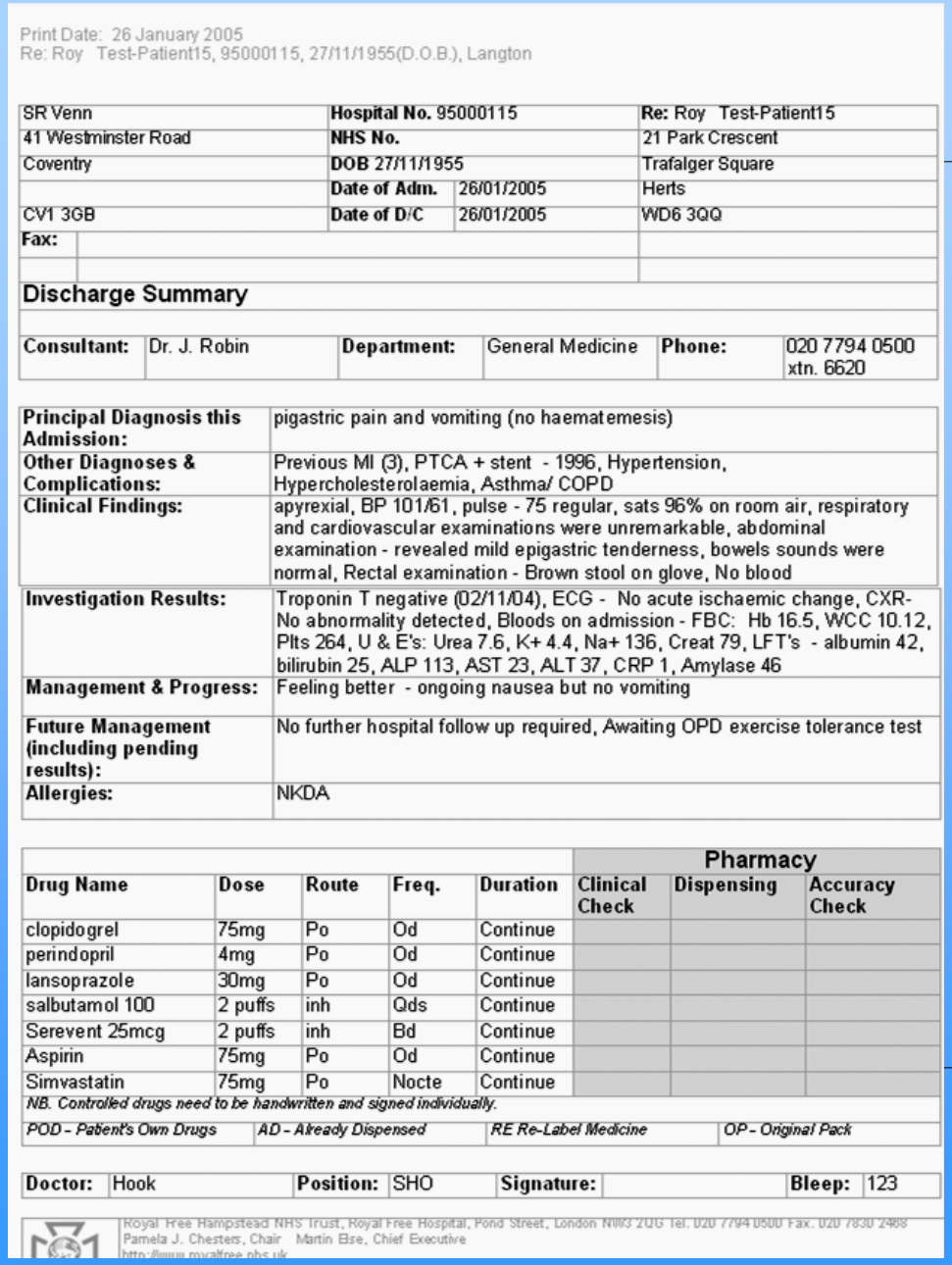


Availability of patient specific data facilitates a level 3 medication review

- with a full concordant discussion regarding medications
- Value of the proximity of review to the acute medical event

Medication Review

- 17 patients were identified for medication review
- Criteria for review:
  - Concordance issues identified in summary
  - Significant changes to medication during admission
  - NSF Older People (2001): Introduced an NHS target for medication reviews
- Review process:
  - Medicines Management Collaborative
    - Structured programme around medicine management
  - Room for Review (2002)
    - Methods, tools and definitions



Print Date: 26 January 2005
Re: Roy Test-Patient15, 95000115, 27/11/1955(D.O.B.), Langton

SR Venn	**Hospital No.** 95000115		**Re:** Roy Test-Patient15	
41 Westminster Road	**NHS No.**		21 Park Crescent	
Coventry	**DOB** 27/11/1955		Trafalger Square	
	Date of Adm.	26/01/2005	Herts	
CV1 3GB	**Date of D/C**	26/01/2005	WD6 3QQ	
Fax:				

Discharge Summary

Consultant:	Dr. J. Robin	**Department:**	General Medicine	**Phone:**	020 7794 0500 xtn. 6620

Principal Diagnosis this Admission:	pigastric pain and vomiting (no haematemesis)
Other Diagnoses & Complications:	Previous MI (3), PTCA + stent - 1996, Hypertension, Hypercholesterolaemia, Asthma/ COPD
Clinical Findings:	apyrexial, BP 101/61, pulse - 75 regular, sats 96% on room air, respiratory and cardiovascular examinations were unremarkable, abdominal examination - revealed mild epigastric tenderness, bowels sounds were normal, Rectal examination - Brown stool on glove, No blood
Investigation Results:	Troponin T negative (02/11/04), ECG - No acute ischaemic change, CXR- No abnormality detected, Bloods on admission - FBC: Hb 16.5, WCC 10.12, Plts 264, U & E's: Urea 7.6, K+ 4.4, Na+ 136, Creat 79, LFT's - albumin 42, bilirubin 25, ALP 113, AST 23, ALT 37, CRP 1, Amylase 46
Management & Progress:	Feeling better - ongoing nausea but no vomiting
Future Management (including pending results):	No further hospital follow up required, Awaiting OPD exercise tolerance test
Allergies:	NKDA

					Pharmacy		
Drug Name	**Dose**	**Route**	**Freq.**	**Duration**	**Clinical Check**	**Dispensing**	**Accuracy Check**
clopidogrel	75mg	Po	Od	Continue			
perindopril	4mg	Po	Od	Continue			
lansoprazole	30mg	Po	Od	Continue			
salbutamol 100	2 puffs	inh	Qds	Continue			
Serevent 25mcg	2 puffs	inh	Bd	Continue			
Aspirin	75mg	Po	Od	Continue			
Simvastatin	75mg	Po	Nocte	Continue			

NB. Controlled drugs need to be handwritten and signed individually.

POD - Patient's Own Drugs | *AD - Already Dispensed* | *RE Re-Label Medicine* | *OP - Original Pack*

Doctor:	Hook	**Position:**	SHO	**Signature:**		**Bleep:**	123

Royal Free Hampstead NHS Trust, Royal Free Hospital, Pond Street, London NW3 2QG Tel. 020 7794 0500 Fax. 020 7830 2468
Pamela J. Chesters, Chair Martin Else, Chief Executive
http://www.royalfree.nhs.uk

Typical eTTA
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Medical Summary