



TEACH & TREAT

Post-Myocardial Infarction

Left Ventricular Systolic Dysfunction

Clare Murphy, Paul Forsyth, Steve McGlynn,
Margaret Ryan, Anne Watson, Lynsey Moir,
Iain Speirits,
Mark Petrie, Ninian Lang, John McMurray

Background

- Left ventricular systolic dysfunction (LVSD) post myocardial infarction (MI) independently predicts mortality
- Appropriate use of angiotensin converting enzyme inhibitors (ACEIs), beta-blockers (β Bs), and mineralocorticoid receptor antagonists (MRAs) significantly improves outcomes

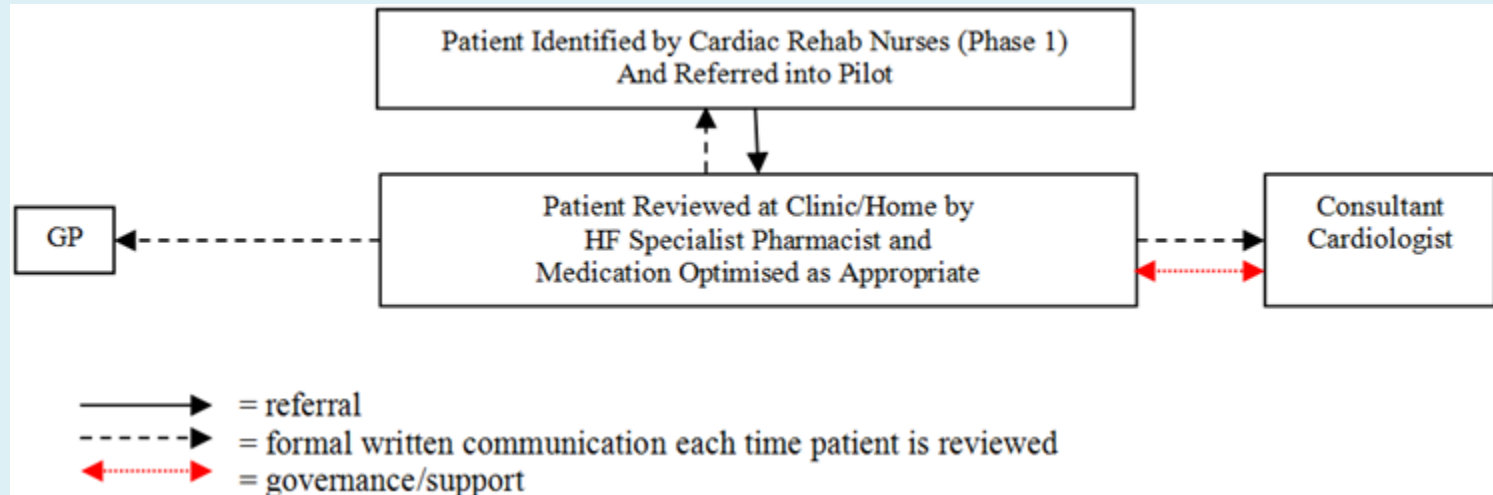


Royal Alexandra Hospital, Audit 09/12 to 09/13



- Low achievement in optimisation of secondary prevention in Post-MI patients with significant LVSD
 - Mean ACEI dose = 43.8% of target
 - Mean BB dose = 30.9% of target
- Consultant cardiologist and local HF pharmacist agree to pilot new clinic

Collaborative Pharmacist Pilot 09/13 to 09/14



- Initial Pilot in patients with Moderate to Severe LVSD only
 - Highest risk group
 - Manageable numbers

1 Year Pilot Results

- Pharmacist reviewed patients a mean 4.6 times.
- Significantly more patients were treated with
 - Beta-blocker compared to 'usual care'; 96.1% vs 82.5% (p=0.025)
 - MRA compared to 'usual care'; 49.0% vs 24.6% (p=0.008)
- More patients were treated with ACEI compared to 'usual care', this was not statistically significant;
 - 94.1% vs 89.5% (p=0.383).
- Mean doses of medication compared to 'usual care' (expressed as a % of ESC guideline target dose) were significantly higher:
 - ACEI; 71.7% vs 43.8% (p<0.001)
 - Beta-blocker; 55.9% vs 30.9% (p<0.001)
 - MRA; 35.3% vs 15.8% (p=0.006)

From Pilot to 'Teach & Treat'

- Dovetail with new Scottish Government Pharmacy Vision- 'Prescription for Excellence'
<http://www.gov.scot/resource/0043/00434053.pdf>
 - '.....in the management of long term conditions pharmacy will work in partnership with the medical profession so that post diagnosis caseloads can be allocated to these pharmacists.....'
- Train NHS employed General Practice Based Pharmacists to Up-titrate 'Simple' Cases in Primary Care (e.g. Health Centres and General Practice)
- 'Complex' patients would stay in a secondary care based pharmacist clinic, under governance of consultant
- Widen service to include all grades of LVSD (not just moderate to severe as in pilot)

'Teach'

Training will be delivered according to the needs of the particular type of pharmacist involved (e.g. community or GP-based)

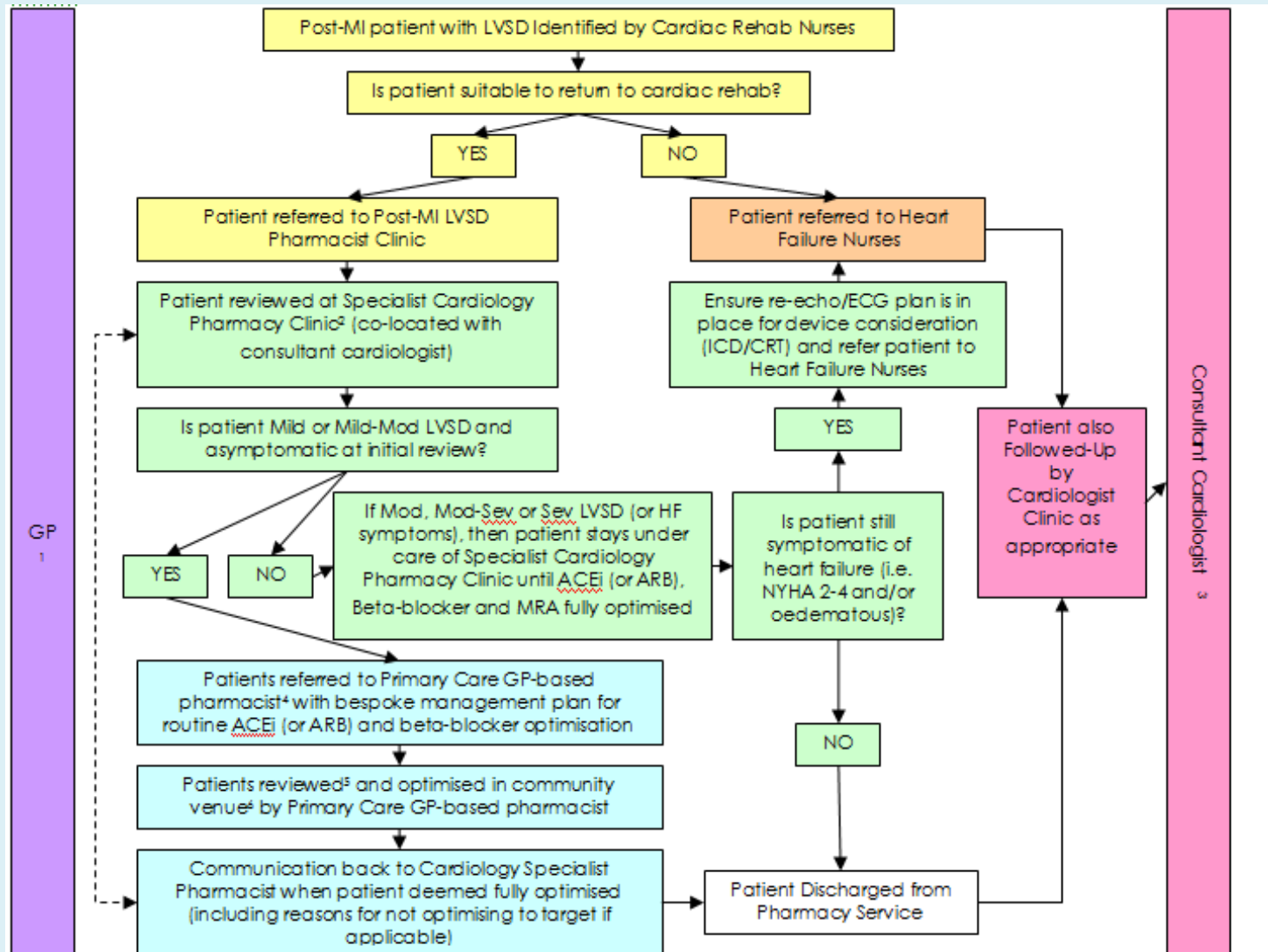
Training may include the following aspects:

- 3 day clinical skills training course
- Lectures / workshops
- Venepuncture training
- Shadowing
 - CCU ward rounds
 - Consultant cardiologist clinics
 - Specialist cardiology pharmacist clinics
 - Other cardiology teams (e.g. cardiac rehab)

Some form of assessment will also be undertaken, including:

- OSCE + MCQ
- Supervision of practice

'Treat'



GP
1

Consultant Cardiologist
3

- 1 Every patient contact will generate correspondence to the patient's general practitioner
- 2 Specialist Cardiology Pharmacist has overall responsibility for delivery/ evaluation of pharmacy optimisation and will offer professional support/advice to Primary Care GP-based pharmacist
- 3 The Consultant Cardiologist in overall care of the patient will have overall governance for the service and will offer professional support to all MDT members
- 4 Primary Care GP-based pharmacist accredited to receive referrals only after completion of bespoke training
- 5 Primary Care GP-based pharmacist agreement to review patient within 14-28 days of referral
- 6 Centrally located CHCP venue (i.e. health centre, GP practice) or patient home



Two Year Pharmacist Clinic Results



Pharmacist Clinic Baseline Patient Characteristics



	Pharmacist Clinic (n=194)
Mean baseline age	62.6
Mean baseline creatinine (umol/l)	94
Mean baseline BP (mmHg)	122 / 74
Mean baseline heart rate (bpm)	67
LV Grading (%) - Severe - Mod- Severe - Moderate - Mild-Mod - Mild - Preserved*	8.8 12.9 38.1 12.4 25.3 2.3
Type of MI (%) - STEMI - NSTEMI - Takosubot CDM*	60.8 38.1 1.0

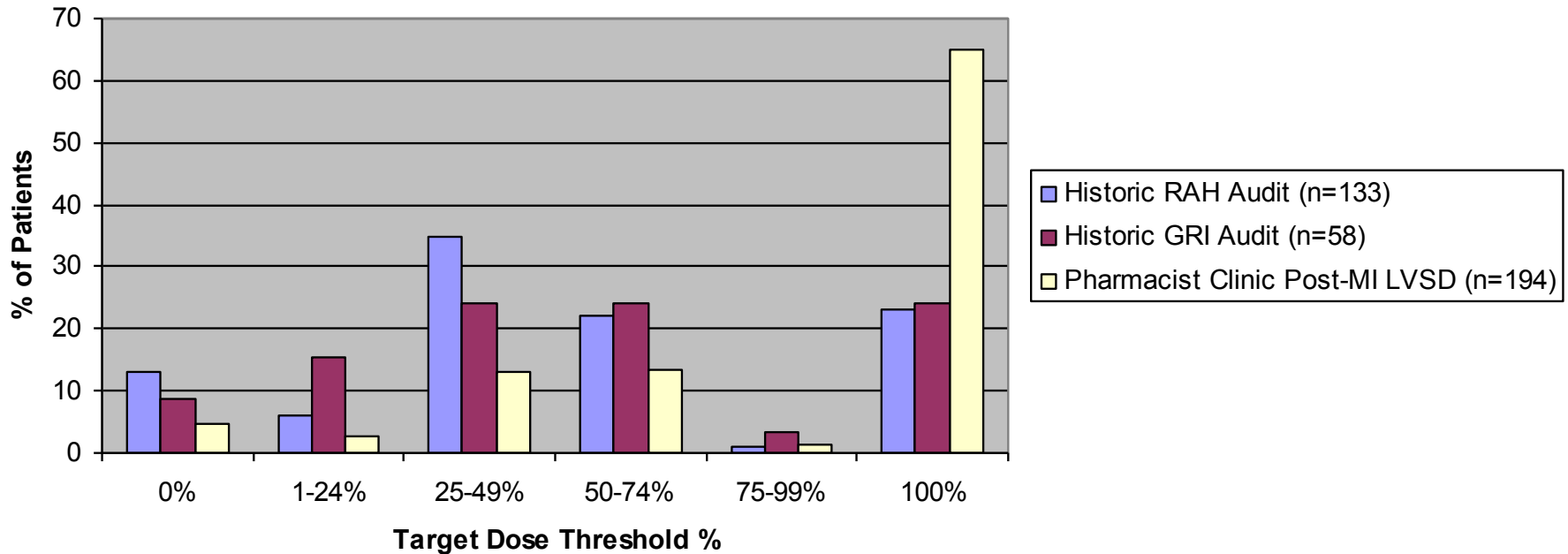
* referred in error

Results vs Historic

Audits: ACEI

(09.13 to present 08.15)

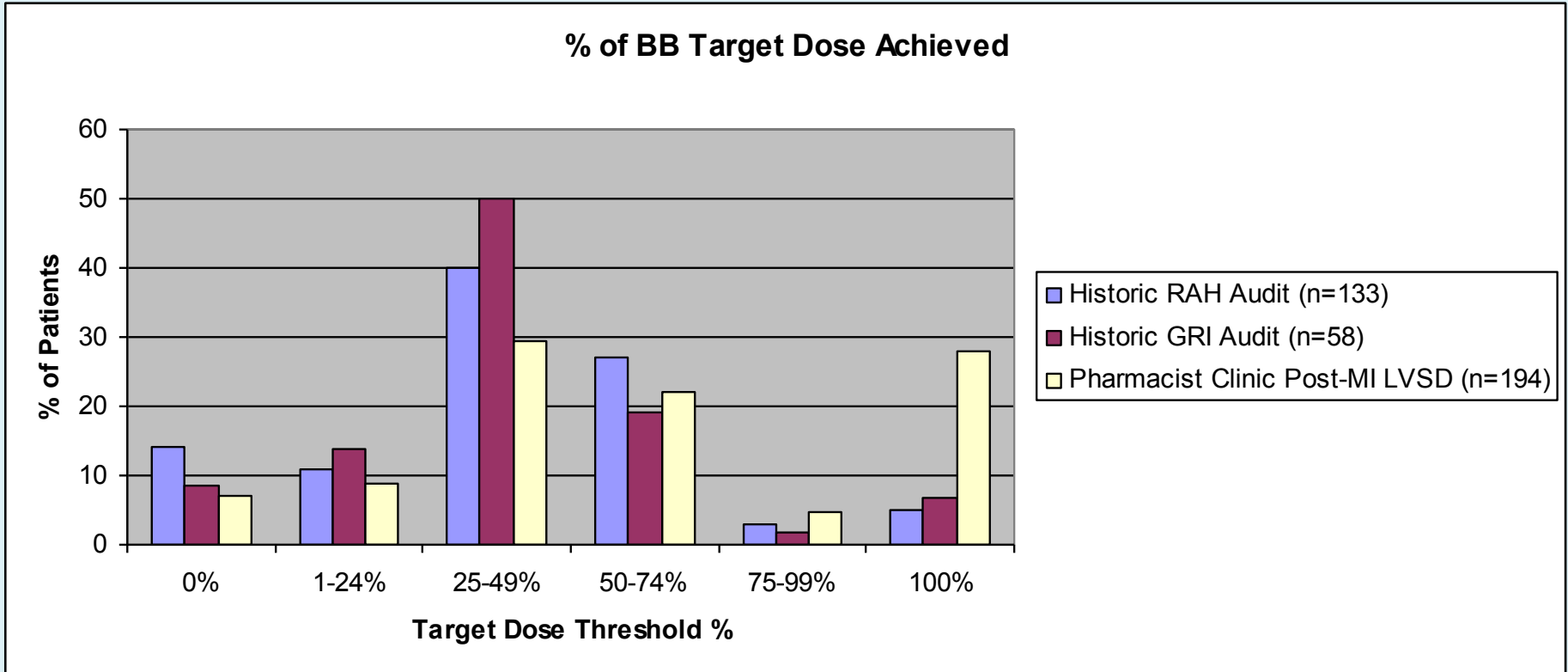
% of ACEI Target Dose Achieved



Results vs Historic

Audits: β B

(09.13 to present 08.15)



Results: MRA

(09.13 to present 08.15)

Mean % of ESC Target Dose MRA*	Historic RAH Audit		Historic GRI Audit		This Service	
	Discharge from Hospital Number of Patients (%) n=59	End of Cardiac Rehab Number of Patients (%) n=59	Discharge from Hospital Number of Patients (%) n=23	4 months post hospital discharge Number of Patients (%) n=23	Discharge from Hospital Number of Patients (%) n=116	Discharge from clinic Number of Patients (%) n=116
0	46 (78.0)	44 (74.6)	17 (73.9)	17 (73.9)	77 (66.4)	71 (61.2)
25	0 (0)	0 (0)	0 (0.0)	0 (0.0)	3 (2.6)	1 (0.9)
50	11 (18.6)	10 (16.9)	6 (26.1)	5 (21.7)	27 (23.3)	18 (15.5)
100	2 (3.4)	5 (8.5)	0 (0.0)	1 (4.3)	9 (7.8)	26 (22.4)

* for patients with \geq moderate LVSD (irrespective of NYHA, as no NYHA data available for historic audits)

No historic NYHA audit data was available and this makes interpretation difficult. However, the above at least highlights that the new clinic is able to identify new patients with clinical indications for MRA and up-titrate many of those with existing indications better than the existing services.

Results: Advanced Options

Outcome	Number of Patients (n=116)*	%
CRT-D inserted post-optimisation	1	0.9%
CRT-D inserted at baseline event	1	0.9%
CRT-D offered and awaits implantation	1	0.9%
Borderline CRT-D candidate (awaits MRI for final decision)	1	0.9%
CRT referral declined by patient	1	0.9%
ICD inserted post LV –optimisation & potential future transplant candidate	1	0.9%
HF MDT prompted about ICD and await outcome	1	0.9%
Potential future cardiac transplant candidate (ICD in-situ and narrow QRS)	1	0.9%
Borderline device candidate (e.g. re-echo Mod-Sev LVSD or worse & NYHA 1-2) & awaits cardiologist/HFLN review	6	5.2%
Awaits re-echo	12	10.3%
Re-echo shows LVEF out with device criteria	56	48.3%
Pragmatic decision for no device (e.g. frailty, age, co-morbidity etc)	8	6.9%
Not re-echoed (No clinical HF and Mod LVSD only at baseline)	22	19.0%
DNA cardiology follow-up post discharge	4	3.4%

* for patients with \geq moderate LVSD at baseline (irrespective of NYHA)



NHSGGC Wide Roll-Out



- Current weekly secondary care pharmacist clinics at:
 - RAH
 - VOL
 - GRI
 - WIG
- Current primary care pharmacists trained to accept referrals from following hospitals:
 - RAH
 - VOL
 - GRI (part, depending on primary care CHCP)
 - WIG (part, depending on primary care CHCP)
- Plans to roll out to final sites in Q4 2015 and 2016
 - New Queen Elizabeth University Hospital
 - VIC
 - IRH