



# What does it take to improve prescribing safety in primary care: The DQIP and EFFIPS studies

Dr Tobias Dreischulte

NHS Tayside c/o University of Dundee, Population Sciences

Quality, Safety and Informatics Research Group





# Outline

- Potential targets for intervention and strategies for improvement
- The DQIP and EFIPPS interventions
- Strengths, limitations future research



## Problem of preventable drug related morbidity (PDRM)

- **Systematic review** (Howard et al 2006. BJCP – 14 studies 1986 to 2004): ~ 3 to 4% of all emergency hospital admissions are drug-related and preventable
- **HARM study** (Leendertse et al. Arch Int Med 2008): ~ 3% of all emergency hospital admissions are drug-related and preventable
- **The same drugs implicated:** Commonly used drugs with well-known risk profiles (NSAIDs, antiplatelets, diuretics, antidiabetics etc.)



# Medication use process

## Treatment design

## Treatment implementation

### Professional responsibilities

#### Identify:

- Risk factors for ADEs
- Indications
- Patient preferences

#### Balance:

- Evidence base
- Clinical experience
- Patient preferences

#### Check:

- Biochemistry
- Support:**
- Help seeking

#### Support:

- Adherence

Assessment



Treatment plan



Monitoring/  
Adjustment



Administration

#### Communicate:

- Patient preferences

#### Seek help/report:

- Signs & symptoms

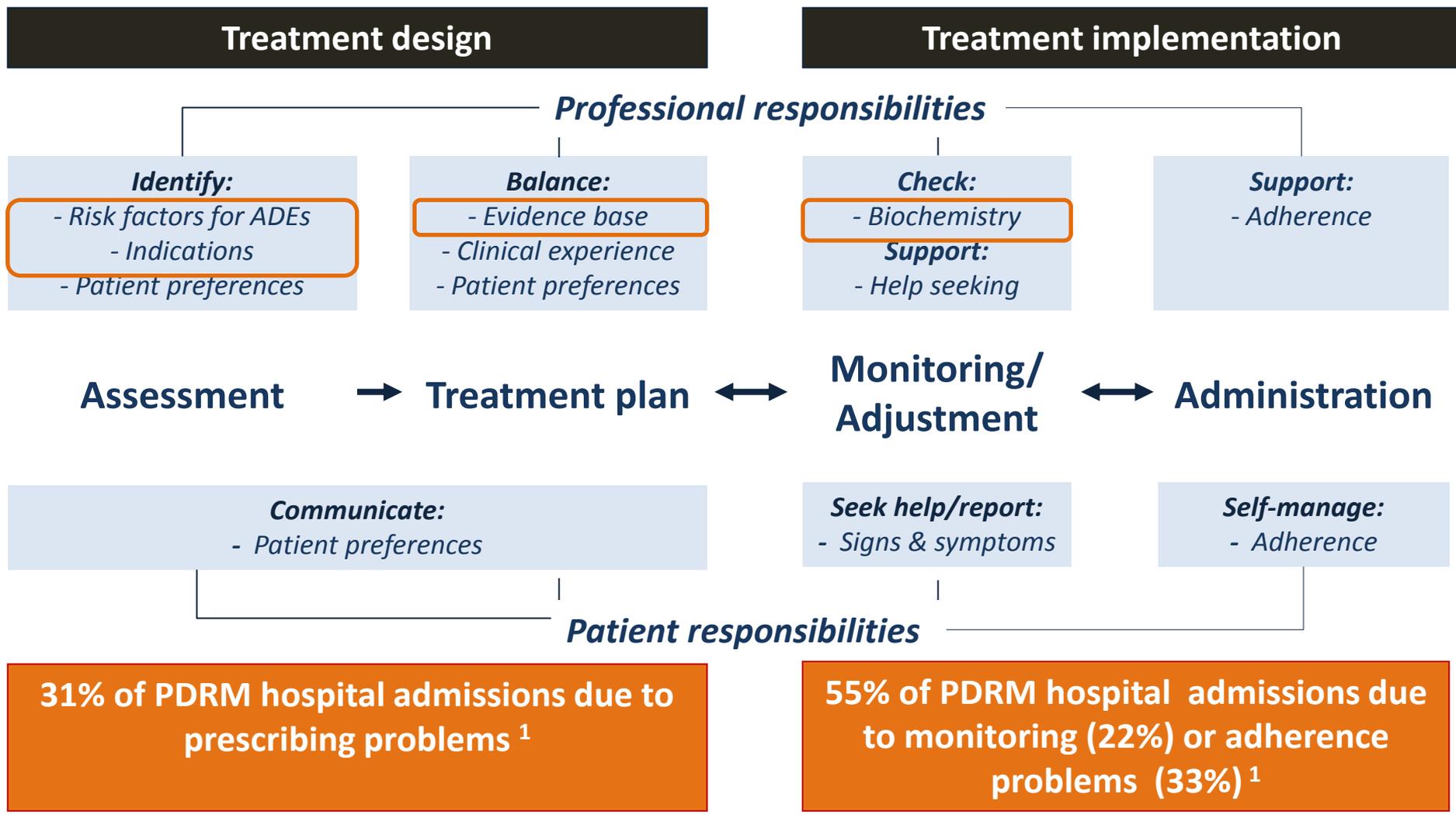
#### Self-manage:

- Adherence

### Patient responsibilities



# Priorities for intervention





# Intervention strategies: Audit and feedback

- Evidence that it can be effective (Cochrane review 2012)
  - Results from 49 studies (82 comparisons): Median absolute increase in desired practice **4.3%** (for dichotomous) outcomes but effect size variable (**IQR 0.5 to 16%**)
  - *'Although the median effect may be perceived as relatively small, the 75th percentile effect size is much larger [...], suggesting that audit and feedback, when optimally-designed and used in the right context, can play an important role in improving professional practice.'*
- Design and context of feedback likely to be important factors



# Ways to do feedback

Patient level data **NOT** available

Patient level data **IS** available

**Provider level feedback**

**Provider level feedback**

**Patient level feedback**

**Example**

*Volume of NSAID prescribing compared to health board average.*

**Example**

*6% of aspirin users prescribed NSAID without gastro-protection.*

**Example**

*Mr Scott currently prescribed combination of low dose aspirin and NSAID without gastro-protection*

**Persuasiveness**

High volume ≠ high-risk

Identifies high-risk prescribing

**'Actionability'**

Relies on practices to identify patients for review

Alerts for individual patients

**Practicability/Resources**

Easy to deploy widely

Needs access to patient level data base

Patient confidentiality issues



## New opportunities in the UK

### New centrally held patient-level prescribing datasets

#### *Examples in Scotland*

**A. ePrescribing programme:** Scotland-wide patient-level prescribing data set held by Information Services Division (ISD):

- ~95% of prescribed items since April 2009 with unique patient identifier
- Data available within 8–12 weeks of a drug being prescribed

**B. Data back-up systems by software companies, e.g. Vision 360™**

- Extractable to NHS server with practice permission (GPs are Caldicott guardians)
- All prescribed items, diagnostic codes
- Almost real time data (Data back-ups overnight)

# EFFIPS and DQIP

**EFFIPS** = Effective Feedback to Improve Primary Care Prescribing Safety

- Draws on ePrescribing data set held by ISD Scotland
- Evaluates the relative effectiveness of different audit and feedback interventions in a three arm cluster randomised trial
- Participants are 262 practices across three health boards

**DQIP** = Data-driven Quality Improvement in Primary care

- Draws on data extracted from Vision 360
- Evaluates the relative effectiveness of a multifaceted intervention including data feedback via a web-based tool in a cluster randomised trial using the stepped wedge design
- Participants are 40 practices across NHS Tayside and Fife



## DQIP vs EFFIPS

## Targeted high-risk prescribing

Outcome measures	EFFIPS	DQIP
<i>High-risk prescribing of NSAIDs and antiplatelets</i>		
Px of NSAIDs or aspirin w/o GIP in pts <b>with hx of PU</b>		✓
Px of NSAIDs w/o GIP in over 75's	✓	✓
Px of NSAIDs and antiplatelet w/o GIP in over 65's	✓	✓
Px of aspirin/clopidogrel w/o GIP in over 65's		✓
Px of NSAIDs w/o GIP in warfarin users	✓	✓
Px of antiplatelets w/o GIP in warfarin users	✓	✓
Px of NSAIDs in patients with <b>heart failure</b>		✓
Px of NSAIDs in patients with <b>CKD ≥3</b>		✓
Px of NSAIDs in patients prescribed ACEI/ARB and a diuretic	✓	✓
<i>High-risk prescribing of antipsychotics</i>		
Px of antipsychotics in over 75's	✓	



## DQIP vs EFFIPS

# Intervention components

Components	EFFIPS 1	EFFIPS 2	EFFIPS 3	DQIP
<i>Report generation/design</i>				
Practice level feedback		✓	✓	✓
<i>Feedback delivery/education</i>				
Educational material	✓	✓	✓	✓
High frequency				✓
Outreach visit by pharmacist (one off)				✓
<i>Improvement support</i>				
Search support/ patient level feedback	✓	✓	✓	✓
Health psychology (theory informed)			✓	
Review support/management				✓
Financial incentives				✓

# DQIP intervention – Informatics component (1)

Quality in Prescribing - Overview - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://10.252.10.59/qualityprescribing/home#date=20110807>

Signed in as tdreschulte | Sign out

Overview

Patients with high risk prescribing for Glenlossie Cornel Meadows Medical Centre, report date : Aug 07 2011

Measure	Total Patients	Review Due	Change Over Time (click to view)
<b>All Categories</b>			
Patients included in any measure ⓘ	13	13	
<b>GI risk measures (Evidence summary)</b>			
NSAID or aspirin in patient with previous peptic ulcer without gastroprotection ⓘ	0	0	
NSAID in over 75s without gastroprotection ⓘ	5	5	
NSAID and aspirin in over 65s without gastroprotection ⓘ	4	4	
Clopidogrel and aspirin in over 65s without gastroprotection ⓘ	0	0	

Percentage of patients triggering: Any measure

build:8583

Copyright © 2011 Aridhia Informatics Ltd. | Third party licensing

start Home - Microsoft Inte... https://connect.nhst... Quality in Prescribing ... EN



# DQIP intervention – Informatics component (2)

Quality in Prescribing - Patient List - Microsoft Internet Explorer

Address: <http://10.252.10.59/qualityprescribing/patientlist#date=20110807&tab=tabs:tab1>

HOME | APPLICATIONS | NAVIGATE TO... Signed in as tdreischulte | Sign out

**Patient List**

Filter by:

- ▶ Measure
- ▶ No. of Measures Triggered
- ▶ Review Status

**High risk prescribing patient list for Glenlossie Cornel Meadows Medical Centre, report date: Aug 07 2011**

[Go To Overview](#)
[Download review sheet](#)

Patient List						
<a href="#">Excel</a> <a href="#">CSV</a> <input checked="" type="checkbox"/> Show/Hide Columns						
Patient	CHI	Age	No. of measures triggered	Risk Categories	Review Status	Review Date
KHIAN FRASER	<a href="#">9660896331667741398</a>	86	3	GI, Renal	Never reviewed	
KAGISO MORRISON	<a href="#">3699972055475175040</a>	89	2	GI	Never reviewed	
IRMA MACLEOD	<a href="#">1878722133797066982</a>	70	2	Heart Failure, Renal	Needs review (re-prescribed)	
MACKAYLA DOUGLAS	<a href="#">15507266469082147552</a>	66	2	GI, Renal	Needs review (re-prescribed)	
LILY-ANN KELLY	<a href="#">12791532386527563873</a>	86	2	Heart Failure, Renal	Never reviewed	
IAIN HILL	<a href="#">13220754167971592278</a>	71	1	GI	Never reviewed	
ASTERA CLARK	<a href="#">17683226890881622944</a>	55	1	Renal	Never reviewed	
CUBIN WALKER	<a href="#">13027823782854366175</a>	76	1	Renal	Never reviewed	
CORGAN CAMERON	<a href="#">13531620653566510983</a>	81	1	GI	Never reviewed	
GYPSY WILSON	<a href="#">6760438756308955201</a>	79	1	Renal	Never reviewed	
ARIAL MILLAR	<a href="#">6573134941339517846</a>	86	1	GI	Never reviewed	

Page 1 of 1 | Displaying 1 to 13 of 13 items

built:8583 Copyright © 2011 Aridhia Informatics Ltd. | Third party licensing



# DQIP intervention – Informatics component (3)

Quality in Prescribing - Patient Details - Microsoft Internet Explorer

Address: http://10.252.10.59/qualityprescribing/details#patientid=12734935565067827436&date=20110807&rowid=8562582981927727624

HOME | APPLICATIONS | NAVIGATE TO... Signed in as tdreischulte | Sign out

Patient Details IAIN HILL - 13220754167971592278

ardhia quality in prescribing NHS Demo

**GI** NSAID and aspirin in over 65s without gastroprotection

**Heart Failure**

**Renal**

- Prescription
- Stop
- Continue
- Uncertain
- Add Notes
- Do not start gastroprotection
- Start gastroprotection

Medication	Decision	Decision	Decision	Decision	report date: 7/8/2011	Decisions made about drugs
Non-selective NSAID						<input type="radio"/> <input type="radio"/> <input type="radio"/>
COX-2 inhib. NSAID						
Aspirin						<input type="radio"/> <input type="radio"/> <input type="radio"/>
Clopidogrel						
Warfarin						
ACEI / ARB						
Diuretic						
Gastroprotection						<input type="radio"/> <input type="radio"/> <input type="radio"/>

build:8583 Copyright © 2011 Aridhia Informatics Ltd. | Third party licensing

Done Internet



# Strengths

- DQIP and EFFIPS are two examples of quality improvement interventions that take advantage of new developments in data systems
- Designed to be feasible to implement at large scale
- Will provide further insights into which audit and feedback components/resources are required to reduce targeted high-risk prescribing



# Limitations

- Target is on a narrow range of prescribing topics
- Pilot work for DQIP shows that different types of high-risk prescribing may require different quality improvement approaches
- Prescribing is only one stage of the medication use process and improving patient *outcomes* may require improvements in professional monitoring and patient self-management



# Conclusion

- Improving prescribing is an important step on the way to reduce the problem of PDRM
- More research is required to:
  - identify which prescribing problems can be (cost-) effectively targeted by patient level audit and feedback interventions
  - develop and test (cost-) effective interventions that improve patient outcomes



# Thank you

