Prescribing Management

Aim - To consistently promote and improve the safe, clinical and cost effectiveness of prescribing

Margaret Maskrey, Lead Clinical Pharmacist, Inverclyde CHCP
Why is prescribing important

- Most common therapeutic intervention
- a third of over 75 year olds on 4 or more meds
- 70-75% repeat prescribing
- Increasing number of prescriptions issued
- Significant proportion of total healthcare spend
  - 2010/11 in Scotland - £1.14 billion on prescription drugs – 80% in primary care, Inverclyde CHCP 2011/12 drug budget £17.1 million
- Limited drug budget so maximise population benefit
- Adverse drug reactions are a major cause of morbidity and mortality including hospital admission
  - ensure quality prescribing
  - reduce inappropriate prescribing
- ADRs implicated in 5–30% of hospital admissions
- Waste estimated at 4% of medicines prescribed
- Need to support safe, clinically effective and cost effective prescribing by medical and non-medical prescribers
Background to Prescribing Management in Inverclyde

- Inverclyde CHCP population – 84,416
- Medical Prescribers – 63 GPs
- Dental Prescribers - 26
- Non Medical Prescribers – 43 (37 nurses, 4 pharmacists, 2 podiatrists)
- Community Pharmacies – 19
- GP Practices – 16
- Inverclyde CHCP 11/12 drug budget £17.1M
What influences your prescribing

- Disease prevalence
- Secondary care
- IT systems
- Historic prescribing
- Formulary, guidelines, indicators
- Locums/GP registrars
- Expertise/experience of GP
- Affluent population
- Deprivation
- Elderly population

Affluent population, Deprivation, Elderly population
Local Key Themes for Prescribing 2011/12

- Movement to increased Formulary preferred list prescribing - Simvastatin, ISMN, Amlodipine, Doxazosin, NSAIDs
- Effects of secondary care prescribing – historic and current
- Other - effect of GP registrars, locums, GPs with a special interest, access to private healthcare
Inverclyde Prescribing Team

— Prescribing Lead GP – Hector MacDonald
— Lead Clinical Pharmacist – Margaret Maskrey
— 3.3 WTE Prescribing Support Pharmacists
— 3 WTE Pharmacy Technicians
— 0.2 WTE Dietitian
— 1 WTE Admin Support
• Working with GPs
• Working with Community Pharmacies
• Feedback reports/visits to prescribers – GPs, non medical prescribers
• Work with care homes
• Staff training
• Patient medication review
• Awareness raising with other health care professionals
Inverclyde Prescribing Support 2011/12

- Cost effectiveness - potential efficiencies
- Budget position
- Formulary preferred choices
  http://www.ggcprescribing.org.uk/
- Quality issues – 2.5mg as % all methotrexate, hypnotic/anxiolytics,
- Volume of prescribing – proton pump inhibitors, analgesics, antibiotics, 4C antibiotics
- Waste
- Medicines safety
- Prescribing team – support in each practice
- Prescribing Indicators – safe, high quality, cost effective
- Patient medication review – elderly, polypharmacy, care homes, IRH Day Hospital, hospital discharge, respiratory
- Public Health – smoking cessation
Prescribing Budget Setting

1. Baseline
2. National adjustments
3. Local Prescribing Efficiency Plans
   - RPI
   - GMS
   - Prescribing Support Teams
   - Care Homes
   - Medicines Management LES
4. Contingency adjustments
5. Practice list size adjustments
6. NRAC variance- Demographics
### SCOT-PU

**Age-sex cost weights for GP prescribing**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Cost per head (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
</tr>
<tr>
<td>0-4</td>
<td>£32</td>
</tr>
<tr>
<td>5-14</td>
<td>£36</td>
</tr>
<tr>
<td>15-24</td>
<td>£49</td>
</tr>
<tr>
<td>24-34</td>
<td>£83</td>
</tr>
<tr>
<td>35-44</td>
<td>£121</td>
</tr>
<tr>
<td>45-54</td>
<td>£192</td>
</tr>
<tr>
<td>55-64</td>
<td>£339</td>
</tr>
<tr>
<td>65-74</td>
<td>£559</td>
</tr>
<tr>
<td>75+</td>
<td>£619</td>
</tr>
</tbody>
</table>

**GP prescribing**
Analysis of Prescribing

- PRISMS
- Per Practice/prescriber
- Number of Prescriptions
- Prescribed Items
- Cost of Prescriptions – GIC
- Per patient/weighted patient
- Budget position
- Prescribing indicators – safe, high quality, cost effective
- Efficiency savings
Prescribing Indicators

Performance indicators which are set at HB level which reflect high quality cost effective prescribing

(64 prescribing indicators 2012/13)
Simvastatin as % of all Statins (October 2006 to June 2011) by number of items
Proton Pump Inhibitors DDDs per 1000 weighted patients should be fewer than 8,000 per quarter or there should be a decrease of 250 DDDs per 1000 weighted patients per quarter from baseline.
To be able to obtain information to help identify the sources of non-Formulary prescribing originating from the Acute Sector, you are asked to complete a non-Formulary Form (Form NF1) should you receive requests from other clinicians to commence the following medicines. You may also consider completing the form in the exceptional circumstances where you consider one of these non-Formulary medicines to be the most appropriate for an individual patient. Forms can also be used for any other NF medicines outwith this list at your discretion.

This system does not in any way affect your individual prescribing rights.

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aliskiren (Rasilez™)</td>
<td></td>
</tr>
<tr>
<td>Amlodipine and Valsartan tablets (Exforge®)</td>
<td></td>
</tr>
<tr>
<td>Clopidogrel (Plavix®) when used outside of Antithrombotic Guidelines</td>
<td></td>
</tr>
<tr>
<td>Buprenorphine patch (Tranxene®, BuTrans®)</td>
<td></td>
</tr>
<tr>
<td>Ciclesonide (Alvesco®)</td>
<td></td>
</tr>
<tr>
<td>Cilostazol (Pletal®)</td>
<td></td>
</tr>
<tr>
<td>Desloratadine (Neoclist®)</td>
<td></td>
</tr>
<tr>
<td>Doxazosin XL (Cardura XL®)</td>
<td></td>
</tr>
<tr>
<td>Erdotin®</td>
<td></td>
</tr>
<tr>
<td>Esclarapram (Cipramax®)</td>
<td></td>
</tr>
<tr>
<td>Esomeprazole (Nexium®)</td>
<td></td>
</tr>
<tr>
<td>Ezezilimine/Simvastatin (Imera®)</td>
<td></td>
</tr>
<tr>
<td>Glucosamine hydrochloride (Altemys®)</td>
<td></td>
</tr>
<tr>
<td>Ibuprofen acid tablets (Bonviva®)</td>
<td></td>
</tr>
<tr>
<td>Levocetirizine (Xyzal®)</td>
<td></td>
</tr>
<tr>
<td>Melatonin (Circadin®)</td>
<td></td>
</tr>
<tr>
<td>Memantine (Ebixa®)</td>
<td></td>
</tr>
<tr>
<td>Metformin MR (Glucophage SR®)</td>
<td></td>
</tr>
<tr>
<td>Modafinil (Provigil®) for excessive daytime sleepiness of obstructive sleep apnoea and shift work sleep disorder</td>
<td></td>
</tr>
<tr>
<td>Olmesartan (Olmetec®)</td>
<td></td>
</tr>
<tr>
<td>Omarsartan/hydrochlorothiazide (Olmetec Plus®)</td>
<td></td>
</tr>
<tr>
<td>Pantoprazole (Priose®)</td>
<td></td>
</tr>
<tr>
<td>Pregabalin (Lyrica®) for neuropathic pain and generalised anxiety disorder</td>
<td></td>
</tr>
<tr>
<td>Rabeprazole (Pariet®)</td>
<td></td>
</tr>
<tr>
<td>Risedronate sodium when used for osteoporosis as 1st line ahead of alendronic acid</td>
<td></td>
</tr>
<tr>
<td>Tramadol plus paracetamol (Tramac®)</td>
<td></td>
</tr>
<tr>
<td>Yasmin</td>
<td></td>
</tr>
<tr>
<td>Zolpidem</td>
<td></td>
</tr>
</tbody>
</table>

*medication/formulation/indications not yet reviewed by BSC
* BSC approved – local decision making
* BSC pending approval – local decision making
*medication/formulation not recommended by BSC for use in NHS Scotland
* established medication/formulation which are not included in the AMSGCC Formulary
NHS GREATER GLASGOW AND CLYDE HEALTH BOARD
REQUEST FOR A NON-FORMULARY (NF) MEDICINE

This form is to be completed by GPs who are either wishing to prescribe a non-formulary or non-NHS accepted medicine for a patient, or for those GPs who have received a request from another clinician to initiate such a medicine. This form does not override the clinician's independence to prescribe whatever he/she feels is the most appropriate treatment for an individual patient.

A FORM ONLY NEEDS COMPLETION AT NOTATION FOR THOSE MEDICINES INCLUDED ON THE HIGHLIGHTED NON-FORMULARY MEDICINES LIST.

SECTION 1: GP PRACTICE AND PATIENT DETAILS

Please use practice stamp here

Attach patient notes here or if not available, write patient's ONS number.

SECTION 2: CLINICIAN REQUESTING MEDICINE

Who is requesting the medicine? I am requesting the medicine myself Another clinician has requested I initiate this treatment for this patient

If another clinician has asked you to initiate this treatment, please provide details of them below

Clinicians Name: (if it dual)

Specialty: (e.g. consultant cardiology)

Contact details: Hospital address, contact number (if known)

SECTION 3: OTHER RELEVANT INFORMATION

Please provide any other information which may be useful in determining whether this treatment is appropriate or not in the space below (such as details of previous treatments tried for this condition).

SECTION 4: SIGNATURE AND DATE

Signature: Person completing the form

Date: / /
Inverclyde CHP - Top 10 Non Formulary Drugs by Cost Per Patient
GGC Management of Infection Guidance

• Guidance for Adults
• Guidance for Children
Background - National

- 2002 Antimicrobial Resistance Strategy & Scottish Action Plan
- 2005 Antimicrobial Prescribing Policy & Practice
- 2008 ScotMARAP – Scottish Management of Antimicrobial Resistance Action Plan
- 2011 Scottish Antimicrobial Prescribing Group
- National clinical forum to co-ordinate a national framework for antimicrobial stewardship to enhance the quality of antimicrobial prescribing and infection management in primary care and hospitals in Scotland
Background - Local

Vale of Leven Independent Outbreak Control Team Report 2008

Recommendation:

Best practice guidelines for prudent antimicrobial prescribing are implemented and monitored in both acute and community sectors.
Problems of over-prescribing antibiotics

- When prescribed for self-limiting infection – patients perceive improvement in symptoms is due to antibiotic – more likely to seek antibiotics in future
- Resistance – MRSA, multi-resistant infections
- Increased incidence of C.Difficile (4C antibiotics – cephalosporins, co-amoxiclav. clindamycin and quinolones)
- Additional side effects and prescribing costs
Antibiotic Prescribing in Primary Care

- Primary care accounts for 80% antibiotic use
- Over 4 million prescriptions per annum
- Reduction of use is key aspect of stewardship
- “our mission is not to prescribe as few antibiotics as possible, but to identify that small group of patients who really need antibiotic treatment and to explain, reassure and educate the large group of patients who don’t”
National prescribing data shows variation

Distribution of antibiotic use expressed as items/1000 patients/day across all GP practices in Scotland. April 2009 to March 2010.
### Primary Care Adult Infection Management Guidelines

#### AIMS
- To provide a simple, best guess approach to the treatment of common infections
- To promote the safe, effective and economic use of antibiotics
- To minimize the emergence of resistant infection in the community

#### Principles of Treatment
1. Always base the treatment on the best evidence available but this is not always possible and the best available evidence may not be sufficient
2. Always use antibiotics when there is likely to be a clear clinical benefit
3. Subsequently use antibiotics to treat severe infections in patients with poor or advanced age, particularly following surgery
4. Limit prescribing to the shortest period of time that the disease will respond
5. Use single, narrow-spectrum, general antibiotic whenever possible
6. The use of certain antibiotics (e.g. amoxicillin, ciprofloxacin and other quinolones, erythromycin and cephalosporins) is inappropriate when other antibiotics are effective
7. The use of certain antibiotics also increases the risk of adverse events, including Clostridium difficile

#### Qualification of the antibiotic
- Triple treatment always 0.2% of patients
- Cautiously against certain infections
- The highest ranking is given to the antibiotics that are best known for their safety

#### Cautiously considered antibiotic prescription

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>When to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amoxicillin</td>
<td>Acute bronchitis or acute exacerbation of COPD</td>
</tr>
<tr>
<td>Cefuroxime</td>
<td>Acute bronchitis or acute exacerbation of COPD</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>Acute bronchitis or acute exacerbation of COPD</td>
</tr>
<tr>
<td>Azithromycin</td>
<td>Acute bronchitis or acute exacerbation of COPD</td>
</tr>
</tbody>
</table>

#### Uncomplicated Lower UTI

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>When to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cefalexin</td>
<td>Cefalexin is 500mg BD for 5 days</td>
</tr>
<tr>
<td>Cefuroxime</td>
<td>Cefuroxime is 500mg BD for 5 days</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>Ciprofloxacin is 500mg BD for 5 days</td>
</tr>
</tbody>
</table>

#### Cautiously associated UTI

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>When to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cefuroxime</td>
<td>Cefuroxime is 500mg BD for 5 days</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>Ciprofloxacin is 500mg BD for 5 days</td>
</tr>
</tbody>
</table>

#### Do not treat uncomplicated bacteriuria

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>When to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrofurantoin</td>
<td>Nitrofurantoin is 50mg BD for 5 days</td>
</tr>
<tr>
<td>Cotrimoxazole</td>
<td>Cotrimoxazole is 160mg/800mg BD for 5 days</td>
</tr>
</tbody>
</table>

#### Impalpable

- Nitrofurantoin or nitroimidazoles
- Cotrimoxazole
- Ciprofloxacin

####NOSPECIFIC

- Erythromycin 500mg BD for 5 days
- Cefuroxime 500mg BD for 5 days
- Ciprofloxacin 500mg BD for 5 days

#### Non-specific

- Erythromycin 500mg BD for 5 days
- Cefuroxime 500mg BD for 5 days
- Ciprofloxacin 500mg BD for 5 days

#### Uncomplicated gonorrhoea

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>When to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceftriaxone</td>
<td>Ceftriaxone is 250mg IM for 1 dose</td>
</tr>
<tr>
<td>Azithromycin</td>
<td>Azithromycin is 1g on day 1</td>
</tr>
</tbody>
</table>

#### NOSPECIFIC

- Erythromycin 500mg BD for 5 days
- Cefuroxime 500mg BD for 5 days
- Ciprofloxacin 500mg BD for 5 days

#### Gonorrhoea

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>When to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erythromycin</td>
<td>Erythromycin 500mg BD for 5 days</td>
</tr>
<tr>
<td>Cefuroxime</td>
<td>Cefuroxime 500mg BD for 5 days</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>Ciprofloxacin 500mg BD for 5 days</td>
</tr>
</tbody>
</table>

#### Clostridium difficile infection
- Antibiotics prescribed
- 4C’s antibiotics
- Cephalosporins

#### References
- NHS Guidelines on antibiotic prescribing
- JAC reviews

---

*High risk of Clostridium difficile avoid in at risk patients*
Principles

• Do not give antibiotic for
  – Coughs, colds, in-growing toenails, leg ulcers
• Limit over the phone prescriptions
• C difficile, 4C antibiotics, prolonged use
• Avoid topical
• Avoid antibiotic in 1st trimester unless essential
  – Penicilllins, cephalosporins, erythromycin preferred
• Drug Interactions – check BNF
  – Macrolides + statins
  – Warfarin
  – OCP – additional contraceptives during +7days
Reduction of unnecessary prescribing

- Respiratory tract infections
  - 25% population will see GP for RTI annually
  - 60% all antibiotic prescriptions
  - Many RTI are self limiting
  - Good evidence (RCT) antibiotics have limited efficacy in many RTI
  - Antibiotics not justified to prevent complications
NHS GG&C antimicrobial prescribing trend by financial quarter

2006/07 Q1 to 2010/11 Q4

- CEPHALOSPORINS AND OTHER BETA-LACTAMS
- MACROLIDES
- PENICILLINS
- QUINOLONES
- TETRACYCLINES
Prescribing of Quinolones, clindamycin, co-amoxiclav & cephalosporins
NHS Greater Glasgow & Clyde and NHS Scotland

2006/07 Q1 to 2010/11 Q4

NHS Greater Glasgow & Clyde and NHS Scotland

Graph showing the prescribing trends of quinolones, clindamycin, co-amoxiclav & cephalosporins from 2006/07 Q1 to 2010/11 Q4.
Why No Antibiotic?

Many common infections are caused by viruses. Antibiotics do not kill viruses. Also, many bacterial infections do not need antibiotics. This is why antibiotics are not prescribed for many infections.

Viral infections

Many common infections of the nose, throat, sinuses, ears, and chest are caused by viruses. Flu-like illnesses are also caused by viruses. Diarrhoea and/or vomiting are often due to a viral infection of the gut. If you are normally well, your immune (defence) system is good at fighting off many types of viral infection. An antibiotic is not needed if a virus is causing an infection. This is because:

- Antibiotics do not kill viruses. Antibiotics only kill bacteria.
- Antibiotics may cause side-effects such as diarrhoea, rashes, feeling sick, etc.
- Overuse of antibiotics when they have not been necessary has led to some bacteria becoming resistant to them. This means that some antibiotics might not be as effective when they are really needed.

You may feel unwell for several days or more until a viral infection clears. Treatment aims to ease symptoms. Treatments that are commonly advised for viral infections include the following.

- Paracetamol or ibuprofen to reduce a high temperature (fever), and to ease aches, pains, and headaches.
- Make sure you drink enough to prevent mild dehydration. Dehydration may develop if you have a high temperature, and it can make a headache and tiredness much worse.
GP Prescribing Indicator - Antibiotic DDDs/1000 weighted patients should be < 6950 per year

• Rationale – to reduce the increasing trend in use of antibiotics across NHSGG&C
• To reduce the incidence of resistant microbes
• To reduce the risk of C.Difficile
• To reduce the exposure of patients to the adverse effects of antibiotics when prescribed when unnecessary
• To minimise expenditure on antibiotics
GP Prescribing Indicator - DDDs of Quinolones/1000pts should be <100 per quarter and for winter (Oct 11-March 12) should be no higher than 5% from summer (April-Sept 11)

• Rationale – Quinolones are associated with an increased risk of *C. difficile* (they may also cause tendon rupture)
• Only indications in Guideline – Upper UTI in women, UTI in men, Acute Prostatitis, Acute Pyelonephritis
GP Prescribing Indicator - 4C antibiotics should account for less than 10% of all antibiotic prescribing per quarter (items)

• Rationale - *Clostridium difficile* infection is associated with prescribing of; 4Cs antibiotics: Cephalosporins, Co-amoxiclav, Clindamycin and Quinolones (Ciprofloxacin, Levofloxacin, Moxifloxacin, Ofloxacin).

• Guideline - these agents recommended to be restricted to reduce selection pressure.
Do targets lead to improvements in prescribing?

NHS Scotland use of antibacterials in primary care by NHS Board, % seasonal variation of quinolones (DDD) 2008-09 – 2009-10

CEL 11 (2009)
Seasonal Variation in use of quinolones. No more than 5% higher in winter than preceding summer by 2011.
Optometry Prescribing

- [http://www.ggcprescribing.org.uk/](http://www.ggcprescribing.org.uk/)
- GGC Formulary recommendations
- Preferred List
- Total Formulary
- Preferred List choices below:
  - Anti-infectives – chloramphenicol, fusidic acid, gentamicin,
  - Antivirals – aciclovir eye ointment
  - Corticosteroids – specialist initiation
  - Other Anti-inflammatory – sodium cromoglicate drops, olopatadine drops second line
  - Mydriatics and cycloplegics – cyclopentolate, tropicamide
  - Glaucoma - specialist initiation – (total formulary timolol first choice)
  - Local anaesthetics – total formulary
  - Tear deficiency – hyromellose 0.3% first choice
Celluvisc

- Carmellose Sodium (Celluvisc®) for the treatment of dry eyes was subject to an appeal to have it added to the Preferred List as a first-choice agent in atopic patients. The appeal was rejected on the basis of insufficient evidence and the potential cost implications. Celluvisc® remains a Total Formulary preparation restricted to use only in those patients with severe dry eyes in addition to external eye or corneal conditions who demonstrate intolerance to preservatives.
Optometry Pilot

- To enable Optometrists to supply from a limited formulary direct to patients
- Supports Optometrists as first port of call for eye problems
- Pilot in West Dunbartonshire and Inverclyde
Community Pharmacy Schemes

• Minor Ailments Scheme
• Public Health Scheme
• Acute Medication Scheme
• Chronic Medication Scheme
The Future

• Continued engagement with Prescribers
• Continued engagement, advice and feedback on prescribing to multidisciplinary team of healthcare and social care professionals
• Improving links with secondary care
• Awareness raising with multidisciplinary team
• Public Engagement e.g. regarding waste management