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U **UK Association of Physician Assistants' CPD conference** **B**
 CLINICAL PHARMACOLOGY

Dr Jamie Coleman
 Consultant in Clinical Pharmacology and
 Honorary Senior Lecturer

Headline facts about therapeutics

- ❖ ~2 million prescriptions/day – GPs
- ❖ ~½ million prescriptions/day – hospital Drs
- ❖ 7,000 medication administrations/day in the average hospital
- ❖ 1:10 proportion of hospital admissions that result in error
- ❖ ~¼ of adverse medical events due to negligence

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Outline

- ❖ Drug Safety and Clinical Practice
- ❖ Knowledge about Drugs
- ❖ Education in Clinical Pharmacology
- ❖ eLearning
- ❖ Physicians Assistants and Therapy
- ❖ Health Information Technology

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DRUG SAFETY & CLINICAL PRACTICE

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“Drug safety in the limelight”

Co-proxamol to be withdrawn
CSM has recommended that co-proxamol (paracetamol plus dextropropoxyphene and alcohol. Co-proxamol is involved in **Prescriber 2005;4:16**

Expecting the Unexpected — Drug Safety, Pharmacovigilance, and the Prepared Mind
Anne Trivedi, M.D., M.P.H. **Initial article, page 1403**


Pitfalls on the road to drug safety
The recent withdrawal of rofecoxib (Vioxx) from the worldwide market has focused attention on public perception **BMJ 2004;329:1411**

FDA is incapable of protecting US “against another Vioxx”
Journal Letters New York **BMJ 2004;329:1253**

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Are Drugs safe?

- ❖ Harm/Benefit
- ❖ ADRs



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How Much Does it Matter?

- ❖ Treatment Failure
 - ❖ Continued suffering
 - ❖ Deterioration
 - ❖ Death
- ❖ Adverse Effects and Interactions
 - ❖ At home
 - ❖ As a reason for hospital admission
 - ❖ Prolonging hospital stays
 - ❖ Deaths

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ADRs Causing Hospital Admissions

- ❖ BMJ 2004; **329**: 15-19
 - ❖ 2 Liverpool hospitals
 - ❖ 18 820 patients
 - ❖ 1225 admissions related to ADR (6.5%)
 - ❖ Most were preventable
- Cost
 - ❖ £466 million per year
 - ❖ Equal to seven 800 bed hospitals

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ADR Deaths

- ❖ Over 10 000 per year in England
- ❖ Over 100 000 per year in the USA
JAMA 1998; **279**: 1200-1205
- ❖ Serious for the patient
- ❖ Upsetting for the family
- ❖ A worry for the prescriber

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Knowledge about Drugs in Clinical Medicine

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Drugs in Clinical Practice

- ❖ Over 18 000 currently recorded component active substances
(Component = substance with pharmacological properties used in therapeutics)
- ❖ British National Formulary contains over **1200 drug entries**
- ❖ Most doctors use only 40-60 drugs routinely

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THE BNF

– If  made formularies...

- ❖ Authoritative
- ❖ Primary source of information in the NHS



British
National
Formulary

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The BNF

- ❖ Published Biannually
- ❖ Contains most 'prescribable' substances
- ❖ Guidance on prescribing issues



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Knowledge about Medicines

- ❖ "Remember how much you do not know. Do not pour strange medicines into your patients."

William Osler, Aphorisms.

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WHAT DO YOU NEED TO KNOW?

- ❖ DIAGNOSIS
 - Accurate
 - Complete
- ❖ IS DRUG TREATMENT...
 - Necessary?
 - The best option?
- ❖ WHICH IS THE BEST DRUG – which means you need to know...
 - About the patient
 - The drugs available for the disorder
 - The actual medicine – formulation, dose, route, duration

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THE PATIENT

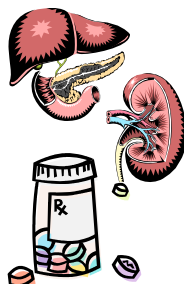
- ❖ PHYSIOLOGY
 - Infancy and Childhood
 - Pregnancy and Breast feeding
 - Body Weight
 - Old Age



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THE PATIENT

- ❖ PATHOLOGY
 - Liver and Renal Function
 - Other Diseases
- ❖ PHARMACOLOGY
 - Other Drugs
 - INTERACTIONS
 - COMPLIANCE



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Education and Clinical Pharmacology

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Education, Education, Education

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PA courses and Clinical Pharmacology

- ❖ US literature states that:
 - Taught by doctoral-level pharmacologists and/or clinical pharmacists & part of the curricula of all PA programmes
 - Minimum coverage includes pharmacokinetics, drug interactions, adverse effects, contraindications, indications, and dosage.
 - Reinforced in clinical medicine units in which pharmacological principles and therapeutics makes up a significant proportion of each unit.
 - Pharmacology education also occurs during each clinical clerkship/ rotation

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Knowledge

prescribing education

Pharmacy
 Clinical pharmacology
 General medicine

e-Learning

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What are we (should we be) teaching?

- ❖ Basic Pharmacology
- ❖ Medication histories (med reconciliation)
- ❖ Therapeutic Principles
- ❖ Practical skills in medicines use
- ❖ System based clinical pharmacology

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Competence and Curriculum Framework for PAs

- ❖ Determine appropriate therapeutic interventions from the full range of available prescription medications.
- ❖ Write accurate and legible prescriptions in out-patient, in-patient and primary care settings.
- ❖ Prescribe appropriate fluid regimes on commencing intravenous infusion.
- ❖ Use local prescribing formularies that recognises their area of work and allows them to prescribe in accordance with treating the presenting patient without unnecessary delay. The local prescribing formulary will be adhered to at all times.

Note: Although it is recognised that the granting of independent prescribing rights is subject to separate approval/legislation (via a process of consultation with the Commission on Human Medicines and the Medicines and Healthcare Products Regulatory Agency under the auspices of the Department of Health) this recommendation is included here because independent prescribing is central to the role and practice of the Physician Assistant, unlike professions for whom it is a part of the extended role.

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Evidence-based prescribing

- ❖ Overwhelming amounts of information
- ❖ Keeping up to date is difficult
- ❖ "Pre-digested information"

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No Free Lunch

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eLearning

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University of Birmingham

Video-based tutorial on medication administration

Flash-based tutorial on the medications chart

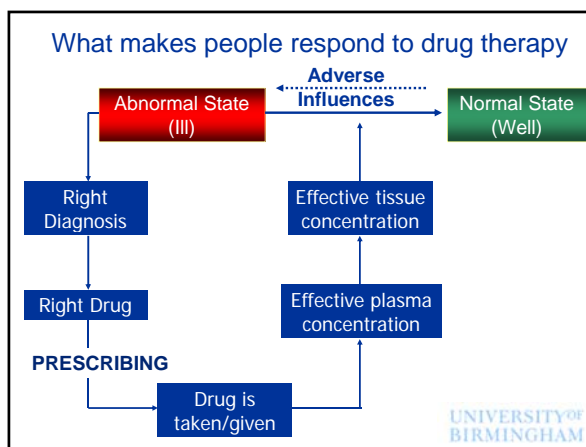
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Postgraduate modules with BMJ learning

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Physicians Assistants and Therapy

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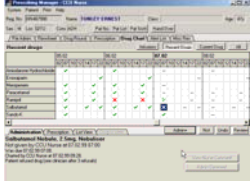


Electronic Prescriptions

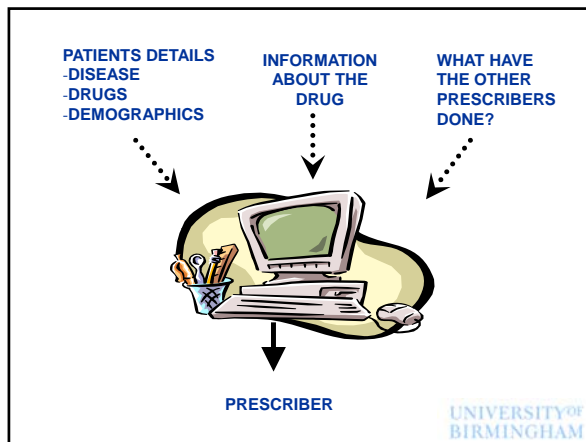
❖ From this



□ To this



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An example of CDS tool - Isabel



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Questions?



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