Role of Education and Training in Rational Use of Medicines

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In this presentation I will discuss

- What are rational and irrational use of medicines
- Interventions to promote more rational use of medicines
- How can training and education promote more rational use of medicines
- Experience from the rational use of medicines project ROHTO in Finland

Definition of rational use of medicines

"Patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community." (WHO, 1985).

Types of irrational medicine use

- The use of too many medicines per patient (polypharmacy)
- Inappropriate use of antimicrobials, often in inadequate dosage, for non-bacterial infections
- Over-use of injections when oral formulations would be more appropriate
- Failure to prescribe in accordance with clinical guidelines
- Inappropriate self-medication, often of prescription- only medicines
- Use of too expensive medicines

Types of interventions to promote more rational use of medicines

- Laws and regulations
- Controlling access to medicines
- Essential medicines lists based on treatments of choice
- Clinical guidelines
- Education and training of
  - Professionals
  - The public
- Avoidance of perverse financial incentives

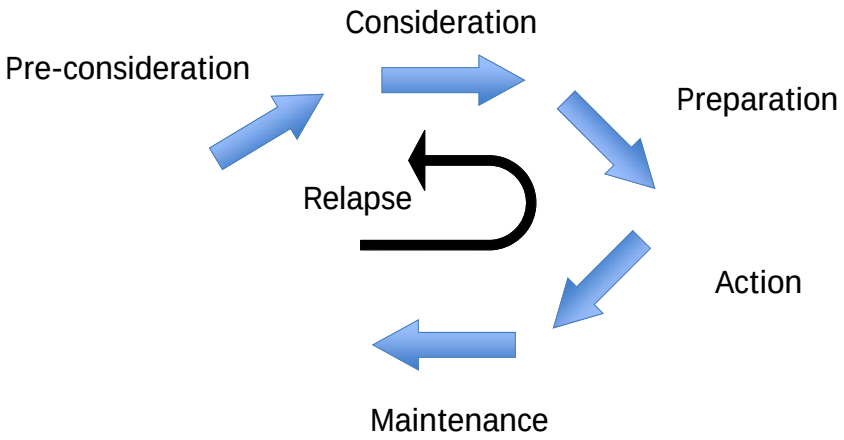
Interventions to promote more rational use of medicines

Type of Irrational use	Type of intervention that can be effective
Polypharmacy	Education
Inappropriate use of antimicrobials	Education, regulatory measures on availability
Over-use of injections	Education
Failure to prescribe in accordance with clinical guidelines	Education
Inappropriate self-medication	Regulatory measures on availability, education
Use of too expensive medicine	Essential medicine lists, reimbursement policies

From inappropriate to more appropriate use of medicines

- Prescribers/users have to change their practice
- Change of practice can be reached to a limited extent with external rules, regulations and other control measures
- Real change of practice can be reached through educational interventions
  - Use of evidence-based methods
  - The learner has to be motivated to change
  - Relapses are common

Phases of change



Prochaska JO et al 1992 (modified)

Human needs: The motivation for behaviour

Adults address physiological and psychological needs continually over their lifetimes

- Hierarchy of Needs (Maslow 1943):
  - Biological (e.g. the need for nutrition, sleep)
  - **Security** (e.g. the need for predictability in one's life)
  - **Affiliation** (an individual's feeling she/he is a valued member of a group important to her/him)
  - **Self-esteem** (i.e. feeling good about oneself)
  - Self-actualization (i.e. maximizing one's potential)

Principles of adult learning

- Learners seek solutions to problems they recognize
- Learners want to be involved in their own learning
- Adult learners have many demands on their time
  - Learning received has to be in balance with demand on time and energy required

Cooking story

Knowledge	**List the ingredients for pancakes**
Comprehension	**Describe how I make these pancakes**
Application	**Make the pancakes**
Analysis	**Point out the importance of separating the dry and wet ingredients**
Synthesis	**Create a healthier pancake**
Evaluation	**Compare two recipes for pancakes**

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Educational activities and Bloom's taxonomy

Bloom Level	Common Education Activity
Knowledge	Readings Lectures Online (programmed learning)
Comprehension	All of the above and Discussion Small group learning
Application	Active learning projects Problem-based learning Team-based learning

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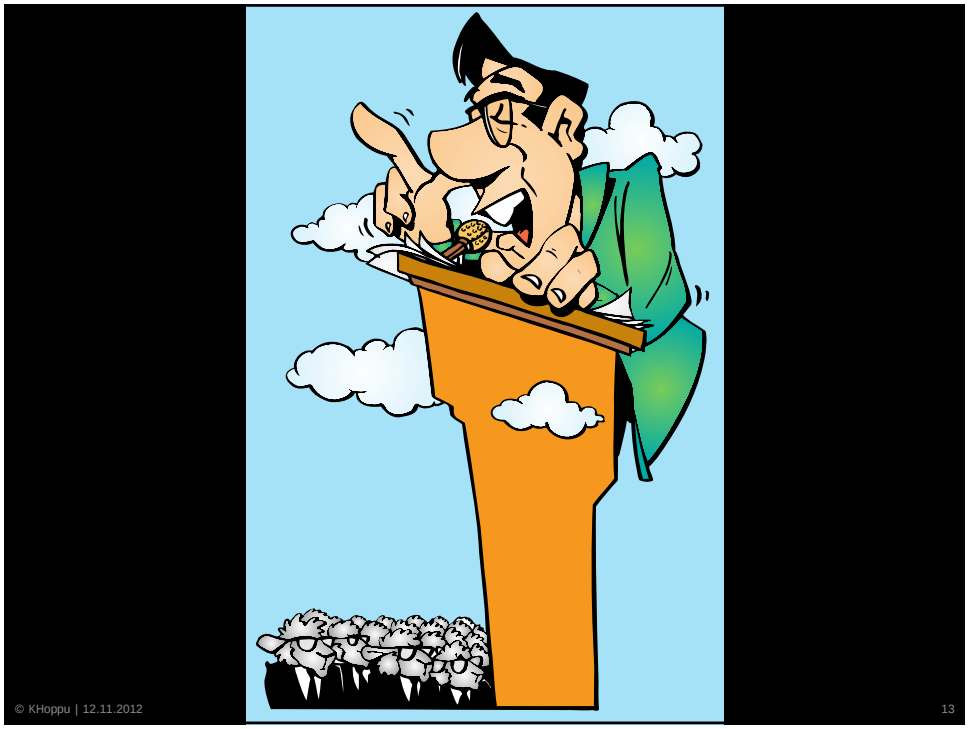

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Model of educational activities to change physician's practice (EBE*)

Needs assessment	Activities designed to identify physicians' needs addressable through CME**
Primary intervention	Instructional strategies and tactics employed to address problems noted in the needs assessment
Secondary interventions	Activities designed to either enable learning or reinforce learning after the initial intervention is complete
Outcomes	Preferably those indicating changes in physicians practice and patient welfare e.g. reduction of morbidity and mortality

*EBE=Evidence based Education
**CME = Continuous Medical Education

From Davis D et al 1994

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Health Policy 66 (2003) 1–10

HEALTH policy

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Focusing on changing clinical practice to enhance rational prescribing* collaboration and networking enable comprehensive approaches☆

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Received 24 August 2002; accepted 8 January 2003

Abstract

Most western societies are enhancing rational pharmacotherapy to get best value for the constantly increasing expenditure on drugs. Government bodies and the medical profession took joint responsibility for the education programme for rational prescribing, launched in Finland at the end of the 1990s. The goals were to enhance critical thinking, and when appropriate, change prescribing behaviour. Various approaches that included evidence-based continuing medical education (CME), implementing clinical guidelines, delivering information, and providing prescribing feedback were used simultaneously. The commitment of the stakeholders and participants has been strong and the approaches have succeeded even though there is no clear outcome measure. The Government has recently decided to continue and widen the process, which started as a pilot programme, on a tight budget.

Keywords: Collaboration; Continuing medical education; Rational prescribing; Strategy

Quality problems of drug therapy recognized by the program organisation, such as

- Continuously increasing polypharmacy among the elderly: around 40% of those over 75 years of age use at least five different prescription drugs concomitantly
- Widespread use of psychotropics, most frequently among the elderly, both in institutions and ambulatory care
- Treatment of hypertension: only a minority of patients treated for high blood pressure reach the target level, mainly because of the failure in life-style modification
- The consumption of antimicrobials (in Finland 30% higher than for example in Denmark) causing increasing problems with bacterial resistance
- Rare generic prescribing, even though the price level of generic products is generally 25-35% below the (original) branded ones
- The educational basis of the interventions required, that the selection of topics was left to the physicians at local level

Approaches chosen for ROHTO-project

- A pilot experiment of collaboration

  The most usual outcome for an intervention study, drug expenditure, is too multifactorial to allow any meaningful conclusions on such a short intervention. The programme was seen merely as a pilot experiment, which could be expanded, if proven successful.
- Ownership

  The programme was funded by the government and administered jointly with the Finnish Medical Society Duodecim (a scientific society)
- Small group CME at local level
- Workshops at regional and national level
- Prescribing feedback

  Reflection on local prescribing practices, based on anonymised data tailored from the national register of reimbursed medicines, was an integral part of the workshops
- Publishing

Table 1
Approaches to changing clinical practice presented by Grol [21] and how they were employed by the Finnish programme for rational drug therapy

Strategy, interventions	Employed by the ROHTO program (+ to some extent; ++, commonly; −, not in use)
Educational	
Bottom up, local consensus development	++
Small group interactive learning	++
Problem-based learning	++
Epidemiological	
Evidence-based guideline development	−[a]
Disseminating research findings through courses, mailing, journals	++
Marketing	
Needs assessment, adapting change proposals to local needs	++
Stepwise approach	++
Various channels for dissemination (mass media and personal)	++
Behavioural	
Audit and feedback	+
Reminder systems, monitoring	−
Economic incentives, sanctions	−
Social interaction	
Peer review in local networks	−
Outreach visits, individual instructions	−
Opinion leaders	+
Influence key people in social networks	+
Patient mediated interventions	−
Organisational	
Re-engineering care process	−
Total quality management/continuous quality improvement approaches	+
Team building	−
Enhancing leadership	−
Changing structures, tasks	−
Coercive	
Regulations, laws	−
Budgeting, contracting	−
Licensing, accreditation	−
Complaints/legal procedures	−

[a] Evidence-based guidelines development by one of the organisations involved in ROHTO.

Conclusions

- Effective promotion of more rational use of medicine scan only be achieved through change of practice (behaviour)
- Learners have to first recognize the problem
- Evidence based educational interventions should be used (involve learners in their learning)
- Filling learners needs for *security* (feeling certain how to deal with a clinical problem), *affiliation* (feeling of being a valued member of a peer group), and self-esteem help motivate the learner