Drug and Therapeutics Committees in Copenhagen, Denmark

E. I. Penninga[1], M. Jespersen[1] & S.E. Andersen[1]

[1]Department of Clinical Pharmacology, Bispebjerg Hospital, Copenhagen University Hospital, Bispebjerg Bakke 23, 2400 Copenhagen N, Denmark.

Corresponding author: Dr. Elisabeth Penninga

Department of Clinical Pharmacology,

Bispebjerg University Hospital,

Bispebjerg Bakke 23,

2400 Copenhagen N,

Denmark.

Tlf. +45 35 31 64 03

Fax: +45 35 31 37 11

Email: ipen0001@bbh.regionh.dk

DRUG AND THERAPEUTICS COMMITTEES IN COPENHAGEN, DENMARK

Denmark is a country with a population of approximately 5.5 million people. The Danish public health care system is well-organized and is financed by income taxes. All habitants have equal access to health service and in general, the public health care system is preferred over private hospitals. In total, the annual expenses on medical drugs in Denmark are 22 billion DKK (equivalent to 2.9 billion Euro or 3.9 billion USD) of which the majority (64%) is used in the primary health care system and 36% is used in the secondary health care system, e.g. hospitals.

Denmark is divided into five regions. The Capital Region has the highest population density with 1.6 million habitants, who are served by ten hospitals. The annual expenses on medication in hospitals in this region are around 2.4 billion DKK (equivalent to 326.6 million Euro or 432.5 million USD) and the annual use of medication is approximately 56.8 million defined daily doses (DDD).

The main focus of this article is to introduce the Drug and Therapeutic Committee system (DTC), especially the DTC of the Capital Region, where our Department of Clinical Pharmacology is located.

Every region in Denmark has a Regional D & T Committee (R-DTC) and all hospitals have Local D & T Committees (L-DTC). The psychiatric hospitals are considered as a separate institution, which is why they have a separate DTC.

The overall objective of the DTCs is to ensure rational use of pharmaceutical drugs, i.e. to ensure the most effective treatment with minimal side effects at the best price, and to monitor the trends and financial consequences of the usage of drugs in the region.

The Regional Drug & Therapeutic Committee

The regional D & T Committee (R-DTC) refers to the regional Quality Department. Appointed members are a representative from the regional board, a director of one of the regional hospitals (chair of the R-DTC), a chief physician, representatives from the department of clinical pharmacy and the hospitals' central pharmacy as well as representatives from internal medicine (e.g. cardiology), pediatrics, oncology, psychiatry, (orthopedic) surgery and anesthesiology. Furthermore a specialist in microbiology and a specialist in clinical pharmacology (vice chair of the R-DTC) are also members of the R-

DTC. The clinical departments are represented by physicians and/or nurses and the remaining departments are represented by physicians and/or pharmacists. Figure 1 shows an organizational chart for the (R-) DTC. Terms of preferences and tasks for the regional D & T Committee are shown in Table 1.

The overall purpose for the R-DTC is to provide and maintain a pharmacologically rational basis for a uniform usage of drugs in the region's hospitals. This is ensured by preparing and publishing a list of recommended drugs applicable to all clinical departments in the region. The list is published as a 'Booklet of Recommended Drugs'. This booklet is valid for the entire Capital Region, and contains pharmaceutical drugs for general use in the treatment of common diseases. The purpose of the list of recommended drugs is first and foremost to narrow the assortment of pharmaceutical drugs and thereby increase the safety of the medication process. Furthermore, the use of drugs from the 'Booklet of Recommended Drugs' will often be economically advantageous.

Each recommended drug in the booklet is selected and revised in collaboration between members of the R-DTC and the regional boards of clinicians from the different specialties. The drugs are chosen from an overall assessment of published evidence, efficacy, safety and price (Table 2). For example, the secretariat of R-DTC prepares a draft list of recommended angiotensin-II antagonists, summarizes the angiotensin-II antagonist consumption in both hospitals and primary health care, and prepares a list of the newest prices of all angiotensin-II antagonists. The regional clinical boards of neurologists, cardiologists and nephrologists are then requested to comment on the draft and agree on the final list of recommended angiotensin-II antagonists. The booklet is revised once a year.

The R-DTC also prepares and maintains guidelines for the medication process. These guidelines cover all parts of the medication process and aim to optimize the safety of the medication process in the broadest sense. Furthermore, the guidelines aim to ensure that all parts of the medication processes comply with current (national) laws and meet the national and the international quality standards (e.g. outlined by the Joint Commission). There are currently seven regional medication guidelines (Table 3).

Another important task for the R-DTC is to implement and monitor guidelines developed by "The Regions' Council for the Use of Expensive Hospital Drugs" (abbreviated "RADS"). The purpose of the RADS-council is to ensure that patients are offered equal access to treatment with expensive hospital medicine and to prepare the best basis of inviting tenders and thereby

achieving lower purchasing prices for these expensive hospital drugs. The RADS-council appoints special committees of experts whose task is to prepare national treatment guidelines which act as the basis for the choice of drugs used to treat specific diseases. The doctors are obliged to follow these treatment guidelines. The last two years, the RADS-council has prepared treatment guidelines and drug-recommendations for several diseases, among others HIV/AIDS, multiple sclerosis and viral hepatitis B and C, and this has resulted in a saving of approximately 50 million DKK (equivalent to 6.7 million Euro or 8.9 million USD).

An example of a RADS intervention is the implementation of the RADS guidelines on the treatment of HIV/AIDS in the second quarter of 2011. It was decided that treatment with the combination preparations Atripla® and Truvada® should be converted to the cheaper single-agent preparations Viread® (tenofovirdisoproxil), Epivir® (lamivudin) and Stocrin® (efavirenz). Within three months, the treatment was changed so almost 90% of the HIV/AIDS-patients were treated with the recommended cheaper single-agents. The annual savings are estimated to be more than 15 million DKK (2.0 million Euro or 2.7 million USD).

Currently, the RADS-council prepares treatment guidelines and drug-recommendations for the use of TNF-alfa inibitors in rheumatology, dermatology and gastroenterology.

The R-DTC is obliged to provide information about rational use of drugs. One way of doing this is to organize symposia twice a year. At the most recent symposia on anti-coagulants and antibiotics more than 100 doctors, nurses, GPs and other health personnel participated in a thorough and critical review of both the treatment options offered by the new anti-coagulation and the problem with multi drug resistance resulting from irrational use of antibiotics. In 2012, we have planned the next regional symposium on anti-diabetic agents with the aim of discussing rational use of the newer anti-diabetic agents such as the gliptins.

An example of how The R-DTC observes and intervenes in the medication consumption in the region's hospitals, was in 2009 where an increase in the consumption of oxycodone was noticed. The R-DTC in Copenhagen found this inappropriate, as the effect of oxycodone is generally not considered to be superior to morphine, which is a considerably cheaper drug. Despite recommendations to the department managements to limit consumption of oxycodone and use morphine as first-choice opioid, the consumption of oxycodone was still unacceptable high. In May 2011 encouraged by the R-DTC, the "Regional Board of Directors" made restrictions in ordering oxycodone to the region's hospital departments. This led to a prompt

and significant decrease in oxycodone consumption and a corresponding increase in morphine as seen in Figure 2.

The Local Drug & Therapeutic committees

The objective of the local D & T Committees (L-DTCs) is to contribute to rational pharmacotherapy at a local level. The L-DTCs also contribute to the implementation of the overall drug policy outlined by the R-DTC and advise the hospital board and the clinical departments in matters of hospital medication processes and drug consumption. The L-DTCs are expected to propose strategies for achieving and maintaining a rational drug use and identify and monitor areas of special focus related to use of drugs.

The members of the L-DTCs are appointed by the hospital board and refer to the hospital board of directors as well as the R-DTC (Figure 1). Though organized differently at each hospital, a specialist in clinical pharmacology, a representative from the hospital board, a local risk-manager, a clinical pharmacist, a medical doctor and a nurse are permanent members of most of the L-DTCs. The majority also has a microbiologist associated and some have a representative from the primary healthcare (a general practitioner). A few of the L-DTCs have representatives from all the clinical departments in the hospital.

The L-DTCs operate with annual periods (Figure 3). There are 4-10 ordinary meetings per year. The fixed points on the agenda for the regular meetings are drug consumption and expenses, areas of special focus and specific points according to the annual period.

The L-DTC performs monthly evaluations of pharmaceutical drug usage and expenditure in the hospitals, and the committees are authorized to intervene whenever the consumption becomes inappropriate. Furthermore, they have a central role in selecting the standard assortment of drugs specified for each department in the hospital and to monitor the use of genuinely new drugs. At each department, the standard assortment of drugs comprises selected drugs from the regional ‘Booklet of Recommended Drugs’ and a selection of non-recommended drugs that are needed for special treatment. Thus, in their standard assortment of drugs the cardiologists have anticoagulants the orthopedic surgeons do not have in their standard assortment.

At least once a year, the L-DTCs perform a focused drug tracer. They literally follow the medicine path in the hospital, from arrival at the hospital until a drug is being administered to a patient. Any observed quality problems are reported to the hospital's quality board, and if

required, new projects are initiated to optimize safety, hygiene or quality of the overall medication process.

At annual dialogue meetings with all the hospital's clinical departments, the L-DTC discuss the departments' drug consumption and expenditure with the head of department and a few members of the clinical staff. The expected drug usage for the coming year is discussed. Use of special drugs including highly expensive drugs (like the biological agents used in rheumatology, dermatology and gastroenteorology), experiences with genuinely new drugs and areas of special focus are also addressed. As preparation for each dialog meeting, the pharmacists prepared detailed statistics on the department’s drug consumption.

All L-DTC write an annual report to the R-DTC, which outlines the hospital’s drug consumption and expenses, medication errors and adverse events. Furthermore it reports the results from the pharmaceutical drug tracer, educational and teaching initiatives emanating from the L-DTC and evaluates results from areas of special focus as well as new/initiated and planned areas of special focus.

This article shortly describes the main issues of the DTC system of the capital region of Denmark. Our experience with the Committees is, that they are a necessary tool and a great help for the clinical departments as well as the hospital board and the regional politicians. Regional and local DTCs help ensuring a professional, efficient and financially responsible use of medication throughout the health care system.

Table 1: Terms of preferences and tasks for the regional D & T Committee

Terms of preferences:

1. Ensure rational and consistent use of medications
2. Support documentation, quality and safety in the medication process
3. Communicate and support the implementation of recommendations

Main tasks:

1. Preparing and publishing a 'Booklet of Recommended Drugs'
2. Preparing and maintaining guidelines for the entire medication process
3. Monitoring the drug consumption
4. Ensuring the quality of Expensive Hospital Drugs
5. Publishing an annual report for the Regional Health Board Direction

Other important tasks:

1. Coordinate and follow up on the work of the local D & T Committees
2. Establish indicators for the use of new and/or expensive drugs
3. Collaborate with the 'Medication Council' to coordinate the effort related to the primary health care system
4. Ensure consistency between guidelines and communication- and supporting systems (e.g. electronic medication program)
5. Monitor the development of adverse events and participate in root cause analysis
6. Disseminate and support implementation of recommendations, including coordinating the development of written information material, as well as promote and contribute to the education of various professions

Table 2: Factors relevant when deciding which drugs to be accepted in the 'Booklet of Recommended Drugs'

Factors that are always assessed:

- Efficacy
- Safety / adverse events
- National and international treatment guidelines
- Risk of interactions
- Drug formulation
- Available doses
- Frequency of dosing
- Procedures related to administration and dispensation of the drugs
- Risk for the personnel handling (dispensation and administrating) the drugs
- Special patient-categories (e.g. patients with impaired kidney- or liver function)
- Drug stability
- Consumption pattern in the primary and secondary health care system
- Pricing in the primary and secondary health care system
- Barcodes

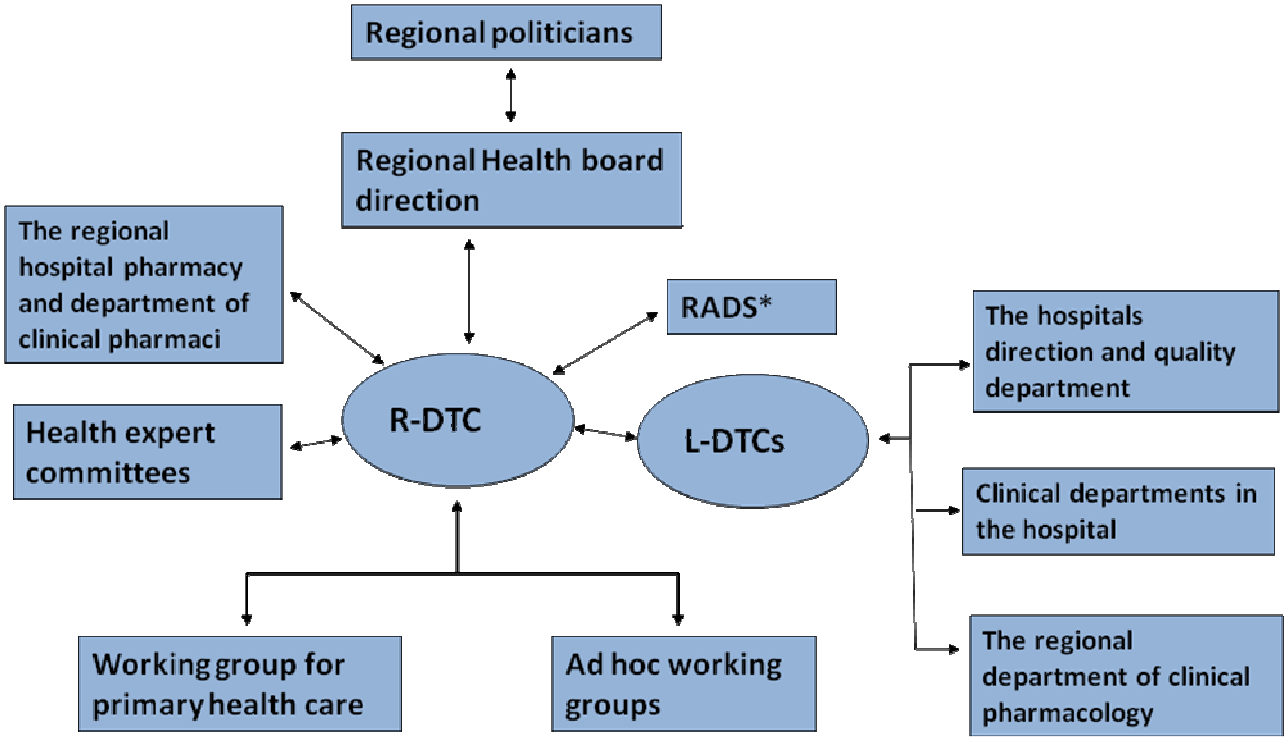
Factors that are assessed in appropriate cases:

- Risk of confusion with other drugs
- Packet size
- Devices and emballage
- Patent expiration
- Grants/funding from national health care

Table 3: The seven regional medication guidelines

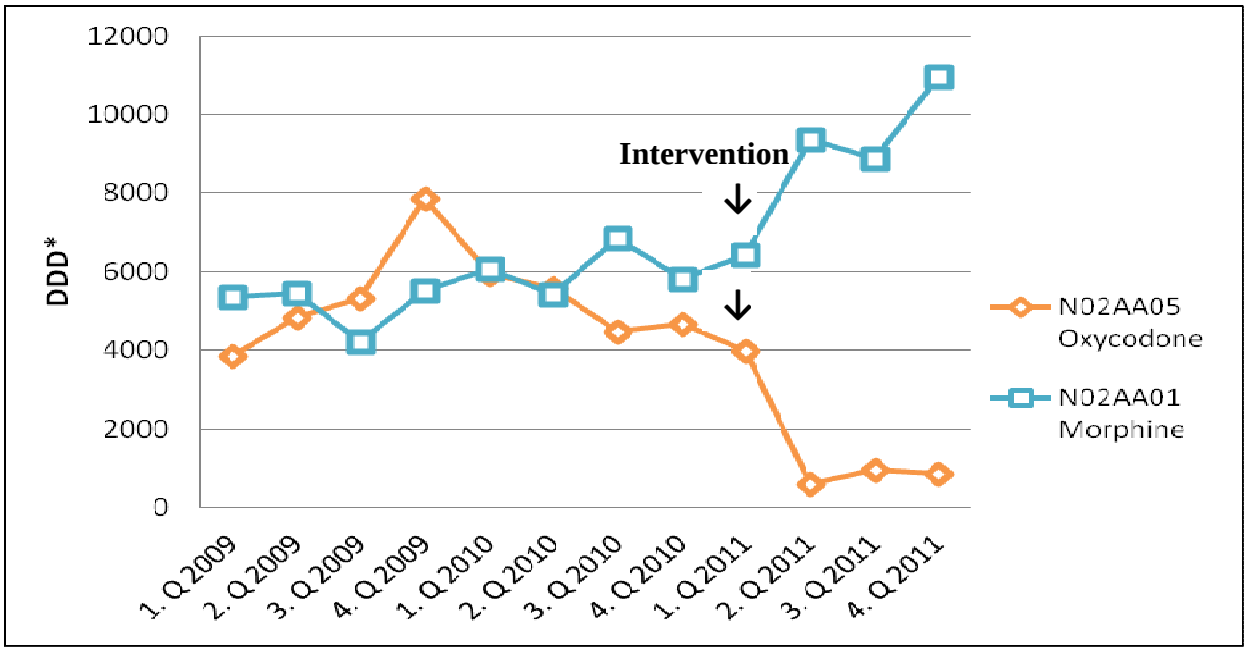
Guideline no.	Title
1	Choice of pharmaceutical drugs for the standard assortment. Control of medicine cabinets
2	Prescribing of pharmaceutical drugs, herbal medicines. Standard plans
3	Ordering and storing of pharmaceutical drugs. Monitoring of consumption of opioids
4	Dispensation, administration and dispensing of pharmaceutical drugs. Self-medication
5	Handling of 'Dosis-dispensation' at admission to and discharge from hospital
6	Drug-interactions
7	Documentation and reporting of adverse events

Figure 1: Organisational chart of the Committee system



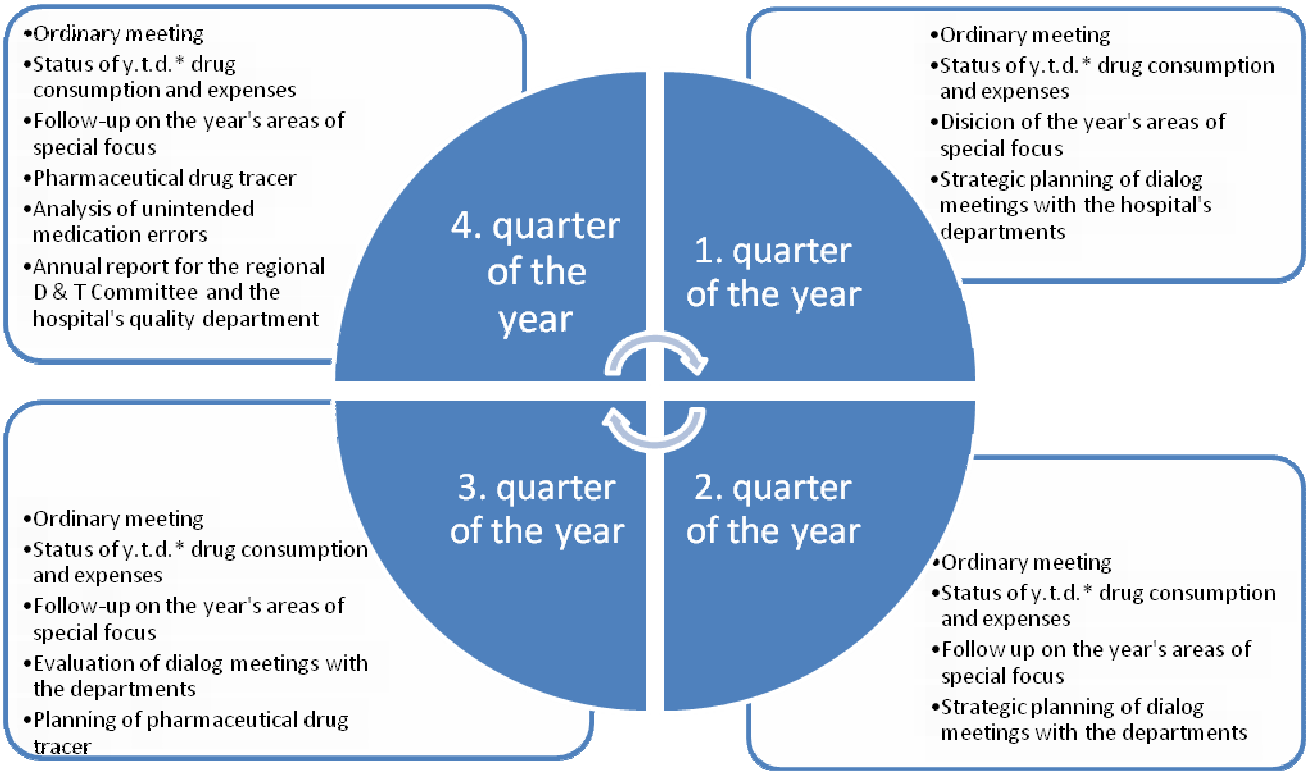
* RADS = The Regions' Council for the Use of Expensive Hospital Drugs

Figure 2: Use of oxycodone and morphine at Bispebjerg Hospital, Copenhagen, Denmark 2009-2011.



* DDD = Defined Daily Doses

Figure 3: Annual periods for the Local Drug & Therapeutics Committees



* Y.t.d. = Year to date.