PHARMACY-BASED ASTHMA SERVICES

Protocol and Guidelines
TARGET 31

QUALITY OF CARE AND APPROPRIATE TECHNOLOGY

By the year 2000, there should be structures and processes in all Member States to ensure continuous improvement in the quality of health care and appropriate development and use of health technologies.

TARGET 37

PARTNERS FOR HEALTH

By the year 2000, in all Member States, a wide range of organizations and groups throughout the public, private and voluntary sectors should be actively contributing to the achievement of health for all.

ABSTRACT

Realizing that pharmacists have much to contribute to better health through improved medication management, and as the incidence of asthma is increasing especially among the young, the EuroPharm Forum decided at its Fourth annual meeting in 1995 to establish a new project within the area of asthma.

This protocol and guidelines have been developed by the WHO collaborating centre for drug policy and pharmacy practice development, Hillerød, Denmark for the Programme for Pharmaceuticals of the WHO Regional Office for Europe. The EuroPharm Forum Asthma Services Task Force has reviewed and commented on the first drafts, and the protocol and guidelines were approved by the Forum at the Sixth annual meeting in 1997. The protocol presents guidelines on how to deal with asthma patients in everyday practice at the pharmacy and how pharmacists can be involved in this area. The underlying philosophy is good pharmacy practice and the implementation of pharmaceutical care. We hope that this protocol will be useful to the pharmaceutical associations of the member countries and that it will stimulate professional practice. We also hope that the associations and their members will benefit from being part of this European project on pharmacy-based asthma services, not only in exchanging information and sharing experiences but also in comparing the results achieved.

Keywords

PHARMACISTS
ASTHMA – prevention and control
PATIENT EDUCATION
COUNSELING
DOCUMENTATION
INFORMATION SERVICES
GUIDELINES
EUROPE

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6. Guideline for outcome oriented patient counselling

7. Guideline for therapeutic outcomes monitoring

8. Guideline for self-care, health promotion and ill-health prevention, influencing prescribing and medicine use

9. Guideline for implementation at pharmacy level

10. Annex: Examples of education materials
Preface

Realizing that pharmacists have much to contribute to better health through improved medication management and as the incidence of asthma is increasing especially among the young, the EuroPharm Forum decided at its Fourth annual meeting in 1995 to establish a new project within the area of asthma.

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The Protocol presents guidelines on how to deal with asthma patients in the everyday practice at the pharmacy and how pharmacists can be involved in this area. The underlying philosophy is Good Pharmacy Practice and the implementation of pharmaceutical care.

We hope that this Protocol will be useful to the pharmaceutical associations of the member countries and that it will stimulate professional practice. We also hope that the associations and their members will benefit from being part of this European project on Pharmacy-based asthma services, not only in exchanging information and sharing experiences but also in comparing the results achieved.

We want to thank the authors, Ms Lotte Fonnesbaek, M.Sc. (Pharm.) and Ms Hanne Herborg, Head of Division (R&D) and also the task force members for reviewing and commenting.

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February 1998

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Pharmacy-based asthma services • 1998
Introduction

Purpose

The purpose of the Protocol is to provide community pharmacists with tools for dealing with asthma patients in the everyday practice. The main focus of the Protocol is to provide a systematic and structured approach to pharmacy-based asthma services including documentation of the pharmacy services, their outcomes and implementation strategies.

The purpose is also to provide the national pharmaceutical associations in Europe with a tool for national implementation of pharmacy-based asthma services within the framework of Good Pharmacy Practice.

It is not the purpose of this Protocol to elaborate on aspects of asthma as a disease, asthma treatment and counselling skills. However, the requirements for providing pharmacy-based asthma services are stated in the guidelines of the Protocol.

Objectives

The main objectives are to:

• improve skills and knowledge of asthma and asthma therapy among asthmatics;
• improve health and well-being of asthma patients and prevent drug related morbidity from asthma;
• increase knowledge of asthma amongst carers and families of asthma patients.

The objective at European level is to:

• ensure that as many community pharmacies in Europe as possible implement one or more levels of the pharmacy-based asthma services outlined in this Protocol.

The objectives at pharmacy level are to:

• raise awareness of asthma amongst pharmacy staff;
• promote co-ordinated care with relevant parts of the health care system;
• implement pharmacy services, which improve clinical and psycho-social outcome of health care for asthmatics;
• document the role of the community pharmacy and pharmacist in asthma care.

Background

Asthma is a chronic, persistent inflammatory disease of the airways characterized by exacerbations of coughing, wheezing, chest tightness, and difficult breathing that is usually reversible, but can be severe and sometimes fatal.

The goals of asthma therapy are to improve the patient’s quality of life by achieving and maintaining control of symptoms, preventing exacerbations, attaining normal lung function, maintaining normal activity levels, including exercise, and avoiding adverse effects from asthma medications.¹
Drug therapy is an essential element in managing asthma. In spite of increased possibilities in asthma management and the existence of improved anti-asthmatic drugs, uncontrolled asthma remains a serious problem leading to drug related morbidity and mortality. The fact that drug therapy does not produce the expected outcomes has been attributed more to ineffective implementation of therapy than to lack of good drugs.

It is well accepted that patients may experience problems of uncontrolled asthma due to inappropriate therapy and also due to poor compliance, lack of understanding of their condition and the importance of regular preventive drug therapy. However, studies on asthma patients’ drug use have shown that the process of medication use is very complex and problems cannot be characterized as solely non-compliance or knowledge gaps. Use of drugs in asthma patients is also a matter of self regulation and self management.

Pharmaceutical care has been suggested as a health care philosophy that aims at identifying, resolving and preventing drug related problems as a continuous quality improvement of the drug use process in the health care system. Hepler and Strand have defined pharmaceutical care as the responsible provision of drug therapy with the purpose of producing definite outcomes that improve a patient’s quality of life.

Pharmaceutical care is described by Hepler and Strand as a joint responsibility of the health care professions and they emphasize that the role of the pharmacists in this system needs to be developed. Pharmaceutical care is in this meaning related to principles of disease management and it has been shown to be a promising platform for improving the outcomes of drug therapy to asthma patients.

The guidelines of this Protocol are based on Good Pharmacy Practice (GPP) and internationally recognized consensus reports and guidelines on diagnosis, treatment and management of asthma. In WHO’s document on GPP (WHO/PHARM/DAP 96.1) it is stated:

The mission of pharmacy practice is to provide medicines and other healthcare products and services and to help people and society to make the best use of them.

Comprehensive pharmaceutical service encompasses involvement in activities to secure good health and the avoidance of ill-health in the population. When the treatment of ill-health is necessary, the quality of each person’s medicine use process should be assured to achieve maximum therapeutic benefit and to avoid untoward side effects. This presupposes the acceptance by pharmacists of shared responsibility with other health professionals and with patients for the outcome of the therapy.

In recent years the term Pharmaceutical Care has established itself as a philosophy of practice with the patient and the community as the primary beneficiary of the pharmacist’s actions. The concept becomes particularly relevant to special groups of populations such as the elderly, mothers and children, and chronically ill patients, and to the community as a whole, e.g. in terms of cost containment. While the basic concepts of Pharmaceutical Care and Good Pharmacy Practice are largely identical, it could be said that Good Pharmacy Practice is a way to implement Pharmaceutical care.

End of quotation.
Scope of the Protocol

The Protocol deals with aspects of asthma care within the four main elements of Good Pharmacy Practice defined in WHO’s document on GPP.5

1. Health promotion and ill-health prevention
2. Supply and use of prescribed medicines and other health care products
3. Self-care
4. Influencing prescribing and medicine use.

Health promotion, self-care and influencing prescribing are not the main focus of the Protocol. However the Protocol provides checklists of pharmacy activities within these areas. The focus of the Protocol is services within supply and use of medicine where the following three levels for pharmacy-based asthma services are identified.

Level I: Technical advice giving
The intention is that the services on this level can be provided by all trained pharmacy staff in all pharmacies.

The objectives of this level are to ensure:
• systematic drug information on asthma medicines;
• systematic counselling in correct use of inhalers and inhaler devices and devices;
• that patients with signs of undiagnosed or poorly controlled asthma patients are referred;
• that patients with sign of undiagnosed or poorly controlled COPD are referred;
• consistent performance by the staff;
• documentation of the service.

Level II: Outcome oriented patient counselling
The intention is that the services on this level can be provided by pharmacists in all pharmacies.

The objectives of this level are to ensure:
a. The provision of pharmaceutical care for asthma patients by:
   • systematic identification and assessment drug related problems;
   • choosing and implementing the best solution in co-operation with the patient;
   • ensuring the individual patient’s understanding of the use and effect of the medication;
   • following up on patients and responding to new problems (if any).

a. That asthma patients (and caregivers) are educated in the purpose and technique of self monitoring (peak flow measuring and diary keeping).
Level III: Therapeutic outcomes monitoring

The intention is that the services on this level can be provided by pharmacists in selected pharmacies (where needed in local health care).

The objective of this level is to ensure:
- The provision of pharmaceutical care for asthma patients by a comprehensive therapeutic outcomes monitoring (TOM) programme.

TOM is:
- continuous quality improvement of drug therapy for the individual patient;
- a systematic, structured, ongoing, documented process;
- individualized patient care - holistic and outcome oriented.

The structure of the Protocol

The Protocol is structured as a quality management system on a strategic (objectives, policies and goals), a tactic (procedures) and an operational (checklists and forms) level.

The Protocol contains six guidelines

- \textit{Guideline for quality documentation}
  In the Guideline for quality documentation, suggested quality objectives, policies and goals for the implementation of the guidelines are included as examples for the users of this Protocol.

The three levels for pharmacy-based asthma services are described on a tactic and an operational level in:

\begin{enumerate}
  \item \textit{Guideline for technical advice giving including self care assessment}
  \item \textit{Guideline for outcome oriented patient counselling}
  \item \textit{Guideline for therapeutic outcomes monitoring}
\end{enumerate}

Other aspects of asthma within GPP are described in checklists on the operational level in:

\begin{enumerate}
  \item \textit{Guideline for self care; health promotion and ill-health prevention; influencing prescribing and medicine use}
\end{enumerate}

The last describes how the individual pharmacy can implement and market the services.

Each guideline has a cover page with a list of contents and selected references for the guideline. All documents on the tactic and operational level are provided with a code that identify the guideline and whether it is a procedure, a checklist or a form.
Example
C-II.2. is checklist number two in Guideline II. - Outcome oriented patient counselling.

How to use the Protocol

Pharmacy level
The manual can be used directly in the individual pharmacy as a tool for implementing asthma services. In that case the Guideline on implementation provides a checklist for the implementation process and for marketing the service. The forms are examples for this Protocol and therefore not exhaustive. The pharmacy will need to work up an individual set of forms that suits the services it chooses to provide.

National level
The Protocol can be used at national level as:

a) basis of a research project to study feasibility of the service in a country, and
b) a tool to implement the service directly.

The following steps are recommended for the implementation process (not research)
- Establish a national task force, if relevant
- Choose level(s) of implementation
- Adjust/ translate the relevant parts of the Protocol
- Identify relevant partners and create relations
- Provide educational materials
- Organize training courses and seminars
- Organize marketing to pharmacies and partners in health care
- Support and monitor implementation
- Choose data-collection methods
- Monitor/evaluate outcome
- Develop the services according to documented experience.

Selected references

Guideline for quality documentation

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Quality documentation
Quality documentation

Suggested quality objectives, policies and goals for implementation of the guidelines in this protocol.

Quality objectives

European level

*Examples*
- The guidelines will be relevant to develop the practice of community pharmacy and improve the outcome of asthma drug therapy in different European countries.

National level

*Examples*
- Improve the skills and knowledge of asthma and asthma therapy among asthmatics
- Improve the health and well-being of asthma patients and prevent drug related mortality from asthma
- Increase the knowledge of asthma amongst carers and families of asthma patients.

Pharmacy level

*Examples*
- To raise awareness of asthma amongst pharmacy staff
- To promote co-ordinated care with relevant parts of the health care system
- To implement a pharmacy service, which improves clinical and psycho-social outcomes of health care for asthmatics.

Patient level

*Examples*
The asthma patient should:
- experience improved quality of life as a result of the service rendered;
- feel secure with the drug use;
- be competent to manage their disease and drug use;
- use drugs appropriately;
- experience the best therapy from an economic point of view;
- feel satisfaction with pharmacy and health care services.

Quality policies

Quality policies at a national level are that:

*Examples*
- All pharmacies should provide technical advice to asthma patients
- All pharmacies should provide patient outcome oriented counselling to asthma patients
- Selected pharmacies should provide therapeutic outcomes monitoring where needed in the local health care system.
Quality policy at the pharmacy level is that:

*Examples*

- All trained pharmacy staff can provide the services of level I. *Technical advice giving*
- All pharmacists can provide the services of level II. *Outcome oriented patient counselling*

and where needed in the local health care system that:

- Specially trained pharmacists can provide the services of level III. *Therapeutic outcomes monitoring.*

**Quality goals**

The quality goals at a national level are:

*Examples*

- 90% of the pharmacies provide technical advice giving within five years
- 75% of the pharmacies provide patient outcome oriented counselling within five years
- One pharmacy in each county (or other suitable delimitation) is able to provide therapeutic outcomes monitoring within five years.

The quality goals at pharmacy level are:

*Examples*

I. Technical advice giving
   - 90% of the asthma patients should be assessed

I. Outcome oriented patient counselling
   - 60% of the asthma patients should be assessed
   - For 10% of the patients assessed case registration form should be filled out
   - All patients in need of a pharmacist consultation should receive one

I. Therapeutic outcomes monitoring
   - All patients referred for therapeutic outcomes monitoring should be assessed

The quality goals at patient level are:

*Examples*

I. Technical advice giving
   - 70% of the patients have a correct inhalation technique
   - 75% of the patients use their drugs correctly.

I. Outcome oriented patient counselling
   - 50% of the patients state having fewer drug related problems
   - 90% of the patients have a correct inhalation technique
   - 75% of the patients experience improved knowledge of asthma and asthma medicines
   - 50% of the patients experience improved knowledge of self monitoring.
I. Therapeutic outcomes monitoring
   • 90% of the patients experience improved knowledge of asthma, asthma medicines and asthma management
   • 75% of the patients experience increased effect of medicine
   • 50% of the patients experience less days of sickness
   • 50% of the patients experience less symptoms
   • 50% of the patients experience improved quality of life
   • 50% of the patients experience increased coping with life as asthmatics.

Documentation forms

F-I.3. Inhaler technique assessment form, general
F-I.3.1. Inhaler technique assessment form - Turbuhaler™
F-II.4. Case registration form for outcome oriented patient counselling
F-II.5. Registration - Pharmacist consultations
F-III.3. Patient outcomes monitoring form
F-III.7. Documentation form for output
Quality documentation

F. Forms
**Inhaler technique assessment form**

Patient name (if needed): ............................................................................................................

<table>
<thead>
<tr>
<th>Checkpoints</th>
<th>Metered dose inhalers</th>
<th>Turbuhaler</th>
<th>Diskhaler</th>
<th>Discos</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.²</td>
<td>Removes dust cap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Shakes inhaler well</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Holds inhaler upright or level (as appropriate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Loads inhaler with one dose</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Exhales gently as much as comfortable</td>
<td>Through inhaler</td>
<td>Not through inhaler</td>
<td>Not through inhaler</td>
</tr>
<tr>
<td>6.</td>
<td>Places mouthpiece in mouth and closes lips around it</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.a.</td>
<td>Inhales slowly and deeply through inhaler and releases a dose</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.b.</td>
<td>Inhales forcefully and deeply</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Removes inhaler and holds breath for at least 5 seconds then breathes out slowly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>If a second dose is prescribed, waits for one minute before repeating steps 1-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.²</td>
<td>If steroid: Rinses mouth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.²</td>
<td>Replaces dust cap</td>
<td>Closes inhaler</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

² Each correct performed checkpoint scores one point

Checked by: ............................................. Designation: ..........................................

Patient score ²: ............................................. Date: .............................................

Does the patient require counselling? □ Yes □ No

Referred to: .............................................

Counselled by: ............................................. Date: .............................................

² Checkpoint 1, 10, 11, does not count in the total score.
# Inhaler technique assessment form - Turbuhaler

Patient name (if needed): ………………………………………………………………………

<table>
<thead>
<tr>
<th>Step</th>
<th>Checkpoints ¹</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Removes dust cap</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Holds inhaler upright</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Loads inhaler with one dose</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Exhales gently as much as comfortable (not through Turbuhaler)</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Places mouthpiece in mouth and closes lips around it</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Inhales forcefully and deeply</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Removes inhaler and holds breath for at least 5 seconds then breathes out slowly</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Replaces dust cap</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>If steroid: Rinses mouth</td>
<td></td>
</tr>
</tbody>
</table>

¹ Each correct performed checkpoint scores one point

Checked by: ................................................... Designation: ............................

Patient score²: ................................................. Date: ...........................................

Does the patient require counselling?  □ Yes  □ No

Referred to: ...................................................

Counselled by: ............................................... Date: ...........................................

² The points of step 1, 8, 9, does not count in the total score.
### Case registration form for outcome oriented patient consultations

<table>
<thead>
<tr>
<th>Pharmacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of pharmacist</td>
</tr>
<tr>
<td>Patients name (if appropriate)</td>
</tr>
</tbody>
</table>

#### 1. Contact

<table>
<thead>
<tr>
<th>The patients description of the problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Subjective and objective data, alarm signals)</td>
</tr>
</tbody>
</table>

#### Assessment of problem

<table>
<thead>
<tr>
<th>Category of drug related problem. Underlying reasons</th>
</tr>
</thead>
</table>

#### Target and solution

<table>
<thead>
<tr>
<th>What is the target? - How was the problem solved?</th>
</tr>
</thead>
</table>

#### Outcome

<table>
<thead>
<tr>
<th>What was the outcome for the patient?</th>
</tr>
</thead>
</table>

Pharmacy-based asthma services • 1998
2. Contact

<table>
<thead>
<tr>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Assessment of problem**

(Category of drug related problem. Underlying reasons)

**Target and solution**

(What is the target? - How was the problem solved?)

**Outcome**

(What was the outcome for the patient?)

---

3. Contact

<table>
<thead>
<tr>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Assessment of problem**

(Category of drug related problem. Underlying reasons)

**Target and solution**

(What is the target? - How was the problem solved?)

**Outcome**

(What was the outcome for the patient?)
Registration - Pharmacist consultations

Pharmacy ______________________________________________________

Patient data
☐ Age: ____________ ☐ Sex: ____________________

Identified drug related problems
☐ Untreated indications
☐ Improper drug selection
☐ Sub therapeutic dosage
☐ Failure to receive drugs
☐ Overdosage
☐ Adverse drug reactions
☐ Drug interactions
☐ Drug use without indication

Other problems:

_______________________________________________________________

Pharmacist interventions
☐ Instruction in inhaler technique
☐ Instruction in inhaler cleaning
☐ Instruction in self monitoring: Peak flow measurement and use of diary
☐ Assessment of drug therapy
☐ Compliance check
☐ Product oriented drug information
☐ Self care advice

☐ Provided patient information/education materials

☐ Referral to GP
   Reason for referral

_______________________________________________________________

☐ Referral to other health care professionals
   Reason for referral

_______________________________________________________________

Time used on the consultation
______________________ minutes
Patient outcomes monitoring form

Patient name:___________________________________________________________

Since the last visit to the pharmacy, the patient has experienced:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wheezing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>Moderate</td>
<td>Mild</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cough</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>Moderate</td>
<td>Mild</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dyspnoea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>Moderate</td>
<td>Mild</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tight chest</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>Moderate</td>
<td>Mild</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Alarm signals

<p>| Regular use &gt; 3 times per week of beta-2-agonist |
| Regular use &gt; 3-4 times per day of beta-2-agonist |
| Uses more than 200 doses beta-2-agonist per month |
| Awakened by symptoms &gt; one night per fortnight |
| Asthma related days of sickness |
| Exercise induced asthma that prevents activity |
| Symptoms that interfere with activity &gt; 2 times per week |
| Asthma related GP visits |
| Emergency room visits |
| Hospitalization |</p>
<table>
<thead>
<tr>
<th>Date of visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Inhaler technique score</td>
</tr>
<tr>
<td>Device:</td>
</tr>
<tr>
<td>Device:</td>
</tr>
<tr>
<td>Device:</td>
</tr>
<tr>
<td>4. Peak flow readings</td>
</tr>
<tr>
<td>Highest</td>
</tr>
<tr>
<td>Lowest</td>
</tr>
<tr>
<td>% of total days &lt; 80%</td>
</tr>
<tr>
<td>% of total days &lt; 60%</td>
</tr>
<tr>
<td>Reading of the day</td>
</tr>
<tr>
<td>5. Asthma status</td>
</tr>
<tr>
<td>Mild (1) Moderate (2) Severe (3)</td>
</tr>
<tr>
<td>6. Drug related problems identified</td>
</tr>
<tr>
<td>Untreated indications</td>
</tr>
<tr>
<td>Improper drug selection</td>
</tr>
<tr>
<td>Sub therapeuetic dosage</td>
</tr>
<tr>
<td>Failure to receive drugs</td>
</tr>
<tr>
<td>Overdosage</td>
</tr>
<tr>
<td>Adverse drug reactions</td>
</tr>
<tr>
<td>Drug interactions</td>
</tr>
<tr>
<td>Drug use without indications</td>
</tr>
<tr>
<td>7. Therapeutic interventions</td>
</tr>
<tr>
<td>Initiated</td>
</tr>
<tr>
<td>Withdrawn</td>
</tr>
<tr>
<td>Self regulation</td>
</tr>
<tr>
<td>Increased dosage</td>
</tr>
<tr>
<td>Decreased dosage</td>
</tr>
<tr>
<td>Changed formulation</td>
</tr>
<tr>
<td>Change of drug</td>
</tr>
<tr>
<td>Fixed dosage → prn</td>
</tr>
<tr>
<td>Prn → fixed dosage</td>
</tr>
<tr>
<td>Not used → used</td>
</tr>
</tbody>
</table>
## Documentation form for output

**Patient’s name:** __________________________________________________

<table>
<thead>
<tr>
<th>Date of consultation</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone (t) or personal (p)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 1. Services

(instruction or follow-up)

- Inhaler technique
- Self monitoring
- Self management
- Self regulation
- Management of attacks
- Patient counselling and education

### 2. Recommendations

- Accepted by GP
- Negotiated with GP
- Refused by GP

### 3. Referral

- To GP
- To specialist
- To hospital

### 4. Time

- Consultation
- Administration
I. Guideline for technical advice giving

The intention is that asthma services on this level can be provided by all trained pharmacy staff in all pharmacies.

The guideline can be used to patients with COPD providing product oriented drug information and to counselling in use of inhalers. The guideline does not deal with other details concerning clinical, social and psycho-social problems and interventions in COPD patients.

Content

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Selected references
I. Technical advice giving

P. Procedure
Procedure for technical advice giving

Objectives

The objectives of this procedure are to ensure:

- that patients receive systematic drug information on asthma medicines;
- that patients receive systematic counselling in correct use of inhalers and inhaler devices (e.g. spacers);
- that patients with signs of undiagnosed or poorly controlled asthma are referred correctly;
- that patients with sign of undiagnosed or poorly controlled COPD are referred correctly;
- a consistent performance by the staff;
- documentation of the service.

Background

The pharmacy staff is in an ideal situation for regular contact with the patient and for administering or supervising the use of inhalers. They are in a good position to detect patients with improper inhaler technique. Careful instruction and frequent review of patient’s inhaler technique are necessary to ensure:

- a proper use of the device in order to achieve optimum use and maximum effect;
- that inhaler technique has not deteriorated with time;
- a follow up on patients lacking proper counselling when treatment was initiated;
- a follow up on patients who did not understand their former counselling;
- that poor technique is not mistaken for therapeutic failure, leading to unnecessary drugs being prescribed.

Scope

The services within this procedure are targeted asthma patients. The tools provided in the Guideline can however be used counselling COPD patients as well. The procedure covers the following areas of pharmacy services.

a) Counselling points for product oriented drug information Providing product oriented drug information on asthma medication, for example:

- the action of the medication;
- the relevant side-effects, how to minimize them and what to do if they occur;
- the dosing regime;
- when to contact the GP.

All asthma patients should receive a product oriented drug information on their asthma medication.
b) Counselling in use of inhalers
   Education in correct technical use of inhalers and spacers (inhalation technique and
   cleaning). The counselling should be offered to all patients using inhalers and to their
   caregivers if appropriate.

c) Referral (internal - external)
   Referring patient to, for example pharmacists or prescriber when patients are having
   problems with:
   • symptoms of asthma;
   • use of inhaler in spite of counselling;
   • side effects of the medication;
   • the medication is not helping as it usually does;
   • understanding the action of the medicines.

d) Distribution of patient information materials
   Providing further information by distribution of patient information materials

All asthma patients (and caregivers) should be assessed and given the advice needed.

Process

Technical advice giving comprises the following services.
• The pharmacy staff ascertains whether or not the patient needs technical advice
• The patient’s use of inhalers is checked
• The pharmacy staff responds to alarm signals
   The patient’s use of OTC medicine is assessed
• The pharmacy staff ascertains whether or not the patient needs to be referred
   The patient’s need for self care advice is assessed
• The patient’s need for written patient information materials is assessed.

The flow chart (P-I. F.) describes the procedure for technical advice giving.

Responsibility

The pharmacist is responsible for:
• organizing and structuring the service;
• that all pharmacy staff members having undergone appropriate training;
• that the pharmacy staff knowing when to refer.

The pharmacy staff is responsible for:
• using appropriate communication technique when advising patients;
• assessing patient’s use of inhalers and OTC medicine;
• using question technique during patient contacts that facilitate the collection of
   accurate, comprehensive and relevant information;
• using specific questions for uncovering alarm signals;
• giving education/information materials as support to verbal advice;
• using protocols with co-ordinated counselling points when advising on medication;
• advising patients on use of inhalers and OTC medicine.

Structure and requirements

a) The pharmacy staff has undergone appropriate training within the following areas.
   • Basic knowledge of asthma and asthma therapy
   • Basic knowledge of the differences and similarities between asthma and COPD
   • Use and cleaning of inhalers
   • Communication principles (e.g. listening, body language, voice intonation)
   • The role of the observer, listener, recorder and prompter
   • Asking open-ended questions
   • Implementing and marketing the service
   • Documenting the service.

b) Quiet area available within the pharmacy

c) Resources available
   • Collection of placebo inhalers and spacers
   • Collection of patient education/information materials
   • Materials for the pharmacist to ensure that appropriate training can be given to all pharmacy staff involved in information and advice giving about asthma.
   • Basic materials for the pharmacy staff on when to refer, advise and react to alarm signals
   • Documentation system.

Documentation

Indicators of process and structure
• Communications skills
• Use of structured questions
• Level of product knowledge
• Staff training.

Indicators of output
• Number of patients assessed
• Type of advice given
• Number of referrals made
• Number of patient education/information materials given out.
Procedure for technical advice giving P-I.

Indicators of outcome
- Inhaler technique score
- Patients satisfaction with pharmacy service
- Patients demonstrating correct inhaler technique confidently
- Patients demonstrating correct inhaler cleaning confidently.

References
- Checklists
  C-I.1. Checklist for needs assessment questioning technique
  C-I.2. Checklist for inhaler technique assessment
  C-I.2.1. Flow chart for counselling in use of inhalers
- Protocols for product oriented drug information
  Example:  
  F-I.1. 1. Inhaled corticosteroids
- Protocols for correct use and cleaning of the various inhalers and inhalation devices
  (e.g. spacers).
  Example:  
  F-I.2. 1. Turbuhaler™
- Overview of the formulations available for inhalation
  Example:  
  C-I.2.1. Overview of formulations available for inhalation of corticosteroids
- Documentation forms
  F-I.3. Inhaler technique assessment form, general
  F-I.3.1. Inhaler technique assessment form - Turbuhaler
Procedure for technical advice giving - Flow chart

References

C-I.1.
Checklist for needs assessment questioning technique

F-I.1.
Protocol for product oriented drug information

C-I.2.
Checklist for inhaler technique assessment

F-I.4.
Protocol for referral of COPD patients

Requesting asthma medication or seeking advice

Assess the patient’s (or caregiver’s) need for drug information

Assess the patient’s use of inhaler

Assess if the patient needs to be referred

Provide patient information materials

Requesting OTC medicines or seeking advice on use of OTC medicines

Counsel on the asthma patient’s use of OTC medicines
I. Technical advice giving

C. Checklists
Checklist for needs assessment questioning technique

Toolbox

- Relevant patient information leaflets
- Relevant checklists and protocols

Example:
F-I.1. Protocol for product oriented drug information. 1. Inhaled corticosteroids
C-I.2. Checklist for inhaler technique assessment

Questioning techniques

Questioning technique when responding to symptoms

The use of a structured questioning technique ensures that subjective and objective data is collected before recommending a solution (self care advice, sale of OTC product or referral).

e.g., WWHAM³
- Who is the patient?
- What are the symptoms?
- How long have the symptoms been present?
- Action taken. Other medication tried?
- Medication being taken for other problem.

Questioning technique to verify understanding of drug therapy and to uncover problems

The use of open-ended questions encourages the patient to talk so that the pharmacy staff can verify the understanding of medication use and identify gaps in information.

Begin with assessing: Who is the patient?
1. If the person collecting the medicines is not the patient or the caregiver, then provide written information and offer to be available for further information.
2. Newly diagnosed asthma patient?
3. First time user of this medication?
4. Regular user of the medication?

Questions and expected responses

1. What did the doctor tell you the medicine is for? / What do you take this medicine for?
   *Can the patient or the caregiver tell you the correct name, action and use of the drug?*
2. How did the doctor tell you to take the medicine? / How do you take it?
*Can the patient or the caregiver explain the correct use of the drug (i.e. dosing schedule, route of administration, duration)?*
*Can the patient or caregiver demonstrate administration techniques (e.g. inhaler use)?*

3. What did the doctor tell you to expect? / What kind of problems are you expecting or having?
*Can the patient or caregiver tell what side-effects to expect and what precautions to take?*
*What are the patient’s or the caregiver’s expectations of the outcome of drug therapy?*

4. Just to make sure I did not leave anything out, please tell me how you are going to take your medicine?
*Paraphrase of instructions.*

5. What kind of problems have you had in the past? (optional)
*Adverse drug reactions. Allergies.*

Provide supplementary information and correct misunderstandings.
Checklist for inhaler technique assessment

The correct sequence of events for inhaler technique assessment will largely depend on the experience of the patient, e.g. whether he/she is a first time user. The flow chart (C-I.2.F.) illustrates the process.

Toolbox

- Collection of placebo inhalers and spacers including disposable mouthpiece adapters
- Collection of special devices for children and the elderly (e.g. Haileraid)
- Videos and computer programmes with demonstration of inhaler technique
- Protocols for correct use and cleaning of the various inhalers and inhalation devices, e.g. spacers.
  Example: Protocol for Turbuhaler™ (F-I.2.)
- Inhaler technique assessment form
  Example: Inhaler technique assessment form - Turbuhaler™ (F-I.3.1.)
- Overview of formulations available for inhalation
  C-I.2.1. Overview of formulations available for inhalation of corticosteroids

“First time users”

Careful instruction of inhaler technique to all patients who are “first time users”.

1. Who is the patient?
   If the person collecting the medicine is not the patient or caregiver, then provide written information and offer to be available for further information.
2. Offer the patient to accompany you to a quiet area of the pharmacy.
3. Bring two placebo inhalers (one for you and one for the patient).
4. Give a careful instruction in inhaler technique and in assessing when the inhaler is empty.
5. Ask the patient to demonstrate her/his use of the inhaler. Check the inhaler technique with the assessment form.
6. Counsel if incorrect use and refer to pharmacist if the patient is unable to use the inhaler or requires extensive counselling. Ask questions to check the patient's comprehension, e.g.:
   - How do you know when your inhaler is empty?
   - What colour is your “preventer”/“reliever”?
   - Are you supposed to feel or taste the medication as you inhale?
7. Describe briefly the efficacy of delivering medication directly to the inflamed airways.
8. Provide written information on the inhaler technique. If relevant and possible, offer the patient (or caregiver) to borrow a video on inhaler use.
Regular assessment of asthma patients

1. Offer the patient to accompany you to a quiet area of the pharmacy.
2. Bring two placebo inhalers (one for you and one for the patient).
3. Ask the patient to demonstrate her/his use of the inhaler. Check the inhaler technique with the assessment form.
4. Counsel if incorrect use and refer to pharmacist if the patient is unable to use the inhaler or require extensive counselling.
5. Ask the patient to demonstrate the cleaning of her/his inhaler.
6. Counsel if incorrect cleaning and refer to pharmacist if the patient is unable to clean the inhaler or requires extensive counselling.
7. Provide written information on the inhaler technique and cleaning. If relevant and possible, offer the patient (or caregiver) to borrow a video on inhaler use.

Suggested questions

a) How long have you used this inhaler (name of inhaler)?
b) Which problems do you have with your inhaler?
c) How do you know when your inhaler is empty?
d) How do you use your inhaler (demonstration of inhaler technique)?
e) How do you clean your inhaler (demonstration of inhaler cleaning)?
   • Why is it necessary to clean the inhaler?
   • How often do you clean your inhaler?
Flow chart for counselling in use inhalers

Previous user

New user

Explain function and mechanism

Demonstrate with placebo

Assess patient’s use of device

If technique is good

If technique is poor

Demonstrate with placebo

Assess again

If technique remains poor

Refer to pharmacist or prescriber

Offer to repeat counselling

Follow up as appropriate

Follow up as appropriate

Ask questions to check the patients comprehension
**Overview of formulations available for inhalation of corticosteroids**

Example of an exhaustive list of corticosteroids for inhalations available in Denmark per October 1996.
Checklist for advice giving to COPD patients

Toolbox

• Relevant patient information materials (e.g. leaflets, books, videos)
• Relevant checklists, protocols and forms

Examples:
C-I.1. Checklist for needs assessment questioning technique
F-I.1. Protocol for product oriented drug information. 1. Inhaled corticosteroids
C-I.2. Checklist for inhaler technique assessment
F-I.3. Inhaler technique assessment form

Definitions

In the BTS Guidelines for the Management of Chronic Obstructive Pulmonary Disease, the following definitions are given.

1. Chronic obstructive pulmonary disease (COPD) is a general term which covers many previously used clinical labels that are now recognized as being the different aspects of the same problem.

2. Diagnostic labels encompassed by COPD include:
   • chronic bronchitis
   • emphysema
   • chronic obstructive airways disease
   • chronic airflow limitation
   • some cases of chronic asthma.

3. COPD is a chronic, slowly progressive disorder characterized by airways obstruction which does not change markedly over several months. The impairment of lung function is largely fixed but partially reversible by bronchodilator (or other) therapy.

4. Most cases are caused by tobacco smoking or other environmental damaged.

Similarities and differences between asthma and COPD

Both asthma and chronic obstructive pulmonary disease are common, chronic respiratory conditions characterized by shortness of breath, cough, wheeze and mucus production. Symptoms alone do not distinguish asthma from COPD. Both conditions are characterized by obstruction to airflow. The differences between asthma and COPD involve patient characteristics, age at onset, whether or not symptoms are episodic and characteristic patterns of response to therapy.

A simplified overview is provided in table 1.
**Overview of typical differences**

<table>
<thead>
<tr>
<th></th>
<th>COPD</th>
<th>Asthma</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age at onset</td>
<td>Middle age</td>
<td>Any time in life</td>
</tr>
<tr>
<td>2. Smoking</td>
<td>Almost always associated</td>
<td>Less common</td>
</tr>
<tr>
<td>3. Allergies</td>
<td>Infrequent</td>
<td>Frequent</td>
</tr>
<tr>
<td>4. Family history of allergy</td>
<td>Less frequent</td>
<td>Frequent</td>
</tr>
<tr>
<td>5. Shortness of breath</td>
<td>Slowly progressing functional shortness of breath</td>
<td>Attacks</td>
</tr>
<tr>
<td>6. Episodic wheeze</td>
<td>Less common; may occur with exacerbations</td>
<td>Common</td>
</tr>
<tr>
<td>7. Nocturnal symptoms</td>
<td>Not common</td>
<td>Common</td>
</tr>
<tr>
<td>8. Reversibility</td>
<td>None</td>
<td>Potentially total</td>
</tr>
<tr>
<td>9. Rate of decline of airflow over years</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>10. Response to beta-2-agonist</td>
<td>Moderate and variable</td>
<td>Good</td>
</tr>
<tr>
<td>11. Response to inhaled steroid</td>
<td>Variable</td>
<td>Good</td>
</tr>
<tr>
<td>12. Deterioration</td>
<td>Exercise, infections</td>
<td>Exposition for asthma triggers</td>
</tr>
<tr>
<td>13. Peak expiratory flow</td>
<td>Little variation</td>
<td>Large variation (when asthma control is not optimal)</td>
</tr>
</tbody>
</table>

Table 1.

**Counselling COPD patients**

**Important differences**

- **The goals of therapy**
  The goals of COPD therapy are to improve the patient’s quality of life by achieving and maintaining best possible control of symptoms unlike asthma where the goal is maintaining normal activity levels, including exercise. Other goals of COPD therapy are to prevent deterioration and complications unlike asthma where the goals are preventing exacerbations and attaining normal lung function.¹,²

- **Drug therapy**
  The basic therapy for COPD patients is bronchodilator therapy (short acting beta-2-agonist or inhaled anticholinergic) unlike asthma where inhaled corticosteroid is considered the basic therapy.

- **Use of peak flow meter**
  The key tool in self-monitoring and self-management of asthma is the peak flow meter and a diary. The peak flow meter is not of the same importance to a COPD patient because the variation in the peak expiratory flow is little.
Procedure for counselling COPD patients

1. Provide product oriented drug information
   - Use a structured questioning technique (e.g. as in C-I.1.) to verify the patient’s understanding of drug therapy and to uncover problems.
   - Provide supplementary information and correct misunderstandings by using the protocols for product oriented drug information (e.g. F-I.1).

2. Ensure efficient delivery of inhaled medicine
   - A technique called “pursed lip breathing” is a good tool for COPD patients in controlling the breathing. When the patients use this technique it helps them to slow down the rate of breathing and helps to co-ordinate the inhaler technique steps.
   - Use the checklist for inhaler technique assessment (C-I.2.).

3. Refer patients according to the indications stated in the protocol for referral of COPD patients to GP (F-I.4.).

4. Promote smoking cessation
   - This is the single most important way of affecting outcome for patients at all stages of COPD.
   - Smoking cessation reduces the accelerated rate of decline in \( FEV_1 \).  
   - Pharmacy-based smoking cessation services are described in guideline IV (index 8).
I. Technical advice giving

F. Forms
Protocol for product oriented drug information

Example: 1. Inhaled corticosteroids

Drugs*: Aldecin, Andion, Becloforte, Becocent, Becotide, Flixotide, Flunitec, Plumicort, Spirocor.

Suggested questions
1. What did the doctor tell you the medicine is for? / What do you take this medicine for?
2. How did the doctor tell you to take the medicine? / How do you take it?
3. What did the doctor tell you to expect? / What kind of problems are you expecting or having?

Basic information
• Corticosteroids are “preventers”. They prevent the swelling and inflammation and the bronchial hyper-reactivity of the airways. In other words they prevent asthma attacks.
• They do not relieve symptoms
• They become effective within one day to one week of commencement of therapy
• It takes about two weeks to achieve full effect
• They are normally used two times a day continuously (even when well)
• Rinse mouth out after inhalation
• Correct inhalation technique is essential for effect.

Adverse drug reactions/ Side-effects
Side-effects are mild and infrequent with inhaled corticosteroids. Tend only to be local.
• Oral thrush (oropharyngeal candidosis) occurs in 10-15% of the patients on inhaled steroids. The incidence increases with dose, but can be reduced by rinsing the mouth after inhalation and by use of large volume spacers. It is easily treated without discontinuing the steroid.
• Hoarseness and dysphonia (loss of voice) occur less frequently. If it persists, the dose may have to be reduced or the treatment stopped.

Interactions
None

Children
Can be used by children.

Pregnancy and breast feeding
One should always be careful using medicine during pregnancy and when breast feeding. There are no indication of inhaled corticosteroids being harmful to mother or child when used during pregnancy or breast feeding.
The patient’s GP should always be informed if the patient is pregnant or breast feeding.

Referral
Pharmacist: If the patient needs more extensive counselling.
GP: If the patient has problems with side-effects or adverse drug reactions.

* Example: Exhaustive list of corticosteroids for inhalation available in Denmark per October 1996.
### Protocol for inhaler devices

**Example: Turbuhaler™**

<table>
<thead>
<tr>
<th>Pharmaceutical company</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

| **Disadvantages** | More expensive than MDI |
| | No dose counter |
| | Susceptible to damp |
| | Shape may be unacceptable, especially to teenage girls. |

**Age**

Can be used by children over five years old.

**Use**

1. Unscrew the white cover and lift off
2. Hold the Turbuhaler upright with the coloured base turned downwards
3. Load the inhaler with one dose: Turn the grip to the right as far as it will go - then twist the grip back again to the left until it clicks.
4. Breathe out gently, but avoid breathing in the Turbuhaler
5. Place mouthpiece in mouth and close lips around it. (The upright position is not needed now)
6. Breathe in forcefully and deeply
7. Remove mouthpiece from mouth and hold your breath for about 10 seconds or for as long as comfortable. Then breathe out slowly
8. If more than one dose is required repeat steps 2-7
9. Replace the cover and screw it tight.

**Important**

- As the amount of drug is very small there may be no sensation in the mouth
- If steroid: Brush teeth and rinse mouth out with water.
### Empty
Illustrations - see separate page
- Turbuhaler contains 50 or 200 doses
- A red mark appearing in the window indicates that there are 20 remaining doses
- The inhaler is empty when the indicator has reached the bottom of the window

**Important**
- The rattling sound you may hear when you shake your Turbuhaler is the drying agent built into the base grip of the inhaler, and not the medication.

### Cleaning
Illustrations - see separate page
- Wipe the outside of the Turbuhaler mouthpiece with a dry tissue at least once a week
- Wipe the inside of the mouthpiece after releasing it from the inhaler (see illustrations) with a dry tissue at least once a week.

**Important**
- Do not wash any part of the Turbuhaler or mouthpiece in water.

### Remember
- The “reliever” medication has a blue base
- The “preventer” medication has a brown base

### References
- Pharmaceutical company service
- The national asthma and allergy association
### Inhaler technique assessment form

**Patient name (if needed):** ................................................................................................

<table>
<thead>
<tr>
<th>Checkpoints*</th>
<th>Metered dose inhalers</th>
<th>Turbuhaler</th>
<th>Diskhaler</th>
<th>Discos</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Removes dust cap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Shakes inhaler well</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Holds inhaler upright or level (as appropriate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Loads inhaler with one dose</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Exhales gently as much as comfortable</td>
<td>Through inhaler</td>
<td>Not through inhaler</td>
<td>Not through inhaler</td>
</tr>
<tr>
<td>6.</td>
<td>Places mouthpiece in mouth and closes lips around it</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.a.</td>
<td>Inhales slowly and deeply through inhaler and releases a dose</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.b.</td>
<td>Inhales forcefully and deeply</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Removes inhaler and holds breath for at least 5 seconds then breathes out slowly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>If a second dose is prescribed, waits for one minute before repeating steps 1-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>If steroid: Rinses mouth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Replaces dust cap</td>
<td></td>
<td>Closes inhaler</td>
<td></td>
</tr>
</tbody>
</table>

* Each correct performed checkpoint scores one point

Checked by: ...................................................  Designation: .................................

Patient score: ...............................................  Date: ............................................

Does the patient require counselling?  □ Yes  □ No

Referred to: ........................................................

Counseled by: ...............................................  Date: ............................................

Pharmacy-based asthma services • 1998
## Inhaler technique assessment form - Turbuhaler

Patient name (if needed): __________________________________________________

<table>
<thead>
<tr>
<th>Step</th>
<th>Checkpoints*</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Removes dust cap</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Holds inhaler upright</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Loads inhaler with one dose</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Exhales gently as much as comfortable (not through Turbuhaler)</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Places mouthpiece in mouth and closes lips around it</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Inhales forcefully and deeply</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Removes inhaler and holds breath for atleast 5 seconds then breathes out slowly</td>
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<tr>
<td>8.</td>
<td>Replaces dust cap</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>If steroid: Rinses mouth</td>
<td></td>
</tr>
</tbody>
</table>

* Each correct performed checkpoint scores one point

Checked by: ................................................... Designation: ................................

Patient score: ........................................... Date: ...........................................

Does the patient require counselling? □ Yes □ No

Referred to: ...................................................

Counseled by: ............................................... Date: ...........................................
**Protocol for referral of COPD patients**

**Indication for referral to GP**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with a history of morning cough, recurrent respiratory infections, or shortness of breath on vigorous exertion or manual labour.</td>
<td>Screening for COPD</td>
</tr>
<tr>
<td>Patients who are tolerating symptoms of COPD as a part of the normal ageing process or as an “expected” consequence of smoking - for example, “smoker’s cough”.</td>
<td>Screening for COPD</td>
</tr>
</tbody>
</table>
| Symptoms of acute exacerbation of COPD:  
  - increased sputum purulence;  
  - increased sputum volume;  
  - increased dyspnoea;  
  - increased wheeze;  
  - chest tightness;  
  - fluid retention (peripheral oedema).                                                                                                   | Assessment by the GP for deciding intervention.  
  Whether to treat at home or in hospital  
  What treatment should be initiated:  
  a) increase of bronchodilator;  
  b) antibiotic;  
  c) oral corticosteroids.                                                                                |
| The patient can’t use the inhaler device in spite of reinforced instructions for use.                                                                                                              | Prescription for a different type of inhaler or referral for a pulmonary rehabilitation programme or a physiotherapist. |
| Patient that expresses insecurity of his/her condition.                                                                                                                                             | The patient should be fully informed about the nature of his/her condition and its treatment. It is probably useful for the patient to have a written record of the treatment, FEV1 and PEF readings. |
| A patient receiving beta-blocking agents (including eyedrop formulations) - the GP treating the patient’s COPD is not informed.                                                                    | This type of medication should be avoided in COPD patients\(^1\).                           |
II. Guideline for outcome oriented patient counselling

Contents

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Protocol for alarm signals and referral.......................................................66
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Case registration form for outcome oriented patient consultations.............68
Registration - Pharmacist consultations.....................................................70
Drug Use Profile Record Sheet.................................................................71

Selected references

5. Study manual, Pharmaceutical Care of the Elderly, Northern Ireland Version, 1996
II. Output oriented patient counselling

P. Procedure
Procedure for outcome oriented patient counselling

Objective

The objective of this procedure is to ensure

a. Pharmaceutical care for asthma patients by
   • Systematic identification and assessment of drug related problems
   • Choosing and implementing the best solution in co-operation with the patient
   • Ensuring the individual patient’s understanding of the use and effects of medication
   • Following up on the patient and responding to new problems (if any)

b. That asthma patients (and caregivers) are educated in the purpose and technique of self monitoring (peak flow measuring and diary keeping).

Definitions

Pharmaceutical care

Hepler CD and Strand L¹ have defined pharmaceutical care as “the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve the patient’s quality of life”.

Drug related problem

A drug related problem is an undesirable patient experience that involves drug therapy and that actually or potentially interferes with a desired patient outcome.²

Alarm signals

Alarm signals are indicators of drug related problems that require further assessment.

Scope

The procedure covers the following areas of pharmacy services.

a) Outcome oriented patient counselling

Outcome oriented patient counselling is a systematic, structured, ongoing, documented process and can be regarded as a basic model for pharmaceutical care.³ It is characterized by the following key points:
   • a shared responsibility with the patient and the prescriber for the patient’s outcome of drug therapy;
   • focus on the patient’s quality of life;
   • focus on the patient’s perspective;
   • individualized care and a holistic approach, which includes therapeutic, social and psycho-social aspects of drug related problems.
b) **Assessment of drug therapy and compliance check**
Identifying possible drug related problems by assessing the patient’s medication record (PMR).

c) **Patient education in self monitoring (peak flow measuring and diary keeping)**
The education of the patient (and caregivers) includes:
- how and when to use the peak flow meter;
- how to record peak flow measurements in a diary;
- how to interpret the measurements;
- how to respond to change.

d) **Pharmacist consultations**
Consultations in separate areas of the pharmacy. The counselling can include all the above mentioned services.

The services on this level should be provided by all pharmacists in all pharmacies. The services should be offered to all patients wishing to enter a partnership with the pharmacist regarding their asthma.

**Process**

It should be assessed for all patients whether they need the services or not. Patients can also be referred to the services from the GP.

The flow chart (P-II.F.) describes the procedure for outcome oriented patient counselling.

**Responsibility**

The pharmacist is responsible for:
- using appropriate communication technique when advising patients;
- using question technique during patient contacts that facilitate the gathering of accurate, comprehensive and relevant information;
- giving education/information materials to support verbal advice;
- providing and marketing the services to patients, who need them;
- an active and positive collaborative relationship with all those who participate in the patient’s care;
- developing and maintaining protocols for the service;
- documentation.
The pharmacy staff is responsible for:
- identifying patients with drug related problems and referring those patients with problems that cannot be solved by giving technical advice (I);
- offering and marketing the service to patients, who need them.

**Structure**

1. The pharmacist has undergone appropriate training in
   - Diagnosis and management of asthma
   - Asthma epidemiology
   - Communication principles (e.g. listening, body language, voice intonation)
   The role of the observer, listener, recorder and prompter
   Asking open-ended questions
   - History-taking skills
   - Patient care
   - Pharmaceutical care philosophy and process
   - Identifying and solving therapeutic problems
   - Organising, implementing and marketing the service
   - Documenting and structuring care activities
   - Changing focus from product information to individual care
   - Use and cleaning of inhalers.

2. Quiet area available within the pharmacy

3. Resources available:
   - a collection of placebo inhalers and spacers;
   - a collection of patient information materials;
   - a collection of patient education materials;
   - a collection of peak flow meters with disposable mouthpieces;
   - a basic patient education programme;
   - educational materials.

   Could be:
   - Asthma Guidelines for Community Pharmacists, Southern Derbyshire Health
   - Asthma. A Self-Study Pack for Community Pharmacist, Centre for Pharmacy Postgraduate Education.
   Material with case studies is recommendable.

**Documentation**

Indicators of process
- Number of complaints of the services compared to number services provided
- Number of complaints of inconsistent counselling between doctor and pharmacy
Indicators of output
- Number of cases collected
- Number of pharmacist consultations
- Number of instructions in self monitoring
- Number and type of identified drug related problems
- Number of referrals from GPs
- Number of patient education/information materials given out

Indicators of outcome
- Inhaler technique score
- Patient perceived outcome of care (increased knowledge of asthma, asthma medication, self care strategies, attacks management and self monitoring)
- Patient satisfaction with care

References

- Checklists
  C-II.1. Checklist for outcome oriented patient counselling
  C-II.2. Checklist for assessment of drug therapy and compliance check
  C-II.3. Checklist for patient education in self monitoring
  C-II.3.F. Flow chart for patient education in self monitoring
  C-II.4. Checklist for pharmacist consultations

- Protocols for asthma medicines
  Example:
  F-II.1. 1. Inhaled corticosteroids
  F-II.2. Protocol for alarm signals and referral

- Protocols for peak flow meters
  Example:
  F-II.3. 1. Mini Wright™ peak flow meter

- Documentation forms
  F-II.4. Case registration form for outcome oriented patient counselling
  F-II.5. Registration - Pharmacist consultations
• From I. Technical advice giving:
  C-I.1. Checklist for needs assessment questioning technique
  C-I.2. Checklist for inhaler technique assessment
  C-I.2.F. Flow chart for counselling in use of inhalers
  C-I.2.1. Example: Overview of formulations available for inhalation of corticosteroids
  F-I.1. Protocol for product oriented drug information - Example: 1. Inhaled corticosteroids
  F-I.3. Inhaler technique assessment form, general
  F-I.3.1. Inhaler technique assessment form - Turbuhaler™
Procedure for outcome oriented patient counselling - Flow chart

References

C-II.1. Checklist for outcome oriented patient counselling
F-II.1. Protocol for asthma medicines

C-II.2. Assessment of drug therapy and compliance check

F-II.2. Protocol for alarm signals and referral
C-II.3. Checklist for patient education in self monitoring
C-II.4. Checklist for pharmacist consultations

F-II.4. Case registration form for outcome oriented patient counselling
F-II.5. Registration - Pharmacist consultations

Pharmacist or patient initiated

Referred from the GP, another pharmacy or internal referral

React to alarm signals and collect data

Identify and assess drug related problem

Set target and choose the best solution in cooperation with the patient and implement it

Instruction in self monitoring

Counsel according to needs

Pharmacist consultations

Referral

Documentation and follow up
II. Outcome oriented patient counselling

C. Checklists
Checklist for outcome oriented patient counselling

Toolbox

Relevant checklists and protocols
- C-I.1. Checklist for needs assessment questioning technique
- C-I.2. Checklist for inhaler technique assessment
- F-II.1. Protocol for asthma medicines - Example: 1. Inhaled corticosteroids
- F-II.2. Protocol for alarm signals and referral
- F-II.4. Case registration form for outcome oriented patient counselling

Process

The process of outcome oriented patient counselling can be described in four steps.
Step 1: React to alarm signals
Step 2: Identify and assess drug related problems
Step 3: Set targets and choose the best solution in co-operation with the patient and implement it
Step 4: Follow up on targets and document results.

1. React to alarm signals

Alarm signals are indicators of drug related problems that require further assessment. They can be related to the patient, the prescription or therapy generated.

Examples of patient related alarm signals
- Symptoms
- Dislike of medications
- Problems with inhaler device
- Lack of knowledge
- Non-compliance
- Real or imagined side effects
- Fear of corticosteroids
- Cost of medications

Examples of prescription generated problems
- Insufficient data on the prescription, e.g. lacking information on the patient, drug indication, dosage
- Identification of interactions.

Examples of therapy generated problems
- The patient complains about lacking effect
- Little or no effect
- Symptoms of adverse drug reactions
• Inappropriate drug product, strength, dosage, treatment interval, duration of treatment, indication.

Specific examples of alarm signals are given in Protocol for asthma medicine (F-II.1.) and Protocol for alarm signals and referral (F-II.2.).

To be able to determine whether the alarm signal is a sign of a drug related problem it is necessary to collect data from the patient. The relevant data can be collected by using needs assessment questioning technique (C-I.1.). Information can also be collected by asking the patient to, e.g. demonstrate inhaler technique.

2. Identify and assess drug related problems

After having assured that the alarm signal was a sign of a drug related problem the next step is to decide the nature and extent of the problem. The relevant data can be collected by using needs assessment questioning technique (C-I.1.). Data should be collected about the patient’s medical, therapeutic and social history. The assessment of the problem should include an exposure of the underlying reasons for the problem such as patient worries, expectations and consequences of the problem for the individual patient.

The assessment of the problem includes evaluation of which collected subjective and objective data that supports the nature and extent of the drug related problem.

After having identified and decided the nature and extent of the drug related problem the next step is to categorize the problem. The problem can be categorized by one or more of the following eight categories.1

1. Untreated indications
The patient has a medical problem which requires drug therapy (an indication for drug use), but is not receiving a drug for that indication.

2. Improper drug selection
The patient has a drug indication, but is taking the wrong drug.

3. Sub therapeutic dosage
The patient has a medical problem, which is being treated with too little of the correct drug.

4. Failure to receive drugs
The patient has a medical problem, which is a result of he or she not receiving a drug (e.g., for pharmaceutical, psychological, sociological, or economic reasons).

5. Overdosage
The patient has a medical problem, which is being treated with too much of the correct drug (toxicity).
6. Adverse drug reactions
The patient has a medical problem, which is the result of an adverse drug reaction or adverse effect.

7. Drug interactions
The patient has a medical problem which is the result of a drug-drug, drug-food or drug-laboratory interaction.

8. Drug use without indication
The patient is taking a drug for no medically valid indication.

The categorization is important in order to focus the role of the pharmacist on patient need and patient outcome.

It is important to have as complete a picture as possible of the nature of the problem, the extent and possible consequences for the patient in order to choose an appropriate solution, which he/she can accept and employ in the daily life.

3. Set target and choose the best solution in co-operation with the patient and implement it

Based on the above analysis it is now possible to set up suggestions to solve the problems. In order to suggest a possible solution, it is important to realize what is the goal for the pharmacist and what is the goal for the patient. An immediate similarity between the patient goal and the pharmacist goal cannot be taken for granted. A patient with a poorly controlled asthma could, for instance, have one main target, which is to avoid taking his medicine, whereas the pharmacist’s goal would be to increase the patient’s use of preventive medicine in order to reduce the frequency of attacks. It is therefore of utmost importance to agree on a common goal if the solution is to lead to desirable results.

Examples of solutions
- Instruction in inhaler use
- Instruction in self monitoring
- Patient education on asthma and asthma medicines
- Advice on how to avoid side effects of inhaled corticosteroids
- Referral to pharmacist consultation
- Providing patient education materials
4. **Follow up on targets and document results**

One of the key elements in the pharmaceutical care process is the ongoing follow up on drug therapy and its outcomes.

The following questions can be used the next time the patient comes to visit the pharmacy.

- How has your asthma been since our last conversation?
- How do you usually use this medicine?
- How do you feel the medicine is helping you?

Other examples of ways to follow up are:

- phone call to the patient;
- phone call to the GP or other health care professionals;
- visits at home;
- distribution of business cards with a request to call in case of any problems;

The process and outcomes of patient consultation can be documented in the case registration form for outcome oriented patient counselling (F-II.4.).
Checklist for assessment of drug therapy and compliance

Toolbox

Relevant protocols for asthma medicines, for example
- F-II.1. Protocol for inhaled corticosteroids
- The patient's medication record
- F-II.6. DUP record sheet

Process

A drug use profile (DUP) is a tool which helps the pharmacists in structuring the assessment of drug therapy and the identification of compliance problems when rationalizing the patient therapy of the elderly.

A drug use profile (DUP) is a graphic, chronological review of drug use.5

- Collect from the patient's PMR information on medicine use during a number of months.
  You will need the:
  - name and strength of the medicine;
  - date of dispensing;
  - dosage;
  - quantity dispensed/sold.

- Write the names of all the drugs (including their dosage) dispensed within the selected months in the appropriate columns (columns 1 and 2) of the DUP record sheet (F-II.6.).

- Label columns' 3-8 as the months preceding the date on which the DUP is being performed. (The columns have been divided into 4 parts to represent weeks)

- The DUP can now be produced

  Take each drug in turn, indicate on the record sheet the starting point of the medicine, i.e. the date on which the drug was dispensed, by marking a dot in the appropriate column. The probable end-date of the supply of this medicine can then be estimated. As both the dose and the quantity of the drug supplied are known, it is possible to calculate for how many weeks the drug will last. When the end-point has been determined, a horizontal line can be drawn from the starting point to the estimated end-point. Mark the end-point with a small vertical line. For 'as required' drugs, you should use your knowledge and experience as a pharmacist and judge each case individually, according to the needs of the patient. A simple guideline is to consider the maximum daily dose of the drug as being the dosage and then calculate the time it should last.
• When the chart has been completed, it may then be interpreted

1. Appropriate drug selection
   • Is this a drug where age related changes (e.g. theophylline) makes the drug choice inappropriate?
   • Is this patient allergic to this drug?
   • Does the patient have a medical condition in which this drug is contraindicated or used with caution?

1. Dosage (either excessive or subtherapeutic)
   • Do the doses of the drugs seem reasonable (considering age, weight etc.)?

1. Check compliance (overlapping lines or gaps in medication)

  **Note:** Overlapping lines or gaps in medication might be due to a poor compliance. This may indicate further investigation. By talking to the patient, you can identify if the patient is being non-compliant or if there is a valid reason for the overlap/gap. Valid reasons for an overlap or a gap may be because the patient has been in hospital and has received a medicine supply from the hospital. Other reasons could be a recent trip abroad where the patient needs an extra supply of medicines. Therefore, by questioning the patient, you can distinguish between true non-compliance and explanation of the overlap.

2. Barriers for appropriate use
   • Under-use / over-use of drug (self regulation)
   • Physical, psycho-social or social conditions
   • Knowledge, perceptions or attitudes
   • Behaviour, action.

Is the drug the least expensive alternative compared with others of equal efficacy?

Are the directions practical?
   • Reducing dose frequency
   • Reducing number of drugs
   • Synchronizing doses

1. Check for drugs being used infrequently or not at all.
   • Can they be discontinued?

1. Check for drug interactions
   • Are there any possible drug interaction needing further investigation?
   • Are there any possible inappropriate drug duplication of therapy?
1. Adverse drug reactions
   - Do there appear to be drugs which may be treating side effects of other drugs?
   - Are there drug combinations causing problems of cumulative side effects?

1. Drug use without indication

Comments can be noted on the record sheet in column 9. From these comments, a plan of action may be formulated from the problems identified.
Checklist for patient education in self monitoring

Toolbox

- Patient diary cards
- Peak flow meter
- Disposable mouthpiece adapters
- Suitable patient education materials
- Relevant protocols
  - Protocol for alarm signals and referral
  - Protocol for the relevant peak flow meter, for example
  - Protocol for Mini Wright™ peak flow meter

Instruction for patient education in self monitoring

The education of the patient (and caregivers) includes:

- how and when to use the peak flow meter;
- how to record peak flow measurements in a diary;
- how to interpret the measurements;
- how to respond to change.

The flow chart (C-II.3.F.) describes the process of the instruction.

1. How to use the peak flow meter

Three types of home peak flow meters are available all in a standard range model and a low range model. Standard range models give reproducible peak flow readings over a range of approximately 100-800 l/min and suit the majority of adults and children over five years. The low range model has an approximate range of 50-350 l/min. Mouthpiece adapters for use by children are available. Disposable mouthpiece adapters are available for all types.

Ask the patient to demonstrate the technique after instruction in the use of a peak flow meter, and give advice if needed.

Important
Advise the patient that different brands and models of peak flow meters often give different values when used by the same person. The patient should consequently bring the meter to the GP or pharmacy on consultations.

2. When to take readings

The patient should be advised to take readings:

- twice a day - morning and evening;
- 10 minutes after use of an inhaled bronchodilator - this is a valuable indicator of the effectiveness of the bronchodilator, but is not necessary after each use;
• when asthma symptoms are experienced - a recording of the peak flow value when the patient has symptoms, can help the patient to a better management of his disease.

Ideally PEF measurements should be taken twice a day, but if PEF are only taken once a day, they should be done at the same time each day and consistently, either before or after using a bronchodilator.

Some patients may prefer to perform PEF measurements intermittently, either because they will not comply with daily measurements, or their asthma is extremely stable. If PEF is being measured only two or three times a week, it is best to do two readings in one day viz. a morning and an evening reading and consistently either before or after bronchodilator.

3. **How to record peak flow measurements in a diary**

The diary has spaces to fill in which are:
- The peak flow meter readings
- Put a dot for the reading under the correct time and date.
- The symptoms of the day.
Note every night the symptoms of the day and indicate the degree of the symptoms (mild, moderate, severe or none).
- The use of inhaled bronchodilator (“reliever” medication).

This allows peak flow (PEF) readings and symptoms to be linked easily.

4. **How to interpret the measurements**

The patient should be educated on:
- **What is being measured** - the speed at which air is being expelled from the lungs, is determined by the narrowness of the airways.
- **Why measuring** - to help determine, along with the recognition of symptoms, the severity of the asthma and thus be involved in the management of their disease.
- **What the results mean** - their best result need not be the same as was predicted from the normogram. Early warning signs of an attack of asthma or a general worsening of the disease are a fall in peak flow value, especially in the morning, and a bigger than normal difference between morning and evening peak flow values.

Offer the patient suitable written patient education/information materials on peak flow monitoring.

5. **How to respond to change**

All asthma patients should have an action plan - a written plan for management of deterioration. Refer patients who do not have an action plan to the GP.

Patients, who understand and carry out the above, can be referred to instruction in self management by the GP or by pharmacies with an outcome monitoring service.
Flow chart for patient education in self monitoring

References

F-II.3.
Protocol for peak flow meter

Internal referral

Referred from GP

Pharmacist or patient initiated

How and when to use the peak flow meter

How to record peak flow measurement in diary

How to interpret the diary

How to respond to change - refer to GP if patient does not have an action plan

Refer patient to education in self management

Follow up as appropriate
II. Outcome oriented patient counselling

F. Forms
Protocol for asthma medicines

Example 1. Inhaled corticosteroids

Drugs*: Aldecin, Andion, Becloforte, Becocent, Becotide, Flixotide, Flunitec, Plumicort, Spirocort.

<table>
<thead>
<tr>
<th>Drug related problems</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral thrush due to an adverse drug reaction</td>
<td></td>
</tr>
<tr>
<td>Failure to receive the drug due to:</td>
<td></td>
</tr>
<tr>
<td>• sub optimal inhalation technique;</td>
<td></td>
</tr>
<tr>
<td>• fear of steroids.</td>
<td></td>
</tr>
<tr>
<td>Lack of optimal effect</td>
<td></td>
</tr>
<tr>
<td>Misunderstanding of drug action</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alarm signals</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms of oral thrush</td>
<td></td>
</tr>
<tr>
<td>Patient worry about the side effects of the medicine</td>
<td></td>
</tr>
<tr>
<td>Needing asthma medications more often. (Use of prn beta-2-agonist more than twice per day on a regular basis)</td>
<td></td>
</tr>
<tr>
<td>Medications not helping as they usually do</td>
<td></td>
</tr>
<tr>
<td>Nocturnal symptoms that wake the patient more than one night per fortnight</td>
<td></td>
</tr>
<tr>
<td>Increasing cough, chest tightness, wheeze, or trouble breathing</td>
<td></td>
</tr>
<tr>
<td>Peak flow measurements below approx. 80% of the patient’s best</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Questions to ask</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>“How do you feel about your medicine?”</td>
<td></td>
</tr>
<tr>
<td>“Show me how you use your inhaler!”</td>
<td></td>
</tr>
<tr>
<td>“Some people think that steroids are harmful; what do you think?”</td>
<td></td>
</tr>
<tr>
<td>“What problems do you have taking these medicines?”</td>
<td></td>
</tr>
<tr>
<td>“Tell me how your medicine works!”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Counselling points</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>This medication prevents:</td>
<td></td>
</tr>
<tr>
<td>• swelling and inflammation of the airways and;</td>
<td></td>
</tr>
<tr>
<td>• makes the airways less sensitive.</td>
<td></td>
</tr>
<tr>
<td>The brownish colour indicates that the medicine is a “preventer”</td>
<td></td>
</tr>
<tr>
<td>This medication is preventive, so it is essential that it is used regularly, even when no symptoms</td>
<td></td>
</tr>
<tr>
<td>It takes about two weeks to achieve the full effect of the medicine</td>
<td></td>
</tr>
<tr>
<td>Rinse your mouth out after use to prevent the development of oral thrush</td>
<td></td>
</tr>
<tr>
<td>Your asthma could worsen if you take medicines containing aspirin or ibuprofen. Before buying any over-the-counter medicine check that it does not contain any of these medicines</td>
<td></td>
</tr>
<tr>
<td>* smoker: You will benefit from smoking cessation.</td>
<td></td>
</tr>
</tbody>
</table>

* Example: Extensive list of corticosteroids for inhalation available in Denmark per October 1996.
## Referral

- Symptoms of oral thrush
- Poor inhaler technique despite instruction and counselling
- Use of prn beta-2-agonist more than twice per day on a regular basis
- Frequent or worsening symptoms. Symptoms interfere with daily activities.
- Peak flow measurements below approx. 80% of the patient’s best
- Patients that might benefit from an Asthma Control Plan.

## References

- Brochures with patient education on asthma and asthma medication
# Protocol for alarm signals and referral

**Drug related problems**
1. Undiagnosed asthma
2. Poorly controlled asthma
3. Side effects of the medicine.

**Alarm signals**
- Repeated buy of cough medicines
- Repeated buy of cough medicines for children with nocturnal coughing or episodes of “wheezy bronchitis”
- Repeated buy of antibiotics for children with respiratory infection
- Sub optimal inhaler technique needing asthma medications more often
- Not buying the asthma medication prescribed e.g. corticosteroids
- Increased need for short acting beta-2-agonists
  (Use of beta-2-agonists more than three times per week. For users of inhaled corticosteroid: Use of prn beta-2-agonist more than twice per day on regular basis.)
- Medications not helping as they usually do
- Increasing symptoms of asthma (cough, chest tightness, wheeze, or trouble breathing)
- Patients expressing fears, insecurity or frustration.

**Referral**
Refer to pharmacist
- Patients, who need more extensive counselling e.g. on self monitoring, self management, patient education on asthma and asthma medicines, inhaler technique
- Parents of asthmatic children, who are anxious about the adverse effects associated with the use of corticosteroids
- Patients, who are anxious about the adverse effects associated with the use of corticosteroids.

Refer to GP
- Customers with recurrent coughing where cough medicines do not seem to work
- Children with recurrent respiratory infections and lack of improvement after antibiotics.
- Asthma patients with
  - Increased use of prn beta-2-agonist
  - Medications not helping as they usually do
  - Frequent or worsening symptoms
  - Symptoms interfering with daily activities
  - Symptoms of/or problems with side effect
  - Persistent poor inhaler technique which needs a more appropriate device.
Protocol peak flow meters

Example: 1. Mini Wright™ peak flow meter

<table>
<thead>
<tr>
<th>Manufacture</th>
<th>Example: Clement Clarke International Ltd. 15 Wigmore Street, London W1H 9LA, England.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Five year old children can usually perform a peak flow measurement.</td>
</tr>
<tr>
<td>Illustrations</td>
<td>See the illustrations on how to use and clean the peak flow meter in the container.</td>
</tr>
</tbody>
</table>
| Use                                | 1. The patient should stand up or be seated upright  
2. The marker should be set at zero  
3. The peak flow meter should be held horizontally  
4. Hold the meter so that fingers do not obstruct the scale  
5. Breathe in as fully as possible, create a tight seal with the lips around the mouthpiece  
6. Blow as hard and fast as possible, in a short sharp blast  
7. Note the reading, as indicated by the marker  
8. Repeat this sequence two more times, resting between attempts if necessary. Each blow should be at maximum effort if possible  
9. Record the highest of the three readings achieved. Important  
    Advise the patient that different brands and models of peak flow meters often give different values when used by the same person ⇒ bring meter to the GP or pharmacy on consultations. |
| Cleaning                           | It is important to keep the peak flow meter clean.  
• Place the meter in warm soapy water for 2-3 minutes (maximum 5 minutes)  
• Rinse the meter in warm water  
• Shake the water off carefully  
• The meter has to dry totally before use. Important  
    • Keep the meter out of boiling water  
    • Keep the meter clean and free from dust.  
With careful use and correct maintenance the meter should only need to be replaced about every three years. |
| References                         | • Materials from the manufacture  
• Patient education/information materials |

Pharmacy-based asthma services • 1998
**Case registration form for outcome oriented patient consultations**

Pharmacy  

<table>
<thead>
<tr>
<th>Name of pharmacist</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Patients name (if appropriate)

<table>
<thead>
<tr>
<th>1. Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The patients description of the problem</strong></td>
</tr>
<tr>
<td>(Subjective and objective data, alarm signals)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment of problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Category of drug related problem. Underlying reasons)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target and solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>(What is the target? - How was the problem solved?)</td>
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</table>

<table>
<thead>
<tr>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>(What was the outcome for the patient?)</td>
</tr>
</tbody>
</table>
### 2. Contact

<table>
<thead>
<tr>
<th>Date:</th>
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</table>

**Assessment of problem**  
(Category of drug related problem. Underlying reasons)

**Target and solution**  
(What is the target? - How was the problem solved?)

**Outcome**  
(What was the outcome for the patient?)

### 3. Contact

<table>
<thead>
<tr>
<th>Date:</th>
</tr>
</thead>
</table>

**Assessment of problem**  
(Category of drug related problem. Underlying reasons)

**Target and solution**  
(What is the target? - How was the problem solved?)

**Outcome**  
(What was the outcome for the patient?)
Registration - Pharmacist consultations

Pharmacy ________________________________

Patient data
☐ Age: ____________  ☐ Sex: ___________________

Identified drug related problems
☐ Untreated indications
☐ Improper drug selection
☐ Sub therapeutic dosage
☐ Failure to receive drugs
☐ Overdosage
☐ Adverse drug reactions
☐ Drug interactions
☐ Drug use without indication

Other problems:

Pharmacist interventions
☐ Instruction in inhaler technique
☐ Instruction in inhaler cleaning
☐ Instruction in self monitoring: Peak flow measurement and use of diary
☐ Assessment of drug therapy
☐ Compliance check
☐ Product oriented drug information
☐ Self care advice

☐ Provided patient information/education materials

☐ Referral to GP
  Reason for referral

☐ Referral to other health care professionals
  Reason for referral

Time used on the consultation
______________________ minutes
Pharmacy-based asthma services • 1998
### Drug Use Profile Record Sheet

**Patient name**..........................  **Date** ....../.../....

**Period of Review** ....../.../.... to ....../.../....

Superscript numbers are numbers of columns

<table>
<thead>
<tr>
<th>Name of drug (including strength)</th>
<th>Dosage</th>
<th>Month 1</th>
<th>Month 2</th>
<th>Month 3</th>
<th>Month 4</th>
<th>Month 5</th>
<th>Month 6</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>
III. Guideline for therapeutic outcomes monitoring

Content

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Protocol for identification of drug related problems .............................................97
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Satisfaction with the quality of Health Care and Pharmacy services ..........111

Selected references

III. Therapeutic outcomes monitoring

P. Procedure
III. Procedure for therapeutic outcomes monitoring

Objective

The objective of this procedure is to ensure the provision of pharmaceutical care for asthma patients by a comprehensive therapeutic outcomes monitoring programme.*

Definitions

Pharmaceutical care
Pharmaceutical care has been defined by Hepler and Strand1 as “the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve the patient’s quality of life”.

Pharmaceutical care involves three major functions.
1. To identify potential and actual drug related problems
2. To resolve actual drug related problems
3. To prevent potential drug related problems.

Drug related problem
A drug related problem is an undesirable patient experience that involves drug therapy and that actually or potentially interferes with a desired patient outcome.2

Categories of drug related problems
Drug related problems can be described in two main categories: (1) therapeutic failure, i.e. the original medical problem remains unsolved or (2) adverse advents, i.e. new medical problems occur as an adverse outcome of drug therapy.

Strand et al. (1990) have identified eight categories of drug related problems.1

1. Untreated indications
The patient has a medical problem requiring drug therapy (an indication for drug use), but is not receiving a drug for that indication.

2. Improper drug selection
The patient has a drug indication, but is taking the wrong drug.

3. Sub therapeutic dosage
The patient has a medical problem being treated with too little of the correct drug.

4. Failure to receive drugs
The patient has a medical problem, which is a result of he or she not receiving a drug (e.g., for pharmaceutical, psychological, sociological, or economic reasons).

5. Overdosage
The patient has a medical problem being treated with too much of the correct drug (toxicity).

* The programme is originally developed at the University of Florida.3 Recommendations are further based on the Danish TOM-project4 and other European experiences provided by the Asthma services task force members (see Preface).
6. Adverse drug reactions
The patient has a medical problem, which is the result of an adverse drug reaction or adverse effect.

7. Drug interactions
The patient has a medical problem resulting from a drug-drug, drug-food or drug-laboratory interaction.

8. Drug use without indication
The patient is taking a drug for no medically valid indication.

Scope

This procedure covers a disease specific programme for pharmaceutical care in community pharmacy - Therapeutic outcomes monitoring (TOM) for asthma patients.

TOM is:
• continuous quality improvement of drug therapy for the individual patient;
• a systematic, structured, ongoing, documented process;
• individualized patient care - holistic and outcome oriented.

The TOM programme can be summarized in the following steps.
1. Establishment of the patient-pharmacist-physician relationship
2. Collection of patient data
3. Identification and analysis of drug related problems
4. Agreement with the patient and outlining of goals
5. Choice of individual intervention- and monitoring plan
6. Implementation and follow-up
7. Documentation and reporting to physician and patient

How the TOM programme can be provided to the asthma patients in the community pharmacy is described in this guideline by a flow chart (C-III.1.F.) and by the checklists and forms mentioned in the end of this procedure.

The following elements may be provided within the TOM programme.
• Instruction in inhaler technique
• Individual patient counselling and education on asthma, medication, coping behaviour and self management
• Compliance monitoring
• Assessment and monitoring of drug use
• Assessment of the total drug therapy
• Instruction in self monitoring: Peak flow measurement and use of diary
• Instruction in self regulation
• Instruction in attacks management.

The services of this level of pharmacy-based asthma services can be offered to asthma patients by pharmacists in selected pharmacies according to local health care needs where prevention of drug related morbidity is particularly promising.

The services of this level should be provided in co-operation with the other members of the primary health care team.
The process of TOM

The process of therapeutic outcomes monitoring can be described as a quality improvement cycle with focus on managing drug related problems and individual care. It is a process of collecting subjective and objective patient data, assessment, target setting, problem identification, and planning. The figure shows the steps of the care process.3

![Diagram of the therapeutic outcomes monitoring process]

Physicians typically perform the functions along the top line (SOAP of medical problem). Pharmacists would also perform them for self-limiting diseases (or before referral). The pharmacist’s part in quality improvement of drug therapy is shown in the bottom line.

The TOM process is a systematic, structured, ongoing and documented process. It involves the cooperation of patients, pharmacists and physicians. TOM has focus on individual patient care, meaning equal emphasis on the dialog about drug related problems relating to insufficient coping, control and empowerment of the patient as on non-compliance, lack of knowledge and therapeutic problems.4

1. Collect, interpret and record relevant patient information
   The information should include the patient’s medical, therapeutic and social history. This gives the pharmacist information about the patient’s: coping strategies, knowledge of disease and therapy, control and empowerment, compliance and therapeutic problems.

2. Record the therapeutic objectives for the patient
   There are two basic types of therapeutic objectives to consider: clinical objectives (from a professional viewpoint) and quality of life objectives (from the patient’s viewpoint). If possible, learn the patient’s objective. After discussing these objectives
with the physician and patient as necessary, record the therapeutic objectives (purpose and endpoint) in the patient record.

3. **Assess therapeutic plan**

Review the medication for drug related problems, keeping in mind the patient’s medical problems, lifestyle and preferences.

4. **Design monitoring plan**

On the basis of potential problems, devise a procedure to obtain the necessary data to monitor the patient's progress towards therapeutic objectives. Establish when and how the monitoring data will be collected.

5. **Dispense product(s), advise patient**

Provide patient education based on the objectives agreed in a dialog with the patient. Ascertain that the patient is committed and agrees to the objective and how to get there.

6. **Implement monitoring plan**

Carry out the monitoring plan as decided, usually over a period of time between visits. Document the information, any problems noted and actions taken.

   a) **Evaluate patient progress.**
      
      Revise or update the monitoring plan. Potentially significant observations or problems which cannot be resolved by the pharmacist are referred to the physician.
      
      Provide periodic reports to the physician as agreed.

   b) **Respond to problems (if any)**
      
      Assess whether patient is making progress towards therapeutic objectives based upon monitoring information.

This completes the cycle.

**Responsibility**

The pharmacist is responsible for:
- providing and marketing the services to patients who need them;
- an active and positive collaborative relationship with all those who participate in the patient’s care;
- documenting and reporting to physician and patient.

The pharmacy staff is responsible for:
- identifying patients with drug related problems and referring those patients with problems which cannot be solved by giving technical advice (I) ;
- offering and marketing the outcomes monitoring service to patients who need/require them.
Structure

1. The pharmacist has undergone appropriate training in the following.
   - Diagnosis and management of asthma
   - The differences between asthma and COPD
   - Asthma epidemiology
   - Communication principles (e.g. listening, body language, voice intonation)
   - The role of the observer, listener, recorder and prompter
   - Asking open-ended questions
   - History-taking skills
   - Patient care
   - Identifying and solving therapeutic problems e.g. by using a SOATP method
   - Organizing and marketing the service
   - Documenting and structuring care activities
   - Changing focus from product information to individual care.

2. Quiet area (room) available within the pharmacy
   - A larger quiet room available for patient education in groups.

2. Resources available:
   - a collection of placebo inhalers and spacers;
   - a collection of patient information materials;
   - a collection of patient education materials;
   - a collection of peak flow meters with disposable mouthpieces;
   - a basic patient education programme.

Education

The education is important to perform a standardized and documented TOM-process.

Two manuals with the following contents were used in a Danish TOM project on asthma “Quality Improvement of Drug Therapy for Asthma Patients”.

Education Manual
   - Introduction
   - Basic material with proposal for general information of the pharmacy staff
   - The disease: clinical manifestations of asthma and epidemiology
   - The assessment of asthma: diagnosis, characterization and classification of asthma
   - The treatment: therapeutic objectives, therapeutic alternatives, asthma therapy
   - Guidelines to the management of asthma and exacerbation of asthma
   - The International Consensus Report on Diagnosis and Management of Asthma
   - Pharmaceutical care to asthma patients
   - Objective measures of lung function.

A book like
   Guidelines for the Diagnoses and Management of Asthma. National Asthma
   Education Program. Publication No. 91-3042. Bethesda, Maryland, 1991
   can replace parts of the education manual.
Procedure Manual

- Introduction (how to use the protocol)
- Management of asthma - guidelines to assessment and intervention
- The management of asthma patients within the community pharmacy
- Guidelines for starting the service
- Guidelines for co-operation with general practitioners and other health care professionals
- How to implement the service in the daily pharmacy practice.

Documentation

Indicators of process

- Number of physicians co-operating with the pharmacy in the TOM-programme
- Number of complaints of the service compared to number of patients in the TOM-programme
- Number of complaints of inconsistent counselling between physician and pharmacy
- Number of recommendations accepted, negotiated or refused.

Indicators of output

- Number of patients in the TOM-programme
- Number and types of patient contacts
- Number of patients referred from the GP
- Pharmacist time
- Number and type of identified drug related problems
- Number and type of TOM elements provided

Indicators of outcome

Health and clinical outcomes

- Number of patients, who state having a better health
- Degree to which normal life is disturbed
- Less symptoms
- Fewer days of sickness
- Less asthma related contacts to the health care system (e.g. days at hospital, contact to GP)
- Decreased percentage of days with PEF under 80% of the patients best value
- Lowest PEF is improved

Satisfaction, confidence, reliance

- Satisfaction with the health care system in general
- Satisfaction with the counselling received
- Motivation and acceptance of therapy
- Confidence in the treatment
- Confidence in the health care professionals
Drug use
- Number of patients, who state having fewer drug related problems
- Correct inhalation technique
- Correct use of drugs
- Increased effect of the medicine
- Decreased use of short acting inhaled beta-2-agonists
- Decreased use of oral beta-2-agonists
- Decreased use of oral corticosteroids

Psycho-social outcomes
- Increased knowledge of asthma and asthma medication
- Increased knowledge of prevention
- Increased coping with life as asthmatic

A more extensive evaluation of outcomes is possible. The following outcome measures were evaluated in the Danish TOM-project: “Quality Improvement of Drug Therapy for Asthma Patients”.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Outcome measures</th>
<th>Data collecting instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health outcomes and clinical patient effects</td>
<td>Asthma symptoms</td>
<td>Three items symptom score</td>
</tr>
<tr>
<td></td>
<td>Global quality of life</td>
<td>Nottingham Health Profile (NHP)</td>
</tr>
<tr>
<td></td>
<td>Asthma related quality of life</td>
<td>Living with Asthma Questionnaire (LWAQ), Hyland</td>
</tr>
<tr>
<td></td>
<td>Peak flow</td>
<td>Peak flow of the day</td>
</tr>
<tr>
<td></td>
<td>Days of sickness</td>
<td>Patient diary</td>
</tr>
<tr>
<td>Psycho-social patient effects</td>
<td>Knowledge of asthma</td>
<td>Knowledge questionnaire (Developed to the Danish TOM-project. Is available in English)</td>
</tr>
<tr>
<td></td>
<td>Satisfaction with pharmacy and health care services</td>
<td>Satisfaction questionnaire (Developed to the Danish TOM-project. Is available in English)</td>
</tr>
<tr>
<td>Effects on drug use</td>
<td>Inhaler technique</td>
<td>Eight items assessment form for each inhaler type</td>
</tr>
<tr>
<td></td>
<td>Medication use</td>
<td>Pharmacy computer system</td>
</tr>
<tr>
<td>Effect on health care resources</td>
<td>Asthma related contacts to the health care system</td>
<td>Patient diary</td>
</tr>
<tr>
<td></td>
<td>Cost of drugs</td>
<td>Pharmacy computer system</td>
</tr>
<tr>
<td></td>
<td>Days of sickness</td>
<td>Patient diary</td>
</tr>
</tbody>
</table>
References

C-III.1.F. Flow chart for the TOM-service - First interview
F-III.1. Referral form for therapeutic outcomes monitoring
F-III.2. Tom-interview
F-III.3. Patient outcomes monitoring form
F-III.5. Summary of the interview - patient
F-III.6. Report of the pharmacist’s interview with the patient

Suggested relevant checklists from other guidelines of this Protocol
C-I.1. Checklist for needs assessment questioning technique
C-I.2. Checklist for inhaler technique assessment
C-I.2.F. Flow chart for counselling in use of inhalers
C-I.2.1. Example: Overview of formulations available for inhalation of corticosteroids
C-II.2. Checklist for assessment of drug therapy and compliance check
C-II.3. Checklist for patient education in self monitoring
C-II.3.F. Flow chart for patient education in self monitoring

Suggested relevant forms from other guidelines of this Protocol
F-I.2. Protocol for inhaler devices
   Example: 1. Turbuhaler™
F-II.1. Protocol for asthma medicines - Example: 1. Inhaled corticosteroids
F-II.3. Protocol for peak flow meter - Example: 1. Mini Wright™ peak flow meter

• Documentation forms
F-I.3. Inhaler technique assessment form, general
F-I.3.1. Inhaler technique assessment form - Turbuhaler™
F-III.7. Documentation form for output
F-III.8. Knowledge of asthma and asthma medicine - Questionnaire
F-III.9. Satisfaction with the quality of health care and pharmacy services - Questionnaire
III. Therapeutic outcomes monitoring

C. Checklist
Flow chart for the TOM-service - First interview

References

F-III.1.
Referral form for therapeutic outcomes monitoring

F-III.2.
TOM-interview

C-II.2.
Checklist for assessment of drug therapy and compliance check

F-II.1.
Protocol for asthma medicines

F-I.3.
Inhaler technique assessment form, general

F-III.3.
Patient outcomes monitoring form

F-III.4.
Protocol for identification of drug related problems - SOATP

C-II.3.
Checklist for patient education in self monitoring

F-III.5.
Summary of the interview - patient

F-III.6.
Report of the pharmacist’s interview with the patient

Referral of asthma patients to TOM service

Patient interview about asthma and asthma medicine

Assessment of the drug therapy and check of inhalation technique

Complete the patient outcomes monitoring form

Identify and assess drug related problems. Record the therapeutic objectives for the patient. Design individual intervention- and monitoring plan

Instruction in self monitoring: Peak-flow measurements and diary keeping

Make appointment for a follow up interview

Make a short summary of the interview and send it to the patient

Make a report of the interview with the patient and send it to the GP
III. Therapeutic outcomes monitoring

F. Forms
Referral form for therapeutic outcomes monitoring

Date
Mr./Ms. ____________________________________________ (Patient’s name)

has been referred to ____________________________________________ (Pharmacy’s name)

Patient information

Asthma classification:
☐ Mild ☐ Moderate ☐ Severe

When was the asthma diagnosed? ______________________________________________________

Allergies: ____________________________________________

Reason for referral: _________________________________________________________________

Present drug therapy: ______________________________________________________________

The pharmacy is asked to pay special attention to the following:

☐ Instruction in inhaler technique
☐ Individual patient counselling and education on asthma, medication, coping behaviour and self management
☐ Compliance monitoring
☐ Assessment and monitoring of drug use
☐ Assessment of the total drug therapy
☐ Instruction in self monitoring: Peak flow measurement and use of diary
☐ Instruction in self regulation
☐ Instruction in attacks management
☐ Other

Pulmonary function alert values
Notify me immediately if the patient presents with peak flow meter readings of
_____________________ on ____________ consecutive days.

Physician’s name: ______________________ Signature: ______________________
**TOM-interview**

Collection of data

*The purpose of this interview is to collect data for a subsequent analysis showing whether the patient has any drug related problems.*

*The aim is to collect information about:*
- *the patient’s medical history/record*
- *the patient’s previous medical treatment*
- *the patient’s social history*

I. Personal information

Name: ____________________________________________

Address: ____________________________________________

Phone home: _____________________________ Work: ________________

Age: ________________ years

Occupation: ____________________________________________

Interview by: _____ *(pharmacist’s name)*_____________

Date: __________
II. Everyday life of the patient

_The purpose of this part of the interview is to obtain a thorough unveiling of the patient’s daily life._

**Health**

How do you feel about your asthma?
- What does your asthma mean to you?

How has your asthma developed over time?
- When did your asthma begin?

How has your asthma therapy developed over time?
- What were your initial medicines for asthma?

Assessment of problems in everyday life:
Family life, working life, leisure activities

How does your asthma affect
- Your family life?
- Your working life?
- Your leisure activities?

- Is there anyone in your family who has asthma?
- Do you smoke?
- Do you live together with one or more smokers?
- Have you any domestic animals?
- Are there any special circumstances in your home or at your work, which might have an influence on your asthma?
- Do you keep a special diet due to your asthma?
- What do you do in everyday life to prevent your asthma from becoming worse?

Assessment of problems in everyday life:
III. Assessment of the patient’s knowledge and coping

Has the patient any knowledge about asthma and the treatment?

• Tell me what you know about asthma and the treatment?

Ask the following questions for each drug the customer has

• What do you use this drug for?
• How does the drug affect you?

Describe your symptoms when you experience an asthma attack.

<table>
<thead>
<tr>
<th>Total assessment of knowledge:</th>
<th>Very good</th>
<th>Good</th>
<th>Insufficient</th>
<th>Very insufficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Therapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beta-2-agonists</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corticosteroids</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other asthma medication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
IV. Allergies and health related problems

*The main purpose of this is to acquire a systematic reading of the patient’s allergies and health related problems. It is important that you ask all the questions.*

Are you allergic to one or several of the below factors in your daily environment?

- [ ] Pollen
- [ ] Mould fungus
- [ ] House dust mites
- [ ] Animal hair and scale
- [ ] Occupational factors
- [ ] Tobacco smoke
- [ ] Fireplace or stove
- [ ] Strong smells
- [ ] Strain
- [ ] Indoor climate
- [ ] Cold
- [ ] Headache tablets or anti arthritis medicine

Can you mention anything else, which would give you asthma symptoms or allergic reactions?
V. Drug therapy

I would like to make a total list of the drugs you are using. For this purpose I need to know the name of the prescribed drugs you are using and the drugs you buy OTC.

<table>
<thead>
<tr>
<th>Name of drug</th>
<th>Indication</th>
<th>Prescribed dosage</th>
<th>Patient’s actual dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Compliance/self regulation

Please describe the situations when you forget to take your prescribed medicine?
- How often do these situations occur?

What are the situations when you omit to take any of your prescribed medicine?
- How often do these situations occur?
- Does it affect you, when you omit to take your medicine?

What are the situations when you take more than the prescribed dosage?
- How often do these situations occur?
Do you sometimes stop taking your medicine, when you feel that you are doing better?

____________________________________________________________________________

Do you sometimes stop taking your medicine, because you feel ill /uncomfortable?

____________________________________________________________________________

Adverse effects

Have you stopped taking any drugs within the last 6 months, and why?

____________________________________________________________________________

____________________________________________________________________________

____________________________________________________________________________

Does your medicine give you any inconvenience or uncomfortable feelings?

- How does it show?
- What do you do if this happens?
- What do you do to avoid this?

____________________________________________________________________________

____________________________________________________________________________

____________________________________________________________________________

Which problems do you have relating to any of the drugs you are using?

____________________________________________________________________________

____________________________________________________________________________

**Total assessment of the drug related problems:**

- Untreated indications
- Improper drug selection
- Sub therapeutic dosage
- Failure to receive drugs
- Overdosage
- Adverse drug reactions
- Drug interactions
- Drug use without indication
VI. Satisfaction and needs

How do you think your asthma therapy works?

Do you have any specific wishes for the therapy?

How do you think the medication works?

What is the major problem with you asthma?

Is there anything you would like the pharmacy to do in connection with your asthma?

Assessment of unsolved problems and needs:
VII. Further information

Do you think there is anything else, which I have not asked you about and which you consider of importance for your asthma?
Patient outcomes monitoring form

Patient name: ___________________________________________________________

Since the last visit to the pharmacy, the patient has experienced:

<table>
<thead>
<tr>
<th>Date of visit</th>
<th>1. Symptoms</th>
<th>2. Alarm signals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wheezing</td>
<td>Regular use &gt; 3 times per week of beta-2-agonist</td>
</tr>
<tr>
<td></td>
<td>• Severe</td>
<td>Regular use &gt; 3-4 times per day of beta-2-agonist</td>
</tr>
<tr>
<td></td>
<td>• Moderate</td>
<td>Uses more than 200 doses beta-2-agonist per month</td>
</tr>
<tr>
<td></td>
<td>• Mild</td>
<td>Awakened by symptoms &gt; one night per fortnight</td>
</tr>
<tr>
<td></td>
<td>• None</td>
<td>Asthma related days of sickness</td>
</tr>
<tr>
<td></td>
<td>Cough</td>
<td>Exercise induced asthma that prevents activity</td>
</tr>
<tr>
<td></td>
<td>• Severe</td>
<td>Symptoms that interfere with activity &gt; 2 times per week</td>
</tr>
<tr>
<td></td>
<td>• Moderate</td>
<td>Asthma related GP visits</td>
</tr>
<tr>
<td></td>
<td>• Mild</td>
<td>Emergency room visits</td>
</tr>
<tr>
<td></td>
<td>• None</td>
<td>Hospitalization</td>
</tr>
<tr>
<td>Date of visit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Inhaler technique score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Peak flow readings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lowest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of total days &lt; 80%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of total days &lt; 60%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading of the day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Asthma status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild (1) Moderate (2) Severe (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Drug related problems identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Untreated indications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improper drug selection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub therapeutic dosage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Failure to receive drugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overdosage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adverse drug reactions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug interactions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug use without indications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Therapeutic interventions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Withdrawn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self regulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased dosage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decreased dosage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changed formulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change of drug</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed dosage → prn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prn → fixed dosage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not used → used</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Protocol for identification of drug related problems

Identification of drug related problems
(SOATP-method)

S Subjective evidence (information described by the patient)
O Objective evidence (which can be observed or measured)
A Assessment (include factors contributing to problem)
T Targets or Outcomes (can be measured, observed, reported and documented)
P Plan (interventions that will achieve targets; tie to timeline)

Problems are listed in order of importance and supported by the subjective and objective evidence gathered during the patient encounter.

Problem 1: ____________________________________________________________

S ____________________________________________________________
____________________________________________________________
____________________________________________________________

O ____________________________________________________________
____________________________________________________________
____________________________________________________________

A ____________________________________________________________
____________________________________________________________
____________________________________________________________

T ____________________________________________________________
____________________________________________________________
____________________________________________________________

P ____________________________________________________________
____________________________________________________________
Identification of drug related problems
(SOATP-method)

S  Subjective evidence (information described by the patient)
O  Objective evidence (which can be observed or measured)
A  Assessment (include factors contributing to problem)
T  Targets or Outcomes (can be measured, observed, reported and documented)
P  Plan (interventions that will achieve targets; tie to timeline)

Problems are listed in order of importance and supported by the subjective and objective evidence gathered during the patient encounter.

Problem 2: ____________________________________________________________

S  ____________________________
    ____________________________
    ____________________________

O  ____________________________
    ____________________________

A  ____________________________
    ____________________________
    ____________________________

T  ____________________________
    ____________________________
    ____________________________

P  ____________________________
    ____________________________
    ____________________________
Identification of drug related problems
(SOATP-method)

S  Subjective evidence (information described by the patient)
O  Objective evidence (which can be observed or measured)
A  Assessment (include factors contributing to problem)
T  Targets or Outcomes (can be measured, observed, reported and documented)
P  Plan (interventions that will achieve targets; tie to timeline)

Problems are listed in order of importance and supported by the subjective and objective evidence gathered during the patient encounter.

**Problem 3:** __________________________________________________________

S  __________________________________________________________

O  __________________________________________________________

A  __________________________________________________________

T  __________________________________________________________

P  __________________________________________________________
Summary of the interview - patient

Name
Address

Dear patient name

We are pleased to send you herewith a summary of our recent conversation at the pharmacy.

What did we discuss:

Any improvements?

What is our aim?

What to do before next meeting:

When is your next meeting at the pharmacy:

Yours sincerely,
Report of the pharmacist’s interview with the patient

To: (physician’s name) _________________________________________________
From: (pharmacist and pharmacy) ___________________ Date: ______________
Patient name: ___________________________ Patient No.: __________________

Please find below a summary of my conversation with your above patient. I would very much like to have your comments concerning the suggestions, and I will contact you again during the next few days for this purpose.

Summary of the conversation:

Suggestions:
## Documentation form for output

Patient’s name: __________________________________________________________

<table>
<thead>
<tr>
<th>Date of consultation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone (t) or personal (p)</td>
<td></td>
</tr>
</tbody>
</table>

### 1. Services (instruction or follow-up)

- Inhaler technique
- Self monitoring
- Self management
- Self regulation
- Management of attacks
- Patient counselling and education

### 2. Recommendations

- Accepted by GP
- Negotiated with GP
- Refused by GP

### 3. Referral

- To GP
- To specialist
- To hospital

### 4. Time

- Consultation
- Administration
Knowledge of Asthma and Asthma Medicine

The form concerns questions about asthma and asthma medicine. Please tick off the answer in the box which you think is right (YES or NO). Please tick off YES or NO for each answer. If you do not know the answer please tick off "Don't know". Please remember that there should be one cross in each line. More than one answer could be right for each question.

Please do not use too much time on the questions, but keep to your first impulse.

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1. **Asthma is a disease, which is due to:**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Lungs being too large</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>Lungs being too small</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>Phlegm in the airways</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>Narrow airways</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>Dilated airways</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td>Sensitive airways</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. **When one has asthma the following symptoms are typical:**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Cough</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>Shortness of breath</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>Running nose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>Watery eyes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>Chest tightness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td>Wheezing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. **Tendency to develop asthma:**

<table>
<thead>
<tr>
<th>a. Is only in true with children</th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Is true for both children and adults</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Is always inherited</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. May be inherited</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Is always due to allergy</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. **During an asthma attack:**

<table>
<thead>
<tr>
<th>a. The muscles in the airways contract</th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. The muscles in the airways relax</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. The lining of the airways are swollen and there is phlegm in the airways</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. The lining of the airways are not swollen and there is little phlegm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. The lining of the airways are unchanged</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. Are you using asthma drugs for immediate relief?  

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

If "YES": Please write the name of your drugs:

If you have answered "YES" to question no. 5 please answer question no. 6. If you have answered "NO", please do not answer question no. 6.

6. Drugs for immediately relief, taken as inhalation:  

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
</table>

a. Are effective by preventing the development of phlegm in the airways

b. Are effective by relaxing the muscles in the airways

c. Are used for stopping asthma attacks when they break out

d. Are used for preventing asthma attacks

e. Are used for immediate relief, when it is necessary

7. Are you using drugs for preventing asthma attacks?  

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

If "YES": Please write the name of your drugs:

If you have answered "YES" to question no. 7 please answer question no. 8. If you have answered "NO", please do not answer question no. 8.
8. Drugs for preventing asthma attacks, taken as inhalation:  
   Yes  No  Don't know  
   a. Are effective by preventing the development of phlegm in the airways  
   b. Are effective by relaxing the muscles in the airways  
   c. Are used for stopping asthma attacks when they break out  
   d. Are used for preventing asthma attacks  
   e. Are used for immediate relief, when it is necessary  

9. Tablets with theophyllin:  
   Yes  No  Don't know  
   Are you using theophyllin?  

If "YES": Please write the name of your drugs: 

If you answer "YES" to question no. 9, please answer question 9a-9e.  

9.  
   Yes  No  Don't know  
   a. Are effective by preventing the development of phlegm in the airways  
   b. Are effective by relaxing the muscles in the airways  
   c. Are used for stopping asthma attacks when they start  
   d. Are used for preventing asthma attacks  
   e. Are used for immediate relief, when it is necessary
### 10. Drugs for immediately relief, taken as inhalation:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Shall be used regularly every day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. May be used both regularly and when it is necessary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Are effective at once</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Are effective after 1-4 weeks</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 11. Drugs for prevention of asthma attacks, taken as inhalation:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Shall be used regularly every day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. May be used both regularly and when it is necessary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Are effective at once</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Are effective after 1-4 weeks</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 12. If one shall take 2 puff's of the same inhaler, one shall:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Wait 15 minutes between the inhalations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Wait 1-5 minutes between the inhalations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Not have interval between the two inhalations</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 13. An outbreak of an asthma attack:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Can never be predicted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Can often be predicted by measuring the lung function with a peak flow meter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Can be avoided by avoiding the things that provoke the attack</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
14. **Under an asthma attack one shall:**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Use one's preventive medication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Use one's fast acting asthma medicine</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. **During an asthma attack it helps to:**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Breathe as quietly as possible</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Breathe as quickly as possible</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Breathe against something that gives resistance (faints. pursed lips or a straw)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Drink warm drinks faints. coffee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Drink cold drinks faints. milk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Sit bent forward with one's elbows on a table and with one's head resting in one's hands</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Lay down on the floor with one's head placed high</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Go away from the surroundings, where one has had the attack</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 16. If the attack does not pass over immediately one shall:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Take more medicine and see if it helps at once</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Take more medicine and consult a doctor, if the medicine is not effective after some hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Wait to consult a doctor, until one is better</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Consult a doctor, if more medicine does not help</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 17. For asthma patients it is evident:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. That is it important not to exercise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. That with the right treatment every asthma patient can take part in any activity which one should wish</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. That swimming is a good sport</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. That smoking make the asthma worse</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Patient number: □ □ □ □

Satisfaction with the quality of

Health Care and Pharmacy services

How to fill in the questionnaire:

The questionnaire contains a number of sentences describing satisfaction/dissatisfaction with the pharmacy's service and other health care services.

For each sentence you have to choose one of the following possibilities which applies to you:

1 = I agree very much. 2 = I agree. 3 = I disagree. 4 = I disagree very much. 5 = I don't know.

Example:

1. "It is always easy to get emergency treatment".

You have to mark the square under 2 with a cross if "I agree".

Be as honest as possible when answering the following questions.

Don't use too much time on each sentence, but stick to your first impulse. Put one cross and only one in front of each sentence. Please answer all questions.

Your answers will be kept in strict confidence.

Copyright ©
The questionnaire can freely be copied and used with reference to the Danish College of Pharmacy Practice.
## Section I: Health Care Services

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>I agree very much</th>
<th>I agree</th>
<th>I disagree</th>
<th>I disagree very much</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>It is always easy to get emergency treatment</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>It is difficult to get an appointment with the doctor right away</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>I often wait to long when I see my GP</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Doctors are often too busy to spend enough time with me</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>The GP should refer more often to specialists</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Doctors and pharmacy staff always give identical information about my medication</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>The National Health Service should pay for more than it does</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>Some things about the treatment I receive could be better</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>Doctors check everything carefully when examining their patients</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>Health care staff always treat their patients respectfully</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>You cannot always trust the advice the doctor gives you</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
12. Health care staff are always able to solve my problems

13. Health care staff normally explain how my medicine function

14. Health care staff rarely explain the possible adverse effects from drugs

15. Health care staff rarely explain how to avoid getting ill
Section II: The Pharmacy

16. The pharmacy is not always open when I need it to make up a prescription

17. Normally I wait for a long time to get my prescription medicine

18. Sometimes pharmacy staff are too busy to spent enough time with me

19. I always get my prescriptions made up at the same pharmacy

20. My medication expenses are reasonable

21. I am very satisfied with the service I get at the pharmacy

22. The pharmacy staff is not as careful as it should be

23. Pharmacy staff show sincere interest in me as a person

24. You cannot always rely on the advice given by the pharmacy staff

25. Pharmacy staff are good at solving my problems

26. Pharmacy staff rarely explain how to take my medicine
27. Pharmacy staff normally explain about possible adverse effects from the drugs

28. The pharmacy should do more to prevent people from getting problems with their medication
IV. Guideline for self care; health promotion and ill-health prevention; influencing prescribing and medicine use

Objective

The objective of this guideline is to give examples of pharmacy-based asthma services and activities within the areas of:
- self care;
- health promotion and ill-prevention;
- influencing prescribing and medicine use.

Content

Checklist of activities within self care .................................................................117

Checklist of activities within health promotion and ill-prevention......................119

Checklist of activities within influencing prescribing and medicine use ..........121

Selected references

1. The role of the pharmacist in smoking cessation. EuroPharm Forum, Programme for Pharmaceuticals. World Health Organization, Regional Office for Europe. Copenhagen, Denmark 1996.
IV. Self care
Health promotion and ill-prevention
Influencing prescribing and medicine use

C. Checklists
Checklist of activities within self care

Toolbox

Relevant patient education/information materials, on for example:
- living with asthma;
- pregnancy and asthma;
- asthma and the environment;
- asthma and exercise;
- asthma and food;
- asthma and children;
- Protocol for systematic symptoms assessment
- Protocol for recommendation of OTC products
- Protocol for counselling about self care
- Protocol for referral criteria
- Policies for the staff on when they need to refer patient to pharmacist

List of pharmacy-based services

a) Symptom assessment and referral
b) Selection of OTC drugs and giving advice on appropriate self care
c) Counselling on asthma triggers and avoidance strategies
   - Counselling on how to avoid and control asthma triggers
   - Counselling on the nature of asthma triggers
d) Counselling parents of asthmatic children
   - School based management
     - Counselling of teachers and classes
     - Daily environment, e.g. counselling on the consequences of smoking
e) Counselling on exercise induced asthma
   - Counselling of coaches in sports clubs
f) Advising about asthma and travel/holidays
g) Counselling on selection of OTC drugs
h) Counselling on aids for inhalers - especially for children and elderly
i) Promoting use of peak flow meters
j) Advising about the use of peak flow meter and diary
k) Referring to patient associations
l) Providing written information material e.g. brochures
Documentation

Indicators of output

Examples

- Number of leaflets issued
- Number of peak flow meters sold
- Number of patients referred
- Number of patients advised about self care
- Number of patients advised about choice of OTC drugs

Indicators of outcome

Examples

- The patient’s knowledge of self care
- The patient’s perception of the pharmacy, as a place to seek advice on self care
- The patient’s satisfaction with the counselling on self care
- The patient’s self care behaviour
- Change of the consumption within groups of problematic drugs (e.g. products containing ASA or NASID)
**Checklist of activities within health promotion and ill-health prevention**

**Toolbox**

Relevant patient education/information materials, on for example:
- living with asthma;
- pregnancy and asthma;
- asthma and the environment;
- asthma and exercise;
- asthma and smoking;
- smoking cessation;
- occupational factors.

**List of pharmacy-based services**

a) Counselling about prevention of development of asthma (especially infants), for families with asthmatic or allergic children

b) Smoking cessation
   - Promoting smoking cessation
   - Offering advice on smoking cessation
   - Offering pharmacy-based smoking cessation programmes for individuals or on group basis

The opportunities for the pharmacist of becoming involved in smoking cessation is described in the EuroPharm Forum charter of 1996 “The role of the pharmacist in smoking cessation”. Furthermore the charter describes three models for pharmacy-based smoking cessation services.

a) Co-operation with asthma and allergy associations

b) Offering screening and testing (carbon monoxide measuring, peak flow measuring)

c) Distributing health promotion materials to pharmacy customers

d) Teaching relevant groups, e.g. school children, sports clubs, groups of mothers with new-born children

e) Teaching relevant health care professionals that are involved in the care for asthma patients

f) Collaborating with other health professionals

g) Participation in local health promotion activities related to asthma

h) Participation in national health promotion activities related to asthma
Documentation

Indicators of output

*Examples*

- Number of tests performed
- Number of leaflets issued
- Number of local health promotion activities, in which the pharmacy participates
- Number of national health promotion activities, in which the pharmacy participates
- Number of participants in individual smoking cessation programmes
- Number of participants in smoking cessation groups
- Number of patients being offered screening/testing by biochemical parameters
- Number of reactions from patients participating in health promoting and ill-health preventing activities
- Number of persons referred to GP’s due to screening or testing results.

Indicators of outcome

*Examples*

- Percentage of participants in smoking cessation activities, who quit smoking.
Checklist of activities within influencing prescribing and medicine use

Toolbox

Examples of useful materials and documents
- Prescription data
- Local and national data on consumption of anti-asthmatic drugs
- Current local and national guidelines (or consensus statements) on asthma management
- Information about the local GP prescribing habits

List of pharmacy-based services

- Providing prescribing advice and support to GPs by regular and effective dialogue, e.g. on formalised meetings
- Counselling GPs about prescribing in accordance with recommended standard treatment protocols
- Assisting the local authorities in developing local guidelines on rational use of drugs for asthma
- Encouraging reporting adverse drug reactions
- Promoting cost-effective use of medicine
- Advising GPs about cost-effective and rational prescribing
- Feedback to the individual GP in respect of prescribing habit
- Participating in medical audit
- Participating in local drug and therapeutic committee
- Counselling about generic prescribing
- Evaluation of the local drug consumption
- Reviewing repeat prescriptions
- Counselling relevant health care professional about rational use of asthma drugs
- Assessing promotion materials from the pharmaceutical companies

Documentation

Indicators of output

Examples
- Number of prescribers that receive individual feedback on prescribing habits
- Number of meetings in the drug and therapeutic committee
- Number of educational activities for other health professionals
- Number of statistics prepared on drug utilization
- Number of individual drug consumption statistics prepared
- Changes in drug expenses
- The GP’s use of more cost-effective treatments
V. Guideline for implementation at pharmacy level

Content

Procedure for implementation.................................................................124
Flow chart for implementing.................................................................126
V. Implementation at pharmacy level

P. Procedure
**Procedure for implementation**

**Objectives**

The objective of this procedure is to ensure that the pharmacy is able to:
- implement the services in co-operation with the relevant health care professionals and
- market the services of the pharmacy to patients, physicians and other health care professionals.

**Scope**

This procedure covers the following areas of pharmacy services.
- Implementing the services in the pharmacy
- Organizing co-operation between health care professionals
- Marketing the service.

**Process**

To successfully implement the guidelines in this Protocol it is necessary to describe the pharmacy’s quality objectives, policies and goals on asthma management.

Requirements for implementation of pharmacy-based asthma services can be described in the following categories.
1. Knowledge, competence, training of the pharmacists and pharmacy staff
2. Facilities available in the pharmacy
3. External relations (physicians, asthma nurses, other pharmacies, etc.)
4. Internal organization and management
5. Economy and time.

The flow chart (P-V.F.) illustrates a suggested procedure for implementation.

The checklist (C-V.1.) for implementing the services in the pharmacy outlines key points resulting from the Danish TOM-project on asthma “Quality Improvement of Drug Therapy for Asthma Patients”.

**Responsibility**

The pharmacy manager is responsible for:
- establishing a strategy for the pharmacy-based asthma services;
- providing resources for organizing and implementing asthma services;
- establishing a strategy for marketing / external relations;
- establishing quality documentation systems.
The pharmacist is responsible for:
- organizing, structuring and implementing the service;
- ensuring that all pharmacy staff members have undergone appropriate training;
- providing and marketing the services to patients who need them;
- creating an active and positive collaborative relationship with all those who participate in the patients care;
- developing and maintaining protocols for the service;
- documenting the services.

The pharmacy staff is responsible for:
- using protocols with co-ordinated counselling points when advising on medication;
- identifying patients with drug related problems and referring those patients with problems that cannot be solved by giving technical advice (I);
- offering and marketing the pharmacy services to patients who need/require them.

**Documentation**

**Indicators of process**
- Staff training
- Number and types of marketing activities
- Number of negative reactions from GP’s or other members of the health care team
- Number of negative reactions from patients.

**Indicators of output**
- Number of adverts
- Number of information brochures given out
- Number of meetings with members of the health care team.

**References**

C-V.1. Checklist for implementation
C-V.2. Checklist for marketing
Flow chart for implementation

1. Decide what services the pharmacy will provide to asthma patients

2. Introduction to the pharmacy staff

3. Select a target group
   - The selection can be reduced to a certain category of age or users, e.g., "First-time users"

4. Education and training
   - Information and education of the staff on when to refer asthma patients to the service

5. Structure and organize the requirements for the service

6. Prepare the needed resources, e.g., protocols, collections of placebo inhalers

7. Market the service to patients and relevant health care professionals

8. Implement the services

9. Monitor progress

10. Adjust plan
V. Implementation at pharmacy level

C. Checklists
Checklist for implementing asthma services in the pharmacy

Requirements for implementation of pharmacy-based asthma services can be described in the following categories:

1. **Knowledge, competence, training of the pharmacists and pharmacy staff**

   The primary objective is to establish the educational requirements for the pharmacists and trained pharmacy staff to have the necessary competence and confidence to implement and provide the services.

   An updated knowledge of diagnosis and management of asthma including asthma epidemiology, is required. It is necessary to have knowledge and skills to assess and educate in use of inhalers.

   A special focus on knowledge of the psycho-social aspects of asthma is important when the pharmacy works with counselling that goes beyond technical. The risk is focusing too much on the technical problems related to drug use and not getting a quality of life focus which requires that social and psycho-social problems are identified and understood.

   To do practical work according to a structured, systematic procedure, requires training. The process of defining problems, assessing their causes and setting specific targets can be trained with volunteers and discussed with colleagues in “experience exchange groups”.

   Co-ordinated understanding of the philosophy of continuous quality improvement of drug therapy and pharmaceutical care, must be established in the pharmacy.

2. **Facilities available in the pharmacy**

   The procedures for each level of pharmacy services describe which facilities and physical surroundings are required.

3. **External relations (physicians, asthma nurses, other pharmacies, etc.)**

   The objective is that physicians find it beneficial for both patient care and his own practice and that he accepts the role of the pharmacist in the health care team around the patient.

   Mutual loyalty and optimal co-ordination are very important, also from the patient’s point of view. Recommendations that require decisions by the GP should not be given before a discussion with the GP. The GP must receive a contact, e.g. a report from the pharmacist before the patient consults him to avoid conflicts and problems.
of interpretation. The acceptance of the GP is primarily based on a personal relationship with the pharmacist and a good collaboration with the pharmacy.

Neighbouring pharmacies should be informed of the activities since possible patients' requests and negative reactions from e.g. GP’s may have consequences for their pharmacies.

It is important that the pharmacy is well informed of local asthma activities and seeks to establish a co-operation with the relevant parts including exchange of information.

Useful contacts
- Local specialist in pulmonary diseases
- Local hospital
- Local voluntary groups (for example the local branch of the national asthma and allergy association)
- Local asthma nurse or practice nurses
- Neighbouring pharmacies
- The pharmaceutical industry could be an important resource for establishing for example a collection of patient education materials.

Another key factor is to consider how the patient relation is established.

1. **Internal organization and management**

Key factors for the internal organization and management
- The managers support and active participation in marketing
- Arrangement of time-tables with time for preparations and consultations
- Information to the pharmacy staff about the organization of the asthma services
- Establishment of a monitoring system to follow progress

1. **Economy and time**

Key factors for consideration
- How can the necessary resources of time and economy be established?
- What investments in facilities are necessary?
- Who is financing the development and implementation of the services?
- Who will pay the pharmacy for the services?
Checklist for marketing the service

When the pharmacy is planning and discussing ways to market the services the following questions* can be used:

1. What do you know about the health care needs of persons with asthma in this community? What additional information would you like?

2. Make a list of the services that pharmacists could provide to persons with asthma. How can the pharmacists justify the need for these services? Would you provide the services at all pharmacy locations in the community?

3. Will the pharmacy need compensation to provide these services? What compensation will the pharmacists need to provide these services? Who will pay?

4. Who needs to know about the services? How will they learn about the services?

5. What will you tell people about your service? What will they want to know?

6. Prepare a time schedule for marketing the service in the first three to six months. List planned activities, the person responsible and type of expenses needed for each.

Examples of marketing resources

- Information brochure with information on the pharmacy’s services for asthma patients. This can be used toward patients and health care professionals.

- Letters / direct mail to physicians and other health care professionals

- Presentation for a interest group

- Advert and new release for local print and broadcast media. This may include daily and weekly newspapers, radio and television stations, local and regional magazines, business and trade publications, newsletters and special interest publications.

- The pharmacy’s home page (WWW)

Example: Marketing Therapeutic outcomes monitoring

Specific objectives of marketing therapeutic outcomes monitoring (TOM) might include.

- Introducing the program and concept to the pharmacy staff and obtaining their commitment
- Introducing the program and concept to physicians
- Informing physicians and patients about the specific benefits of TOM
- Soliciting support and co-operation from the health care professionals
- Expressing personal commitment to working as a health care team member to improve the health of asthma patients
- Getting referrals and beginning the program.

Actions to accomplish objectives could be.

- Prepare presentation tools such as letter of introduction, information brochures, background journal articles, etc.
- Select physician group with whom the pharmacy has a good, established relationship
- Send letters to physicians to precede calling for appointment
- Call for appointment
- Presentation to physicians
- Follow-up letters to physicians.
Annex

Education materials

Examples

King H. Asthma – A Self-Study Pack for Community Pharmacists. 1992; Centre for Pharmacy Postgraduate Education

Useful web sites

JAMA Asthma Information Center
http://www.ama-assn.org/special/asthma/treatmnt/treatmnt.htm

This site produced by the Journal of the American Medical Association and provides clinical guidelines, treatment updates and drug information.

A Collection of Recent Articles from the New England Journal of Medicine on Asthma
http://www.nejm.org/collections/asthma/TOC/1.htm

This is a collection of selected articles published in the Journal since January 1994. The text of each article is provided.

Asthma Information Center
http://pharminfo.com/disease/immun/asthma/asthma_info.html

This site has links to updated literature about asthma management, information on drugs for treating asthma and links to other sources of information.

GINA documents
http://www.ginasthma.com/asthma_info.html

GINA - Global Initiative for Asthma. A project conducted in collaboration with the National Heart, Lung, and Blood Institute, NIH and the World Health Organization. It is possible from this site to download:
2. GINA Practical Guide for Asthma Management that presents the essential features of the GINA guidelines in a streamlined form for primary care physicians, public health officials, and other health care professionals.
3. GINA Pocket Guide for Asthma Management that presents practice-oriented summaries of the GINA guidelines for Physicians and nurses in a quick-access format.
Patient education materials

The following web sites provide inspiration for patient education and it is possible from some of the sites to download or order material.

EF Anet
http://www.efanet.org/

EFA is the European Federation of Asthma and Allergy Associations, an alliance of 27 organisations in 14 different countries across Europe. The site aims to give comprehensive, unbiased information on aspects of asthma and allergy. The site provides a list of all members (addresses, telephone numbers etc.).

GINA documents
http://www.ginasthma.com/gina/info.html

GINA- Global Initiative for Asthma. A project conducted in collaboration with the National Heart, Lung, and Blood Institute, NIH and the World Health Organization. It is possible from this site to download the GINA Patient Guide to Asthma that provides essential information based on GINA guidelines that asthma patients need to benefit from state-of-the art management and live a normal life.

National Heart, Lung, and Blood Institute
http://www.nhlbi.nih.gov/nhlbi/nhlbi.htm

This is the government homepage for research and educational activities. The site provides an extensive collection of lung information, including professional practice guidelines for the National Asthma Education Program and patient education material.

Teach your patients about asthma: A clinician's guide
http://www.meddean.luc.edu/lumen/MedEd/medicine/Allergy/Asthma/asthtoc.html

"Teach your Patients About Asthma A Clinician's Guide" is a practical and flexible guide designed to help clinicians teach adults and children with asthma and parents of children with asthma about their disease and its management. The guide can be used in a variety of settings such as private and group practices, clinics, inpatient hospital units, and emergency departments. It is designed for clinicians (physicians, physician assistants, and nurses), respiratory therapists, other health professionals, and health educators.

This guide is based on recommendations of the Expert Panel Report. Guidelines for the Diagnosis and Management of Asthma developed by the National Asthma Education Program of the National Heart, Lung, and Blood Institute.

National Asthma Campaign
http://www.asthma.org.uk/
The National Asthma Campaign is the independent UK charity working to conquer asthma in partnership with people with asthma and all who share their concern, through a combination of research, education and support. The National Asthma Campaign has a catalogue of publications and services for health professionals and others involved in the care of people with asthma. The different material can be ordered by mail and some are available free of charge.

**Selected references**

Elfellah M S, McDonald S L, Thomson A and Smith A. Screening for incorrect inhaler use by regular users. Pharm J1994; 253: 467-468


Pharmacy Audit. 9 Response to Symptoms 1994. Ed. by Department of Pharmacy Policy and Practice. Keele University

