

## ORIGINAL ARTICLE

# The role of a hospital pharmacist in the management of asthma in Great Britain

## Role nemocničního farmaceuta v managementu astmatu ve Velké Británii

Inka Sembol • Božena Macešková

Received: January 23, 2017 / Accepted: April 25, 2017

### Summary

The role of the pharmacist in the asthma management is well established. However, there is still a considerable number of patients with suboptimal asthma control affecting patients' quality of life and resulting in poor outcomes, morbidity and mortality. The aim was to identify patients' factors, explore the hospital pharmacist's role in the asthma management and identify any areas for improvement in Great Britain. Qualitative data collection was selected. Patient's case studies and semi-structured open interviews with the hospital multi-disciplinary team (MDT) were applied. Data were analysed and grouped into themes. Patient's case studies showed a variety in the patients' understanding of the pharmacist's role in their asthma management and similarly of the pharmacy services available to them. From the MDT interviews it emerged that communication across the secondary/primary care is lacking at times, and as a result new communication systems are being implemented. More research is needed into the asthmatics' needs and expectations of pharmacy service. The hospital pharmacists are well placed to recognise asthma patients requiring pharmaceutical interventions and to provide medicines optimisation, across the primary/secondary care settings. It was observed that the level of patient's involvement in their asthma was dependent on their interest in utilising asthma information and pharmacy services.

**Key words:** asthma • asthma management • hospital pharmacist • secondary care • case studies • qualitative research

### Souhrn

Role farmaceuta v managementu astmatu je opodstatněná. Avšak stále je podstatný počet pacientů se suboptimální kontrolou astmatu, což ovlivňuje kvalitu jejich života a vede k nedostatečným výsledkům, morbiditě a mortalitě. Cílem bylo identifikovat faktory na straně pacienta, zhodnotit roli nemocničního lékárníka v managementu astmatu ve Velké Británii a identifikovat oblasti, kde by mělo dojít ke zkvalitnění. Byla zvolena metoda sběru dat kvalitativní povahy. Byly provedeny case studies s pacienty, semistrukturované, otevřené pohovory s pracovníky multidisciplinárního nemocničního týmu (MDT). Data byla analyzována a seskupena podle témat. Pacientské studie ukázaly variabilitu v porozumění roli farmaceuta v managementu jejich astmatu, a podobnost v chápání jim dostupných služeb nabízených lékárnou. Z rozhovorů s členy MDT vyplynulo, že komunikace mezi sekundární a primární péčí má nedostatky. Je tedy zřejmé, že zde je prostor pro zkvalitnění, zvláště v implementaci komunikačních systémů. Další výzkum je potřebný v oblasti potřeb pacientů- astmatiků a očekávání kladených na služby poskytované lékárnou. Nemocniční lékárníci jsou v dobré pozici identifikovat astmatické pacienty vyžadující farmaceutickou intervenci, provedení optimalizace farmakoterapie napříč primární a sekundární péčí. Bylo zjištěno, že úroveň pacientova přístupu ke svému astmatu je závislá na jeho zájmu a na využívání informací a služeb poskytovaných lékárnou.

**Klíčová slova:** astma • management astmatu • nemocniční lékárník • sekundární péče • case studies • kvalitativní výzkum

### Introduction

Even though asthma prevalence is thought to have plateau since the late 1990s, it still has a high prevalence of morbidity and mortality<sup>1,2</sup> and a poor level of control as recent European studies demonstrated: INSPIRE<sup>3</sup>, REALISE<sup>4</sup>, AIRE<sup>5</sup> and Demoly et al.<sup>6</sup>. It is estimated that asthma affects 334 million people worldwide with 30 million people in Europe while suboptimal asthma control leads to an increased risk of exacerbations, re-

I. Sembol  
York Teaching Hospital, Great Britain

RNDr. Božena Macešková, CSc. (✉)  
Department of Applied Pharmacy, Faculty of Pharmacy  
University of Veterinary and Pharmaceutical Sciences  
Palackého tř. 1946/1, 612 42 Brno  
e-mail: maceskovab@vfu.cz

duced productivity, reduced quality of life and increased healthcare costs<sup>7)</sup>.

Despite many advances in asthma treatments and care a considerable number of people treated for asthma will die from asthma every year in Europe (1.21 per 100.000) and worldwide (3.96 per 100.000) putting a substantial economic burden of asthma on the society with 72.2 billion € spent per annum and 14.4 billion € cost for loss of productivity due to work absence, early retirement and premature mortality<sup>2, 8)</sup>. Most asthma associated deaths occur outside of hospital while most people die from asthma due to delay in taking action when the condition is getting worse due to leaving it too long or due to failure to recognise the worsening signs and symptoms of an acute exacerbation<sup>1, 9, 10)</sup>.

From the pharmacological point of view, the main asthma symptoms are inflammation and bronchoconstriction and therefore use of medications is focused on reducing inflammation and increasing bronchodilation, together with adjuvant medications alleviating asthma symptoms<sup>10–12)</sup>. The aims of asthma treatment are focused on minimising symptoms, minimising need for medication and adverse effects of treatment, maximising lung functions, preventing exacerbations, facilitating self-management, individualised treatment, medication adherence, healthy and active lifestyle, providing supporting information and follow-ups and monitoring and assessing signs of deterioration<sup>9, 13)</sup>.

Apart from the pharmacological treatments<sup>14–18)</sup>, there are several non-pharmacological management approaches targeting asthma triggers and co-morbidities and which when used in conjunction with the pharmacological treatments may facilitate better asthma management. In order to involve patients in their asthma self-care, patient education is the most important requirement in sustaining effective asthma management. Patient education needs to be aimed at enhancing patient's understating of their asthma and how their symptoms can be best controlled through their own direct self-involvement. The multidisciplinary team (MDT) generally looks after the asthma patient in the hospital setting and to some degree across the two settings (primary and secondary care).

However, every healthcare professional including the pharmacist needs to remember that education is an ongoing process and that regular follow-up visits are necessary in order to maintain continuity of the patient's involvement and understanding. Interactive interventions and sharing advice in person are more effective than giving out written information on its own and when combined together, the two methods have the highest impact.

A systematic approach to the evaluation of patients with suspected asthma or patients known to have asthma is essential<sup>19)</sup>. Each asthma patient should be offered self-management individual approach<sup>11, 20)</sup>, have their asthma reviewed with a healthcare professional including the pharmacist's input. Each asthma patient should have their PAAP (personalised asthma action plan) outlined.

In terms of quantitative studies on effectiveness and cost-effectiveness of asthma care there is a substantial evidence<sup>21)</sup> proving a global socioeconomic burden of asthma and the degree of disease control on the society. However, quantitative studies often lack to establish how the level of pharmaceutical intervention adherence is linked with patients' individual outcomes and expectations and with the cost-effectiveness in long term.

### The aim

Taking into consideration the above factors, the aim of this qualitative enquiry was to identify patients' factors, explore hospital pharmacists' role in the asthma management and identify any areas for improvement.

### Experimental part

The method for collecting the qualitative data was designed in a form of a case study template and a set of open questions to guide the interviews<sup>22, 23)</sup>. Three core activities as per ethical requirements were utilised, which were case studies, open interviews with the patients and the MDT members involved in the secondary asthma care and finally analysis of the hospital pharmacist's role in the asthma management. Five patients were chosen randomly with the patients' consent while making sure that the pharmacist's interventions were focused around asthma care. As for the members of the MDT (5 persons) – ward pharmacists, respiratory physicians, specialists' asthma nurses were all included in the interviews. The recruitment into the case studies and the interviewing took place in the NHS (National Health Service) hospital (Great Britain) between January and May 2016.

### Results

#### *Practice evaluation – case studies*

As demonstrated in the five case studies the hospital pharmacist was collectively involved in the following asthma management interventions:

- medication history taking
- medicines reconciliation
- counselling
- asthma information provision to the individual patients
- reassurance and explanation of acute treatments and of any changes
- checking correct inhaler technique
- ordering supplies of the patients' medications on time
- signposting to community pharmacy services
- following-up the medications errors
- communicating with the hospital MDT and the community team
- explanation of a correct use and an over-use of relievers/preventers
- recognising an inappropriate inhaler device
- encouraging and reassuring the patients

Data collected during the case studies confirmed that the hospital pharmacists are actively involved in various aspects of the pharmaceutical care provided for the asthma patients who are admitted into the secondary care with uncontrolled asthma. Medications counselling, information provision, treatment discussions and a general reassurance of the hospital patients were the core activities that the hospital pharmacists engage during the ward visits. From the case studies, it can be demonstrated that the hospital pharmacists are capable of identifying patients with poorly controlled asthma and providing them with a suitable and timely interventions. To support the above findings as observed in practice, various studies advocate the importance of the pharmacists' input in the asthma management and delivering asthma interventions<sup>11, 24–26</sup>.

### ***Practice evaluation – MDT***

Based on the MDT members' individual views five core themes were identified, which are pharmaceutical care (as a central theme) interconnected to clinical governance, patients' factors, communication and barriers.

From the interviews, the hospital pharmacists had the most comprehensive knowledge of currently available systems allowing them to communicate medications' issues to the general practitioners and community pharmacists. However, locally a system that would allow a direct communication with a community pharmacist in terms of pharmacy referrals was lacking. Similarly, the hospital doctors who often utilize pharmacy services appeared to have a good understanding of the pharmacists' role and believed that patients' medications are a shared responsibility. The hospital doctors believed that the pharmacists are best placed to communicate medications issues directly to the primary care. This was also expressed by the asthma nurses, who stated that it was the pharmacists' and the hospital doctors' responsibility to communicate medications issues with the primary care. On the other hand, the asthma nurses would like to see more input into empowering patients in taking more responsibility for their own medications rather than relying solely on the healthcare professionals. Overall, clinical governance underpinned all pharmaceutical care<sup>27</sup> and from the themes identified from the interviews it is apparent that it was at the forefront of ensuring a provision of a good quality pharmaceutical care.

### ***Practice evaluation – patients' perspective***

As for the resources available for asthma patients, from the patient's interviews and from the visit to the asthma clinical the following sources of information were identified:

Each patient had their PAAP in place, which was in accordance with the current recommendations and guidelines<sup>1, 11, 13, 20</sup> and which included:

- personalised information
- general information for asthma management
- steps to take in everyday asthma care
- steps to take if symptoms start and the patient feels worse

- steps to take in an asthma attack
- what medications to take and how
- list the patient's specific triggers that needs to be avoided
- state the next review date
- physician and asthma nurse contact details
- help others to understand what to do in case of an asthma attack

When discussing resources available for the patients in practice, the patients who were familiar with the electronic resources preferred the British Lung Foundation (BLF)<sup>28</sup> and the Asthma UK<sup>9</sup> as the most resourceful web sites in the UK. Both web sites were also used in the local NHS Trust as a valuable source of asthma information. Some patients in the case studies expressed that they may find it helpful to share their experience and feelings with other patients in the similar situation and they expressed an interest in joining the Asthma UK<sup>9</sup> or the BLF<sup>28</sup> website, where the patients can 'sign-in' and receive regular updates on asthma, or join the asthma community and get in touch with others via the website asthma forum. Some patients may not want to be involved in their asthma care decision making and these patients' passive approach needs to be respected by the pharmacists and the MDT whilst every effort should be made to facilitate adherence with the asthma treatment in order to minimise the risk of asthma exacerbations. As observed in practice, one of the patients expressed unwillingness to be involved in any extra activities, extra visits or extra counselling and despite being overall uninterested in taking an active part in her asthma, her overall compliance was satisfactory.

### **Discussion**

When critically analysing the data set and practice observations as a whole, it was apparent that clinical evidence from practice was complacent with the current recommendations in the clinical guidelines as shown below:

- Standards of conduct, ethics and performance<sup>29</sup>
- NICE (National Institute for Health and Care Excellence) Medicines Optimisation<sup>30</sup>
- NICE Patient experience<sup>31</sup>
- Confidentiality Policy NHS England<sup>32</sup>
- Equity and excellence: Liberating the NHS<sup>33</sup>
- The Good Medical Practice<sup>34</sup>
- The NHS Code of Practice<sup>35</sup>
- Asthma quality standards<sup>20</sup>

Additionally, studies that tested asthma assessment tools and their validity<sup>36–38</sup>, jointly advocate their invaluable place in recognising patients' level of asthma control and in identifying patients at risk. However, even though current asthma guidelines and asthma assessment tools are well established, are in place and are followed recent studies into asthma morbidity and mortality<sup>1, 2</sup> are proving that asthma control remains suboptimal.

This is also clear from the findings of the five case studies, where some patients' understanding of some aspects of

their asthma management was lacking. Patients with only a minimal contact with pharmacy were in some degree unfamiliar with pharmacy services and what they may be eligible for, which may indicate the reasons why they did not seek advice of the community or the general practice pharmacist at the time of symptoms deterioration. Patients' lack of awareness of pharmaceutical services and their perceptions of their asthma could be improved through pharmacists' pro-active approach, facilitating signposting, encouraging patients' visits and involvement with pharmacy services and enhancing self-efficacy and asthma control<sup>39</sup>). Additionally, with today's network advances some patients may find it helpful to browse information resources independently, whilst other patients may find the opposite is true. There are also differences in patients' willingness to be involved in their care, which clearly indicates the need to tailor asthma management together with the individual patient according to their individual needs and expectations. This is also supported in a recent meta-analysis<sup>40</sup>) which strongly confirmed that supported self-management of asthma can improve asthma control, asthma outcomes and reduce hospital admissions.

Therefore, healthcare professionals involved in asthma care provision including the pharmacists should join their efforts and commit into exploring where the barriers are and how best to address them in order to reduce unnecessary asthma deaths and improve patients' outcomes and quality of life. Some recent studies<sup>41, 42</sup>) explored barriers to the implementation of asthma guidelines from the patients' perspective and suggested the focus should be on holistic therapy and shared, individual and personalised asthma care counselling in long-term asthma management.

In terms of recommendations for future, development of asthma guidelines should involve patients' more readily and include patients' perspectives and expectations. As for the pharmacists' role in asthma management, they should be more pro-active in seeking to engage in shared decision making process with the individual asthma patients regarding their targeted interventions and tailored asthma outcomes.

Study carried out in the Czech Republic<sup>43</sup>) identified a need to an individualised asthma patients' approach and the role of the pharmacists as invaluable, however barriers remain to enhance currently provided pharmacy service and the recommendation would be to pursue and facilitate involvement of asthma patients as much as feasible.

**Conflicts of interests:** none.

## References

1. Levy S. K., et al. Why asthma still kills: the National Review of Asthma Deaths. Confidential Enquiry report. London: Royal College of Physicians 2014.
2. APPG. APPG on respiratory health: Report on Enquiry into Respiratory Deaths. 2014. [https://www.asthma.org.uk/globalassets/campaigns/appg\\_respiratory\\_deaths\\_2014\\_online.pdf](https://www.asthma.org.uk/globalassets/campaigns/appg_respiratory_deaths_2014_online.pdf)
3. Partridge M. R., van der Molen T., Myrseth S. E., Busse W. W. Attitudes and actions of asthma patients on regular maintenance therapy: the INSPIRE study. *BMC Pulmonary Medicine* 2006; 6, 13.
4. Price D., Fletcher M., van der Molen T. Asthma control and management in 8000 European patients: the REcognise Asthma and Link to Symptoms and Experience (REALISE) survey. *Primary Care Respiratory Medicine* 2014; 24, 14009.
5. Rabe K. F., Vermeire P. A., Soriano J. B., Maier W. C. Clinical management of asthma in 1999: the Asthma Insights and Reality in Europe (AIRE) study. *The European Respiratory Journal* 2000; 16: 802–807.
6. Demoly P., Annunziata K., Gubba E., Adamek L. Repeated cross-sectional survey of patient-reported asthma control in Europe in the past 5 years. *European Respiratory Review* 2012; 21: 66–74.
7. GLOBAL ASTHMA NETWORK: The global asthma report. Auckland, New Zealand: 2014.
8. European Respiratory Society – European Lung White Book 2013. <http://www.erswhitebook.org/chapters/adult-asthma/>
9. ASTHMA UK: Health Advice. 2016. <https://www.asthma.org.uk/advice/>
10. Walker R., Whittlesea C. *Clinical Pharmacy and Therapeutics*. 5<sup>th</sup> ed. London: Churchill Livingstone Elsevier 2012; 998 p.
11. BRITISH THORACIC SOCIETY and SCOTTISH INTERCOLLEGIATE GUIDELINES NETWORK (BTS&SIGN): The British guideline on the management of asthma. A national clinical guideline SIGN 141. 2014. <https://www.brit-thoracic.org.uk/document-library/clinical-information/asthma/btssign-asthma-guideline-2014/>
12. Katzung B. G., Masters S. B., Trevor A. J. *Basic and Clinical Pharmacology*, 14<sup>th</sup> ed. McGraw Hill, Lange 2016; 1310 p.
13. Khachi H., Meynell H., Murphy A. Asthma: Long-term management. *Clinical Pharmacist*. 2014; 9, 225–228.
14. D'Ancone G. Inhaled corticosteroids: managing side effects. *The Pharmaceutical Journal* 2015; 294(7851), 247–249.
15. Kerstjens H. A. M., et al. Tiotropium or salmeterol as add-on therapy to inhaled corticosteroids for patients with moderate symptomatic asthma: two replicate, double-blind, placebo-controlled, parallelgroup, active-comparator, randomised trials. *Lancet* 2015; 3(5), 367–376.
16. Murphy A. Asthma: treatment and monitoring. *Clinical Pharmacist* 2010; 2, 209–214.
17. Papi A., et al. Beclometasone-formoterol as maintenance and reliever treatment in patients with asthma: a double-blind, randomised controlled trial. *Lancet* 2013; 1(1), 23–31.
18. Patel M., et al. Efficacy and safety of maintenance and reliever combination budesonide-formoterol inhaler in patients with asthma at risk of severe exacerbations: a randomised controlled trial. *Lancet* 2013; 1(1), 32–42.
19. Thomson N. Recent advances in the treatment and management of asthma. *The Prescriber* 2015; 19, 17–24.
20. NICE: Quality standards for asthma. 2013. <http://www.nice.org.uk/guidance/qs25>
21. Dominguez-Ortega J., et al. Cost-effectiveness of asthma therapy: A Comprehensive review. *Journal of Asthma* 2014; 52(6), 1–23.
22. DiCicco-Bloom B., Crabtree B. F. The qualitative research interview. *Medical Education* 2002; 40(4), 314–321.
23. Babar Z. *Pharmacy Practice Research Methods*. London: Springer International Publishing AG 2015; 251 p.
24. Fathima M., et al. The role of community pharmacists in screening and subsequent management of chronic respiratory diseases: a systematic review. *Pharmacy practice* 2013; 11(4), 228–245.
25. Adunlin G., et al. The Effectiveness of Pharmacist Interventions on Asthma Management: a systematic review. *Journal of asthma and allergy educators* 2012; 3(6), 264–273.
26. Peytremann- Bridevaux I., et al. Chronic disease management programmes for adults with asthma. *Cochrane Database of Systematic Reviews*. 2015. Issue 5.
27. RPS Clinical Governance. 2016. <http://www.rpharms.com/support-resources-a-z/clinical-governance-quick-reference-guide.asp>

28. BRITISH LUNG FOUNDATION Asthma 2016. <https://www.blf.org.uk/support-for-you/asthma>
29. GPhC Standards of conduct, ethics and performance 2012. [https://www.pharmacyregulation.org/sites/default/files/standards\\_of\\_conduct\\_ethics\\_and\\_performance\\_july\\_2014.pdf](https://www.pharmacyregulation.org/sites/default/files/standards_of_conduct_ethics_and_performance_july_2014.pdf)
30. NICE: Medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes 2015. <https://www.nice.org.uk/guidance/ng5>
31. NICE: Patient experience in adult NHS services: improving the experience of care for people using adult NHS services. Clinical Guideline 138, 2012. <https://www.nice.org.uk/guidance/cg138>
32. NHS England: Confidentiality Policy 2014. <https://www.england.nhs.uk/wp-content/uploads/2013/06/conf-policy-1.pdf>
33. Department of Health: Equity and excellence: Liberating the NHS 2010. [http://www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/@dh/@en/@ps/documents/digitalasset/dh\\_117794.pdf](http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digitalasset/dh_117794.pdf)
34. GENERAL MEDICAL COUNCIL: The Good Medical Practice. 2014. [http://www.gmc-uk.org/guidance/good\\_medical\\_practice.asp](http://www.gmc-uk.org/guidance/good_medical_practice.asp)
35. NHS England. Confidentiality: The NHS Code of Practice 2003. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/200146/Confidentiality\\_-\\_NHS\\_Code\\_of\\_Practice.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/200146/Confidentiality_-_NHS_Code_of_Practice.pdf)
36. **Juniper E. F., et al.** Development and validation of the Mini Asthma Quality of Life Questionnaire. *The European Respiratory Journal* 1999; 14(1), 32–38.
37. **Millard M., Hart M., Barnes S.** Validation of Rules of Two™ as a paradigm for assessing asthma control. *Proceedings (Baylor University Medical Centre)* 2014; 27(2), 79–82.
38. **Gurkova E., Popelkova P.** Validity of Asthma Control Test in Assessing Asthma Control in Czech Outpatient Setting. *Central European Journal of Public Health* 2015; 23(4), 286–291.
39. **Naik-Panvelkar P., et al.** A pharmacy asthma service achieves a change in patient responses from increased awareness of taking responsibility for their asthma. *The International journal of pharmacy practice* 2015; 23(3), 182–191.
40. **Pinnock H., et al.** Systematic meta-review of supported self-management for asthma: a healthcare perspective. *BMC Medicine* 2017; 15(64), 1–32.
41. **Lingner H., et al.** What patients really think about asthma guidelines: barriers to guideline implementation from the patients' perspective. *BMC Pulmonary Medicine* 2017; 17(13), 1–12.
42. **Peláez S., et al.** Patients' perspective of barriers and facilitators to taking long-term controller medication for asthma: a novel taxonomy. *BMC Pulmonary Medicine* 2015; 15(42), 1–11.
43. **Macešková B., Fridrichová D.** Monitorování terapie astmatických pacientů v lékárně. *Klinická farmakologie a farmacie* 2005; 19: 206–210.