# Letter to the Editor

AMJ 2011, 4, 3

## Basophilia: Beyond CML, an overview of associated conditions.

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Dear Editor,

Basophils are the least abundant of peripheral blood leukocytes and have long been associated with myelo-proliferative disorders[1].Data suggests that varied causes of basophilia are commonly overlooked. This article aims to provide an overview of basophilia and its associated causes.
Basophils are multifunctional haematopoeitic cells primarily produced in the bone marrow. After maturation, they reside in the circulation until recruited into tissue at sites of inflammation. They number upto $0.1x10^9$/L of blood.

Absolute numbers are frequently raised in myeloproliferative diseases, and basophilia is a prognostic and diagnostic determinant. However, evidence supports that basophils appear in response to helminthic infection and allergic inflammation. Activated basophils promote systemic eosinophilia and play a crucial role in Type 2 immune response[2].

A study by May et al examined the basophils in peripheral blood and bone marrow and identified 17 cases of peripheral basophilia. Associated conditions included iron deficiency anaemia, lung carcinoma, acute/chronic myelogenous leukaemia, myelodysplasia and chronic renal failure. There were six cases of marrow basophilia and associated conditions included iron deficiency anaemia, sideroblastic anaemia with myelodysplasia, mild dyspoiesis, anaemia of chronic disease and acute erythroleukaemia. Simultaneous marrow and peripheral basophilia were not seen[1].

Arnalich et al tried to establish the incidence and association of peripheral and bone marrow basophilia. There were 33 patients with simultaneous marrow and peripheral basophilia, which was only significantly associated with chronic myeloid leukemia. Isolated peripheral basophilia was also seen and it did not reflect any significant pathologic association[3].

We studied 20 cases of basophilia seen on both peripheral (basophils >2% of the total white cell count (WCC)) and bone marrow (basophils >1% of the total WCC) smears. We found peripheral basophilia was associated with eosinophilia in most cases.

Of these 20 cases, 17 cases of peripheral basophilia (see Table 1)were identified. Associated diagnoses included iron deficiency anaemia, respiratory and skin allergic conditions, helminthic infection, hypothyroidism and viral infection. The remaining three cases were of bone marrow basophilia; associated conditions are summarized in Table 2.

**Table 1- Characteristics of patients with peripheral basophilia**

| Basophils (% of total WCC) | White cell count/µL | Platelet count $x10^6$ /L | Diagnosis |
|---|---|---|---|
| 3 | 54,000 | 124,000 | Viral encephalitis |
| 3 | 18,000 | 230,000 | Intestinal obstruction |
| 3 | 16,800 | 150,000 | Ectopic pregnancy |
| 3 | 14,000 | 140,000 | Helminthic infection |
| 3 | 13,800 | 120,000 | Helminthic infection |
| 3 | 12,500 | 180,000 | Asthma |
| 3 | 12,400 | 145,000 | Asthma |
| 3 | 12,000 | 260,000 | Helminthic infection |
| 3 | 10,800 | 180,000 | Eczema |
| 3 | 9500 | 140,000 | Acute duodenal perforation |
| 3 | 9400 | 180,000 | Atopic dermatitis |
| 3 | 9400 | 180,000 | Anaemia |
| 3 | 8700 | 60,000 | Anaemia |
| 3 | 8600 | 226,000 | Contact dermatitis |
| 3 | 8000 | 160,000 | Hypothyroidism |
| 3 | 7000 | 265,000 | Anaemia |
| 3 | 6600 | 220,000 | Anaemia |

**Table 2- Characteristics of patients with bone marrow basophilia**

| Basophils (% of total WCC) | | White cell count/µL | Platelet count x$10^6$/L | Diagnosis |
|---|---|---|---|---|
| Peripheral | Marrow | | | |
| 6 | 3 | 151,000 | 380,000 | CML |
| 4 | 2 | 140,000 | 430,000 | CML |
| 3 | 2 | 9,500 | 183,000 | Dimorphic anaemia |

Our findings demonstrate that basophilia can be associated with conditions other than CML.Specifically, iron deficiency anaemia should be added to this lengthy list of associations. Although, the occurrence of basophilia in iron deficiency anaemia may reflect a significant pathologic association, it may also represent a simple random occurrence[1].

We found three cases of surgical emergencies presenting with peripheral basophilia, suggesting acute stress as a possible cause, but a larger-scale study is required to corroborate this hypothesis.

Increased numbers of basophils are found in the skin during the late-phase response of contact dermatitis or atopic dermatitis. Basophils are found in the lungs of patients with allergic asthma and might contribute to protective immunity against helminths since basophils are an important source for IL-4 and IL-13[2].

We aimed to review the associations of basophilia with other conditions. Previously basophilia has commonly been overlooked or only associated with chronic myeloproliferative disorders. Recent literature and reports suggest various other causes that must be considered as differential diagnoses. Thus, we should revisit older concepts and look at basophilia with a newer prospective.

Sincerely,

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## Peer Review

This contribution was peer reviewed.

# A case study on nurse-led asthma clinic in rural Western Australia

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Dear Editor,

Asthma is a serious and substantial problem in Australia affecting one in nine adults and one in six children. A recent cohort study of 83 asthmatic patients in Midwest, Western Australia reported that following a structured education program with general practice nurse, there was a significant decrease in unscheduled and emergency presentation.[1] Using this study as a model, a small validation study was conducted in a rural general practice in Central Wheatbelt, Western Australia to ascertain whether the findings from the above study can be translated into routine practice.

An embedded QUAN(qual) mixed methods design was used to ascertain the health outcomes from a nurse-led asthma clinic February through October 2010. Please refer to Figure 1 for the visual model of our study design. A standardised self-completed mini Asthma Quality of Life Questionnaire (miniAQLQ) was utilised to measure asthma control and quality of life.[2] Spirometry (PEV, $FEV_1$ and FVC) was performed. Statistical analysis was performed on SPSS v19 using Wilcoxon signed rank test to compare the changes in the variables. Results were considered statistically significant at *p* value less than 0.05. The qualitative phase utilised an iterative descriptive method to identified patients' experience. The semi-structured interviews were audiotaped and transcribed verbatim. Content analysis guided the interpretation of data thematically.[3] Member checking and multiple coding were used to ensure rigour of the findings. This study was approved by the University of Western Australia Human Research Ethics Committee (RA/4/1/4126). This study was conducted as part of a MBBS-III student project and no financial support was received.

Five patients were included in the study. The patients' aged range from 43-76 years old (mean 65.6, SD 13.6 years). Patients varied in occupation and living conditions, and triggers for their asthma.

There is non-statistical significant improvement in lung functions (PEV: $M_D$ 10.5, $p = 0.151$; $FEV_1$: $M_D$ 3.0, $p = 0.173$; FVC: $M_D$ 2.5, $p = 0.206$), shortness of breath ($M_D$ -0.4, $p = 1.000$), coughing ($M_D$ -1.6, $p = 0.423$) and wheezing ($M_D$ -0.6, $p = 1.000$), chest tightness ($M_D$ -1.4, $p = 0.357$) and frequency of reliever medication use ($M_D$ -0.4, $p = 1.000$). The patients reported less frequency of awoken from sleep ($M_D$ -1.2, $p = 0.019$), severity of asthmatic symptoms upon waking ($M_D$ -0.4, $p = 0.049$), limitation in activities ($M_D$ -0.8, $p = 0.013$) and frustration ($M_D$ -0.8, $p = 0.049$).

The patients reported that the asthma action plan empowered them with the knowledge to effectively manage their asthma through symptoms recognition and ability to manage exacerbation: "*the asthma plan gave me the knowledge that I need to be able to effectively manage my asthma by knowing how to recognise symptoms to gauge severity and then how to treat these symptoms*". Patients also reported increased medication compliance.

Longer follow-up is required to confirm the benefits of such a program. For instance, during the study period there was no unscheduled and emergency presentation.

For such a nurse-led asthma clinic to be self-sustainable the clinic must be adopted as part of routine practice; preferably a full day set aside monthly. In Australia, Medicare funded some 75% of medical services. Therefore, a structured billing such as that proposed in Figure 2 may warrant consideration.

Yours faithfully,
David Lim[1], Caroline Bulsara[2] and Daniel Kirk[2].

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## Peer Review

This contribution was peer reviewed.

## FIGURES

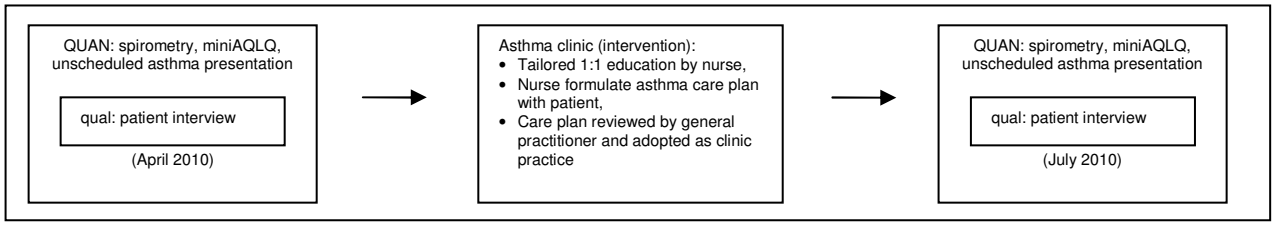


Figure 1: Visual model of the study design

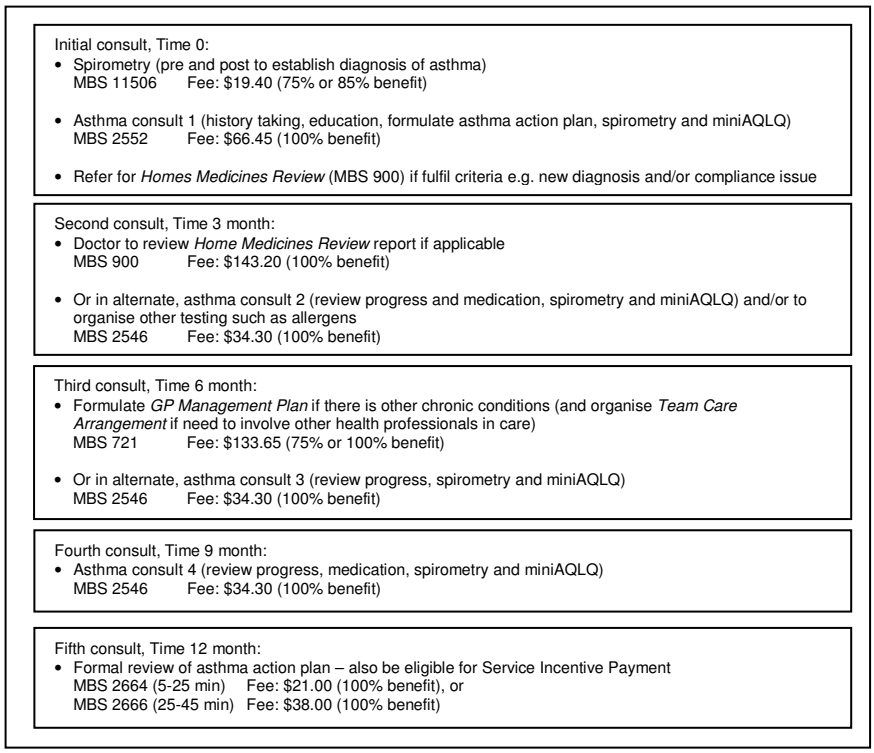


Figure 2: Flowchart of how such an asthma clinic may be sustainable through Medicare reimbursement.

# A low cost model of organizing and conducting workshops in Nepal

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Dear Editor,

In Nepal, a developing country in South Asia, many workshops are held in five- or four-star hotels or convention venues entailing heavy expenses. Most workshops are sponsored by international organizations. Many workshops and conferences in Nepal obtain heavy funding from the pharmaceutical industry.

In the last two years we have organized, or have been associated with, a few workshops in Nepal covering topics such as: social issues in the use of medicines; use of medical information to promote rational use of medicines; scientific writing;[1] medical humanities (national workshop);[2] generic medicines; and qualitative research methodology. We organized these workshops involving 25-40 participants at costs ranging from 200-600 US dollars for the entire workshop. In this letter we plan to share information on how we were able to keep costs low at these events.

*Use facilities available at educational institutions:* The workshops were held in three educational institutions in Kathmandu and Pokhara: KIST Medical College (KISTMC), Manipal College of Medical Sciences (MCOMS) and Pokhara University (PU). We had access to the halls, conference and audiovisual facilities available at these institutions at no extra, or minimal, cost. We also had access to manpower and organizational support.

*Arrange food from local restaurants/suppliers or the institutional canteen:* Food comprises a large part of the workshop budget. Many conferences and workshops arrange catering from five-star hotels or caterers, which increases the overall cost. For our workshops we arranged food from either the institutional canteen or from local restaurants/suppliers. We obtained a discount by placing a large order for food, for around 50 people. Another problem may be restricting the number of people having lunch and other refreshments to only those persons involved with the workshop. In Nepal, due to lavish sponsorship by pharmaceutical industries, it is common for all members of the institution (even those not directly associated with the workshop) to benefit from the food facilities. Food coupons have therefore been used to check this problem. Recently we used lunch boxes to address this problem.

*Basic kit for participants:* We provide a basic kit of essential stationary only for the day for all participants of the workshop consisting of a clear bag, a note book, a pen, eraser and pencil. This kit costs about 2-4 US Dollars. On occasions where we had more funding we also provided bags to the participants.

*Welcoming and honoring resource persons:* Money is spent on arranging a floral welcome for resource persons. We find the custom of the Nepalese mountain people of welcoming guests using a white or yellow scarf (katha) to be especially appropriate. The katha can be kept as a memento by the receiver. A Nepali cap (topi) can be a good gift for male resource persons and a shawl for female ones. Handicrafts also make good gifts and can be brought in bulk to reduce costs.

*Transport and accommodation for resource persons:* Support for transport of resource persons was provided by the institutions or arranged by the organizers. Accommodation was either arranged by the institution or the organizing committee. Costs incurred from accommodation can be reduced if institutions have good guest house facilities which can be utilized. In Nepal, however, this is uncommon.

*Fee from participants:* The question of what amount to charge participants to make the workshop self sufficient to a major extent should be debated. For recent workshops we had charged from 8-10 US dollars. The amount raised from participants covered 50-70% of the organizing cost of the workshop. A participant fee of 1,000 Nepalese rupees (around 12.5US dollars) is likely to cover a substantial portion of the workshop cost. However, this may be too expensive for some participants.

*A professional organizing group for workshops:* Recently a group of individuals have formed the Sankalpa Foundation which, among other things, organizes and manages workshops which leaves resource persons free to concentrate on the scientific aspects. The foundation aims to be self-sustaining using participation fees to organize workshops.

We have been able to conduct workshops at low cost in Nepal. Other organizations such as the Department of Drug Administration (DDA) and the Ministry of Health and Population have also used this model for recent workshops. This model has been well received by senior academic personnel for its low cost and quality of services provided. It could therefore be rolled out for many regional workshops in Nepal making the country an important and cost-effective workshop and conference venue.

Sincerely

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