Launching an education intervention to increase awareness of alpha-1 antitrypsin deficiency (AATD) among primary care physicians in Southern Alberta

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Introduction

- **Alpha-1 Antitrypsin Deficiency (AATD)** is a **genetic disorder** which predisposes individuals to premature onset of chronic obstructive pulmonary disease (COPD) and in some cases, liver damage, panniculitis, and vasculitis.
- Approximately **1 in every 2000-5000** individuals have this disorder[1], including **~1-5% of patients with COPD**.[2]
- **Less than 10%** of symptomatic individuals have been **properly diagnosed**. In general, there is a **delay of several years** between the onset of symptoms and diagnosis of disease.[3,4]
- In Canada, primary care physicians provide care for 80-90% of patients with COPD.[5,6] Guidelines recommend **screening** for AATD among patients with **COPD** who:
  - were diagnosed **before the age of of 65** or
  - have **no history of smoking.**[2]
- In Alberta, screening is available through an inexpensive biochemical assay and is covered by all provincial fee schedules.

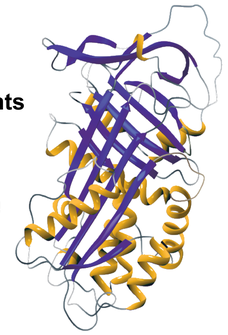
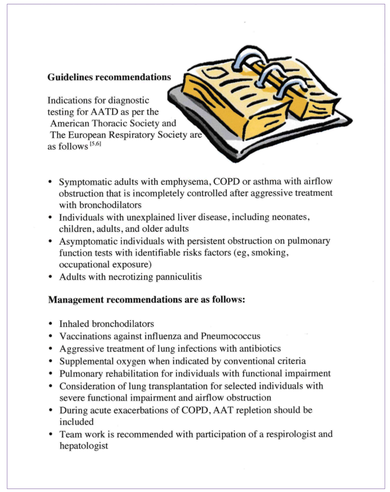


Figure 1: Alpha-1 molecule
Source: https://www.alphanet.org/what-is-alpha-1/

Methods

An **education intervention** was launched in southern Alberta to increase awareness and knowledge of AATD.

- Family physicians participating in the Southern Alberta Primary Care Research Network (SAPCReN) were provided information regarding:
  - **symptoms** of AATD
  - **testing** guidelines
  - recommendations for **disease management**
  - a **list of patients** in their panel **who have COPD and qualify for screening** based on guidelines[2]
- Patients identified as being at high-risk were followed to determine whether they received the recommended AATD screening.



Guidelines recommendations

Indications for diagnostic testing for AATD as per the American Thoracic Society and The European Respiratory Society are as follows [5,6]

- Symptomatic adults with emphysema, COPD or asthma with airflow obstruction that is incompletely controlled after aggressive treatment with bronchodilators
- Individuals with unexplained liver disease, including neonates, children, adults, and older adults
- Asymptomatic individuals with persistent obstruction on pulmonary function tests with identifiable risks factors (eg, smoking, occupational exposure)
- Adults with necrotizing panniculitis

Management recommendations are as follows:

- Inhaled bronchodilators
- Vaccinations against influenza and Pneumococcus
- Aggressive treatment of lung infections with antibiotics
- Supplemental oxygen when indicated by conventional criteria
- Pulmonary rehabilitation for individuals with functional impairment
- Consideration of lung transplantation for selected individuals with severe functional impairment and airflow obstruction
- During acute exacerbations of COPD, AAT repletion should be included
- Team work is recommended with participation of a respirologist and hepatologist

Figure 2: Selected page from educational package

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Results

- 128 family physicians were emailed the information package and provided the EMR ID of **1071 patients** in total who qualified for AATD screening.
- Following the educational intervention, data from the EMR record of 918 (of 1071) patients were extracted.
  - Loss to follow-up occurred if a physician changed location of practice or a patient changed their provider.
- 90 of the 918 patients (9.8%) had an AATD lab test recorded. 69 patients were screened prior to the intervention (n=41 physicians) including:
  - 7 patients tested in the 365 days prior, and
  - 62 patients tested more than 1 year before the intervention.
- Seven (7) physicians screened 21 patients in the 6 months following the intervention.
- Change point detection was performed using pruned exact linear time (PELT) with various penalties. Changes in the mean and the mean and variance were considered. Statistically significant change points were observed at **3 and 5 weeks** after the distribution of the patient list.

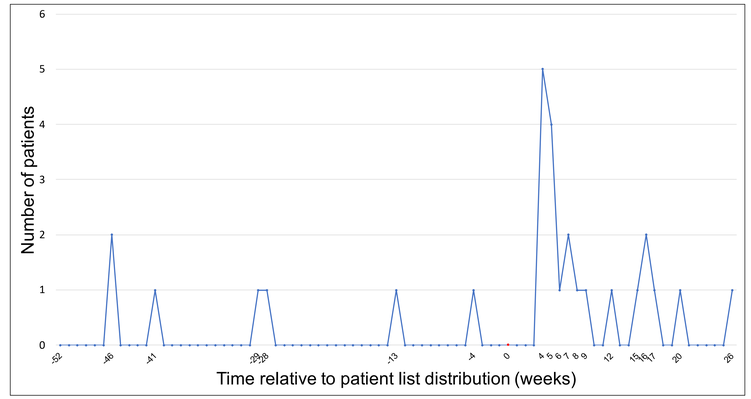

Figure 3: Distribution of AATD tests relative to patient list distribution, by week

Conclusions

This educational intervention aimed to increase knowledge of AATD & encourage physicians to screen appropriately by providing a list of patients at risk. It led to a short term but statistically significant increase in the screening rate among a small number of physicians (n=7). This study suggests a simple e-mail intervention may only impact the practice of a few early adopters and may be short lived.

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