Conclusions: We found improved asthma knowledge among parents and caregivers of asthmatic children after attending to a Practical Allergy Course.

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Ezhengtricity 2010: a Free Novel Way to Confidentially Administer, Track, Receive and Score Medical Questionnaires Instantly
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Background: Medical questionnaires are important for assessing allergy patients. However, current methods of administering questionnaires are cumbersome, expensive, and laborious to accurately administer, track and score. eZhenhtricity is a simple Google Documents based workflow, coupled with customized Excel formulas, that allow researchers to create, collect and score confidential health questionnaires that are globally accessible, with minimal setup time and maintenance.

Methods: eZhenhtricity utilizes a Google Documents account as a platform to create online questionnaires. Google automatically hosts the online questionnaire with a unique URL that can be provided to patients. The researcher provides patients with a unique study ID that is used to submit questionnaire responses. By using a unique study ID, researchers ensure confidentiality of questionnaire data. Patient questionnaire responses are instantly submitted online to a secured “Cloud” database. In the Cloud database, the data is automatically sorted, scaled and scored by custom Excel formulas. Researchers can instantly access the database and download results in a variety of formats including PDF and XLS for further analysis using the researcher’s statistical software of choice.

Results: eZhenhtricity provided questionnaire scores from submitted questionnaires instantly, while paper versions required manual double entry and manual sorting of patient data for analysis. Better overall quality of patient responses was obtained with eZhenhtricity compared to paper questionnaires. Submitted responses to eZhenhtricity had 100 percent completion while submitted paper responses had incomplete responses. Patient compliance for eZhenhtricity was comparable to paper questionnaires. eZhenhtricity also allowed monitoring of patient’s progress on completing questionnaires.

Conclusions: The flexibility and robustness of eZhenhtricity complement longitudinal and cross-sectional studies. Compared to paper questionnaires, eZhenhtricity is a cost effective, logistically easy, and superior way to administer confidential questionnaires.

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Usefulness of Asthma Control Test Questionnaire, FEV1 and Exhaled Nitric Oxide Level (FeNO) for the Clinical Assessment of Elderly Asthma
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Background: Asthma remains a prevalent disease with significant morbidity and mortality, therefore numerous markers or measurements for the evaluation of its severity are available. Functional parameters, clinical assessment and biomarkers of inflammation are the most used. Also the diagnosis and treatment of asthma are often focused on young patients. This study was intended to determine the usefulness of patient-based questionnaire, Asthma Control Test score (ACT), forced expiratory volume in 1 second (FEV1) and exhaled nitric oxide (FeNO) for clinical assessment of elderly asthma patients.

Patients and Methods: Sixty seven (67) patients with a diagnosis of asthma more than 65 of age were enrolled. They performed spirometry, FeNO measurement and answered the ACT questionnaire. ACT is scored on a scale from 5 to 25 with higher values reflecting better control. Spirometry measures that met the American Thoracic Society criteria were included. FeNO was measured with values ≧35 ppb indicating probability of airway inflammation. Qui-square test was used for statistical analysis.

Results: 67 patients (15% female), mean age of 72.3 (65–89) were included. 25 patients (37.3%) were very poorly controlled, ACT = 15 and mean values of FEV1 81.5±21.5 (%) (predicted) and mean FeNO of 41 ± 35 ppb. Thirty patients (44.8%) were not-well-controlled, ACT to 19, FEV1 89% ± 16.8, FeNO of 40 ± 36 and 12 patients (17.9%) were well-controlled, ACT ≥ 20, FEV1 93.3 ± 16.8 and FeNO of 44 ± 35. FeV1 as >80% of predicted in 62.4% of patients (ACT 7–25) and 75% of patients with ACT ≥ 20 had FEV1 > 80%. The relation between ACT and FEV1 in this study was statistically significant (P = 0.014). There was no correlation when we evaluated ACT/FeNO and FEV1/FeNo variables (P = 0.45, 0.41 respectively).

Conclusions: A good correlation was found between ACT and FEV1, with higher ACT scores reflecting less bronchial obstruction. FeNO values had no correlation with ACT or FEV1, indicating that this marker of inflammation had less interest for assessment of asthma control in these elderly patients. In spite of these data, we still advise that the clinical assessment of asthma should be based on a combined approach that involves clinical aspects, functional parameters and biomarkers of inflammation, because elderly patients may have reduced symptom perception and have multiple co-morbidity.
acknowledged by national or regional medical associations without however specific steps for relying on all the published evidence. Hence, recent evidence regarding the preventive efficacy of a specific brand of PHF, based rigorous clinical research, should provide the basis for new evidence-based recommendations.

### 451 The Relationship Between Emotional Cognition and the Symptom Gap in Patients with Bronchial Asthma: the Effects of Alexithymia and Empathy

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**Background:** When symptoms are poorly controlled, patients with bronchial asthma may show a symptom gap: a cognitive divergence between the true severity of symptoms and the severity evaluated by the patients themselves. The aim of this study was to determine which factors (emotional cognition of the self and others) are associated with this symptom gap.

**Methods:** Forty-two patients with bronchial asthma, who were found with the Comprehensive Asthma Inventory (a bronchial asthma symptom questionnaire) to have psychosocial factors associated with a deep concern about the onset of asthma attacks, were studied by means of validated scales for alexithymia (the Toronto Alexithymia Scale-20) and for empathy (the Interpersonal Reactivity Index: IRI) and questions about how patients evaluate the severity of asthma.

**Results:** Of the patients, 42.5% showed a cognitive divergence regarding asthma symptoms. The scores for “perspective taking” on the IRI were significantly higher in patients who felt symptoms were less severe than they actually than in patients who felt symptoms were more severe than they actually were. No association was found between alexithymia and the symptom gap.

**Conclusions:** The results show that empathy, the ability to understand the emotions of others, is associated with a symptom gap in patients with bronchial asthma and that high scores for “perspective taking” on the IRI may indicate problems of treatment and symptom control in asthma.

### 452 Asthma Control and Quality of Care of Adult Asthma Patients in Primary Health Care Facilities in Saint-Petersburg, Russia

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**Background:** This study was performed to assess the control asthma and quality of care of asthmatic patient in primary health care facilities in Saint-Petersburg, the second largest city in Russia.

**Methods:** We conducted telephone interviews with 205 asthma outpatients (aged 24 to 90 years). Asthma control was assessed by using the Asthma Control Test (ACT).

**Results:** During the past 12 month spirometry were performed in 26.8%. Only 2% of outpatients were consulted by allergist and 26.8% - by respiratory doctor. Fixed combination of budesonide/formoterol and salmeterol were used in 45.4%. Asthma was uncontrolled for 72.2% of outpatients.

**Conclusions:** Quality of diagnostics and treatment of asthma in primary health care is not sufficient and should be improved.

### 453 A 26-Year Review of Long-term Safety of a Human Pasteurized C1 Inhibitor Concentrate

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**Background:** Hereditary angioedema (HAE) is a rare disorder characterized by C1 inhibitor (C1-INH) deficiency, resulting in periodic attacks of acute edema. C1-INH replacement therapy is recommended as first-line therapy for treatment of acute HAE attacks, demonstrating rapid onset of symptom relief within 30 minutes or less. CSL Behring’s human pasteurized C1-INH concentrate has been marketed since 1985 for the treatment of acute HAE attacks in Germany and numerous other countries.

**Methods:** We reviewed spontaneous reports of adverse drug reactions (ADRs) received by CSL Behring for its human pasteurized C1-INH concentrate, covering the 26-year period from 1985 until 31 December 2010.

**Results:** During the reporting period, human pasteurized C1-INH concentrate representing more than 550,000 treatments was distributed. A total of 101 cases of suspected ADRs were reported worldwide, with 62 cases covered by the product’s known safety profile: allergic- or anaphylactic-type reactions (11; in very rare cases involving shock), chills and fever (4), lack of effect (26), suspected virus transmission (6; not attributed to the product), and thrombosis (16). Only 2 cases of thrombosis occurred when the product was used in the labelled indication; causality was assessed as unlikely in both cases (pre-existing cerebromalacia in 1 patient, and unspecified underlying pro-thrombotic condition in a second patient with morbid obesity). The other 14 cases of thrombosis occurred during off-label use of the product (substantially higher doses than indicated). Three reports were no ADRs (product exposure during pregnancy, administration failure). Of 36 cases involving isolated reports of varying symptoms not covered by the known product safety profile, causality to the product was established for only 1 case (light-headedness and dizziness). According to the Council for International Organizations of Medical Sciences criteria, the overall ADR reporting rate for human pasteurized C1-INH concentrate is “rare”.

**Conclusions:** Human pasteurized C1-INH concentrate has a well-established safety profile based on 26 years of post-marketing experience with more than 550,000 treatments. The product is safe and well tolerated when used at the recommended dosage in the treatment of acute HAE attacks.

### 454 Efficacy of Icatibant Versus Fresh Frozen Plasma for Attacks of Hereditary Angioedema: Analysis of Individual Symptoms by Attack Site

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**Background:** Hereditary angioedema (HAE) is a rare disorder characterized by functional deficiency of C1 inhibitor (C1-INH) resulting in unpredictable, acute swelling attacks at varied locations. Icatibant, a selective bradikinin B2 receptor antagonist, is a novel treatment for acute attacks of HAE. The aim of the present study was to compare the efficacy between icatibant and fresh frozen plasma (FFP) in the acute attacks of HAE.

**Methods:** We performed a retrospective analysis of acute attacks of HAE in a tertiary hospital. We compared the efficacy of icatibant with fresh frozen plasma as control group. Efficacy was measured as the median time to onset...