Focetria (Novartis) monovalent inactivated pandemic influenza vaccine corresponding to 7.5 μg of haemagglutinin (HA) antigen strain A/California/7/2009 (H1N1)pdm like strain (X-179A) MF59-adjuvanted between November 2009 and February 2010. The vaccine was administered intramuscularly into the deltoid muscle of the non-dominant arm on day 0. Blood samples were collected on day 0 and on day 21 to assess immunogenicity according to the criteria. Demographics, immunogenicity and safety data are shown in table 1.

### Table 1 Demographics, immunogenicity and safety data of the study group

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Nutritional status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients enrolled: 48</td>
<td>Patients&lt;18 years (n=32): mean HAP 25.1</td>
</tr>
<tr>
<td>Mean age: 14.4 years (range 8 months—26 years)</td>
<td>mean WAP 41.8</td>
</tr>
<tr>
<td>M/F: 20/28</td>
<td>Geometric mean titre (95% CI) 40 (20</td>
</tr>
<tr>
<td>Pseudomonas colonisation: 29/48 (60.4%)</td>
<td>8 homoyzogotes</td>
</tr>
<tr>
<td>Mean FEV1: 86.5%&lt;25.1</td>
<td>29 heterozygotes</td>
</tr>
<tr>
<td>O2 therapy: 1 patient</td>
<td>Patients&lt;18 yrs (n=16): mean BMI 21.9</td>
</tr>
</tbody>
</table>

#### Safety

- **Local reactions:**
  - Pain: 12/48 (25%)
  - Swelling/redness: 7/48 (14.6%)
  - Fever: 5/48 (10.4%)
  - Myalgia: 4/48 (8.3%)
  - Headache: 2/48 (6.3%)
  - Fatigue: 3/48 (6.3%)
  - Chills: 1/48 (2.1%)

- **Systemic reactions:**
  - Pain: 12/48 (25%)
  - Swelling/redness: 7/48 (14.6%)
  - Fever: 5/48 (10.4%)
  - Myalgia: 4/48 (8.3%)
  - Headache: 2/48 (6.3%)
  - Fatigue: 3/48 (6.3%)
  - Chills: 1/48 (2.1%)

#### Immunogenicity*

<table>
<thead>
<tr>
<th>Patients assessed: 33</th>
<th>Baseline</th>
<th>21 days postimmunisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD4 T cell/μl (%)</td>
<td>1163 (42.3)</td>
<td>—</td>
</tr>
<tr>
<td>Geometric mean titre (95% CI)</td>
<td>40 (20—81)</td>
<td>582 (388—872)</td>
</tr>
<tr>
<td>Geometric mean ratio of HI titre (95% CI)</td>
<td>—</td>
<td>13.9 (6.9—26.7)</td>
</tr>
<tr>
<td>% Seroconversion (95% CI)</td>
<td>—</td>
<td>83 (60—91)</td>
</tr>
</tbody>
</table>

*Immunogenicity was assessed according to the CPMP criteria: seroconversion was defined as prevaccination antibody titre of 1:10 or less and a postvaccination titer of 1:40 or more or a prevaccination titre greater than 1:10 and an increase in the antibody titre by a factor of four or more. Seroconversion rate was calculated as the percentage of patients that displayed seroconversion. Serum antibody titres were determined using the haemagglutination inhibition (HI) assay. Sera geometric mean titres (GMT) and ratios (as fold increase) in HI titres of day 21 to day 0 titres were also calculated.

HAP, height for age percentile; WAP, weight for age percentile; BMI, body mass index; FEV1, forced expiratory volume in 1 s.

---

**Influenza A/H1N1 in patients with cystic fibrosis in Italy:**

The clinical consequences of influenza are severe in cystic fibrosis (CF), but the impact of A/H1N1 virus infection remains poorly defined. Pandemic influenza A/H1N1 started in Italy in September 2009 and CF patients were included among those at risk of complications and recommended to receive A/H1N1 vaccine. Better characterisation of the impact of influenza A/H1N1 in conjunction with other influenza-like illnesses in CF would provide a rational basis for antiviral treatment and vaccination strategies for the next flu season.

Within the Italian Cystic Fibrosis Society, we sent a questionnaire to 30 centres to collect follow-up data for all patients with influenza-like symptoms consecutively seen between November 2009 and March 2010. Realtime RTPCR test was performed to define A/H1N1 status. Continuous variables are reported as medians, IQR (see online supplement for details of study methods).

Nineteen centres reported data from 127 patients: 68 were A/H1N1+ve and 59 were A/H1N1−ve for the RT-PCR test. Symptom onset peaked during calendar week 45 in A/H1N1+ve patients, similar to the general Italian population, whereas A/H1N1−ve patients showed a bimodal incidence peak at weeks 45 and 47 (online supplementary figure S1).
Osaltevirm (2–5 mg/kg/day as currently recommended) was administered to 52% A/H1N1+ve and 12% A/H1N1−ve patients. In the A/H1N1+ve group, treatment was started within 24–48 h from symptom onset upon virological confirmation. Osaltec- 

virin was well tolerated and no treatment cessation was required. In one A/H1N1+ve patient complications were associated with 

development of osaltevirm resistance.5

Clinical course and duration of disease are reported in table 1. In the entire CF patient population, shorter disease duration was seen in osaltevirm treated patients (5, 4–11 vs 10, 6–14 days; p<0.008), a difference apparently limited to the A/H1N1−ve subset. 

During illness, 66% A/H1N1+ve and 80% A/H1N1−ve patients developed pulmonary exacerbations (p<0.127). Disease course was uncomplicated in 85% and 88% patients, respectively (p<0.639). Of note, immuno-suppressive therapy for organ transplantation did not increase risk of 

complications in either group. 

Four patients with severe pulmonary disease (3 A/H1N1+ve, 1 A/H1N1−ve) died of respiratory failure: none had been vaccinated and all had received antiviral therapy (online supplementary figure S2).

No significant FEV1 decline was observed in both groups after 1 and 6 months from symptom onset (online supplementary figure S2). In none of the cases, new isolation of Pseudomonas aeruginosa or Burkholderia cepacia complex was documented. 

In conclusion, in a cohort of patients who consecutively presented to Italian CF centres for flu-like symptoms during the 2009 pandemic period, accurate diagnostic testing did not identify clinical characteristics specifically associated with A/H1N1 infec-

tion, the only exception being younger age in A/H1N1+ve patients. The use of a reliable identification method allowed appropriate treatment to be initiated. 

Systematic collection of data at patient presentation and subsequent follow-up provided further information on A/H1N1 infection in CF. which will be useful for patients for the next influenza season.

Influenza A/H1N1 has no major impact in CF, but patients with poor clinical conditions due to the disease are exposed to substantial risk of complications and unfavourable outcomes. Annual vaccination for seasonal influenza and A/H1N1 influenza is recommended in CF, with continuing efforts towards higher vaccination coverage levels especially in adult subjects.

Carla Colombo,1 Pier Maria Battezzati,2 Vincenza Lucidi,3 Giuseppe Magazù,4 Valentina Motta,5 Gianfranco Alica,

andro,1 Teresa Repetto1

1Department of Paediatrics, CF Centres of Milan, Fondazione IRCCS Ca’ Granda Ospedale Maggiore Policlinico, University of Milan, Milan, Italy; 2Department of Medicine, Chirurgia e Endocrinologia, School of Medicine, San Paolo, University of Milan, Milan, Italy; 3Unit of Cystic Fibrosis, Department of Paediatric Medicine, Bambino Gesù Children’s Hospital, IRCCS, Rome, Italy; 4CF and Paediatric Gastroenterology Unit, University of Messina, Messina, Italy; 5Cystic Fibrosis Center, Meyer Hospital, Florence, Italy

Correspondence to Professor Carla Colombo, Cystic Fibrosis Center, Fondazione IRCCS Ca’ Granda, Ospedale Maggiore Policlinico, University of Milan, Via Comoenda 9, 20122 Milan, Italy, carla.colombo@unimi.it

Additional materials are published online only. To view these files please visit the journal online (http://thorax.bmj.com). Other members of the Italian Cystic Fibrosis Society (SICF) Study Group for H1N1: F Agheli, Unit of Cystic Fibrosis, Department of Paediatric Medicine, Bambino Gesù Children’s Hospital, IRCCS, Rome; B M Assael, Cystic Fibrosis Center, Verona; E Bignamini, Pneumology Unit, Regina Margherita Paediatric Hospital, Turin; M Collura, Cystic Fibrosis Center, Di Cristina Hospital, Palermo; S Cristadoro, CF and Paediatric Gastroenterology Unit, University of Messina, Messina; R Gagliardi, Regional Cystic Fibrosis Center, Department of Paediatrics, Ospedale Riuniti, Ancona; A Manca, Cystic Fibrosis Center, University of Bari, Bari; S Notarnicola, Cystic Fibrosis Center, Paediatric Clinics University of Genova, G. Gaslini Children Hospital, Genova; A Negri, Department of Paediatrics, Ospedale di Livorno, Livorno; R Padoan, Cystic Fibrosis Service, AO Spedali Civili, Brescia; G Pizzamiglio, Respiratory Medicine and Cystic Fibrosis Adult Section, Dipartimento Toraco-Pulmonare e Cardiocoronaro, Università degli Studi di Milano, IRCCS Fondazione Ospedale Maggiore Policlinico Ca’ Granda, Milano; F Poli, Cystic Fibrosis Center, Ospedale Infantile Burlo Garofolo, Trieste; S Quattrucci, Cystic Fibrosis Regional Center, Sapienza University of Rome, Rome; L Ratcliﬁ, U.O.S. Cystic Fibrosis, Gennica; D Salvatore, Cystic Fibrosis Center, Paediatric Division, San Carlo Hospital, Potenza; V Terlizzi, Department of Paediatrics University of Naples Federico II, Naples.

Competing interests None.

Provenance and peer review Not commissioned; externally peer reviewed.

Accepted 6 December 2010

Published Online First 12 January 2011


REFERENCES


The mortality of treated acute PE

I read with interest the editorial in Thorax entitled ‘Identification of those at risk after acute pulmonary embolism’.1 In the second paragraph, the authors state and reference the inpatient mortality for normotensive patients with acute PE as ~10%.

My concern is twofold. First it is that readers may surmise that the mortality of acute treated PE is as quoted, when in reality the all-cause out of hospital 8 month mortality of those with PE is 9% in the reference quoted. This level of mortality relates not just to the PE but to the co-morbidities, such as cancer, that this cohort frequently possess. Secondly, in clinical experience it seems a rarity that those even with a large clot burden identified on CT pulmonary angiography (CTPA) and without life-threatening co-morbidities do not improve their clinical state once treated with anticoagulation. Do the editors know of any studies that clearly identify the cause of death systematically in those with PE so that we can truly pick out the mortality associated with this diagnosis?
Influenza A/H1N1 in patients with cystic fibrosis in Italy: a multicentre cohort study

Carla Colombo, Pier Maria Battezzati, Vincenzina Lucidi, Giuseppe Magazzù, Valentina Motta, Gianfranco Alicandro, Giovanni Taccetti and Teresa Repetto

Thorax 2011 66: 260-261 originally published online January 12, 2011
doi: 10.1136/thx.2010.157032

Updated information and services can be found at:
http://thorax.bmj.com/content/66/3/260

These include:

Supplementary Material
Supplementary material can be found at:
http://thorax.bmj.com/content/suppl/2010/12/13/thx.2010.157032.DC1

References
This article cites 3 articles, 1 of which you can access for free at:
http://thorax.bmj.com/content/66/3/260#BIBL

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/