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Financial/nonfinancial disclosures: The author has reported to *CHEST* that no potential conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article.

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DOI: 10.1378/chest.12-2199

REFERENCES

1. Wilchesky M, Ernst P, Brophy JM, Platt RW, Suissa S. Bronchodilator use and the risk of arrhythmia in COPD: part 1: Saskatchewan Cohort Study. *Chest*. 2012;142(2):298-304.
2. Wells JM, Washko GR, Han MK, et al; COPD Gene Investigators; ECLIPSE Study Investigators. Pulmonary arterial enlargement and acute exacerbations of COPD. *N Engl J Med*. 2012;367(10):913-921.
3. Tükek T, Yildiz P, Akkaya V, et al. Factors associated with the development of atrial fibrillation in COPD patients: the role of P-wave dispersion. *Ann Noninvasive Electrocardiol*. 2002; 7(3):222-227.

Response

To the Editor:

We thank Dr Medford for his interest in and insightful comments on our recent studies in *CHEST*.^{1,2} Indeed, we did include congestive heart failure as an adjustment factor in both studies, and, to the extent that congestive heart failure will have accompanying secondary pulmonary hypertension due to left-sided failure, this will have been controlled for. Both studies were, however, performed using administrative, and not clinical, databases and, as such, clinical information pertaining to P-wave dispersion was not available.

Although it is possible that P-wave dispersion could be associated with arrhythmia, it would also need to be associated either positively or negatively with bronchodilator exposure to induce bias in our estimates of risk. That is, confounding bias would only be present in this study if physicians decided to prescribe a bronchodilator on the basis of P-wave dispersion. We believe that this is implausible. As for pulmonary hypertension secondary to COPD, this is related to severity of COPD, for which we have attempted to adjust. The absence of measures of lung function raises the possibility of residual confounding by severity of COPD, which might explain part of the association between bronchodilator use and cardiac arrhythmia.

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Financial/nonfinancial disclosures: The authors have reported to *CHEST* the following conflicts of interest: Dr Ernst has received speaker fees and has served on advisory boards for AstraZeneca; Boehringer Ingelheim GmbH; GlaxoSmithKline; Merck & Co, Inc; Novartis AG; Nycomed GmbH; and Takeda Pharmaceuticals International GmbH. Dr Suissa has received research grants from AstraZeneca, Boehringer Ingelheim GmbH, and GlaxoSmithKline and has participated in advisory board meetings and as a speaker for AstraZeneca; Boehringer Ingelheim GmbH; Forest Laboratories, Inc; GlaxoSmithKline plc; Merck & Co, Inc; Novartis AG; Nycomed GmbH; Takeda Pharmaceuticals International GmbH; and Pfizer, Inc. Drs Wilchesky, Platt, and Brophy have reported that no potential conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article.

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DOI: 10.1378/chest.12-2495

REFERENCES

1. Wilchesky M, Ernst P, Brophy JM, Platt RW, Suissa S. Bronchodilator use and the risk of arrhythmia in COPD: part 1: Saskatchewan cohort study. *Chest*. 2012;142(2):298-304.
2. Wilchesky M, Ernst P, Brophy JM, Platt RW, Suissa S. Bronchodilator use and the risk of arrhythmia in COPD: part 2: reassessment in the larger Quebec cohort. *Chest*. 2012;142(2): 305-311.

Educating the Adolescent and Young Adult With Cystic Fibrosis About Their Reproductive Risks and Options

To the Editor:

We conducted a follow-up to our 2008 study assessing the genetic and reproductive knowledge of adolescents and young adults with cystic fibrosis (CF).¹ The original study showed that only 33% of patients with CF knew that two carriers had a 25% chance of having a child with CF and that 25% knew that two carriers have a 50% chance of having a carrier child. Here, we report our effort to determine the efficacy of recent educational efforts made by organizations like the Cystic Fibrosis Foundation, who launched their 2010 webcast series to educate patients and families about CF.²

We used a 24-question survey. Twelve questions assessed demographics, such as age, sex, education level, and baseline health. Twelve questions assessed patient knowledge of genetics, inheritance, reproduction, and health concerns for patients with CF wanting to reproduce. We then provided each patient (N = 40) with a trifold, color brochure addressing these topics and reassessed patient knowledge with patients able to reference the brochure. All study protocols and materials were approved by The University of Alabama (UAB) Institutional Review Board (Protocol X100704010).

We found that 23% of patients knew that two carriers have a 75% chance of having a child who does not have CF and that 40% knew that the recurrence risk for two carriers to have a second child with CF was 25% (Table 1). These numbers increased to 38% and 65%, respectively, with the brochure. Fifty percent of patients knew that among patients with CF it is more difficult

Table 1—Survey Questions and Number of Correct Answers Before and After Access to Educational Brochure

Question	Before Brochure Correct	After Brochure Correct	Percent Change
If you are a carrier of CF, what are the typical medical problems you will have?	17 (42.5)	24 (60)	41.2
If you have CF and your partner is a healthy noncarrier, what is the chance that your child will be a carrier?	11 (27.5)	24 (60)	118
What is the chance for parents who are both carriers to have a child that does not have CF?	9 (22.5)	21 (52.5)	133
If two parents with no sign of having CF already have a child with CF, what is the chance their next child could have CF?	16 (40)	26 (65)	62.5
When considering pregnancy, an individual with CF should:	34* (85)	38 (95)	11.8
Is the chance of having children without help different for males and females with CF?	20 (50)	30 (75)	50
What is the main reason that a male with CF would be infertile?	19 (47.5)	35 (87.5)	84.2
What is the main reason that a female with CF would be infertile?	13 (32.5)	36 (90)	177
When considering pregnancy, what is the biggest risk for women with CF?	13 (32.5)	28 (70)	115
If you are infertile because of CF, what are your options to have a child?	7 (17.5)	18 (45)	157
If you have CF, can you adopt a child?	28 (70)	33 (82.5)	17.8
If you have CF and your partner is also a carrier, what technology can you use to ensure that your child does not have CF?	5 (12.5)	31 (77.5)	520

Data are presented as No. (%), unless otherwise indicated. CF = cystic fibrosis.

*More than one answer was deemed correct. The total sum of both answers is used in this table.

for the male sex to have children than for the female sex, and 47.5% knew that the male sex are infertile because sperm are unable to exit the testicles. These numbers increased to 75% and 87.5%, respectively, with the brochure.

The total percentage of correct knowledge responses showed an average of 40% for patients for the first survey assessing baseline knowledge. An average of 71% was achieved for the second survey given with the brochure as a reference, a difference of 31% ($P < .0001$).

This study showed that despite recent efforts to improve patient education, there is no change in patients' baseline knowledge of their disease, at least in the UAB CF population. In 2010, 47.5% of patients with CF were adults.³ As survival rates improve and patients with CF desire to have children, it is important that they be educated on the risks and challenges reproduction poses. This study showed that inexpensive paper brochures are a potentially effective way to address this deficit in patient knowledge.

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Financial/nonfinancial disclosures: The authors have reported to *CHEST* that no potential conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article.

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ACKNOWLEDGMENTS

Role of sponsors: The sponsor had no role in the design of the study, the collection and analysis of the data, or in the preparation of the manuscript.

REFERENCES

1. Houser GH, Holt CL, Clancy JP, et al. Genetic and reproductive knowledge among adolescents and adults with cystic fibrosis. *Chest*. 2008;133(6):1533.
2. Marshall BC, Penland CM, Hazle L, et al. Cystic fibrosis foundation: achieving the mission. *Respir Care*. 2009;54(6):788-795.
3. Cystic Fibrosis Foundation. Patient registry: annual data report 2010. Cystic Fibrosis Foundation website. <http://www.cff.org/UploadedFiles/LivingWithCF/CareCenterNetwork/PatientRegistry/2010-Patient-Registry-Report.pdf>. Accessed April 3, 2012.

No Closure for Patent Foramen Ovale in Obstructive Sleep Apnea?

To the Editor:

We read with interest the report in a recent issue of *CHEST* (January 2013) by Shaikh et al¹ regarding the association between patent foramen ovale (PFO) and obstructive sleep apnea (OSA). However, we believe that their conclusion stating the lack of benefit of PFO closure in OSA is unduly pessimistic and premature. They attempted closure of only six large PFOs with the BioSTAR device (NMT Medical Inc) and acknowledge their small sample size. However, at 12-month follow-up only three PFOs had sealed. Other studies of NMT PFO devices for migraine² and stroke³ have also been neutral, possibly as a result of failure of NMT PFO devices to seal the PFO.⁴