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Further Evidence Linking Late-Onset Alzheimer Disease With Chromosome 12

William K. Scott; Janet M. Grubber; Suzanne M. Abou-Donia; et al.

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Nonphysician Clinicians in the Health Care Workforce

To the Editor: Dr Cooper and colleagues¹ explore some of the trends of nonphysician clinicians (NPCs) and their march to increase their scope of practice, but stop short of analyzing what impact this “high degree of autonomy” will have on patient care. While much can be learned through hindsight, the public cannot afford to have the medical community take a wait-and-see attitude in this matter.

As president of the American Society of Anesthesiologists, our organization and I have substantial experience with efforts by certified registered nurse anesthetists (CRNAs) to expand their scope of practice. The stated intention of CRNAs, to be able to practice independently of any medical supervision, should make it clear to physicians in primary care and specialty practices alike that many “nonphysician clinicians do not aspire merely to complement physicians,” as Drs Grumbach and Coffman noted in their Editorial.² If NPCs want to improve patient care, as they claim, why are some of them so intent on severing all ties with physicians who bring medical expertise and judgment to the table?

By limiting their data collection to only NPC organizations, Cooper et al¹ reported information that is, at best, biased and, at worst, totally inaccurate. For example, it is not true that CRNAs have the authority to practice independent of physicians in 18 states or that they have prescriptive authority in 9 states. A thorough review of all relevant statutes and regulations governing anesthesia delivery in the 50 states and the District of Columbia³ reveals that only 1 state, New Hampshire, allows CRNAs to practice without any physician involvement, and only New Hampshire and the District of Columbia give prescriptive authority to CRNAs.

As part of its lobbying efforts, the American Association of Nurse Anesthetists promotes these inflated figures, basing them solely on nursing regulations and ignoring the mandates of medical acts, hospital regulations, and controlled-substance laws. Furthermore, the American Association of Nurse Anesthetists refuses to acknowledge physician collaboration requirements; collaboration, to them, makes nurse anesthetists equal to physicians and is what they consider to be independent practice. This is, of course, a ludicrous and dangerous assumption. Despite the characterization by Cooper et al, anesthesia delivery is not “routine” or “less complicated care,” but, in fact, involves critical care medicine requiring physician participation.

Nonphysician clinicians have much to offer if they are willing to accept the limitations of their training and abilities to deliver patient care. But it is time to draw the line on so-called practice prerogatives being sought by some NPCs. Those who wish to practice medicine should do so by education, not legislation. As a practicing physician with more than 30 years of experience, turf has never been important to me. What is important is the safety and

welfare of patients. If physicians do not fight for what is in the patient’s best interest, who will?

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1. Cooper RA, Henderson T, Dietrich CL. Roles of nonphysician clinicians as autonomous providers of patient care. *JAMA*. 1998;280:795-802.
2. Grumbach K, Coffman J. Physicians and nonphysician clinicians: complements or competitors? *JAMA*. 1998;280:825-826.
3. *Nurse Anesthetist Scope of Practice: Analysis of the Laws of the Fifty States and the District of Columbia*. Washington, DC: Squire Sanders & Dempsey; 1998.

To the Editor: Dr Cooper and colleagues¹ provide an encompassing overview of the NPC component of the US health workforce and call attention to the serious problem of a future health system with too many NPCs compounding an oversupply of physicians. Their data on the growth of the NPC disciplines affirms the perception of a continuing physician avoidance of primary care practice that has resulted in the expanded production of various clinicians seeking to fill the void in this practice area. With the likely probability of an overcrowded health care workforce in the future, and the surely negative consequences that this will have on the health care system and the professions, further public dialogue, as suggested by the authors, indeed seems imperative.

A logical course of action for workforce policy would appear to be consideration of measures to curtail the overproduction of health professionals, both NPCs and physicians. The question then becomes: Who goes first? Calls in the recent past for a reduction in the output of graduates in the field of health care by prominent health workforce policy groups² have gone unheeded. It is likely that none of the various professions will seek to take the first step to reduce numbers lest they give advantage in the medical marketplace to the others.

In the article by Cooper et al,³ the intimation that physician assistants (PAs) receive direct Medicare reimbursement for their clinical services and are seeking autonomous clinical practice is misleading. Clinical services delivered by PAs are by law billed and reimbursed through the employing physician practice or health facility. Although clinical autonomy of PAs may be substantial

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Edited by Margaret A. Winker, MD, Deputy Editor, and Phil B. Fontanarosa, MD, Interim Coeditor.

in some practice settings, the degree of autonomy allowed is based on supervising physician–delegated authority, consistent with the intent of the profession's founders. As we documented in 1994,⁴ the PA profession remains in a physician-dependent stance with regard to employment and clinical practice, with no indication of professional movement toward independent practice or direct reimbursement from third-party payers. While state legislative actions that have occurred over the past 5 years pertaining to regulation of scope of practice, prescribing authority, and supervisory requirements of PAs may be viewed as progressive, all such measures are based on the premise of the PA as a physician-supervised clinician.

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1. Cooper RA, Laud P, Dietrich CL. Current and projected workforce of nonphysician clinicians. *JAMA*. 1998;280:788-794.
2. Pew Health Professions Commission. *Critical Challenges: Revitalizing the Health Profession for the Twenty-First Century*. San Francisco, Calif: Pew Health Professions Commission; 1995.
3. Cooper RA, Henderson T, Dietrich CL. Roles of nonphysician clinicians as autonomous providers of patient care. *JAMA*. 1998;280:795-802.
4. Jones PE, Cawley JF. Physician assistants and health system reform: clinical capabilities, practice activities, and potential roles. *JAMA*. 1994;271:1266-1272.

To the Editor: The 2 studies by Dr Cooper and colleagues^{1,2} concerning the supply and roles of NPCs and the related Editorial³ were thoughtful and well researched. Nurse practitioners (NPs) represent a group that has grown considerably in the last 5 years as evidenced by the National Organization of Nurse Practitioner Faculties' (NONPF's) Workforce Policy Project Technical Report.⁴ The increasing supply of NPs has not gone unnoticed by our profession. The NONPF's Workforce Report recognized these trends for NPs, recommended working with other health care professions on developing a coherent workforce policy, and now can be used to build on the suggestions presented in the *JAMA* articles.¹⁻³

The NONPF report suggests the need to (1) develop a strategic plan for NP program development linked to state, regional, and national health professions workforce supply and demand; (2) stabilize NP program growth; (3) develop a continuous oversight body to review workforce supply and demand issues to formulate policy and funding recommendations with minimum representation from NPs, PAs, certified nurse midwives (CNMs), medical doctors, doctors of osteopathy, and other providers of primary care services; and (4) fund, at a national level, the coordination of workforce data to inform policy decisions.

The solution to what is viewed as an impending oversupply of health and medical providers can be best found in true interdisciplinary collaboration as Drs Grumbach and Coffman suggest.³ The time has come for primary care practitioners to work together as we carefully plan for this country's primary care workforce. New types of collaborative models between NPs and phy-

sicians could be explored that promote better care for specific populations most in need, including the growing number of uninsured persons in this country. More, not fewer, jobs may be needed for primary care clinicians to care for a growing population of elderly and chronically ill persons in society. As Cooper et al^{1,2} suggest, a nursing model is well suited to an interdisciplinary team working to meet the complex, preventive, long-term care, and case-management needs of these groups.

Workforce projections are useful tools to help plan for meeting future health care needs. With accurate workforce data and planning we can move forward collaboratively not just with our own professions in view but also with an eye on the needs of the patients we serve.

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1. Cooper RA, Henderson T, Dietrich CL. Roles of nonphysician clinicians as autonomous providers of patient care. *JAMA*. 1998;280:795-802.
2. Cooper RA, Laud P, Dietrich CL. Current and projected workforce of nonphysician clinicians. *JAMA*. 1998;280:788-794.
3. Grumbach K, Coffman J. Physicians and nonphysician clinicians: complements or competitors? *JAMA*. 1998;280:825-826.
4. Harper D, Johnson J. *NONPF Workforce Policy Project Technical Report: Nurse Practitioner Educational Programs 1988-1995*. Washington, DC: National Organization of Nurse Practitioner Faculties; 1996.

To the Editor: The articles by Dr Cooper and colleagues^{1,2} regarding NPCs require clarification of 3 important points.

1. Licensing of naturopathic doctors. As stated in the article, not all naturopaths in practice receive their training from accredited colleges (Council on Naturopathic Medical Education, oral communication, September 1998).^{1,3} Graduates from unaccredited naturopathic schools, some of which have program requirements of 1 year or less, are not eligible to sit for licensing examinations or become licensed. However, license-ineligible naturopaths can practice without distinction from license-eligible naturopaths in states that do not grant licensure.

2. Training of naturopathic doctors. Currently, 2 accredited schools graduate license-eligible naturopaths: Bastyr University (Seattle, Wash) and National College of Naturopathic Medicine (Portland, Ore). Two other schools have accreditation candidacy and also are recognized by the US Department of Education: Southwest College of Naturopathic Medicine (Scottsdale, Ariz) and Canadian College of Naturopathic Medicine (Toronto, Ontario). These schools have minimum 4-year postgraduate curricula including 2 years of supervised patient management for their naturopathic medicine programs. Successful graduates who pass 4 days of basic science, conventional clinical, and naturopathic clinical board examinations are eligible for licensure as primary care physicians, specializing in natural medicine.

3. Integrated practice. It is clear that an increasing number of patients are turning to naturopathic or other alternatives to allopathic medicine, which is why we have integrated rather than separated these approaches. We have found our conventional allopathic and naturopathic collaboration not to be competitive,

but mutually beneficial, providing patients a more holistic approach in meeting their health care needs.

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1. Cooper RA, Laud P, Dietrich CL. Current and projected workforce of nonphysician clinicians. *JAMA*. 1998;280:788-794.
2. Cooper RA, Henderson T, Dietrich CL. Roles of nonphysician clinicians as autonomous providers of patient care. *JAMA*. 1998;280:795-802.

To the Editor: Dr Cooper and colleagues erroneously state “. . . all states that license naturopaths consider them to be physicians and designate their titles as doctor of naturopathic medicine (ND) or naturopathic physician (NP).”¹ The New Hampshire Medical Society does not consider naturopathic practitioners to be physicians and the society insisted that the naturopathic licensing bill, which was enacted in 1994, include a provision to specifically prohibit naturopathic practitioners from calling themselves, advertising themselves, or allowing themselves to be called physicians, and prohibiting them from using any physician’s insignia.²

The issue resurfaced this year when podiatrists sought to change their licensing statute to allow them to use the term *physician*. New Hampshire amended the podiatric licensing statute to allow them to use the term *podiatric surgeon*.³ In addition, the medical practice act was amended to specifically limit the use of the term *physician* to only licensed medical doctors and doctors of osteopathy.⁴

Janet H. Monahan, MBA
New Hampshire Medical Society
Concord

1. Cooper RA, Henderson T, Dietrich CL. Roles of nonphysician clinicians as autonomous providers of patient care. *JAMA*. 1998;280:795-802.
2. NH Rev Stat Ann §328-E:14.
3. NH Rev Stat Ann §315:8.
4. NH Rev Stat Ann §329:1.

In Reply: In response to Dr Owens, we want to reiterate that our data collection included not only NPC organizations but also the Health Policy Tracking Service at the National Conference of State Legislatures and the Internet Web sites of individual states. From these sources we concluded that CRNAs have the authority to practice independent of physician supervision in 18 states. However, Owens cites the technical report prepared by Squires, Sanders, and Dempsey, LLP, for the American Society of Anesthesiologists as showing that only New Hampshire allows CRNAs to be independent of physician involvement. While New Hampshire is alone in not placing some oversight limitation on CRNAs, the limitations imposed in 17 other states do not preclude CRNAs from practicing independently. Some of these limitations constrain their practices to specific guidelines and privileges; some mandate that CRNAs maintain collaborative and collegial relationships with a physician, dentist, or podiatrist; and some mandate that a physician be the director of the hospital anesthesia service. None of these stipulations creates the requirement for physician supervision of CRNAs. Moreover, even

among the states that have such a requirement, the supervising physician is often the operating surgeon, dentist, or podiatrist rather than an anesthesiologist.

Drs Cawley and Jones are rightly concerned about an overcrowded workforce in the future, and we support their call for dialogue. However, we want to clarify our use of the term *direct reimbursement*. We took this term to mean reimbursement billed under the name of the treating NPC rather than billed by a physician under the incident to provision. Medicare allows (and recently expanded) direct reimbursement to PAs, and several states mandate that private insurers do the same. Although we agree that PAs are, by definition, physician supervised (and, therefore, not truly independent), such supervision is often remote, and the autonomy that PAs have achieved in many states is substantial.

We agree with Dr Boodley and colleagues that it is time to be creative and visionary in establishing collaborative models for physicians and NPs, and we would extend this notion to include other NPCs as well. Drs Pournadeali and Yarnall offer 1 such model. We also appreciate Ms Monahan’s clarification of the use of *physician* and *doctor* in New Hampshire. Her comments highlight the importance given to these titles by certain of the NPC disciplines.

In addition, after publication we realized that, by limiting our analysis of CNM and CRNA training programs to those based within nursing schools, we had excluded one third of the CNM programs and half of the CRNA programs. Using annual certification data instead, we found that the number of newly trained CNMs has increased from 260 in 1992 to 590 in 1997,¹ while the number of newly certified CRNAs fluctuated between 790 and 1080.² Based on these data, we have projected that the number of practicing CNMs will increase from 5150 in 1995 to 10 000 in 2005 and 14 400 in 2015 (approximately 15% more than we had projected), and the number of CRNAs will increase from 23 400 in 1995 to 26 900 in 2005 and to 27 600 in 2015 rather than decline as we had projected previously.

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Washington, DC

1. Certification Council of the American College of Nurse-Midwives. *Annual Production of New CNMs*. Washington, DC: Certification Council of the American College of Nurse-Midwives; September 1998.
2. Revak GR, Jaffe JM. *CRNA Retirement Final Report: A Study of CRNA Retirement and Practice Termination Patterns and Projections Into the 21st Century*. Park Ridge, Ill: American Association of Nurse Anesthetists; 1998.

These letters were shown to Dr Grumbach, who declined to reply.—Ed.

Sexual Abuse and Adolescent Pregnancy

To the Editor: The title of the Commentary by Dr Elders and Ms Albert,¹ “Adolescent Pregnancy and Sexual Abuse,” leads the reader to think of the issue in terms of the classic definition of sexual abuse, that is, harm or the threat of harm committed to a

minor child by parent or guardian, person or persons responsible for their care.² It is not until midway through the article that one learns that in a majority of these pregnancies, "Boyfriends who are considerably older than their adolescent girlfriends have been found to be responsible." In most jurisdictions, that moves the abusive incident out of the child protection system and into the criminal justice system as the crime of statutory rape. Even more puzzling is that, while Elders and Albert clearly outline the responsibility for reporting "past sexual abuse," they are hesitant to have clinicians report the crime of statutory rape.

As a pediatrician working in emergency medicine and child protective services for more than 20 years, my experience has been that it is always helpful to the adolescent to invoke the full requirement and force of the law in reporting either the civil crime of child abuse or the felony of statutory rape. Moreover, it is never legal to do otherwise. And worse, failing to do so allows the alleged perpetrator to continue the abusive behavior. Adolescent and preadolescent patients deserve better treatment than that.

We learned long ago that child abuse cannot be dealt with by even the most concerned and conscientious physician alone, and getting this crime "out of the closet" has helped untold numbers of children. Likewise, physicians cannot deal with the crime of statutory rape alone and should not ever try to do so.

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1. Elders MJ, Albert AE. Adolescent pregnancy and sexual abuse. *JAMA*. 1998; 280:648-649.
2. Va Rev Code §314 & 317:18.

To the Editor: Dr Elders and Ms Albert¹ highlight the extreme societal neglect regarding adolescent pregnancy and sexual abuse.¹ The terms *adolescent pregnancy* and *teen pregnancy* should be abandoned and replaced with *juvenile pregnancy*, *childhood pregnancy*, and *statutory rape* in all research and statistics. Grouping children with young adults merely obfuscates this problem.

The neglect is not limited to medical professionals.^{2,3} I studied 141 charts of children who received obstetric anesthetic care at the Louisiana State University Medical Center in Shreveport (unpublished data, 1996). In no instance was the suspicion of sexual abuse raised in conjunction with the birth, and despite recorded data indicating adult paternal age (statutory crime), activities served solely to secure welfare benefits and ongoing health care. This is appropriate to ensure health care to childhood parturients and newborns, in whom associated punitive action will limit health care utilization. Further, Louisiana's state records verified 3000 registered juvenile deliveries annually.⁴ Many paternal ages were listed as a matter of record, clearly documenting statutory rape, increasing to 80% prevalence with decreasing parturient age.⁴ The local district attorney's office indicated that legal action was limited only to cases with "registered complaints."

While overwhelming strides have secured the welfare of adult females since the Hill-Thomas hearings, stark neglect characterizes attempts to effectively legislate and secure the rights of children, "nonprotecting" them from adult sexuality. The problem is

not with individual clinical medical personnel but at the level of statistics and research reports and more specifically with the state social service and judiciary systems. Physicians are reporting every juvenile birth, sexually transmitted disease, and abortion to the state without response. If society desires to protect children from sexual abuse by adults, effective state services must become routine. It is inconsistent to mandate this obligation to medical professionals using state laws when the state itself ignores this duty.

Sexual predators must be systematically identified. Paternal and maternal responsibility is highly desirable, and all fathers must be registered at birth. There is no longer any danger of false accusations of paternity resulting in mistakes, given the level of biological verification. Any pregnant juvenile unable to identify the male partner must be considered a subject of abuse and investigated, including potential for their offspring's neonatal neglect. It is reasonable and efficient to have childhood sexuality investigated by the state via existing mechanisms, particularly if done in a caring and responsible fashion.

Paul M. Kempen, MD, PhD
University of Pittsburgh
Pittsburgh, Pa

1. Elders MJ, Albert AE. Adolescent pregnancy and sexual abuse. *JAMA*. 1998; 280:648-649.
2. Kempen PM, Norton P, Vu H. A risk index for pregnancy testing during anesthesia. *J Clin Anesth*. 1997;9:194-199.
3. Kempen PM. Preoperative pregnancy testing: a survey of current practice. *J Clin Anesth*. 1997;9:546-550.
4. Department of Vital Statistics. Louisiana Vital Records Registry. Baton Rouge: Louisiana State Dept of Vital Statistics; 1995.

To the Editor: Dr Elders and Ms Albert¹ pointed out the alarming rate of abuse among pregnant 15-year-olds, usually by predatory older boyfriends. A few predators, however, include older blood relatives of the girls, including uncles, fathers, grandfathers, and brothers.²

We have studied children and their mothers in the course of performing paternity tests for various child support agencies. An analysis of our data showed that consanguineous parentage could be suspected when a mother was aged 19 years or younger, a child was HLA homozygous or had an HLA phenotype that was identical to the mother's, and a falsely accused man was exonerated (by tests of other locus polymorphisms). We estimated that as many as 1% to 2% of offspring of disputed parentage cases may have been the result of consanguineous matings.³ In the United States, the prevalence of incestuous abusive behavior is estimated at 0.8% to 2.0%.⁴ Findings in our genetic study and studies using questionnaires are mutually supportive. There is evidence that a higher proportion of teen pregnancies are the result of consanguineous matings.³

Interfamilial abuse should be considered in the evaluation of pregnant teenagers because of both the abuse itself and the greater frequency of autosomal recessive diseases among the offspring.

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Terry Houtz
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1. Elders MJ, Albert AE. Adolescent pregnancy and sexual abuse. *JAMA*. 1998; 280:648-649.

- Edwards JH. Evidence of incest based on homozygosity. *Ann Hum Genet.* 1988; 52:351-353.
- Houtz TD, Wenk RE, Brooks MA, et al. Laboratory evidence of unsuspected parental consanguinity among cases of disputed paternity. *Forensic Sci Int.* 1982; 20:207-215.
- Sariola H, Uutela A. The prevalence and context of incest abuse in Finland. *Child Abuse Negl.* 1966;20:843-850.

In Reply: As correctly alluded to by Dr Zanga, there have been tremendous discrepancies in the terminology used to describe sexual relationships between minors and adults, within both the literature and the law. A review of state statutory rape laws determined that the term *statutory rape* is used rarely, with more than a dozen different terms used by different states.¹ Classically, *sexual abuse* has been defined to include engaging a child in sexual activities for which he or she is developmentally unprepared and cannot give informed consent.² Young girls up to the age of 15 years are generally considered to be neither legally nor developmentally capable of consenting to sexual relationships with adults, and consequently, these relationships constitute sexual abuse.¹

Perhaps equally inconsistent are child abuse reporting laws with regard to whether statutory rape is included and must be reported. According to the American Bar Association Center on Children and the Law, states are almost evenly split on mandating the reporting of statutory rape.¹ Furthermore, youth service providers are ambivalent about reporting relationships between young teen girls and their adult boyfriends. Almost 66% of providers revealed they do not report these relationships to law enforcement or child protection services on disclosure.¹ Their reasons include concern about violating confidentiality and deterring girls from seeking medical or social services and the risk of physical retaliation by boyfriends against girls. In addition, echoing Dr Kempen's concerns, providers expressed lack of confidence in the criminal justice system to respond appropriately and effectively.

However, sexual relationships between minors and adults, albeit consensual, must be addressed by medical professionals. It is the responsibility of health practitioners to develop the means for learning of these inappropriate relationships and to obtain expert legal advice as to their reporting obligations. Not all medical personnel are eliciting such information.^{1,3,4} According to 1 study of youth service providers, only 20% routinely ask their teen clients at intake about their sexual molestation history and the age and involvement of the teen's sexual partner or father of their child.¹ Dr Wenk and Mr Houtz remind us not to overlook the possibility of interfamilial abuse in the workup of pregnant teens.

To improve detection, sexual abuse investigations could be mandated for all girls aged 15 years or younger at the time of their infants' deliveries when paternal ages are listed as matter of record. Further research needs to be conducted to learn about appropriate interventions for these girls and men.

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- Elstein SG, Davis N. *Sexual Relationships Between Adult Males and Young Teen Girls: Exploring the Legal and Social Responses.* Washington, DC: American Bar Association Center on Children and the Law; October 1997.
- American Academy of Pediatrics Committee on Child Abuse and Neglect. Guidelines for the evaluation of sexual abuse of children. *Pediatrics.* 1991;87:254-260.
- Kerns DL, Terman DL, Larson CS. The role of physicians in reporting and evaluating child sexual abuse cases. *Future Child.* 1994;4:119-134.
- Pence DM, Wilson CA. Reporting and investigating child sexual abuse. *Future Child.* 1994;4:70-83.

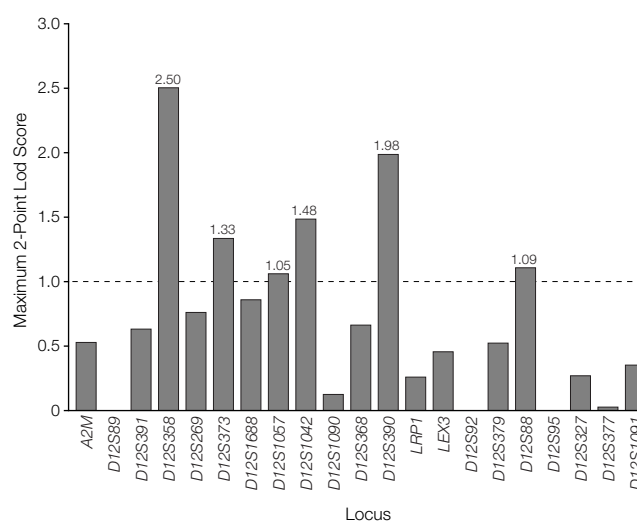
Further Evidence Linking Late-Onset Alzheimer Disease With Chromosome 12

To the Editor: We previously reported the results of a genomic screen and initial follow-up in 54 multiplex families with late-onset Alzheimer disease (AD),¹ describing linkage to several markers in the centromeric region of chromosome 12. We have since reported linkage to chromosome 12 in an independent sample of Amish families.² Two research groups^{3,4} recently reported additional evidence linking late-onset AD to chromosome 12. We now report our additional follow-up studies in relation to these articles.

Our original report focused on the centromeric region of chromosome 12, where evidence for linkage was indicated by our analysis of 54 large multiplex families with AD. To better localize the gene(s) involved with late-onset AD, we genotyped additional individuals in these families as well as additional markers surrounding loci *D12S373* and *D12S390*, our initial region of significant linkage. Linkage analysis was performed using the methods described in our original report.¹

Two-point affecteds-only lod scores at 6 markers (*D12S358*, *D12S373*, *D12S1057*, *D12S1042*, *D12S390*, *D12S88*) were supportive of linkage (lod scores >1) (FIGURE). The peak

Figure. Maximum 2-Point Affecteds-Only Lod Scores (With 5% Misdiagnosis Correction)



Lod scores exceeded 1 for 6 markers (indicated with the lod scores above the bars), supporting linkage over a broad region of chromosome 12.

flanking markers are *D12S358* (lod = 2.50) and *D12S390* (lod = 1.98), spanning 40 centimorgans over both arms of the chromosome. Multipoint sib-pair maximum lod score analysis also detected a broad region of positive lod scores, with several separate peaks (data not shown). This fluctuation is characteristic of genetic heterogeneity and is supported by our initial observation that linkage was strongest in families not segregating the *APOE-ε4* allele.

We conclude that at least 1 late-onset familial AD gene resides within a broad area surrounding the centromeric region highlighted in our original report. That different studies find peaks in different regions is not surprising, as recent simulation studies have indicated that maximum lod scores obtained from genomic screens may be located as far as 20 centimorgans from the actual disease gene location.⁵ It has not escaped our attention that this region of chromosome 12 contains many candidate genes, such as α_2 -macroglobulin and low-density lipoprotein receptor-related protein. However, our extensive studies have not identified any effects of these particular genes on risk of AD. We are currently exploring methods to further dissect the genetic heterogeneity of AD and identify the responsible gene(s) on chromosome 12.

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1. Pericak-Vance MA, Bass MP, Yamaoka LH, et al. Complete genomic screen in late-onset familial Alzheimer disease: evidence for a new locus on chromosome 12. *JAMA*. 1997;278:1237-1241.

2. Rimmler JB, Gaskell PC, Abou-Donia S, et al. A genomic screen in extended Amish families supports a locus on chromosome 12 for Alzheimer disease (AD) [abstract]. *Am J Hum Genet*. 1997;61:A292.

3. Rogaeva E, Premkumar S, Song Y, et al. Evidence for an Alzheimer disease susceptibility locus on chromosome 12 and for further locus heterogeneity. *JAMA*. 1998;280:614-618.

4. Wu WS, Holmans P, Wavrant-DeVrieze F, et al. Genetic studies on chromosome 12 in late-onset Alzheimer disease. *JAMA*. 1998;280:619-622.

5. Hauser ER, Boehnke M. Confirmation of linkage results in affected-sib-pair linkage analysis for complex genetic traits [abstract]. *Am J Hum Genet*. 1997;61:A278.

This letter was shown to Dr Hardy and Dr St. George Hyslop, who concurred with the findings and declined to reply.—Ed.

Screening Adolescent Females for Chlamydia Infection

To the Editor: Although I support the recommendation of Dr Burstein and colleagues¹ for frequent screening of adolescents for chlamydia infection, the authors neglected to address an issue fundamental to the validity of their findings. At the first visit, patients testing positive for *Chlamydia trachomatis* were treated with either oral doxycycline, 100 mg twice daily for 7 days, or a single oral 1-g dose of azithromycin. Single-dose therapy delivered in the clinic is considered effective treatment, but the success of a 7-day regimen depends on patient compliance. Some of the cases identified in the study as “repeat infections” (ie, patients testing positive for chlamydia at least 30 days earlier) could have been treatment failures. Given this possibility, it was incumbent on the authors to present either a rigorous method of how they verified patient compliance with therapy or an analysis of their data by treatment modality, or both.

Gene Goldenfeld, MA
Department of Health Services
Los Angeles, Calif

1. Burstein GR, Gaydos CA, Diener-West MD, Howell MR, Zenilman JM, Quinn TC. Incident *Chlamydia trachomatis* infections among inner-city adolescent females. *JAMA*. 1998;280:521-526.

To the Editor: Dr Burstein and colleagues¹ are incorrect in generalizing the utility of screening recommendations for *C trachomatis* infection among adolescents to sites other than Baltimore, Md. The population evaluated in their study was homogeneous (98% African American) and not representative of sexually active adolescents elsewhere. The incidence rate of 28.0 cases per 1000 person-months in their study resulted in a median time to incident infection of 6 months. The authors concluded from this observation that semiannual screening should be widely adopted. This conclusion does not consider logistics or cost-effectiveness, although nearly any screening frequency in this high-incidence population would be cost saving.² Furthermore, there is no rationale on which to base a screening strategy on the median time to incident infection.

Each jurisdiction must look at its own chlamydia prevalence data—every epidemic is local. In San Francisco, Calif, in 1997, the chlamydia positivity rate among adolescent females at a high school clinic was 14 (8.5%) of 164 and among adolescent females at a youth detention center it was 72 (13.3%) of 540—much lower rates than the 24% found in Baltimore. These lower prevalences would likely warrant only annual screening to detect 50% of incident infection.

Chlamydia is an asymptomatic infection with serious consequences affecting those least likely to have consistent medical care: adolescents. Widespread voluntary clinician-based screening would likely not be adequate for this population that does not frequently access health care. A truly effective chlamydia control program should model itself along the lines of current immunization programs and include mandatory chlamydia screening for school entry. Finally, public health professionals should work with

parent groups, school boards, and local officials to develop legislation requiring chlamydia screening for entry into each year of high school.

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1. Burstein GR, Gaydos CA, Diener-West MD, Howell MR, Zenilman JM, Quinn TC. Incident *Chlamydia trachomatis* infections among inner-city adolescent females. *JAMA*. 1998;280:521-526.
2. Howell MR, Quinn TC, Brathwaite W, Gaydos CA. Screening women for *Chlamydia trachomatis* in family planning clinics. *Sex Transm Dis*. 1998;25:108-117.

In Reply: Choice of treatment regimen, either doxycycline, 100 mg twice daily for 7 days, or a 1-g dose of azithromycin, was based on local clinic policy, which reflects standard treatment in most clinic settings serving adolescents at risk. We agree that analyzing our data on repeat chlamydia infections by treatment modality or compliance or both may have provided interesting information on efficacy. Although data on treatment regimen were not collected in our study, 2 recent reports compared the efficacy of doxycycline vs azithromycin and found them to be comparable, with treatment failures of less than 5% at 2 to 4 weeks after therapy.^{1,2} Therefore, we do not believe differentiation of results by treatment regimen or reported patient compliance would have altered our findings.

Although our study population was homogeneous and Baltimore is known to have high sexually transmitted disease rates, we believe sufficient evidence exists supporting our recommendation of chlamydia screening every 6 months for sexually active adolescent females. Chlamydia screening in most adolescent female populations yields prevalences of more than 10%, except in areas with long-standing chlamydia control programs such as the Pacific Northwest.³⁻⁶ Dr Klausner presents recommendations based on prevalence rates calculated with small numbers of patients and does not provide information on frequency of infection or reinfection. Our recommendation is based on incidence rates calculated from prospective data collected over 33 months on 3202 adolescent females.

Klausner advocates for screening practices to be dictated by local disease prevalences. We agree in concept. However, the chlamydia burden in other parts of the country has not been well described, and most health care infrastructures currently do not have the resources, technology, or impetus to generate these data. In

addition, many chlamydia prevalence rates are determined with less-sensitive tests than were used in our study and may underestimate the disease burden.³

Wherever we look for chlamydia we find it, especially among adolescents.³⁻⁶ Since chlamydia is mostly an asymptomatic infection with serious consequences, as Klausner points out, and since the risk of pelvic inflammatory disease and its sequelae increases with the duration of untreated infection, we feel it is cavalier to assume without supporting evidence that chlamydia is not a problem in any given adolescent population. Therefore, we recommend screening all sexually active adolescent females for chlamydia infection, regardless of history or symptoms, until evidence to the contrary is generated.

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1. Thorpe EM, Stamm WE, Hook EW, et al. Chlamydial cervicitis and urethritis: a single dose treatment compared with doxycycline for seven days in community based practices. *Genitourin Med*. 1996;72:93-97.
2. Hillis SD, Coles FB, Litchfield B, et al. Doxycycline and azithromycin for prevention of chlamydial persistence or recurrence one month after treatment in women. *Sex Transm Dis*. 1998;25:5-11.
3. Schacter J. *Chlamydia trachomatis*: the more you look, the more you find—how much is there? *Sex Transm Dis*. 1998;25:229-231.
4. Division of STD Prevention. *Sexually Transmitted Disease Surveillance*, 1996. Atlanta, Ga: Centers for Disease Control and Prevention; 1997.
5. Winter L, Goldy AS, Baer C. Prevalence and epidemiologic correlates of *Chlamydia trachomatis* in rural and urban populations. *Sex Transm Dis*. 1990;17:30-36.
6. Fisher M, Swenson PD, Risucci D, Kaplan MH. *Chlamydia trachomatis* in suburban adolescents. *J Pediatr*. 1987;111:617-620.

CORRECTION

Errors in Figures: In the Review entitled "Saw Palmetto Extracts for Treatment of Benign Prostatic Hyperplasia: A Systematic Review," published in the November 11, 1998, issue of THE JOURNAL (1998;280:1604-1609), there were several errors in the figures. In the column headings for Figures 1, 3, and 4, the word "expected" should have read "experiment." In Figure 2, the number of patients for Braeckman et al should have been 238, bringing the overall total to 659 patients. In Figure 4, the overall confidence interval for peak urinary flow should have read 0.724, not -0.724.