

ACC COMMITTEE REPORT

The ACC Professional Life Survey: Career Decisions of Women and Men in Cardiology

A Report of the Committee on Women in Cardiology

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Objectives. This survey was conducted to learn how the career decisions of women and men in cardiology influenced their professional and personal lives.

Background. Women represent only 5% of practicing adult cardiologists and 10% of trainees. Yet, women and men now enter medical school at nearly equal numbers. The factors that contribute to career satisfaction in cardiology should be identified to permit the development of future strategies to ensure that the best possible candidates are attracted to the profession.

Methods. A questionnaire developed by the Ad Hoc Committee on Women in Cardiology of the American College of Cardiology (ACC) was mailed in March 1996 to all 964 female ACC members and an age-matched sample of 1,199 male members who had completed cardiovascular training.

Results. Women were more likely to describe their primary or secondary role as a clinical/noninvasive than invasive cardiologist ($p < 0.0001$ women vs. men). Men and women both reported a high level of satisfaction with family life, but women were less satisfied with their work as cardiologists (88% vs. 92%, $p < 0.01$) and with their level of financial compensation. Compared with

men, women expressed less overall satisfaction (69% vs. 84%) and more dissatisfaction with their ability to achieve professional goals (21% vs. 9%). These differences were most pronounced for women in academic practice. Women reported greater family responsibilities, which may limit their opportunities for career advancement. Women were more likely to alter training or practice focus to avoid radiation. A majority of women (71%) reported gender discrimination, whereas only 21% of men reported any discrimination, largely due to race, religion or foreign origin.

Conclusions. Women cardiologists report overall lower satisfaction with work and advancement, particularly within academic practice. They report more discrimination, more concerns about radiation and more limitations due to family responsibilities, which may ultimately explain the low percentage of women in cardiology. Attention to these issues may result in programs to improve professional satisfaction and attract the best candidates into cardiology in the future.

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The practice of cardiology is changing because of internal and external forces. Faced with the potential for a reduction in

workforce, those in leadership positions who wish to attract high quality physicians into the field need to determine what features of a career in cardiology are most desirable and most satisfying to those currently in practice. Of particular concern is whether women, who are now only a small proportion of cardiologists in the United States, will find the field attractive and personally fulfilling. Women now constitute 43% of new entrants to medical schools and 34.5% of all residents in internal medicine (American Association of Medical Colleges [AAMC], Women in U.S. Academic Medicine Statistics 1997), but only 10% of adult cardiology fellows and 5% of practicing adult cardiologists are women (American College of Cardiology [ACC] membership file). Although the situation differs for pediatrics, in which 62.5% of residents are women, there is still a smaller representation within cardiology. Forty-nine percent

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of trainees in pediatric cardiology are women, and 45% of practicing pediatricians are women (Tunneson WW Jr., personal communication, Workforce Data, The American Board of Pediatrics, 1997). Without attention to the forces that attract or deter women and men entering the field, the profession risks selective exclusion of some of the brightest and most capable physicians from its future ranks.

In 1996, the ACC had 19,728 U.S. members who had completed training and included 85% of all adult cardiologists, 78% of pediatric cardiologists and 55% of cardiothoracic surgeons. A survey of its members was felt to provide a representative sampling of the experience of cardiologists in the United States. Previous surveys of women physicians have concentrated on academic advancement and satisfaction (1,2) or have only studied women (1,3). The Ad Hoc Committee on Women in Cardiology wanted to determine how career decisions affect both the professional and personal lives of private practitioners as well as academic cardiologists and to determine what differences existed between women and men. This information was sought to assist in planning of future programs to attempt to address the concerns identified.

Methods

The Committee developed a survey to assess personal and professional issues for cardiologists. Questions on levels of satisfaction were based on a survey of Canadian women surgeons (4). Internal pilot testing was conducted to refine the instrument and establish the completion time at <15 min. The instrument included 48 questions about education, career choices and satisfaction, mentors, family issues and responsibilities, effects of discrimination, topics for job negotiations and interest in participation in ACC activities.

The survey was mailed to 2,163 members of the ACC, including all 964 female members within the United States who had completed their training, plus an age-matched sample of 1,199 male members in the United States who had also completed training. The sampling rates were adjusted for known differences in survey response rates between men and women.

The survey was sent with a personalized cover letter signed by the President of the ACC, in March 1996. A stamped, addressed return envelope was provided. Members who had not responded after several weeks were sent a second survey. Surveys were coded to permit cross analysis with the ACC Membership Database for demographic information. All percentages reported were rounded to the nearest whole number.

Statistical analysis. Chi-square tests were used to compare differences in responses by women and men. Because of multiple comparisons, a p value <0.01 was required for statistical significance; p values reported in the text refer to the comparisons between women and men described within the current sentence.

Table 1. Respondent and Nonrespondent Characteristics

	Respondents		Nonrespondents	
	M	F	M	F
Age (yr)				
<40	19%	15%	19%	11%
40-49	19%	25%	23%	22%
50-59	7%	7%	12%	6%
≥60	6%	3%	6%	2%
Total	51%	50%	60%	41%
Years since completed training				
Up to 5	15%	12%	14%	9%
6-10	10%	14%	23%	12%
≥10*	11%	15%	14%	13%
Unknown*	15%	8%	19%	7%
Total	51%	49%	60%	41%

*Membership data on year completed training is incomplete before 1986.

Results

A total of 1,064 (49%) of the 2,163 members surveyed responded to the mailings. Five hundred eighteen women (54%) and 546 men (46%) responded. Response rates varied by specialty, with pediatric cardiologists (62%) responding significantly more often than either adult cardiologists (49%) or cardiovascular surgeons (30%, $p < 0.001$). There were no other significant differences between the respondents and nonrespondents in age or number of years since completing training (Table 1).

Practice setting. Although those selected to receive the survey were age matched, women were more recent graduates of medical school, residency and fellowship training than men, suggesting that women were more likely to delay entry into medical school and postgraduate training. More women respondents were pediatric cardiologists (17% vs. 7%), and fewer women were adult cardiologists (81% vs. 90%) or cardiovascular surgeons (1.8% vs. 2.8%) than men (all $p < 0.0001$). More women considered medical school or university faculty as the best description of their practice (37% vs. 21%, $p < 0.0001$), and fewer women than men considered private practice their primary practice setting (53% vs. 73%, $p < 0.0001$) (Table 2). Women were more likely to be in part-time practice (8% vs. 3%, $p < 0.001$), other type of practice (4% vs. 1.5%, $p < 0.001$) or not practicing (1.5% vs. 0.9%, $p < 0.001$) than men. The most common type of private practice described for both men and women is a single specialty group practice, but fewer women than men described this as their primary setting (51% vs. 61%, $p < 0.001$) whereas more women were in solo practice (20% vs. 16%, $p < 0.001$) or practiced in a health maintenance organization (HMO) setting (8% vs. 2%, $p < 0.001$).

Women were more likely to define their primary or secondary role as a clinical cardiologist (79% vs. 58%), echocardiographer (31% vs. 19%), transplant cardiologist (5% vs. 2%) or researcher (12% vs. 8%) but less likely to define their primary or secondary role as a diagnostic invasive cardiologist (18% vs. 41%) or interventional invasive cardiologist (10% vs. 27%, $p <$

Table 2. Primary Practice Settings

	Men (n = 546)	Women (n = 518)
Practice setting		
Academic	21%	37%*
Government	4%	4%
Private practice	73%	53%*
Solo practice	16%	20%
Cardiovascular group	61%	51%
Multispecialty group	19%	17%
HMO staff or group model	2%	8%
Other private practice	15%	4%
Other	2%	5%
Primary or secondary roles†		
Clinical cardiologist	58%	79%*
Diagnostic invasive cardiologist	41%	18%*
Interventional invasive cardiologist	27%	10%*
Echocardiographer	19%	31%*
Electrophysiologist	9%	9%
Nuclear cardiologist	4%	4%
Transplant cardiologist	1%	5%‡
General internist	9%	7%
General pediatrician	<1%	<1%
Researcher	8%	13%*
Administrator	5%	5%

*p < 0.01, ‡p < 0.0001, women versus men. †Respondents designated one primary role and one secondary role, so total percentages do not equal 100%. HMO = health maintenance organization.

0.01 for transplant cardiologist, p < 0.0001 for all others) (Table 2). Similar percentages of men and women described their practice focus as electrophysiology (9% each), nuclear cardiology (4% each), general internist (7% and 8%, respectively), general pediatrician (<1% each) and administrator (5% each).

Women were more likely than men to have interrupted both their training or practice for >1 month (during training 30% vs. 20%, during practice 46% vs. 13%, p < 0.0001). The most common reasons given for women who interrupted training or practice were pregnancy (22% training, 29% practice) and childbirth (44% training, 47% practice).

Mentoring. Women and men were equally likely to identify a mentor during subspecialty training (71% vs. 73%). Women were much more likely to describe their mentor as a woman (14% vs. 1%, p < 0.0001) or a pediatric cardiologist (17% vs. 7%, p < 0.0001), most likely reflecting the larger proportion of women pediatric cardiologists responding to the survey and the higher proportion of women in pediatric cardiology than adult cardiology. Women and men equally reported that their mentor had a positive influence through introductions in the field (71% vs. 74%), participating in research (67% vs. 69%), career encouragement (83% vs. 84%) and as a career (89% vs. 94%) and noncareer (34% vs. 38%) role model. Women found their mentors to be less helpful with career planning (44% vs. 62% reporting positive influence) but more helpful with connections for job placements (54% vs. 45% reporting positive influence). Women more commonly noted that their mentor

Table 3. Demographics

	Men (n = 546)	Women (n = 518)
Marital status		
Single	4%	19%*
Married	90%	71%*
Living with partner	<1%	1%
Divorced/separated	4%	7%*
Widowed	<1%	<1%
Have children	88%	63%*

*p < 0.0001, women versus men.

was actually a negative influence as a personal role model (19% vs. 8%, p < 0.01).

Personal and family issues. The majority of respondents (81%) were married. Eleven percent were single, 5% divorced, 2% not married but living with a partner, and <1% were separated or widowed. More men than women were married (90% vs. 71%), and more women were single (19% vs. 4%) or divorced (7% vs. 3%, all p < 0.0001) (Table 3). Eighty-three percent of respondents listed their race/ethnic group as white. Two percent were black, 2% Hispanic, 9% Asian/Pacific Islander, <1% native American and 2% other races. Seventy-six percent of respondents had children, either biological or adopted. More men than women had children (88% vs. 63%, p < 0.0001). The average number of children was 2.3, with men averaging 2.5 children and women 2.1. Female respondents were slightly older than male respondents at the time they had their first child (32 vs. 30 years old).

For many (36%) of the respondents who had children in the home, all child care was provided by a spouse. However, there was an expected striking difference between men and women who responded that their spouse provided child care (55% of men vs. 8% of women, p < 0.0001). Sixty-six percent of women versus 23% of men had a paid full- or part-time care giver in the home (p < 0.0001). Twenty-two percent of women versus 9% of men utilized either private home or institutional day care centers, and no women versus 3% of men had an unpaid relative who provided care. Only 1% of all respondents reported using the services of an on-site child care facility provided by a practice, hospital or institution, with many noting that there was no such facility available.

The majority of all respondents (60%) did not make additional child care arrangements for nights or on-call duties. However, of those who did report additional arrangements, more women than men (44% vs. 11%, p < 0.0001) used either the same care giver, a second care giver or made other arrangements for times on call. Equal numbers of men and women (11% and 10%, respectively) reported having primary care giver responsibility for at least one person other than children. For the majority, that responsibility was for a parent or in-law. Women more commonly cared for a parent (67% vs. 35%) and were less likely to report caring for an in-law (7% vs. 21%) or other relative (21% vs. 40%).

Respondents were asked about their satisfaction with the family leave policy of their hospital, medical school or practice.

Table 4. Career Choices Regarding Radiation

	Men (n = 87)	Women (n = 218)
Radiation exposure influenced career choices	17%	44%*
If yes, how?		
Decided not to have children	1%	4%
Planned children around radiation exposure	15%	50%*
Chose career with minimal exposure	47%†	47%‡

*p < 0.0001, women versus men. †Represents 41 men, or 8% of respondents.
‡Represents 115 women, or 23% of respondents.

Twenty-nine percent reported that no official policy existed, and 27% were not familiar with the terms of their policy. Twenty-one percent of respondents were either moderately or very satisfied with the leave policy, and only 3% were very dissatisfied.

Women were more likely to feel that family responsibilities hindered their ability to do professional work (39% of women vs. 25% of men, p < 0.01). Fifty-three percent of women and 72% of men reported being hindered only "a little" or "not at all" by family responsibilities (p < 0.0001). Fifteen percent of women versus 4% of men responded that this question was "not applicable." The differences were not explained by differences in practice settings because women in both academic and other practices were more likely to acknowledge that family duties influenced their career commitments. Women reported that family responsibilities specifically impeded their ability to travel for continuing medical education, committees and professional advancement more than men (43% vs. 29%, p < 0.0001). Likewise, 36% of women versus 14% of men reported that parenting or other family responsibilities had a negative impact on their career advancement (p < 0.0001). The reverse question, "Did their professional career have a negative impact on family life?" was not asked. Women and men were equally (83% and 86%, respectively) either moderately or very satisfied with their family life.

Radiation concerns. Thirty percent of respondents indicated that they had altered their training or practice focus to reduce the risk of occupational radiation exposure (44% of women vs. 17% of men, p < 0.0001) (Table 4). For women, the concerns about radiation exposure centered around child-bearing issues. Fifty percent of women planned conception/pregnancy during a time of nonradiation exposure compared with 15% of men (p < 0.0001), whereas few indicated that they had chosen not to have children (4% of women vs. <1% of men, p = NS). A higher percentage of women selected a career track with minimal radiation exposure to reduce their risks (23% of women vs. 8% of men, p < 0.001).

Thirty-three percent of women indicated that they had performed fluoroscopy or angiography procedures while pregnant. Pregnancy outcomes were not reported in this survey. Women reported obtaining information about radiation risks during pregnancy from a variety of sources, including medical texts and journals (33%), radiation physicists (27%), obstetricians (18%), cardiologists (15%) or radiologists (15%). Only 19% referred to hospital or training program policies, suggest-

Table 5. Career Negotiation Factors

Factor	Important in First Negotiation		Did Not Negotiate at First Job		Important Now	
	Men	Women	Men	Women	Men	Women
Salary	64%	58%	9%	14%	96%	96%
Benefits	63%	61%	9%	15%	96%	97%
Job description	88%	87%	6%	8%	97%	98%
Work hours	49%	60%*	10%	14%	86%	91%*
Travel	23%	25%	12%	21%	59%	63%
Office/laboratory space	30%	30%	10%	16%	67%	73%†
Support staff	49%	50%	10%	17%	87%	95%‡
Vacation time	47%	48%	10%	17%	82%	86%
Time to promotion	60%	51%*	11%	17%	75%	76%
Academic rank	32%	40%†	19%	21%	40%	55%‡
Seniority	22%	22%	18%	32%	57%	64%
Administrative duties	20%	23%	18%	21%	45%	62%*
Community recognition	26%	27%	19%	23%	49%	52%
National recognition	19%	18%	20%	23%	30%	40%*

†p < 0.05, *p < 0.01, ‡p < 0.001, women versus men within same time frame (first negotiation or now).

ing that policies are either not readily available or not well publicized. Importantly, 29% of women reported never having obtained any information about radiation exposure during pregnancy.

Negotiating. Cardiologists were asked to rate a series of job features that they regarded as important at the time of their first job and then as if a job were being negotiated or renegotiated now. Both women and men considered salary, benefits, job description, work hours, travel, space, support staff, vacation time, time to promotion or advancement, academic rank and seniority, administrative duties, community and national recognition to all be significantly more important for a current negotiation than at the time of their first job. A higher percentage of women than men indicated they did not negotiate any of these features at the time of first job (middle columns, Table 5). For women, negotiating for work hours was more important at the time of first job interview as well as currently than for men (60% of women vs. 49% of men for first job, p < 0.001; 91% of women vs. 86% of men for current job, p < 0.01), but both men and women expressed a significant change in priority for these negotiating issues over time. Women were more likely to consider negotiating now for support staff to be important or very important (95% vs. 87%, p < 0.0001) as well as academic rank (55% vs. 40%, p < 0.0001) and administrative duties (72% vs. 55%, p < 0.01).

Career satisfaction. Overall, women tended to be less satisfied with their professional work. Eighty-eight percent of women versus 92% men (p < 0.01) reported being moderately or very satisfied, although few respondents reported great dissatisfaction (2% of women vs. 4% of men). Satisfaction

Table 6. Satisfaction With Earnings in Academic and Other Practice Settings

	Moderately/Very Satisfied	Moderately/Very Dissatisfied
Men in academic cardiology (n = 111)	59%	23%
Men in other practice settings (n = 418)	72%	16%
Women in academic cardiology (n = 186)	54%	33%*
Women in other practice settings (n = 298)	71%	20%

*p < 0.001 versus men in academic cardiology and versus men and women in other practice settings.

rates were similar for women in academic and other practice settings and for both pediatric and adult cardiologists. Both women and men were generally satisfied with their financial compensation, although women less so than men (65% vs. 70%, p < 0.01), and more women than men were very dissatisfied (7% vs. 3%, p < 0.01). Both women and men in academic practice reported lower satisfaction with earnings than those in other practice settings (Table 6). The highest rate of dissatisfaction with earnings was reported by women in academic cardiology, with only 33% reporting being moderately or very satisfied with their financial compensation compared with 54% of men (p < 0.001) (Table 6).

Women were much more likely than men to feel that their level of advancement since completing training was lower or much lower than their contemporaries (28% of women vs. 5% of men, p < 0.0001) and less likely to feel that their advancement was higher or much higher (26% of women vs. 44% of men, p < 0.0001). This difference was most pronounced for those in academic practice, where 39% of women reported achieving lower or much lower levels of advancement compared with only 3% of men (Table 7). In addition, women expressed less satisfaction (69% of women vs. 84% of men, p < 0.0001) and more dissatisfaction than men with their opportunity to achieve their professional goals (21% of women vs. 9% of men, p < 0.0001). Nonetheless, both women and men were likely to recommend cardiology as a career choice for those seeking advice (54% of women and 61% of men), although

Table 7. Reported Level of Advancement Compared With Contemporaries Completing Training at Same Time

	Lower/Much Lower	Higher/Much Higher
Men in academic cardiology (n = 105)	3%	52%
Men in other practice settings (n = 387)	7%	44%
Women in academic cardiology (n = 174)	39%*†	26%*
Women in other practice settings (n = 267)	24%*	27%*

*p < 0.01 versus men. †p < 0.01 versus women in other practice settings.

Table 8. American College of Cardiology Members Participation* in Leadership Activities (from March 1997 to March 1998)

	Women	Men
Presidents (current and past)	1 (2%)	45 (98%)
Officers/Board of Trustees	2 (6%)	29 (94%)
Board of Governors	2 (3%)	67 (97%)
Standing committees†	44 (10%)	400 (90%)
Standing committee chairs	5 (11%)	40 (89%)

*Numbers reflect the total number of positions and that the same individual may serve in more than one capacity and was counted each time. †Does not include subcommittees, ad hoc committees and American College of Cardiology/American Heart Association joint committees or task forces. Data presented are number (%) of members serving in each role.

20% of women and 15% of men would discourage an advisee from entering cardiology as a career.

Discrimination. The survey asked whether each respondent had “experienced any effects of discrimination during your career.” If the answer was “yes,” the respondent was asked to select the type of discrimination (gender, foreign medical graduate, racial, religious, parenting responsibilities or age) or to describe it in a space for free-form comments. There were no questions addressing sexual harassment.

Women were much more likely to report having experienced discrimination during their career (71% of women vs. 21% of men, p < 0.0001). Women were more likely to report that discrimination affected their ability to conduct professional activities with colleagues (61% vs. 16%), patients (30% vs. 11%) and within the ACC (18% vs. 4%, all p < 0.0001). Most women reported discrimination because of gender (81% of women vs. 4% of men) or parenting responsibilities (8% of women vs. 1% of men), whereas men were more likely to report discrimination from racial (31% of men vs. 5% of women), religious (18% of men vs. <1% of women) or foreign medical graduate status (14% of men vs. 4% of women).

ACC participation. Women and men were equally likely to have participated in the ACC Scientific Sessions in the past 5 years (1991 to 1995) as an attendee (88% vs. 90%), abstract grader (9% vs. 7%), session moderator (9% vs. 7%) and invited speaker (9% vs. 7%) or panelist (10% vs. 6%). Women were slightly more likely to have been an abstract presenter or coauthor (36% vs. 31%) or committee or task force member (9% vs. 6%) but were less likely to be a member of the ACC leadership (Trustee or Governor) (2% vs. 5%) (Table 8).

Women were slightly but not statistically significantly more likely to indicate a desire to increase their participation in the ACC as abstract grader (35% vs. 31%), ACC committee member (48% vs. 41%), speaker for an ACC program (26% vs. 23%) and in leadership roles (31% vs. 30%). Women and men were also equally likely to be interested in serving as a mentor for young cardiologists (36% vs. 38%).

Equal numbers of women and men would like the ACC to provide educational programs in negotiating (27% each), professional development (34% vs. 32%) and leadership training (23% vs. 20%). More women than men were interested in

sessions on research training (27% vs. 22%), grant writing (24% vs. 19%) or how to mentor (28% vs. 21%). Women were less interested in programs on practice management (29% vs. 36%).

Discussion

The proportion of internal medicine residents entering subspecialty training has decreased from 59% to 46% over the past 5 years. In 1996, 12.2% of all residents completing internal medicine training entered cardiology training programs compared with 14.5% in 1992 (5). Currently, only 5% of practicing adult cardiologists and 10% of adult cardiology fellowship trainees in the United States are women (ACC membership file). In contrast, 34.5% of internal medicine residents are women, and the percent of women subspecialty trainees averages 22.5% (AAMC, Women in US Academic Medicine Statistics, 1997). In pediatrics, 62.4% of residents are women, as are 41% of trainees in pediatric subspecialties. Thus, the experience for women in adult training programs is most likely different from that in pediatrics.

Among internal medicine subspecialties, cardiology has the distinction of having the lowest percentage of women trainees, comparable to the average percentage of women residents in surgical subspecialties (11.1%), although not as low as the percentage of women in thoracic surgery (5.4%) or orthopedic surgery (7.1%) training programs (AAMC, Women in US Academic Medicine Statistics, 1997). A recent study of medical students' decisions about future career choices (6) revealed that women did not find role models in procedure-oriented and subspecialty fields, making them feel unwelcome or anxious in considering those fields. Despite the supposition that women may perceive that a surgical career is not compatible with personal and family goals, one survey (7) reported that lifestyle is less important for both men and women than content of the specialty and the skills required.

The present survey documents that men more commonly practice diagnostic or interventional cardiology than women, and women are more likely to focus on echocardiography, transplant cardiology or research, which are typically "noninvasive" areas. The complete reasons for career choices were not solicited within the survey instrument. One may speculate that the demands of an invasive practice require a larger time commitment and have more irregular and uncontrollable hours. Women who have a larger proportion of family responsibilities may have selected fields with more predictable schedules. The Women Physician's Health Study in 1994 (8) found that women who did choose specialties with greater and irregular time demands were less likely to be married and less likely to have children or had fewer children than women in other specialties. In a 1993 United Kingdom study (9), only 7.8% of women trainees expressed a career preference for surgical specialties and rated hours, working conditions and domestic situation as important considerations for career choice overall.

Current situations within the arena of cardiology may result in the subspecialty not being able to attract the most promising and talented candidates. For women in adult cardiology, persistent "minority" status with few peers and fewer role models appears to reinforce feelings of isolation and hinders advancement. The situation may be different in pediatric cardiology and bears further investigation.

The survey findings demonstrate that family responsibilities, although not directly related to the practice of cardiology, may represent an obstacle for candidates who would consider pursuing a career in cardiology and instead channel them into more family- and lifestyle-"friendly" specialties. In a 1994 poll of nearly 600 physicians (10), 85% of doctors felt that their family life suffered because of the demands of their job.

Mentoring. A high percentage of both women and men reported having had a mentor during training. The mentors were helpful with introductions to others, research, and career encouragement. Women found their mentors to be less helpful with career planning but more helpful in job placement. These findings parallel a 1992 survey of academic pediatric cardiologists (11) that reported lower career satisfaction, poorer quality of mentorship, less institutional support for research and lower rank and salary among female physicians.

Creation of more formalized mentoring (12) and career development programs, specifically directed toward junior faculty (13), would help with career planning and advancement. One institution has reported (14) reduction in gender bias, improvement in promotion rates and salary equalization by implementing a multifaceted intervention program consisting of problem identification, leadership training, commitment from top departmental leaders, faculty education, enhanced programs in faculty development, mentoring and reward system alignment. It was also shown (14) that these comprehensive interventions, although initially directed to reduce gender bias against women, improved satisfaction and commitment to academic medicine for all faculty members, men and women alike.

Practice settings. Women are relatively overrepresented in academic versus private practice settings (2). Among the survey respondents, this was also true for cardiologists. Within private practice settings, women reported higher participation in an HMO staff or group model and solo practice, whereas they were slightly less likely than men to join a multispecialty group. More women in private practice are part of a cardiovascular group practice than any other setting, but men report a higher preference for this arrangement. In general, women reported more dissatisfaction than men concerning their ability to achieve their professional goals and less satisfaction with their level of advancement. A higher proportion of women than men in academic practices reported that they had achieved a lower level of advancement than their peers. Others have reported that although the number of women in medicine is increasing, they are not advancing as fast as their male counterparts (15).

Personal and family issues. The majority of cardiologists are married, but more women than men are single or divorced,

and many more women than men remain childless. Although significantly more women are in practice part-time or are not practicing at all, the absolute number of such women is very small, with the overwhelming majority of women working full-time schedules. It remains to be determined whether cardiology as a subspecialty is less accommodating to part-time options or whether those who select cardiology are choosing not to exercise or seek such options.

Although deemed by some as a personal and nonprofessional area, the problems surrounding family life and its effect on professional life have been clearly shown to affect optimum work performance (16). Family and child care responsibilities were quite different between genders, tracking along traditional lines, with many women feeling that their careers are hindered as result of family responsibilities. The higher rate of interruption of practice compared with training for women and the older age at the time of having their first child also suggest that many female cardiologists delay childbearing until after the completion of residency and fellowship. More women are in solo practice arrangements, work for an HMO or are in an academic setting, which may reflect in part a need for flexibility or reduced practice requirements. Men appear to have less primary responsibility for child care activities because they are much more likely to have that role filled by a spouse than their female colleagues. Child and elder care are challenges common to employed women. Ten percent of respondents report having elder care responsibilities, highlighting this growing demand on the workforce. Although highly paid professionals are usually able to better afford child and elder care assistance, as this survey suggests, there are family responsibility issues that still negatively affect the ability of cardiologists, both men and women, to perform their professional work, travel for meetings and advance in the profession.

Career satisfaction. Most cardiologists would encourage an interested student to pursue a career in cardiology. The proportion of men and women who would not recommend a career in cardiology is similar to that previously reported among pediatric cardiologists (17). However, the present survey reports that a higher proportion of women would discourage entry into cardiology. Present health care reform initiatives that are influencing the level of funding for subspecialty training programs and the emphasis on primary care, coupled with the changing demands on academic and practicing cardiologists, could portend a dramatic change in their professional lives and ultimately have a negative impact on the future of cardiology.

Correlates with level of satisfaction bear further investigation. Because family life satisfaction is equal for men and women, increased pressures from striving for career advancement may be seen as threatening already limited family time. With a high proportion of women in medicine married to other physicians, the role of dual-career families in determining career satisfaction for each party needs additional exploration. In addition, the existing dichotomy of gender balance within

pediatric versus adult cardiology may permit further analysis of the features that predict career satisfaction for cardiologists. Women in academic cardiology require close attention because they are less likely than men and less likely than women in other practice settings to feel that they have achieved a level of advancement equal to their contemporaries. The level of financial satisfaction for men and women in nonacademic practice settings was not different. However, both men and women in academic practice are less likely to be satisfied with their level of earnings than are colleagues in other practice settings. The choice of practice setting must incorporate considerations other than level of compensation, including the opportunity to teach, conduct research and fulfill a professional role other than that of cardiovascular health care provider. Nonetheless, financial opportunities may be the deciding factor for some and must be addressed by the profession and academic institutions interested in recruiting and retaining outstanding faculty.

Radiation concerns. Men and women share concerns about occupational radiation exposure, which affects multiple areas for the practicing cardiologist, including choice of practice type, timing of childbearing, training and educational needs. The overrepresentation by women in noninterventional areas is at least partially explained by the concerns expressed about occupational radiation exposure. Due to childbearing roles women took more measures to reduce their radiation exposure, although 33% of women indicate that they had performed fluoroscopy or angiography procedures while pregnant. Women utilized a variety of sources of information regarding the risk of radiation exposure during pregnancy but did not indicate awareness of a standard, uniform source of information available to trainees and practitioners. For this reason, the ACC has already published a consensus document on radiation safety in the practice of cardiology (18).

Discrimination. A very large percentage of women cardiologists report experiencing gender discrimination or discrimination because of parenting responsibilities. Because respondents did not have a definition of gender discrimination, it is likely this term was interpreted broadly to include inappropriate comments and behavior as well as actions that would limit opportunities or prevent advancement. The issue of sexual harassment was not addressed by this survey, limiting its comparability to recent reports (3). The discrimination reported by women was felt to affect relationships with colleagues, patients and advancement opportunities within the ACC. Whether conscious or not, stereotypic expectations about women have been shown to adversely affect women's career opportunities, particularly with respect to faculty promotion (19) and also with respect to collaborative relationships with male colleagues (20). An American Medical Association survey of cardiothoracic surgeons in 1996 (21) confirms the belief by women that gender discrimination hindered their career development. Men also reported discrimination at a relatively high incidence of 21%, primarily related to racial, religious or ethnic background. Only 4% of men reporting

discrimination indicated that gender was the cause, representing <1% of the men responding.

Although some of the blame for such perceptions rests on societal values and beliefs, there may be ways to reduce such injustices through educational programs to enhance awareness of the problems and through deserved appointments in leadership roles to more accurately reflect the makeup of the U.S. population. The 1997 ACC Strategic Plan clearly defines diversity as one of its core values. Striving to embrace diversity will enable the ACC to bring this issue to the forefront.

Other issues. Practice management issues are high on the list of perceived needs for those responding to the survey. Such issues as job negotiations and leadership training were identified by both men and women as topics for which the ACC should provide educational programs, even though these are areas into which the ACC has not traditionally ventured in the past.

To the credit of the College, women were well represented in several areas of leadership, particularly with respect to aspects of participation in the ACC Scientific Sessions. Although slightly more women were abstract presenters and committee members and slightly less were in higher executive leadership positions within the College, both women and men reported a heightened desire to participate in such roles.

Implications. This is the first ACC survey of professional and personal issues affecting cardiologists. Although the findings may be criticized as not representative of all U.S. cardiologists, the similarities between respondents and nonrespondents suggest these results are generalizable. Several key issues are identified as important for members today: occupational exposure threats, discrimination, family issues, stresses of the profession, lack of advancement and financial compensation within academic cardiology and the needs of our members for new types and content of educational offerings. In a *British Medical Journal* editorial, Beiser and Roberts (22) commented, "opportunities for mutual growth of individuals and family can be fully realized only when the profession truly welcomes women, recognizes the importance of families and acknowledges the changing priorities." To help ensure its future, the ACC has the opportunity to expand its role for members beyond scientific education and toward professional development and support, commencing with the review and exploration of the information within this survey and aiding its membership as both facilitator and participant in finding potential answers and solutions. Perhaps the least difficult issues with which it deals initially will be expanding educational programs on the topics herein identified as needs and increasing the participation rate of members in ACC leadership roles.

Conclusions. The Professional Life Survey was created by the Ad Hoc Committee on Women in Cardiology to determine issues important to cardiologists both professionally and personally and to investigate possible contributing factors to the dramatic underrepresentation of women in the field of cardiovascular medicine. More so than at any other time in its history, the practice of cardiology is undergoing dramatic

changes that are influencing the lives of its practitioners in myriad ways, not only with respect to professional parameters, but personal ones as well. The ACC is committed by its mission and poised by its strategic position to champion its membership. This survey substantiates the need for developing new paradigms in the way we train, educate and support members of the College to optimize the ability of the cardiovascular specialist to deliver quality care and to derive personal satisfaction from the practice of cardiology. Enhancing the day to day professional experience of the cardiovascular specialist by making cardiology practice "easier" and safer will help to achieve the long-term goal of promoting entry into the profession of the "best and the brightest." These efforts will ensure that cardiology as a profession and the ACC as a professional society will remain in leadership roles with respect to new health policy development and initiatives to preserve satisfaction with a career in cardiology.

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