

Children's Digestive Health and Nutrition Foundation: Building on the Past, A Foundation for the Future

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On the occasion of the 10th anniversary of the Children's Digestive Health and Nutrition Foundation (CDHNF) it is appropriate to review the accomplishments of the foundation, reflect on our progress toward achieving our goals, and state our vision for the future.

ORIGINS AND HISTORY

When the officers and council of the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition (NASPGHAN) created CDHNF in late 1998, they envisioned a separate but closely linked charitable foundation whose major focus would be fundraising for research and education. By giving this foundation a distinct name, it was hoped that CDHNF (and ultimately the membership of NASPGHAN) would benefit from a wider donor base and thus an increased potential for fundraising. To ensure a strong link between NASPGHAN and CDHNF, the CDHNF Board was structured to include the president, past president, and secretary-treasurer of NASPGHAN plus a minimum of 4 additional NASPGHAN members at large. In an attempt to ensure a diverse representation, there were also 3 board positions created for lay members.

EDUCATION MISSION

The engine that has driven the foundation has been our education mission. The extensive portfolio of educational materials developed by CDHNF has been a valuable resource for NASPGHAN members, pediatricians, other specialists, patients, and families (see CDHNF Web site at www.cdhnf.org). In addition, these materials provided a critical link to industry, foundations, and other sponsors. Educational materials such as teaching slides, videos, grand rounds programs, and patient handouts have been developed independently by teams of volunteer NASPGHAN members. These teams were formed into Scientific Advisory Boards (SABs) for several topics, including gastroesophageal reflux disease, celiac disease, inflammatory bowel disease, eosinophilic esophagitis, and viral hepatitis. In each case a broad educational campaign was developed using the new materials developed by each SAB, and, where available, NASPGHAN guidelines. A novel initiative has been the development of an Education in Quality Improvement for Pediatric Practice module, in a joint effort with the American Academy of Pediatrics, which will allow participating

NASPGHAN members to satisfy part IV of the American Board of Pediatrics maintenance of certification process. This may serve as a model template for other maintenance of certification materials to be developed in the future.

During the last decade many NASPGHAN officers and members and lay members have contributed a significant amount of time, talent, and energy to help CDHNF fulfill its mission of promoting and funding education. We thank the many dedicated NASPGHAN members who have committed their efforts toward our mission.

RESEARCH MISSION

CDHNF and NASPGHAN leadership believe our Young Investigator Development Awards and Career Transition Awards, as described in more detail in the following section, are vitally important for the future of our discipline. The advancement of pediatric digestive disease is critically rooted in innovative research that can positively affect the lives of growing children. Although not all NASPGHAN members are directly involved in research, all of us are positively affected by the results of research. If we want to fully understand the diseases we treat and provide new and better therapies, then clinical/translational and basic research are mandatory cornerstones of forward progress. We must inspire, train, and fund new investigators in our field to take advantage of new and potentially life-changing opportunities in the years ahead. To this end, we have received strong support from the personal donations of a large number of NASPGHAN members and from our partners in industry; thus, CDHNF has been able to award more than \$4 million in grants in 9 funding cycles (Table 1).

YOUNG INVESTIGATOR DEVELOPMENT AWARDS

A major goal of CDHNF and NASPGHAN has been to stimulate new and young investigators to pursue a career in basic or translational research through grants that bridge their training and first academic position. The intent is that these young investigators will be successful in obtaining experience and preliminary data that will give them a competitive edge in securing funding from the National Institutes of Health (NIH) or the Canadian Institute for Health Research (CIHR). The Young Investigator Development Awards granted by CDHNF are 2-year grants available to junior faculty to support research activities that have the potential for evolution to an independent research career in pediatric gastroenterology, hepatology, and nutrition. In addition, specific Young Investigator Development Awards target a junior faculty member in support of research relating to a clinical, epidemiological, or basic scientific aspect of pediatric inflammatory bowel disease; a fellow as he or she makes the transition to junior faculty; and a junior investigator in support of a meritorious basic or clinical proposal relating to nutrition in infancy, childhood, or adolescence.

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TABLE 1. CDHNF grant funding by year

2000	\$65,000
2001	\$345,000
2002	\$270,000
2003	\$200,000
2004	\$435,000
2005	\$625,000
2006	\$675,000
2007	\$725,000
2008	\$825,000
Total	\$4,165,000

CDHNF = Children’s Digestive Health and Nutrition Foundation.

THE APPLICATION AND REVIEW PROCESS

Together with NASPGHAN, CDHNF developed a research agenda that outlined research priorities in pediatric digestive and nutritional disorders. This agenda can be found at *www.CDHNF.org*. Each year CDHNF invites applications for research funding—either a Young Investigator Development Award or an Innovation Award. The latter, unique award provides a 2-year grant for innovative, high-impact research in pediatric gastroenterology, hepatology, and nutrition; applicants at any career level may apply. Eligibility criteria for each of the CDHNF awards are listed on the Web site. The NASPGHAN research committee members, and selected ad hoc reviewers as invited by the research committee chair, serve as the scientific peer review committee. Primary emphasis is given to scientific strength and innovation of the proposed work, qualifications of the applicant, and commitment of the applicant’s division and department. The potential for an independent research career is also an important criterion.

The grantees are asked to provide CDHNF with an annual progress report on their grant and are required to present their progress at an annual NASPGHAN meeting.

RESEARCH PROGRESS REPORT—THE FIRST 10 YEARS

To review our accomplishments, we contacted all of the individuals who received grant funding from CDHNF. We determined how many of the grantees are still conducting research and

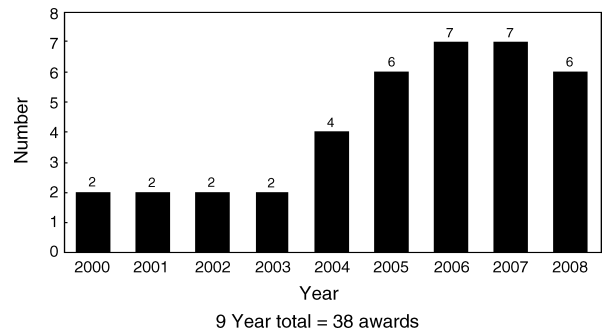


FIGURE 1. CDHNF grant awards.

their success in obtaining funding from the NIH, CIHR, professional societies, or other foundations. We also asked them to provide us with a list of peer-reviewed publications and abstracts. To benchmark our CDHNF-sponsored program, we reviewed the literature and contacted other funding organizations looking for similar information.

RESULTS

CDHNF has awarded 38 grants for the past 9 years (Fig. 1). During this interval, the typical award has increased from \$25,000 to \$75,000 annually for 2 years. Several of the awards are jointly sponsored with other industry or medical advocacy foundation partners as shown in Table 2. We have been fortunate to have received major gifts that allowed us to establish specific awards, including the Nestlé Nutrition Research Grant funded by Nestlé International, the TAP (now Takeda) Pharmaceuticals Innovative Research Award, funded by a \$1.65 million endowment, and a \$1 million gift from AstraZeneca to establish the AstraZeneca Award for acid peptic-related diseases. The Crohn and Colitis Foundation of America (CCFA) has also been a generous partner by funding an annual research grant related to pediatric inflammatory bowel disease.

INVESTIGATOR OUTCOMES

Of the 38 grant recipients, 6 received their award in November 2008. At the time of this survey, this group had not had sufficient time to receive NIH funding; thus, we limited follow-up data to the

TABLE 2. CDHNF grant history

Name of grant	Funding period, y	Target	No. awards (total 38)
CDHNF Young Investigator Award	2	Junior faculty	14
CDHNF-Nestlé Nutrition Research Grant	2	Junior faculty	8
CDHNF Transition Award	1	Junior faculty	4
CDHNF-Takeda Innovative Research Award*	2	Any NASPGHAN member	2
CDHNF/CCFA Award for New Investigators in IBD	2	Junior faculty	3
CDHNF/NASPGHAN George Ferry Young Investigator Development Award	2	Junior faculty	4
CDHNF/AstraZeneca Award for Acid Peptic Related Disease	2	Junior faculty	1
CDHNF/AstraZeneca/Takeda Young Investigator Award in Eosinophilic Esophagitis	2	Junior faculty	1
NASPGHAN/CDHNF Fellow to Faculty Transition Award in IBD	1	Fellow to faculty	1

CDHNF = Children’s Digestive Health and Nutrition Foundation; IBD = inflammatory bowel disease; NASPGHAN = North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition.

TABLE 3. Post-CDHNF grant funding

Award	No.
K01	2
K08	10
K7	1
K12	5
K23	4
T32	2
R03	4
R01	6
R21	1
R56	1
U01	2
P30	2
CIHR	5
AGA	7
CCFA	5
Other foundations	14
Industry	6
Institutional and other	5
Total	82

AGA = American Gastroenterological Association; CCFA = Crohn's and Colitis Foundation of America; CDHNF = Children's Digestive Health and Nutrition Foundation; CIHR = Canadian Institute for Health Research.

32 awardees from 2000 to 2007. Of these 32 awardees, 30 have an academic appointment, 1 is in private practice, and 1 works in industry; the sex distribution is 19 males and 13 females. In terms of present study, 30 of the 32 grant recipients are still involved in research, 27 in the same or related areas of investigation. These 30 investigators have published a total of 188 manuscripts and have presented 179 abstracts.

Because the objective for most of the CDHNF grants is to help launch young investigators into a research career, we examined subsequent research funding as a measure of success. To date there have been a total of 82 subsequent research grants obtained by our grant recipients (Table 3). NIH-mentored K awards are considered a first step in obtaining ongoing NIH research funding, although a number of our CDHNF grant recipients bypassed the K awards and went straight to other NIH and non-NIH funding. Eighteen of the 32 CDHNF grant recipients (56%) have received K awards. Seven of the 18 have also obtained additional NIH funding, including 3 R01, 3 R03, 1 R21, 1 P30, and 1 U01. In addition, this group has received 8 other grants from non-NIH sources, mostly from disease-focused philanthropic organizations. Eight of the 14 CDHNF grant recipients who did not apply, did not receive, or have applications pending for a K award received a total of 27 other grants, 11 from the NIH or CIHR. Two received R01s plus additional grants from nonfederal sources (American Gastroenterological Association, CCFA, etc), 1 received an R03 plus other NIH and non-NIH funding, 2 received a total of 5 CIHR grants, and 3 received other non-NIH funding. Overall 26 (81%) of the 32 recipients had NIH or CIHR funding and 29 (91%) of the 32 had research funding of some type following their CDHNF award.

Collectively, these data strongly suggest that CDHNF has been successful in providing meaningful support and encouragement for junior NASPGHAN members to pursue academic careers. This success rate also suggests that the peer review mechanism established for these grants is highly successful in identifying young individuals with both high research potential and scientific thinking.

Comments from awardees such as "It also increased my confidence that research was the right track for me. I also feel it has brought me into the community of pediatric gastroenterologists" and "It supported the acquisition of pilot data for my successful K application" suggest that our grant recipients also feel that these grants make a real difference in their career development.

COMPARATIVE ANALYSIS

To fully evaluate the results in the previous section, we looked for data to benchmark against other granting agencies. Although such data are limited, we did find a few sources for comparison. In a review published in 2004 (1) we included comparative information from the CCFA, but current updates from this organization are not available. However, for the period from 1986 to 1997, 60% responded to their questionnaire and 65% of these CCFA grant recipients had gone on to NIH and other research funding. The Child Health Research Center Development Award (CHRCDA) program is an especially relevant comparator to the CDHNF grant program. The CHRCDA is a K-12 grant mechanism overseen by the National Institute of Child Health and Human Development. Now in existence for 18 years, CHRCDA grants are awarded on a competitive basis to leading pediatric academic institutions. K-12 awards in the amount of \$100,000 are awarded by oversight committees within each institution to fund promising faculty physician scientists early in their careers. In sum, the CHRCDA grant has been awarded to 32 pediatric departments and 631 individual junior faculty scholars. Of these junior CHRCDA faculty, 67% have applied for NIH grants and 72% of these applications have been successful (Dr Karen Winer, National Institute of Child Health and Human Development, personal communication, 2009). More than 97% remain in academia. Clearly, our CDHNF awardees compare favorably with this prestigious NIH-directed grant program held by prominent academic institutions in the United States.

The American College of Gastroenterology (ACG) recently published a 25-year analysis of their clinical research grant program (2). The ACG funds individual clinical research awards as well as career development awards for junior faculty. Awards are made through a competitive process similar to that used by the NIH. The ACG funds clinical research awards up to \$35,000 and junior faculty career awards are set at \$75,000/year for 2 years. In 2008, a total of 17 clinical research proposals and 3 career development awards were funded. Using the ACG database, progress reports from the recipients, and PubMed, the authors compiled the publication status of the project results, field of study, number of MEDLINE publications since award, current academic appointment, and leadership positions. The authors point out that there are potential flaws in data collected in this manner, but they felt the data would be more reliable than sending out questionnaires to their grant recipients. There were 396 Clinical Research Awards between 1983 and 2008. The results of their analysis showed the following: 255 of the 396 awards (69%) led to a publication based on the grant-funded research; 195 of the awardees (62%) currently hold an academic position. The analysis also looked at 21 Junior Investigator Awards during the period 1997 to 2006. In this group there were 19 (90%) grant-related publications, 20 (95%) have remained in academics, and 7 (33%) serve as principal investigators on NIH grants. In comparison with this benchmarking, our CDHNF grant program for junior investigators is also comparable in terms of publications, retention in an academic career, and subsequent NIH funding.

THE FUTURE

Although there is great excitement over increased funding as part of the current federal stimulus package, it is not clear how much

funding will be available in the years ahead. Industry funding may be significantly reduced as more regulatory guidelines and barriers between industry and physicians are installed. Funding from foundations, including CDHNF, may be further curtailed because of the reduced value of endowment investments. At the same time, the number of highly qualified grant submissions to CDHNF already exceeds the number of grants we can fund. CDHNF and NASPGHAN are committed to funding as many new investigators as possible, but we realize that this may become more difficult in the years ahead. To sustain the grants program at the current level will need the support and commitment of NASPGHAN members. We want to thank the NASPGHAN membership for their support and

we look forward to continued, and hopefully even greater, support in the future. The outstanding success rate, as evidenced by the outcome of CDHNF grantees, is a clear mandate for us all.

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