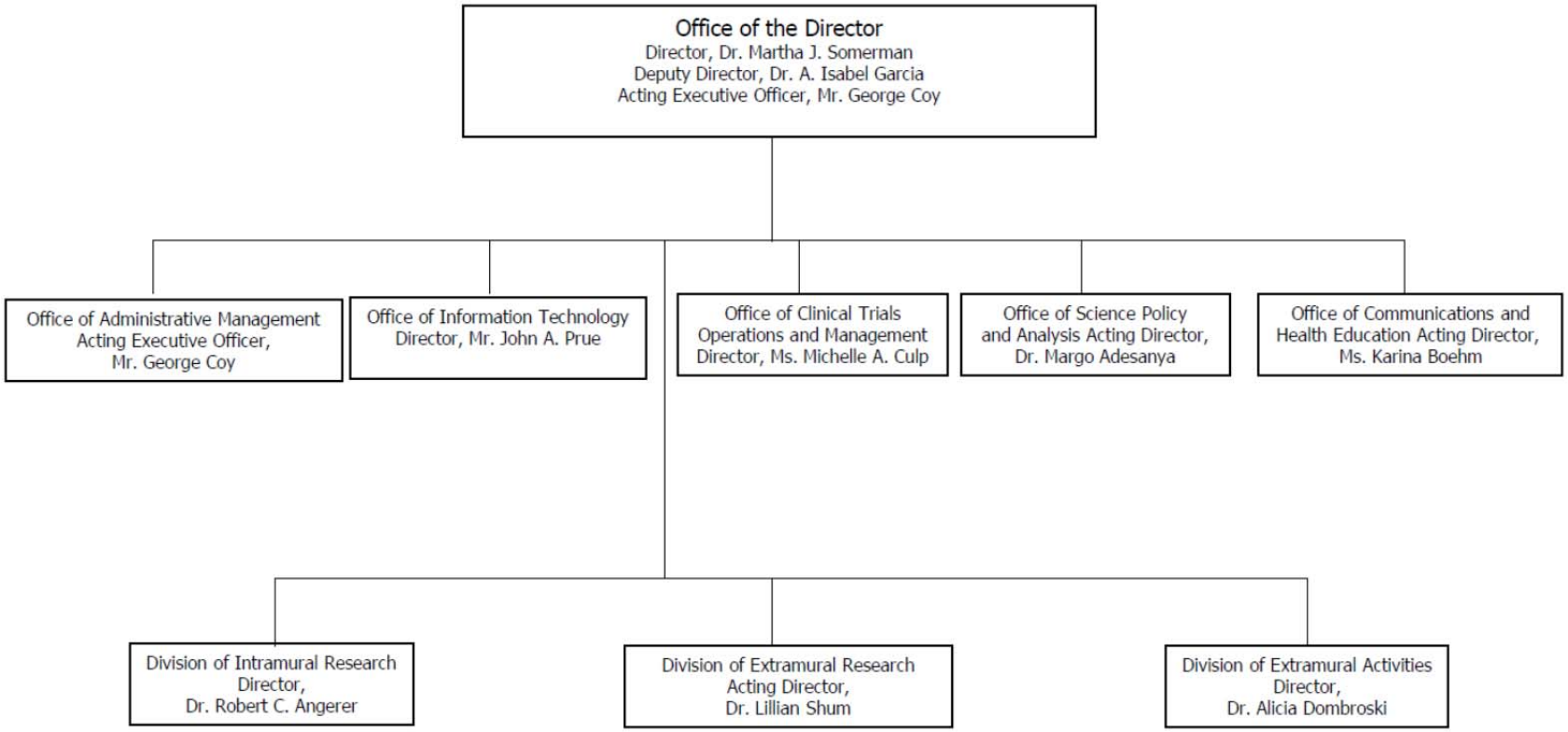
DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

National Institute of Dental and Craniofacial Research (NIDCR)

National Institute of Dental and Craniofacial Research



NATIONAL INSTITUTES OF HEALTH

National Institute of Dental and Craniofacial Research

For carrying out section 301 and title IV of the PHS Act with respect to dental and craniofacial diseases, [$398,650,000] *$397,131,000*.

NATIONAL INSTITUTES OF HEALTH
National Institute of Dental and Craniofacial Research

Amounts Available for Obligation[1]
(Dollars in Thousands)

Source of Funding	FY 2013 Actual	FY 2014 Enacted	FY 2015 President's Budget
Appropriation	$410,710	$398,650	$397,131
Type 1 Diabetes	0	0	0
Rescission	-821	0	0
Sequestration	-20,615	0	0
Subtotal, adjusted appropriation	$389,274	$398,650	$397,131
FY 2013 Secretary's Transfer	-2,271	0	0
OAR HIV/AIDS Transfers	0	-1,000	0
Comparative transfers to NLM for NCBI and Public Access	-460	-548	0
National Children's Study Transfers	330	0	0
Subtotal, adjusted budget authority	$386,874	$397,102	$397,131
Unobligated balance, start of year	0	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	$386,874	$397,102	$397,131
Unobligated balance lapsing	-24	0	0
Total obligations	$386,850	$397,102	$397,131

[1] Excludes the following amounts for reimbursable activities carried out by this account:
FY 2013 - $1,682 FY 2014 - $1,652 FY 2015 - $1,547

NATIONAL INSTITUTES OF HEALTH
National Institute of Dental and Craniofacial Research
Budget Mechanism - Total[1]

(Dollars in Thousands)

MECHANISM	FY 2013 Actual		FY 2014 Enacted[2]		FY 2015 President's Budget		FY 2015 +/- FY 2014	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Projects:								
Noncompeting	406	$176,811	371	$168,938	387	$176,101	16	$7,163
Administrative Supplements	*(29)*	5,767	*(23)*	7,000	*(20)*	6,000	*(-3)*	-1,000
Competing:								
Renewal	26	11,403	30	13,869	28	13,331	-2	-538
New	117	41,385	135	49,170	130	48,383	-5	-787
Supplements	0	0	0	0	0	0	0	0
Subtotal, Competing	143	$52,788	165	$63,039	158	$61,714	-7	-$1,325
Subtotal, RPGs	549	$235,366	536	$238,977	545	$243,815	9	$4,838
SBIR/STTR	25	9,029	27	9,772	28	10,046	1	274
Research Project Grants	574	$244,396	563	$248,749	573	$253,861	10	$5,112
Research Centers:								
Specialized/Comprehensive	4	$11,839	5	$14,654	4	$7,793	-1	-$6,861
Clinical Research	0	0	0	0	0	0	0	0
Biotechnology	0	0	0	0	0	0	0	0
Comparative Medicine	0	0	0	0	0	0	0	0
Research Centers in Minority Institutions	0	0	0	0	0	0	0	0
Research Centers	4	$11,839	5	$14,654	4	$7,793	-1	-$6,861
Other Research:								
Research Careers	47	$6,378	45	$6,193	47	$6,426	2	$233
Cancer Education	0	0	0	0	0	0	0	0
Cooperative Clinical Research	0	0	0	0	0	0	0	0
Biomedical Research Support	0	0	0	0	0	0	0	0
Minority Biomedical Research Support	0	0	0	0	0	0	0	0
Other	17	1,732	18	1,917	18	1,893	0	-24
Other Research	64	$8,110	63	$8,110	65	$8,319	2	$209
Total Research Grants	642	$264,345	631	$271,513	642	$269,973	11	-$1,540
Ruth L Kirchstein Training Awards:	FTTPs		FTTPs		FTTPs		FTTPs	
Individual Awards	104	$4,133	105	$4,254	110	$4,570	5	$316
Institutional Awards	161	7,112	166	7,494	160	7,412	-6	-82
Total Research Training	265	$11,245	271	$11,748	270	$11,982	-1	$234
Research & Develop. Contracts	0	$24,456	0	$24,062	15	$25,510	15	$1,448
(SBIR/STTR) (non-add)	*(0)*	*(59)*	*(0)*	*(0)*	*(0)*	*(0)*	*(0)*	*(0)*
Intramural Research	162	63,026	162	64,287	162	64,930	0	643
Res. Management & Support	91	23,802	91	24,491	91	24,736	0	245
Res. Management & Support (SBIR Admin) (non-	*(0)*	*(0)*	*(0)*	*(0)*	*(0)*	*(0)*	*(0)*	*(0)*
Construction		0		0		0		0
Buildings and Facilities		0		0		0		0
Total, NIDCR	253	$386,874	253	$397,102	253	$397,131	0	$29

[1] All items in italics and brackets are non-add entries. FY 2013 and FY 2014 levels are shown on a comparable basis to FY 2015.

[2] The amounts in the FY 2014 column take into account funding reallocations, and therefore may not add to the total budget authority reflected herein.

Major Changes in the Fiscal Year 2015 President's Budget Request

Major changes by budget mechanism and/or budget detail are briefly described below. Note that there may be overlap between budget mechanism and activity detail and these highlights will not sum to the total change for the FY 2015 President's budget for NIDCR. The FY 2015 President's Budget for NIDCR is $0.029 million more than the FY 2014 Enacted level, for a total of $397.1 million.

Research Project Grants (+$5.112 million; total $253.861 million):
NIDCR will support a total of 573 Research Project Grant (RPG) awards in FY 2015. Non-competing awards will increase by 16 awards and $7.163 million. Competing RPGs will decrease by 7 awards and $1.325 million.

Research Center Grants (-$6.861 million; total $7.793 million):
FY 2014 is the terminal year for NIDCR's health disparities center awards (U54 mechanism). In FY 2015, the research project grant line will support health disparity related research.

NATIONAL INSTITUTES OF HEALTH
National Institute of Dental and Craniofacial Research

Summary of Changes[1]

(Dollars in Thousands)

FY 2014 Enacted				$397,102
FY 2015 President's Budget				$397,131
Net change				$29
	FY 2015 President's Budget		**Change from FY 2014**	
CHANGES	**FTEs**	**Budget Authority**	**FTEs**	**Budget Authority**
A. Built-in:				
1. Intramural Research:				
a. Annualization of January 2014 pay increase & benefits		$24,432		$93
b. January FY 2015 pay increase & benefits		24,432		278
c. Zero more days of pay (n/a for 2015)		24,432		0
d. Differences attributable to change in FTE		24,432		0
e. Payment for centrally furnished services		10,874		182
f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs		29,624		91
Subtotal				$643
2. Research Management and Support:				
a. Annualization of January 2014 pay increase & benefits		$13,269		$50
b. January FY 2015 pay increase & benefits		13,269		151
c. Zero more days of pay (n/a for 2015)		13,269		0
d. Differences attributable to change in FTE		13,269		0
e. Payment for centrally furnished services		2,480		41
f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs		8,987		3
Subtotal				$245
Subtotal, Built-in				$888

NATIONAL INSTITUTES OF HEALTH
National Institute of Dental and Craniofacial Research

Summary of Changes - Continued[1]

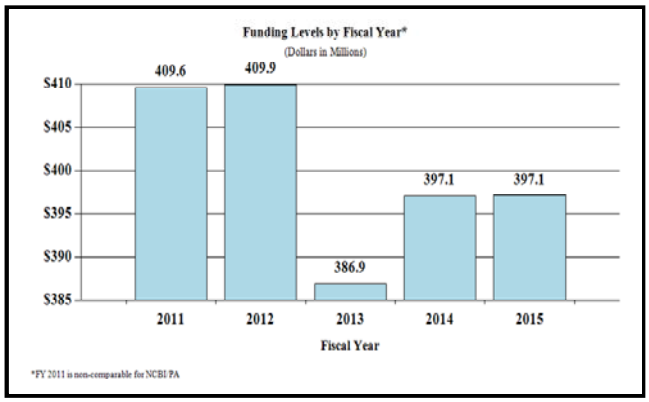
(Dollars in Thousands)

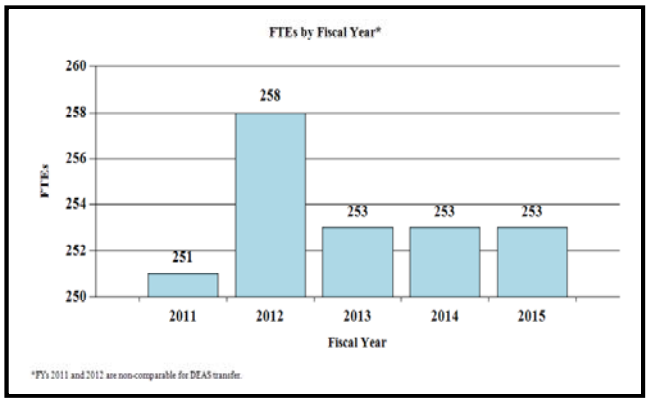
CHANGES	FY 2015 President's Budget		Change from FY 2014	
	No.	Amount	No.	Amount
B. Program:				
1. Research Project Grants:				
a. Noncompeting	387	$182,101	16	$6,163
b. Competing	158	61,714	-7	-1,325
c. SBIR/STTR	28	10,046	1	274
Subtotal, RPGs	573	$253,861	10	$5,112
2. Research Centers	4	$7,793	-1	-$6,861
3. Other Research	65	8,319	2	209
4. Research Training	270	11,982	-1	234
5. Research and development contracts	15	25,510	15	1,448
Subtotal, Extramural		$307,465		$142
	FTEs		FTEs	
6. Intramural Research	162	$64,930	0	$0
7. Research Management and Support	91	24,736	0	0
8. Construction		0		0
9. Buildings and Facilities		0		0
Subtotal, Program	253	$397,131	0	$142
Total changes				$29

[1] The amounts in the Change from FY 2014 column take into account funding reallocations, and therefore may not add to the net change reflected herein.

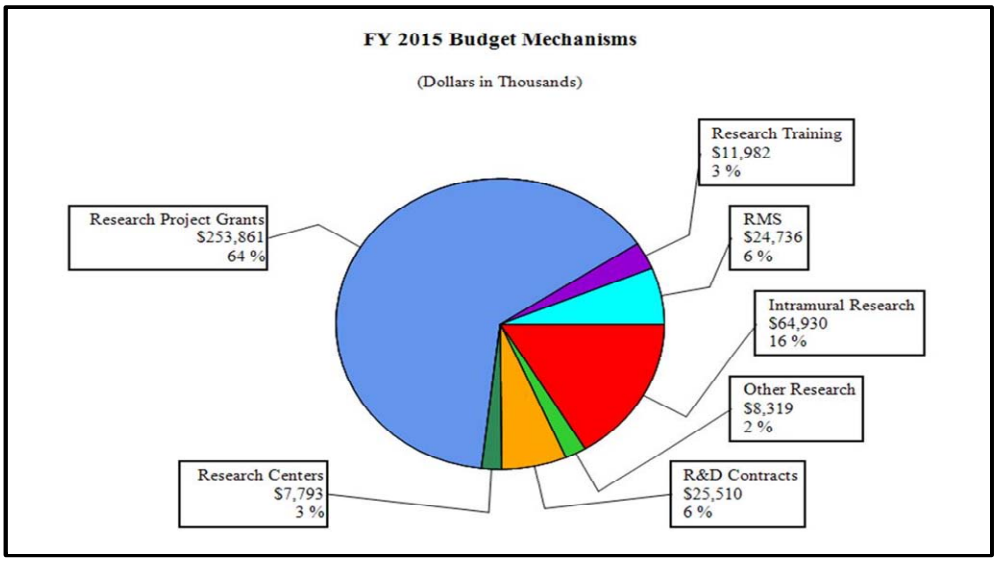
Fiscal Year 2015 Budget Graphs

History of Budget Authority and FTEs:

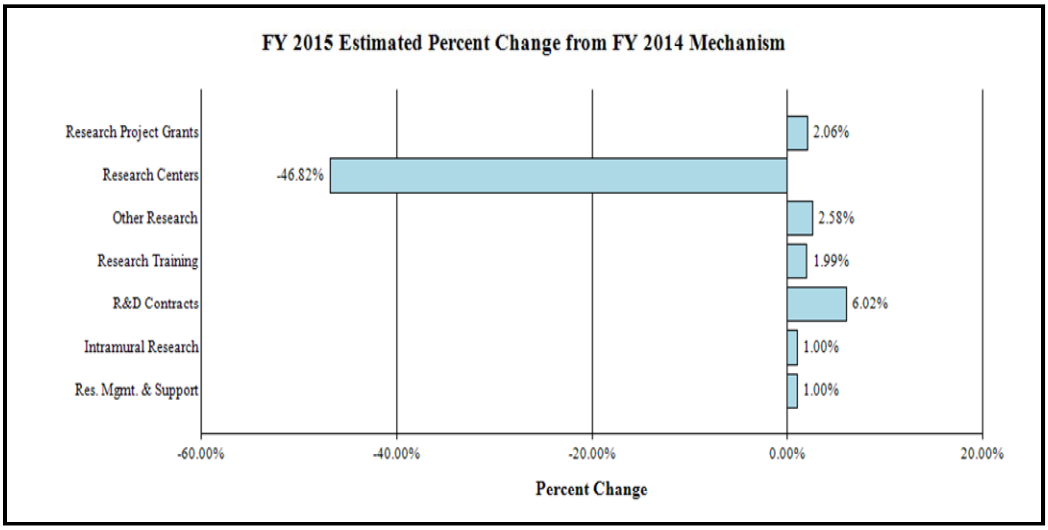




Distribution by Mechanism (dollars in thousands):



Change by Selected Mechanism:



NATIONAL INSTITUTES OF HEALTH
National Institute of Dental and Craniofacial Research

Budget Authority by Activity[1]
(Dollars in Thousands)

	FY 2013 Actual		FY 2014 Enacted [2]		FY 2015 President's Budget		FY 2015 +/- FY 2014	
Extramural Research	**FTE**	**Amount**	**FTE**	**Amount**	**FTE**	**Amount**	**FTE**	**Amount**
Detail								
Oral and Craniofacial Biology		$186,735		$191,273		$191,361		$88
Clinical Research		53,530		54,824		54,849		25
Behavioral and Social Sciences		10,749		11,008		11,013		5
Genetics and Genomics		49,033		50,218		50,241		23
Subtotal, Extramural		**$300,046**		**$307,323**		**$307,465**		**$142**
Intramural Research	**162**	**$63,026**	**162**	**$64,287**	**162**	**$64,930**	**0**	**$643**
Research Management & Support	**91**	**$23,802**	**91**	**$24,491**	**91**	**$24,736**	**0**	**$245**
TOTAL	**253**	**$386,874**	**253**	**$397,102**	**253**	**$397,131**	**0**	**$29**

[1] Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

[2] The amounts in the FY 2014 column take into account funding reallocations and therefore may not add to the total budget authority reflected herein.

NATIONAL INSTITUTES OF HEALTH
National Institute of Dental and Craniofacial Research

Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2014 Amount Authorized	FY 2014 Enacted	2015 Amount Authorized	FY 2015 President's Budget
Research and Investigation	Section 301	42§241	Indefinite	$397,102,000	Indefinite	$397,131,000
National Institute of Dental and Craniofacial Research	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				$397,102,000		$397,131,000

NATIONAL INSTITUTES OF HEALTH
National Institute of Dental and Craniofacial Research

Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2005	$394,080,000	$394,080,000	$399,200,000	$395,080,000
Rescission				($3,251,000)
2006	$393,269,000	$393,269,000	$405,269,000	$393,269,000
Rescission				($3,933,000)
2007	$386,095,000	$386,095,000	$389,699,000	$389,703,000
Rescission				$0
2008	$389,722,000	$395,753,000	$398,602,000	$396,632,000
Rescission				($6,929,000)
Supplemental				$2,075,000
2009	$390,535,000	$403,958,000	$401,405,000	$402,652,000
Rescission				$0
2010	$408,037,000	$417,032,000	$409,241,000	$413,236,000
Rescission				$0
2011	$423,511,000		$422,845,000	$413,236,000
Rescission				($3,628,459)
2012	$420,369,000	$420,369,000	$404,997,000	$411,488,000
Rescission				($777,712)
2013	$408,212,000		$409,449,000	$410,710,288
Rescission				($821,421)
Sequestration				($20,614,832)
2014	$411,515,000		$409,947,000	$398,650,000
Rescission				$0
2015	$397,131,000			

Justification of Budget Request

National Institute of Dental and Craniofacial Research

Authorizing Legislation: Section 301 and title IV of the Public Health Service Act, as amended.

Budget Authority (BA):

	FY 2013 Final	FY 2014 Enacted	FY 2015 President's Budget	FY 2015 +/- FY 2014
BA	$386,873,540	$397,102,000	$397,131,000	+$29,000
FTE	253	253	253	0

Program funds are allocated as follows: Competitive Grants/Cooperative Agreements; Contracts; Direct Federal/Intramural and Other.

Director's Overview

In the past half-century, the oral health of Americans has improved dramatically, and these gains are largely credited to research supported by the National Institute of Dental and Craniofacial Research (NIDCR), the largest institution in the world dedicated exclusively to research to improve dental, oral, and craniofacial health. NIDCR's dynamic research portfolio spans the spectrum from basic investigations of molecules and cells, to research that translates basic research findings into therapeutic strategies, to applied collaborative research with communities. This broad portfolio enables NIDCR to transform today's biomedical research findings into tomorrow's clinical breakthroughs for the diagnosis, prevention, and treatment of the dental, oral, and craniofacial diseases and conditions that affect nearly every American.

Each year, hundreds of Americans are successfully treated for head and neck cancer with radiation therapy, but the treatment often severely damages or destroys salivary glands and makes it difficult to eat, swallow, and talk. NIDCR supports both basic and clinical research to unravel the biological mechanisms of the damage and develop prevention and treatment strategies. For example, in studies with mice, NIDCR scientists have identified a salivary gland transport protein that is activated by radiation and contributes to irreversible loss of salivary gland function. Treating these mice with a drug called Tempol, which protects against radiation-induced damage, prevented the loss of salivary gland function. Future studies will examine whether Tempol can function similarly in humans to protect against radiation-induced salivary gland damage. In another recent study, researchers showed that the nerves that relay information to stimulate production of saliva are essential for normal development of the salivary gland and to maintain healthy salivary gland stem cells. Building on this finding, NIDCR scientists are trying to improve salivary gland regeneration by focusing on the health of the surrounding nerves. This salivary gland research could provide potential therapies that may one day improve

the lives of millions of people suffering from dry mouth, in addition to those with head and neck cancer.[1]

Recent work on the genetic changes that initiate and drive the development of head and neck cancer has opened new risk assessment, diagnostic, and treatment possibilities. For example, NIDCR-funded research suggests that inhibiting p63, a regulatory protein that drives tumor development in mice, may be a novel approach for treating squamous cell carcinomas, including oral cancer. Research on salivary gland cancers revealed functional similarities with ovarian and endometrial cancers, providing important clues for development of more targeted and effective therapies. In addition, differences in the recurrence patterns and survival rates between those with human papillomavirus (HPV) positive and negative oral cancers have catalyzed NIDCR-funded research to understand the molecular basis of this variability allowing for future therapies to be personalized to individual patients.

Another rapidly evolving area of basic research is in craniofacial biology. While scientists are defining the genetics that underlie the formation of the head and skull, other researchers are pinpointing the hot spots for craniofacial malformations. For example, recent NIDCR-supported work has identified proteins associated with craniosynostosis, the premature fusion of a baby's skull bones that causes asymmetric skull growth. This work could provide the foundation for the development of early detection methods and more effective treatments.

Meanwhile, NIDCR is supporting studies on bisphosphonate-associated osteonecrosis of the jaw, a rare, but serious condition where jawbone cells die as a side effect of bisphosphonates, drugs that aid in treatment of bone loss and bone tumors. Researchers discovered that an individual's level of localized, active bisphosphonates is a key element in development of osteonecrosis. This important finding could lead to ways to prevent and manage this painful and disfiguring condition.

Periodontal diseases range from simple gum inflammation to a serious condition that can result in major damage to the soft tissue and bone that support the teeth. In the worst cases, teeth are lost. New research on bacteria-induced periodontitis is focusing on the host immune factors that contribute to the progression of the disease. Key findings indicate that a subset of immune T cells can accumulate in the gum tissue during periodontal disease and help to protect the host from harmful inflammation. Future research aimed at recruiting such immune cells may be beneficial in controlling or halting tissue inflammation and destruction.

NIDCR is investing in the burgeoning fields of big data and personalized health care, which offer great promise to further improve oral health. The Human Oral Microbiome Database provides a wealth of information on the oral microbial community, allowing scientists to better understand the interrelationships among the host, health, and disease, and to identify therapeutic strategies for common oral infectious diseases such as dental caries and periodontitis. Similarly, genome-wide association studies are identifying potential host genetic factors that may increase an individual's risk for these diseases. NIDCR continues to support the FaceBase Consortium, a

[1] Bing L et al. Xerostomia and salivary hypofunction in vulnerable elders: prevalence and etiology. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, 2012. 114(1):52-60

major nation-wide program, which collects, integrates, and disseminates information into a database for the research community to use in the identification of novel molecules, pathways, and mechanisms that are involved in normal craniofacial development and disorders.

NIDCR is committed to addressing critical issues related to career development and training of future researchers. In 2013, NIDCR established a workforce committee to expand efforts to attract, train, and nurture a cohort of scientists to advance dental, oral, and craniofacial research. New activities will include networking and mentoring opportunities that dovetail with ongoing efforts at the NIH aimed at increasing diversity in the biomedical workforce.

The investments made in biomedical research enable an understanding of human biology never before possible. Insights into biological mechanisms and disease processes inform and spur new clinical interventions and, conversely, observations about the nature and progression of disease made in the course of patient care and clinical research stimulate new basic investigations. In keeping with the mission of the Institute, NIDCR will continually define, develop, and implement approaches that strengthen interactions between oral health research and clinical practice. These strategies will close the gap between clinical practice and research, enabling NIDCR to continue supporting the most promising research opportunities for improving the dental, oral, and craniofacial health of all people.

Overall Budget Policy**:**
The FY 2015 President's Budget request for NIDCR is $397.131 million, an increase of $0.029 million, or 0.01 percent above the FY 2014 Enacted level. In FY 2015, NIH would provide an increase of two percent for stipends under the Ruth L. Kirschstein National Research Service Award training program, to continue efforts to attain the stipend levels recommended by the National Academy of Sciences.

Program Descriptions and Accomplishments

Oral and Craniofacial Biology: Today's basic science discoveries in disease onset, progression, and mechanisms provide the foundation for advancing better prevention, detection, diagnosis, and treatment strategies for tomorrow. The Oral and Craniofacial Biology program supports robust basic and translational research in dental and skeletal biology, repair, and regeneration; oral microbiology, infections, and immunity; oral complications from systemic diseases; salivary gland biology and pathophysiology; oral and head and neck cancers; and chronic orofacial pain disorders. The goal of the program is to create and sustain the basic-translational-clinical research continuum in dental, oral, and craniofacial biomedicine.

Program Portrait: Novel Dental Restorative Materials

FY 2014 Level: $3.8 million
FY 2015 Level: $3.8 million
Change: $0.0 million

NIDCR has awarded six research projects to create a longer-lasting dental composite–the tooth colored, currently polymer-based fillings that are a mainstay of dentistry. In the U.S., dentists currently place more than 122 million dental composites per year.[2] But these restorations usually fail in less than eight years and they must be replaced. This group of five-year projects will allow teams of scientists around the country to work together toward the common goal of doubling the service life of dental composites.

The first dental composite was developed during the early 1960s to answer dentistry's need for an aesthetically pleasing, tooth-colored filling. The material is composed primarily of individual molecules, or monomers, of methacrylate and a reinforcing filler of silica powder. Methacrylate is a synthesis of the organic compound methacrylic acid and a common constituent of polymer plastics. Dentists mold the material in place and stabilize it with a pulse of light. The light energy triggers a chemical chain reaction that interconnects the methacrylate monomers to form strong, durable, adhesive polymers that hardens onto the tooth. Over the past half century, researchers have made numerous improvements to the filler material and incorporated additional compounds to enhance the depth and degree of the monomer-to-polymer conversion and to adhere the restoration to the tooth. But the majority of today's dental composites still employ the original methacrylate monomer, known as Bis-GMA. However, an estimated 600 to 800 distinct microorganisms that inhabit the mouth have adapted to thrive around dental composites.[3] Additionally, natural enzymes in saliva may play a role in degrading restorative dental materials. Therefore, a concern is this monomer, when polymerized, may work together with certain microorganisms in the mouth to cause a recurrence of decay in the repaired tooth. To explore these issues further, the newly funded projects will allow teams of material scientists, polymer chemists, and microbiologists to work toward developing functional, innovative, and novel dental restorations.

Building on the latest advances in the field of tissue engineering and regenerative medicine, the program strives to realize the promise of basic stem cell science for healing and regenerating dental, oral, and craniofacial tissues. For example, while stem cells can regenerate bone and cartilage, inflammation often inhibits the process. NIDCR-funded scientists have developed effective strategies for simultaneously combatting inflammation and promoting regeneration. Work also focuses on manipulating the stem cell environments to boost the ability of these cells to regenerate bone, while eliminating their potentially destructive effect of multiplying to cause tumors. Other NIDCR-supported scientists have identified unique markers on stem cells that allow them to be isolated and enriched, thus further enhancing the cells' potential use in the regeneration of bone and cartilage. Similarly, NIDCR research on stem cells may one day allow tooth regeneration, an incredible achievement that would minimize or eliminate many of the current costly and invasive dental procedures. In this regard, NIDCR-funded scientists, using a mouse model, made a significant step toward this goal by discovering how tooth stem cell populations are maintained during development and maturation of the tooth, providing critical information toward cell therapy to regenerate teeth.

[2] American Dental Association: 2005-2006 Survey of Dental Services Rendered. American Dental Association Survey Center; 2008.
[3] Horz, H.-P., Ten Haaf, A., Kessler, O., Said Yekta, S., Seyfarth, I., Hettlich, M., Lampert, F., Küpper, T. and Conrads, G. (2012), T-RFLP-based differences in oral microbial communities as risk factor for development of oral diseases under stress. Environmental Microbiology Reports, 4: 390–397

Virus-associated oral infections and cancers remain a significant oral health issue, especially for immune-compromised individuals such as those afflicted with HIV/AIDS. NIDCR recently launched several studies to better understand what happens when these viruses infect the mouth and how infection can result in oral diseases. An epigenomic approach was used for this research, which is the study of DNA modifications that affect how the cells function, without actually changing the sequence of letters in the DNA. These studies will result in a wealth of data about epigenomic changes in oral cavity cells due to viral infection and cancer and will provide potential targets for drug interventions. Results from these studies will be combined with other datasets to allow for the development of better diagnostics and treatments.

Recent NIDCR-funded research has also improved our understanding of intracellular signaling pathways and cell-to-cell communication processes that are important for the development and persistence of chronic temporomandibular joint and muscle disorders (TMJD) and other orofacial pain conditions. Investigators discovered that a protein on the surface of nerve cells called TRPV4 may be critical in the development of chronic pain in rodent models of TMJD. Another research team reported that in TMJD, astrocytes, a type of supportive cell in the central nervous system, send activating signals to pain-sensing neurons. Importantly, this cell-to-cell signaling involves a particular cell surface protein on neurons, the NMDA receptor. These findings implicate TRPV4 and NMDA receptors, and their associated signaling pathways as potential targets for breakthrough therapies to prevent, reduce, and possibly reverse chronic TMJD.

Dental caries, or tooth decay, is the most common infection in humans.[4] Although great strides have been made to prevent decay, NIDCR supports research to better understand the decay process and improve prevention and treatment. The caries-causing bacteria live in complex communities in the mouth called biofilms. Existing antimicrobial therapies do not work effectively against the bacteria in biofilms, so new approaches are needed to quickly screen novel antimicrobial compounds that target biofilm bacteria. Recently, scientists have developed a high-throughput micro device that allows a large number of different antimicrobial compounds to be tested quickly in a biological setting using small amounts of saliva. Other research has identified natural anti-microbial compounds extracted from cranberries that have potential to disrupt biofilms. The combination of new antimicrobials and innovative large-scale rapid screening approaches offers new avenues to prevent and treat this stubbornly prevalent disease.

[4] Dye BA, Tan S, Smith V, Lewis BG, Barker LK, Thornton-Evans G, et al. (2007), Trends in oral health status, United States, 1988-1994 and 1999-2004. National Center for Health Statistics. Vital Health Stat 11(248).

Program Portrait: Unraveling the Complexity of Temporomandibular Joint and Muscle Disorders

FY 2014 Level: $15.5 million
FY 2015 Level: $15.5 million
Change: $ 0.0 million

Thousands of Americans this year will be diagnosed with a common disorder of the jaw area called temporomandibular joint and muscle disorder (TMJD).[5] Because of the inherent biological complexity of TMJD, healthcare providers have little insight in determining whether their patients will get better in time or develop chronic disease. But this uncertainty is giving way to discovery via the NIDCR-supported Orofacial Pain: Prospective Evaluation and Risk Assessment (OPPERA) study. It marks the first-ever, large prospective (looking forward in time) clinical study of a chronic pain condition such as TMJD.

The study's latest round of research findings helps to establish two fundamental changes in our understanding of TMJD. First, that TMJD, rather than being a distinct clinical pain condition isolated in the orofacial region, represents one part of a far more complex, multi-system disorder with overlapping comorbidities. These comorbidities, or additional health problems, include other chronic pain conditions such as fibromyalgia and chronic fatigue syndrome, which may mask or modify the symptoms of TMJD.

The second fundamental insight is that the risk factors for the initial onset and later chronic type of TMJD have several striking differences. One of the more perplexing findings is that women have only a marginally increased risk for initial onset TMJD and yet they have a much greater risk to advance to chronic forms of the condition. Work continues to understand the factors that might be involved in this transition.

Finally, the OPPERA team performed multiple analyses of their data to quantify the most important factors associated with first onset TMJD. These factors include greater numbers of comorbid conditions, more non-specific orofacial symptoms, and greater sensitivity to painful stimuli.

These results highlight that TMJD is not only a complex disorder itself but is affected by other factors such as comorbid conditions and the gender of the individuals. The prospective nature of the OPPERA study suggests that novel findings about the causes of TMJD are just over the horizon.

About half of all U.S. adults suffer from periodontitis[6], a progressive gum disease where bacteria-induced inflammation causes bone loss that can result in tooth loss if left untreated. NIDCR-supported work has shown that the bacteria disrupt the normal process of healing and repair of tissue around the tooth, by interfering with an important growth factor. Research has also identified not only a particular immune system protein in mice that transmits a harmful bacterial signal to the body, but also a specific bacterial species that is implicated in the inflammation and resulting bone destruction. Together, these findings provide critical insights into the mechanisms of periodontitis, enabling the identification of potential targets to treat and possibly prevent this common oral disease.

Budget Policy:
The FY 2015 President's Budget estimate for this program is $191.361 million, an increase of $0.088 million or 0.05 percent above the FY 2014 Enacted level. Greatest priority will be given to highly meritorious new research and ongoing initiatives.

[5] Roda RP, et al: Review of temporomandibular joint pathology. Part I: Classification, epidemiology and risk factors. *Med Oral Patol Oral Cir Bucas* 2007; 12:E292-8.
[6] Eke PI, Dye BA, Wei L, Thornton-Evans GO, and Genco RJ. Prevalence of Periodontitis in Adults in the United States: 2009 and 2010. J Dent Res 2012; 91(10):914-20.

Toward developing precision medicine for oral cancer, NIDCR will support research that will exploit big data derived from the oral cancer genome project to identify targets for intervention within interacting signaling pathways that sustain oral cancer cell survival and promote metastasis. This effort will encourage collaboration of multi-disciplinary research teams to develop new research tools and identify therapeutic targets leading to improved combination cancer therapies.

Leveraging on new discoveries to better understand and treat AIDS-related oral infections, NIDCR will encourage new studies that focus on approaches to control bacterial, viral, and fungal infections in the oral cavity and develop functional or permanent cures.

NIDCR will launch an effort to increase our understanding of the basic biology of the temporomandibular joint and the interactions of the different tissues of the joint in health and disease. An emphasis on how innervation and vascularization of the joint tissues regulate development and coordination of joint function in this current initiative, coupled with previous research efforts on pain mechanisms of the joint, will provide the knowledge base required for improved treatments of TMJD.

Clinical Research: NIDCR is intensifying its efforts to translate findings from its basic research portfolio into clinical applications through the institute's Clinical Research Program. The program funds a range of research approaches, from complex clinical trials, to interventions delivered by dental practitioners, to community-based studies that aim to reduce and eliminate oral health disparities. One particular area of emphasis is on evidence-based clinical dental practice. NIDCR supports two important research initiatives in this area. One is the National Dental Practice-Based Research Network (NDPBRN) and the other is Centers for Research to Reduce Disparities in Oral Health.

In FY 2012, NIDCR awarded the University of Alabama at Birmingham a seven-year grant to establish and lead the NDPBRN, which was developed from three previous successful regional DPBRNs. Recognizing that not all dental procedures are based on solid scientific evidence, the main goal of this program is to facilitate translation of evidence-based research findings into clinical practice. The Network has 4,500 dental practitioners enrolled in six regions across the country, including general dentists, hygienists, and dental specialists working in private practice, community clinics, and academic settings. The diversity of this cohort of practitioners and their patients suggests that the scientific evidence will broadly inform clinical practice. In addition, the NDPBRN will launch a varied group of clinical studies to advance diagnosis and treatment of cracked teeth, test dental decay detection devices, improve dental crown success, test smoking cessation programs, and screen for oral infections with cancer-causing strains of HPV. NIDCR's ongoing support of dental practice-based research underscores a commitment to collaborate with practitioners to improve the oral health of the public.

Although considerable progress has been made in risk assessment, prevention, diagnosis, and treatment of oral diseases in many segments of the U.S. population, some communities continue to experience disproportionate and unacceptable burdens of oral diseases. The NIDCR Health Disparities Research Program supports studies within communities to identify the reasons for oral health disparities and to find practical approaches to overcome them. This investment by

NIDCR has provided a better understanding of the factors that contribute to oral health disparities. It is now widely understood that the factors associated with disparities are numerous and extensive, ranging from the individual to society as a whole, and from the biological to health systems and policy levels. Tailored interventions to prevent dental caries and oral cancer are being tested in community settings such as urban public housing, community health centers, rural Project Head Start centers, low-income senior housing facilities, and primary medical care offices.

As part of the NIH Rare Diseases Clinical Research Network, NIDCR supports the Salivary Gland Carcinoma Consortium, which studies three rare salivary gland malignancies: adenoid cystic carcinoma (ACC), mucoepidermoid carcinoma, and salivary duct carcinoma. Although ACC is rare, tumor recurrence is common. As a result, the 10-year survival rate even with aggressive treatment is only 66 percent.[7] The consortium is performing comprehensive genetic and genomic analyses on a variety of tumor samples to pinpoint pathways involved in tumor formation and progression that could be targeted by anti-cancer drugs. In separate studies, systematic analysis of these cancers has been completed and multiple genes have been implicated in tumor development. Such large scale, multidisciplinary studies underscore the complexity of cancers, yet they provide major opportunities to develop precision therapeutic strategies that are personalized for individual patients.

Many approaches are used to treat oral diseases and conditions. However, most evidence supporting various dental therapies is derived from clinical research in otherwise healthy subjects, despite consistent findings that oral diseases are frequently more severe in selected patient groups. NIDCR is supporting new studies to determine outcomes of treatments for oral diseases in persons with complex medical conditions that complicate oral health, such as dental implant outcomes in persons with diabetes, speech and jaw alignment outcomes in adolescents with cleft lip and palate, and the effects of dental procedures in McCune-Albright's Syndrome patients.

Budget Policy:
The FY 2015 President's Budget estimate for this program is $54.849 million, an increase of $0.025 million or 0.05 percent above the FY 2014 Enacted level. High priority will be given to support meritorious new research projects and ongoing initiatives.

NIDCR-led efforts in oral health disparities research has built a foundation of knowledge that is informing conceptual models, and guiding interventions addressing the needs of some of our nation's most vulnerable populations. The Institute will strengthen its efforts to overcome oral health disparities by supporting in-depth, cross-cutting, multidisciplinary research that examines and intervenes on determinants of health at multiple levels, using a range of methods and study designs in partnership with community partners and other stakeholders. NIDCR will also support research targeting social determinants of health; development and testing holistic prevention systems; health services and health policy; and basic behavioral research.

[7] Vaidya AD et al. Minor salivary gland tumors of the oral cavity: a case series with review of literature. J Cancer Res Ther. 2012 Jan;8 Suppl 1:S111-5

Behavioral and Social Sciences Research: The NIDCR Behavioral and Social Sciences Research Program supports basic research to understand how behavioral and social factors affect oral health and to develop strategies for effective interventions to prevent and support recovery from oral disease. The program has a diverse research portfolio, with a focus on improving public oral health, including preventing and treating childhood dental disease and enhancing oral health of vulnerable individuals. Additional research areas include tobacco cessation, orofacial pain management, oral and pharyngeal cancer treatment recovery, and the establishment of life-long habits to improve oral health.

By supporting research focused on psychological science methods, NIDCR has contributed to major advances in oral health behavioral research. NIDCR supports research on the how and why of behavioral changes and on understanding mechanisms that result in changes in behavior to improve oral health. This knowledge allows interventions that improve oral health behaviors to be individually tailored. Another NIDCR program is aimed at identification of new outcome measures that are tightly linked to the proposed interventions that go beyond current proxy measures such as self-reporting. To expand the pipeline of researchers with expertise and experience in the mechanisms, theory, and research methods of oral health behavior, NIDCR is supporting mid- to late-stage investigators with protected time to gain the requisite knowledge and skills in this area.

Budget Policy:
The FY 2015 President's Budget estimate for this program is $11.013 million, an increase of $0.005 million or 0.05 percent above the FY 2014 Enacted level. Greatest priority will be given to highly meritorious new research projects and ongoing initiatives.

NIDCR will build on its investments in clinical trial planning grants, supporting meritorious clinical trials that identify behavioral interventions to improve oral health across a range of underserved communities. NIDCR will continue its investment in developing research tools to understand how behavioral interventions work and will support research incorporating those tools. Additionally, NIDCR will leverage trans-NIH initiatives, such as the Common Fund Science of Behavior Change, to inform behavioral interventions for dental, oral, and craniofacial research programs.

Translational Genetics and Genomics: This program supports comprehensive and integrated research to use genetic, genomic, and protein data to better understand dental, oral, and craniofacial development and disease. The approaches are comparative and take advantage of the unique contributions of a variety of model species, datasets, analyses, and systems biology methodologies. Its ultimate goal is to translate these data into a new knowledge base and into clinical studies that will yield improved preventive measures, diagnostic tests, prenatal care, and treatments to minimize the damage from dental, oral, and craniofacial disorders.

NIDCR supports a national network called the FaceBase consortium that researches the complex web of environmental and genetic instructions for constructing the middle region of the human face. This consortium generates large datasets and other research resources for use by the wider research community. The comprehensive and integrated dataset includes genetic and genomic data, gene expression pattern information, and human facial imagery, thus illuminating novel

connections between previously isolated but related information. The diverse dataset will help accelerate translational and clinical research into the prevention, treatment, and management of craniofacial birth defects. Another important feature of FaceBase is its encouragement of new collaborations that are necessary to advance this multidisciplinary field. The website and database continue to grow steadily, with almost 500 individual datasets available for dissemination, 485 registered users, and approximately 7,000 website visits. FaceBase is being expanded in the next phase of funding to extend beyond the midface to cover other aspects of craniofacial development and other craniofacial congenital malformations. To encourage the use of FaceBase data and resources, NIDCR also supports small grants that focus on new approaches to use the existing data and novel methods to analyze and integrate the data that could advance craniofacial research.

NIDCR-supported genome-wide association studies (GWAS) of cleft lip and/or palate and dental caries continue to provide important insights into the role of genetic factors and gene-environment interactions in the development of these conditions. NIDCR-supported researchers contributed to large scale analysis of GWAS data that identified new genomic regions that may affect development of cleft lip with or without cleft palate (CL/P). DNA sequencing studies are also underway to identify less common genetic variants that influence the risk of developing CL/P. These important studies will aid in the identification of the causes of these and other craniofacial diseases and will also suggest promising areas of future therapeutic research. The dental caries GWAS revealed areas of the genome that make an individual more likely to develop decay. These findings, paired with other NIDCR-supported research on the role of bacteria in caries, will present a more complete picture of genetic and environmental factors involved and thus allow personalized prevention and treatment strategies. Other NIDCR-funded researchers have identified six areas of the genome that may put a person at risk for moderate or severe periodontal disease. The program also supports research in areas critical to diverse patient groups, such as those with temporomandibular joint disorder and Sjögren's Syndrome. To make the most of the extensive data that are being generated in such big data projects, NIDCR supports small grants to analyze these datasets and to develop improved statistical methods to glean new discoveries from such immense volumes of data.

Investments by NIDCR are accelerating research to better understand how genetic variation between individuals can result in dental, oral, and craniofacial disease. For example, sequencing the DNA of babies who have craniosynostosis has revealed that an important regulatory protein called Transcription Factor 12 is associated with the disease. Subsequent studies in mice support this finding. In another study, analysis of DNA in craniosynostosis patients has identified two additional areas of the genome that will help our understanding of normal craniofacial development. More information about genes, proteins, and pathways that influence development of the craniofacial region could one day lead to individually tailored care regimens for babies born with craniosynostosis.

Budget Policy:
The FY 2015 President's Budget estimate for this program is $50.241 million, an increase of $0.023 million or 0.05 percent above the FY 2014 Enacted level. Priority will be given to support highly meritorious new research projects and ongoing initiatives.

Non-syndromic craniofacial birth defects, such as cleft lip and/or palate, are common and have complex etiologies. In-roads are being made in understanding genetic factors involved in craniofacial development, but much less is known about environmental factors. Epidemiologic studies suggest that maternal nutrition (e.g., folate, vitamin B6, zinc) and use of alcohol and tobacco during pregnancy affect the risk of having a child with cleft lip and/or palate, and genomic studies suggest that the interplay of genetic and environmental factors are important. NIDCR plans to launch an initiative encouraging in-depth research into the biological mechanisms through which environmental exposures and nutritional deficiencies affect craniofacial development and cause craniofacial birth defects, including investigations into the mechanisms behind gene-environment interactions. NIDCR will continue its initiative to build genetic and genomic knowledge about dental, oral, and craniofacial diseases and disorders, focusing on mission-relevant human diseases and disorders where the involvement of genetic/genomic factors is poorly understood.

Intramural Research: The NIDCR Intramural Research Program conducts ground-breaking research on many aspects of dental, oral, and craniofacial health. Areas of strong research focus include the biochemistry, development, and function of tissues and organs of the oral-craniofacial region; immunology of the mucosal system; genetic disorders and tumors of the oral cavity; the biology of pain, itch, and taste; and the use of these discoveries to improve the prevention, diagnosis, and treatment of dental, oral, and craniofacial diseases.

NIDCR scientists are making significant advances in characterizing the mechanisms of diverse types of sensation, such as taste, temperature, and itch. For example, recent studies on how humans taste salt may lead to therapies to reduce our appetite for salt, thereby lowering the risk of high blood pressure and heart disease that are associated with high salt consumption. Research at NIDCR also demonstrates that the sensation of temperature in mice, ranging from very cold to painfully hot, is based on only two proteins present on the surface of particular neurons. The surprising simplicity of this system holds promise for the development of therapies for people with conditions such as neuropathic pain, which is characterized by abnormal and often painful disruptions in temperature sensation. NIDCR scientists have discovered there are specific nerve cells and brain circuits in mice that are entirely devoted to the sensation of itch. Blocking the unique neural messenger of this ‘itch circuit’ could be an effective strategy to soothe itch without disrupting other forms of normal touch sensation for the millions of people with chronic itching conditions such as eczema and psoriasis.

NIDCR investigators are unraveling the molecular basis of normal craniofacial development and why it sometimes goes awry. Individuals with a defect in a protein called anosmin have a disorder called Kallman Syndrome, which sometimes includes the craniofacial abnormality of cleft lip and/or palate. Research at NIDCR has shown that anosmin interacts with several growth factors, and in laboratory chicks, anosmin is essential for normal craniofacial development. Further studies on anosmin and the complex network of factors involved in craniofacial development may lead to improved diagnosis and treatment of craniofacial disorders such as cleft palate.

Though variable, on average, a person produces about 1 liter of saliva a day.[8] When salivary glands are damaged, such as by radiation therapy for cancer, the resulting dry mouth can cause cavities and other oral infections, along with difficulty chewing, swallowing, and talking. NIDCR investigators are studying ways to protect the regenerative potential of stem cells in damaged salivary glands. A recent intriguing result has shown that the drug rapamycin, which inhibits the mTOR pathway in mice, allows stem cells to multiply and renew the damaged salivary gland. Research in this area is ongoing to reduce side effects and to increase the duration of the beneficial effect. In addition, the first ever clinical trial of a gene transfer method used in a human salivary gland demonstrated that the method of transferring the water transporter aquaporin-1 is a safe and potentially effective treatment for people who have salivary glands damaged by radiation, and the next trial is expected to begin shortly. This research forms a strong foundation for continuing efforts to help people suffering from dry mouth as a result of damaged salivary glands.

Program Portrait: A Small Molecule with a Big Impact on Understanding Sjögren's Syndrome

FY 2014 Level: $16.0 million
FY 2015 Level: $16.0 million
Change: $ 0.0 million

Sjögren's syndrome is an autoimmune disorder that can affect the eyes, kidneys, liver, lungs, and other tissues throughout the body but often is first detected by dentists because of serious problems that occur in the mouth. Dry mouth, which is a hallmark symptom, results from an autoimmune attack against the cells that line the salivary glands. Because the damaged salivary glands cannot produce enough saliva, people experience difficulties with swallowing food, along with extensive tooth decay, tooth loss, mouth sores, and oral yeast infections.

Experts estimate that about 2 percent of Americans have Sjögren's syndrome,[9] but the actual prevalence may be far greater because diagnosis requires a battery of tests to delineate this syndrome from other autoimmune and inflammatory conditions. Clinicians rely on a long list of diagnostic criteria and test results because there is no single test to detect a biological marker of this syndrome. To address this need in clinical medicine, a team of NIDCR scientists began about five years ago to focus on a type of ribonucleic acid called microRNA, which is a regulator of gene expression in our cells. Because salivary gland and immune cells secrete microRNAs into saliva as a measurable transcript of their recent molecular activity, the scientists were able to compare the microRNAs of healthy people with those who have Sjögren's syndrome. The researchers found that the broad profiles of microRNAs varied between the two groups of people. Among their cache of 239 microRNAs of interest, the scientists identified ebv-miR-BART13, a microRNA produced by the Epstein Barr virus. The researchers hypothesized that immune cells might secrete the viral microRNA and then salivary cells may mistakenly internalize it. Once inside these salivary cells—and importantly, without the virus ever infecting them— the microRNA could interfere with the normal pattern of gene expression. In laboratory studies with cell cultures, the researchers introduced the microRNA into salivary gland cells. They found that the viral microRNA disrupted normal saliva secretion by shutting down a key step in calcium signaling. This study is the first to show that a viral microRNA can contribute to a systemic autoimmune disease, and this microRNA could be developed into the much-sought-after marker that allows clinicians to more easily diagnose Sjögren's syndrome.

[8]Humphrey SP, Williamson RT. A review of saliva: normal composition, flow, and function. The Journal of Prosthetic Dentistry 2001; Vol. 85, issue 2:162–9.
[9] C.P. Mavragani, H.M. Moutsopoulos. The geoepidemiology of Sjögren's syndrome. Autoimmunity Reviews 9 (2010) A305–A310.

The NIDCR intramural program is continuing its commitment to train the next generation of oral health researchers using a variety of strategies, including summer intern awards, clinical dentistry career development support, and pathway to independence awards for junior investigators to jump-start their careers.

Budget Policy:
The FY 2015 President's Budget estimate for this program is $64.930 million, an increase of $0.643 million or 1.0 percent above the FY 2014 Enacted level. Funds will allow continued support for ongoing research.

Intramural clinical investigators will continue studies on sensation, such as pursuing the identity of the cell surface molecules that detect heat and the cells responsible for detecting thermal, painful, itch, and chemical stimuli. Scientists plan to develop small molecules that inhibit the itch-sensing circuit, which was recently discovered by NIDCR scientists. For example, initial trials may begin in people with chronic liver disease, where severe itching is a debilitating symptom. NIDCR scientists will continue studies of the basic biochemistry of fluid secretion to identify specific genetic defects that impair saliva production in Sjögren's syndrome. These researchers are also completing a gene therapy study to treat people suffering from dry mouth due to irradiation treatment for head and neck cancer. Building on studies in animals showing that metformin, an FDA-approved drug widely used for the treatment of diabetes, can protect against oral cancer, NIDCR scientists and collaborators will study its ability to prevent oral cancer progression and relapse. In addition, intramural studies on the maintenance of adult bone and mineralized tissue in rare diseases is setting the foundation for future clinical trials, taking advantage of existing drugs used to treat bone disorders. Scientists are also using state-of-the-art three-dimensional imaging, coupled with genetic analyses, in the study of craniofacial, head, and neck abnormalities to make personalized medicine a reality for patients and care providers.

Research Management and Support (RMS): The RMS mechanism supports the scientific and administrative management structures needed to lead and manage the world's largest oral health research enterprise effectively. NIDCR's extramural staff scientists and grant specialists serve as liaisons with nearly 800 grantees and provide stewardship for NIDCR's investment in research and research training grants. Additionally, NIDCR conducts formal evaluations of its intramural and extramural research programs to inform leadership and advisory bodies on scientific progress and new research directions. The RMS mechanism supports the Office of Science Policy and Analysis, which develops and analyzes science policy, coordinates program planning and evaluation, and leads NIDCR's Residency Program in Dental Public Health. This budget category also supports the Institute's Office of Communications and Health Education, which produces and disseminates informational materials on a wide variety of topics, including oral cancer, periodontal disease, and oral health care for children and those with disabilities. Materials are targeted to a variety of audiences, including patients, health care professionals, teachers, and caregivers for special needs patients. The Office also disseminates information about significant research advances to the media, patient support organizations, professional organizations, and the research community.

Budget Policy:
The FY 2015 President's Budget estimate for this program is $24.736 million, an increase of $0.245million or 1.0 percent above the FY 2014 Enacted level. NIDCR will use these resources to fund the scientific and administrative management and oversight activities of the Institute.

NATIONAL INSTITUTES OF HEALTH
National Institute of Dental and Craniofacial Research

Budget Authority by Object Class[1]
(Dollars in Thousands)

	FY 2014 Enacted	FY 2015 President's Budget	FY 2015 +/- FY 2014
Total compensable workyears:			
Full-time employment	253	253	0
Full-time equivalent of overtime and holiday hours	0	0	0
Average ES salary	$0	$0	$0
Average GM/GS grade	11.4	11.4	0.0
Average GM/GS salary	$93	$94	$1
Average salary, grade established by act of July 1, 1944 (42 U.S.C. 207)	$99	$100	$1
Average salary of ungraded positions	$125	$126	$1

	OBJECT CLASSES	FY 2014 Enacted	FY 2015 President's Budget	FY 2015 +/- FY 2014
	Personnel Compensation			
11.1	Full-Time Permanent	$14,522	$14,667	$145
11.3	Other Than Full-Time Permanent	11,043	11,153	110
11.5	Other Personnel Compensation	194	196	2
11.7	Military Personnel	226	228	2
11.8	Special Personnel Services Payments	3,038	3,068	30
11.9	**Subtotal Personnel Compensation**	**$29,022**	**$29,312**	**$290**
12.1	Civilian Personnel Benefits	$7,997	$8,277	$280
12.2	Military Personnel Benefits	110	111	1
13.0	Benefits to Former Personnel	0	0	0
	Subtotal Pay Costs	**$37,130**	**$37,701**	**$571**
21.0	Travel & Transportation of Persons	$567	$576	$10
22.0	Transportation of Things	72	73	1
23.1	Rental Payments to GSA	0	0	0
23.2	Rental Payments to Others	0	0	0
23.3	Communications, Utilities & Misc. Charges	480	488	8
24.0	Printing & Reproduction	2	2	0
25.1	Consulting Services	$2,156	$2,168	$12
25.2	Other Services	3,914	3,981	67
25.3	Purchase of goods and services from government accounts	$51,021	$50,816	-$205
25.4	Operation & Maintenance of Facilities	$184	$187	$3
25.5	R&D Contracts	10,332	10,405	73
25.6	Medical Care	85	88	3
25.7	Operation & Maintenance of Equipment	1,929	1,962	33
25.8	Subsistence & Support of Persons	0	0	0
25.0	**Subtotal Other Contractual Services**	**$69,621**	**$69,607**	**-$14**
26.0	Supplies & Materials	$4,765	$4,846	$81
31.0	Equipment	1,408	1,432	24
32.0	Land and Structures	0	0	0
33.0	Investments & Loans	0	0	0
41.0	Grants, Subsidies & Contributions	283,058	282,406	-652
42.0	Insurance Claims & Indemnities	0	0	0
43.0	Interest & Dividends	0	0	0
44.0	Refunds	0	0	0
	Subtotal Non-Pay Costs	**$359,972**	**$359,430**	**-$542**
	Total Budget Authority by Object Class	**$397,102**	**$397,131**	**$29**

[1] Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

NATIONAL INSTITUTES OF HEALTH
National Institute of Dental and Craniofacial Research

Salaries and Expenses
(Dollars in Thousands)

OBJECT CLASSES	FY 2014 Enacted	FY 2015 President's Budget	FY 2015 +/- FY 2014
Personnel Compensation			
Full-Time Permanent (11.1)	$14,522	$14,667	$145
Other Than Full-Time Permanent (11.3)	11,043	11,153	110
Other Personnel Compensation (11.5)	194	196	2
Military Personnel (11.7)	226	228	2
Special Personnel Services Payments (11.8)	3,038	3,068	30
Subtotal Personnel Compensation (11.9)	**$29,022**	**$29,312**	**$290**
Civilian Personnel Benefits (12.1)	$7,997	$8,277	$280
Military Personnel Benefits (12.2)	110	111	1
Benefits to Former Personnel (13.0)	0	0	0
Subtotal Pay Costs	**$37,130**	**$37,701**	**$571**
Travel & Transportation of Persons (21.0)	$567	$576	$10
Transportation of Things (22.0)	72	73	1
Rental Payments to Others (23.2)	0	0	0
Communications, Utilities & Misc. Charges (23.3)	480	488	8
Printing & Reproduction (24.0)	2	2	0
Other Contractual Services:			
Consultant Services (25.1)	707	719	12
Other Services (25.2)	3,914	3,981	67
Purchases from government accounts (25.3)	36,872	35,365	-1,507
Operation & Maintenance of Facilities (25.4)	184	187	3
Operation & Maintenance of Equipment (25.7)	1,929	1,962	33
Subsistence & Support of Persons (25.8)	0	0	0
Subtotal Other Contractual Services	**$43,607**	**$42,215**	**-$1,393**
Supplies & Materials (26.0)	$4,765	$4,846	$81
Subtotal Non-Pay Costs	**$49,493**	**$48,200**	**-$1,293**
Total Administrative Costs	**$86,622**	**$85,901**	**-$722**

NATIONAL INSTITUTES OF HEALTH
National Institute of Dental and Craniofacial Research

Detail of Full-Time Equivalent Employment (FTE)

OFFICE/DIVISION	FY 2013 Actual			FY 2014 Est.			FY 2015 Est.		
	Civilian	Military	Total	Civilian	Military	Total	Civilian	Military	Total
Division of Extramural Activities									
Direct:	20		20	21		21	21		21
Reimbursable:	1		1			-			-
Total:	21		21	21		21	21		21
Division of Extramural Research									
Direct:	29		29	29		29	29		29
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	29		29	29		29	29		29
Division of Intramural Research									
Direct:	157	1	158	157	1	158	159	1	160
Reimbursable:	6		6	6		6	4		4
Total:	163	1	164	163	1	164	163	1	164
Office of Administrative Management									
Direct:	14		14	14		14	14		14
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	14		14	14		14	14		14
Office of Communication and Health Education									
Direct:	7		7	7		7	7		7
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	7		7	7		7	7		7
Office of Information Technology									
Direct:	7		7	7		7	7		7
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	7		7	7		7	7		7
Office of Science Policy and Analysis									
Direct:	8		8	8		8	8		8
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	8		8	8		8	8		8
Office of the Director									
Direct:	2	1	3	2	1	3	2	1	3
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	2	1	3	2	1	3	2	1	3
Total	251	2	253	251	2	253	251	2	253
Includes FTEs whose payroll obligations are supported by the NIH Common Fund.									
FTEs supported by funds from Cooperative Research and Development Agreements.	0	0	0	0	0	0	0	0	0

FISCAL YEAR	Average GS Grade
2011	11.3
2012	11.4
2013	11.4
2014	11.4
2015	11.4

NATIONAL INSTITUTES OF HEALTH
National Institute of Dental and Craniofacial Research

Detail of Positions

GRADE	FY 2013 Actual	FY 2014 Enacted	FY 2015 President's Budget
Total, ES Positions	0	0	0
Total, ES Salary	0	0	0
GM/GS-15	18	18	18
GM/GS-14	29	29	29
GM/GS-13	22	22	22
GS-12	33	33	33
GS-11	16	16	16
GS-10	0	0	0
GS-9	10	10	10
GS-8	12	12	12
GS-7	10	10	10
GS-6	8	8	8
GS-5	4	4	4
GS-4	0	0	0
GS-3	0	0	0
GS-2	1	1	1
GS-1	0	0	0
Subtotal	163	163	163
Grades established by Act of July 1, 1944 (42 U.S.C. 207)	0	0	0
Assistant Surgeon General	0	0	0
Director Grade	1	1	1
Senior Grade	0	0	0
Full Grade	1	1	1
Senior Assistant Grade	0	0	0
Assistant Grade	0	0	0
Subtotal	2	2	2
Ungraded	83	83	83
Total permanent positions	163	163	163
Total positions, end of year	262	262	262
Total full-time equivalent (FTE) employment, end of year	253	253	253
Average ES salary	0	0	0
Average GM/GS grade	11.4	11.4	11.4
Average GM/GS salary	92,450	93,097	94,028

Includes FTEs whose payroll obligations are supported by the NIH Common Fund.