Navigating the NIH Loan Repayment Program (LRP)

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Programs Overview

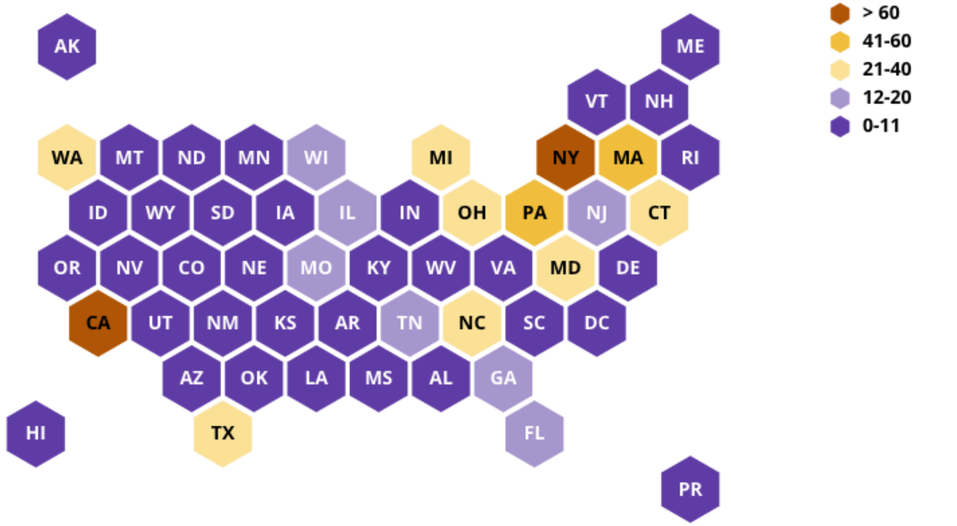
All LRPs | New | FY 2020-2022

Number of Applications	Number of Awards	Success Rate
4,129	1,857	45%

Mean Award	Mean Age of Awardees	Total Funding
$86,178	36 Years	$160,033,136

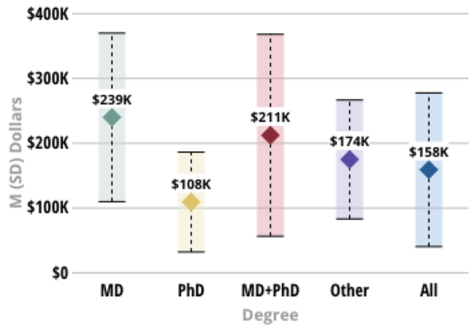
Awardee Distribution by State

All LRPs | New | FY 2022



Mean Awardee Educational Debt by Degree

All LRPs | New | FY 2022



New awards represent the first contract an individual receives in the LRP. Renewal awards are subsequent contracts which, because some

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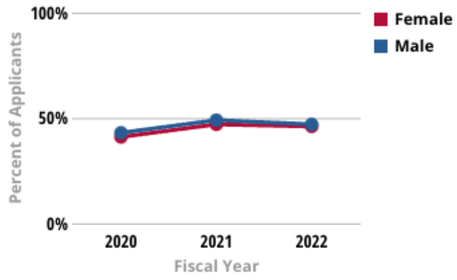
Appls/Awards & Success Rates by Gender

All LRPs | New | FY 2020-2022

Applications & Awards | Success Rates



Individuals who did not affirmatively indicate their gender as either male or female are included in the "Other" group (displayed in the

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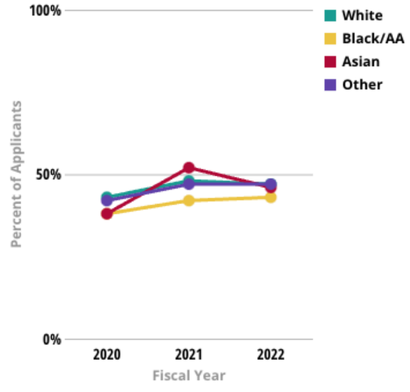
Appls/Awards & Success Rates by Race

All LRPs | New | FY 2020-2022

Applications & Awards | Success Rates



Individuals who affirmatively indicated that they were singularly White, Asian, or Black/AA are included in these respective categories.

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Funding by Institutes & Centers

All LRPs | New | FY 2020-2022

IC	2022	2021	2020
FIC	$180,605	$127,540	$35,499
NCATS	$814,437	$1,040,523	$1,050,078
NCCIH	$220,622	$674,532	$314,346
NCI	$8,707,570	$8,874,268	$8,459,665
NEI	$305,780	$690,083	$1,129,618
NHGRI	$254,291	$288,810	$260,024
NHLBI	$8,258,411	$9,222,465	$10,226,411
NIA	$3,901,300	$3,470,764	$3,747,767
NIAAA	$961,768	$1,058,274	$723,595
NIAID	$3,801,199	$4,159,196	$4,543,498
NIAMS	$1,200,578	$1,615,880	$1,347,964
NIBIB	$64,427	$139,000	$121,697
NICHD	$4,162,147	$3,358,405	$4,168,928
NIDA	$2,854,835	$2,159,877	$2,170,252
NIDCD	$1,541,239	$1,613,501	$1,119,369
NIDCR	$604,293	$599,845	$641,951
NIDDK	$4,276,752	$4,497,269	$4,217,885
NIEHS	$1,069,627	$645,476	$446,928
NIGMS	$306,178	$478,948	$295,503
NIMH	$3,480,419	$2,506,505	$3,024,959
NIMHD	$3,873,569	$3,063,876	$3,363,810
NINDS	$1,689,230	$2,316,215	$1,794,258
NINR	$292,343	$398,582	$116,888
NLM	$428,577	$254,975	$0
OD	$45,609	$139,000	$22,626

Qualifying Lenders

Qualified lenders: Any U.S. government (Federal, State, or local) entity, accredited U.S. academic institution, and/or U.S. commercial educational lender that is subject to examination and supervision in their capacity as a lending institution by an agency of the United States or of the State in which the lender has its principal place of business.

Unqualified lenders: Entities that are not U.S. government (Federal, State, or local), U.S. academic, or U.S. commercial educational lenders. Loans from friends, relatives, or other individuals are also not qualified.

Loan Eligibility

Most U.S.-based educational loans made by a qualified lender for educational purposes are eligible for repayment, including U.S.-based educational loans made for the following purposes:

- Undergraduate, graduate, and health professional school tuition and expenses;
- Other reasonable educational expenses required by the school(s) attended, including fees, books, supplies, educational equipment and materials, and laboratory expenses;
- Reasonable living expenses, including the cost of room and board, transportation and commuting costs, and other living expenses as determined by the Secretary of the Department of Health & Human Services.

A consolidated loan is eligible as long as all loans in the consolidation are eligible for repayment.

Existing principal and capitalized interest on eligible loans and related expenses, such as the required insurance premiums on the unpaid balances of some loans, from qualifying lenders are also eligible for repayment.

Ineligible Loans

The following loans are not eligible for repayment through the LRPs:

- Consolidated loans that include at least one of the following loans are not eligible for repayment;
  - Loans obtained from an unqualified lender;
  - Loans obtained by the applicant for an individual other than the applicant, such as a spouse or child;
  - Loans obtained by an individual other than the applicant, such as a spouse or parent;
  - Non-educational loans, such as a home-equity loan;
- Loans for which eligibility documentation is not provided;
- Loans or portions of loans obtained for educational or living expenses which exceed a reasonable level as determined by the standard school budget for the year in which the loan was made;
- Loans, financial debts, or service obligations incurred under a program where an incurred service obligation converts to a loan upon failure to satisfy the service obligation;
- Loans that are delinquent, in default, or not current in their repayment schedule;
- Parent PLUS loans;
- Loans that are paid-in-full;
- Loans that are obtained after the start date of the initial NIH Loan Repayment Program Contract.

Additionally, late fees, penalty fees, additional interest charges, or collections costs will not be repaid by the LRP.

Clinical Research (L30)

For investigators conducting patient-oriented clinical research with human subjects or research on disease in human populations involving material of human origin.

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Pediatric Research (L40)

For investigators conducting research directly related to diseases, disorders and other conditions in children, including pediatric pharmacological research.

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Health Disparities Research (L60)

For investigators conducting research that focuses on one or more of the minority health disparity populations defined by NIMHD and the Agency for Healthcare Research and Quality.

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Contraception and Infertility Research (L50)

For investigators conducting research in conditions that result in the failure of couples to either conceive or bear young, or research on providing new or improved methods of preventing pregnancy.

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Clinical Research for Individuals from Disadvantaged Backgrounds (L32)

For clinical investigators coming from an environment that inhibited the individual from obtaining the knowledge, skill and ability required to enroll in and graduate from a health professional school, or a family with an annual income below low-income thresholds.

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Research in Emerging Areas Critical to Human Health (REACH) (L70)

For investigators pursuing major opportunities or gaps in emerging high-priority research areas, as defined by NIH Institutes and Centers.

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- KNOW THE DEADLINES AND TIMELINES — Typically Mid-Nov.; Recommend Starting Late Aug.
- DECIDE WHICH LRP TO APPLY FOR — Reach out to PO if questions (https://www.lrp.nih.gov/contact-engage)
- DETERMINE IF YOU QUALIFY
- OBTAIN A COMMONS ID
- USE LRP WEBSITE RESOURCES — Most helpful website that NIH has!

Reach out to PO if questions (https://www.lrp.nih.gov/contact-engage)

Do not do this at the last minute, some loan companies can take 2-3 weeks to process requests

Typically Jan - April

April - June

Good News but not a sure bet

Aug. to Sept.

Lots of them, keep up, and work with a CPA on taxes

LRP Repayment Calculator

The repayment amounts shown here are non-binding estimates based on the information entered. If an applicant receives an LRP award, the total award will be calculated by NIH and may be different than the values shown in this calculator.

1 Award Type (choose one)

- New ✔
- Renewal

2 Programs (choose one)

Extramural	*Intramural*
Clinical	AIDS
Pediatric	Clinical ✔
Health Disparities	General
Clinical Disadvantaged	General ACGME
Contraception & Infertility	
REACH	

3 Enter Debt and Salary Information

Eligible Educational Debt Amount: $ ◀ Enter Amount

Annual Base Salary: $ ◀ Enter Amount

CALCULATE RESET CLOSE

Total Repayment for Award: $100,000.00

Quarterly Payment Breakdown

Quarter 1	$12,500.00	**Quarter 5**	$12,500.00
Quarter 2	$12,500.00	**Quarter 6**	$12,500.00
Quarter 3	$12,500.00	**Quarter 7**	$12,500.00
Quarter 4	$12,500.00	**Quarter 8**	$12,500.00

Mentored Research Scientist or Independent Investigator:

Select “Mentored Researcher”, if one or more of the items listed below apply to you:

- You receive early-stage awards, training awards, or funding that lists a mentor or supervisor;
- Your research is partially funded by another investigator's grant(s);
- Your research is conducted entirely in another investigator's assigned space;
- You are not allowed to apply as the PD/PI of an NIH research grant (e.g., R01, a subproject leader on a Program Project (P01) or Center Grant (P50));
- You lack other rights and privileges of faculty, such as attendance at faculty meetings; and/or
- You are receiving support and protected time from a fellowship or career development award.

Select “Independent Researcher”, if one or more of the items listed below apply to you:

- You are eligible to apply for independent research funding as the PD/PI of a Federal or non- Federal research grant.
- You have a full-time faculty position;
- You received a start-up package for support of your independent research;
- You have research space dedicated to your own research;
- You may be the responsible supervisor for graduate students, and/or hire technical support or postdoctoral fellows; and/or

Note: You are strongly encouraged to consult with your research institution, as well as the appropriate NIH Institute/Center LRP Program Officer to determine which category best describes your status.

Note for Mentored Researchers: Your mentor must serve as one of the required referees. Please advise your mentor that they will receive instructions via an email from NIH on how to identify themselves as your designated LRP mentor when submitting their reference letter in support of your application.

Reference Letters: A minimum of three, but no more than five reference letters may be submitted in support of your LRP application. To request a reference letter please direct your letter writer (referee) to the LRP Reference Letter Portal. You must provide your referees with your NIH Commons ID, which will be used by your referee to enable the system to connect the letter, upon its submission, to your LRP application. All referees will receive a confirmation email when they submit their reference letters. You will also receive a confirmation email each time a reference letter is submitted on your behalf. You can track any submitted reference letter under the Status section in your Commons account.

Research Project Title:
Enter the title of your research project, using up to 200 characters.

Project Abstract:
In the space provided, please provide a summary or abstract of your research project, using up to 2,000 characters.

Upload Research Project/Activities:
Page Limit: Eight (8) pages
Include your name, employer, title of research project, and date at the top of the first page of the document. Describe the research activities you will pursue over the course of the LRP award and your specific role and responsibilities. The plan should include: specific hypothesis/hypotheses and/or a list of the specific aims and/or objectives that will be pursued; a description of the methods/approaches/techniques to be used for each aim, and an analytic plan to be used on the data generated by your approach. Literature citations, images, and bibliography are included in the eight (8) page limit.

It is important to relate the research plan to your scientific career goals. Describe how the research, coupled with other developmental activities, will provide the experience, knowledge, and skills necessary to achieve the objectives of your career development plan.

Research Environment:
Page Limit: One (1) page
Describe your institution's scientific environment and how it will contribute to the probability of your success during your LRP award (e.g., institutional support, physical resources, intellectual rapport, availability of other experts, etc.). In describing the scientific environment in which the research will be conducted, discuss ways in which the research will benefit from unique features of the scientific environment and any useful collaborative arrangements.

Note for Mentored Researchers, also describe institutional investment in your success, e.g., resources for classes, travel, and training, etc. and financial support such as protected time for research with salary support.

Research Accomplishments (Renewal Applications Only):
Page Limit: Two (2) pages
Describe your research accomplishments as they occurred under your first LRP award and subsequent renewal awards (if any). If you experienced "time breaks" between LRP awards, the accomplishments statement should include research progress made during those time breaks. Your research accomplishments should emphasize the progress made toward the achievement of your specific aims as described in your research plan. Explain any significant changes to the specific aims and any new directions including changes to the specific aims that may have occurred during the LRP award(s) period.

Career Development Plan (Independent Researchers Only):
Page Limit: Two (2) pages
Describe your career development plan and explain how this plan will foster the development of your career in research. This description should include not only your research, but also other developmental activities, such as grant submissions, seminars, scientific meetings, training in the responsible conduct of research, presentations, etc.

Training and Mentoring Plan (Mentored Researchers Only):

Page Limit: Two (2) pages

Describe your research training program and mentoring plan and explain how this plan will foster the development of your research career. Provide a description of developmental activities, such as grant submissions, involvement in activities such as journal clubs, professional groups, conferences, or seminars, etc. Also, specify the types of training interactions, training mechanisms to be used, research methods and scientific techniques to be learned. Describe how your mentor will contribute to your training program and his/her prior experience as a mentor of other investigators. Additionally, the nature and extent of supervision should be discussed as they will occur during the award period. If another laboratory staff member will be involved in your mentoring program, provide his/her name, describe his/her degree of involvement.

NIH Biosketch:

Page Limit: Five (5) pages

Submit a non-fellowship biosketch in a specified NIH format. You may use SciENcv (discussed above) or the sample format on the Biographical Sketch Format Page to prepare your Biosketch. Your Biosketch should include a list of significant honors and grants.

Personal Statement:

Page Limit: One (1) page

Describe why you are a strong candidate for an LRP award and your potential to succeed as an independent researcher. Relevant factors may include: your previous research training and/or previous experimental work; your short and long-term academic and research objectives; any relevant academic/professional achievements or honors; any research project support awards; and any significant contributions to science.

Mentorship Team

Dr. Ryder will be mentored by an experience team of interdisciplinary scientists from the University of Minnesota and experts in the field of Pediatric Obesity Medicine and Pediatric Cardiology. Dr. Ryder has collaborated with each of them in the past on various manuscripts and grants in the past and will continue to use their guidance as he transitions toward independence.

- **Dr. Aaron Kelly** will serve as Dr. Ryder's primary mentor throughout the training period. Dr. Aaron Kelly is a leader in the field of pediatric obesity medicine and has published extensively on the effects of pediatric obesity on cardiometabolic risk factors. He is a leader in innovative clinical trials in pediatric obesity with multiple R01s. He and Dr. Ryder have published extensively together over the years (evidenced by 26 joint manuscripts).

- **Dr. Julia Steinberger** is a Professor and Division Director in Pediatric Cardiology at the University of Minnesota Medical School, she will provide expertise and mentorship in longitudinal study design and interpretations for the study of obesity and cardiometabolic risk factors across the lifespan. Presently, Dr. Steinberger serves a senior mentor for Dr. Ryder (PI) on an internal grant (2 years, $150,000 per year) which seek to examine the longitudinal trajectory of cardiometabolic risk factor tracking from childhood to adulthood. She and Dr. Ryder have published extensively together over the years (evidenced by 9 joint manuscripts).

- **Dr. Thomas Inge** is Professor and the Director of Division of Pediatric Surgery and Adolescent Metabolic and Bariatric Surgery at Children's Hospital Colorado. Dr. Inge also serves as the PI of the Teen- Longitudinal Assessment of Bariatric Surgery (Teen-LABS) study. He and Dr. Ryder have published together over the years (evidenced by 7 joint manuscripts) and will be co-PIs for the Teen-LABS renewal application which will be submitted in 2021.

- **Dr. Claudia Fox** is the Director of the Pediatric Weight Management program at the University of Minnesota which will serve as a recruitment site and she will serve as the Medical Safety Officer for the study. She has experience using pharmacotherapy clinically, served as site principal investigator for Novo Nordisk's clinical trial examining liraglutide for adolescent obesity, and serves as the Medical Safety Officer for many other pediatric obesity pharmacotherapy trials. She and Dr. Ryder have published extensively together over the years (evidenced by 15 joint manuscripts).

- **Dr. Kyle Rudser** is an Associate Professor and biostatistician at the University of Minnesota with extensive expertise in the design of clinical trials, data and safety monitoring, and analysis of clinical trials data. He and Dr. Ryder have worked together for over 6 years and have published 17 joint manuscripts together. Dr. Rudser will continue to collaborate and mentor Dr. Ryder in study design, data analysis and interpretation.

Development Activities

Dr. Ryder's successful transition to independence relies primarily on securing continuous independent extramural funding. Therefore, as Dr. Ryder continues to develop his grant writing skills, he will seek feedback from each of his mentors during the grant development phase. He has the commitment of each of his mentors to provide feedback in a timely manner which will help expedite his transition towards independence. **In addition, Dr. Ryder plans to continue to work on numerous grant proposals as a co-investigator (currently a PI on 1 R01 and a co-I on 5 NIH R01s for 3 unique PIs) to continue to hone these skills.**

Dr. Ryder meets on a monthly basis with each of his mentors to discuss the ongoing projects our research group has and to discuss new ideas for manuscripts and grants. They provide an excellent and diverse group which continues to aide in his development and provide direction for his future studies. **Dr. Ryder has submitted several R01 applications (5 unique R01s) with each of his mentors as co-investigators (in the previous loan repayment period). Each of these R01s is either awaiting review or being revised for submission.** Dr. Ryder's mentorship team will continue to serve in this capacity on all new extramural application that fit their expertise. In addition, Dr. Ryder and Dr. Kelly met on a regularly (weekly) basis to discuss ongoing projects, hypothesis, current literature, and his progress towards becoming independent investigator. Dr. Ryder serves as a co-I for each of Drs. Kelly and Fox's currently funded R01s. Dr. Ryder will meet with Dr. Steinberger on a monthly basis to discuss ongoing papers from her funded studies and grant submission which are pending or in progress. Dr. Steinberger is an expert in the longitudinal assessment of cardiometabolic risk factors and is helping Dr. Ryder develop with two studies which seek to examine these factors across the lifespan. Dr. Steinberger is also on the University of Minnesota Promotion and Tenure committee and will provide Dr. Ryder with direction as to his progress in these areas. Dr. Inge will serve as a mentor and collaborator to Dr. Ryder as he develops grants and manuscripts which involve bariatric surgery in adolescents. One of Dr. Ryder's proposed projects is an aim of the renewal application for Teen-LABS which Dr. Inge is currently the PI of. In the renewal application, Dr. Inge and Ryder will become Co-PIs.

Dr. Ryder will continue to travel to at least 2 national and 1 international meeting a year, present data in the form of presentations and posters, and submit a minimum of 2 first or senior author publications per year. In addition, **Dr. Ryder is committed to submitting at least 1 new or resubmission NIH R01 grants per cycle (this goal is feasible as he submitted 4 new R01s in the 2019 calendar year)** and continue to seek internal funding opportunities as they become available. Since Drs. Inge is an external mentor, Dr. Ryder is committed to meeting with him in person each year either at a National Meeting or by going to Children's Hospital Colorado in Denver. Dr. Ryder will keep in regular e-mail and phone contact with each of his mentors, as he has done for a number of years.

Another key aspect of Dr. Ryder's development as an independent researcher and leader in the field of pediatric obesity and cardiometabolic disease research will be contributing to grant review processes. Dr. Ryder has been selected as an early career reviewer by NIH to serve on study sections which will help him develop these skills. He served on an SBIR Panel: Disease Prevention and Management, Risk Reduction and Health Behavior Change in February of 2019 and has been invited (pending approval) to the Kidney, Nutrition, Obesity and Diabetes Study Section (KNOD) in February of 2020. These experiences will be vital for his career development. In addition, he reviews grants for the CTSI at the University of Minnesota and serves on the internal advisory board for the CTSI's TL1 program.

I began my appointment as an Assistant Professor in the Department of Pediatrics at the University of Minnesota Medical School in June of 2016. Additionally, I serve as the Associate Director of Research for the Center for Pediatric Obesity Medicine (CPOM) funded by the University of Minnesota Medical School. I have been extremely fortunate and grateful to have been awarded 4 years (2-year initial award and 2-year renewal) of LRP from NIH/NHLBI. Since the initial period of LRP support (Fall of 2016), I have published numerous peer-reviewed manuscripts in high-impact journals (43 total (of 52) with 23 being first or senior author), secured internal grant funding (>800k as PI), serve as a co-investigator on numerous R01s (n=6), and continue to pursue extramural funding for my research program with R01 submissions every cycle. My long-term academic career goal is to become a highly productive leader and independently funded investigator in the field of pediatric obesity and cardiometabolic disease risk. Through receiving further mentorship and training, I expect to continue to develop an innovative line of research addressing high-impact problems that will translated to better clinical management of high-risk pediatric populations (i.e., youth with severe obesity and hypertension). Many of my project employ new technology or methods novel in the pediatric obesity space (e.g. advanced imaging techniques and state-of-the art metabolomics). Moreover, my goal is to expediate the translation process from adult to pediatrics for pharmacotherapy treatments by pursuing novel population for testing medication efficacy. During this period of the loan repayment program support, I will develop further expertise in the assessment of cardiac structure and function, acquire new scientific knowledge in metabolomics, continue to cultivate academic collaborations outside of my institution, secure extramural research funding for my program in the form of an NIH R01, and ultimately transition to an independent, extramurally funded investigator. Together, these short term goals will help facilitate my transition toward being an independent investigator.

Specific Short-Term Career Goals/Objectives:

1. Accelerate my development as an independent principal investigator under the senior mentorship of Dr. Kelly by continuing to serve as a co-I on his 3 funded R01s.
2. Continue to pursue publications in high impact peer reviewed journals.
3. Execute clinical trials using expertise in pharmacotherapy in youth with obesity gained of the past few years.
4. Cultivate an innovative line of research focused on state-of-the-art technologies (cardiac imaging and metabolomics) and apply them to pediatric obesity studies.
5. Secure extramural funding from NIH within the next year in the form of an R01.

Long-Term Career Goals/Objectives:

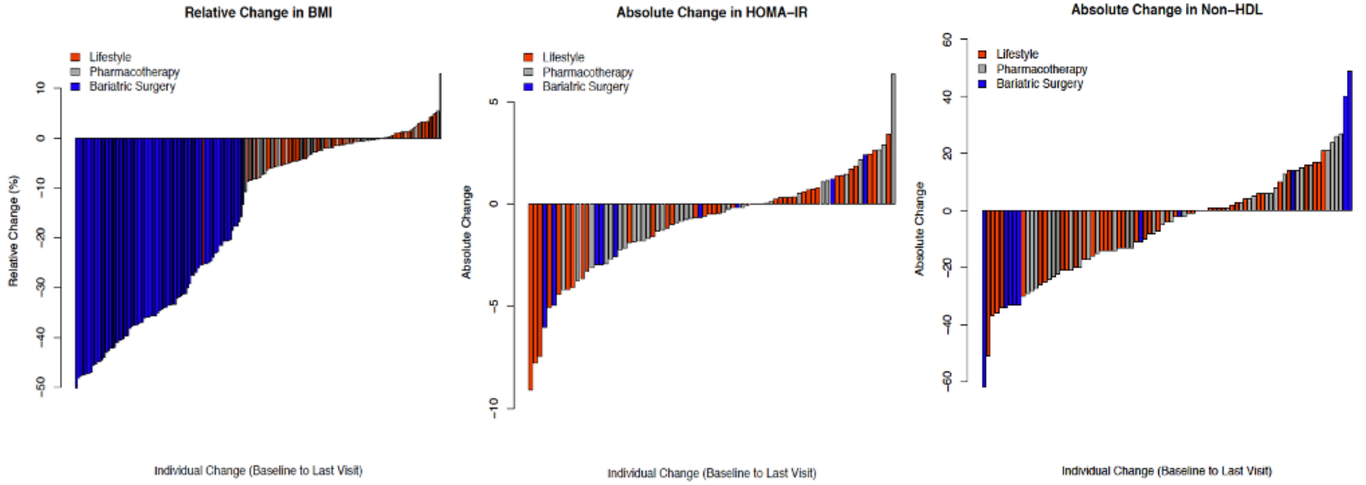
- Gain the credentials and expertise necessary to facilitate my transition to an independent, externally-funded investigator in pediatric obesity.
- Work to establish myself as a leader in the area of pediatric obesity research by extending the scientific knowledge in the field, serving on committees, and presenting at scientific conferences both nationally and internationally.
- Establish a continually funded, independent research program which advances pediatric obesity medicine and translates to improved clinical treatment options for youth with obesity and cardiometabolic disease.

The overall goal of the **two projects** outlined is to gain independence through NIH R01 funding during the LRP renewal period. The projects are focused on cardiometabolic consequences of pediatric severe obesity and propose to utilize novel treatments integrated with state-of-the-art technologies to interrogate mechanisms underlying responses in CVD risk factors.

Project 1 (On-going; R01 Submission in 2021): Metabolomic Adaptations Following Bariatric Surgery in Teens

Youth with obesity present with elevated levels of numerous traditional and novel risk factors for cardiovascular disease (CVD).[1-6] Unfortunately, severe obesity (SO) (BMI 1.2x 95th percentile), an ever-increasing subgroup present with higher risk than youth with moderate obesity for many CVD risk factors.[3] Since 2016, I have been involved in examining cardiometabolic outcomes of metabolic and bariatric surgery (MBS) among adolescents with severe obesity in collaboration with Dr. Thomas Inge at Children's Hospital of Colorado. MBS is the most effective treatment for severe obesity and its metabolic sequelae, with studies demonstrating 30-40% weight reduction, improved glycemic control, cardiovascular disease (CVD) risk reductions which are superior to medical- or lifestyle management.[1, 7-13] Despite dramatic results overall, there is considerable heterogeneity in weight loss and co-morbidity response (**Figure 1**; Ryder et al., *Obesity, 2019*) even after accounting for pre-surgical variation in BMI and important disease risk factors.[7, 9, 11] The factors driving this variation in response are largely unknown.

Figure 1



The field of pediatric obesity medicine and surgery is pushing towards precision medicine approaches to improve treatment outcomes for pediatric severe obesity. However, more information regarding relevant factors is needed to appropriately tailor treatment with the goal of maximizing treatment. Currently, **no clinically-applicable biomarkers exist nor are the mechanisms underlying treatment response known for adolescents undergoing bariatric surgery**. Moreover, the mechanistic basis for durable improvement in T2D and CVD following bariatric surgery remains unknown.

The majority of my research to date have been focused on understanding the cardiometabolic consequences of pediatric obesity and the effect interventions have on these consequences. Adolescents with severe obesity have increased incidents of musculoskeletal pain and reduced exercise capacity during a standard 400m walk test (functional mobility). However, we observed following bariatric surgery a dramatic improvement in 400m walk test time, improved heart rate response (before, during, and post-test), and reduced musculoskeletal pain. (Ryder et al, JAMA Pediatrics, 2016, The JAMA Network weekly highlight [LINK]). These improvements may lead to improved cardiovascular health. Indeed, bariatric surgery among adolescent with severe obesity significantly reduces estimated risk for cardiovascular disease (CVD) events (estimated using 30-year CVD event risk using Framingham risk scores) over a 5-year period post-surgery. **Figure A** (Ryder et al., Obesity, 2020) shows that adolescents with severe obesity, especially those prior to surgery (TL baseline), have extremely high 30-year CVD event risk compared to their non-obese peers. This risk is mitigated and sustained following bariatric surgery (TL 1-year to 5-year). We further explored these data in those adolescents whom had type 2 diabetes at baseline and compared them to counterparts from the largest medical management study of adolescents with type 2 diabetes (TODAY). **Figure B** (Ryder et al., SOARD, 2020) shows group differences between 30-year CVD risk at baseline along with 1-year and 5-year post-treatment. Despite similar risk at baseline, CVD risk was substantially reduced in the bariatric surgery cohort (Teen-LABS) at 1 year and 5 year, regardless of differences in BMI between the groups. In summary, adolescents with severe obesity have pronounced CVD risk which is significantly reduced following bariatric surgery.

Figure A

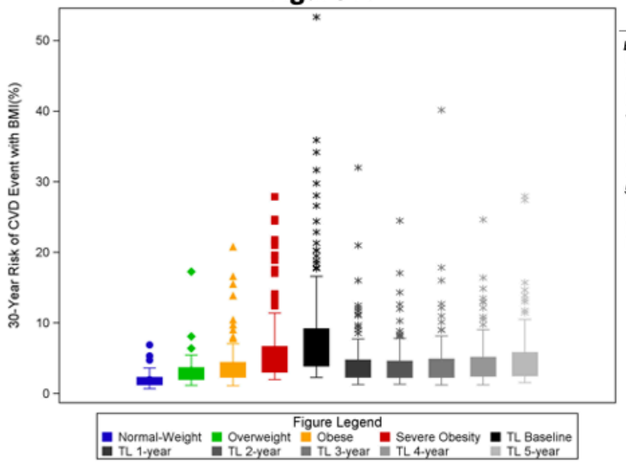
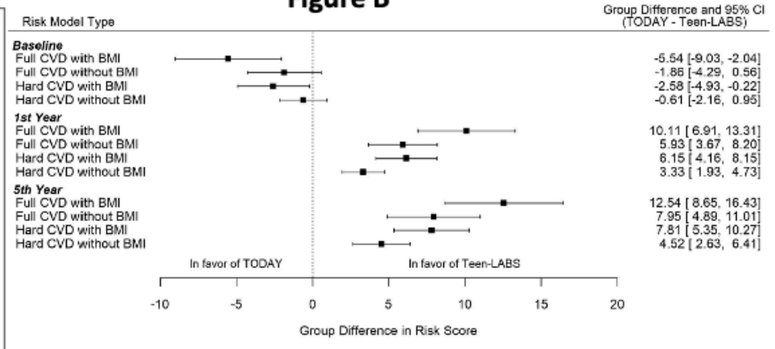


Figure B



I will build upon these works in adolescent bariatric surgery in Project 1 of my LRP renewal. The aim within this R01 application will be to identifying small-molecule predictors of response, using state-of-the-art metabolomics, following bariatric surgery among adolescents with severe obesity. We seek to discovery of metabolites which are predictive of weight loss and clinical outcome (e.g. hypertension and type 2 diabetes remission) and identification of molecular pathways essential for weight loss maintenance and durable CVD risk factor reductions.

Summary of Research Activities Proposed

Ultimately, the proposed research activities, as part of Dr. Ryder's larger portfolio, represent an independent line of research that will lead to sustained R01 funding in the near future. Dr. Ryder under the guidance from his mentors and advice from program officers and directors has been persuaded to pursue R01 level grants rather than K or other development awards. While "less traditional" and was a criticism of Dr. Ryder's prior LRP renewal application in 2017, this is the focused path which he has been advised to continue to purse. Despite only being on tenure-track for over 3.5 years, and only 6 years removed from my PhD training, my publication track-record (>50 total publication, >25 first or senior authored) and history of obtaining intra- and extramural funding will allow me to transition into independence in the near future. I am committed to continuing this track-record of success, publishing in high-tier journals, and pursuing independent research that will lead to an impact for pediatric obesity and cardiometabolic disease research.