

CENTER FOR DISCOVERY® OUTCOME DATA

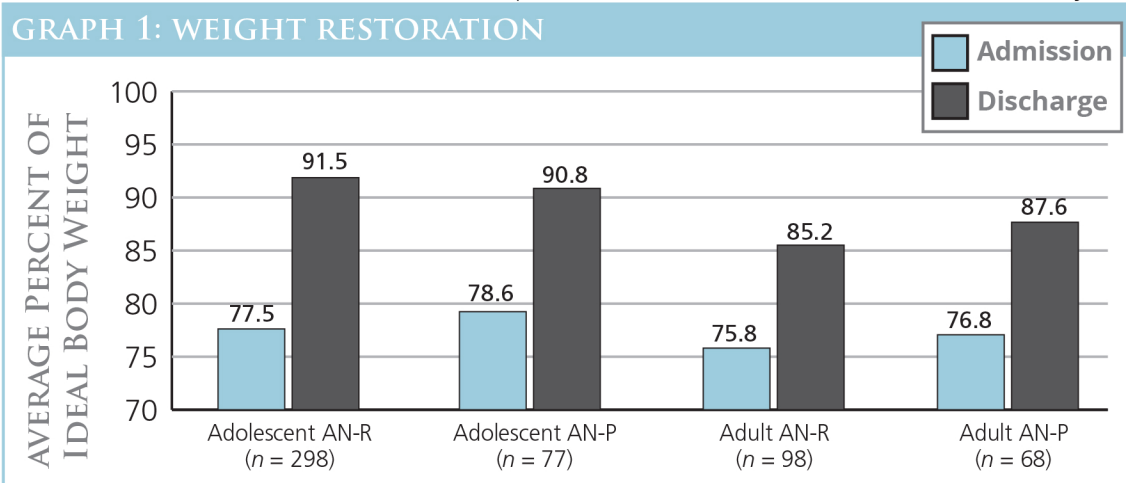
Treating eating disorders since 1999, Center For Discovery has a strong commitment to evidence-based practice. To this end, Discovery has been collecting data on our clients and, in several separate research endeavors, has begun to be able to answer pertinent questions related to

- 1) the process of treatment,
- 2) the post-discharge experience, and
- 3) the need for readmission.

The process of treatment:

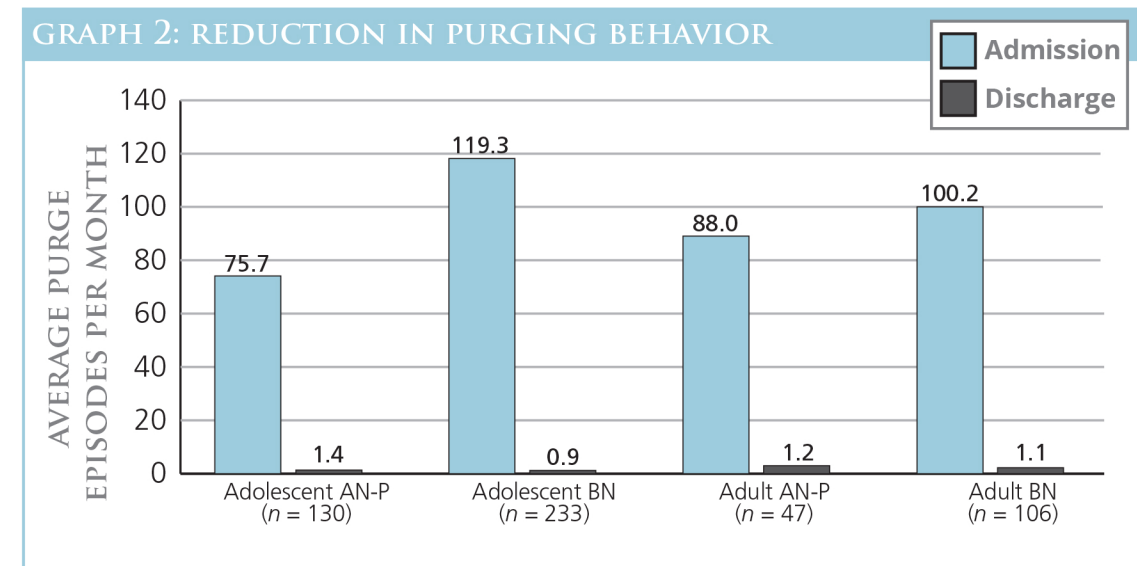
Center For Discovery collects admission and discharge data on clients with eating disorders and has teamed with North Shore LJ and The Feinstein Institute for Biomedical Research to analyze this de-identified data. We are especially interested in the outcome of residential treatment for eating disorders and factors that may correlate with need for residential treatment, with treatment success, and with need for readmission. Findings from the external data analyses have been presented at the 2015 Academy for Eating Disorders (AED) International Conference, the 2015 Society for Adolescent Health and Medicine (SAHM) Annual Meeting, and the 2016 Pediatric Academic Societies (PAS) Annual Meeting. In the interim of the full analyses, we present the following results from data collected from clients who received residential eating disorder treatment at Center For Discovery between 2006 and 2015 (N = 1,915).

GRAPH 1: Adult clients with active¹ anorexia (AN), who entered residential treatment² extremely malnourished, with an average percent of ideal body weight (IBW) in the mid-70s, had significant increases of 10.0 percentage points on average. For adolescent clients with active AN-Restricting Type (AN-R), the mean percent of IBW increased by 14.0; for adolescent clients with active AN-Purging Type (AN-P), mean percent of IBW increased by 12.2. These increases represent an improvement from medically compromising averages of between 77.5% and 78.6% of IBW at admission to above 90% at discharge. Reaching the benchmark of 90% of IBW for developing adolescents is important for a number of reasons including a marked reduction of symptoms of malnutrition³ and the evidence that psychopathological symptoms can persist for years when weight restoration is incomplete⁴. Furthermore, leading eating disorder researchers^{4,5} cite slow and low weight restoration as dangerous, as it results in not just the eventual risk of bone disease and relapse but also a decline in motivation for recovery.

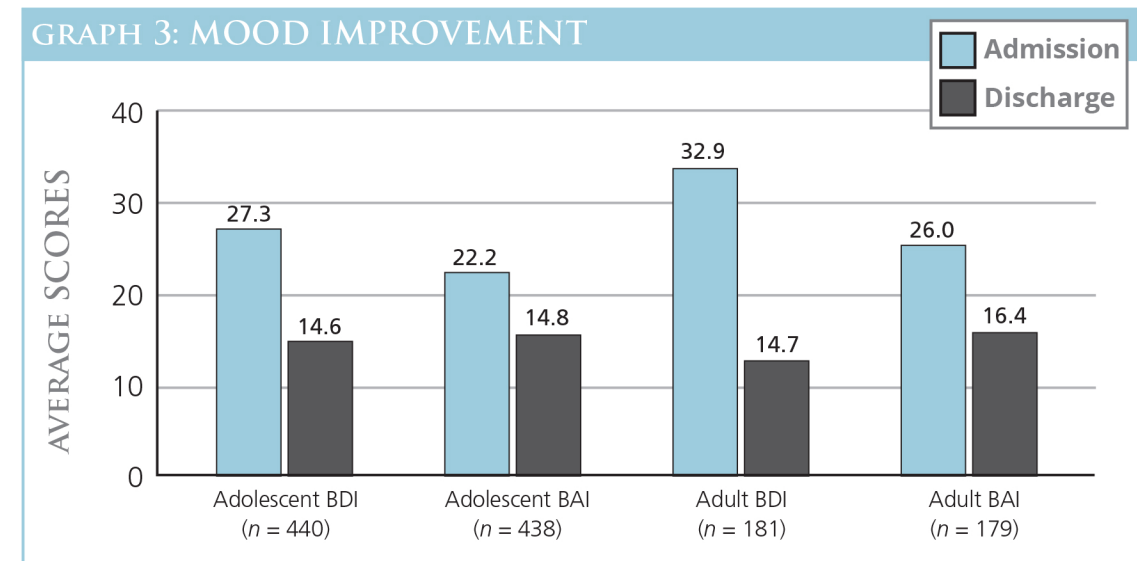


Turning to weight in pounds, during their length-of-stay⁶ (adolescent AN-R, $m = 59.3$ days; adolescent AN-P, $m = 56.9$ days; adult AN-R, $m = 44.1$ days; adult AN-P, $m = 44.4$ days), Center For Discovery clients with active AN gained 2.1 pounds per week on average – a rate of restoration that is hard to achieve at lower levels of care and increases the likelihood of lasting recovery.⁷ Because persistence of low body weight predicts poorer long-term outcome⁵ and approximately 20-25% of individuals with AN will become chronically ill^{5,8}, Center For Discovery is committed to timely weight restoration.

GRAPH 2: Center For Discovery provides the necessary structure for a swift cessation of purging behavior, a symptom that can be difficult to extinguish in lower levels-of-care. On average, adolescents and adults with either AN-P or BN⁹, who were exhibiting purge behavior upon admission, were able to reduce these behaviors by 99.0%. Furthermore, during an average length of stay⁶ (adolescent AN-P, $m = 58.5$ days; adolescent BN, $m = 50.0$ days; adult AN-P, $m = 51.2$ days; adult BN, $m = 45.8$ days), the vast majority of clients (89.1%) were able to stop purging completely.



GRAPH 3: Because Center For Discovery takes a holistic approach, symptoms of depression and anxiety are important targets for treatment. Graph 3 presents average scores on the Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI) at the time of admission and discharge for adolescent and adult clients with a diagnosis of either AN or BN. On average, our adolescent clients entered residential treatment² at Center For Discovery within the **moderate** range of depression and anxiety, whereas adult clients began treatment within the **severe** range for depression and anxiety.¹⁰ However, both adolescent and adult clients scored within or on the cusp of the **mild** range of depression and anxiety at the time of discharge, a vast improvement in mood and related functioning, and an improvement that can strengthen lasting recovery.¹¹



Center For Discovery is dedicated to restoring weight, greatly reducing purge behavior, and improving mood, and we make great strides in these areas during clients' treatment with us. However, symptom improvement in treatment, no matter how great, is just the first step. Lasting recovery, although built upon the foundation of the work clients do in treatment, is forged once clients leave the structure of Center For Discovery. Thus, Discovery researchers knew following up with families after discharge would be imperative and initiated a research project to study clients' post-discharge experience.

The post-discharge experience:

In late 2015, Center For Discovery rolled out its Aftercare Program. Via a licensed psychologist contacting adult clients and parents of adolescent clients 7 days, 30 days, 60 days, 90 days, 6 months, and yearly after discharge, our Aftercare Program helps protect the improvements made in treatment and collects follow-up data. As a pilot study to Discovery's Aftercare Program, the following information was collected from parents of our adolescent clients ($n = 68$) who were 6 months to 1 year post-discharge from Center For Discovery's residential eating disorder program.

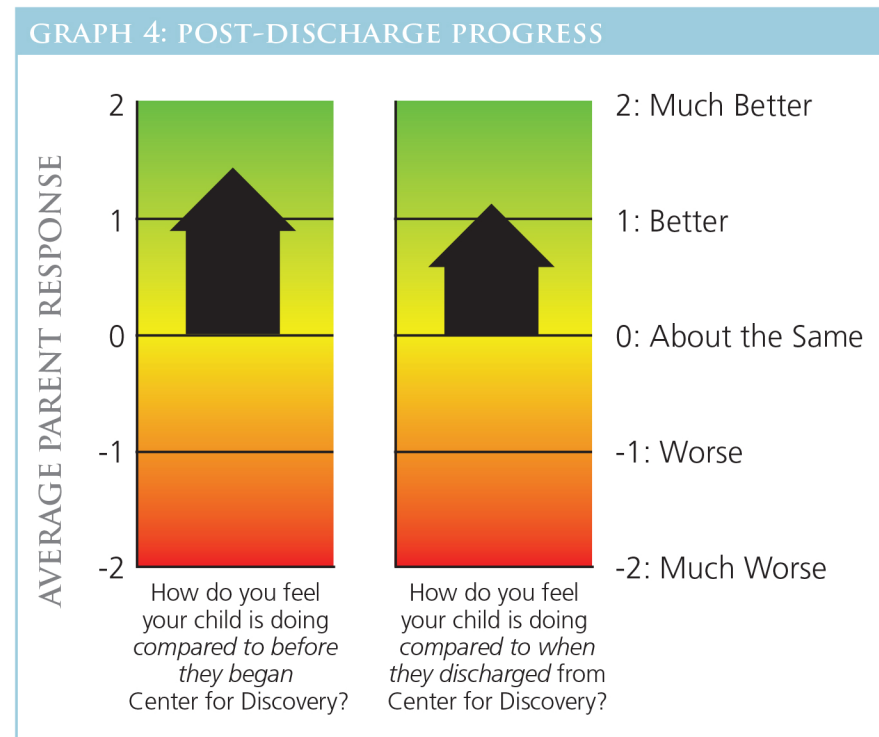
- 95.6 % of clients engaged in aftercare within 7 days of discharge (e.g., began PHP/IOP or attended outpatient treatment appointments)
- For clients who had been diagnosed with AN and were discharged at or above 90% of ideal body weight, 88.9% were reported to have maintained their weight
- For the clients with a history of purging, 78.6% were reported as being purge-free the month before contact
- 81.0% of clients who discharged to a lower level-of-care did not need to be stepped back up to a higher level of eating disorder treatment at Discovery **or** any other treatment setting
- Additionally, parents were asked to answer the following two questions using the below scale:

How do you feel like your child is doing compared to **before they began** Center For Discovery?

How do you feel like your child is doing compared to when they **discharged from** Center For Discovery?

Much better	Better	About the same	Worse	Much worse
2	1	0	-1	-2

GRAPH 4: Examining the first question, the vast majority (90.6%) of parents reported that their child was doing *better* or *much better* than before beginning treatment at Center For Discovery. The answer to the second question, which was designed to measure whether improvements achieved while in treatment were maintained after discharge, was a bit of a surprise to our researchers. Although we have routinely watched clients make great strides during their treatment, we could only hope that clients did not backslide after leaving the structure of Center For Discovery. However, the data suggests that not only are improvements maintained, but that Center For Discovery clients actually continue to get better following their discharge. In fact, 84.4% of parents reported their child was doing *better* or *much better* since discharging from Center For Discovery.



In summary, 6 months to 1 year after discharge, clients who had received residential eating disorder treatment from Center For Discovery were not only maintaining the improvements they had made in treatment, but had actually continued to improve, with over ¾ of clients with a history of purging having ceased this behavior and approximately 90% of clients with AN having maintained their weight within a healthy range.

www.CenterForDiscovery.com

The need for readmission:

Since Center For Discovery began treating eating disorders in 1999, we have treated over 2,600 clients at the residential level-of-care. Of those clients, only 14.7% have readmitted to Discovery's residential eating disorder program *anytime* in the past 16 years. Examining readmission rates for specific time frames, 11.6% of our clients readmitted within one year of discharge, 8.8% readmitted within 6 months, 6.2% readmitted within 90 days, and 2.7% readmitted within 30 days of discharge. Such readmission rates are significantly lower than those typically found for a higher level-of-care for eating disorders, which can be as high as 45.0% to 77.5%.^{12,13}



At Center For Discovery, we are driven to provide the most effective, evidence-based treatment experience ...and our results speak for themselves. Through all of our research endeavors, our mission is to continuously enhance our program, give confidence to families and clients regarding the decision to enroll, work with insurance companies for adequate length of treatment, and lead the field in understanding treatment for eating disorders.

FOR MORE INFORMATION ABOUT CENTER FOR DISCOVERY'S EVIDENCED-BASED TREATMENT, PLEASE CALL 866-480-3475.

www.CenterForDiscovery.com

- ¹ Active AN indicates clients who were below 85% of IBW upon admission to Center For Discovery.
- ² For the purpose of the analysis for this graph, residential treatment was operationalized as having received at least 7 days of treatment at the residential level-of-care.
- ³ Strober, M., Freeman, R., & Morrell, W., (1997). The long-term course of severe Anorexia Nervosa in adolescents: Survival analysis of recovery, relapse, and outcome predictors over 10-15 years in a prospective study. *International Journal of Eating Disorders*, 22(4), 339-360.
- ⁴ Strober, M., & Johnson, C. (2012). The need for complex ideas in Anorexia Nervosa: Why biology, environment, and psyche all matter, why therapists make mistakes, and why clinical benchmarks are needed for managing weight correction. *International Journal of Eating Disorders*, 45(2), 155-178.
- ⁵ Steinhausen, H.C. (2002). The outcome of Anorexia Nervosa in the 20th century. *American Journal of Psychiatry*, 159, 1284-1293.
- ⁶ Here length-of-stay averages are only representative of those clients meeting criteria for this analysis.
- ⁷ Lund, B. C., Hernandez, E. R., Yates, W. R., Mitchell, J. R., McKee, P. A. & Johnson, C. L. (2009). Rate of inpatient weight restoration predicts outcome in Anorexia Nervosa. *International Journal of Eating Disorders*, 42, 301-305.
- ⁸ Viricel, J., Bossu, C., Galusca, B., Kadem, M., Germain, N., Nicolau, A., et al. (2005). Restrospective study of Anorexia Nervosa: Reduced mortality and stable recovery rates. *La Presse Médicale*, 34, 1505-1510.
- ⁹ For the purpose of the analysis for Graph 2, only clients with a length-of-stay of 30 days or greater were included, as at least one month of treatment was needed to calculate average purge episodes per month on discharge.
- ¹⁰ For BDI, 0-9 is minimal, 10-18 is mild, 19-29 is moderate, and 30-63 is severe. For BAI, 0-7 is minimal, 8-15 is mild, 16-25 is moderate, and 26-63 is severe.
- ¹¹ Herpertz-Dahlmann, B., Wewetzer, C., & Remschmidt, H. (1995). The predictive value of depression in anorexia nervosa: Results of a seven-year follow-up study. *Acta Psychiatrica Scandinavica*, 91(2), 114-119.
- ¹² Steinhausen, H., Grigoriou-Serbanescu, M., Boyadjieva, S., Neumärker, K., & Metzke, C. W. (2008). Course and predictors of rehospitalization in adolescent anorexia nervosa in a multisite study. *International Journal of Eating Disorders*, 41(1), 29-36.
- ¹³ Lay, B., Jennen-Steinmetz, C., Reinhard, I., & Schmidt, M. H. (2002). Characteristics of inpatient weight gain in adolescent anorexia nervosa: Relation to speed of relapse and re-admission. *European Eating Disorders Review*, 10(1), 22-40.