Pharmacotherapy Prescribing Patterns in Alcohol Use Disorder (AUD) for Patients Enrolled in the Ria Health Treatment Program (RHTP)

Julien Stainback BA, Robert Nix PhD, David Deacon PhD, John Mendelson MD
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Abstract

Background

Despite many safe and effective AUD pharmacotherapies little is known about anti-alcohol prescribing practices. For most diseases, combination pharmacotherapies are superior to monotherapy yet there are few reports on the use of rational drug combinations in AUD. Here we report the rate, duration and clinical outcomes for anti-alcohol drugs prescribed to patients treated for AUD by RiaHealth.

Methods

The RHTP is an AUD telehealth treatment program deployed on smartphones. Alcohol use is quantified with 1-2X/day breath alcohol concentrations (BAC) and patients are treated with medications and coaching. Prescription data were obtained through the Ria application and EHR interfaces which tracks all prescribing to Ria patients. Prescribing of Naltrexone (NTX), acamprosate (ACAM), gabapentin (GABA), baclofen (BAC), and topiramate (TOP) were assessed.

Results

From 1/2017-1/2020 1,045 Ria patients were prescribed anti-AUD meds. At treatment initiation NTX was prescribed to 81.7% followed by GABA (7.6%), NTX-GABA (4.46%), ACAM (3.65%) Baclofen (1.01%) and TOP (0.71%). At 6 months 612 patients remained NTX has decreased to 64.76%, GABA had increased to 8.60%, NTX-GABA had increased to 14.04%, ACAM decreased to 2.01%, Baclofen increased to 2.01% and TOP increased to 0.86%. At 6 months, 36% of patients remain in treatment and mean BAC declined from 0.077 to 0.027 g/L (64.94%). Non-drinking days increased from 1.94 to 3.96 days/week.

Conclusions

Medication management in AUD is effective, safe and well tolerated and can be improved with telehealth. In the Ria cohort NTX is the most commonly prescribed monotherapy and NTX-GABA is the most commonly prescribed combination. NTX-GABA combinations appear safe and well tolerated but more research is needed to assess therapeutic switching and synergy.

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The Ria Health Platform provides AUD treatment with pharmacotherapy, coaching and quantification of Breath Alcohol (BAC) levels with a breathalyzer managed by the Ria app. The platform quantifies medical and coaching visits, medication prescriptions, BAC levels and displays results to the patient, the patients supporters ad the care team. The analytic engine produces in depth data for medications use, clinical outcomes, and demographics.

Abstinence has been the primary treatment outcome for AUD. But most patients never achieve long term abstinence. Therefore, treatment options that achieve measurable controlled drinking are needed. The RHTP allows quantitative assessment of drinking behavior and the response to treatment, making moderate/controlled drinking a reasonable option.

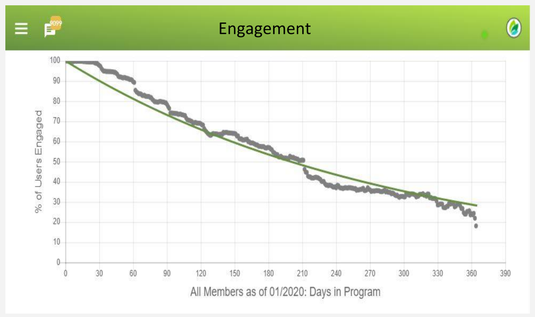
Medications for AUD are safe and effective but rarely used. A study done in the UK using the Clinical Practice Research Datalink (CPRD) examined 39, 980 individuals from 1990 to 2013 suffering from AUD. Only 4,677 of them (11.7%) received any type of pharmacotherapy. (Thomas 2017) Another study in Norway suggests that less than a third of patients treated for their AUD actually receive any type of medication for their condition. (Heldal 2018)

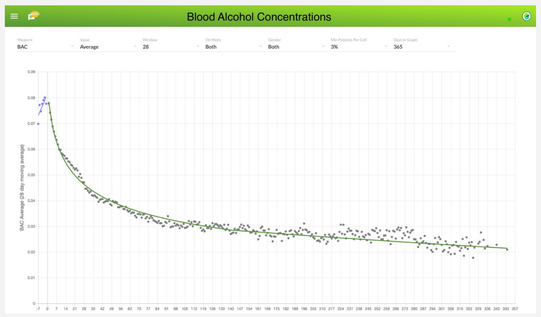
The lack of prescriptions is due in part to a lack of awareness surrounding medication treatment for alcoholism. Despite being shown to be useful and relatively low risk to a patient, they are still underutilized. This combined with the belief that the only way to deal with AUD is to be entirely abstinent act as barriers for treatment. A program that utilizes the medication available while allowing for flexibility in patient goals is key to positive treatment outcomes

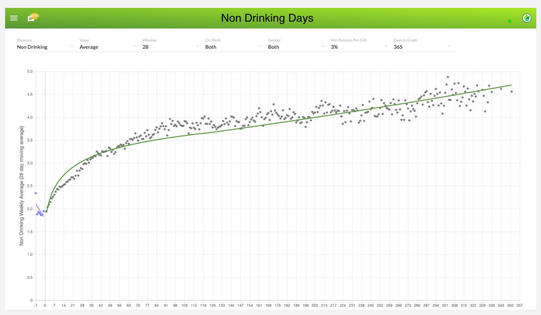
Results

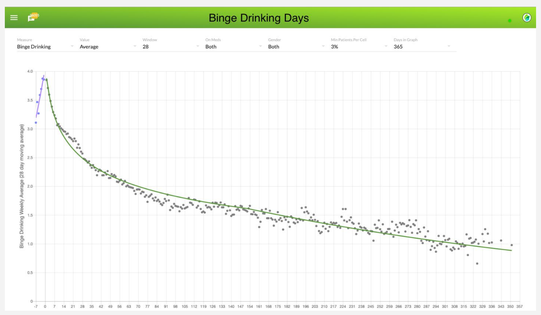
NTX is the most prescribed medication in the program, used at the start to help members who are looking to moderate their drinking. The most popular combination is NTX and GABA. NTX helps curb cravings for alcohol and GABA keeps withdrawal symptoms at bay. NTX alone tapers off in usage as members go through the program as members either switch medication entirely or add a medication. Day 1 prescriptions are 81.8% NTX, 7.4% GABA, 4.3% NTX and GABA, 4.0% ACAM, 0.8% Baclofen, and 1.7% other combinations. Day 90 prescriptions are 63.7% NTX, 18.0% NTX + GABA, 7.8% GABA, 2.0% NTX + Baclofen, 1.8% ACAM, 1.5% NTX + GABA + Baclofen, 0.8% Baclofen, and 4.4% other combinations. Day 180 prescriptions are 64.8% NTX, 14.0% NTX + GABA, 8.6% GABA, 2.9% NTX +Baclofen, 2.0% ACAM, 2.0% Baclofen, and 5.7% other combinations. Day 365 prescriptions are 55.1% NTX, 17.6% NTX + GABA, 12.5% GABA, 3.7% NTX +Baclofen, 2.2% TOP, 2.2% GABA + Baclofen, 1.5% NTX + GABA + Baclofen, and 5.2% other combinations.

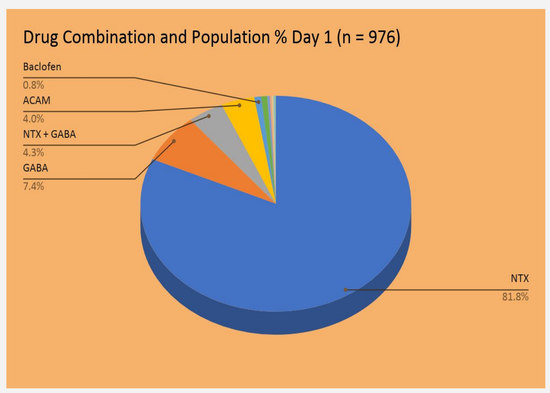
BAC level baselines started on average at 0.077 g/L. By Day 90 the average BAC level of the cohort dropped to 0.031 g/L. By Day 180 the average BAC level decreased to 0.029 g/L. By Day 365 the average BAC level dropped to 0.027 g/L. A limitation of this study is that the outcomes are taken as averages across the entire population as opposed to outcomes per medication cohort.

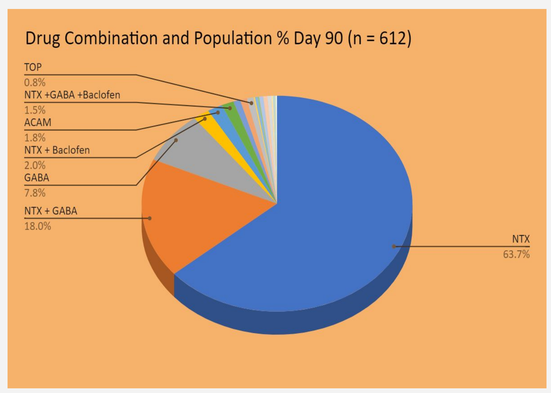


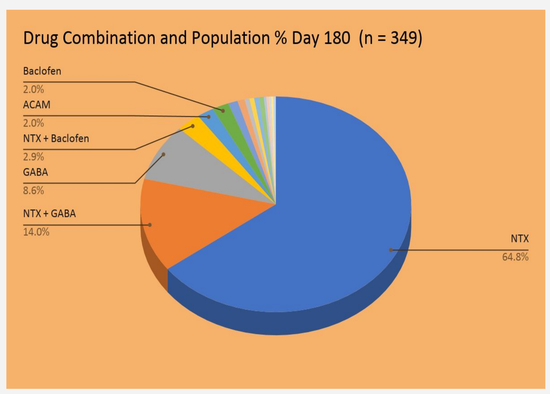


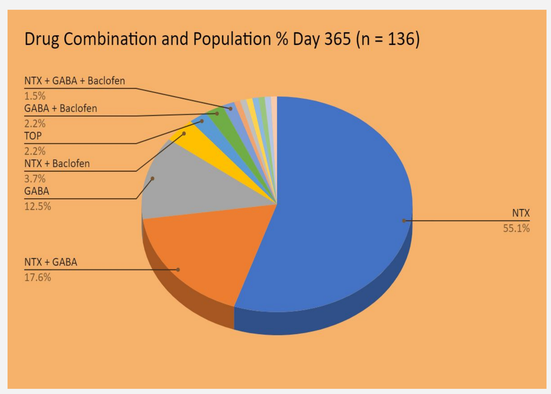




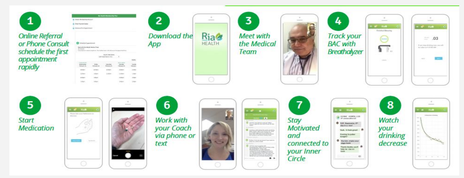




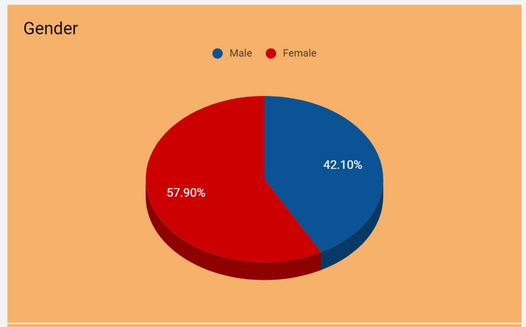


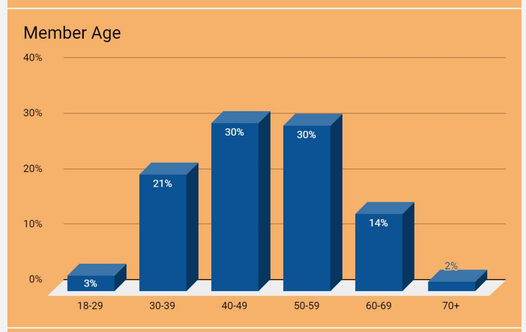


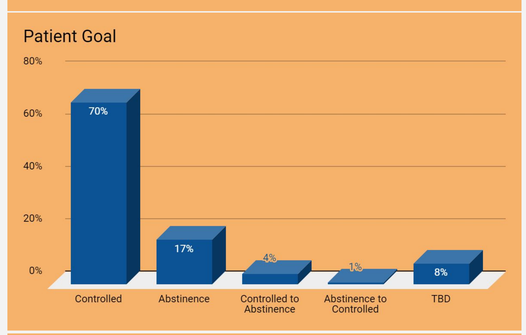
How it works

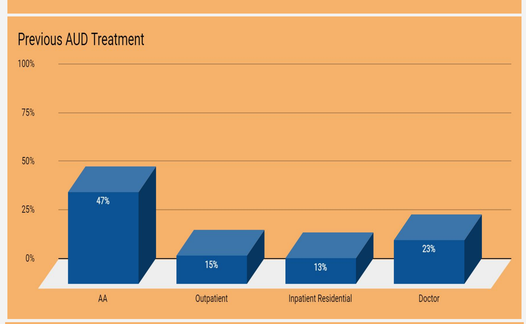


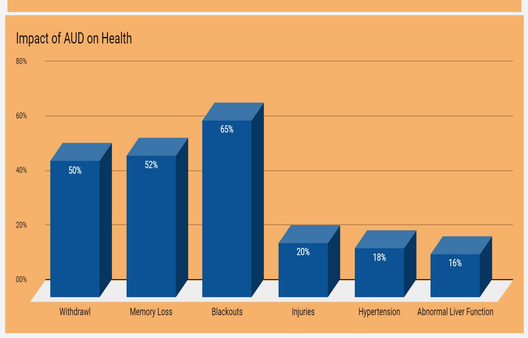
Patient Characteristics











References

1. Alcohol Facts and Statistics. (2019, December). Retrieved November 4, 2019, from https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/alcohol-facts-and-statistics
2. Ambekar, A., & Kattimani, S. (2013). Anti-craving medications for long-term treatment of alcohol dependence. In A. Dhawan, & S. Jhanjhi (Eds.), Manual for Long-term pharmacotherapy of alcohol and opiate dependence (pp. 13-23). New Delhi: National Drug Dependence Treatment Centre
3. Campbell, E. J., Lawrence, A. J., & Perry, C. J. (2018). New steps for treating alcohol use disorder. Psychopharmacology, 235(6), 1759–1773. doi: 10.1007/s00213-018-4887-7
4. Cohn, A. M., Hunter-Reel, D., Hagman, B. T., & Mitchell, J. (2011). Promoting Behavior Change from Alcohol Use Through Mobile Technology: The Future of Ecological Momentary Assessment. Alcoholism: Clinical and Experimental Research, 35(12), 2209–2215. doi: 10.1111/j.1530-0277.2011.01571.x
5. Goh, E. T., & Morgan, M. Y. (2017). Review article: pharmacotherapy for alcohol dependence - the why, the what and the wherefore. Alimentary Pharmacology & Therapeutics, 45(7), 865–882. doi: 10.1111/apt.13965
6. Heldal, A. T., Skurtveit, S., Lobmaier, P. P. K., Vederhus, J.-K., & Bramness, J. G. (2018). Bruk av medikamenter for alkoholbrukslidelser i Norge 2004–16. Tidsskrift for Den Norske Legeforening. (Use of drugs for alcohol use disorders in Norway 2004–16. Journal of the Norwegian Medical Association) doi: 10.4045/tidsskr.18.0383
7. Kalpakci, A., Sofuoglu, M., Petrakis, I., & Rosenheck, R. A. (2018). Gender differences among Veterans with alcohol use disorder nationally in the Veterans Health Administration. Journal of Addictive Diseases, 37(3-4), 185–194. doi: 10.1080/10550887.2019.1653739
8. Mark, T. L., Kassed, C. A., Vandivort-Warren, R., Levit, K. R., & Kranzler, H. R. (2009). Alcohol and opioid dependence medications: Prescription trends, overall and by physician specialty. Drug and Alcohol Dependence, 99(1-3), 345–349. doi: 10.1016/j.drugalcdep.2008.07.018
9. Scherbaum, N., Holzbach, R., Stammen, G., Kirchof, U., & Bonnet, U. (2019). Very Low Frequency of Drug Therapy of Alcohol Dependence in Germany – Analysis of Data of A Statutory Health Insurance. Pharmacopsychiatry, 53(01), 37–39. doi: 10.1055/a-0896-2757
10. Shen, W. W. (2018). Anticraving therapy for alcohol use disorder: A clinical review. Neuropsychopharmacology Reports, 38(3), 105–116. doi: 10.1002/npr2.12028
11. Soyka, M., Kranzler, H. R., Hesselbrock, V., Kasper, S., Mutschler, J., & Möller, H.-J. (2016). Guidelines for biological treatment of substance use and related disorders, part 1: Alcoholism, first revision. The World Journal of Biological Psychiatry, 18(2), 86–119. doi: 10.1080/15622975.2016.1246752
12. Thompson, A., Ashcroft, D. M., Owens, L., Staa, T. P. V., & Pirmohamed, M. (2017). Drug therapy for alcohol dependence in primary care in the UK: A Clinical Practice Research Datalink study. Plos One, 12(3). doi: 10.1371/journal.pone.0173272
13. Vassar, M., & Holzmann, M. (2013). The retrospective chart review: important methodological considerations. Journal of Educational Evaluation for Health Professions, 10, 12. doi: 10.3352/jeehp.2013.10.12

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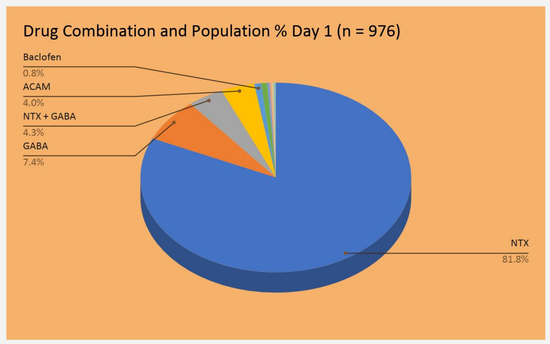
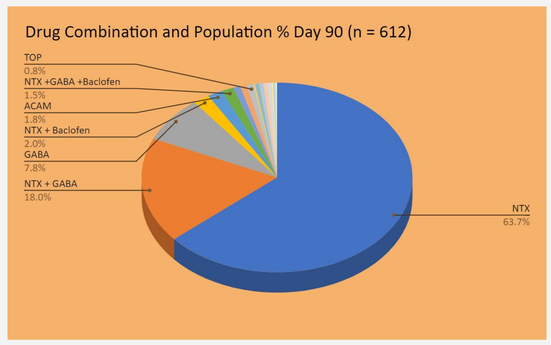
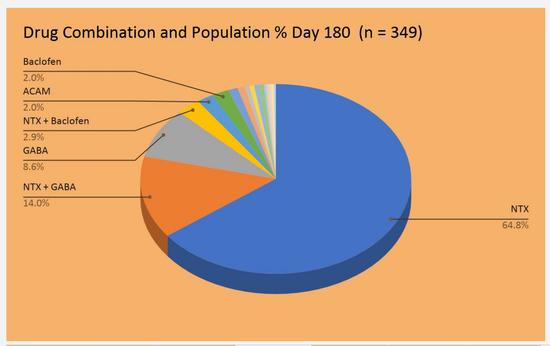
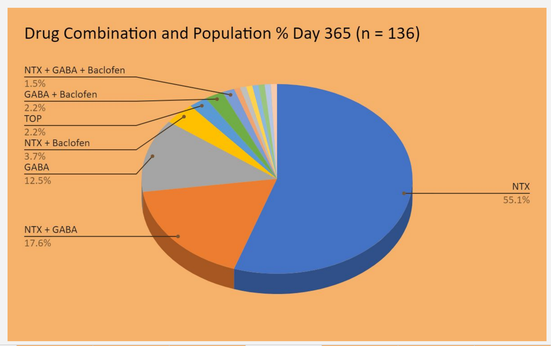
BAC level baselines started on average at 0.077 g/L. By Day 90 the average BAC level of the cohort dropped to 0.031 g/L. By Day 180 the average BAC level decreased to 0.029 g/L. By Day 365 the average BAC level dropped to 0.027 g/L. A limitation of this study is that the outcomes are taken as averages across the entire population as opposed to outcomes per medication cohort.







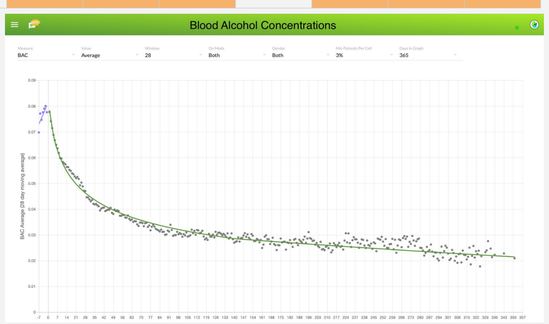


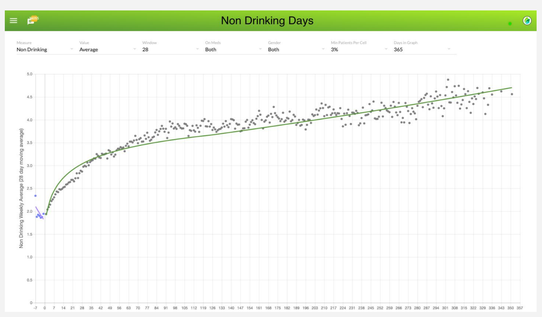
Day 1		(n = 976)
Prescriptions	Population#	Population%
NTX	798	81.76%
GABA	72	7.38%
NTX + GABA	42	4.30%
ACAM	39	4.00%
Baclofen	8	0.82%
TOP	7	0.72%
GABA + ACAM	3	0.31%
NTX + ACAM	2	0.20%
Ondansetron	1	0.10%
NTX + Baclofen	1	0.10%
NTX +Ondansetron	2	0.20%
GABA+Baclofen	1	0.10%

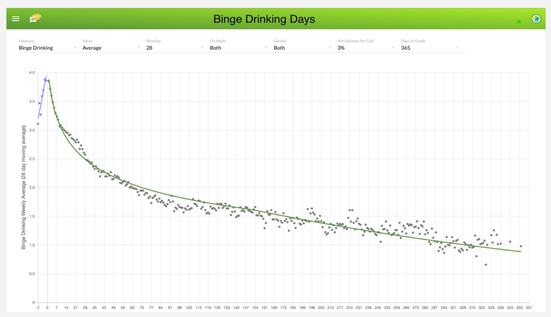
Day 90		(n = 612)
Prescriptions	Population#	Population%
NTX	390	63.73%
NTX + GABA	110	17.97%
GABA	48	7.84%
NTX + Baclofen	12	1.96%
ACAM	11	1.80%
NTX +GABA +Baclofen	9	1.47%
NTX+ ACAM	5	0.82%
Baclofen	5	0.82%
TOP	5	0.82%
NTX + Acetylcysteine	1	0.16%
NTX + TOP	2	0.33%
NTX + Odansetron	1	0.16%
GABA + ACAM	3	0.49%
GABA + Baclofen	3	0.49%
GABA + TOP	3	0.49%
Baclofen + TOP	1	0.16%
NTX + GABA + TOP	1	0.16%
NTX+ ACAM + TOP	1	0.16%
GABA + ACAM + Baclofen	1	0.16%

Day 180		(n = 349)
Prescriptions	Population#	Population%
NTX	226	64.76%
NTX + GABA	49	14.04%
GABA	30	8.60%
NTX + Baclofen	10	2.87%
ACAM	7	2.01%
Baclofen	7	2.01%
NTX + GABA + Baclofen	4	1.15%
TOP	3	0.86%
NTX+ ACAM	2	0.57%
GABA + Baclofen	2	0.57%
GABA + ACAM	2	0.57%
NTX + GABA + ACAM	2	0.57%
NTX + TOP	1	0.29%
GABA + TOP	1	0.29%
ACAM + TOP	1	0.29%
NTX + ACAM + Baclofen	1	0.29%
NTX+ GABA + Baclofen + TOP	1	0.29%

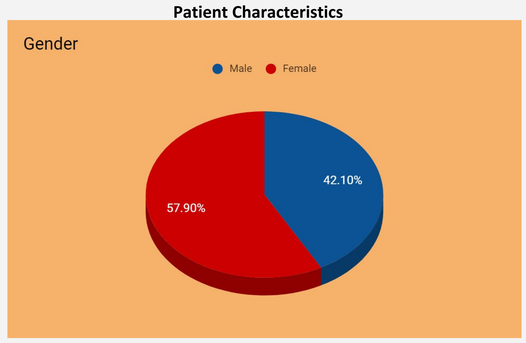
Day 365		(n = 136)
Prescriptions	Population#	Population%
NTX	75	55.15%
NTX + GABA	24	17.65%
GABA	17	12.50%
NTX + Baclofen	5	3.68%
TOP	3	2.21%
GABA + Baclofen	3	2.21%
NTX + GABA + Baclofen	2	1.47%
NTX + TOP	1	0.74%
ACAM	1	0.74%
NTX + GABA + ACAM	1	0.74%
GABA + ACAM	1	0.74%
ACAM + Baclofen	1	0.74%
NTX + GABA + TOP	1	0.74%
NTX+ GABA + Baclofen + TOP	1	0.74%

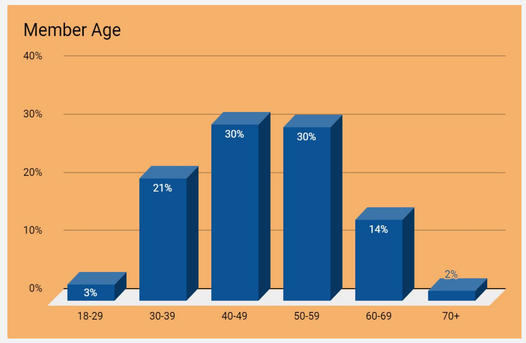


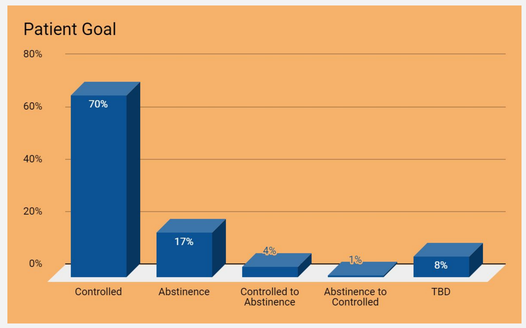


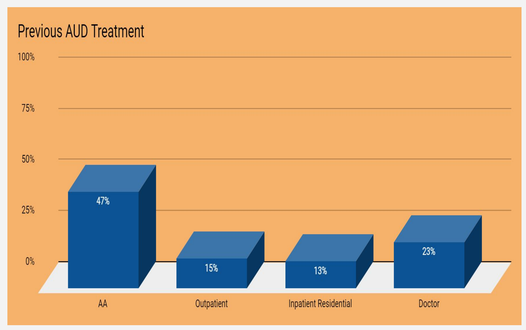


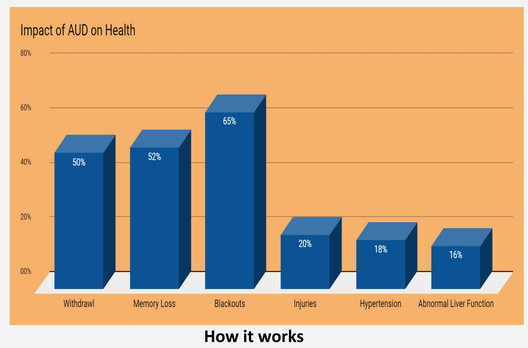
Patient Characteristics



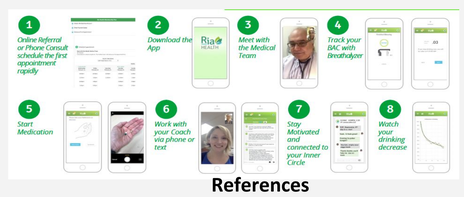








How it works



References

1. Alcohol Facts and Statistics. (2019, December). Retrieved November 4, 2019, from https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/alcohol-facts-and-statistics
2. Ambekar, A., & Kattimani, S. (2013). Anti-craving medications for long-term treatment of alcohol dependence. In A. Dhawan, & S. Jhanjhi (Eds.), Manual for Long-term pharmacotherapy of alcohol and opiate dependence (pp. 13-23). New Delhi: National Drug Dependence Treatment Centre
3. Campbell, E. J., Lawrence, A. J., & Perry, C. J. (2018). New steps for treating alcohol use disorder. Psychopharmacology, 235(6), 1759–1773. doi: 10.1007/s00213-018-4887-7
4. Cohn, A. M., Hunter-Reel, D., Hagman, B. T., & Mitchell, J. (2011). Promoting Behavior Change from Alcohol Use Through Mobile Technology: The Future of Ecological Momentary Assessment. Alcoholism: Clinical and Experimental Research, 35(12), 2209–2215. doi: 10.1111/j.1530-0277.2011.01571.x
5. Goh, E. T., & Morgan, M. Y. (2017). Review article: pharmacotherapy for alcohol dependence - the why, the what and the wherefore. Alimentary Pharmacology & Therapeutics, 45(7), 865–882. doi: 10.1111/apt.13965
6. Heldal, A. T., Skurtveit, S., Lobmaier, P. P. K., Vederhus, J.-K., & Bramness, J. G. (2018). Bruk av medikamenter for alkoholbrukslidelser i Norge 2004–16. Tidsskrift for Den Norske Legeforening. (Use of drugs for alcohol use disorders in Norway 2004–16. Journal of the Norwegian Medical Association) doi: 10.4045/tidsskr.18.0383
7. Kalpakci, A., Sofuoglu, M., Petrakis, I., & Rosenheck, R. A. (2018). Gender differences among Veterans with alcohol use disorder nationally in the Veterans Health Administration. Journal of Addictive Diseases, 37(3-4), 185–194. doi: 10.1080/10550887.2019.1653739
8. Mark, T. L., Kassed, C. A., Vandivort-Warren, R., Levit, K. R., & Kranzler, H. R. (2009). Alcohol and opioid dependence medications: Prescription trends, overall and by physician specialty. Drug and Alcohol Dependence, 99(1-3), 345–349. doi: 10.1016/j.drugalcdep.2008.07.018
9. Scherbaum, N., Holzbach, R., Stammen, G., Kirchof, U., & Bonnet, U. (2019). Very Low Frequency of Drug Therapy of Alcohol Dependence in Germany – Analysis of Data of A Statutory Health Insurance. Pharmacopsychiatry, 53(01), 37–39. doi: 10.1055/a-0896-2757
10. Shen, W. W. (2018). Anticraving therapy for alcohol use disorder: A clinical review. Neuropsychopharmacology Reports, 38(3), 105–116. doi: 10.1002/npr2.12028
11. Soyka, M., Kranzler, H. R., Hesselbrock, V., Kasper, S., Mutschler, J., & Möller, H.-J. (2016). Guidelines for biological treatment of substance use and related disorders, part 1: Alcoholism, first revision. The World Journal of Biological Psychiatry, 18(2), 86–119. doi: 10.1080/15622975.2016.1246752
12. Thompson, A., Ashcroft, D. M., Owens, L., Staa, T. P. V., & Pirmohamed, M. (2017). Drug therapy for alcohol dependence in primary care in the UK: A Clinical Practice Research Datalink study. Plos One, 12(3). doi: 10.1371/journal.pone.0173272
13. Vassar, M., & Holzmann, M. (2013). The retrospective chart review: important methodological considerations. Journal of Educational Evaluation for Health Professions, 10, 12. doi: 10.3352/jeehp.2013.10.12