AMERICAN COLLEGE OF Lifestyle Medicine

Transforming Rural Health through Lifestyle Medicine
Rural Health Transformation Program Application Framework Appendix

Appendix A. Lifestyle Medicine Shared Medical Appointment Resources

Clinician Tools:
Lifestyle Medicine Shared Medical Appointment Toolkit: https://connect.lifestylemedicine.org/viewdocument/lifestyle-medicine-shared-medical-a
Shared Medical Appointments Billing Guidance: https://connect.lifestylemedicine.org/viewdocument/shared-medical-appointment
Shared Medical Appointments Financial Calculator: https://connect.lifestylemedicine.org/viewdocument/shared-medical-appointment-financia

Patient Education:
LMSMA 6 pillar videos: https://connect.lifestylemedicine.org/viewdocument/shared-medical-appointment-six-pill

Implementation Examples:
Diabetes Reversal program: https://connect.lifestylemedicine.org/viewdocument/hsc-implementation-brief-midland
Weight Management program: https://connect.lifestylemedicine.org/viewdocument/hsc-implementation-brief-ucsd-sli
Joint pre-habilitation program: https://connect.lifestylemedicine.org/viewdocument/hsc-implementation-brief-ummc-pre
Virtual healthy lifestyle program: https://connect.lifestylemedicine.org/viewdocument/hsc-implementation-brief-presentati-4
Culinary medicine program: https://connect.lifestylemedicine.org/viewdocument/hsc-implementation-brief-presentati-10

AMERICAN COLLEGE OF Lifestyle Medicine

SBAR: MAXIMIZING EFFECTIVE CHRONIC DISEASE CARE USING LIFESTYLE MEDICINE SHARED MEDICAL APPOINTMENTS

Situation:

The current epidemic of lifestyle-related chronic disease, including, but not limited to, cardiovascular diseases, type 2 diabetes, and obesity, in the United States (and globally) necessitates a novel strategy which is both evidence-based and effective in leveraging time and social connections to facilitate a lifestyle medicine approach to care. The conventional healthcare model of treating patients in individual appointments is no longer effective or conducive for lifestyle-related chronic diseases, given the volume of patients that require care and the type of interaction needed to drive behavior change and address the root cause. Shared Medical Appointments (SMAs) using lifestyle medicine interventions deliver exceptional opportunities to capitalize on and scale clinical, operational and financial benefits while treating patients with lifestyle-related chronic disease.

Background:

Lifestyle medicine is a rapidly growing medical specialty that uses therapeutic lifestyle interventions as a primary modality to treat (and sometimes, when used intensively, to reverse) these chronic conditions using evidence-based, whole-person, prescriptive lifestyle change.[1] Lifestyle Medicine-certified physicians and other licensed independent providers apply the six pillars of lifestyle medicine—a whole-food, plant-predominant eating pattern, physical activity, restorative sleep, stress management, avoidance of risky substances and connectedness—which has resulted in greater sustainable long-term impact on both prevention and remission of chronic disease, compared to historical medicine practices.[2]

An SMA is a type of enhanced clinical encounter allowing for the individual clinical care of patients and education in the setting of a supportive group environment. SMAs allow patients to share valuable behavior change experiences for optimal chronic disease treatment, and to gain support and feedback from the group, as well as from the licensed provider or facilitator. SMAs have been used successfully for decades in inpatient mental health treatment, disease management education settings, pediatric and obstetric care, showing significantly greater effect on clinical outcomes and patient satisfaction, in addition to maximizing patient throughput and improving staff fulfillment. More recently, the American Academy of Family Physicians and other medical organizations have purported the benefits of leveraging time and social connections to maximize care through SMAs.[3-5]

Assessment:

Studies over the past decade have shown that merging the lifestyle medicine approach within an SMA model offers a multitude of benefits to both patients and the medical team, in addition to realizing considerable positive impacts to the business model. Specifically, Lifestyle Medicine Shared Medical Appointment (LMSMA) benefits can be summarized as follows:

1. Clinical impacts: maximized patient education, increased patient self-efficacy, better health outcomes, improved patient satisfaction

2. Logistical improvements: decreased patient wait times, staffing efficiencies, higher workforce satisfaction/decreased provider burnout
3. Economic effects: more individual visit access resulting in increased practice capacity and increased revenue, 200-600% clinician productivity increases[6]

LMSMAs provide lifestyle therapeutic interventions while capitalizing on the critical elements of time and social connections which support positive emotions to drive behavior change. A growing number of leading healthcare institutions, including Massachusetts General Hospital, Cleveland Clinic, University of California San Diego, University of Wisconsin, the Veterans Affairs Medical Center and others, are realizing the benefits of LMSMAs, showing that this model of care is clinically effective and cost-saving.

Recommendation:

Healthcare practice structures of all types including insurance-based healthcare systems and private clinics, residency programs, cash-based practices and others should implement LMSMAs to address the challenges posed by chronic disease. Using strategies to optimize efficiency and number of patient attendees in groups can make LMSMAs a robust opportunity to improve access to care, reduce costs to patients and hospital systems, reduce provider burnout and improve clinical outcomes.[7]

More information and implementation resources can be found on the American College of Lifestyle Medicine Complimentary and Member-Only Resource Page at: https://connect.lifestylemedicine.org/resource-sma [8]

References:

1. Overview. American College of Lifestyle Medicine. (2024, March 8). https://lifestylemedicine.org/overview/
2. Parkinson, M. D., Stout, R., & Dysinger, W. (2023). Lifestyle Medicine: Prevention, Treatment, and Reversal of Disease. The Medical clinics of North America, 107(6), 1109–1120. https://doi.org/10.1016/j.mcna.2023.06.007
3. Shared medical appointments/group visits. American Academy of Family Physicians. (2019, December 12). https://www.aafp.org/about/policies/all/shared-medical-appointments.html
4. Agency for Healthcare Research and Quality. (2017, December). Strategy 6m. group visits. The CAHPS Ambulatory Care Improvement Guide: Practical Strategies for Improving Patient Experience - Section 6M: Group Visits. https://www.ahrq.gov/cahps/quality-improvement/improvement-guide/6-strategies-for-improving/access/strategy6m-group-visits.html
5. Advisory Board. (2019). Group medical visits/shared medical appointments. https://www.advisory.com/content/dam/advisory/en/public/shared/Research/PHA/Resources/2019/Care-delivery-innovation/Peer6. MentoringReference-Guide-PDF20.pdf
7. Patel Saxena S. (2016). Leveraging Time With Lifestyle-Based Group Visits. American journal of lifestyle medicine, 10(5), 330–337. https://doi.org/10.1177/1559827616638018
8. Lifestyle Medicine Shared Medical Appointments (SMA) Toolkit (2020), American College of Lifestyle Medicine.

Appendix B. Intensive Therapeutic Lifestyle Change Evidence

Selection criteria: priority for strong study designs (largely RCTs); multi-modal interventions (most studies involve more than 1 health behavior change); conducted in healthcare settings or strong relevance and feasibility for being conducted/implemented in healthcare settings; almost all conducted in the US.

Contents:

Systematic Reviews on Health Effects of Lifestyle Interventions[1-6]				
Citation	**Sample Population**	**Intervention of Interest**	**Primary Outcome**	**Key Conclusion**
1.Charalampopoulou M, Tamiolaki EE, Tryfonopoulos D, et al. **The Impact of Lifestyle Medicine on Quality of Life in Female Breast Cancer Survivors: A Systematic Review.** American journal of lifestyle medicine. 2025:15598276251334325. http://doi.org/10.1177/15598276251334325	Adult female breast cancer survivors (interventional and observational studies).	Lifestyle medicine interventions	Health-related quality of life domains (e.g., fatigue, sleep, mental health) and clinical indicators (e.g., BMI).	The findings suggest that lifestyle medicine interventions can exert a beneficial effect on the QoL of female BCS.
2.Slater K, Colyvas K, Taylor R, Collins CE, Hutchesson M. **Primary and secondary cardiovascular disease prevention interventions**	Women (≥18 years) that reported CVD risk	Lifestyle risk-factor interventions (diet, physical activity, weight	Changes in BMI, blood pressure and other CVD risk factors/behaviors.	Lifestyle interventions are important for the

targeting lifestyle risk factors in women: A systematic review and meta-analysis. Frontiers in cardiovascular medicine. 2022;9:1010528. http://doi.org/10.3389/fcvm.2022.1010528	markers or lifestyle risk factors	management; also smoking, alcohol, sleep, sedentary).		prevention of CVD in women, specifically to reduce systolic blood pressure in the short term (≤ 6 months) and BMI long term (>12 months).
3.Huang YS, Zheng Q, Yang H, et al. **Efficacy of Intermittent or Continuous Very Low-Energy Diets in Overweight and Obese Individuals with Type 2 Diabetes Mellitus: A Systematic Review and Meta-Analyses.** Journal of diabetes research. 2020;2020:4851671. http://doi.org/10.1155/2020/4851671	Adults with type 2 diabetes and overweight/obesity in controlled trials of VLEDs.	Very-low-energy diets (intermittent or continuous) versus other energy-restriction approaches.	Weight loss, HbA1c and other cardiometabolic risk factors; adherence/acceptability.	Dietary intervention through VLEDs is an effective therapy for rapid weight loss, glycemic control, and improved lipid metabolism in overweight and obese individuals with T2DM. Thus, VLEDs should be encouraged in overweight and obese individuals with T2DM who urgently need weight loss and are unsuitable or unwilling to undergo surgery.

4.Amireault S, Fong AJ, Sabiston CM. **Promoting Healthy Eating and Physical Activity Behaviors: A Systematic Review of Multiple Health Behavior Change Interventions Among Cancer Survivors.** American journal of lifestyle medicine. 2018;12(3):184-199. http://doi.org/10.1177/1559827616661490	Adult cancer survivors (predominantly breast cancer) in multiple health behavior trials.	Multiple health behavior change interventions targeting healthy eating and physical activity, simultaneously or sequentially implemented	Changes in healthy eating and physical activity behaviors at end of treatment/follow-up.	MHBC interventions led by nurses or multidisciplinary teams showed the most compelling evidence for small to moderate improvement in both behaviors, with interventions that lasted ≥17 weeks more likely to improve both behaviors.
5.Slater J, Kolber MJ, Schellhase KC, et al. **The Influence of Exercise on Perceived Pain and Disability in Patients With Lumbar Spinal Stenosis: A Systematic Review of Randomized Controlled Trials.** American journal of lifestyle medicine. 2016;10(2):136-147. http://doi.org/10.1177/1559827615571510	Adults with symptomatic lumbar spinal stenosis in randomized controlled trials.	Exercise-based interventions (supervised therapeutic exercise programs).	Perceived pain and disability/function.	Exercise appears to be an efficacious intervention for pain, disability, analgesic intake, depression, anger, and mood disturbance among patients with LSS.
37. Kanemitsu K, Hassan BD, Mdivnishvili M, Abbas N. **The Impact of Lifestyle Intervention Programs on Long-Term Cardiac Event-Free Survival in Patients With Established Coronary**	Adults with established coronary artery disease	Interventions including cardiac rehabilitation, dietary modifications,	Long-term impact of structured lifestyle intervention programs	Lifestyle modifications play a critical role as a cornerstone

Artery Disease. Cureus. 2024;16(12):e76585. http://doi.org/10.7759/cureus.76585		exercise programs, and psychosocial support	on cardiac event-free survival	of secondary prevention strategies in CAD management and suggests that technology-based and demographic-specific interventions may hold promise for improving long-term outcomes.
Lifestyle Interventions for Treatment of Diabetes with a Goal of Remission[7-19]				
Citation	**Sample Population**	**Intervention of Interest**	**Primary Outcome**	**Key Conclusion**
6. Rosenfeld RM, Grega ML, Karlsen MC, et al**. Lifestyle Interventions for Treatment and Remission of Type 2 Diabetes and Prediabetes in Adults: A Clinical Practice Guideline From the American College of Lifestyle Medicine.** American Journal of Lifestyle Medicine. 2025;19(2_suppl):10S-131S. http://doi.org/10.1177/15598276251325488	Adults with type 2 diabetes or prediabetes (*target population for the guideline*).	Comprehensive lifestyle medicine treatment (nutrition, physical activity, sleep, stress, social connection, substance use) with deprescribing guidance.	Clinical endpoints include glycemic control and diabetes remission/prevention benchmarks.	Evidence supports LM as first-line management to prevent/delay T2D and achieve remission in selected patients; guidance provided for safe implementation and deprescribing of medications.

7. Tripathi P, Kadam N, Tiwari D, et al. **Oral glucose tolerance test clearance in type 2 diabetes patients who underwent remission following intense lifestyle modification: A quasi-experimental study.** PloS one. 2024;19(5):e0302777. http://doi.org/10.1371/journal.pone.0302777	Adults with T2D in remission after a 1-year online lifestyle program (subsample completing OGTT).	Structured lifestyle program including plant-forward diet phases, physical activity, psychological support, and medical management.	OGTT clearance (fasting <5.6 mmol/L; 2-h glucose <7.8 mmol/L) and correlates (weight loss, insulin resistance).	Clearing the OGTT is a possibility for those achieving remission through lifestyle interventions. Higher weight loss, a shorter duration of diabetes, and improvement in insulin resistance were significantly associated with OGTT clearance in participants in remission.
8. Jayedi A, Zeraattalab-Motlagh S, Shahinfar H, Gregg EW, Shab-Bidar S. **Effect of calorie restriction in comparison to usual diet or usual care on remission of type 2 diabetes: a systematic review and meta-analysis of randomized controlled trials.** The American journal of clinical nutrition. 2023;117(5):870-882. http://doi.org/10.1016/j.ajcnut.2023.03.018	Adults with T2D in randomized trials comparing calorie restriction to usual diet/care.	Calorie-restricted diets (various energy deficits) versus usual diet/care.	T2D remission at 6 and 12 months; changes in HbA1c and body weight.	Calorie-restricted diets may be effective intervention for type 2 diabetes remission, especially when coupled with an intensive lifestyle modification program.
9. Xin Y, Davies A, Briggs A, et al. **Type 2 diabetes remission: 2 year within-trial and lifetime-horizon cost-effectiveness of the Diabetes Remission Clinical Trial (DiRECT)/Counterweight-Plus weight**	Adults with T2D (≤6 years' duration) in UK	Counterweight-Plus total diet replacement-led weight-management	Cost-effectiveness (QALYs, costs) alongside observed remission rates at 1 and 2 years.	Incorporating the lifetime healthcare cost savings due to

management programme. Diabetologia. 2020;63(10):2112-2122. http://doi.org/10.1007/s00125-020-05224-2	primary care (DiRECT trial).	program (very low calorie diet) versus standard care.		periods of remission from diabetes and its complications, the DiRECT intervention is predicted to be both more effective (QALY gain) and cost-saving in adults with type 2 diabetes compared with standard care.
10. McInnes N, Hall S, Sultan F, et al. **Remission of Type 2 Diabetes Following a Short-term Intervention With Insulin Glargine, Metformin, and Dapagliflozin.** The Journal of clinical endocrinology and metabolism. 2020;105(8). http://doi.org/10.1210/clinem/dgaa248	Adults with early T2D (up to ~8 years' duration) on ≤2 of glucose-lowering meds.	12-week intensive metabolic intervention (insulin glargine + metformin + dapagliflozin) plus lifestyle support versus usual care.	Diabetes remission at 24 weeks and time-to-relapse up to 64 weeks.	Primary 24-week remission difference was not significant; some longer-term measures favored the intensive strategy.
11. Al-Mrabeh A, Hollingsworth KG, Shaw JAM, et al. **2-year remission of type 2 diabetes and pancreas morphology: a post-hoc analysis of the DiRECT open-label, cluster-randomised trial.** The lancet Diabetes & endocrinology. 2020;8(12):939-948. http://doi.org/10.1016/s2213-8587(20)30303-x	Adults with T2D from the DiRECT trial who achieved remission and were followed for 2 years.	Weight-loss–induced remission via a primary care–led total diet replacement program (Counterweight-Plus) (very low calorie diet).	Changes in pancreas volume and morphology over 24 months in relation to remission status.	These data show for the first time, to our knowledge, reversibility of the abnormal pancreas morphology of

				type 2 diabetes by weight loss-induced remission.
12. Xin Y, Davies A, McCombie L, et al. **Within-trial cost and 1-year cost-effectiveness of the DiRECT/Counterweight-Plus weight-management programme to achieve remission of type 2 diabetes.** The Lancet Diabetes & Endocrinology. 2019;7(3):169-172. http://doi.org/10.1016/s2213-8587(18)30346-2	Adults with T2D in the DiRECT trial economic evaluation.	Counterweight-Plus weight-management program (very low calorie diet) versus standard care.	Within-trial and 1-year cost-effectiveness (costs, QALYs) of a remission-focused program.	The program was cost-effective within 1 year, supporting remission-focused weight management in primary care.
13. Ried-Larsen M, Johansen MY, MacDonald CS, et al. **Type 2 diabetes remission 1 year after an intensive lifestyle intervention: A secondary analysis of a randomized clinical trial.** Diabetes, obesity & metabolism. 2019;21(10):2257-2266. https://pmc.ncbi.nlm.nih.gov/articles/PMC6772176/	Adults with non insulin-dependent T2D (<10 years duration).	Intensive lifestyle intervention versus standard care.	Partial or complete T2D remission at 12 months.	The statistically nonsignificant threefold increased remission rate of T2D in the lifestyle intervention group calls for further large-scale studies to understand how to implement sustainable lifestyle interventions among people with T2D.
14.Lean MEJ, Leslie WS, Barnes AC, et al. **Durability of a primary care-led weight-management intervention for remission of type 2**	Adults with T2D (≤6 years) in	Structured weight-management program (total diet	Durability of remission and weight loss at 24 months.	Approximately one-third maintained

diabetes: 2-year results of the DiRECT open-label, cluster-randomised trial. The lancet Diabetes & endocrinology. 2019;7(5):344-355. http://doi.org/10.1016/S2213-8587(19)30068-3	primary care (DiRECT).	replacement of very low calorie diet and food reintroduction) vs usual care.		remission at 2 years, closely linked to sustained weight loss.
15.Lean ME, Leslie WS, Barnes AC, et al. **Primary care-led weight management for remission of type 2 diabetes (DiRECT): an open-label, cluster-randomised trial.** Lancet. 2018;391(10120):541-551. http://doi.org/10.1016/S0140-6736(17)33102-1	Adults with T2D (≤6 years) managed in UK primary care.	Counterweight-Plus total diet replacement–based weight management (very low calorie diet) versus usual care.	Diabetes remission at 12 months and ≥15 kg weight loss.	Our findings show that, at 12 months, almost half of participants achieved remission to a non-diabetic state and off antidiabetic drugs. Remission of type 2 diabetes is a practical target for primary care.
16.McInnes N, Smith A, Otto R, et al. **Piloting a Remission Strategy in Type 2 Diabetes: Results of a Randomized Controlled Trial.** The Journal of clinical endocrinology and metabolism. 2017;102(5):1596-1605. http://doi.org/10.1210/jc.2016-3373	Adults with T2D ≤3 years' duration.	8–16 week intensive metabolic therapy (metformin, acarbose, basal insulin) plus lifestyle vs standard care.	On-treatment normoglycemia during intervention and drug-free remission 12 weeks post-intervention.	Short-term intensive therapy achieved on-treatment normoglycemia and increased drug-free remission shortly after therapy compared with controls.

17.Mottalib A, Sakr M, Shehabeldin M, Hamdy O. **Diabetes Remission after Nonsurgical Intensive Lifestyle Intervention in Obese Patients with Type 2 Diabetes.** Journal of diabetes research. 2015;2015:468704. http://doi.org/10.1155/2015/468704	Adults with obesity and with T2D in a real-world clinic program.	12-week intensive lifestyle/weight-management program (Why WAIT).	Diabetes remission at 1 year.	These results indicate that a subset of obese patients with type 2 diabetes is appropriate for intensive lifestyle intervention with the aim of inducing diabetes remission.
18.Mitra A, Dewanjee D, Dey B. **Mechanistic studies of lifestyle interventions in type 2 diabetes.** WJD. 2012;3(12):201-207. http://doi.org/10.4239/wjd.v3.i12.201	Adults with T2D, n=60	Lifestyle interventions (dietary modification and physical activity) vs. control.	FPG, PPG, HbA1c, BMI, blood lipids.	The significant improvement in the blood glucose lipid profile of the test group after 1 year signifies the value of non-pharmacological management of type 2 diabetes via lifestyle intervention strategies.
Lifestyle Interventions for Treatment of Cardiovascular Disease with a Goal of Disease Regression[20-23]				
Citation	**Sample Population**	**Intervention of Interest**	**Primary Outcome**	**Key Conclusion**
19.Pischke CR, Scherwitz L, Weidner G, **Ornish D. Long-term effects of lifestyle changes on well-being and cardiac variables among coronary heart disease patients.** Health Psychol.	Adults with coronary heart disease in the Lifestyle Heart Trial	Intensive lifestyle program (low-fat vegetarian diet, exercise, stress	Psychological well-being (distress, hostility, social support) and relationships to cardiac	These findings illustrate the importance of targeting

2008;27(5):584-592. http://doi.org/10.1037/0278-6133.27.5.584	(intervention n=28; control n=20).	management, group support).	variables over 1 and 5 years.	multiple health behaviors in secondary prevention of coronary heart disease.
20.Pischke CR, Weidner G, Elliott-Eller M, Ornish D. **Lifestyle changes and clinical profile in coronary heart disease patients with an ejection fraction of <or=40% or >40% in the Multicenter Lifestyle Demonstration Project.** Eur J Heart Fail. 2007;9(9):928-934. http://doi.org/10.1016/j.ejheart.2007.05.009	Nonsmoking adults with CHD at risk for heart failure (LVEF ≤40% vs >40%) in a community-based program.	Multisite lifestyle program (low-fat plant-based diet, exercise, stress management) vs pre/post within-group changes by LVEF.	Lifestyle behaviors, CVD risk factors, exercise capacity, and quality of life at 3 and 12 months.	CHD patients at risk for heart failure with an LVEF≤40%, can make changes in lifestyle to achieve similar medical and psychosocial benefit to patients with an LVEF>40%.
21.Aldana SG, Greenlaw R, Salberg A, Merrill RM, Hager R, Jorgensen RB. **The effects of an intensive lifestyle modification program on carotid artery intima-media thickness: a randomized trial.** Am J Health Promot. 2007;21(6):510-516. http://doi.org/10.4278/0890-1171-21.6.510	Adults with clinically confirmed coronary artery disease randomized to Ornish program vs traditional cardiac rehab.	Dr. Dean Ornish Program for Reversing Heart Disease versus traditional cardiac rehabilitation.	Change in carotid artery intima-media thickness over 12 months; other risk factors and angina.	The Ornish Program appears to causes improvements in cardiovascular risk factors (dietary habits, BMI, angina) but does not appear to change the atherosclerotic process as it affects the carotid artery.

22.Ornish D, Scherwitz LW, Billings JH, et al. **Intensive lifestyle changes for reversal of coronary heart disease.** JAMA. 1998;280(23):2001-2007. http://doi.org/10.1001/jama.280.23.2001	Adults with moderate-to-severe CHD randomized to intensive lifestyle changes vs usual care.	Very low-fat vegetarian diet, aerobic exercise, stress management, smoking cessation, group support (5-year program).	Adherence to intensive lifestyle changes, changes in coronary artery percent diameter stenosis, and cardiac events.	More regression of coronary atherosclerosis occurred after 5 years than after 1 year in the experimental group. In contrast, in the control group, coronary atherosclerosis continued to progress and more than twice as many cardiac events occurred.
Lifestyle Interventions for Treatment of Overweight/Obesity[24-32]				
Citation	**Sample Population**	**Intervention of Interest**	**Primary Outcome**	**Key Conclusion**
23. Suminski RR, Leonard T, Obrusnikova I, Kelly K. **The Impact of Health Coaching on Weight and Physical Activity in Obese Adults: A Randomized Control Trial.** American journal of lifestyle medicine. 2024;18(2):233-242. http://doi.org/10.1177/15598276221114047	Adults with obesity (BMI ≥30) in a randomized trial	Health coaching (behavioral counseling) vs. usual care	Change in weight and physical activity	Coaching produced significant weight loss and increased physical activity vs control.
24. Henzel J, Kruk M, Kępka C, et al. **Diet and Lifestyle Intervention-Induced Pattern of Weight Loss Related to Reduction in Low-Attenuation Coronary Plaque Burden.** Diagnostics (Basel, Switzerland). 2024;14(6). http://doi.org/10.3390/diagnostics14060615	Adults with stable coronary artery disease undergoing coronary CTA	Experimental arm (intensive diet and lifestyle intervention atop optimal medical therapy) or control	Change in low-attenuation plaque (LAP) and body composition	The study intervention resulted in BM reduction characterized by fat loss, skeletal

				muscle gain, and increased FMR. This weight loss pattern may lead to a reduction in high-risk coronary plaque.
25. Puklin LS, Harrigan M, Cartmel B, et al. **Randomized Trial Evaluating a Self-Guided Lifestyle Intervention Delivered via Evidence-Based Materials versus a Waitlist Group on Changes in Body Weight, Diet Quality, Physical Activity, and Quality of Life among Breast Cancer Survivors.** Cancers. 2023;15(19). http://doi.org/10.3390/cancers15194719	Breast cancer survivors with overweight/obesity	Self-guided lifestyle program (LEAN self-guided) vs waitlist	Weight change (6–12 months)	The LEAN Self-Guided intervention led to favorable weight changes over 6 months. Low-resource-intensive programs have the potential to be delivered in diverse healthcare settings and may support breast cancer survivors in achieving a healthy body weight.
26. Ackermann RT, Cameron K, Liss D, et al. **Primary care delivery of behavioral weight loss services for adults with cardiovascular risk factors: development of pragmatic implementation strategies and results of a randomized feasibility trial.** Res Sq. 2023. http://doi.org/10.21203/rs.3.rs-2806196/v1	Adults with BMI ≥27 and ≥1 cardiovascular risk factor in primary care	Practice-embedded delivery of behavioral weight loss services	Feasibility (implementation/uptake) and weight change	This preliminary study demonstrates feasibility of implementation strategies for primary care

				offices to offer and coordinate ILI core components, as well as a pragmatic randomization procedure for use in a future randomized comparative trial.
27. Georgoulis M, Yiannakouris N, Tenta R, et al. **Improvements in Plasma Tumor Necrosis Factor-Alpha Levels after a Weight-Loss Lifestyle Intervention in Patients with Obstructive Sleep Apnea.** Life (Basel). 2022;12(8). http://doi.org/10.3390/life12081252	Adults with overweight/obesity and moderate–severe OSA using CPAP	Mediterranean diet/lifestyle weight-loss intervention + CPAP vs standard care + CPAP	Change in AHI (OSA severity) and oximetry indices	OSA severity improved in proportion to weight loss; ≥5–10% loss yielded greater benefits. A healthy lifestyle intervention can lower plasma TNF-a levels in patients with OSA.
28. Chwyl C, Wright N, G MT-M, M LB, E MF. **Remotely Delivered Behavioral Weight Loss Intervention Using an Ad Libitum Plant-Based Diet: Pilot Acceptability, Feasibility, and Preliminary Results.** JMIR Form Res. 2022;6(6):e37414. http://doi.org/10.2196/37414	Adults with overweight/obesity in a pilot RCT	Remotely delivered behavioral weight loss using an ad libitum plant-based diet	Feasibility/acceptability; preliminary weight loss	A pilot digital behavioral weight loss intervention with a non–energy-restricted WFPBD was feasible, and the

				mean acceptability was high. Minimal contact time led to clinically relevant weight loss and dietary adherence for most participants and quality of life improvements.
29. Redman LM, Gilmore LA, Breaux J, et al. **Effectiveness of SmartMoms, a Novel eHealth Intervention for Management of Gestational Weight Gain: Randomized Controlled Pilot Trial.** JMIR Mhealth Uhealth. 2017;5(9):e133. http://doi.org/10.2196/mhealth.8228	Pregnant women with overweight/obesity	SmartLoss smartphone-based weight-loss program vs control	Weight loss at follow-up	An intensive lifestyle intervention for GWG can be effectively delivered via a mobile phone, which is both cost-effective and scalable.
30. Azar KM, Aurora M, Wang EJ, Muzaffar A, Pressman A, Palaniappan LP. **Virtual small groups for weight management: an innovative delivery mechanism for evidence-based lifestyle interventions among obese men.** Translational behavioral medicine. 2015;5(1):37-44. http://doi.org/10.1007/s13142-014-0296-6	Men with obesity (BMI ≥30)	12-week Diabetes Prevention Program–based group via web video conferencing vs delayed control	% weight loss; BMI change	Virtual small groups may be an effective means of allowing face-to-face group interaction, while overcoming some barriers to access.

31. Wengle JG, Hamilton JK, Manlhiot C, et al. **The 'Golden Keys' to health - a healthy lifestyle intervention with randomized individual mentorship for overweight and obesity in adolescents.** Paediatr Child Health. 2011;16(8):473-478. http://doi.org/10.1093/pch/16.8.473	Adolescents with overweight (12–16 y) in a 6-month program healthy lifestyle program	Healthy lifestyle program ± individualized mentorship vs. healthy lifestyle program + nonmentored	Adiposity/metabolic profile; diet/PA behaviors	The healthy lifestyle intervention improved subjects' lifestyles and lipid profiles, and the addition of mentorship in this context is feasible. A larger study with a longer intervention time is required to determine whether behavioural changes are associated with clinical improvement and to determine the role of mentorship in promoting lifestyle change.
Other Intervention Trials: Lifestyle Interventions Delivered as Group Programs (Shared Medical Appointments, Group Medical Visits, Community-Based Intervention, Other Group Programs) for Improvement of Chronic Conditions[33-51]				
Citation	**Sample Population**	**Intervention of Interest**	**Primary Outcome**	**Key Conclusion**
32. Wambach K, Davis AM, Nelson EL, et al. **A Health Behavior and Lifestyle Intervention Pilot**	Pregnant and parenting	momHealth included nine multi-media education	Breastfeeding initiation and continuation for 5	momHealth positively

Trial for Childbearing Adolescents. American journal of lifestyle medicine. 2025;19(2):253-265. http://doi.org/10.1177/15598276221080367	adolescent mothers	modules, simultaneous daily educational text messaging, and weekly videoconferences for individual and group support	weeks and 3 months postpartum; number of fruit and vegetable servings; minutes of moderate/vigorous physical activity per day; and depressive symptoms	affected early breastfeeding continuation and trended toward positive outcomes in healthy living and depressive symptoms.
33. Wagenaar CA, Walrabenstein W, van der Leeden M, et al. Two-Year **Follow-Up of a Multidisciplinary Lifestyle Intervention for Rheumatoid Arthritis and Osteoarthritis.** Arthritis care & research. 2025. http://doi.org/10.1002/acr.25553	Adults with rheumatoid arthritis or osteoarthritis	Plants for Joints (PFJ) intervention, including a whole-food plant-based diet, exercise, and stress reduction	Signs and symptoms of rheumatoid arthritis (RA) or metabolic syndrome–associated hip or knee osteoarthritis (MSOA)	Two years after the PFJ intervention, improvements in RA disease activity, MSOA symptoms and functioning, and intervention adherence were sustained.
34. Nordengen AL, Krutto A, Kværner AS, et al. **Plant-based diet and oxidative stress-induced DNA damage in post-surgery colorectal cancer patients: Results from a randomized controlled trial.** Free radical biology & medicine. 2025;233:240-249. http://doi.org/10.1016/j.freeradbiomed.2025.03.047	Adults with colorectal cancer (CRC) post-surgery, non-metastatic	Plant-based dietary intervention targeting oxidative stress and inflammation, or to a control group that received standard dietary advice as a part of routine cancer care.	Oxidative stress and DNA damage biomarkers at follow-up	Adherence to a plant-based dietary pattern may reduce DNA base oxidation in post-surgery CRC patients.
35. Marin-Couture E, Moulin JA, Thibault AS, et al. **Impact of Lifestyle Medicine Interventions on the Management of Systemic Hypertension in Primary Care: A Canadian Randomized Controlled Trial.** American journal of lifestyle medicine.	Adults diagnosed with stage 1 hypertension	DASH diet + physical activity protocol vs. diet or physical activity alone vs. usual care	Weight change; cardiometabolic risk factors; use of antihypertensive medications	The results suggest that structured lifestyle interventions are

2024;18(5):703-720. http://doi.org/10.1177/15598276241242013				feasible in primary care and improve blood pressure and cardiometabolic parameters in patients with stage 1 hypertension.
36. Li C, Zhang S, Liu Y, Hu T, Wang C. **Effects of nutritional interventions on cancer patients receiving neoadjuvant chemoradiotherapy: a meta-analysis of randomized controlled trials.** Supportive care in cancer : official journal of the Multinational Association of Supportive Care in Cancer. 2024;32(9):583. http://doi.org/10.1007/s00520-024-08780-0	Adults undergoing neoadjuvant cancer therapy	Peri-treatment nutrition interventions (systematic review/meta-analysis)	Treatment completion and postoperative outcomes	Nutrition support improved completion rates and some clinical outcomes.
38. Papandreou P, Gioxari A, Daskalou E, Grammatikopoulou MG, Skouroliakou M, Bogdanos DP. **Mediterranean Diet and Physical Activity Nudges versus Usual Care in Women with Rheumatoid Arthritis: Results from the MADEIRA Randomized Controlled Trial.** Nutrients. 2023;15(3). http://doi.org/10.3390/nu15030676	Women with rheumatoid arthritis	12-week lifestyle intervention, including a personalized isocaloric Mediterranean diet plan with the promotion of physical activity (PA), supported through a clinical decision support systems (CDSS) platform, versus usual care	Mediterranean diet adherence, disease activity, and functional outcomes	Combined Med diet+exercise reduced disease activity and improved function vs usual care.
40. Li L, Alonso A, Romaguera D, et al. **Effect of an intensive lifestyle intervention on circulating biomarkers of atrial fibrillation-related pathways among adults with metabolic syndrome.** medRxiv : the preprint server for health sciences. 2023. http://doi.org/10.1101/2023.04.28.23288131	Adults with overweight/obesity enrolled in the PREDIMED-Plus trial.	Year-long intensive lifestyle program (diet, physical activity, behavioral support) vs standard care.	Left atrial structure and function measures related to atrial fibrillation substrate at 12 months.	A dietary and lifestyle intervention for weight-loss favorably affected

				concentrations of hsCRP, 3-NT, and NT-proBNP, pointing to specific mechanisms in pathways linking lifestyles and AF.
41. Joseph JJ, Nolan TS, Williams A, et al. **Improving cardiovascular health in black men through a 24-week community-based team lifestyle change intervention: The black impact pilot study.** Am J Prev Cardiol. 2022;9:100315. http://doi.org/10.1016/j.ajpc.2022.100315	Black/African American adult men in a 26-week community program.	Community-based lifestyle intervention targeting AHA Life's Simple 7 metrics adapted from the Diabetes Prevention Program.	Change in American Heart Association Life's Simple 7 cardiovascular health score.	The program improved overall cardiovascular health (Life's Simple 7 score) from baseline.
42. Cramer H, Hohmann C, Lauche R, et al. **Effects of Fasting and Lifestyle Modification in Patients with Metabolic Syndrome: A Randomized Controlled Trial.** Journal of clinical medicine. 2022;11(16). http://doi.org/10.3390/jcm11164751	Adults with metabolic syndrome in a randomized clinical trial.	~10-day supervised modified fasting followed by lifestyle counseling vs non-fasting control.	Well-being (WHO-5) and metabolic risk parameters after the intervention period.	A beneficial effect at week 24 was found on weight; fasting also induced various positive short-term effects in patients with MetS.
44. Abbott RD, Sherwin K, Klopf H, Mattingly HJ, Brogan K. Efficacy of a **Multimodal Online Lifestyle Intervention for Depressive Symptoms and Quality of Life in Individuals With a History of Major Depressive Disorder.** Cureus. 2020;12(7):e9061. http://doi.org/10.7759/cureus.9061	Adults with a history of major depressive disorder.	44-day multimodal online/community lifestyle program (whole-foods diet, increasing movement, and adopting stress management and mindfulness practices.) vs wait-list control.	Depressive symptoms (PHQ-9), symptom burden (MSQ), and quality of life (SF-36).	A multimodal, online and community-based lifestyle intervention improves depressive symptoms, QOL, and total

				symptom burden in individuals with a history of MDD.
45. Wilbur J, Braun LT, Buchholz SW, et al. **Randomized Controlled Trial of Lifestyle Walking for African American Women: Blood Pressure Outcomes.** American journal of lifestyle medicine. 2019;13(5):508-515. http://doi.org/10.1177/1559827618801761	Sedentary African American women aged 40–65 years in community settings.	Lifestyle walking with 6 group meetings over 48 weeks plus: no calls vs personal motivational calls vs automated calls.	Change in systolic/diastolic blood pressure at 24 and 48 weeks; blood-pressure classification change.	This lifestyle walking intervention appears beneficial in lowering blood pressure across blood pressure classifications in midlife African American women.
47. Lee CJ, Kim JY, Shim E, et al. **The Effects of Diet Alone or in Combination with Exercise in Patients with Prehypertension and Hypertension: a Randomized Controlled Trial.** Korean Circ J. 2018;48(7):637-651. http://doi.org/10.4070/kcj.2017.0349	Adults with prehypertension or stage-1 hypertension.	DASH diet vs DASH diet + aerobic exercise for six months, with counseling/support, vs. advice only comparison group	Resting blood-pressure change.	Lifestyle modification emphasizing both diet and exercise was effective for lowering BP and should be favored over diet-only modifications.
48. Ghavami H, Akyolcu N. **The Impact of Lifestyle Interventions in Breast Cancer Women after Completion of Primary Therapy: A Randomized Study.** J Breast Health. 2017;13(2):94-99.	Women with breast cancer who completed primary therapy.	Dietary energy-restriction guidance plus supervised aerobic exercise vs usual care.	Fatigue, sleep quality, quality of life, and BMI during the intervention period.	Intervention group had less fatigue, better sleep and quality of life, and lower

https://pmc.ncbi.nlm.nih.gov/articles/PMC5381682/				BMI than controls.
49. Adams SC, Segal RJ, McKenzie DC, et al. **Impact of resistance and aerobic exercise on sarcopenia and dynapenia in breast cancer patients receiving adjuvant chemotherapy: a multicenter randomized controlled trial.** Breast cancer research and treatment. 2016;158(3):497-507. http://doi.org/10.1007/s10549-016-3900-2	Women with early-stage breast cancer receiving adjuvant chemotherapy.	Resistance exercise training (RET), aerobic exercise, or combined training vs usual care during chemotherapy.	Sarcopenia/dynapenia status; fitness and quality-of-life measures.	RET during adjuvant chemotherapy resulted in the reversal of both sarcopenia and dynapenia; however, only the reversal of sarcopenia was associated with clinically meaningful improvements in QoL.
50. Burguera B, Jesús Tur J, Escudero AJ, et al. **An Intensive Lifestyle Intervention Is an Effective Treatment of Morbid Obesity: The TRAMOMTANA Study-A Two-Year Randomized Controlled Clinical Trial.** International journal of endocrinology. 2015;2015:194696. http://doi.org/10.1155/2015/194696	Adults with morbid obesity in a two-year randomized trial.	Intensive lifestyle intervention behavioral therapy and nutritional counseling vs conventional medical therapy (with surgical cohort for context).	Two-year percent weight loss and cardiometabolic risk factors.	Intensive lifestyle intervention produced significantly greater weight loss than conventional therapy over two years as compared to bariatric surgery.
51. Wong VW, Chan RS, Wong GL, et al. **Community-based lifestyle modification programme for non-alcoholic fatty liver disease: a randomized controlled trial.** Journal of	Adults with non-alcoholic fatty liver disease identified by	Dietitian-led, community lifestyle program for 12 months vs usual care.	NAFLD remission at 12 months (<5% intrahepatic triglyceride by ^{1}H-MRS); change in liver fat.	Lifestyle program increased NAFLD remission and reduced liver fat

hepatology. 2013;59(3):536-542. http://doi.org/10.1016/j.jhep.2013.04.013	population screening.			more than usual care.
52. Nock NL, Owusu C, Kullman EL, et al. **A Community-Based Exercise and Support Group Program in African-American Breast Cancer Survivors (ABCs).** J Phys Ther Health Promot. 2013;1(1):15-24. https://pmc.ncbi.nlm.nih.gov/articles/PMC3975605/	African-American breast cancer survivors within 12 months of completing treatment (community program).	20-week supervised resistance training + support group + home walking in a community cancer support setting.	Feasibility and changes in physical measures and biomarkers; body composition.	The program was feasible; fitness improved; selected biomarkers and body-composition measures improved among adherent participants.
53. Solomon TP, Haus JM, Kelly KR, et al. **Randomized trial on the effects of a 7-d low-glycemic diet and exercise intervention on insulin resistance in older obese humans.** The American journal of clinical nutrition. 2009;90(5):1222-1229. http://doi.org/10.3945/ajcn.2009.28293	Older individuals with obesity and previously sedentary.	7-day supervised aerobic exercise with either low-GI or high-GI controlled-feeding diet.	Insulin sensitivity (glucose-metabolism measures).	These findings suggest that the metabolic improvements after short-term exercise training in older obese individuals are dependent on increased physical activity and are not influenced by a low-GI diet. However, a low-GI diet has added benefit in alleviating hypertension, thus reducing the risk of diabetic

				and vascular complications.
Lifestyle Interventions Using Telemedicine/Virtual Visits, Health Coaching Apps, Other Behavior Changes Apps, or Other Technology Aids for Behavior Change[52-54]				
Citation	**Sample Population**	**Intervention of Interest**	**Primary Outcome**	**Key Conclusion**
54. Lim SL, Ong KW, Johal J, Han CY, Yap QV, Chan YH, Zhang ZP, Chandra CC, Thiagarajah AG, Khoo CM. **A Smartphone App-Based Lifestyle Change Program for Prediabetes (D'LITE Study) in a Multiethnic Asian Population: A Randomized Controlled Trial.** Frontiers in Nutrition. 2022;8:780567. doi:10.3389/fnut.2021.780567	Adults with prediabetes in Singapore (multiethnic Asian)	6-month app-based lifestyle program (Nutritionist Buddy Diabetes app) with in-app dietitian coaching and self-monitoring vs standard diet counseling at baseline.	Change in body weight at 6 months (secondary: HbA1c, fasting glucose and other metabolic indices).	An app-based lifestyle program led to clinically significant weight loss and improved glycemia, and can potentially augment current standard care in the prevention of diabetes among an Asian multiethnic population.
55. David CN, Iochpe C, Harzheim E, et al**. Effect of Mobile Health Interventions on Lifestyle and Anthropometric Characteristics of Uncontrolled Hypertensive Participants: Secondary Analyses of a Randomized Controlled Trial.** Healthcare (Basel, Switzerland). 2023;11(8). http://doi.org/10.3390/healthcare11081069	Adults in primary care	Mobile health–based lifestyle intervention, personalized text messages promoting lifestyle change, both health interventions, or standard care	Lifestyle behaviors, weight, and cardiometabolic markers	A six-month lifestyle intervention supported by application-based BP monitoring and text messages significantly improves adherence to lifestyle goals

				and is likely to reduce some anthropometric characteristics in comparison with the control without technology support.
56. Dodani S, Clarke A, El Moudden I, Gunawardena T, Bedi N. **The impact of a Telehealth-based Behavioral Lifestyle Program on hypertension control in African American participants: results from the HEALS Med-Tech randomized controlled trial.** Archives of medical science : AMS. 2024;20(1):309-312. http://doi.org/10.5114/aoms/177686	Adult African-Americans with uncontrolled hypertension	12-week intensive lifestyle program vs usual care	Blood pressure and change in weight	The HEALS Med-Tech intervention was effective in significantly reducing SBP after 1 year, showing the potential acceptability of behavior change interventions among marginalized African Americans.

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Appendix C. The Diabetes Remission Project

The Diabetes Remission Project

1. Executive Summary

The Diabetes Remission Project (DRP) is an initiative to drastically reduce the prevalence of preventable, treatable and reversible type 2 diabetes in the United States, shift the current narrative that diabetes is irreversible, and turn the tide on one of the costliest and most devastating diseases of our time.

Through a combination of clinician training, a standardized group-based diabetes remission program and facilitation materials, culturally-tailored patient education and other implementation resources, our goal is to reverse diabetes in 10% of all patients who engage with the DRP and improve health outcomes in all patients who attend at least 50% of the program.

The vision of the DRP is a world wherein diabetes remission and health restoration is the goal for diabetes care and that remission is achieved in at least **5% (1.5 million)** of patients who have been diagnosed with type 2 diabetes in the US.

Our mission is to equip clinicians across the country with the information, resources and support they need to deliver therapeutic lifestyle interventions that achieve diabetes remission.

2. Why We Need a Diabetes Remission Program in the U.S.

Type 2 diabetes (T2D) impacts around 11% of adults **(over 30 million)** aged 20-79 in the United States, with an increasing occurrence among younger age groups.

T2D is also one of the top risk factors for heart disease, the leading cause of blindness, amputation, painful neuropathy and kidney failure leading to dialysis and renal transplantation.

The overall expense of diabetes annually is approximated at $412.9 billion ($306 billion in direct expenses and $106.3 billion in reduced productivity). From both a public health and healthcare expenditure viewpoint, it is urgently critical to diminish the prevalence of T2D.

Diabetes remission is a relatively new phenomena in healthcare. Traditional T2D management, based on the belief that T2DM is irreversible, has concentrated on glycemic control through diabetes education and glucose-lowering medication intensification. Recently, focus has shifted to intensive lifestyle interventions (ILI) to achieve weight loss and T2D remission.

- Remission is defined by the American College of Lifestyle Medicine as attainment of an A1C <6.5% for at least 3 months with no surgery, devices, or active pharmacologic therapy for the specific purpose of lowering blood glucose.
- The Look AHEAD (Action for Health in Diabetes) study showed that 1.5% and 7.3% of ILI participants achieved remission at 1 and 4 years respectively compared to only 2% in the control group who received traditional diabetes education.
- An ACLM case series also showed out of 59 individuals with type 2 diabetes who underwent dietary intervention, 22 (37%) achieved diabetes remission.
- Furthermore, studies have shown the approach advocated by lifestyle medicine physicians can often reduce or eliminate the need for prescription medications, including insulin.

Diabetes care guidelines, like most chronic care guidelines, recommend lifestyle as a first-treatment action and adjuvant throughout the course of disease. With new evidence that diabetes can be put into remission with intensive therapeutic lifestyle change (ITLC) interventions, innovative healthcare delivery and payment models should evolve to support the use of these interventions in clinical care settings.

3. Clinician Training

The Remission of Type 2 Diabetes and Reversal of Insulin Resistance Certificate Course was created to empower clinicians with the knowledge and tools to support diabetes remission and help patients regain health and vitality.

In the 18-hour on-demand virtual certificate course, clinicians will:

- Learn evidence that intensive therapeutic lifestyle change can reverse most insulin resistance and type 2 diabetes
- Gain skills to implement intensive therapeutic lifestyle interventions with patients

"At a time when the cost of medications for diabetes has or will become out-of-reach for many, and the potential side-effects of diabetes medications range from unpleasant to black-box warnings, this powerful and comprehensive course offers a safe, effective and affordable alternative: remission of T2D and reversal of IR with Lifestyle Medicine. Every person with diabetes deserves to know about this option!" - Caroline B. Trapp, DNP, ANP-BC, CDCES, DipACLM, FAANP Lead Course Faculty

4. Standardized Group-based Diabetes Remission Program

The **Lifestyle Empowerment Approach for Diabetes Remission (LEADR)** is a 12-session group-based lifestyle medicine program targeting type 2 diabetes remission that can be delivered in-person, virtually, or using a hybrid approach. The LEADR program incorporates content around the six pillars of

lifestyle medicine including optimal nutrition, physical activity, stress management, sleep health, risky substance avoidance and connectedness, with an emphasis on nutrition as a driver of diabetes risk and remission.

- LEADR is delivered in 12 sessions, with optional orientation and follow-up sessions. Materials include culturally-tailored diabetes education, optional teaching kitchen content, interactive learning activities, and SMART goal-setting.
- The program materials include (1) a Facilitator Script, which contains a full dialogue for all sessions, (2) a Participant Workbook, which provides content and guided exercises for participants, (3) slides for each session that mirror the content and design of the Participant Workbook, and (4) a Planning Guide which contains information relevant to setting up SMAs, a suggested billing strategy, a progress note template for group visits, reminder emails, materials lists for teaching kitchen segments, and other relevant information.

5. Additional Resources

ACLM has spent years curating diabetes remission resources for both clinicians and patients to support this initiative.

Clinician Resources: Dietary Interventions to Treat Type 2 Diabetes in Adults with a Goal of Remission: An Expert Consensus Statement from the American College of Lifestyle Medicine

Clinical Practice Guidelines: https://journals.sagepub.com/toc/ajla/19/2_suppl

Patient Bill of Rights: Type 2 Diabetes Bill of Rights - American College of Lifestyle Medicine

Patient Educational Materials: https://lifestylemedicine.org/project/publications/

Culinary Medicine Training: 115 complimentary on-demand culinary training videos and additional resources to support healthy cooking at home https://connect.lifestylemedicine.org/culinarymedicineeducation/home

Content With Purpose Trailer video: https://app.frame.io/presentations/19ffc054-5feb-4ef4-a951-329218810c53

6. LEADR Pilot Data and Early Outcomes

The LEADR SMA curriculum was piloted in two Texas-based endocrinology clinics delivered by a lifestyle medicine diplomate who has also earned the diabetes remission certificate. A retrospective review of electronic health record data was conducted on 15 adults with T2D who participated in LEADR. Outcomes data available upon request.

LEADR Pilot Clinician Testimonial

It made me realize how impactful interactive learning is… helped me understand the pain points from the patient perspective. It's a fulfilling experience which helped me find my purpose.

Prasanthi Tondapu, MD, DipABLM

Group participation is different and not restricted by time. Its effective for motivating and empowering several people and their families at a time. Some continued to the next programs we offered. Everyone enjoyed cooking demos and wanted more.

We had both type 1 and type 2 diabetics. We had a one Type 2 who came off of GLP-1, few type 1s who decreased their insulin amounts significantly which is huge cost savings. Most of them were able to decrease the medication and lost weight depending on level of engagement with goals. But everyone who completed the program reported improvement in quality of life. Its not only weight and diabetes medications but improvements were seen on other conditions like sleep apnea, incontinence, GERD etc.

7. Future Directions

Scaling the Program

ACLM has submitted The Diabetes Remission Project concept to encourage the Center for Medicare Medicaid Innovation (CMMI) or other payers to test the initiative. ACLM has also invited collaboration to pilot the LEADR curriculum across the country – to date about 16 sites have been identified and given LEADR materials. A formal pilot evaluation of LEADR at ECU Health, one of ACLM's health system partners in NC is set to take place in collaboration with FHI360, who will be the PI.

Payment and Infrastructure

LEADR suggests using a shared medical appointment (SMA) and group medical nutrition therapy (MNT) billing framework with optional remote monitoring through a continuous glucose monitor (CGM).

An alternative hybrid payment model was proposed to CMMI, to support interprofessional care team delivery of LEADR and any additional costs associated in launching and facilitating the DRP (i.e. infrastructure and clinician training).

Incentives and Rewards

To reward and sustain clinicians who achieve diabetes remission, a proposed reward model is also recommended. An example model is below:

Figure 1
Actuarial Patient Value Model

	Year 1	Year 2	Year 3	Year 4	Year 5+
Diabetic Patient with HbA1c of:	9.0	6.5	6.5	6.5	6.5
Expected Total Health Spending	$15,000	$7,500	$7,500	$7,500	$7,500
PCP Share of Health Spending	$1,500	$750	$750	$750	$750
Incentive Payment to PCP		$2,000	$2,000	$2,000	$2,000
Net Savings Relative to Year 1		**$5,500**	**$5,500**	**$5,500**	**$5,500**

Values are for illustrative purposes only. Specific health spending amounts for diabetes can be found in American Diabetes Association, Economic Costs of Diabetes in the U.S. in 2012, *http://care.diabetesjournals.org/content/early/2013/03/05/dc12-2625.full-text.pdf* (accessed June 30, 2017).

Vision for National Impact

Reducing the national burden of diabetes by 5% through root-cause, intensive therapeutic lifestyle change interventions; a paradigm shift for T2D care in America.

Stakeholder Value Proposition

1. National Payers (e.g., insurers, Medicare/Medicaid)

- **Key Priorities:** Cost savings, population health outcomes, risk reduction, value-based care alignment.
    - **Cost Containment:** diabetes remission can significantly reduce long-term costs.
    - **Value-Based Care Alignment:** The DRP is a proactive, outcomes-driven solution that aligns with CMS and payer incentives for chronic disease management and prevention.
    - **Scalability & ROI:** The SMA model is efficient— educating multiple patients at once while maintaining quality leads to better outcomes at lower cost per patient.
    - **Data-Driven Outcomes:** pilot data and soon-to-come predictive models can show potential reductions in medication use, hospitalizations, and complications.

The diabetes remission program offers a scalable, evidence-based pathway to diabetes remission that reduces long-term costs and aligns with your value-based care goals—while improving patient quality of life.

2. Clinicians (Primary Care, Endocrinologists, care teams)

- **Key Priorities:** Clinical efficacy, professional development, patient outcomes, workflow integration.
    - **Clinical Empowerment:** Offers certification and training that enhances ability to guide patients toward remission using lifestyle interventions.
    - **Professional Recognition:** Ties into programs like the NCQA Diabetes Recognition Program, which can boost reputation and attract more patients.
    - **Workflow-Friendly:** The SMA model reduces repetitive 1:1 education, offers reimbursement and frees up time all while improving patient engagement.
    - **Evidence-Based:** enhances skills to apply guideline driven lifestyle-based remission strategies

The DRP equips you with the latest tools and training to help your patients achieve remission—while streamlining your workflow, offering financial reimbursement and enhancing your clinical impact.

3. Healthcare Systems (Hospitals, ACOs, FQHCs)

- **Key Priorities:** Population health, quality metrics, operational efficiency, community impact.
    - **Population Health Strategy:** The DRP is a scalable intervention that improves diabetes control metrics across populations.
    - **Quality & Accreditation:** DRP can deliver improved HEDIS scores, NCQA recognition, and potential for Joint Commission commendation.
    - **Operational Efficiency:** The SMA model allows you to serve more patients with fewer resources, reducing clinician burnout.
    - **Health Equity:** The program can be tailored to underserved populations, addressing social determinants of health.

This scalable diabetes remission program helps your system meet quality benchmarks, reduce costs, and improve outcomes—especially in underserved communities.

Appendix D. Nutrition Education Across the Continuum

Culinary Medicine Curriculum (CMC)	✓ UME ✓ GME	The Culinary Medicine Curriculum (CMC) is an open-access, hands-on, culturally responsive, evidence-based educational tool that aligns with national nutrition education standards. It emphasizes practical skills in food preparation, culturally responsive counseling techniques, and the role of nutrition in chronic disease treatment and prevention. The curriculum was first released in 2019, and the updated 2025 edition includes video-based content, experiential activities, and structured reflection exercises to reinforce applied learning and behavioral change principles. It is adaptable for a variety of settings and audiences, including medical school and residency education.	The CMC addresses the need for practical nutrition training in UME and GME, promoting clinical effectiveness and sustainability.	The Culinary Medicine Curriculum has been broadly disseminated and evaluated.[6] A competency crosswalk demonstrates strong alignment with the JAMA nutrition competencies across all six domains (Appendix B). Key strengths include comprehensive coverage of Culinary Skill Building, Foundational Nutrition Knowledge, Communication Skills, and Public Health Nutrition.

LMEd Curriculum, University of South Carolina School of Medicine Greenville	✓ UME	Through a strategic partnership between ACLM and the University of South Carolina School of Medicine Greenville (SOMG), the LMEd curriculum provides an award winning, evidence-based nutrition and lifestyle medicine open-access resource that is available to U.S. medical schools and globally. SOMG's LMEd provides comprehensive trainings to build knowledge, skills and advocacy in clinicians for the prevention and treatment of lifestyle-related chronic disease. Utilization of LMEd helps to support national standards and certification pathways.	The LMEd curriculum addresses the global need for standardized, accessible lifestyle medicine education, supporting early exposure and faculty development.	LMEd received the U.S. President's Council on Sports, Fitness, and Nutrition Community Leadership Award in 2019 under President Trump. The LMEd curriculum has significant global reach, with over 2500 members downloading content in 99 countries and over 150 U.S. medical schools. The ACLM and LMEd partnership also provides virtual-based team support for lifestyle medicine integration and counseling on certification pathways for U.S. medical schools.

UME Curriculum Certification	✓ UME	The ACLM UME Curriculum Certification offers a tiered certification model that aligns with ACGME and AAMC competencies. It provides institutional benefits and pathways for students to achieve board certification in lifestyle medicine.	The certification process ensures that medical schools meet national standards for lifestyle medicine education (Appendix C), promoting comprehensive training and competency.	The certification framework supports the integration of lifestyle medicine into medical education, enhancing institutional credibility and student outcomes. Medical students graduating from ACLM-certified Platinum Tier or "Plus"-designated medical schools who have completed 100 hours of lifestyle medicine education during their medical school training may continue to pursue lifestyle medicine physician certification through the American Board of Lifestyle Medicine (ABLM) during residency via completion of the Lifestyle Medicine Residency Curriculum (LMRC). For graduates attending residency programs that do not offer the LMRC, the opportunity to pursue lifestyle medicine certification is available through participation in the Lifestyle Medicine Physician Extended Educational Equivalency Pathway* (LMPEEEP).

Lifestyle Medicine 101 Curriculum (LM 101)	✓ UME ✓ GME	The LM 101 is an open-access, foundational, modular, plug-and-play educational resource that supports early exposure to lifestyle medicine concepts. It includes evidence-based content on nutrition, physical activity, stress management, and behavior change, and is designed to be easily integrated into existing curricula.	This curriculum addresses the need for open-access, adaptable introductory lifestyle medicine education, providing a basis for further training and faculty development.	The LM 101 Curriculum supports early exposure to lifestyle medicine, enhancing student engagement and faculty readiness.
Lifestyle Medicine Interest Groups (LMIGs)	✓ UME ✓ GME	Lifestyle Medicine Interest Groups (LMIGs) are student-led initiatives that promote lifestyle medicine education and advocacy through events and activities.	LMIGs address the need for grassroots engagement and student leadership in lifestyle medicine, fostering innovation and advocacy.	With over 190 LMIGs, >60% of which are established at medical schools, 1,000+ events, and 30,000+ attendees since 2020, LMIGs demonstrate significant reach and impact in promoting lifestyle medicine education.[7]

Lifestyle Medicine Residency Curriculum	✓ GME	The Lifestyle Medicine Residency Curriculum (LMRC) is a comprehensive, flexible program that includes 40 hours of didactic content, 60 hours of application activities, and a practicum with 400 patient encounters.	The LMRC addresses the critical gap in medical education by emphasizing the transformative power of food as medicine. Aligning with the American Board of Lifestyle Medicine competencies, over 25% of the LMRC focuses on nutrition in chronic disease; from prevention to treatment and remission. Completion qualifies residents to sit for the American Board of Lifestyle Medicine (ABLM) exam.	Since its launch in 2018, LMRC has expanded to 200 residency sites and 400 programs, including 27 military residencies, with over 6,000 enrollees.

Food as Medicine Course Series	✓ CME	This course series educates and equips clinicians with knowledge of dietary patterns shown to treat, reverse, and prevent chronic conditions such as heart disease, diabetes, and certain cancers as well as prepares them to implement food as medicine at a practical level in patient care.	As one of the key pillars of lifestyle medicine, healthful eating has the power to help treat, reverse, and prevent many chronic diseases. Yet, most clinicians do not receive education on food as medicine.	The course covers a wide range of topics, including nutrition for prevention and longevity, treatment and risk reduction, calorie density, preconception, pregnancy and postpartum nutrition, diabetes remission, and cancer risk reduction.
Remission of Type 2 Diabetes and Reversal of Insulin Resistance Certificate Course	✓ CME	This CME/CE certificate course equips clinicians to use intensive, evidence-based lifestyle medicine interventions to send type 2 diabetes into remission and reverse insulin resistance. By equipping healthcare professionals with the tools to implement intensive therapeutic lifestyle interventions, the course aims to improve patient health outcomes and reduce the burden of diabetes.	The current disease management approach for type 2 diabetes focuses on regulating blood glucose and delaying disease progression. However, remission using intensive lifestyle medicine interventions is possible. This course provides clinicians with the evidence and skills needed to offer patients an effective, safe, and affordable treatment option for achieving diabetes	This online CME/CE course offers 18 credits and provides clinicians with a comprehensive path toward type 2 diabetes remission and insulin resistance reversal

			remission and reversing insulin resistance.	

Foundations of Lifestyle Medicine Board Review Course	✓ CME	The Foundations of Lifestyle Medicine Board Review is an evidence-based, comprehensive course that builds a foundation for lifestyle medicine practice. The course provides an in-depth understanding of the pillars of evidence-based lifestyle medicine and how it can treat, reverse, and prevent disease. Learners receive a thorough review of the evidence-based lifestyle medicine prescriptions and their clinical application, arming themselves with the knowledge that will be tested on the Lifestyle Medicine Board Certification Exam.	The Foundations of Lifestyle Medicine Board Review Course is essential for clinicians who wish to deepen their understanding of lifestyle medicine and its clinical applications. It prepares participants for the ABLM exam, ensuring they are well-equipped to pass and become certified in lifestyle medicine.	The Foundations of Lifestyle Medicine Board Review Course has a significant reach and impact within the medical community. By preparing clinicians for the lifestyle medicine certification exam, it helps to increase the number of certified lifestyle medicine clinicians, thereby expanding the capacity of the healthcare system to address chronic diseases through lifestyle interventions. The course's flexible, self-paced format makes it accessible to a wide range of healthcare professionals, enabling them to integrate lifestyle medicine principles into their practice and improve patient care. Since lifestyle medicine certification began in 2017, 5,124 clinicians in the U.S. and Canada have become certified (3,810 physicians and 1,314 health professionals). Worldwide, 6,293 physicians from 92 countries and 1,715 health professionals are now certified.

Appendix E. Summary of Economic Impact of LM

- **Ornish Intensive Cardiac Rehabilitation, ~40 years ago**

  Mutual of Omaha study

  - Comparison of Ornish ICR vs. PTCA & CABG
  - Findings: 47% reduction in cost per patient, ***$18,119 per ICR (N=194) patient vs. $47,646 per control*** (N=139, PTCA and CABG)

  Highmark study

  - Similar study, followed patients longitudinally
  - Findings: 19.3% reduction in ED visits for chest pain, 55.4% reduction in ED visits for all causes, 89.4% reductions in hospital admissions for chest pain/angina, 84.1% reduction in hospital admissions for all causes, ***$17,687 per patient cost savings over three years*** for those receiving ICR
- ***Dr. Lenz et al*** *(employer-funded LM intervention)*
  - Intervention: Self-insured health plan members with hypertension, hyperlipidemia, diabetes, or a combination of these conditions met with a pharmacist regularly (monthly for the first year, then varied by participant) to implement lifestyle medicine programs, optimize medication therapy, and facilitate the coordination of care. Biometric markers, lifestyle behaviors, quality of life, and work productivity were assessed on an annual basis.
  - Findings: The significant biometric improvements (mean) seen after 5 years of program participation compared with pre-enrollment included decreased LDL, increased HDL, decreased systolic and diastolic blood pressure. The combined healthcare and productivity **return on investment for the program at 5 years was $9.64 for every $1 invested.**
- **CHIP**
  - The Complete Health Improvement Project, CHIP, was founded by Dr. Hans Diehl and is a "lifestyle enrichment program designed to reduce disease risk factors through the adoption of better health habits and appropriate lifestyle modifications." It serves as a reproducible model for lifestyle medicine as it demonstrates the point that chronic diseases can be turned around through responsible lifestyle changes.

  Employer-Funded Complete Health Improvement Program: Preliminary Results of Biomarker Changes

  - Intervention: Beneficiaries of Ohio University health insurance attended informational session, received informational videos, and were invited to enroll in CHIP study – consisted of 16-18 two-hour group sessions focused on LM.
  - Findings: Improvements in short-term metabolic and cardiovascular biomarkers – 160 employees (115 women, 45 men) – significant reductions in BMI, systolic BP, diastolic BP, total cholesterol, LDL, HDL, and FPG.

  CHIP Lifestyle Program at Vanderbilt University Demonstrates and Early ROI for a Diabetic Cohort in a Workplace Setting: A Case Study

  - Intervention: Offered CHIP free of charge to Vanderbilt employees utilizing employee health plan with a "clinical diagnosis of T2DM while having at least two consecutive years of coverage under the Plan"

    - Findings: Reductions in medications and medical claims, improvements were seen at both 8-weeks and 26-weeks in HBA1C (not at 26-week mark), total cholesterol, LDL, HDL, and triglycerides, as well as survey responses related to life evaluation, physical health, emotional health, healthy behaviors, work environment, basic access, and a wellbeing index. Reduction in healthcare cost to system equated to a **net savings of $67,582,** showing the feasibility of LM education to a member population.
- ***Parkinson et al*** *(UPMC LM Coaching Intervention)*
    - Intervention: A comprehensive wellness, prevention, and chronic disease management program that ties achievement of health and wellness requirements to receipt of an annual credit on participants' health insurance deductible
    - Findings: Among 13,627 participants, Significant improvements in health-risk status and increases in use of preventive and chronic disease management services were observed in the intervention group. Although total healthcare costs increased significantly, **reductions in costs were significant for those who moved from higher- to the lowest-risk levels.**
- ***Employee Wellness Center*** *(partnership with Ascension Health)*
    - Intervention: Carmel Clay School (CCS), in partnership with Ascension St. Vincent Health, offered CCA Wellness Center services ("preventive care, chronic disease management, medication therapy management, health care navigation/patient advocate, behavior health services, dietetics, exercise physiology services, physical therapy services, wellness coordination and extensive fitness classes") at no cost to employees.
    - Findings: Chronic disease risk reduction in those considered moderate, high, and very high-risk, reduction in endocrine medications for diabetics and therefore reductions in money spent by members on prescriptions, reduction in polypharmacy issues, positive financial impact for CCS by **demonstrating 5-million dollars in savings in 2017.**
- **Sutliffe et al**
    - Intervention: 77 employees participated in a 12-week micronutrient-Dense Plant-Rich dietary protocol (described in attached study)
    - Findings: Clinical and statistical improvements in weight, body mass index, waist and hip measurements, total cholesterol, low-density lipoproteins, and estimated average glucose. The average NAH participant health care cost prior to the intervention (January to December 2015) was $673.16/month. The average NAH participant health care expenditures during and after the intervention were $393.39/month. Financial savings achieved from January 2016 to May 2017 reflect a savings of more than **$232,000.**

Appendix F. Therapeutic Lifestyle Change, Intensive Therapeutic Lifestyle Change, Diabetes Remission Project Proposed Hybrid Payment Models

In March of 2025, ACLM proposed innovation model concepts to the Center for Medicare and Medicaid Innovation (CMMI) for Therapeutic Lifestyle Change, Intensive Therapeutic Lifestyle Change, and The Diabetes Remission Project. All models included the recommended use of interprofessional team-led shared medical appointments delivered in a series along with a maintenance phase to support sustained behavior change support. All models leveraged a hybrid payment approach where both E&M and per member-per month payments were recommended to support the sustainability of the model delivery. These models are available upon request.

Applegate Framework for Proposed LM Models: