

Integration of First-line Lifestyle Modification and First-line Hypertension Drug Research: Analysis of Source Articles in a Leading Cochrane Report



Dan E. Wilson, Tashina Van Vlack, Jason Shane, Brendin Schievink, Eric Doak

Supervisor: Elizabeth Dean, PhD

Department of Physical Therapy, Faculty of Medicine, University of British Columbia, B.C., Canada

Purpose

- To establish how lifestyle modification, which is considered first-line in hypertension prevention and management, is integrated into anti-hypertension drug trials.

Background

- Persistent hypertension (HTN) is a major risk factor for cardiovascular and cerebrovascular mortality
- HTN is managed through both medication and lifestyle modification (Table 1)
- The degree to which lifestyle factors for managing HTN are integrated into studies of first-line drug management for hypertension is generally unknown.

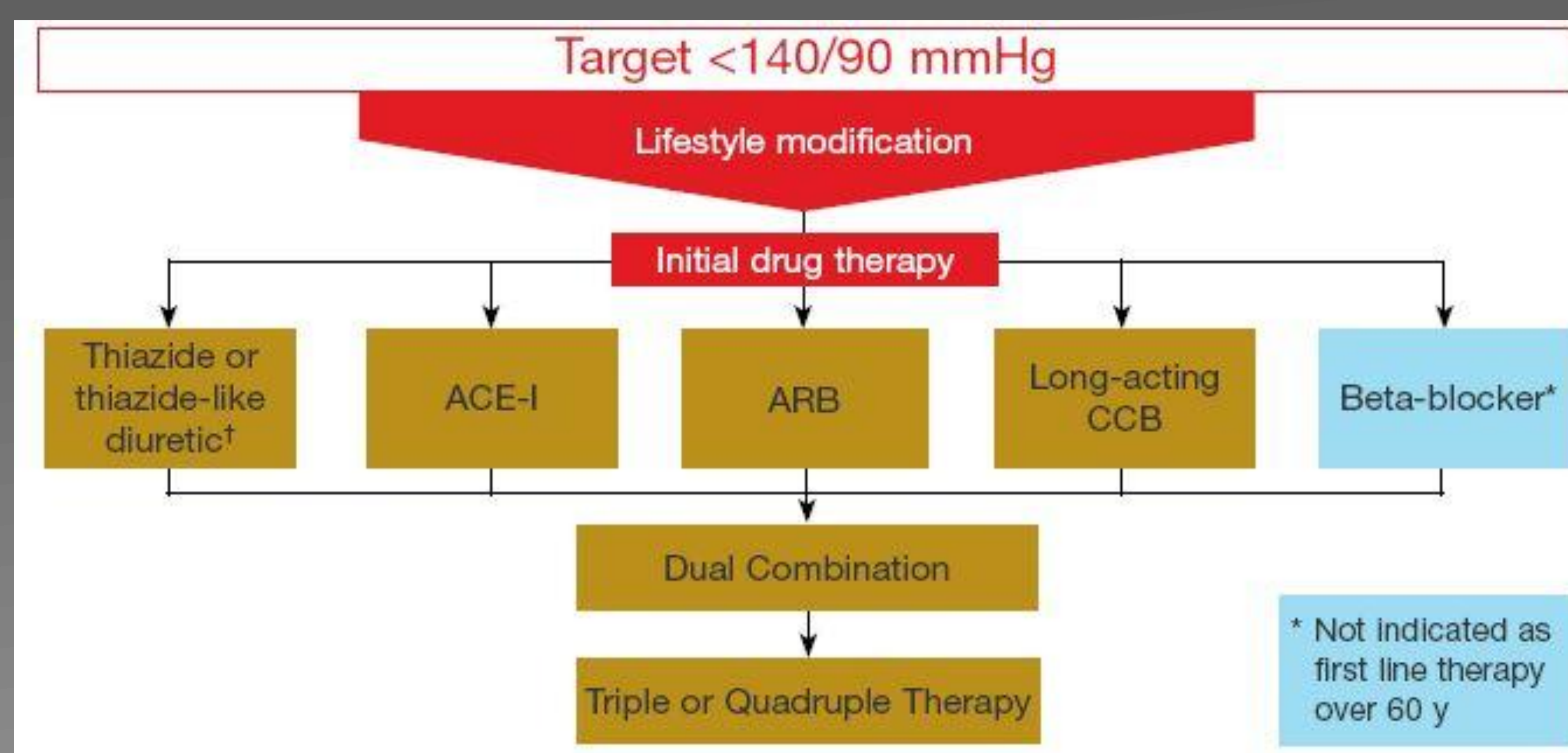
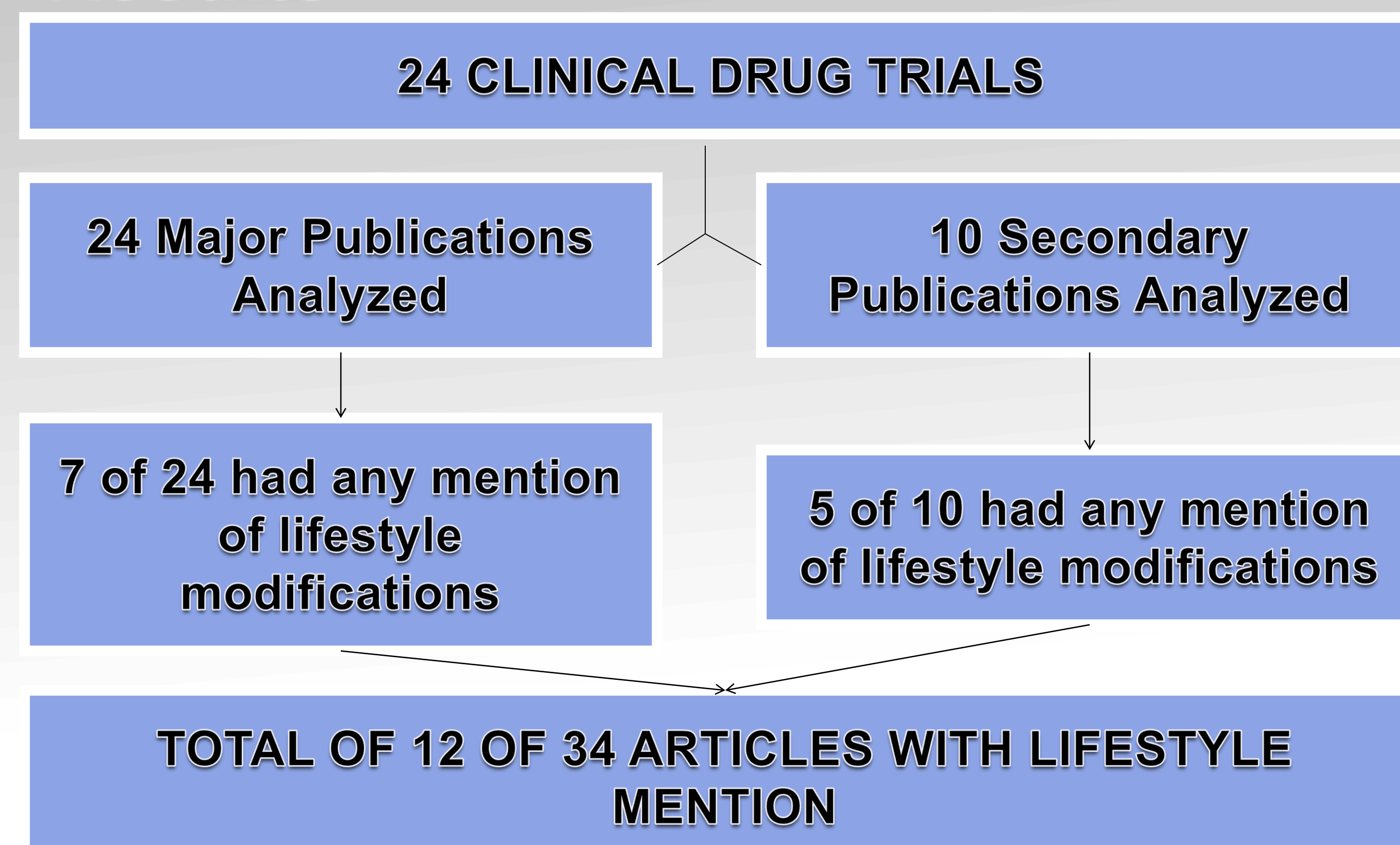


Table 1 Canadian Hypertension Education Program 2012

Methods

- Analysis of source Articles in a leading Cochrane Review that was designed to inform first-line medical treatment of HTN.
- In total 34 source articles in total were reviewed.
- Each article was assessed for any mention of lifestyle intervention including smoking cessation, diet, weight loss, physical activity and exercise, stress reduction, and moderate alcohol consumption.

Results



Results (continued)

Publication Title	Lifestyle Intervention Mentioned	Diet	Exercise	Smoking Cessation	Weight Loss	Other or Undefined "Lifestyle"	Alcohol Restriction/ Stress Management
MRC-TMH	YES	Doctors judgement for advising on salt intake	Doctors judgement for advising on exercise	Doctors judgement for advising on smoking cessation	Doctors judgement for managing obesity	Analysis of results comparing smokers vs. non-smokers	-
SHEP	NO (major publication)	-	-	-	-	-	-
	YES	"Standardized general information on nutrition. Moderation of salt intake and emphasis on foods high in potassium are to be recommended."	Standardized general information regular gradual exercise	Standardized general information on smoking	Avoidance or reduction of obesity was to be advised	-	-
SYST-EUR	YES	"...diet and lifestyle changes should not be obligatorily recommended to all patients. Individual investigators conserve the decision to prescribe diet and lifestyle measures to their patients in keeping with local treatment policies, provided that such measures are equally reinforced in all patients at a particular centre, independent of the level of blood pressure."	-	-	-	Individual investigators judgement to prescribe lifestyle changes	-
UKPDS 39	YES	3 month trial of diet control after initial recruitment. All patients continued to receive dietary advice throughout the study and were encouraged to give up smoking... Initial diet therapy: "At the initial visit all patients were advised to take a 'prudent' diet, containing approximately 50 % carbohydrate, low saturated fat and moderately high fibre with a reduced energy content if obese, aiming to attain ideal body weight. For the first 3 months they were seen at monthly intervals, usually by a dietitian as well as a doctor."	-	"Encouraged to give up smoking"	-	-	-
USPHSHCSG	YES	"There was no intervention on diet or smoking or other behavioral factors." In Conclusion: Moderate Salt Restriction may be appropriate	In conclusion: as a supplement a reasonable exercise program may be an appropriate management	In conclusion: as a supplement smoking cessation may be an appropriate management	In conclusion: as a supplement, weight control may be an appropriate management	-	-

Table 2 Selected Results from the Analysis of Source Articles that Included Mention of Lifestyle Modification Demonstrating Major Themes

- Common themes were identified in analyzing the 34 source articles.
- Table 2 provides 5 example results that demonstrate the major discussion themes from all source articles that included any mention of lifestyle modification.

Lifestyle Modification	Mention in Major Publication	Mention in Secondary Publication	Total Mentions in Research
Diet	6	5	11
Alcohol Restriction	0	0	0
Exercise	4	2	6
Smoking Cessation	4	3	7
Relaxation/ Stress Management	0	0	0
Weight Loss	4	3	7
Other or Undefined "Lifestyle"	1	1	2

Table 3 Publications Including Any Mention of Lifestyle Modification

Discussion

- 76% of the included large drug trials in the Cochrane review were over two decades old. (26 of 34)
- 54% of large clinical drug trials made no mention in any of their publications regarding lifestyle modifications. (13 of 24)
- Several drug trial publications allowed for inconsistent recommendations for lifestyle modification based on individual doctor and investigator judgment.
- All except the UKPDS 39 drug trial poorly described the lifestyle modification recommendations in their methodology.
- In a post-hoc analysis the MRC-TMH drug trial found that there was a different response to the drop between smokers and non-smokers.

Conclusion

- Our findings discovered inadequate control and/or mention of lifestyle throughout our source articles included within the 2009 Cochrane Review.
- Current research provides unequivocal data to support the use of lifestyle modification strategies to promote a decrease in blood pressure for individuals with hypertension.
- The inclusion of lifestyle modification strategies in the research designs for hypertension drug trials could enhance current research.
- A shift in research paradigm for clinical drug trials could provide evidence for the invasive/non-invasive practitioner that corresponds to the increasing need for the practical application of research to clinical practice.

Recommendations

- Encourage lifestyle modification strategies to be incorporated into the research design for pharmacological studies on HTN
- Generate more evidence to support the effects of lifestyle modification and their interaction with pharmacokinetics of anti HTN drugs
- Further investigation into current research methods used for RCCT in antihypertension drug studies
- Future RCCTs examining the effect of medication in the management of hypertension should include:
 - incorporation of lifestyle modification into the study design that is adequately monitored and recorded by investigators
 - stratification of study results with attention to impact of lifestyle modification on outcomes