Institution: Robert Gordon University and University of the Highlands & Islands

Unit of Assessment: 3 Allied Health Professions, Dentistry, Nursing & Pharmacy

Title of case study: Counterweight: Health Improvements from a Weight Management Programme

1. Summary of the impact (indicative maximum 100 words)

The Counterweight Programme (CW) is a structured model for obesity management in primary care settings. CW has made substantial changes to clinical and public health guidelines and to practice nationally and internationally: the Programme has since been adopted in Primary Care Galway, Ireland and for a government funded trial in Ontario, Canada. The creation of a spin out company, Counterweight Ltd, in 2011 resulted in concomitant job creation and significant commercial activity, with CW now being used in private healthcare, pharmacies, fitness clubs, and by freelance healthcare professionals. Moreover, the programme has significantly benefited the health and welfare of obese patients and improved care practice by increasing quality, accessibility and cost effectiveness of weight management services in the UK.

2. Underpinning research (indicative maximum 500 words)

CW started as a collaborative project, led by Professor John (Iain) Broom at Robert Gordon University and involved collaborators from: the University of Bath; Cambridge; Glasgow; Imperial College London; Leeds and Warwick. Professor Broom was Principal Investigator on a 5-year educational grant-in-aid from Roche (2000-2005) and subsequently on a 2-year grant from Sanofi-Aventis (2006-2007). Both grants supported research to assess the need for, the development and evaluation of a model for obesity management.

Needs assessment: A review of the current approaches to obesity management in UK primary care highlighted gaps in care, and identified both that obesity is under-recorded as diagnosis in primary care and that weight management appears to be based on brief opportunistic interventions mainly implemented by practice nurses. Moreover, an analysis of the major cost factors of primary care, showed that the cost of the number of visits made by obese individuals to general practitioners, practice nurses and outpatients departments, and the total volume of drug prescriptions (and thus drug costs) were significantly higher (in the region of two– to four-fold) in obese patients compared to normal weight patients [1, 2].

Development: The CW programme is based on the theoretical model of Evidence-Based Quality Assessment consisting of: setting goals for a realistic weight change; assessing factors which may have contributed to weight gain, and subsequently supporting the individual in selecting methods to achieve and maintain weight loss. CW differs from other weight loss programmes as it draws on theory and evidence relating to changes in both the behaviour of health professionals and how they deliver clinical care, as well as using evidence-based pathways for obesity management and employing multifaceted interventions to target different barriers to change, which together are more effective than single interventions [3].

Evaluation: Several parameters were considered during the evaluation phase of the programme including the impact upon both the health and welfare of obese individuals and on health economics.

The CW project achieved a target weight loss of ≥5% at 12 and 24 months in one third of the total 1906 patients attending the programme. These results compared favourably with weight loss resulting from heavily-resourced RCTs conducted in specialist clinical settings as reviewed by the US National Institutes of Health [4]. Additionally, based on a large cross-sectional study (comprising over 6000 obese individuals and more than 1000 age- and sex-matched overweight

and normal-weight patients) and through theoretical modelling, the CW research team showed that: i) obese patients develop more cardiovascular disease (CVD) risk factors compared to normal-weight controls and exhibit increased prevalence of type 2 diabetes (odds ratio: 6.16 and 7.82 in men and women, respectively) and ii) a 10% weight loss from the mean Body Mass Index (BMI) (32.5 kg/m^2) resulted in a reduced risk of developing diabetes and CVD (30% and 20% reduction, respectively) [5]. Furthermore, the attributable cost of managing overweight and obese individuals (currently 23% of spending on all drugs in the UK) was assessed for 3400 randomly selected adult patients stratified by BMI from 23 different care practices, and the weight loss outcomes achieved by CW were used to model potential effects of weigh change on drugs cost. This showed the CW programme could reduce the prescribing costs and lead to substantial cost avoidance; since at least 8% of the programme delivery cost would be recouped from prescribing savings alone in the first year [6].

In summary, the CW project has produced an evidence based model for obesity management in primary care which significantly benefits the health and welfare of obese patients and improves care practice by increasing quality, accessibility and cost effectiveness of weight management services. The research produced a variety of outputs including: 17 peer reviewed papers; 41 conference papers and presentations; comprehensive training manuals for practitioners and educational support materials for patients. In addition there was the creation of a spin out company, Counterweight Ltd, in 2011.

3. References to the research (indicative maximum of six references)

[1] The Counterweight Project Team. Obesity impacts on general practice appointments. 2005. Obesity Research, 13: 1442-1449. doi: 10.1038/oby.2005.174

[2] The Counterweight Project Team. Impact of obesity on drug prescribing in primary care. 2005. British Journal of General Practice, 55: 743-749. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1562331/

[3]* The Counterweight Project Team. A new evidence-based model for weight management in primary care: the Counterweight Programme. 2004. Journal of Human Nutrition and Dietetics, 17: 191-208. doi: 10.1111/j.1365-277X.2004.00517.x

[4]* The Counterweight Project Team. Evaluation of the Counterweight Programme for obesity management in primary care: a starting point for continuous improvement.2008 British Journal of General Practice, 58: 548-554. doi: 10.3399/bjgp08X319710

[5] The Counterweight Project Team. Prevalence of CVD risk factors by body mass index and the impact of 10% weight change. 2008. Obesity Research & Clinical Practice, 2: 15-27. Doi:10.1016/j.orcp.2008.01.002.

[6]* The Counterweight Project Team. Influence of body mass index on prescribing costs and potential cost savings of a weight management programme in primary care. 2008. Journal of Health Services Research & Policy, 13: 158-166. doi: 10.1258/jhsrp.2008.007140

Funding received to support research:
Educational grant-in-aid, Roche, £ 2.77 M for 2000-2004, £1 M for 2004-05; Sanofi Aventis, 2006-2007, £570,000.

4. Details of the impact (indicative maximum 750 words)

Obesity has become a global epidemic with over 50% of both men and women in World Health Organisation (WHO) European Regions being overweight, and approximately 23% of women and 20% of men being classified as obese (WHO 2008). Moreover, in the UK alone, the cost to the NHS for the management of obesity and obesity-associated diseases has been estimated to reach more than £ 45bn/year by 2050. Government policy has, therefore, identified an urgent need for the design and development of alternative management strategies and treatment protocols. The CW programme was developed in response to this need and aimed to address the key barriers to,

and facilitators of, practice and patient engagement for the wider implementation in a UK primary care setting. As such, the CW programme provides an evidence based and effective approach for weight management in routine primary care. The positive impacts of CW are manifest in several ways:

Improved Health and Welfare: Continuous evaluation of the CW programme has demonstrated consistency in the characteristics of the patients enrolled into the programme. Of the total 6715 patients enrolled via 184 general practices, 16 pharmacies and one centralised community-based service, across 13 Health Boards throughout Scotland, and of the over 14,000 patients further reported to the Scottish Government, 28% of patients attended for the entire 12 month programme. Of these, 35.2% of patients maintained a weight loss of >5%, compared to 30.7% in the original evaluation [4]. This provides evidence for engagement within areas of higher social deprivation where obesity is a more significant problems (over 1/4 of the patients had BMI >40 kg/m^2 and 30% more patients had a BMI >50 kg/m^2 compared with enrolment in the original evaluation), and of greater weight losses among those who attended [a].

Improved Service Delivery: Based on policy and political drive to tackle obesity through central commissioning, the Scottish Government commissioned the implementation of the CW programme in Scotland via 3 phases. The first 2 phases were implemented alongside “Keep Well”, a targeted primary prevention programme aimed at reducing the incidence of cardiovascular disease in areas of high social deprivation in Scotland. Following the positive outcome of the CW Programme on weight management in 6 Health Boards, in 2008 the Scottish Government commissioned phase 3, which rolled out the programme (this time as a stand-alone programme) to a further 7 Health Boards [b, c]. As a result of continual evaluation and reporting of outcomes, the Scottish Government continued to support the implementation of the CW programme in each Health Board until 2012. Following central funding being devolved to each health board, the majority (10 of 13) Health Boards have continued with the CW programme through direct licensing with the Counterweight spin out company.

Over the last 10 years, CW has been widely adopted by the health care sector. As described above, it was rolled out in Scotland by the Health Department, and in England the Department of Health has implemented it in 20 Primary Care Trusts, demonstrating a step change in practice and delivery of care for the obese. Despite a lack of incentives within general practices in the UK to deliver weight management programmes, the uptake of the CW programme has been high, illustrating the effectiveness of both the Scottish Government commissioning services and the support offered by the established implementation process of CW. Thus CW has allowed available resources to be used for direct patient intervention rather than the cumbersome, time-consuming and expensive alternative to develop local programmes in individual areas.

Improved Guidelines: The implementation of CW throughout the UK has resulted in changes to clinical and healthcare guidelines, and the Scottish Intercollegiate Guidelines Network (SIGN) [c, d] recommend CW among the available Weight Management and support for weight loss maintenance programmes in adults.

Improved Cost-effectiveness: The economic benefit of CW to both the private and public sector is supported by the demonstrated link between successful weight loss and weight loss maintenance at 12 months, achieved via CW, and the reduction in numbers of patients requiring to be started on medication for cardiovascular risk factors associated with obesity. Moreover, health economic analysis (using the cost effectiveness model from NICE Guidelines; 2006) of CW delivery in UK primary care has shown the programme to be a dominant intervention in that it improves clinical benefit (Quality-adjusted Life-Years) and offers an overall cost saving to the NHS [e]. If outcomes obtained in CW intervention patients were projected onto the whole UK population, the anticipated drug cost saving would be £40.3 M. In recognition of this success and its major

implication for UK health spending, in 2010 CW was awarded a PraxisUnico Impact Award for Public Policy and Service Impact which recognised the impact of innovation [f].

Increased Commerce: Through the creation of Counterweight Ltd (www.counterweight.org) the role of health professionals in the management of obesity has shifted from tier 1-2 level to community workers, pharmacy assistants, lifestyle advisers, dietetic assistants, long term condition staff, freelance healthcare professionals and leisure groups. The creation of the company in 2011, which employs 6 full-time members of staff, has therefore had a positive impact on job creation and on commerce by creating a diversified product for not only the public and private health sectors, but also in the occupational health sector. In addition, a new product, Counterweight Plus, has been developed for non surgical weight management intervention to treat severe and complicated obesity and is supporting a major Diabetes UK grant awarded to the Universities of Glasgow and Newcastle. Since the creation of the company, 22 Public Health licences have been contracted (12 licences to Scottish Health Boards, 7 English Health Trusts, 1 University Hospital in Ireland, and 2 in a Canadian Nurse Led Clinic) [g]. Private health contracts have also been secured, with 4 licences contracted to private hospitals (2 in Scotland, 1 in England, 1 in Ireland) 1 to a community based pharmacy in Ontario, Canada [h] and 55 to freelance dietitians. In the occupational health sector, 1 licence has been contracted to a UK's leading workplace fitness provider specialised in setting up and managing corporate fitness and wellbeing centres to improve the employee health and wellbeing. Contracts with 2 Occupational Health service providers in the oil and gas sector are under negotiation to provide a bespoke service to fully maximise employee wellness and financial return on investment.

Finally, the programme has influenced clinical and public health guidelines not only in Scotland and England but also at international level. In particular, the Centre for Health Care and Equity in Australia use CW as a basis for their lifestyle intervention program in Primary Health Care [i], with Professor Broom being part of a collaborative research programme funded by the Australian Government and also partnered by the Centres for Disease Control and Prevention (CDC), Atlanta.

5. Sources to corroborate the impact (indicative maximum of 10 references)

[a] The Counterweight Project Team. The implementation of the Counterweight Programme in Scotland, UK. Family Practice 2012; 29: i139–i144.

[b] Scottish Government News; Health Board Funding 04/09/2008 http://www.scotland.gov.uk/News/Releases/2008/09/04081949

[c] Scottish Government Publication: Preventing Overweight and Obesity in Scotland: A Route Map Towards Healthy Weight. Scotland Obesity Strategy, February 22, 2010. ISBN 978 0 7559 8183 0 http://www.scotland.gov.uk/Publications/2010/02/17140721/0

[d] Scottish Intercollegiate Guidelines Network: 115 Management of obesity: A national clinical guideline. February 2010, 9.4 Weight Management programmes and support for weight loss maintenance in adults, diet plus physical activity plus behavioural therapy page 20. http://www.sign.ac.uk/guidelines/fulltext/115/index.html

[e] The Counterweight Project Team and P.Trueman. 2010 Long term cost-effectiveness of weight management in primary care. The International Journal of Clinical Practice, 64: 775-783. doi: 10.1111/j.1742-1241.2010.02349.x

[f] Public Policy and Service Impact Award presented to *Counterweight programme* at The Impact Awards ceremony held at the PraxisUnico Conference gala, Nottingham, June 2010. http://www.praxisunico.org.uk/uploads/PRU_016_10.pdf and http://www.praxisunico.org.uk/uploads/The%20Review%202011.pdf

[g] Correspondence from a University Hospital in Ireland and a Nurse Led Clinic in Ontario, Canada.

[h] http://www.ingersollpharmasave.ca/

[i] Correspondence from Centre for Primary Health Care and Equity, Sydney, Australia.