

Obesity in Adults: A 2022 Adapted Clinical Practice Guideline for Ireland.

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<https://creativecommons.org/licenses/by-nc/4.0/> This article is licensed under the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC). Usage and distribution for commercial purposes requires written permission. Background This Clinical Practice Guideline (CPG) for the management of obesity in adults in Ireland, adapted from the Canadian CPG, defines obesity as a complex chronic disease characterised by excess or dysfunctional adiposity that impairs health. The guideline reflects substantial advances in the understanding of the determinants, pathophysiology, assessment, and treatment of obesity.

It shifts the focus of obesity management toward improving patient-centred health outcomes, functional outcomes, and social and economic participation, rather than weight loss alone. It gives recommendations for care that are underpinned by evidence-based principles of chronic disease management; validate patients' lived experiences; move beyond simplistic approaches of "eat less, move more" and address the root drivers of obesity.

People living with obesity face substantial bias and stigma, which contribute to increased morbidity and mortality independent of body weight. Education is needed for all healthcare professionals in Ireland to address the gap in skills, increase knowledge of evidence-based practice, and eliminate bias and stigma in healthcare settings. We call for people living with obesity in Ireland to have access to evidence-informed care, including medical, medical nutrition therapy, physical activity and physical rehabilitation interventions, psychological interventions, pharmacotherapy, and bariatric surgery. This can be best achieved by resourcing and fully implementing the Model of Care for the Management of Adult Overweight and Obesity. To address health inequalities, we also call for the inclusion of obesity in the Structured Chronic Disease Management Programme and for pharmacotherapy reimbursement, to ensure equal access to treatment based on health-need rather than ability to pay.

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pmc-prop-preprint no pmc-prop-in-epmc yes pmc-license-ref CC BY-NC Introduction This adapted clinical practice guideline (CPG) for Ireland joins Obesity Canada (OC) and the Canadian Association of Bariatric Physicians and Surgeons (CABPS) [1], the World Health Organisation [2], the European Association for the Study of Obesity [3], the European Commission [4 , 5], the American Medical Association [6], the Obesity Society [7] and the World Obesity Federation [8] in defining obesity as a complex chronic disease in which excess or dysfunctional adiposity impairs health [9].

The last decade has seen substantial advances in our understanding of the determinants, pathophysiology, assessment, and treatment of obesity across the life course. Historically, obesity has been defined based on an arbitrary cut-off of a body mass index (BMI) $>30 \text{ kg/m}^2$. At a population level, health complications increase as BMI increases, and consequently, epidemiological studies continue to use this stratification for surveillance and as an indicator to screen for weight-related health risks [10]. However, BMI is not an accurate standalone tool for identifying adiposity-related complications in individuals [11]. At an individual level, health complications occur because of the mass, location, and distribution of adiposity, in addition to factors such as genetic predisposition and health inequalities [12]. The threshold at which excess adiposity impairs health in individuals varies, and there is a U-shaped distribution between BMI and all-cause mortality [13 , 14].

Excess or dysfunctional adiposity is associated with inflammation and an increased risk of metabolic, mechanical, and mental health complications. Potential complications include type 2 diabetes, hypertension, nonalcoholic fatty liver disease, polycystic ovary disease, obstructive sleep apnoea, gallbladder disease, osteoarthritis, pain, gastroesophageal reflux disease, incontinence,

lymphoedema, plantar fasciitis, certain cancers (colon, kidney, oesophageal, postmenopausal breast, and endometrial), as well as mood, anxiety, and eating disorders [15 , 16 , 17 , 18 , 19 , 20 , 21 , 22 , 23 , 24 , 25 , 26]. Obesity can reduce healthy-life years and can reduce life expectancy by 6–14 years [27 , 28].

An improved understanding of the biological underpinnings of the disease of obesity has emerged [11]. The brain plays a central role in energy homeostasis by regulating food intake and energy expenditure [29]. Appetite regulation is complex and involves the integration of central neural circuits including the hypothalamus (homeostatic control), the mesolimbic system (hedonic control), and the frontal lobe (executive control). The neurobiology of appetite, body weight, and energy regulation is mediated by a milieu of hormonal signals from the gut, adipose tissue, and other organs. Many of these signalling pathways are altered by obesity [30 , 31 , 32 , 33]. While in the short term, restricting energy intake and increasing physical activity leads to a negative energy balance and weight loss, this triggers a cascade of adaptive metabolic and neurohormonal mechanisms that increase hunger, reduce satiety and energy expenditure, attenuate weight loss and promote weight regain [34 , 35 , 36].

Obesity is also influenced by environmental factors. The increased availability and pervasive marketing of energy-dense, inexpensive foods and beverages, in parallel with economic growth, rapid urbanisation, health inequalities, changes to sleep, screen time, working patterns, and sedentary time, have resulted in a “health disrupting” environment, which promotes the development of obesity in susceptible populations [37 , 38]. For individuals with a genetic predisposition, small surpluses in energy intake can accumulate over years, leading to excessive weight gain [29]. Twin studies show a 50–80% degree of concordance of BMI and regional adiposity [39]. The prevalence of higher body weights is increasing throughout the world [40]. In Europe, the prevalence of a BMI >30 kg/m² ranges from 19.5 to 31.3% [41], and in Ireland, this has increased by over 60% since 1990 [42]. Data on the prevalence of obesity, defined by the impact of adiposity on health, however, is lacking.

Despite an improved understanding of the disease, people with obesity continue to experience weight bias and stigma, which contributes independently to increased morbidity and mortality [43]. The dominant narrative fuels assumptions about personal irresponsibility and lack of willpower and casts blame and shame upon people living with obesity [44]. Obesity stigma negatively influences the quality of healthcare that people living with obesity receive [45 , 46]. Historically, obesity has not been managed well within healthcare [47 , 48 , 49], and many healthcare professionals (HCPs) feel ill-equipped to deliver obesity care [44 , 50 , 51].

In Ireland, there have been efforts to embed obesity care in national policy and healthcare delivery since the Report of the National Task Force on Obesity in 2005 [52]. The Obesity Policy and Action Plan acknowledged that obesity is a complex issue requiring a cross-sectoral approach [53]. It recommended developing an integrated service model for the health and social care of people living with overweight and obesity that included quality assurance guidance for obesity services. In 2017, the National Clinical Programme for Obesity was established, and in 2021, the Irish Health Service Executive launched the Model of Care (MOC) for the Management of Overweight and Obesity in Ireland. This describes how these services should be organised, delivered, and resourced across the healthcare system and the life course [49]. The model has five levels of care, in line with the National Framework for the Integrated Prevention and Management of Chronic Disease in Ireland. Each level brings more intensive intervention to individuals with increasing disease complexity. Individuals will move between levels as required based on complexity using an adapted Edmonton Obesity Staging System (EOSS) framework (Table 1).

OC (<https://obesitycanada.ca/>) is a leader in the field of obesity research, education, and advocacy to reduce obesity stigma. In 2020, OC and the CABPS published CPGs for adult obesity providing an evidence- and experience-based, patient-centred framework for HCPs, patients, and policy makers [1]. They proposed new approaches to diagnose and assess obesity in clinical practice and outlined comprehensive and holistic treatments that focus on improved health and well-being,

not just weight loss [54 , 55 , 56].

The Irish MOC identified the need to develop clinical practice guidelines to support HCPs. When an Obesity Canada and European Association for the Study of Obesity (EASO) call opened to pilot the adaptation of the Canadian CPGs in 2021, the Association for the Study of Obesity on the Island of Ireland (ASOI) (www.asoi.info) partnered with the Obesity National Clinical Programme (ONCP) (<https://www.hse.ie/eng/about/who/cspd/ncps/obesity>) and the Irish Coalition for People Living with Obesity (ICPO) (<https://icpobesity.org>) to become the first European country to adapt the Canadian CPGs. This paper describes the adaptation process and outlines the recommendations that have been contextualised for guiding evidence-based obesity care in Ireland with a change of focus, from an exclusively weight-based diagnosis to a health-linked diagnosis, and a shift in the goals of management from weight change alone to patient-centred health outcomes, functional outcomes, and social and economic participation.

The target users for this adaptation are HCPs working at all levels of the MOC in Ireland. The guideline is also relevant to policy makers and stakeholder groups working in the area of health promotion. It contains key messages for people living with obesity, which will serve as a guide to the quality of evidence-based care that should be accessible to them. The guideline refers to obesity in adults only; however, the authors recognise the need to develop future CPGs for childhood and adolescent obesity in Ireland. The recommendations are intended to serve as a guide; clinical discretion should be used by all who refer to them. The aim of the guideline is to disseminate evidence-informed options for assessing and treating obesity and to improve the standard of, and access to, care for individuals with obesity in all regions of Ireland. As much of the existing literature is based primarily on weight-loss outcomes, several recommendations in this guideline are weight-loss centred. This guideline does not focus on obesity prevention, but Chapter 4 of the CPG does summarise public health strategies in Ireland that may influence environmental determinants of obesity (asoi.info/guidelines/prevention).

The CPG recommendations are shown in Table 2 , and the supporting evidence is available in the full CPG chapters at asoi.info/guidelines. This summary paper refers to five steps to broadly guide HCPs in the care of people living with obesity. These 5 steps map onto the '5 As Tool' – a framework for guiding obesity-focused clinical consultations with individuals [57]. Each step is outlined below with highlights of the relevant recommendations and an overview of the supporting evidence.

HCPs should recognise and treat obesity as a chronic disease characterised by excess or dysfunctional adiposity which impairs health [9 , 10 , 36 , 58 , 59]. Obesity is a complex and heterogeneous disease that does not present in the same way in all patients. It requires individualised assessment, treatment, and long-term support, as with any other chronic disease.

Weight bias in healthcare settings can reduce the quality of care delivery [45 , 46]. To reduce weight stigma HCPs need to become aware of their own attitudes and behaviours toward individuals living with obesity [60]. This can be explored by completing a self-assessment tool like the Implicit Association Test for weight bias [61]. We recommend that all HCP disciplines include training on weight bias, stigma, and discrimination in their curricula [62]. A full description and supporting evidence for weight bias recommendations are available online at asoi.info/guidelines/stigma.

HCPs should not assume that patients with larger bodies have obesity. We recommend the '5 As' framework to initiate discussion and ask for permission to discuss weight. If the patient agrees, then assessment and consideration of treatment options can begin [57 , 63 , 64].

Clinical assessment informs diagnosis, determines disease severity, identifies drivers and barriers, and guides management. Root causes of obesity can include biological factors, other chronic diseases, medications, sociocultural practices and beliefs, social determinants of health, built

environment, individual life experiences, and psychological factors such as mood, anxiety, binge-eating disorder, attention-deficit/hyperactivity disorder, and personal self-worth and identity [63]. Understanding people's context and culture, and integrating their root causes, allows the development of personalised treatment plans, which should be integrated into long-term therapeutic relationships in line with chronic disease care models.

We recommend a comprehensive medical, physical, functional, psychosocial, and behavioural assessment to identify the root causes of weight gain and potential barriers to treatment. Physical examination, laboratory tests, interviews, questionnaires, and other investigations should be carried out as relevant to an individualised assessment, including BMI as a screening tool and waist circumference/waist to height ratio in BMI <35 mg/m² [65 , 66 , 67] to identify individuals with increased visceral adiposity-related health risks.

The Edmonton Obesity Staging System (EOSS) can guide clinical decisions from assessment [68]. This 5-stage system integrates metabolic, physical, functional, mental health, and psychological parameters to assess the severity of obesity and guide treatment. It is a better predictor of all-cause mortality and COVID-19 outcomes than BMI or waist circumference alone [55 , 69 , 70] and is feasible to calculate quickly and easily from standard medical records [71]. A full description and supporting evidence for assessment recommendations are available at aso-i.info/guidelines/assessment.

Individualised care plans that address the root causes of obesity and that may include behavioural support, medical nutrition therapy, physical activity and physical rehabilitation, psychological, medical, pharmacological, and/or surgical interventions should be developed. Options should be explored with patients to support shared decision-making about the specific elements of an individualised plan.

All health behaviour interventions such as changes to sleep, eating, activity, medication use, or surgery require preparation, adjustment, and support [72]. Behavioural interventions are the “how to” of change and should be incorporated into all obesity management plans. Behavioural counselling includes communication skills, the spirit of the approach (respecting autonomy, empathy, nonjudgemental) and behavioural strategies (e.g., self-monitoring, goal setting, planning) [73]. These skills empower HCPs to work collaboratively with patients toward recommended health behaviours that can be sustained [74]. Individuals living with obesity should be encouraged to build self-esteem and self-efficacy (confidence to overcome barriers to desired behaviours), based on results that are achievable and not on idealised ideas of body weight and shape. A full description of behavioural recommendations and supporting evidence are available online at aso-i.info/guidelines/behavioural.

Weight loss linked to health behaviour change is on average 3–5% of body weight, which can lead to meaningful improvements in some obesity-related health complications [74 , 75]. Weight change varies substantially among individuals, however, depending on biological and psychosocial factors [76]. The weight at which an individual's body stabilises when engaging in health behaviour change is sometimes referred to as “best weight” [77]. If further weight loss or treatment of complications is needed to improve health and well-being beyond what can be achieved with behavioural interventions, then more intensive therapeutic options should be considered [78].

All individuals, regardless of body size or composition, benefit from a nutritious approach to eating. There is no one-size-fits-all eating pattern for obesity management and various interventions are associated with improvements in blood pressure, glycaemia, lipids, adiposity, quality of life, well-being, nutritional biochemistry, and eating behaviours [79 , 80]. Adults living with obesity may consider various flexible nutrition interventions that are personalised to meet their values and preferences while fulfilling nutritional needs, with a focus on health outcomes, not just weight. Interventions should also consider food quality and support a long-term healthy relationship with food. Collaborative care with a registered dietitian who has experience in medical nutrition therapy for obesity management is recommended [81 , 82]. Medical nutritional therapy should be used in

combination with other evidence-based interventions rather than in isolation, as compensatory mechanisms promote weight regain in the longer term [79 , 81 , 83 , 84]. A full description of nutrition recommendations and supporting evidence are available online at asoi.info/guidelines/nutrition.

Rather than viewing physical activity through a narrow focus of its influence on body weight, it should be considered in the context of its broader influence on health outcomes and, ultimately, its role in the preservation of physical function, social participation, and quality of life. Both aerobic and resistance activity can favour improvements in cardiorespiratory fitness, mobility, strength, muscle mass, health-related quality of life, mood, weight and fat loss, and weight maintenance after weight loss, across the life course [85]. Recommended guidelines for the general population may need to be tailored to address individual physical abilities and preferences. The FITTE (Frequency, Intensity, Type, Time, Enjoyment) framework may be helpful to guide individualised activity prescriptions [86]. Collaborative care with a Chartered Physiotherapist who has experience in obesity management and physical rehabilitation interventions is recommended. A full description of physical activity recommendations and supporting evidence are available online at asoi.info/guidelines/physicalactivity.

Psychological interventions may include cognitive behavioural therapy, acceptance, and commitment therapies and compassion-focussed therapies. Integration with mental health services/interventions may be needed for conditions such as severe mental illness, depression, anxiety, eating disorders, attention deficit hyperactivity disorder, and trauma. A full description of psychological and mental health recommendations and supporting evidence are available online at asoi.info/guidelines/behavioural and asoi.info/guidelines/mentalhealth.

We recommend pharmacotherapy for weight loss and weight-loss maintenance for adults with a BMI ≥ 30 kg/m² or BMI ≥ 27 kg/m² with adiposity-related complications, to support medical nutrition therapy, physical activity, and behavioural and psychological interventions. Current options in Ireland, depending on diabetes status, include liraglutide, semaglutide, naltrexone-bupropion combination, and orlistat. Pharmacotherapy leads to improvements in health, augments the magnitude of weight loss beyond that which health behaviour changes can achieve alone, and is important in the prevention of weight regain [87 , 88 , 89 , 90 , 91]. In choosing the most appropriate pharmacotherapy, HCPs should consider the mechanism of action, safety, potential side effects/tolerability, contraindications, drug interactions, mode of administration, and cost with the patient. A full description of the pharmacotherapy recommendations and supporting evidence is available online at asoi.info/guidelines/pharmacotherapy.

Bariatric surgery may be considered for adults with BMI ≥ 40 kg/m² or BMI ≥ 35 kg/m² with at least one adiposity-related health complication. It is associated with improved quality of life, long-term weight loss, and resolution of adiposity-related diseases, including type 2 diabetes, obstructive sleep apnoea, nonalcoholic fatty liver disease, and hypertension [92]. The decision regarding the type of surgery should be made in collaboration with a multidisciplinary (MDT) team, balancing the patient's expectations, disease complexity, and expected benefits and risks. Perioperative considerations include preoperative preparation and evaluation, enhanced recovery protocols, anaesthesia requirements, postoperative nutrition, behavioural and psychological adjustment, and longer-term MDT care pathways. A full description of the surgical recommendations and supporting evidence are available online at asoi.info/guidelines/preop, asoi.info/guidelines/surgeryoptions, asoi.info/guidelines/postop.

Collaborative care between patients and HCPs involves agreeing health-focused goals, realistic expectations, person-centred and evidence-informed treatments, and sustainable goals for the behavioural aspects of interventions [64 , 93 , 94]. As obesity is chronic in nature, the treatment plan must be long term. HCPs and patients should design and agree on a personalised care plan that is practical and addresses the drivers of health complications and weight gain [95]. Integrating digital and virtual options for aspects of care may provide more flexibility for some patients and services [96]. A full description of the virtual medicine recommendations and supporting evidence

are available online at aso-i.info/guidelines/technologies.

Helpful actions in healthcare consultations to mitigate weight stigma include [97]

explicitly acknowledging the multiple determinants of weight

disrupting stereotypes of personal failure or success attached to body size or weight

focussing on behaviours that improve overall health

redefining success as health improvement regardless of body size or weight

HCPs play a key role in assisting patients to manage barriers to treatment plans, including signposting to other supports (patient support organisations, commercial options, and/or credible resources) and referring on to other providers [57]. A full description of the commercial programme recommendations and supporting evidence are available online at aso-i.info/guidelines/commercial products. As obesity is a common disease, professionals across the spectrum of healthcare provide care for people living with obesity. Improving bi-directional referral and care pathways with specialities not traditionally involved in obesity care, such as obstetrics/gynaecology, orthopaedic, mental health, respiratory, hepatology, and nephrology services, will also assist in the delivery of holistic healthcare delivery. A full description of the primary care, reproductive, and mental health recommendations and supporting evidence are available online at aso-i.info/guidelines/primarycare, aso-i.info/guidelines/reproductive, aso-i.info/guidelines/mentalhealth.

There is a need to advocate for better care for people living with obesity. This includes improving training of all HCPs to deliver evidence-based obesity care and allocation of healthcare resources to improve access to treatment. There are substantial barriers to obesity care in Ireland, including a lack of resourced MDT treatments, a lack of access to HCPs with expertise in obesity, long wait times for referral and surgery, and the high cost of some treatments [49 , 98]. In general, healthcare professionals are poorly prepared to treat obesity [99]. While the MOC was launched in 2021, it has not yet been adequately resourced and implemented to make a meaningful difference to deficits in obesity care in Ireland. Pharmacotherapy remains unreimbursed and although access to bariatric surgery has increased in some parts of Ireland, it is still limited in most areas. Wait times for access to medical and surgical care in Ireland are extensive. In 2018, the publicly funded level 3 and 4 services in Dublin were found to have a total waiting time of 6.5 ± 2.5 years from referral to surgery – approximately half of that time was spent waiting for level 3 medically led MDT assessment [100].

The GRADE methodology for developing the Canadian CPGs has been described in detail previously [1 , 101 , 102]. Following the CPG launch, several countries expressed an interest in endorsement and adaptation. To determine the feasibility of adaptation, OC and EASO launched a pilot adaptation project in two countries in 2021. Ireland, under the leadership of ASOI, was selected as the pilot site in Europe. Chile, under the leadership of the Sociedad Chilena de Cirugía Bariátrica y Metabólica (SCCBM), was selected as the participating country in Latin America. To guide the pilot, OC and EASO established an International Guideline Adaptation Committee, composed of Canadian guideline authors, OC, CABPS, and EASO as strategic collaborators. The International Guideline Adaptation Committee developed guidance that would ensure that the key principles and values of the Canadian CPG were maintained, a 1-year grant was provided to pilot sites, and licence agreements were established.

The ADAPTE framework [103] guided the adaptation process in Ireland to ensure it fulfilled the criteria for relevance, generalisability, and applicability in an Irish setting. During preparation, a project coordinator and research assistant were appointed. Terms of references for an Executive Committee for project governance were drawn up. The Executive Committee, multidisciplinary in nature and including representatives from ASOI, ICPO, and ONCP, as well as public health,

bariatric surgery, and primary care, met monthly for the duration of the project. A number of instruments from the ADAPTE toolkit were completed to assess the quality (AGREE II), currency (ADAPTE Tool 11), content (ADAPTE Tool 13), and consistency (ADAPTE Tool 14) of the overall guideline before the adaptation phase proceeded [103].

Sixty-three specialists from broad multidisciplinary and geographical backgrounds in Ireland were invited to take part in the adaptation writing teams – including academic and clinical researchers, anaesthetics, dietetics, endocrinology, epidemiology, general practice, midwifery, nursing, obstetrics, occupational therapy, physiotherapy, psychology, psychiatry, public health, pharmacology, respiratory, and surgical representatives. There was a particular focus on clinical staff who were/would be involved with the operational delivery of the MOC in Ireland. Two ICPO representatives were supported to sit as co-authors on the “Reducing Weight Bias in Obesity Management, Practice and Policy” and “Enabling Participation in Activities of Daily Living for People Living with Obesity” chapters.

A lead adaptation author was appointed to each of the eighteen chapters. Each writing group had access to the original research questions that underpinned the literature search and were asked to consider the following factors from the ADAPTE framework for contextualisation of the chapter: the cultural and organisational context of healthcare delivery in Ireland versus Canada; the availability of services, expertise, and resources; inclusion of any relevant local Irish data; values within Irish healthcare that synergised or contrasted with the Canadian model such as evidence-based practice, patient-centred care, and shared decision models; and any population characteristics or cultural beliefs that may apply specifically in an Irish setting [103]. Examples of adaptations undertaken included referring to levels of care within the Irish MOC, referring to organisations specific to Ireland, modifications for pharmacotherapy regulations in Europe, references to Irish research, ensuring guidance was in line with other Irish guidelines (e.g., from the Food Safety Authority of Ireland in relation to sarcopenia in older adults) or guidelines commonly referred to by Irish HCPs (e.g., British Obesity and Metabolic Surgery Society guidelines).

An adapted ADAPTE Tool 15 was completed for each chapter to assess acceptability and applicability of the recommendations. As an extensive updated literature review was not undertaken, grade A-C recommendations and actionable verbs remained broadly consistent with the original Canadian recommendations. If the writing group was aware of significant new evidence which may change the recommendations, this was summarised on the ADAPTE Tool 15 for feedback to the Canadian Guideline Committee for update consideration. If the writing group changed grade D recommendations (generated from consensus and qualitative literature), they were asked to ensure the wording still aligned with the overall spirit of the original CPGs. The ADAPTE Tool 15 was also used to summarise gaps in the literature that may direct future research (online suppl. Material; for all online suppl. material, see www.karger.com/doi/10.1159/000527131).

The writing groups liaised with the project coordinator mainly via virtual meetings and email. Shared folders (Dropbox, Inc.) were used to manage document versions. Chapters were referenced using Endnote 20 (Thomson Reuters, USA) with the original libraries for each chapter provided by OC and updated by the Irish adaptation team. Each chapter and its ADAPTE Tool 15 were reviewed by a member of the EC in addition to the OC project leads. There was then an iterative process between the writing groups and the EC to finalise the adaptation of each chapter. Key messages for people living with obesity were reviewed for each chapter by ICPO representatives, and overall chapter recommendations were voted upon and approved by the EC.

ASOI has created a guideline website (asoi.info/guidelines) that hosts the full CPGs as living documents and will in the future host interim updates, quick reference guides, healthcare provider tools, videos, webinars, and resources for people living with obesity. Going forward, an international collaboration between ASOI, SCCBM, and OC will monitor evidence related to this CPG and update it if new evidence becomes available that could influence the recommendations. Implementation of this guideline will require resource allocation and targeted policy action, as well

as ongoing advocacy by HCPs and people living with obesity.

Obesity is a complex, chronic disease that impairs health. This adapted guideline reflects advances in our understanding of the determinants, pathophysiology, assessment, and treatment of obesity and shifts the focus of obesity management toward improving patient-centred health outcomes, rather than weight loss alone. Reducing weight bias and stigma, understanding the root causes of obesity, and promoting and supporting patient-centred evidence-informed treatments will improve the standards and quality of obesity care. Dissemination and implementation of this guideline will help to improve obesity care, and to close the gaps in knowledge through obesity research, education, clinical practice, and collaboration.

The OC Executive Committee developed and managed the competing interest policy and procedures for mitigating bias for the original CPGs, which are available on the OC guideline website and reported previously [1]. Individuals with direct competing interests abstained from voting in the areas in which they had the conflict. Any discussion regarding off-label use of drugs included the caveat that the use was off label. Methodologists from MERST who had no competing interests reviewed and graded each included study to ensure the evidence had been appropriately assessed to ensure they aligned with the evidence. The Irish adaptation authors report the following competing interests.

The OC adaptation grant was used to provide part-time clinical backfill for Cathy Breen to act as project coordinator. She reports receiving honoraria for educational events or conference attendance from Astra Zeneca, Behaviour Change Training Ltd., Diabetes Ireland, EASO, International Medical Press, Eli Lilly, Medscape, MSD, Novo Nordisk and Sanofi Aventis and is a member of the Dexcom Advisory Board, ONCP Clinical Advisory Group, and MECC working group. Susie Birney reports funding to ICPO from the HSE, Novo Nordisk, and the European Coalition for People Living with Obesity (ECPO) and consulting fees or honoraria from Diabetes Ireland, ECPO, Novo Nordisk, and International Medical Press. She also reports that she is the Secretary of ECPO. Sarah Browne reports receiving institutional research grants from the Irish Research Council and ASOI and honoraria for educational events from the European Federation of the Associations of Dietitians. Michael Crotty reports honoraria for educational events or conference attendance from Novo Nordisk and Consilient Health and is a member of a Novo Nordisk advisory board. He is a member of the ONCP Clinical Advisory Group, Adult Weight Management Working Group, and ASOI. Frances Finucane reports a Saolta Hospital Group Clinical Research Career Development Award, is Chair of DSMB – The LEGEND Study: Lifestyle Education about Nutrition for Diabetes, a board member of the Irish Heart Foundation and National Office for Clinical Audit, and a council member of the RCSI. Siobhan Foy reports support for conference attendance from Novo Nordisk. Karen Gaynor reports receiving honoraria from Behaviour Change Training Ltd. and is Programme Manager with the ONCP. Irene Gibson reports that she is the Chair of the European Society of Cardiology, Association of Cardiovascular Nurses and Allied Healthcare Professionals Committee and the Director of Programmes and Innovation at the National Institute for Prevention and Cardiovascular Health. Anne Griffin reports that she is Chair of the Executive Council of the Irish Nutrition and Dietetic Institute, a member of the CORU Dietitian Registration Board and the European Federation of Associations for Dietetics Education and Lifelong Learning Committee. Janas Harrington reports that she is Co-Chair of the EASO Public Health Task Force. Andrew Hogan reports receiving institutional research grants from the National Children's Research Centre, the Dublin Skin and Cancer Hospital Charity, and the Health Research Board. Dervla Kelly reports she is a member of the National Research Ethics Committee for Clinical Trials. Carel le Roux reports receiving institutional research grants from the Irish Research Council, Health Research Board, Science Foundation Ireland and Anabio; consulting fees for Global Advisory Boards for Boehringer Ingelheim, Eli Lilly, Gl Dynamics, Herbalife, Johnson & Johnson, and Novo Nordisk; and honoraria for educational events or conference attendance from Herbalife, Johnson & Johnson, and Novo Nordisk. He previously held stock and worked in a voluntary capacity as Chief Medical Officer and Director of the Medical Device Division with Keyron and continues to provide them with scientific advice. He is a member of the Irish Society for Nutrition and Metabolism. Niamh Moran reports she is Chair of the Irish Society of Lifestyle Medicine. Maura Murphy reports that she is the

Secretary of ICPO. Celine Murrin reports that she is a member of the Nutrition Council of the Irish Heart Foundation. Karl Neff reports honoraria for educational events or conference attendance from Novo Nordisk and Sanofi Aventis. He is a member of a data monitoring board for Fractyl Health, and he attended an advisory board meeting for Novo Nordisk and Consilient Health. Jean O'Connell reports honoraria for educational events or conference attendance from Novo Nordisk and MSD and is Chair of ASOI. Grace O'Malley reports receiving institutional research grants from the Health Research Board, Temple Street Foundation, EASO, the HSE, and honoraria for educational events from the University of Minnesota Obesity Centre. She is a committee member of ASOI and is Director and Secretary of EASO. She has received support for committee meeting attendance. Sharleen O'Reilly reports receiving institutional research grants from the European Commission Horizon 2020, the National Health and Medical Research Council of Australia, the Health Research Board Ireland, Al Qasimi Foundation, and the University of Sharjah Grant. She is an Associate Editor with Diabetic Medicine, a member of the European Federation of Associations of Dietitians Executive Committee, the Nutrition and Dietetics Journal Editorial Board, and the Irish Section of the Nutrition Society. Donal O'Shea reports that he is the National Clinical Lead with the ONCP. Leona Ryan reports receiving institutional research support from the Science Foundation Ireland Centre for Research Training in Digitally Enhanced Reality. Suzanne Seery reports receiving honoraria for educational events from the National Institute for Prevention and Cardiovascular Health. Conor Woods reports receiving honoraria for educational events or conference attendance from Astra Zeneca and Novo Nordisk. No other competing interests were declared.

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(7650) 924 6 18436948 10.1136/bmj.39489.470347.AD PMC2335261 103 The ADAPTE Collaboration GIN The ADAPTE process: resource toolkit for guideline adaptation version 2.0 2009 Table 1 Summary of the available survey years and age groups by country

Prevalence rate difference in the Loess-smoothed age-standardized obesity prevalence between lower (ISCED 0–2) and higher (ISCED 5–6) educated groups from 1978 to 2019 by 5-year interval, country, and sex

– indicates that the year was outside the observation period.

Most recent observations: England 2018, Finland 2014, France 2017, Italy 2018, Norway 2019, USA 2017/2018.

English and Finnish data are unweighted.

England and the USA use measured height and weight, other countries use self-reported height and weight.

APC in age-specific obesity prevalence (%) from 1990 onwards by decade, sex, country, and educational attainment (lower: ISCED 0–2, middle: ISCED 3–4, higher: ISCED 5–6). Obtained through segmented linear regression adjusted for age

– indicates that only a single survey is conducted in this decade.

In England and Finland, obesity prevalence is unweighted.

England and the USA use measured height and weight, other countries use self-reported height and weight.

Most recent observations: England 2018, Finland 2014, France 2017, Italy 2018, Norway 2019, USA 2017/2018.