SUMMARY

Care pathway guide: overweight and obesity in children and adolescents

Validated by the HAS Board on 3 February 2022

Updated on Feb 2023

This guide updates the good practice guidelines "Overweight and obesity in children and adolescents" published in 2011.

The prevalence of overweight and obesity remains high in children from 6 years of age. It is particularly high among adolescent girls, who are less physically active and engage in less sport and are more sedentary than boys. In situations of disability, the higher prevalence from childhood can lead to an additional handicap over time. Obesity is highly correlated with the social background and level of education of parents.

Obesity is a complex chronic condition with an impact on health. In addition to well-known physical complications and comorbidities, overweight and obese children and adolescents are generally less fulfilled, have a poorer body image, engage in less physical activity, are more often the victims of teasing, bullying, stigmatisation and aggression, and may perform less well at school.

Early identification, along with a lifestyle assessment, a multi-component assessment of the overall individual and family situation, multidisciplinary if necessary, from the time of diagnosis and delivery of the diagnosis of overweight or obesity, **along with coordination of care and support** are priorities to ensure the feasibility of the care pathway.

The mobilisation of local players will minimise any disruption of the care pathway. Patients and their representatives are also concerned.

Early identification, tailoring the follow-up frequency and taking action

Monitoring growth and weight gain, physical, psychomotor and psychological development and well-being is essential throughout childhood and adolescence

- Measure the body mass index (BMI) and monitor its evolution based on the reference growth charts in the health record[1]: AFPA – CRESS/INSERM (before the age of 2 years) and IOTF curves (beyond the age of 2 years).
- Systematically record the BMI in the health record and plot the curve in the chart.

[1] Child's health record. Version in force on 1 April 2018. https://solidarites-sante.gouv.fr/IMG/pdf/carnet_de_sante-num-.pdf

- Regularly monitor the BMI of all children and adolescents throughout childhood and adolescence, including in medico-social facilities or in the context of child protection services:
  - From birth: the mandatory health check-ups are sufficient if monitoring is ensured.
  - Beyond the age of 6 years, annual monitoring is recommended.
- Monitor children/adolescents more frequently if they are at risk of becoming overweight or obese.
  - Before the age of 3 years: the compulsory health check-ups are sufficient if follow-up is ensured.
  - Beyond the age of 3 years: a 6-monthly assessment is recommended.
- Provide support to parents, if applicable, healthcare and social service or facility professionals: understanding of and compliance with the follow-up frequency.
- The school medical service participates in the follow-up through compulsory check-ups, at the request of the family, the child, the adolescent or educational teams, and identifies possible interactions between a situation of overweight or obesity and schooling.

Analysing the BMI curve history and trajectory together

- Identify warning signs based on the BMI and its evolution: continuous increase in BMI trajectory since birth; early adiposity rebound; rapid upwards change in BMI centile; early and severe obesity.
- Initiate dialogue: communicate about weight and BMI and prevent stigmatisation.
- Systematically assess individual and family lifestyle habits conducive to good health. At each health check-up, make sure these habits are being routinely put into practice.
- Systematically record data: health record and online health space (*"Mon espace de santé"*[2]).

When the BMI is following a normal trajectory

- Review lifestyle habits with parents. Promote habits conducive to good health.
- Encourage parents to move towards the existing age-based benchmarks and guide them if necessary.

When the BMI curve is increasing and moves outside the expected BMI centile:

- Investigate for a triggering factor and engage the child/adolescent and their parents in a gradual change of lifestyle, starting with the habits they find easiest to change in the short term, and encourage the creation of a supportive and encouraging family environment.

In the presence of a rapid change in BMI centile or continuous increase in BMI trajectory since birth or early adiposity rebound

- Offer the family an in-depth assessment of the situation, if necessary with the support of local professionals, in order to propose appropriate care and support.

In children or adolescents who are overweight or obese

- Confirm the diagnosis, deliver it, conduct a multidimensional overall assessment, multidisciplinary, if necessary, to propose appropriate care and support.

[2] https://www.monespacesante.fr/

Confirming and delivering the diagnosis of overweight or obesity

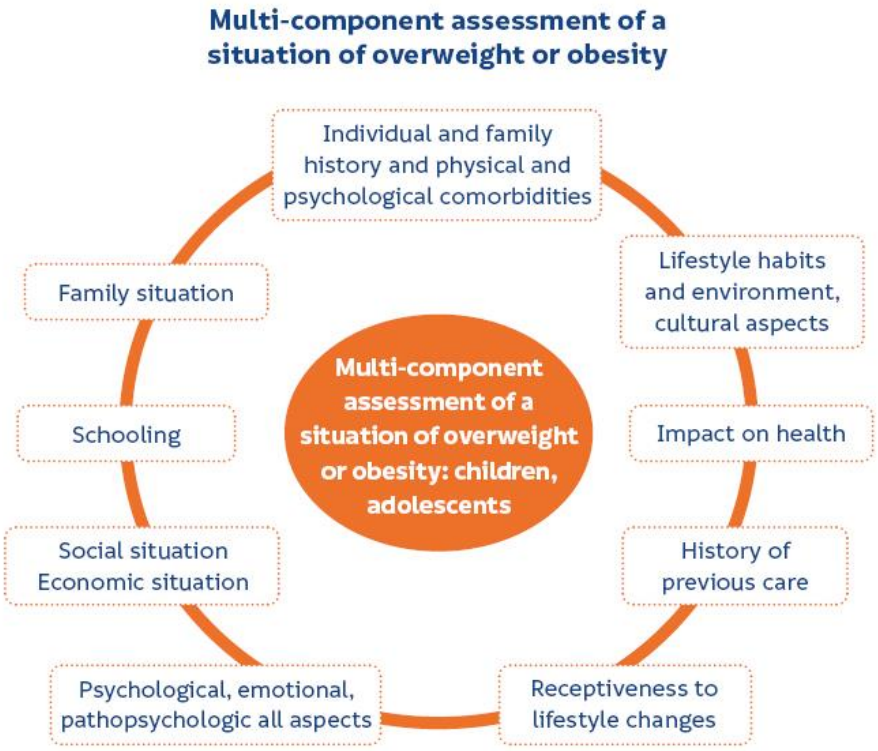
- Perform a complete clinical assessment, assessing the child's or adolescent's overall health and looking for possible causes of weight gain, weight-related complications or comorbidities, in particular psychological disorders.
- Identify dietary problems and eating disorders.
- Assess and provide early support for psychological difficulties or psychiatric disorders and at-risk situations and make a referral if necessary.
- Assess the level of physical activity in daily life, at school and during leisure time.
- Detect and provide early support for any form of social vulnerability; a problem linked to a risk of danger to the child/adolescent: lack of parental guidance, neglect, physical, psychological or sexual maltreatment (abuse, incest) and make a referral if necessary.
- Assess and support any difficulties in the school setting (drop-out, bullying).
- Deliver the diagnosis of overweight or obesity and present the next steps in the care pathway.
  - Facilitate dialogue: use good communication practices, choose words carefully to avoid hurting, making people feel guilty or stigmatising, and build a shared language.
  - Use a health mediator or interpreter when there is a language barrier associated with migrant populations.
  - Make parents and professionals aware of the need to prevent stigmatisation in the family setting, in care or living environments and in any other context.

Limit the laboratory workup to targeted tests. Systematically investigate for type 2 diabetes.

- **In a situation of overweight with no clinical signs suggestive of complications**: no laboratory tests are required.
- **From the age of 10 years or after the start of puberty, in young people with overweight or obesity,** investigation for type 2 diabetes should be systematically performed in the presence of one or more risk factors: maternal diabetes or gestational diabetes for the young person concerned, first or second-degree family history of type 2 diabetes, signs of insulin resistance, or conditions associated with insulin resistance (acanthosis nigricans, hypertension, dyslipidaemia, polycystic ovarian syndrome, or born small for gestational age)[3]:
  - if the results are normal, repeat the tests at least every three years, or more frequently if the BMI increases;
  - if a type 2 diabetes diagnosis is confirmed, a pancreatic assessment must be performed to rule out the possibility of autoimmune type 1 diabetes.
- **In a situation of obesity (BMI > IOTF 30)** and on the basis of family history, BMI curve history and trajectory and clinical history: a non-urgent laboratory workup should be performed

[3] American Diabetes Association. Children and adolescent standards of medical care in diabetes 14. Children and Adolescents: Standards of Medical Care in Diabetes—2022 | Diabetes Care | American Diabetes Association (diabetesjournals.org)

Conducting a multi-component assessment whenever overweight or obesity is identified



- **Explore components related to a situation of overweight or obesity**: identifying problems, needs and expectations of children/adolescents and their parents. Identify any components that need to be examined more closely. Seek appropriate responses.
- **Seek support from one or more local professionals** (health, social, medico-social, school) **or a specialist obesity team**. Use the regional operational repository of resources (ROR).
- **Define the complexity of the situation and put together a tailored care and support package jointly** with the child/adolescent, in consultation with their parents. Encourage mutual agreement between them.

A situation of overweight or obesity is considered to be non-complex in the event of a BMI of between IOTF 25 and 30 or a BMI > IOTF 30 without complications or the accumulation of factors contributing to or resulting from obesity. For example, a related social, psychological or school problem does not necessarily lead to complexity if accessible local solutions can be found.

A situation of obesity is considered to be complex due to the severity of the obesity (BMI > IOTF 30) and the accumulation of associated factors: associated physical or psychiatric, individual or family complications or comorbidities; obesity with a rare cause (either genetic or lesion-related); situation of disability, deficiency, history of failed obesity treatment; significant impact on daily life and quality of life; eating disorders associated with mental illnesses, social, family or school problems.

Scaling and adapting care and support based on the complexity of the situation

- **Scale care, mobilising the different professional skills and resources required** to address individual and family needs taking into account two situations: overweight or non-complex obesity and complex obesity.
- **Organise time for coordination** of interventions and **consultation** of players: use tools for the coordination of all professionals (health, social and medico-social). Ensure the consistency of messages and avoid the juxtaposition of interventions.
- **Then scale care and support based on the evolution of the individual and family situation and attainment of goals**: continue, adapt and/or supplement care and support, increase or decrease their intensity, expand or limit the multidisciplinary team according to needs, continue investigations and/or tests if necessary.
- **In complex situations, appoint a local coordinator** to address the need for coordination in addition to that of the child's own physician and to support the engagement of the child/adolescent and their parents.

The role of the local coordinator in complex situations is to organise and monitor the implementation of care and support, with the assistance of a coordination tool shared by all professionals (health, social and medico-social). This person manages priorities and, if necessary, triggers reassessment of the situation before the scheduled date.

This person serves as an intermediary for the child/adolescent and their parents. This person supports their engagement and ensures the consistency of interventions, liaising with the child's own physician and between the professionals involved and the family. This person takes the initiative to contact families who have stopped attending consultations.

This person must be clearly identified by the child/adolescent, their parents and all professionals involved in their care. If possible, the coordinator should be chosen with the family from among the professionals involved in the care pathway.

Proposing care and support from the time of diagnosis of overweight or obesity: common points

Objectives

- Losing weight is not a priority goal, except in the event of complications. The aim is to slow weight gain as growth continues and, at the end of the child or adolescent's growth, to stabilise their weight.
- Irrespective of BMI, the main objective of care and support is to support lifestyle changes and promote health and well-being:
  - ensuring a balanced and varied diet, reducing sedentary behaviour and, in particular, screen time, initiation or resumption of regular physical activity;
  - preservation of sleep quality and life rhythms.

Care and support to complement medical follow-up

Any professional supporting lifestyle changes should base their action on a tailored, multi-component approach, multidisciplinary if necessary.

An educational approach and empathetic listening, going beyond simply providing information or advice and supporting the development of skills and motivation, even if the professional is not involved in the delivery of patient education sessions.

- **Propose and continue patient education sessions** in order to support the child/adolescent in gradual lifestyle changes, and the parents in the creation or adjustment of a family, school and social environment that is conducive to and consistent with the implementation of these changes and their maintenance over time.
- **Support and improve the young person's relationship with their body**, particularly in adolescents.
- **Provide support for the functional and aesthetic impacts** in girls and boys.
- **Support, if necessary**: psychological difficulties, restoration of self-image, mental illnesses in children/adolescents; dietary problems or eating disorders; any form of social vulnerability, any difficulties in the family or school environment.

Coordination of interventions and consultation of professionals

- **Draw on an organisation structured on the basis of the complexity of the situation**: a team working as part of a coordinated practice or in a specialised obesity facility, to provide an early, appropriate and flexible response to the needs, expectations and preferences of the child/adolescent and their parents.

Follow-up over several years at a frequency adapted to the situation

- **Ensure overall and regular medical follow-up** of the individual and family situation in order to adjust care and support based on the assessments of the professionals involved in the care pathway and multidisciplinary consultation.

Situation of overweight, non-complex obesity: specificities

Objectives

- In growing children: slow down weight gain while growth continues. The goal is to level out the BMI curve.
- In adolescents at the end of growth: stabilise weight. Although a reduction in BMI is a desirable outcome, it must be progressive and supported.

Coordination and consultation, professionals involved

- The physician following up the child/adolescent is responsible for coordinating care and support. The physician may delegate this task to a nurse in the context of a coordinated practice. The physician ensures the consistency of the care pathway thanks to consultation between the coordinator and the professionals involved in the pathway and coordination of interventions.
- Professionals involved: physician, nurse, paediatric nurse, **and depending on requirements**: adapted physical education trainer, dietician, psychologist, child psychiatrist, physiotherapist, occupational therapist, psychomotor therapist.

Care and support in addition to medical follow-up

- Propose a dedicated patient education session every two months if possible, for a period of six to 12 months with, if necessary, educational follow-up between sessions (face-to-face or as a remote consultation) in order to support lifestyle changes: selection of content and the professionals involved on the basis of an assessment of educational needs.
- Support, if necessary: psychological difficulties, mental illnesses; dietary problems or eating disorders; any form of social vulnerability, any difficulties in the family or school environment.

Regular overall medical follow-up, scaling of care and support

- An overall medical assessment consultation should be organised monthly for at least the first three months, then every three months for a period of two years, if the evolution is positive.

Situation of complex obesity: specificities

Objectives

- Irrespective of BMI, promoting health and well-being while progressively supporting lifestyle changes is essential.
- In the event of complications: weight loss, even slight, is beneficial. It should be gradual and accompanied by dietary, socio-educational and psychological support. Weight regain should be prevented.
- In the presence of known psychiatric problems: discuss weight loss support measures with a child psychiatrist or psychiatrist. The treatment of these psychiatric problems may be a priority or be managed at the same time. The effect of medicinal products on weight gain must be assessed.
- Facilitate activities of daily living, alleviate symptoms, suggest adaptations for the continuity of schooling if necessary.
- Prevent loss or deterioration of autonomy.

Coordination and consultation, professionals involved

- The coordination of care and support is shared between the child/adolescent's usual physician and the specialised obesity facility physician. The local coordinator - if one has been appointed - addresses a need for additional coordination and supports the engagement of the child/adolescent and their parents.
- The organisation and running of a meeting to analyse a complex situation or a multidisciplinary team (MDT) meeting by the specialised facility physician in liaison with the child/adolescent's own physician are necessary for the definition and implementation of care and support. This involves all the professionals having participated in assessment of the situation.
- It is recommended that a clear agreement on the distribution of the roles of each professional involved be established via a personalised health coordination plan.
- The consistency of care and support is ensured thanks to consultation of the players involved and coordination of interventions throughout the pathway.
- Professionals involved: the specialised obesity facility multidisciplinary team in liaison with the child/adolescent's usual physician and local professionals.

Care and support in addition to medical follow-up

- Treating any psychiatric problems is a priority: discuss their treatment with the child psychiatrist or psychiatrist, in conjunction or otherwise with the other components of the care and support.
- Follow the guidelines in force for the treatment of obesity complications, whether physical or psychiatric, after seeking specialist medical advice if necessary.
- Continue patient education following an assessment of needs and difficulties making lifestyle changes: propose a dedicated patient education session at least every month for a period of six months, with educational follow-up systematically offered between sessions (face-to-face or as a remote consultation). The proposed format must be flexible (frequency, methods) in

order to encourage the adherence and regular attendance of the child/adolescent and their parents and respect their capabilities, particularly if several professionals are involved in the pathway: physician, nurse, dietician and/or adapted physical education trainer and/or physiotherapist and/or psychologist, psychomotor therapist, occupational therapist.

- On the basis of the multi-component assessment of the individual or family situation: provide support, if necessary, for any form of social vulnerability, any difficulties in the school or family environment, and psychological support for the parents or the family.

If necessary, supplement with a stay in a paediatric follow-on care and rehabilitation unit

Short stays lead to a dynamic of change and the greater engagement of parents, who must be systematically supported after the stay. Long stays are reserved for adolescents and are rarely proposed for children under the age of 12. Repeated short stays may be considered as an alternative to long stays.

- The risk/benefit ratio of any long or repeated short stays in a follow-on care and rehabilitation unit must be assessed at a multidisciplinary team meeting organised by the specialised obesity facility in liaison with the adolescent's own physician and with the participation of all the professionals involved. Adolescents and their parents must then agree to the conditions of the stay. The relevance of the stay is reassessed during the stay.
- Preparation for the stay, as well as for the return home, is essential to ensure medical, social and/or educational continuity and thus the effectiveness of the required stay.

In young people under 18 years of age, bariatric surgery may only be considered in very exceptional circumstances, with performance of such surgery in a specialised obesity facility with paediatric expertise[4] after the young person has stopped growing.

Regular overall medical follow-up, adjusting and scaling care and support

- Medical follow-up is at least monthly for a period of one year, then three-monthly for a further year if the evolution is positive. This follow-up is extended in the event of a deviation from the expected outcomes. Its frequency then depends on the evolution of the situation and follow-up is scheduled for as long as necessary.
- Medical follow-up consultations may be alternated between the child/adolescent's usual physician and the specialised obesity facility physician.

Preparing the transition to adulthood from the start of adolescence: ensuring continuity and avoiding disruption of the care pathway

- **The transition** prepares adolescents as they approach adulthood thanks to the development of their capacities to look after themselves and their health as autonomously as possible. Health professionals should gradually change the way they relate to young people as they grow up, and explain the need for this preparation to parents. Patient education is a good way of actively preparing young people to become autonomous, using their own concerns as a starting point.

[4] HAS memo published in January 2016. *Definition of criteria for the performance of bariatric surgery in the under 18s* . https://www.has-sante.fr/jcms/c_2010309/fr/definition-des-criteres-de-realisation-des-interventions-de-chirurgie-bariatrique-chez-les-moins-de-18-ans

- **The switch from paediatric care to adult care** is part of the transition. It implies a change of physician or care team and the maintenance of good communication between the care settings. The first adult care consultation, which will have been prepared and supported well in advance, can take place after the age of 18 years.
- **The transition process must begin early and continue into young adulthood. It includes four phases**: **1**. Start to make adolescents and their parents aware of the transition to adulthood, its requirement and how to prepare for it (age benchmark: between 11 and 14-15 years); **2.** Propose an assessment to help the adolescent become aware of their level of autonomy, and adjust support to the young person's capacities (age benchmark: between 15 and 16-17 years); **3.** Implement the transition from paediatric to adult care in practice (age benchmark: between 16-18 and 21 years); **4.** Encourage young adults to continue to make lifestyle changes a priority (age benchmark: between 21 and 25 years).

Providing support in situations of disability

- Children and adolescents with a disability should benefit from the same multi-component assessment as any other person but with additional vigilance depending on the disability.
- It is essential to prevent the development of overweight or obesity from a very young age related to the young person’s condition or drug treatments, by systematically involving parents and professionals from medico-social structures and services where appropriate.
- Care and support are integrated into the child’s or adolescent’s life plan.
- Propose accessible patient education (adapted educational techniques and tools) to support progressive lifestyle changes, and the creation or adjustment of a family, school and social environment that is conducive to and consistent with the implementation of these changes and their maintenance over time: children, adolescents, parents and/or professionals from social and medico-social facilities and services.

Early identification: priority to BMI

Professionals involved: primary care physician, nurse, paediatrician, mother and child welfare physician and paediatric nurse, medico-social facility or service care team, child psychiatrist, school doctor or nurse

- **Perform regular** follow-up, more frequently depending on the situation
- **Assess and support** individual and family lifestyle changes
- In the event of overweight or obesity: **investigate the situation**

Confirm and deliver the diagnosis

Coordination: physician caring for the child, adolescent: general practitioner, paediatrician, mother and child welfare physician

- **Investigate** for obesity with a **rare cause**, complications
- **Assess** psychological **difficulties** and psychiatric problems, any form of social vulnerability, any school difficulties

Conduct a multi-component assessment

Coordination: physician caring for the child, adolescent

Professionals involved: other specialist physicians, nurse, dietician, adapted physical education trainer, psychologist, physiotherapist, school health social and medico-social professional OR, if necessary, specialised obesity facility multidisciplinary team

- **Identify** problems, needs, expectations
- **Determine** the complexity of the situation
- **Jointly** put together a care and support plan, if necessary by means of a multidisciplinary team (MDT) meeting

Scale and adapt care and support based on the evolution of the situation

Situation of overweight or **non-complex** obesity

Coordination: physician caring for the child, adolescent, nurse (coordinated practice)

Professionals involved: physician, nurse, paediatric nurse, and depending on requirements: adapted physical education trainer, dietician, psychologist, child psychiatrist, physiotherapist, occupational therapist, psychomotor therapist

Situation of **complex** obesity

Coordination: specialised obesity facility physician, physician caring for the child, adolescent, local coordinator

Professionals involved: specialised obesity facility multidisciplinary team in liaison with local professionals

- **Encourage** lifestyle changes: patient education sessions
- **Support** the young person in their relationship with their body, the psychological, functional and aesthetic impact
- **Provide** support for psychological difficulties, dietary problems or eating disorders, any form of social vulnerability, any difficulties in the family or school environment
- **Ensure** overall medical follow-up over several years

And for situations of **complex** obesity

- **Alleviate** symptoms and **treat** complications
- **Propose** adaptations to facilitate activities of daily living and schooling
- **Assess** the risk/benefit ratio of a stay in a follow-on care and rehabilitation unit

Annex 1. Clinical assessment data in a situation of overweight or obesity in children/adolescents

Anthropometric measurements

- Measurement of weight and height, calculation of BMI, recording on the BMI curve and plotting of BMI curve, determination of age at adiposity rebound
- Plotting of height curve, recording of target height in centimetres
- For girls: [(Father's height in centimetres + Mother's height in centimetres / 2) - 6.5]
- For boys: [(Father's height in centimetres + Mother's height in centimetres / 2) + 6.5]
- Investigation for obesity of endocrine origin in the event of slowing in growth rate
- Measurement of waist circumference if situation of overweight with calculation of the Waist/Height ratio (after the age of 3 years)
- Measurement of head circumference, irrespective of age

Cardiovascular function

Auscultation, measurement of resting heart rate (pulse) and blood pressure (using an adapted cuff, if necessary). Measurement of blood pressure on the forearm if the BP cannot be measured on the upper arm due to the individual's corpulence and the absence of suitable equipment.

- Identify high blood pressure (see Chart for children up to the age of 12 years. For children ≥13 years, refer to the BP standards in adults)
- In the event of high BP, repeat measurement systematically at other visits
- If high BP persists, refer to a specialist for additional investigations and a therapeutic decision, if applicable

Blood pressure values to identify high BP in children up to the age of 12 years inclusive[5]

Age in years	Blood pressure in mmHg			
	Boys		Girls	
	SBP	DBP	SBP	DBP
1	98	52	98	54
2	100	55	101	58
3	101	58	102	60
4	102	60	103	62
5	103	63	104	64
6	105	66	105	67
7	106	68	106	68
8	107	69	107	69
9	107	70	108	71
10	108	72	109	72
11	110	74	11	74
12	113	75	114	75

[5] American Academy of Pediatrics, 2017. Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and Adolescents. https://publications.aap.org/pediatrics/article/140/3/e20171904/38358/Clinical-Practice-Guideline-for-Screening-and

Respiratory function	– Investigation for sleep disorders or respiratory disease: effort dyspnoea, asthma, sleep apnoea (snoring, drowsiness or daytime fatigue, mood disorders), morning headaches, recurrence of nocturnal enuresis
ENT examination	– Assessment of tonsil volume
Bone and joint examination	– Investigation for *genu valgum* or *recurvatum*, static spinal disorder, flat feet, limp – Assessment of posture, locomotor assessment: investigation for leg length discrepancies, spine flexibility – Investigation for functional complaints and triggering factors (activity type: spontaneous or discomfort-type pain, location, limitations, etc.)
Assessment of motricity and function	– Flexibility, balance, coordination, gross and fine motor skills – Functional limitation of muscles and joints leading to avoidance of activities normally undertaken by the child/adolescent or difficulties in performing activities of daily living
Sensory organs	– Vision and hearing
Endocrine function	– Slowing of growth rate – Signs of dysthyroidism, hypercotisolism, *acanthosis nigricans*, thyroid gland examination – Assessment of puberty stage (using Tanner's method), investigation for hyperandrogenism and menstrual problems (girls)
Examination of skin	– Stretch marks, irritation in skin folds, keratosis pilaris, acne inversa (very painful boils that develop recurrently in hairy areas), other skin lesions (mycosis, felon) – Excessive body hair, especially in girls: face, linea alba of the breasts and inner thighs
Urinary function	– Bladder weakness, urinary incontinence related to obesity or psychological problems
Morphological abnormalities	– Dysmorphia (acromicria, brachymetacarpia, etc.) – Investigation for dysmorphic signs or malformations (obesity with neurodevelopmental disorders) – Adipomastia and gynecomastia, buried penis (height/age chart, during prepubertal period: penis of normal size if > 30 mm)
Dental examination	– Investigation for dental decay (multiple dental caries) more common in the event of eating between meals, night-time eating and/or high consumption of sugary drinks. Quality of dental hygiene

Annex 2. Signs suggestive of obesity with a rare cause (due to central hypothalamic impairment of weight regulation) and procedure to be followed

According to the French national diagnostic and care protocol (PNDS) for "Obesities with rare causes"[5], these obesities represent more than sixty different clinical situations. Their clinical and biological presentations constitute a continuum insofar as they are global neuroendocrine diseases with a common pathophysiological origin. It is for this reason that the suggestive signs and the recommendations for diagnosis and management are largely shared.

Disease suspected	Suggestive signs
Mutations in the leptin/melanocortin pathway genes (MC4R, LEP, LEPR, POMC, PCSK1, MRAP2, SH2B1, etc.)	Early obesity (< 6 years) with early (< 3 years) or absent rebound adiposity and altered eating behaviour (hyperphagia with altered hunger/satisfaction/satiety signals) and sometimes endocrine disorders of central origin (hypogonadism, hypothyroidism, ACTH deficiency) and/or neurodevelopmental disorders (NDD).
Syndromes associated with obesity (examples: Prader-Willi, Bardet-Biedl, Fragile X and/or chromosome 16 deletion syndromes, etc.)	Obesity or weight gain before puberty, associated with altered eating behaviour (hyperphagia, impulsive eating) and very often with an NDD (intellectual disability or impairment, autism spectrum disorders, communication, learning, motor or attention deficit/hyperactivity disorders) and sometimes a congenital malformation syndrome or neurosensory impairment (nystagmus, retinopathy pigmentosa, etc.).
Hypothalamic obesity due to a tumour (craniopharyngioma, etc.) or of another origin (ROHHAD or ROHHADNET syndrome)	Obesity with altered eating behaviour (hyperphagia with altered hunger/satisfaction/satiety signals, impulsive/compulsive eating) with inflection of the height/weight curve and/or signs of intracranial hypertension and/or autonomic nervous system disorders (thermal dysregulation, heart rate, central respiratory disorders)

Procedure to be followed

- Use the Obsgen online tool to aid diagnosis of syndrome-related obesities[6]
- In the event of neurodevelopmental disorders: consult the HAS guidelines, Neurodevelopmental disorders: detection and referral of children[7]
- Seek a specialist opinion from the specialised obesity centre (CSO) and or PRADORT rare diseases reference centre (CRMR) or the DEFISCIENCE network https://defiscience.fr/
- Refer to the French national diagnostic and care protocol (PNDS) for "Obesities with rare causes"5

[5] PRADORT rare diseases reference centre, DéfiScience, Haute Autorité de Santé. Obesities with rare causes. French national diagnostic and care protocol (PNDS). Saint-Denis La Plaine: HAS; 2021.
https://www.has-sante.fr/jcms/p_3280217/fr/generique-obesites-de-causes-rares
[6] Poitou C, Jacques F. ObsGen : un outil d'aide au diagnostic d'une obésité génétique [ObsGen: a tool to aid diagnosis of genetic obesities] [Online] 2019.
https://redc.integromics.fr/surveys/index.php?s=3HJPWN49ER
[7] Haute Autorité de Santé. Neurodevelopmental disorders. Detection and referral of at-risk children. Good practice guideline. Saint-Denis La Plaine: HAS; 2020.
https://www.has-sante.fr/jcms/p_3161334/fr/troubles-du-neurodeveloppement-reperage-et-orientation-des-enfants-a-risque

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