

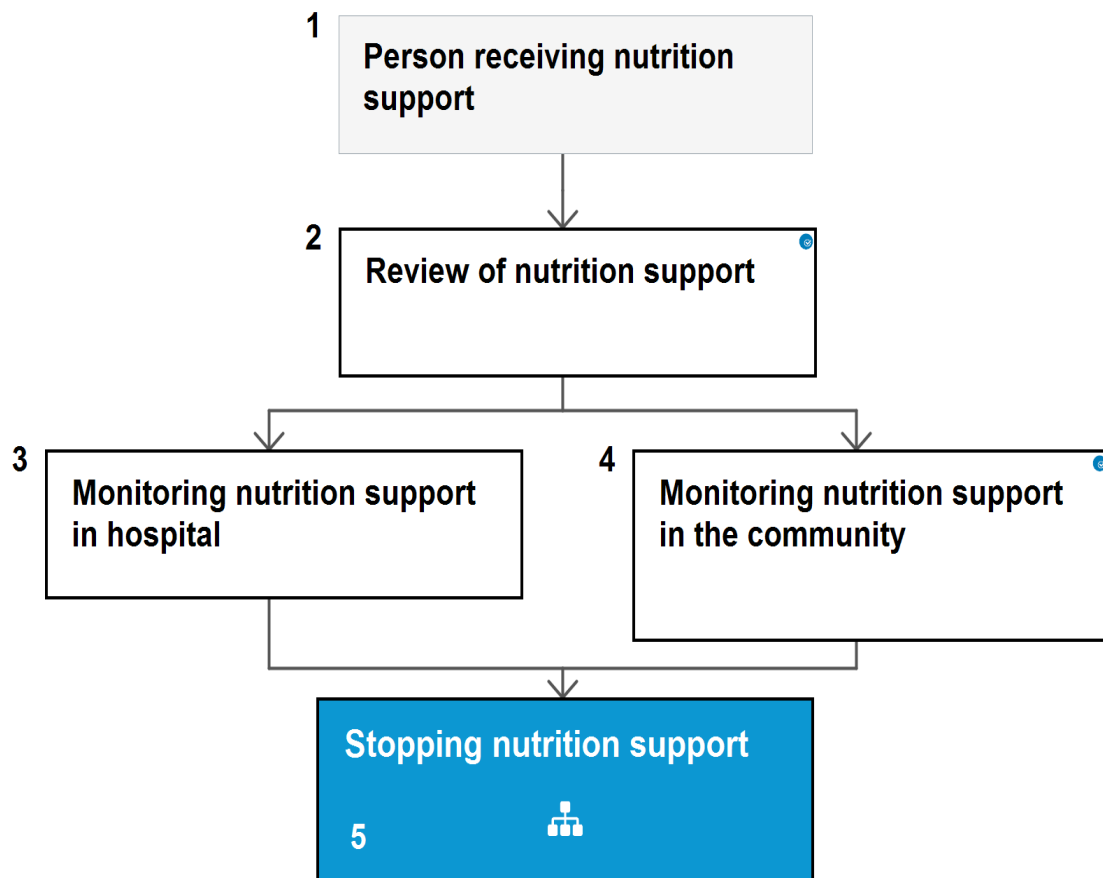
Monitoring nutrition support

A NICE pathway brings together all NICE guidance, quality standards and materials to support implementation on a specific topic area. The pathways are interactive and designed to be used online. This pdf version gives you a single pathway diagram and uses numbering to link the boxes in the diagram to the associated recommendations.

To view the online version of this pathway visit:

<http://pathways.nice.org.uk/pathways/nutrition-support-in-adults>

Pathway last updated: 04 September 2014
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1 Person receiving nutrition support

No additional information

2 Review of nutrition support

Healthcare professionals with the relevant skills and training in nutritional monitoring should undertake monitoring.

Review indications, route, risks, benefits and goals of nutrition support at regular intervals. The time between reviews depends on the patient, care setting and duration of nutrition support. Intervals may increase as the patient is stabilised on nutrition support.

Healthcare professionals with relevant skills and training in the diagnosis, assessment and management of swallowing disorders should regularly monitor and reassess people with dysphagia who are having modified food and liquid until they are stable.

Quality standards

The following quality statement is relevant to this part of the pathway.

5. Review

3 Monitoring nutrition support in hospital

Refer to the [Protocol for nutritional, anthropometric and clinical monitoring of nutrition support](#) and the [Protocol for laboratory monitoring of nutrition support](#) when monitoring people having nutrition support in hospital. The protocol on laboratory monitoring of nutrition support is particularly relevant to parenteral nutrition. It could also be selectively applied when enteral or oral nutrition support is used, particularly for people who are metabolically unstable or at risk of refeeding syndrome. The frequency and extent of the observations given may need to be adapted in acutely ill or metabolically unstable people.

4 Monitoring nutrition support in the community

Oral and enteral nutrition

Monitor people having oral nutrition support and/or enteral tube feeding in the community every 3–6 months or more frequently if there is any change in their clinical condition. A limited number of observations and tests from the [Protocol for nutritional, anthropometric and clinical monitoring of nutrition support](#) should be performed. Some clinical observations may be checked by patients or carers. If clinical progress is satisfactory, laboratory tests are rarely needed.

Parenteral nutrition

People having parenteral nutrition in the community need regular assessment and monitoring. This should be carried out by home care specialists and by experienced hospital teams (initially at least weekly) using the observations marked * in the [Protocol for nutritional, anthropometric and clinical monitoring of nutrition support](#). In addition, they should be reviewed at a specialist hospital clinic every 3–6 months. Monitoring should be more frequent during the early months of home parenteral nutrition, or if there is a change in clinical condition, when the full tests in both the [Protocol for nutritional, anthropometric and clinical monitoring of nutrition support](#) and the [Protocol for laboratory monitoring of nutrition support](#) should be performed. Some of the clinical observations may be checked by patients or carers.

Monitoring for long-term nutrition support

If long-term nutrition support is needed, train patients and carers to recognise and respond to adverse changes in both their well-being and in the management of their nutritional delivery system.

Quality standards

The following quality statement is relevant to this part of the pathway.

4. Self-management of artificial nutrition support

5 Stopping nutrition support

[See nutrition support in adults / nutrition support in adults overview / stopping nutrition support](#)

Protocol for nutritional, anthropometric and clinical monitoring of nutrition support

Parameter	Frequency	Rationale
Nutritional		
Nutrient intake from oral, enteral or parenteral nutrition (including any change in conditions that are affecting food intake)	Daily initially, reducing to twice weekly when stable	To ensure that patient is receiving nutrients to meet requirements and that current method of feeding is still the most appropriate. To allow alteration of intake as indicated
Actual volume of feed delivered*	Daily initially, reducing to twice weekly when stable	To ensure that patient is receiving correct volume of feed. To allow troubleshooting
Fluid balance charts (enteral and parenteral)	Daily initially, reducing to twice weekly when stable	To ensure patient is not becoming over/under hydrated
Anthropometric		
Weight*	Daily if concerns regarding fluid balance, otherwise weekly reducing to monthly	To assess ongoing nutritional status, determine whether nutritional goals are being achieved and take into account both body fat and muscle
BMI*	Start of feeding and then monthly	

Mid-arm circumference*	Monthly, if weight cannot be obtained or is difficult to interpret	
Triceps skinfold thickness	Monthly, if weight cannot be obtained or is difficult to interpret	
GI function		
Nausea/vomiting*	Daily initially, reducing to twice weekly	To ensure tolerance of feed
Diarrhoea*	Daily initially, reducing to twice weekly	To rule out any other causes of diarrhoea and then assess tolerance of feeds
Constipation*	Daily initially, reducing to twice weekly	To rule out other causes of constipation and then assess tolerance of feeds
Abdominal distension	As necessary	To assess tolerance of feed
Enteral tube – nasally inserted		
Gastric tube position (pH less than or equal to 5.5 using pH paper – or noting position of markers on tube once initial position has been confirmed)	Before each feed begins	To ensure tube in correct position
Nasal erosion	Daily	To ensure tolerance of tube

Fixation (is it secure?)	Daily	To help prevent tube becoming dislodged
Is tube in working order (all pieces intact, tube not blocked/kinked)?	Daily	To ensure tube is in working order
Gastrostomy or jejunostomy		
Stoma site	Daily	To ensure site not infected/red, no signs of gastric leakage
Tube position (length at external fixation)	Daily	To ensure tube has not migrated from/into stomach and external overgranulation
Tube insertion and rotation (gastrostomy without jejunal extension only)	Weekly	To prevent internal overgranulation/prevention of buried bumper syndrome
Balloon water volume (balloon retained gastrostomies only)	Weekly	To prevent tube falling out
Jejunostomy tube position by noting position of external markers	Daily	To confirm position
Parenteral nutrition		
Catheter entry site*	Daily	To check for signs of infection/inflammation

Skin over position of catheter tip (peripherally fed people)*	Daily	To check for signs of thrombophlebitis
Clinical condition		
General condition*	Daily	To ensure that patient is tolerating feed and that feeding and route continue to be appropriate
Temperature/blood pressure	Daily initially, then as needed	To check for sign of infection and monitor fluid balance
Drug therapy*	Daily initially, reducing to monthly when stable	To ensure appropriate preparation of drug (to reduce incidence of tube blockage). To prevent/reduce drug nutrient interactions
Long-/short-term goals		
Are goals being met?*	Daily initially, reducing to twice weekly and then progressively to 3–6 monthly, unless clinical condition change	To ensure that feeding is appropriate to overall care of patient
Are goals still appropriate?*		

People at home having parenteral nutrition should be monitored using observations marked *.

Protocol for laboratory monitoring of nutrition support

The information in this table is particularly relevant to parenteral nutrition. It could also be selectively applied when enteral or 'oral nutrition support' is used, particularly for people who are metabolically unstable or at risk of refeeding syndrome. The frequency and extent of the observations given may need to be adapted in acutely ill or metabolically unstable people.

Parameter	Frequency	Rationale	Interpretation
Sodium, potassium, urea, creatinine	Baseline, daily until stable, then 1 or 2 times a week	Assessment of renal function, fluid status, and Na and K status	Interpret with knowledge of fluid balance and medication. Urine sodium may be helpful in complex cases with gastrointestinal fluid loss
Glucose	Baseline, 1 or 2 times a day (or more if needed) until stable, then weekly	Glucose intolerance is common	Good glycaemic control is necessary
Magnesium, phosphate	Baseline, daily if risk of refeeding syndrome, 3 times a week until stable, then weekly	Depletion is common and under recognised	Low concentrations indicate poor status
Liver function tests including International Normalised Ratio (INR)	Baseline, twice weekly until stable, then weekly	Abnormalities common during parenteral nutrition	Complex. May be due to sepsis, other disease or nutritional intake
Calcium, albumin	Baseline, then weekly	Hypocalcaemia or hypercalcaemia may occur	Correct measured serum calcium concentration for albumin. Hypocalcaemia may be secondary to Mg deficiency. Low albumin reflects disease not protein status

C-reactive protein	Baseline, then 2 or 3 times a week until stable	Assists interpretation of protein, trace element and vitamin results	To assess the presence of an acute phase reaction (APR). The trend of results is important
Zinc, copper	Baseline, then every 2–4 weeks, depending on results	Deficiency common, especially when increased losses	People most at risk when anabolic. APR causes Zn ↓ and Cu ↑
Selenium ^a	Baseline if risk of depletion, further testing dependent on baseline	Se deficiency likely in severe illness and sepsis, or long-term nutrition support	APR causes Se ↓. Long-term status better assessed by glutathione peroxidase
Full blood count and MCV	Baseline, 1 or 2 times a week until stable, then weekly	Anaemia due to iron or folate deficiency is common	Effects of sepsis may be important
Iron, ferritin	Baseline, then every 3–6 months	Iron deficiency common in long-term parenteral nutrition	Iron status difficult if APR (Fe ↓, ferritin ↑)
Folate, B12	Baseline, then every 2–4 weeks	Iron deficiency is common	Serum folate/B12 sufficient, with full blood count

Manganese ^b	Every 3–6 months if on home parenteral nutrition	Excess provision to be avoided, more likely if liver disease	Red blood cell or whole blood better measure of excess than plasma
25-OH Vit D ^b	6-monthly if on long-term support	Low if housebound	Requires normal kidney function for effect
Bone densitometry ^b	On starting home parenteral nutrition, then every 2 years	Metabolic bone disease diagnosis	Together with lab tests for metabolic bone disease

^a This test is needed primarily for people having parenteral nutrition in the community.

^b These tests are rarely needed in people having enteral tube feeding (in hospital or in the community), unless there is cause for concern.

Glossary

Sources

[Nutrition support in adults](#). NICE clinical guideline 32 (2006)

Your responsibility

The guidance in this pathway represents the view of NICE, which was arrived at after careful consideration of the evidence available. Those working in the NHS, local authorities, the wider public, voluntary and community sectors and the private sector should take it into account when carrying out their professional, managerial or voluntary duties. Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way which would be inconsistent with compliance with those duties.

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