Renal replacement therapy

NICE guideline

Draft for consultation, April 2018

This guideline covers renal replacement therapy and conservative management for people with chronic kidney disease stages 4 and 5. It aims to improve quality of life by making recommendations on planning, starting and switching treatments, and coordinating care.

Who is it for?

- Healthcare professionals
- Providers of renal replacement therapy and conservative management
- People with chronic kidney disease stages 4 and 5, their families and carers

This version of the guideline contains:

- the draft recommendations
- recommendations for research
- rationale and impact sections that explain why the committee made the recommendations and how they might affect practice
- the guideline context.

Information about how the guideline was developed is on the guideline's page on the NICE website. This includes the evidence reviews, the scope, and details of the committee and any declarations of interest.

Contents

Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in your care.

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

1.1 Indicators for starting renal replacement therapy

1.1.1 Follow the recommendations on referral criteria in NICE's guideline on chronic kidney disease in adults.

1.1.2 Consider starting dialysis at an estimated glomerular filtration rate (eGFR) of around 5 to 7 ml/min/1.73 m^2, or earlier if indicated by the impact of symptoms of uraemia on daily living, biochemical measures or uncontrollable fluid overload.

1.1.3 Ensure the decision to start dialysis is made jointly by the person (or, where appropriate, their family members or carers) and their healthcare team.

1.1.4 Before starting dialysis in response to symptoms, be aware that some non-specific symptoms may be caused by non-renal conditions.

To find out why the committee made the recommendations on indicators for starting renal replacement therapy and how they might affect practice, see rationale and impact.

1.2 Preparing for renal replacement therapy or conservative management

When to assess

1.2.1 Start assessment for renal replacement therapy (RRT) or conservative management at least 1 year before therapy is likely to be needed, including for those with a failing transplant.

To find out why the committee made the recommendation on preparing for renal replacement therapy – when to assess and how they might affect practice, see rationale and impact

How to assess

1.2.2 Involve the person and their family members or carers (as appropriate) in shared decision-making over the course of assessment to include:

- clinical preparation
- psychological preparation
- the person's individual preferences for type of RRT and when to start
- how decisions are likely to affect daily life.

1.2.3 Consider assessment by a clinical psychologist or psychiatrist for:

- all children and young people being considered for a transplant, and
- adults being considered for a transplant if risk factors for poor outcomes are identified; these may include:
  - lack of social support
  - neurocognitive issues
  - non-adherence (medicines, diet, hospital appointments)
  - poor understanding of process and complexities of treatment
  - poorly controlled mental health conditions or severe mental illness
  - substance misuse or dependence.

1.2.4 Offer ultrasound scanning to determine vascular access sites for creating arteriovenous fistulae for haemodiafiltration (HDF) or haemodialysis (HD).

To find out why the committee made the recommendations on preparing for renal replacement therapy – how to assess and how they might affect practice, see rationale and impact

1.3 Choosing modalities of renal replacement therapy or conservative management

1.3.1 Offer a choice of RRT or conservative management to people who are likely to need RRT.[1]

1.3.2 Ensure that decisions about RRT modalities or conservative management are made jointly with the person (or with their family members or carers for children or adults lacking capacity) and healthcare team, taking into account:

- predicted quality of life
- predicted life expectancy
- the person's preferences
- other factors such as co-existing conditions.

1.3.3 Offer people (and their family members or carers, as appropriate) regular opportunities:

- to review the decision regarding RRT modalities or conservative management
- to discuss any concerns or changes in their preferences.

Transplantation

1.3.4 Discuss the individual factors that affect the risks and benefits of transplantation with all people who are likely to need RRT, and their family members or carers (as appropriate).

[1] Conservative management will generally (although not always) be less appropriate for younger, healthier people. Conservative management is rarely an option for children and should only be considered within appropriate legal frameworks. See NICE's guideline on end of life care for children and young people with life-limiting conditions

1.3.5 Include living donor transplantation in the full informed discussion of options for RRT.

1.3.6 Offer a pre-emptive living donor transplant (when there is a suitable living donor) or pre-emptive listing for deceased donor transplantation to people considered eligible after a full assessment.

1.3.7 Be aware that people with a BMI above 30 may benefit from a kidney transplant but take into account other risk factors (for example, wound healing) when deciding whether to offer this option.

Choice of dialysis

1.3.8 Offer a choice of peritoneal dialysis at home or dialysis via vascular access either in centre or at home.

1.3.9 Consider peritoneal dialysis as the first choice for children 2 years or under.

1.3.10 Offer all people who opt for peritoneal dialysis a choice of continuous ambulatory peritoneal dialysis (CAPD) or automated peritoneal dialysis (APD), if this is medically appropriate.

1.3.11 For people who opt for dialysis via vascular access:

- offer HDF rather than HD if in centre (hospital or satellite unit)
- offer either HDF or HD if at home, taking into account availability of home HDF, and patient preference.

To find out why the committee made the recommendations on choosing modalities of renal replacement therapy or conservative management and how they might affect practice, see rationale and impact.

1.4 Planning dialysis access formation

1.4.1 Discuss with the person, their family members and carers (as appropriate) the risk and benefits of the different types of dialysis access, for example, fistula, graft, central venous or peritoneal dialysis catheter.

1.4.2 When peritoneal dialysis is planned via a catheter placed by an open surgical technique, aim to create the access around 2 weeks before the anticipated start of dialysis.

1.4.3 When HDF or HD is planned via an arteriovenous fistula, aim to create the fistula around 6 months before the anticipated start of dialysis to allow for maturation. When deciding on timing, take into account the possibility of the first fistula failing or needing further interventions before use.

To find out why the committee made the recommendations on planning dialysis access formation and how they might affect practice, see rationale and impact

1.5 Indicators for switching or stopping renal replacement therapy

1.5.1 Offer information on all medically appropriate treatment options when discussing switching RRT modality.

1.5.2 Consider switching treatment modality or stopping RRT if medically indicated or if the person (or, where appropriate, their family members or carers) asks.

1.5.3 Plan switching treatment modality or stopping RRT in advance wherever possible.

1.5.4 Do not routinely switch people on peritoneal dialysis to a different treatment modality in anticipation of potential future complications such as encapsulating peritoneal sclerosis. However, monitor risk factors, such as loss of ultrafiltration.

1.5.5 Seek specialist advice on the need for switching treatment modality when women become pregnant or wish to become pregnant.

To find out why the committee made the recommendations on indicators for switching or stopping renal replacement therapy and how they might affect practice, see rationale and impact

1.6 Recognising symptoms

1.6.1 Recognise that people on RRT or receiving conservative management may have the symptoms in table 1 and that these may affect their day-to-day life.

Table 1 Possible symptoms in people on renal replacement therapy or conservative management

Category	Symptom
General	Breathlessness Fatigue Insomnia Itching Lethargy Pain Swelling Thirst Weakness Weight loss/gain
Gastro-intestinal/urological	Abdominal cramps Change in bowel or urinary habits Nausea
Musculoskeletal	Muscle cramps Restless legs
Neurological	Cognitive impairment Dizziness Headaches
Psychological/behavioural	Anxiety Body image concerns Depression Mood disturbances/fluctuations Sexual dysfunction

1.6.2 Throughout the course of RRT and conservative management:

- Ask people about any symptoms they have.

- Explore whether symptoms are due to the renal condition, treatment or another cause.
- Explain the likely cause of the symptoms and how well treatment may be expected to control them.

To find out why the committee made the recommendations on recognising symptoms and how they might affect practice, see rationale and impact

1.7 Diet and fluids

1.7.1 Offer a full dietary assessment by a specialist renal dietitian to people starting dialysis or conservative management. This should include:

- fluid intake
- sodium
- potassium
- phosphate
- protein
- calories
- micronutrients.

1.7.2 After transplantation, offer dietary advice from a healthcare professional with training and skills in this area.

1.7.3 Re-assess dietary management and fluid allowance when:

- a person's circumstances change (for example, when switching RRT modality), or
- biochemical measures indicate, or
- the person (or, where appropriate, their family members or carers) asks.

1.7.4 Provide individualised information, advice and ongoing support on dietary management and fluid allowance to the person and their family members or carers (as appropriate). The information should be in an accessible format and be sensitive to the person's cultural needs and beliefs.

1.7.5 Follow the recommendations on dietary management and phosphate binders in NICE's guideline on chronic kidney disease (stage 4 or 5): management of hyperphosphataemia.

> To find out why the committee made the recommendations on diet and fluids and how they might affect practice, see rationale and impact.

1.8 Information, education and support

1.8.1 To enable people, and their families and carers (as appropriate), to make informed decisions, offer balanced and accurate information about:

- all treatments available to them (including RRT modalities and conservative management), and
- how the treatments may affect their lives.

See table 2 for more details.

Table 2 Information about treatments and how they may affect lifestyle

Information about treatments[2]
What they involve, for example, availability of assistance, time that treatment takes place, and number of sessions per day/week
Potential benefits
The benefits of adherence to treatment regimens and the potential consequences of non-adherence
Potential adverse effects, their severity and how they may be managed
The likely prognosis on dialysis, after transplant or with conservative management
The transplant listing process (when appropriate)
Switching the modality of RRT and the possible consequences (that is, the impact on the person's life or how this may affect future treatment or outcomes)
Reviewing treatment decisions
Stopping treatment and planning end of life care
Information about how treatments may affect lifestyle
The person or carer's ability to carry out and adjust the treatment themselves
The possible impact of dietary management and management of fluid allowance
How treatment may fit in with daily activities such as work, school, hobbies, family commitments and travel for work or leisure
How treatment may affect sexual function, fertility and family planning
Opportunities to maintain social interaction
How treatment may affect body image
How treatment may affect physical activity (for example, contact sports should be avoided after transplantation, swimming should be avoided with peritoneal dialysis)
Whether a person's home will need to be modified to accommodate treatment
How much time and travel treatment or training will involve
The availability of transport
The flexibility of the treatment regimen
Whether any additional support or services might be needed

1.8.2 Recognise the psychological impact of a person being offered RRT or conservative management and discuss what psychological support may be available to help with decision-making.

1.8.3 Discuss with people which treatment options are available to them and explain why any options are inappropriate or not advised.

[2] Treatments include RRT, conservative management, medication and dietary intervention.

1.8.4 Offer oral and written information and support early enough to allow time for people to fully understand their treatment options and make informed decisions. Information should be in an accessible format.

1.8.5 Direct people to other sources of information and support (for example, online resources, pre-dialysis classes and peer support).

1.8.6 Remember that some decisions must be made months before RRT is needed (for example, a fistula is created at least 6 months before starting dialysis).

1.8.7 Be prepared to discuss the information provided both before and after decisions are made, in line with the person's wishes.

1.8.8 Take into account information the person has obtained from other sources (such as family members and carers) and how this information has influenced their decision.

1.8.9 Ensure that healthcare professionals offering information have specialist knowledge about late stage chronic kidney disease and the skills to support shared decision-making (for example, presenting information in a form suitable for developmental stage).

1.8.10 Offer people who have presented late, or who started dialysis in an unplanned way, the same information as people who present at an earlier stage.

1.8.11 Follow the recommendations on enabling patients to actively participate in their care in NICE's guideline on patient experience in adult NHS services and on information and education in NICE's guideline on chronic kidney disease in adults.

To find out why the committee made the recommendations on information, education and support and how they might affect practice, see rationale and impact.

1.9 Coordinating care

1.9.1 Provide the person with the contact details of the healthcare professional responsible for their overall renal care:

- before they start RRT or conservative management, and
- when they switch from one modality to another.

1.9.2 Coordinate care to reduce its effect on day-to-day life and wellbeing (treatment burden). For example, take account of people's preferences and avoid scheduling appointments on non-dialysis days for people on hospital dialysis wherever possible.

1.9.3 Follow the recommendations on:

- delivering an approach to care that takes account of multimorbidity in NICE's guideline on multimorbidity, and
- continuity of care and relationships, and enabling patients to actively participate in their care in NICE's guideline on patient experience in adult NHS services.

To find out why the committee made the recommendations on coordinating care and how they might affect services, see rationale and impact

Recommendations for research

The guideline committee has made the following recommendations for research.

Key recommendations for research

1 Cardiac assessment

What is the clinical and cost effectiveness of cardiac assessment before transplantation?

To find out why the committee made the research recommendation on cardiac assessment see rationale and impact

2 Timing of pre-emptive transplant

What is the most clinical and cost effective strategy for timing of pre-emptive transplantation?

To find out why the committee made the research recommendation on timing of pre-emptive transplant see rationale and impact

3 Acute haemodialysis versus acute peritoneal dialysis

What is the clinical and cost effectiveness of initial haemodialysis versus initial peritoneal dialysis (PD) for people who start dialysis in an unplanned way?

To find out why the committee made the research recommendation on acute haemodialysis versus acute peritoneal dialysis see rationale and impact

4 Frequency of review

What is the most clinical and cost-effective frequency of review of people on PD, haemodiafiltration, haemodialysis or conservative management?

To find out why the committee made the research recommendation on frequency of review see rationale and impact

5 Coordinating care

What is the clinical and cost effectiveness of having keyworkers present in the context of renal replacement therapy (RRT)?

To find out why the committee made the research recommendation on coordinating care see rationale and impact

Other recommendations for research

What is the clinical and cost effectiveness of strategies for switching RRT modality?

What is the clinical and cost effectiveness of using decision aids in the context of RRT?

To find out why the committee made the research recommendation on decision aids see rationale

What is the optimum timing of laparoscopic and percutaneous PD access creation?

What is the clinical and cost effectiveness of conservative management versus dialysis in frail, older people?

What is the clinical and cost effectiveness of home haemodiafiltration versus home haemodialysis, taking into account the impact of frequency?

What is the clinical and cost effectiveness of haemodialysis/haemodiafiltration before PD versus PD before haemodialysis/haemodiafiltration?

What is the optimum timing of listing for transplantation?

Rationale and impact

Indicators for starting renal replacement therapy

Recommendations 1.1.1 to 1.1.4.

Why the committee made the recommendations

The committee agreed that when to start dialysis is a complex decision that should take into account a number of factors (estimated glomerular filtration rate [eGFR], symptoms, patient preference, biochemistry and fluid overload). Evidence suggested that there was no overall harm or benefit of starting dialysis at an eGFR of around 5 to 7 ml/min/1.73 m^2 or earlier if indicated by symptoms. However, there was evidence that starting at an eGFR of 5 to 7 ml/min per 1.73 m^2 was cost saving compared with an earlier start. The committee noted that some patients prefer to have an agreed starting point (eGFR) and that the recommended level broadly reflects current practice for adults and children. However, some people may need dialysis before the eGFR reaches this value because they have symptoms that are affecting normal daily activities. The committee agreed that it was not appropriate only to start dialysis when symptoms are reported, because some people with slowly progressing chronic kidney disease may not recognise and report symptoms that indicate dialysis is needed. The committee agreed that it is important to establish whether the symptoms are due to uraemia, for example fatigue and depression or not and to discuss their impact on daily life.

Evidence on the timing of pre-emptive transplant was limited and contradictory, with one study showing a clinically important benefit of transplanting at an eGFR of less than 10 ml/min/1.73 m^2 but another showing no difference. The committee agreed to make a research recommendation on this to guide future practice.

How the recommendations might affect practice

The recommendations reflect common practice for adults and children, and so are not likely to involve a change of practice for most NHS providers or have a substantial resource impact for the NHS in England. If providers need to change from an earlier to a later initiation strategy, this is likely to be cost saving due to a reduction in time on dialysis.

Full details of the evidence and the committee's discussion are in evidence review A: Initiating renal replacement therapy

Return to recommendations

Preparing for renal replacement therapy – when to assess

Recommendation 1.2.1

Why the committee made the recommendations

Some evidence indicated that earlier referral to nephrology services improved survival on RRT at 90 days. The committee were interested in the timing of referral for assessment for RRT and used their experience to recommend that this should be at least 1 year before RRT is likely to be needed. They agreed that this would provide time for clinical and psychological preparation for dialysis or pre-emptive transplantation, and give the person, family members and carers enough time to think about the options. The committee acknowledged that there might be possible harms and costs for people who were referred but did not go on to need RRT, but they agreed that these were outweighed by the benefits of early referral for most people.

How the recommendations might affect practice

The recommendation generally reflects current practice so there should be no significant change in practice or substantial resource impact to the NHS in England.

Full details of the evidence and the committee's discussion are in evidence review E: When to assess for renal replacement therapy.

Return to the recommendations

Preparing for renal replacement therapy – how to assess

Why the committee made the recommendations

Recommendations 1.2.2 to 1.2.4

The committee recognised that an assessment should involve preparing people for RRT, for example, by explaining the procedures to create vascular access and checking heart function and immunity. Preparing a person psychologically is also important for reducing non-adherence and improving outcomes. They also highlighted the importance of discussing a person's preferences and understanding how decisions on RRT or conservative management are likely to affect a person's everyday life.

No evidence was identified on the psychological assessment of transplant recipients or donors. The committee agreed that there were likely benefits for identifying risk factors for non-adherence or morbidity after the operation. These could include substance misuse, current non-adherence or a previous or current mental health condition. Given the lack of evidence and potential resource impact the committee agreed to make a consider recommendation for assessment in specific high-risk groups.

Evidence showed a benefit of routine ultrasound scanning in terms of reduced failure of arteriovenous fistulae. Cost calculations based on the clinical evidence suggested that routine scanning is likely to reduce overall costs because of fewer repeat interventions. The committee agreed to recommend routine ultrasound scanning to determine vascular access sites .

There was no evidence on cardiac assessment before transplantation. The committee discussed current practice and agreed it is very variable. They therefore decided to make a research recommendation to inform future practice.

How the recommendations might affect practice

Psychological assessment in people at high risk of non-adherence or morbidity is current practice in many areas. The recommendation is likely to lead to better targeting of psychological assessment in other areas. The recommendation was not considered likely to have a substantial resource impact overall.

Current practice is variable; some centres use routine ultrasound scanning to determine access sites but others offer a more selective approach. The recommendation would not involve a large change in practice and is likely to be cost saving because of the reduced need for repeat intervention. This may result in a substantial savings to the NHS in England.

Full details of the evidence and the committee's discussion are in evidence review F: How to assess for renal replacement therapy.

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Choosing modalities of renal replacement therapy or conservative management

Recommendations 1.3.1 to 1.3.11

Why the committee made the recommendations

Renal replacement therapy or conservative management

People who are likely to need renal replacement therapy (RRT) should be supported to make decisions about treatment options, including conservative management. There was no evidence of differential benefits or harms in any specific group of people and the committee agreed that the decision needs to be based on individual factors (such as frailty, cognitive impairment and multimorbidity) and patient preference.

Choice of renal replacement therapy

Evidence showed that if RRT is chosen, transplantation offers a clear advantage over dialysis in terms of extending life. This applied across all ages. There was no evidence on quality of life or hospitalisation, but in the committee's experience these are likely to be improved by transplantation. However, the individual factors that

affect the risks and benefits of transplantation, for example, comorbidities, should be discussed. There was no evidence on cost effectiveness but the committee considered transplantation likely to have a lower cost over the long term due to the cost of avoiding dialysis. The committee agreed to recommend pre-emptive transplantation with a living donor or, if this is not an option, a transplant from a deceased donor.

The committee noted that the only available evidence suggested that people with a BMI greater than 30 benefited from transplant (as opposed to dialysis) to a similar degree as the non-obese population, in terms of mortality. Given the limitations of this evidence, the lack of evidence on other outcomes (for example, wound healing, hospital stay) and concerns that the evidence was based on a relatively healthy population with obesity, the committee agreed that healthcare professionals should be aware of this information but should take it into account alongside other risk factors.

Limited evidence showed that if a transplant is not possible, peritoneal dialysis and haemodialysis (HD) offered similar benefits and equivalent harms. Dialysis costs were likely to be similar. There was no evidence comparing haemodiafiltration (HDF) and peritoneal dialysis. The committee agreed that peritoneal dialysis and dialysis via vascular access may have quite different effects on a person's life (for example, affecting their ability to travel and the need for self-care) so they agreed that a person should be able to choose the type of dialysis most suitable for them. Peritoneal dialysis should be considered for children under 2 years due to difficulties with vascular access and extracorporeal blood volume.

There was no evidence to suggest clear differences between home and in-centre (hospital or satellite unit) dialysis via vascular access. Dialysis costs were lower at home, although home dialysis is not suitable for many people. The committee acknowledged that these treatments can have very different effects on lifestyle and recommended patient choice.

In-centre HDF was more effective than in-centre HD and was cost effective so the committee agreed, when dialysis via vascular access was in centre, to recommend HDF rather than HD. The committee noted that HD may be done more frequently at

home than in centre. The benefits of HDF are unknown in people who dialyse more frequently. There was no evidence on the efficacy of HDF at home. The committee was aware that some centres offer home HDF, although some people opt for transportable dialysis machines (which cannot do HDF currently) and these centres also provide home HD. Taking all of this information together, the committee agreed to recommend either HD or HDF for people opting for dialysis via vascular access at home.

There was no evidence comparing dialysis via vascular access and peritoneal dialysis as initial therapy for people who start dialysis in an unplanned way. The committee agreed to make a research recommendation on this to inform future guidance.

There was no evidence to suggest clear differences between automated peritoneal dialysis (APD) and continuous ambulatory peritoneal dialysis (CAPD). Again the committee acknowledged that these treatments can have very different effects on lifestyle and recommended patient choice.

The committee agreed that people should have regular opportunities to review treatment options.

Sequencing

There was not enough evidence to recommend any particular sequence of RRT modalities. The committee agreed that decisions about sequence would mostly be guided by personal circumstances.

How the recommendations might affect practice

Many centres already offer HDF but for some this will be a change in practice. There are likely to be additional costs relating to consumables and water consumption compared with HD, but these may be partly offset by reduced use of erythropoietin-stimulating agent (ESA). There may be additional costs for machines where HDF-capable machines are not currently used. However, most centres already have some HDF-capable machines. This will enable them to accommodate any initial increased demand for HDF. Provision can be expanded as demand increases within the usual replacement cycles. It is likely that the recommendation for in-centre HDF rather than

HD will have a substantial resource impact to the NHS in England overall due to the large numbers of people affected.

Although use of different RRT modalities and conservative management varies between areas, other recommendations reinforce current good practice to offer people a choice of modalities and settings, and conservative management, and so are not expected to have a substantial resource impact.

The committee agreed that people are often not offered regular opportunities to discuss the option of switching treatment modality or stopping RRT and so this may be a change in practice in many areas. However, these discussions could form part of current patient reviews and so would not mean a difference in resource use. More regular discussions may lead to more patients switching or stopping RRT but this is not expected to result in a substantial resource impact overall.

Full details of the evidence and the committee's discussion are in evidence review B: Modalities of renal replacement therapy

Return to recommendations

Planning dialysis access formation

Recommendations 1.4.1 to 1.4.3

Why the committee made the recommendations

The committee highlighted the importance of discussing with the person the different types of dialysis and their access and the impacts of these on everyday life.

Evidence suggested that the best time for creating access for peritoneal dialysis by open surgery is around 2 weeks before starting dialysis. There was no evidence on the best time for creating other types of peritoneal access so the committee decided to make a research recommendation to inform future guidance.

Evidence suggested that the best time for creating an arteriovenous fistula for vascular access was 3 to 6 months before starting HD or HDF. It suggested that earlier AVF creation may increase the rate of AVF success. The committee agreed that doing this early (around 6 months) reduced the need for additional access

procedures . However, when a fistula is created early, some people may never need it, for example, because they have a pre-emptive transplant. The committee agreed that the benefits of establishing a fistula around 6 months before starting dialysis, including the cost savings associated with avoiding additional access procedures, were likely to outweigh the potential disadvantages and increased costs associated with unused fistulae. The committee noted that the precise timing will vary from person to person, depending on the likely success of fistula creation.

The committee noted that there was no evidence to guide the optimum timing of transplant listing and therefore made a research recommendation in this area.

How the recommendations might affect practice

Current practice for creating vascular access is variable. A minimum timing from creation to use of 6 weeks has been suggested – however, the committee agreed that creation around 6 months reflected common practice. The recommendation is not expected to have a significant impact on practice, but should standardise some current variability. It is not expected to have a substantial resource impact to the NHS in England.

Current practice for creating peritoneal dialysis access via open surgery is broadly in line with the recommendation (that is, 2 weeks before use) and so this recommendation is not expected to have a substantial resource impact to the NHS in England.

Full details of the evidence and the committee's discussion are in evidence review D: Planning for renal replacement therapy.

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Indicators for switching or stopping renal replacement therapy

Recommendations 1.5.1 to 1.5.5

Why the committee made the recommendations

There was no evidence on indicators for switching treatment and the committee agreed to make research recommendations on possible indicators to inform future guidance. There was no evidence that people on peritoneal dialysis should switch

modality in anticipation of future complications such as encapsulating peritoneal sclerosis and the committee agreed this should not be routine. They highlighted that healthcare professionals should monitor for risk factors predicting complications (for example, loss of ultrafiltration).

There was also no evidence to support a switch from peritoneal dialysis to dialysis via vascular access for women who become or wish to become pregnant. The committee agreed that the need for a switch would depend on the adequacy of dialysis, the health of the foetus and the control of urea. They recommended that specialist advice should be sought before any decisions were made.

How the recommendations might affect practice

The recommendations broadly reflect current good practice and are not expected to have a resource impact to the NHS in England.

Full details of the evidence and the committee's discussion are in evidence review G: Indicators for transferring or discontinuing RRT.

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Recognising symptoms

Recommendations 1.6.1 to 1.6.2

Why the committee made the recommendations

Evidence identified symptoms that people approaching the need for RRT or receiving RRT or conservative management frequently report as affecting their lives. The committee also identified others (for example, change in urinary habits). People may feel uncomfortable talking about some symptoms (for example, sexual dysfunction) and may not associate them with their condition or its treatment. The committee agreed that healthcare professionals should ask people about symptoms and determine the likely cause. It is important that people understand which symptoms they may experience, which may need further management and if treatment will control them.

How the recommendations might affect practice

Currently, not all healthcare professionals ask people about all of the symptoms they are experiencing. They may only ask about specific symptoms and not explore all of them. Healthcare professionals should ascertain whether symptoms are due to the person's renal condition or not and explain this to them. This may be a change in practice for some but is not expected to have a substantial resource impact to the NHS in England.

Full details of the evidence and the committee's discussion are in evidence review H: Symptom recognition.

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Diet and fluids

Recommendations 1.7.1 to 1.7.5

Why the committee made the recommendations

Limited evidence, including in people with a transplant, indicated that people receiving RRT or conservative management may benefit from dietary and/or fluid management. The committee agreed that current practice is for people receiving dialysis or conservative management to have an assessment by a specialist dietitian. NICE's guideline on managing hyperphosphataemia in chronic kidney disease recommends assessment by a specialist renal dietitian for those at risk of hyperphosphataemia which would include these populations. They also considered it current practice for dietary advice to be given after transplantation although who provided this advice varied and may not be a specialist renal dietician. The committee noted that there is some variation in how long people have to wait for this assessment and variation in ongoing management. The committee agreed that dietary advice is important for people with a transplant, particularly straight after the surgery. This was supported by the evidence. The committee noted the importance of the person giving dietary advice having specialist knowledge of dietary requirements in transplant patients. However, the evidence was too limited to recommend that dietary advice should routinely be from a specialist renal dietitian for this group given it would be a change in practice in many areas that could result in a substantial resource impact. The committee agreed that following initial assessment

further dietary assessment would be determined by specific circumstances or indicators and made a recommendation summarising what these would be. They highlighted that there is variation in the level of dietitian input available in renal centres which may impact how quickly people can access services or the level of input following initial assessment; however, the evidence was not considered sufficient to make specific recommendations to address this.

The committee agreed that involving family members and carers in discussions was important for improving adherence to dietary management and fluid allowance. There was no evidence on the benefits or harms of a low protein diet so the committee was not able to make a recommendation on this. The committee agreed that dietary management and fluid assessment should not be a 'one-step' process and that people's needs should be reviewed when circumstances change (for example, when switching RRT modalities) or when biochemical measures indicate.

How the recommendations might affect practice

The recommendations made reflect current practice and are not expected to result in a substantial resource impact to the NHS in England.

Full details of the evidence and the committee's discussion are in evidence review I: Diet and fluids.

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Frequency of review

Why the committee made the research recommendation

No evidence was identified to support any particular strategy for timing of review for people on RRT or conservative management. Because of the lack of evidence, considerable variation in current practice and the likely resource implications of a practice recommendation, the committee made a research recommendation to inform future guidance.

Full details of the evidence and the committee's discussion are in evidence review J: Frequency of review.

Information, education and support

Why the committee made the recommendations

Recommendations 1.8.1 to 1.8.11

The committee used the evidence and their own experience to update the recommendations on information and support from NICE's 2011 guideline on peritoneal dialysis (CG125) and to extend these to cover other forms of RRT and conservative management. Key findings related to information being provided well in advance of decisions being needed, multiple formats of information being available, and full information on all modalities being provided. Information should also be provided on the psychological impact of starting RRT and the decision-making process.

How the recommendations might affect practice

The recommendations broadly reflect current practice and therefore are unlikely to have a resource impact. They focus mainly on the principles of information and support rather than on specific interventions.

Full details of the evidence and the committee's discussion are in evidence review K: Information, education and support.

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Decision support interventions

Why the committee made the research recommendation

Limited evidence suggested a benefit of structured education programmes although results were inconsistent. The committee noted that decision aids are used in clinical practice but do not replace discussions between the patient, families and carers, and healthcare professionals when making decisions about RRT or conservative management. Education classes and peer support are also important to support decision-making. In the absence of evidence showing clinically important benefits, the committee were unable to recommend that decision aids should be used. They decided to make a research recommendation to inform future practice.

Full details of the evidence and the committee's discussion are in evidence review L: Decision support interventions.

Coordinating care

Recommendations 1.9.1 to 1.9.3

Why the committee made the recommendations

There was limited evidence on the coordination of care but the committee agreed that people should know who to contact with questions about their condition or treatment. This is particularly important when they start or change RRT modalities. The committee noted that people on RRT experience considerable treatment burden and that strategies should be adopted to reduce this. There was no evidence on care coordination by a keyworker so the committee recommended the healthcare professional responsible for renal care as a first point of contact. They made a research recommendation on care coordination by a keyworker to inform future guidance.

How the recommendations might affect practice

Current practice is variable in terms of when a person is given the details of the person responsible for care. This recommendation will ensure that this is done before starting treatment or when switching modalities or to conservative management. Similarly the recommendation on reducing treatment burden standardises and reinforces good practice. Some healthcare professionals may need to change their practice but this would not result in a substantial resource impact.

Full details of the evidence and the committee's discussion are in evidence review M: Coordinating care.

Return to the recommendations

Context

People with chronic kidney disease (CKD) have an irreversible and progressive deterioration in kidney function. Renal replacement therapy (RRT) is a treatment option in people with CKD whose condition progresses to kidney failure. RRT essentially comprises either transplantation or dialysis (artificially removing waste

products and excess water from the blood). Transplantation can be from living or deceased donors, and for some people it may involve the transplantation of more than one organ simultaneously (for example, combined pancreas and kidney transplantation for people with type I diabetes mellitus). In some cases, transplantation may be pre-emptive, occurring before dialysis would be needed. There are 2 main types of dialysis: haemodialysis (where the blood is filtered outside of the body using a dialysis machine) and peritoneal dialysis (where the person's abdominal lining is used to filter the blood). Some people choose not to receive RRT but continue to receive other supportive and symptomatic treatment for kidney failure – for example, treatment for their anaemia or dietary modification. This is usually called conservative management. People may also receive end-of-life care, and this may include both supportive and palliative care.

According to the 19th annual report by the UK Renal Registry (2016), on 31 December 2015 there were 61,256 adults in the UK receiving RRT. Of these, 53.1% had received a transplant, 41.0% were receiving haemodialysis (21.2% in satellite units, 17.8% in hospitals, 2.0% at home), 2.5% were receiving continuous ambulatory peritoneal dialysis and 3.4% were receiving automated peritoneal dialysis. In addition, 769 children and young people under the age of 16 years were receiving RRT. Most had received a transplant (41% live, 34% deceased), with 13% on haemodialysis and 12% on peritoneal dialysis. The median age of all people newly requiring RRT was 59.0 years; 22.7% of people were from minority ethnic groups. The reported 1-year risk of death for people on RRT compared with the general population was approximately 22.0 for people aged 35 to 39 years. Survival rates for people with diabetes on maintenance haemodialysis are lower than those of people without diabetes. The number of people receiving conservative management varies between renal units and has been difficult to establish, but up to 40% of people over 70 choose this option. Most of these still receive their care and treatment through renal services.

Approximately 5,500 adults and children are currently on the national renal transplant (waiting) list (NHS Blood and Transplant), with about 3,000 renal transplants performed each year. The median time to transplantation for those on the list is around 1,000 days for adults and 300 days for children. There is considerable

inequality across ethnic groups, with relatively fewer people from black, Asian and minority ethnic group on the organ donor list. These groups have a higher incidence and prevalence of CKD needing RRT and tend to reach this stage at a younger age.

RRT is an expensive treatment. The total cost of CKD in England in 2009–10 was estimated at £1.45 billion; more than half of this sum was spent on RRT.

This guideline aims to improve the care of people with CKD who need RRT or conservative management. The guideline covers the choice, timing, preparation for and switching of RRT 'modalities' for children and adults, as well as symptom recognition, information, education and support, and coordination of care.

Finding more information and resources

To find out what NICE has said on topics related to this guideline, see our kidney conditions

ISBN: