A physician in elderly care. He's from Dundee which is at the moment still part of the UK. He's going to talk to us about geriatric assessment tools for the nephrologist. Miles and Edwina are actually prime movers in a UK sort of initiative to set up a society if you like or an interest group looking at renal disease in the elderly. I'm very pleased that he's going to give us this talk on geriatric assessment tools for the nephrologist. Thanks Miles.
Thanks very much for that Ken. Good afternoon everybody. I've just very slightly changed the title of this talk, which I don't think will make any material difference but I'm going to talk you through some of my thoughts on what assessment tools one might use for providing a comprehensive geriatric assessment of older patients with CKD.

Slide 3

Overview of talk

- Why assess?
- Comprehensive geriatric assessment
- What's missing from your practice?
- Tools to try using
- Caveats and general advice

So, I'm going to talk about why you might want to do this. What is comprehensive geriatric assessment? It's the bedrock of our clinical practise as geriatricians. To compare and contrast what you as nephrologists do compared to what we as geriatricians do, give you some suggestions and thoughts about tools and finish with some caveats and general advice. I've put down no conflicts of interest and I certainly don't have any conflicts of interest on any of the tools that I'm going to discuss today. I will sort of put a conflict stroke plug here I'm the lead investigator for the BiCARB trial, which is all about seeing if bicarbonate improves physical function and quality of life in older people. So the use of these sort of tools is sort of part of my bread and butter as a clinician but also as a researcher.

Slide 4
So, I want to start with why would you want to assess and I think it's important to say at the start that there is no point in assessing unless you are going to do something with the results. When you're choosing tools to assess people with, it's clearly important to think about what uses you're going to put those tools to. So, you might want to assess because you want to put labels on people or you want to make a diagnosis. You might also want to assess because a result of an assessment will lead to a change in the management of a particular patient. You might also want to assess because you want to get prognostic information and that's clearly important when you're having conversations with older people and of course, that then feeds back into how you might decide to manage patients. Ken will clearly touch on this a little bit in his talk and I suspect we will be hearing more of that as we go through this afternoon. I think another general principle that is important here is that assessment is only done well when you and your staff can see the value of doing that assessment. As soon as it becomes something that's routine and a tick box exercise, the quality of the assessments, the completeness of these assessments will fall away and they will become useless. So, there has to be a very clear link between the assessments and what happens with the data that you collect.

Bad reasons to assess

- Because someone has developed a tool to use
- Because you are a nephrologist and you like putting numbers to things...
- To stratify risk without this changing other actions (which is what geriatricians do!)

- Not everything measurable is important, and not everything important is measurable

Here are some bad reasons to assess because you've got a tool and it's important to not just assess because you've invented a tool or somebody has given you a tool, you have to know why you're doing it. Another bad reason is because you're a nephrologist and you like putting numbers to things and without wishing to insult you as an audience I then put on the other thing which is to stratify risk without it doing anything else which is what we as geriatricians spend much of our
time doing. I think it’s also worth remembering that as Einstein said, not everything measurable is important and not everything important is measurable. There are things in medicine and things in life that are difficult to assess with a tool but are still important and tools should not be allowed to replace clinical judgement and your global clinical assessment of a patient.

Slide 6

**Comprehensive Geriatric Assessment**

- Multidomain assessment of function, capabilities and resources
- Physical, cognitive, psychological, social
- Requires a multidisciplinary team
- Must lead to actions to improve problems, increase support, ameliorate symptoms, and treat / prevent disease

So, let’s move on to comprehensive geriatric assessment. What is it? Is it any good? What does it comprise? So, it’s a little bit like putting jelly to the wall in describing it but the key features of comprehensive geriatric assessment are it’s a multi-domain assessment of function, capability and resources for older people. It’s not just about their medical diagnosis list, it’s about their physical function, their cognitive function, their social circumstances, and their psychological function as well. Clearly to deliver all of that as an assessment and management package you need a multidisciplinary team and that is what we would routinely have around us as geriatricians and I’ll touch on the fact that that is one of the great similarities between the work you do and the work that we do. It’s not just about assessment though, it’s about assessment and a plan of action and an ongoing implementation of that plan and review to see that the goals in that plan are being achieved and it’s that whole process which is referred to as CGA. So, it’s not just about doing an assessment and leaving it at that, that doesn’t work.

Slide 7

**Systematic review data**

- Highly effective
- 22 trials, 10,000 patients
- Works best if done by a dedicated team on a specialist ward

<table>
<thead>
<tr>
<th>Domain</th>
<th>OR / SMD</th>
<th>NNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alive in own home at 6 mths</td>
<td>1.25 (1.11, 1.42)</td>
<td>17</td>
</tr>
<tr>
<td>Alive in own home at 12 mths</td>
<td>1.16 (1.05, 1.28)</td>
<td>13</td>
</tr>
<tr>
<td>Institutionalised</td>
<td>0.79 (0.69, 0.88)</td>
<td>25</td>
</tr>
<tr>
<td>Death or functional deterioration</td>
<td>0.76 (0.64, 0.90)</td>
<td>17</td>
</tr>
<tr>
<td>Death at 6 mths</td>
<td>0.91 (0.80, 1.05)</td>
<td>-</td>
</tr>
<tr>
<td>Cognition improvement (SMD)</td>
<td>0.08 (0.01, 0.15)</td>
<td>-</td>
</tr>
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</table>
So, does it work? There are very few things in the care of older people that have good evidence behind them. But comprehensive geriatric assessment is one of the few things where there is really good clinical trial evidence that it is effective. There have been multiple systematic reviews done on this. Graham Ellis and his team in Glasgow led the Cochrane Database Systematic Review, which was last updated in 2011. 10,000 patients and these are some of the key outcomes, which are relevant and important to older people. So, you are more likely if you have CGA to be alive and in your home at 6 months and also at 12 months. You are less likely to have to go into a nursing home,. You're less likely to be dead or having undergone significant functional deterioration. You're also probably less likely but it doesn't quite reach significance to be just dead at 6 months and there is also a slight benefit in terms of your cognitive function. The numbers needed to treat to get one of these outcomes are actually relatively small, especially compared to some things such as primary prevention of vascular disease in the general population. So this works, it's highly effective and there's good trial evidence behind it. A key point about comprehensive geriatric assessment though, it works best if it's done by a dedicated team on a specialist ward. That's not always possible but what works less well is just sending a geriatrician to somebody else's specialist ward to say hello. The advice is frequently ignored, it's not followed through, specialist skills are not there, so building the team around the patient is an important part in the delivering effective comprehensive geriatric assessment.

Slide 8

Sounds good. We do this already, don't we?

- Nephrology is highly interdisciplinary
- MDT working is the norm
- However, some key aspects of CGA may not be delivered routinely...

So you may be thinking as nephrologists 'well that sounds very good, don't we do this already?' To a certain extent, I suspect that you do. Nephrology is one of the medical disciplines like geriatric medicine that is highly interdisciplinary. You all have multidisciplinary teams and you all have an interesting mix of skills within those teams, it's the norm for you in a way that it perhaps isn't for some of the other medical specialities. But it may be that there are differences between what you do and the way that a standard geriatric team will approach care. That is going to vary depending on what country you work in. It's going to vary depending on what hospital or healthcare system within a country you work in. So my apologies for the next slide if you feel that this does not reflect your practise. I've taken very much a UK centric approach to this.
So, within renal medicine you’re clearly going to look at renal problems and comorbid disease and you may have to a greater or lesser extent MDT members, who are going to address such things as diet, discharge planning, end of life care. You may have a psychologist on your team who is able to look at cognition and depression or anxiety or you may not have that. You may not look at geriatric syndromes such as falls and incontinence. I was amazed to learn the other day that very few nephrology departments in the UK have access to routine physiotherapy for all of their patients and some of them don’t have access routinely to occupational therapy either. Whereas, those two specialities for allied health professionals would be absolutely core to a geriatric medicine team and we cannot operate really without access to those specialities. Clearly, within a geriatric medicine team, we don’t often focus on renal problems and that is clearly a gap in our approach to older patients with CKD at the moment. Sometimes we need to focus on end of life care but all of these other domains form part of comprehensive geriatric assessment. So, I really put this up so that you can reflect on your practise and your teams and try and identify where the gaps are in terms of what you might need to put in place in order to deliver true comprehensive geriatric assessment.

So, within renal medicine you’re clearly going to look at renal problems and comorbid disease and you may have to a greater or lesser extent MDT members, who are going to address such things as diet, discharge planning, end of life care. You may have a psychologist on your team who is able to look at cognition and depression or anxiety or you may not have that. You may not look at geriatric syndromes such as falls and incontinence. I was amazed to learn the other day that very few nephrology departments in the UK have access to routine physiotherapy for all of their patients and some of them don’t have access routinely to occupational therapy either. Whereas, those two specialities for allied health professionals would be absolutely core to a geriatric medicine team and we cannot operate really without access to those specialities. Clearly, within a geriatric medicine team, we don’t often focus on renal problems and that is clearly a gap in our approach to older patients with CKD at the moment. Sometimes we need to focus on end of life care but all of these other domains form part of comprehensive geriatric assessment. So, I really put this up so that you can reflect on your practise and your teams and try and identify where the gaps are in terms of what you might need to put in place in order to deliver true comprehensive geriatric assessment.
like. I think an ideal tool needs to be validated for use in the target group of patients. That's our first barrier in that although some of these tools are validated for older people generally, very little validation work has been done specifically in older patients with kidney disease. It needs to be quick; if it's not quick, it's not going to happen on the ward. It needs to be simple to score and easy to train staff so that you get a good quality reproducible and reliable result. It needs to be an intrinsically reproducible tool, so that if you do it on two occasions in a stable patient, you do get the same result and also it should really be something where if two different people do it, they get the same result. One of the key weaknesses in many tools is that they haven't been tested for responsiveness. So that if somebody gets better and feels better, the tool should reflect that improvement. There are many tools that are actually not very responsive and that's important if you want to demonstrate that your service is improving outcomes for patients. There needs to be a clear path from the information that you get from the tool to what you're going to use that information for. Now one of the favourite pastimes amongst clinicians and researchers is inventing new tools and that's problematic because it means that everybody uses a different tool. So, research is difficult because you can't pool the results and benchmarking is hard because you can't compare outcomes across different centres and populations. So one of my pleas to you is to use tools as far as you can that already exist. Perhaps use existing tools and go out there and validate them rather than reinventing yet another tool because there are hundreds of tools already out there. If you decide that none of those tools is anywhere near fit for purpose, yes, fine we have to go and invent new ones but if we can get evidence about existing tools, that would be better.

Slide 11

Physical function

- Why do it?
  - To assess falls risk
  - To guide requirement for physical therapy
  - To help with prognostication (and perhaps to document this)
  - To inform conversations about treatment choices (e.g. RRT)

Physical function. Why do you want to assess it? Because it predicts falls risk, because it tells you who might need physiotherapy, because it's a powerful prognostic indicator and it's at least as powerful as the standard outcomes that you might measure in your normal clinical practise. You might want to document why you have made a prognostic choice and if you've got evidence about poor physical function that helps to document that. It gives you the information you might need to have those conversations about treatment choices. I'm not going to talk about frailty but Nelly who is the next speaker is going to and clearly, frailty is one of the big issues that plays into some of those decisions.

Slide 12
So here are some suggestions. The Timed up and go test involves getting out of the chair, walking 3 metres to a line, turning round, coming back and sitting down. It's very simple, it's very easy to do, it's a powerful predictor of falls as well as other adverse outcomes. If you want to measure endurance, then the 6-minute walk test is a possibility. You need a long flat corridor and you need somebody to walk for 6 minutes. They can have a rest; they can get up and start again. That is much easier than trying to measure things like peak oxygen consumption in old frail people with walking aids and Zimmer frames. Gait speed is very easy, takes much less time than the 6-minute walk because you only need to walk 3, 4 or 6 metres but low gait speed is a very, very powerful predictor of death, institutionalisation and hospitalisation and it's very, very simple to do. An augmented version of that is the Short Physical Performance Battery that looks at lower limb function in terms of gait and balance and speed that's probably the tool where there is the most evidence currently around prognosis. It predicts all of the main things that you might be interested in in older people generally. The final simple measure that you could use if you're interested in muscle strength is to use handgrip strength using a handgrip dynamometer as shown in the picture here. It's much easier and much more reliable than trying to measure lower limb muscle strength and the problem with it is that although it's a powerful predictor of adverse outcomes, it's actually very difficult to change and there are very few outcomes-based intervention trials that have successfully improved grip strength. Some of the nutrition interventions have but part of the problem is that you don't routinely exercise your forearm and that is where the improvement in grip strength needs to come from.

Slide 13

Activities of daily living

- Why measure?
  - To ascertain function and hence current needs
  - To triage for OT referral and therapy
  - To plan discharge / care packages
  - To chart improvement with rehabilitation
Moving up a notch then we can look at activities of daily living. You might want to measure these so that you have got an idea of current function and hence what the needs for social care and for assistance on discharge are. You may wish especially if you don’t have routine access to an occupational therapist, to measure ADL so you can decide who needs referral to an occupational therapist. You need this in order to plan care and plan discharge and also you may wish to measure ADL so you can document that your service it is actually improving patient’s function with rehabilitation.

There are basically two types of tools here, there are ones to look at basic activities of daily living and that’s the building blocks such as walking, transferring, continence and there are usually 10 or 11 domains. The Barthel index, which is 50 years old is the traditional way of doing this but other tools exist such as the Katz index that is used routinely in the US. Then at a higher level, there are instrumental ADL such as shopping and driving and the other functions of daily life. The Nottingham extended ADL score is one that we often use in the UK. There are others including the Lawton index and the Townsend scale of disability that can be used in this context. There are lots and lots of different scores, some are fine, some may be less suited to your practise, some take longer than others, there are balances to be struck there. But those are the two key types of tool that you may wish to consider.

Cognition

- Why measure?
  - Cognitive impairment is very common (15-35% of ESRD)
  - Delirium is a medical emergency
  - Dementia is treatable
  - Cognitive impairment is treatable (e.g. medication changes)
  - Cognitive impairment complicates discharge, adherence, self-care
Moving on to cognition. Key component of comprehensive geriatric assessment. Cognitive impairment is extremely common. It's common in older people; it's common in people with advanced kidney disease. It's been estimated that 15-35% of people with ESRD have at least some cognitive impairment. There are two things to think about here. Firstly there's delirium, what we used to call an acute confusional state. Delirium is extremely common in hospitalised patients. It is treatable, it is preventable and it is a medical emergency. If you have delirium, you have a twice as high mortality as people without delirium. Delirium leads to permanent reductions in cognitive function. Then there is dementia. It's commonly missed, it's commonly overlooked but dementia is treatable, yes the drugs are not brilliant but they do have an impact, they do have an effect. If you are going to offer the right sort of support to patients, it's important to be aware of a diagnosis of dementia. The other point is that regardless of the diagnosis that you reach, knowing that somebody has cognitive impairment is important when it comes to thinking about discharge, thinking about adherence not just to medication but also to diet and to think about their ability to self-care and how you might need to put help in place to allow them to live independently in the community. We often find as geriatricians that undiagnosed cognitive impairment is a major cause of readmission. If you don't diagnose it, you've got the wrong idea about what people are capable of in their home environment, you send them home and a week later they're back in hospital because they have failed discharge which is usually what is written on the referral letter. That can be avoided if you're aware of the problem when you make the diagnosis.

Slide 16

- **MMSE (30 pts)**
  - Examines multiple domains
  - Cutpoints for diagnosis / therapy well established
  - Weak on executive dysfunction; skewed to orientation
  - Copyright issues

- **MoCA (30 pts)**
  - Less well established re: cutpoints
  - No copyright issues
  - Better for executive dysfunction

- **MEAMS**
  - Tests cognition in the context of ADLs
  - Usually needs an OT to perform

The most widely used tool is the Mini-Mental State Examination. It's a 30 point tool, it takes 5-10 minutes to complete, it does examine multiple domains of cognition and the advantage is that it is extremely well known, well-established and many of the dementia trials used it so we know what the cut points for diagnosis and for therapy indications are in dementia. The problems with the Mini-Mental State are that it is not a good tool for uncovering executive problems. It's heavily skewed to orientation, a third of the points are on orientation. It's also skewed away from things such as visuospatial dysfunction. Given the fact that many people with kidney disease have got prominent executive dysfunction and visuospatial dysfunction, the main fact have patchy deficits because they have vascular cognitive impairment it may not be the best tool for this population. The other problem with the Mini-Mental State is that there are copyright issues and if you use it, you're supposed to pay one dollar per time unless you have got a special opt-out such as the NHS now has in England. So, there are other tools which you may wish to consider and the Montreal Cognitive Assessment is also a short 30 point score, takes 5-10 minutes. It has not been around as long, the cut points are less well established but it's free, there are no copyright issues and it's much, much better for a wide range of functions such as executive dysfunction, processing speed and visuospatial function. The other tool that I'll just flag up is something slightly different, which is the MEAMS, which is the Middlesex Elderly Assessment of Mental State. This is a tool that usually gets completed by an occupational therapist whilst they are assessing people in the context of activities of daily living. So they'll perhaps take them into a simulated kitchen, get them to do some tasks and assess cognition whilst they are doing those tasks. It's a 12-point test and the good thing is it tells you something about what their cognition is like in real life situations and that's very valuable for deciding how people are going to function outside of hospital whereas the other tests perhaps test cognition in a much more abstract way.
Other tools

- ACE: 100 points. More comprehensive than MMSE, but incorporates it and takes longer
- AMT: Screening only
- 4AT: Delirium screening only. Yet to be validated
- CAM: An algorithm, not a score. Use for delirium

Match the tool to the use!

There are other tools. There's the Addenbrooke's Cognitive test, which is much longer, more comprehensive but it does also incorporate the mini-mental state, so there are issues about copyright there as well. I would argue against using the abbreviated mental test, which is the 10-point AMT. You can use it for screening. If it is abnormal, there is clearly a problem but it misses a lot of subtle cognitive dysfunction and it's very heavily skewed towards orientation. Then there are delirium-screening tools. There's the 4AT, which is a new tool, which is being trialled in the UK at the moment and that has yet to be validated but looks promising. There's the Confusion Assessment Method, which is an algorithm rather than a score but is easy to do, you can train up general physicians and nursing staff on the wards to do it and that's been validated against the gold standard DSN IV criteria for delirium and is a very useful way of going around and detecting delirium. So, you need to decide what you want to try and do with the tool and then match the tool to the use that you wish.

Depression (and anxiety)

- Why do it?
  - Very common in chronic illness
  - Higher hospitalisation rates
  - Higher death rates
  - Treatable
  - Impacts on self-care, quality of life, worsens cognition

Depression and anxiety. Very common, especially in chronic illness, very, very common in hospitalised patients. Half of my patients admitted to hospital have anxiety or depression. So it's associated with higher death rates and of course it's treatable, it's got important impacts on health care, quality of life and it also worsens cognition. So lots of reasons to go out and look for it and to try and treat it.
Important thing to recognise about the tools for screening for depression are they are only screening tools and you cannot make a diagnosis based on the high score that you get in these tools. If you get a high score, you need to sit down and take a proper history to look for symptoms of depressive illness. So, the Geriatric Depression Score, its 15-point and 4-point versions, very quick. The problem there is that it can be affected by psychical illness. So the Hospital Anxiety and Depression Score can be preferable in people with lots of comorbid disease because it was specifically designed not to take into account somatic symptoms of depression or anxiety so much.

Quality of life

- Complete minefield!
- General vs disease-specific
- SF-36
- EuroQoL-5D
- KDOQI
- Individualised tools (e.g. SciQOL)

I’m not going to touch too much on quality of life. Quality of life is important but measuring it is a bit of a nightmare. The key principles though are that you need to measure general quality of life across a broad range of domains and disease specific quality of life. So, you may wish to use a mix of tools such as the KDOQI tool for kidney disease specific quality of life but a more general quality of life tool such as the EuroQoL to capture other domains. There are a lot of problems with terminology here in that not all of these tools are really quality of life tools, they are health status tools or health-related quality of life tools. So you have to again be very clear about what it is you’re trying to measure. Quality of life is very subjective and varies a lot between people and one of the problems of all of these tools is that they may not capture what is relevant to an
individual's quality of life. So individualised tools have been invented such as the SeiQOL tool, which asks the patient what is important to them and then rates that quality of life. The problem is that the psychometric properties of those tools are extremely poor, especially when it comes to documenting improvements. In part that is because people's ideas about what is important to them in terms of their quality of life shift over time. Getting a tool to capture that is extremely difficult.

Slide 21

Caveats

- Many tools have never been validated in older kidney disease patients
- There is a leap between getting the information and using it to base decisions on
- Beware trying to use tools to show that your service improves patient's abilities – many are not validated for this
- Some domains may benefit from new tools (e.g. quality of life)
- For others, using existing tools but validating them in older kidney patients is likely to be more useful

So some caveats as I come to an end here. Many tools haven't been validated in older CKD patients and that's worth bearing in mind because you are extrapolating from an evidence base. Just measuring these things is not enough; you've got to have algorithms on how you're going to use this information. In order to use it, you need the right mix of people in your MDT. Many tools aren't validated for showing service improvements so beware if you're trying to use the tools to do that. We may need new tools but I think it's better to try and validate the existing tools.

Slide 22

Summary

- Comprehensive Geriatric Assessment improves outcomes
- Tools are an integral part of this
- Think carefully about what you want to measure before choosing a tool
- Beware unvalidated tools
- Get trained – tools require a standardised approach to get useful results from them
- How will using a tool help or change your management?

So in summary Comprehensive Geriatric Assessment is good stuff, it's good for older people, it's got a good evidence base. Tools are an integral part of assessing and delivering that but you need to think very carefully about what you want to measure first. You need to beware of invalidated tools and when you do use tools, get your staff trained so they're delivering these tools in a high quality and consistent way. Think always how will changing this tool help or change my
management because if it's not going to, I would suggest that you're better off not measuring it, go and do something more useful instead.

Slide 23

Thank you very much.

Slide 24

Questions

Chairman: Thanks very much Miles. I think there's time for one quick question if there are any. Otherwise, we can take things at the end. If you could come to the microphone, if there are any. Ok.

Question: Hello, I'm Rob – Melbourne, Australia. Putting people on home dialysis there is a great number of elderly people that we put on PD and even some elderly people go on to hemo, they seem to be able to drive their car, they seem to be able to use their video recorder at home. But we don't know whether they should be doing dialysis. We always send out quality of life, so I do mine 6 monthly and you're right I have no idea what I do with the data because when it goes down I just say oh well. But what about this Geriatric Assessment Score? Can we use it as a tool to monitor our home patients since they're much more separated from us now?

Prof. Witham: You can, the question is again what are you going to use the information for. There was quite an interesting study recently that suggested that the number of people on assisted PD, no actually on unassisted PD who had some degree of cognitive impairment was absolutely enormous and yet they were still managing to do their PD. So I suppose my thought on that would be it's all very well measuring it but you have to be careful that you're not going to deny people
who might actually manage it on the basis of finding some subtle cognitive function. I suspect that it's one of those things that we do need some further research at what threshold and in what domains are you highly likely to run into a problem. There's a similar argument with all sorts of things in geriatric medicine here such as how do you form a threshold for who is going to benefit from rehabilitation or not. The reality is it's very difficult to find people where you can do a cut point on any measure that you can say they're definitely not going to benefit from it. It may be that this is a similar situation. It may be one of those things where you can do as many tests as you want but you may need just to go and try them in a lot of cases and if it works then fine, if it doesn't then perhaps that's where the assessment becomes more important because you can dig into it and say why is it not working? If it's not working because of something that is reversible, can I fix it to make this work or is it actually something that is irreversible. Thank you.

Chairman: Ok, thank you very much Miles.