

MAGIC Measurement Strategy

Kirkpatrick's Model

MAGIC's measurement strategy is based on Kirkpatrick's¹ model of educational evaluation. This provides a four-tier approach, gaining feedback from candidates about their own learning, as well identifying changes effected at unit level:

- Level 1: "did you enjoy participating in this educational programme"

Simple evaluation about usability, interest in topic, enjoyment of session, suggestions for improvement - essentially what we usually term 'feedback' from the session
- Level 2: "did you learn anything from this educational programme?"
- Level 3: "did you change practice following attendance at this educational programme?"
- Level 4: "did clinical outcomes change following this educational programme?"

Levels 1, 2 and 3 measures will be used to gain feedback on the educational materials and awareness materials. This feedback is similar to process measures and will help identify what changed due to these interventions and also what didn't have an effect. The following measures will be collected to evaluate these elements:

- ELearning
 - Number and type of people accessing the ELearning
 - The average pre and post quiz scores, to see if the ELearning package changed this
 - An evaluation form to be completed by people completing the ELearning. This will include elements to identify Level 1, 2 and 3 outcomes
- Awareness materials
 - Numbers and types of materials ordered and used
 - A short evaluation form completed by patients to identify Level 1, 2, and 3 outcomes.

Level 4 measures identify the change on clinical outcomes. These link to the objectives for MAGIC and include patient experience measures as well as clinical outcomes.

Data on the identified clinical outcomes and patient experience measures will be collected by the needling champion and vascular access appraisal lead weekly / fortnightly / monthly on a selected date, as agreed at regional level, either from:

- A sample of haemodialysis patients agreed at regional level OR
- The total haemodialysis population on that day inclusive of patients not actually dialysing that day.

Units will have access upload frequency of these outcomes to the Life QI measurement platform, allowing the data to be converted into run charts that can be viewed at unit level.

¹ Yardley S, Dornan T. Kirkpatrick's levels and education "evidence"; *Med Educ* 2012; 46 (1): 97
<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2923.2011.04076.x/full>

Level 4 Measures: How did clinical outcomes change?

Mandatory Measures – Patient Level

Data from a sample of patients agreed at regional level

Needling Technique (as per BRS VA/VASBI Definitions)

Number of patients using each needling technique for that haemodialysis session.

Buttonhole: Cannulation of each cannulation site in the same manner each time. Involves removing the scab of the previous cannulation prior to needling. Includes cannulation with sharp needles or blunt needles.

Rope Ladder: Cannulation that moves up the vein at each treatment in a progressive manner, to cover as much of the vein as is possible. Once the top of the vein is reached, cannulation starts at the bottom again. One cannulation site's (A or V site) needle marks should cover at least 5cm.

Area Puncture: Cannulation in a different site each time that does not progress up the vein in a systematic manner AND/OR one cannulation site's needle marks cover less than 5cm.

For more clarification see BRS VA / VASBI definitions:

<http://vo2k0gci4747qecahf07gktt.wpengine.netdna-cdn.com/wp-content/uploads/2016/10/Definitions-of-Cannulation-Techniques-used-for-Arteriovenous-Fistulae-and-Grafts-for-Haemodialysis.pdf>

Missed Cannulation

Number of patients for that haemodialysis session that experienced more than one attempt to insert a needle at one needling site.

More than one attempt is defined as either:

- Complete removal and the reinsertion of another needle by either the same or a different person
- Adjustment of the needling once taped in place after the first insertion.

Patient Experience of Needling

Patients are asked about their needling experience, using the PREM needling question:

'How often do the renal team insert your needles with as little pain as possible?'.
Patient rate this on a score of 1 to 7, with 1 being 'Never' and 7 being 'Always'.

This question should be asked using a written questionnaire and patients should be able to return answer anonymously via a box at the nurses' station. It must NOT be asked verbally by staff.

Mandatory Measures – Unit Level

Data from the total haemodialysis population on the designated day, inclusive of patients not actually dialysing that day, but dialysing the day before or after.

Rates of AVF / AVG / CVC

% of the haemodialysis population using AVF, AVG and CVC for haemodialysis.

AVF: Cannulation of normal vein segment, even if flow is supplemented by artificial material

AVG: Cannulation of artificial material

Hybrid: One site cannulates normal vein segment and one site cannulates artificial material

CVC: Tunnelled or non-tunnelled central venous catheter

Patients who use more than one type of access score in both categories, except for AVF / AVG dual use.

Numbers of AVF/G Lost

Number of AVF/G in the current haemodialysis population that were cannulated for haemodialysis 1 month ago and are no longer cannulated for haemodialysis.

This should exclude patients who have changed modality to peritoneal dialysis, those transplanted, deaths and haemodialysis withdrawals in the last month. This is purely for active haemodialysis patients who are part of the haemodialysis population.

Numbers of New AVF/G

Number of new AVF/G cannulated and used for, either fully or partially for a haemodialysis session on or 1-2 days before the designated day, that were not in use 1 month ago.

Any AVF/G cannulated and used for haemodialysis alongside CVC or only used for the partial treatment is counted in this number. New patients to haemodialysis using an AVF/G count in this number.

Infection

Number of patients who have experienced a VA infection in the last month

Infection includes any haemodialysis patient who has received IV antibiotics &/or a positive blood culture in the last month, for an infection directly attributed to the vascular access (including CVC) or an infection with no other identified cause, even if there are no signs of infection on the vascular access.