Internal Medicine National Programme of Care

ITEM 04.4

SEVERE INTESTINAL FAILURE: SIF Model Configuration Options

Proposal to optimise the delivery of specialised SIF services through reconfiguration of the service

25 June 2018

Summary:

1. To support the Case for Change of the National Severe Intestinal Failure (SIF) Adult Service Review this paper outlines:

   a) The methodology and approach taken in developing the options that Specialised Commissioning in response to the new service model.
   b) Discusses the advantages and disadvantages of the three options for future service configuration of Integrated and Home Parenteral (HPN) Centres that were considered.
   c) Recommends a preferred option: **Option 2**
   d) Incorporates comments from the NPOC Board in March 2018

Preferred Option: Option 2			
Region	**Integrated SIF Centre to treat Type 2 and 3 SIF and HPN**	**SIF Centre to support care of Type 3 SIF and HPN**	**Total**
North	4	2	6
Midlands and East	2	4	6
London	2	2	4
South	3	3	6
Total	**11**	**11**	**22**
All Centres		**22**	

2. The National Programme of Care (NPOC) Board has approved the approach taken and the recommendation that Scenario 2: eleven integrated centres (for Type 2 and Type 3 IF) and 11 Type 3 SIF PN centres so providing SIF services in 22 locations overall.

Background

3. Severe Intestinal Failure was commissioned as a Highly Specialised service in the 1990s from 2 services. The success of the SIF service led to a strategic report in 2008 recommending that a more dispersed service model should be commissioned that distinguished between the specialised hospital-based surgical and medical needs and the care of patients once discharged who still require lifelong medical support. For a number of reasons the new service model was not formally commissioned and instead clinical teams with an interest developed services without a national assessment of

need or development of an optimal configuration of SIF services. There are wide variations in the scale of services, clinical practice and in quality metrics such as length of stay and a lack of clear referral pathways. This results in a lack of consistent evidenced based management, lack of provision of needed services and delays in appropriate referrals for patients with SIF leading to poor outcomes and unproductive admissions[1].

4. The current provider landscape comprises forty five services including two major service providers, a small group of medium sized providers and a long tail of small providers delivering this service below the recommended model described in the Service Specification and the Association of Surgeons of GB and Ireland (ASGBI) guidelines. The service review process has identified that some hospitals are offering SIF services but do not have this service specification as part of their contract for specialised services. The piecemeal development of services and the delivery of different standards of care across providers coupled with a long tail of small providers not able to offer comprehensive SIF services has led to inequities in both quality and access to high quality care.

5. In 2017, NHS England held a public consultation on the revised SIF Service Specification that recommended the provision of a new model of service with provider networks and new quality indicators for IF services.

6. The revised service specification also recommended future SIF Service would be delivered by two types of SIF centres:
    - Integrated SIF Centre: to treat patients with both type 2 and type 3, and will provide support to Home PN Centres as part of a network
    - SIF Centre to support patients with type 3 IF
    - Centres that can source and manage Home Parenteral Nutrition.
    - In addition to support transition to the new model, it is proposed two of the Integrated SIF Centres will be selected within the procurement process to be Reference Centres for a 3 year period. Their role will be to support other Centres as they develop, and provide assistance with complex clinical cases.

7. The recommendations and assessment of the new model of service was based on significant provider, commissioner and patient engagement which included:

    - SIF patient focus groups (which included patients with SIF type 2 and type 3 and a Patient Survey
    - Direct provider engagement on the service model
    - Regional SIF commissioner and provider workshops which participated by more than 150 people

8. **Modelling Approach:** The paper discusses the factors considered, and the approach to modelling.

It is recognised that SIF services are complex because they need to deliver three different services within the one overarching model. An inpatient and outpatient based service, a home based service and a business interface with manufacturers of parenteral nutrition. Hence the recommendation that this needs to include a formal network approach. From a

[1] Quality issues in the current provision of adult intestinal failure (if) services 31st July 2017

patient perspective patients have confirmed they value both clinical expertise and care closer to home and have welcomed the opportunity to help develop a model which they believe will finally resolve the issues that have arisen from the piecemeal development of SIF services over the last decade.

The factors that were considered in developing the service model and provider configuration scenarios and options were the need to deliver:

- a complex service dependent on a large multidisciplinary team with specialist skills and knowledge
- hospital based services available 7 days a week in both surgical and medical specialties
- hospital based specialist equipment such as interventional radiology services available 7 days a week
- the need to address quality deficits in the referral pathway and within the service
- oversight of long term specialist care to patients in their home
- ability to oversee delivery of outsourced nutrition and homecare provision
- a model to reduce variation in delivery and promote clinical best practice
- a model to support capture of outcomes and promote research opportunities
- a better experience and outcomes for patients
- geographic coverage to give reasonable access for patients

In addition, we used the Boston Consulting Group (BCG) configuration toolkit to inform modelling of SIF services to generate the range of providers that could be meet defined demand and supply assumptions. It is recognised the purpose of the toolkit is to provide an aid to decision making by testing assumptions and generating discussion to reach a consensus.

9. Engagement Responses
   In developing the scenarios, and options we considered feedback we received from patients during engagement events and public consultation. Patient feedback indicated the quality of service, safety and support is of primary concern to them, such as:
   - Centres should have sufficient capacity and were suitably staffed. Patient feedback showed people appreciate being known personally by staff that understand individual needs and take the time to fully assess and work well together as a multidisciplinary team.
   - Centres should perform above the minimum number of type 2 surgeries specified in the service specification to ensure clinical viability, safety and confidence in the service.
   - Patients strongly agreed that they would prefer to travel further to ensure specialist access for surgery (Services for type 2 SIF)
   - As a long term condition for many respondents, people appreciated more local support for home care and self-care so that they had the expertise to look after themselves at home.

10. For SIF services, we used the toolkit to consider four main criteria in determining the desired range of providers:
    - viable volumes – the minimum level of activity that should take place at a centre for the service to be clinically viable as well as safe for patients
    - the relationship between volume and financial sustainability

- access to services – maximum distance patients would need to travel to access services.
- provider capacity – the maximum level of activity that may take place at a centre
- data validity – minimum level of activity for robust data flows and information from an audit of centres

11. The toolkit assumptions we used to inform our model and the rationale for these assumptions are listed in Table 1 below.

Table 1: Assumptions used in SIF toolkit

Criteria	Unit of measure	Type 2		Type 3	
		Assumption	Rationale	Assumption	Rationale
Viable Volumes	Patients	40	Based on clinical consensus from CWG	50	Based on minimum viable cost
Data Validity	Patients	36	Based on data from providers	70	Based on data from providers
Access	Centres	15	Based on access within 1 hour	15	Based on access within 1 hour
Capacity	Spells	160	Based on volume (spells) analysis	148	Based on volume (spells) analysis

Options

12. In response to the new model of care described in the revised service specification, there are 3 Options on the future of SIF service configuration we explored, each of which is discussed in this section.

The Options are:

- Option 1: Do Nothing: 45 locations
- Option 2: Reconfigure to 11 Integrated centres and 11 Centres for Type 3 : 22 locations
- Option 3: Reconfigure to 10 Integrated centres and 10 Centres for Type 3: 20 locations

Option 1: Do Nothing Option: Maintain the same service configuration and SIF service provision

The Do Nothing Option does not address quality, patient experience and financial issues but also does not address the increasing inefficiency of the current model as demand increases over the next 5 years.

Do Nothing: Current Configuration			
Region	**SIF surgical service for Type 2 and 3 SIF and HPN**	**SIF non-surgical service for Type 3 SIF and HPN**	**Total**
North	9	2	11
Midlands and East	8	4	12
London	5	3	8
South	11	3	14
Total	**33**	**12**	**45***
All hospitals		**45**	

* This includes 20 hospitals that do not have the Adult SIF service specification within the contract for specialised services at their hospital.

13. Advantages of this model:

- No provider reconfiguration is required;
- There are no transactional costs introduced in the system to implement the new model of care.

14. Disadvantages of this model:

- The current configuration does not incentivise providers to improve services as for most this is not a key service within the Trust.
- The current resource investment in services is not directed to service improvement.
- The current model is a barrier to achieving patient priorities of more coordinated and expert care, including clearer referral pathways to reduce delays in appropriate treatment.
- Does not develop an expert group of provider teams to deliver best practice and enable outcome measurement.
- Continued growth in the number of NHS generated SIF patients and a reduction in mortality rates will not be delivered.
- Lack of incentives to address non-compliance with the service specification
- Contractual issues with hospitals who do not have service spec within the agreed contract.
- Higher costs to achieve compliance with the service specification for 24/7 services and teams across all 37 providers
- Lacks sustainable financial flows to maintain or develop services or incentivise more cost efficient homecare.

Option 1	Objectives Met
Network Model	No
Demand	Yes
Quality	No
Efficiency	No
Patient Experience	No

Option 2: Reconfigure to have Integrated IF Centres and Centres for Type 3 and HPN

Option 2 will address quality, patient experience and financial issues but also addresses the increasing inefficiency of the current model as demand increases over the next 5 years.

Option 2			
Region	**Integrated SIF Centre for patients with Type 2 and 3 SIF and HPN**	**SIF Centre to support patients with Type 3 SIF and HPN**	**Total**
North	4	2	6
Midlands and East	2	4	6
London	2	2	4
South	3	3	6
Total	**11**	**11**	**22**
All Centres		**22**	

15. The advantages of this provider configuration model:
    It provides optimum balance of all concerns raised by patients (access, minimum and viable volumes of activity and provider capacity);
    - It will ensure that all providers are able to comply with the safe levels of activity as per ASGBI guidance and SIF Service Specification and will be able to provide a quality safe service to SIF patients;
    - It will ensure that 85% of type 2 patients are able to access Integrated Care provider in 1 hour and Homecare provider for long term patients in less than 1 hour from home;
    - For majority of patients the travel distance particularly for non-surgical procedures will be shorter than it currently is.
    - It will support delivery of networked care as detailed in the Service Specification to ensure that patients are able to get access to quality and safe service as closer to home as possible from experienced teams.
    - It ensures that the new model of provider configuration is as cost efficient to the NHS as possible while being accessible and responsive to patients' needs;

16. The disadvantages of this model are:
    - Some of the patients may need to travel further than they currently do to access the service, but this should not exceed 1 hours travel.

- Some of the providers will have to transfer care of their long term patients to another provider and as a result some patients would receive care from a new clinical team and in a different location.
- Some staff members may have to relocate to where services are commissioned in the future.

17. Other considerations: It is recognised in some regions the model recommends more surgical centres are commissioned than are currently within the region. However, looking at demand patterns it is known there would be adequate capacity nationally to serve the forecast population The model assumes extra capital funding will not be required to set up any new SIF surgical centres. Providers will have the opportunity to comment during public consultation on the preferred model.

Option 2	**Objectives Met**
Network Model	Yes
Demand	Yes
Quality	Yes
Efficiency	Yes
Patient Experience	Yes

Option 3: Greater reconfiguration of Integrated SIF Centres and Centres for Type 3 and HPN

Option 3 would comprise ten integrated centres and ten HPN centres.This option will address quality and financial issues and also the increasing inefficiency of the current model as demand increases over the next 5 years. It does not meet all the priorities identified by patients to improve equity of access and deliver patient centred care closer to home.

This option assumes twenty SIF services would be commissioned overall. The key difference from Option 1 is that there would be significantly fewer surgical centres and Type 3 services. The difference between Option 3 and Option 2 is there would be fewer locations offering services in Option 3. Although the overall number of services supporting HPN recommended under Option 3 is nearly the same as option 2, the regional distribution of the centres is different. In particular, this model does not create capacity closer to home to treat patients in some regions such as the South region.

Option 3 The regional breakdown of this model is presented below:

Option 3			
Region	**Integrated SIF Centre for patients with Type 2 and 3 SIF and HPN**	**SIF Standalone Centre for Type 3 SIF and HPN**	**Total**
North	4	2	6
Midlands and East	2	3	5
London	2	2	4
South	2	3	5
Total	**10**	**10**	**20**
All Centres		**20**	

18. The advantages of this provider configuration model:

- It will support delivery of networked care as detailed in the Service Specification to ensure that patients are able to get access to quality and safe service as closer to home as possible;
- It ensures that the new model of provider configuration is as cost efficient to the NHS as possible.
- Patients will receive good quality care from experienced teams as providers will have to comply with the minimum safe levels of activity as per ASGBI guidance and SIF Service Specification.

19. The disadvantages of this model are:

- Although the overall number of HPN centres recommended under option 3 is 1 less than option 2, the regional distribution of the centres is very different. In particular, this model does not create capacity closer to home to treat patients in some regions such as the South region.
- It is likely patients in the South region (45%) and Midland and East Region (27%) would continue to travel to London to receive care, which does not address one of the main recommendations of the service review public consultation to deliver quality care closer to home.
- In the short term some of the providers will have to transfer care of their patients to another provider and as a result the patients would need to adjust to receiving care from another clinical team and in different settings.
- Some staff members may have to travel longer to where services are commissioned.

Option 3	**Objectives Met**
Network Model	Yes
Demand	Yes
Quality	Partially
Efficiency	Yes
Patient Experience	No

Scenarios not taken forward by the SIF Steering Group

The modelling also generated and considered the absolute minimum number of centres viable based on the highest throughput possible within a centre. The resulting configuration would have limited centres to such a degree that it was felt contrary both to the strategic vision for the service and the model described in the SIF Service Specification and patient preferences so has not been included within this paper.

Discussion

Option 2 is presented as the preferred option as it best meets the needs of clinical, patient and commissioner stakeholders.

It provides the best opportunity:

- To develop good practice and develop outcome measures
- To facilitate performance benchmarking and a cost efficient model of care
- To allow current and new resources to be concentrated within fewer services
- To provide patients with reasonable access to high quality services whichever part of the SIF pathway they require.

Recommendation

Based on the modelling commissioned by the SIF Steering Group we recommend Option 2 where twenty two SIF services should be commissioned, comprising eleven SIF integrated centres and 11 SIF type 3 services.

The NPOC Board endorsed the model described above as it included relevant factors to delivering a service model better able to meet patient needs.

Appendix 1

Annex 1.1 Demand Analysis for the distribution of the services by region are summarised in table 3 and 3 below.

Table 3: Home PN Centre

Range of provider numbers	Current populations[2]	Forecasted population requirement[3]	Current landscape	Recommendation	Rationale
National	**15 – 18**	**16 - 35**	**45**	**22**	
North	5 – 7	5 - 8	9	6	- Access for 85% of population indicates min 5 providers. - Volumes indicate maximum 7 providers are viable. **Recommend 6 providers to allow sufficient capacity and increase access to services.**
Midlands and East	5	5 - 7	7	6	- Access for 85% of population indicates min 5 providers. - Suggest increasing capacity to allow for referrals closer to home. Currently, 27% of Type 3 SIF patients from this region are treated in the London region. The new model aims to treat these patients closer to home. **Recommend 6 providers to allow sufficient capacity and increase access to services.**
London	4 - 6	4 - 7	4	4	- Regional demand indicates only indicate only 3 centres are required in London in the short term. **Recommend 4 to retain current capacity in London to avoid reducing capacity and then increasing it in line with growth. This will prevent occasional practise reoccurring due to lack of capacity.**

[2] This is based on the provider location where patients are currently treated.

[3] This is based on patients being treated closer to their homes calculated by their CCGs and forecast at year 5.

South	3 - 4	6 - 7	10	6	- Based on current regional services, only 4 providers would be financially viable. (6 providers treat less than the recommended 70 patients per year). However, a significant proportion of Type 3 SIF patients (45%) from the South are currently being treated in London. The new model aims to treat these patients closer to home. - Access indicated there should be at least 6 providers in this geography. **Recommend 6 providers to allow for referrals closer to home**

Table 4: Integrated Centre

Range of provider numbers based upon:	Current provider populations	Transition of patients at year 5 by CCG post implementation	Current landscape	Recommendation	Rationale
National	**10 - 16**	**11 - 17**	**25**	**12**	
North	5 - 7	5 - 8	8	4	**- Based on access for 85% of population - In line with the move of specialised services from Cumbria down to the NW the required number of integrated centres is only required to be 4**
Midlands and East	2 - 3	2 – 4	6	3	**- To allow for future growth in demand, suggest 2 centres.**
London	4 – 6	2	3	2	**- Based on access for 85% of population. As the standards of care improves in the South and Midlands and East regions it is anticipated that Type 2 patients currently treated in London region will be treated closer to home ie in their own Region**
South	3 - 4	2 - 3	8	3	**- Capacity indicates there should be at least 2 centres, but volumes**

					indicate only 3 would be financially viable. Furthermore, it is anticipated that patients from the South will be treated within the Region and not travel to London Region

Annex 1.2 Modelling of Scenarios

The Tables below provide greater detail on the modelling scenarios in terms of types of service. Table 5a shows the demand for Type 3 care by Region. It demonstrates that for some Regions, Midlands and East and South a significant proportion of patients are treated outside the Region of residence

Table 5a: Toolkit Provider Ranges for Scenario 2: Home PN support from either an Integrated centre or a standalone Centre

Range of provider numbers based upon:	Population where currently treated	Current number of Providers	Population at year 5 based on the patients' CCG	Future number of providers required	Provider landscape	Option 2
National	**1656**	**15 – 18**	**2,487**	**16 – 35**	**30**	**22**
North	506	5 – 7	769	5 – 8	9	6
Midlands and East	360	5	742	5 – 7	7	6
London	574	4 – 6	383	4 – 7	4	4
South	216	3 – 4	593	6 – 7	10	6

Table 5b: Toolkit Provider Ranges Scenario 2 Integrated Centres

Range of provider numbers based upon:	Population (by CCG)where currently treated	Current number of providers	Population at year 5 based on the patients' CCG location	Forecasted number of provider required	Current provider Landscape	Option 2
National	**623**	**10 – 16**	**718**	**11 – 17**	**25**	**12**
North	297	5 – 7	329	5 – 8	8	4
Midlands and East	126	2 – 3	169	2 – 4	6	2
London	88	4 – 6	75	2	3	2
South	112	3 – 4	144	2 – 3	8	3

Table 6a: Toolkit Scenario 3: Range of SIF Type 3 Care by Integrated Centres and Centres for HPN							
Range of provider numbers based upon:	Population where currently treated	Number of providers for current popn	Population at year 5 patients treated in current Region	Forecasted number of provider required	Current provider Landscape	Option 3	Population at year 5 based on 100% patients treated within host Region
North	506	5 – 7	760	5 – 11	9	6	5 - 6
Midlands and East	360	5	541	4 – 8	7	5	5
London	574	4 – 6	862	6 – 12	4	5	4 - 5
South	216	3 – 4	324	2- 5	10	4	3 - 4
National	**1656**	**15 - 18**	**2,487**	**16 – 35**	**30**	**20**	**17 - 20**

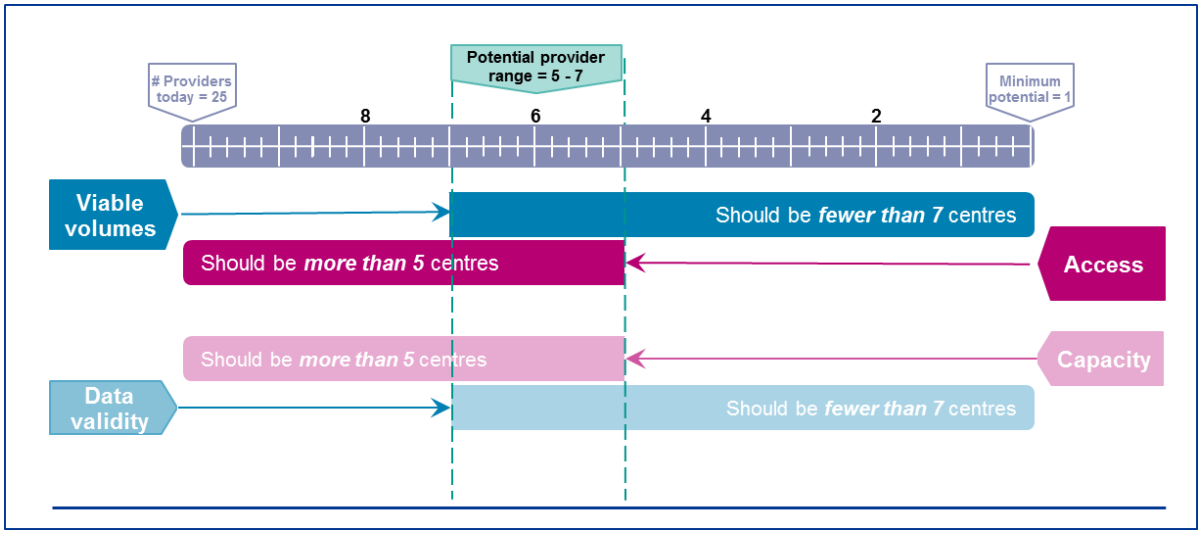
Table 6b: Toolkit Scenario 3 Range of Integrated centres							
Range of provider numbers based upon:	Population where currently treated	Number of provider required for current popn	Population at year 5 based on where patients are currently treated	Forecast number of provider required	Current provider Landscape	Forecast providers required – popn moves	Option 3
National	**623**	**10 – 16**	**718**	**5 – 10**	**25**	**5 – 10**	**10**
North	297	5 – 7	342	2 – 5	8	2 – 4	4
Midlands and East	126	2 – 3	145	1 – 2	6	1 – 2	2
London	88	4 – 6	101	1	3	1 – 2	2
South	112	3 – 4	129	1 – 2	8	1 – 2	2

Annex 1.3 Outputs from Configuration Toolkit by Region:

The Service Review Steering Group used the outputs to inform the discussion on key factors to support development of the options. The group also considered the size of the specialist team and infrastructure required to support the service

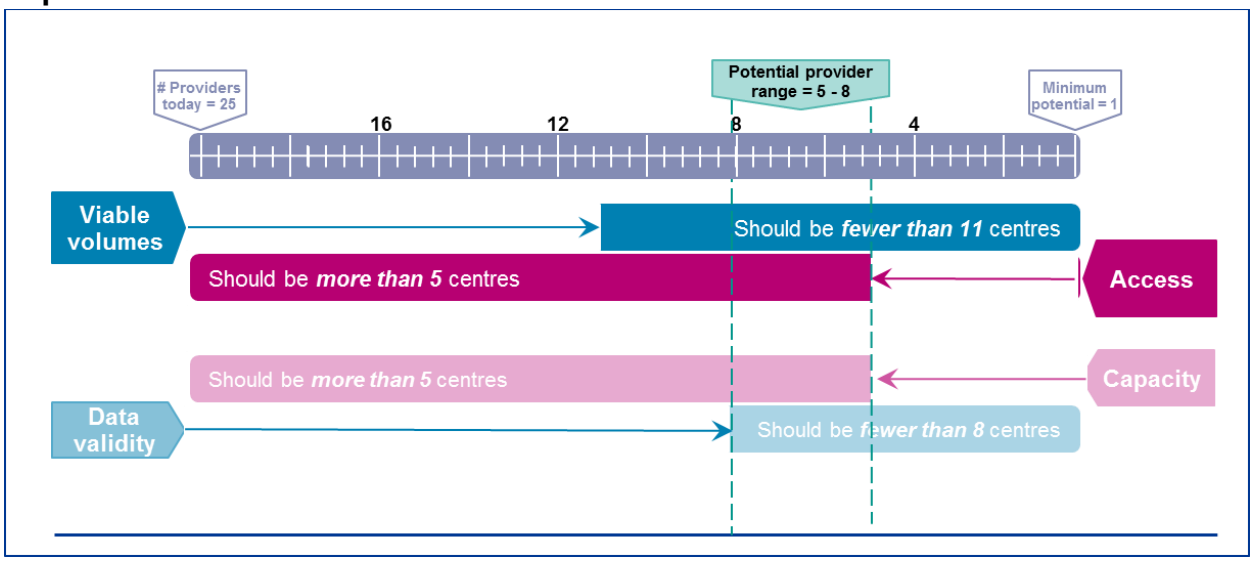
The modelling describes the possible range of future **Integrated SIF Centre** services for patients requiring Type 2 and Type 3 services and the possible future range of the number of sites required to treat patients needing home parenteral services.

North: Integrated Centres: Current patients by current hospital treating them 2016/17



After taking into account viable volumes, capacity, and access a range of between 5 and 7 hospitals would be possible for current patient flows.

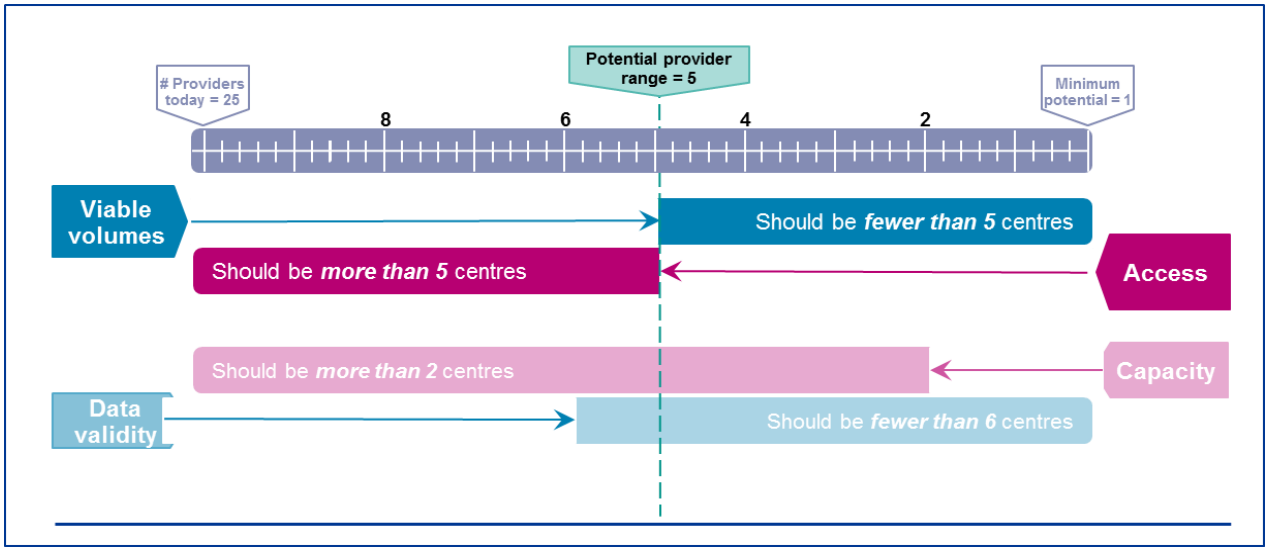
North: Patient flows by Year 5 treated within the Region they live in post implementation



After taking into account viable volumes, capacity, and access a range of between 5 and 8 hospitals would be possible for future patient flows.

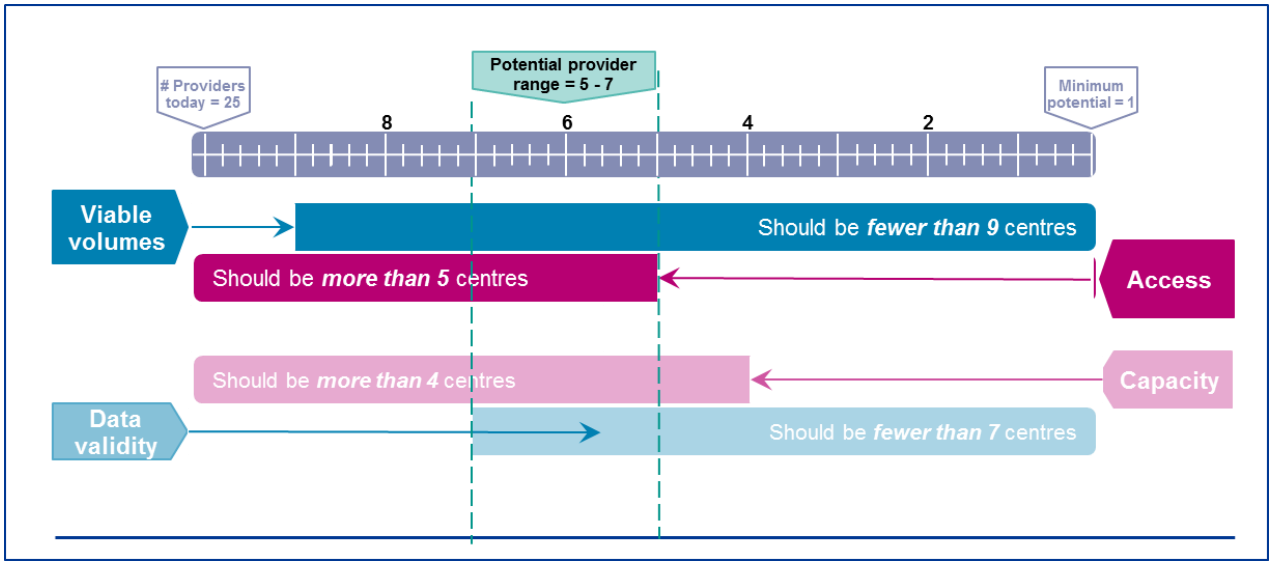
Midlands and East: Integrated Centres

Current patients by current hospital treating them 2016/17



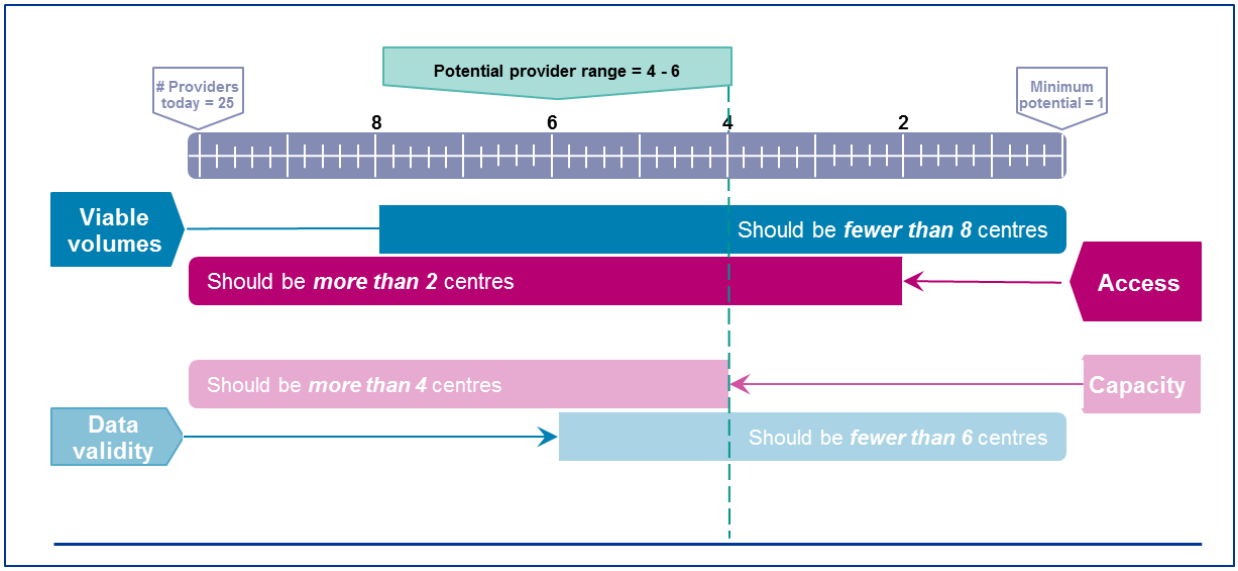
After taking into account viable volumes, capacity, and access a model with 5 hospitals would be possible to support current patient flows.

Midlands and East – Patient flows by Year 5 treated within the Region they live in post implementation



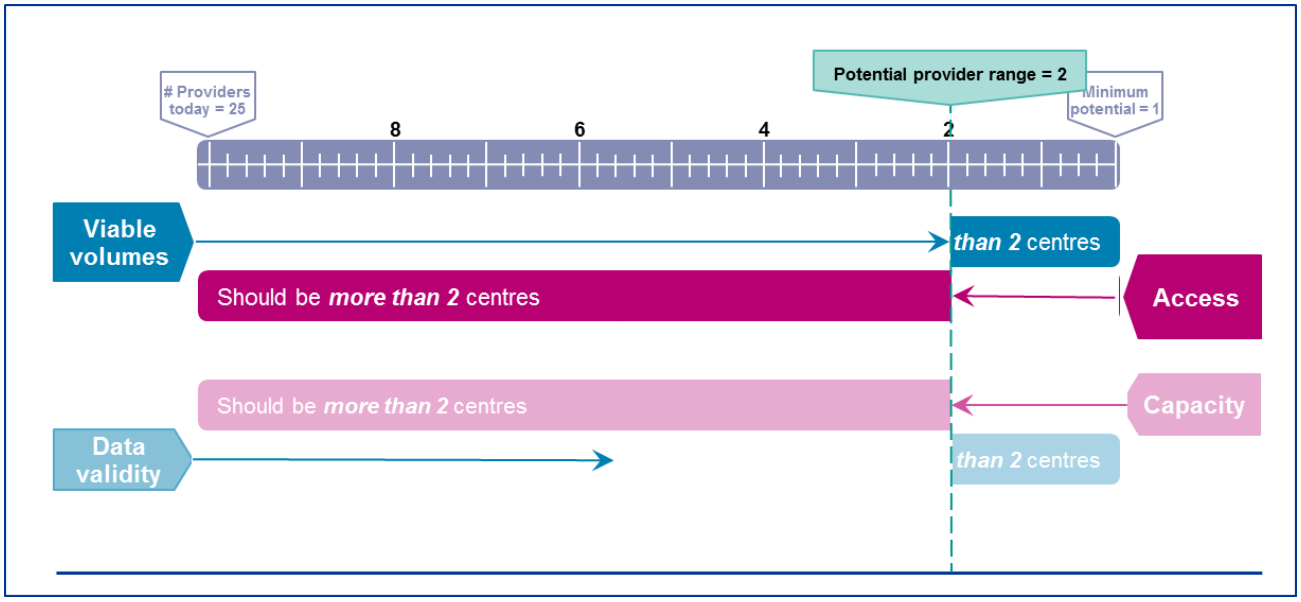
After taking into account viable volumes, capacity, and access a range of between 5 and 7 hospitals would be possible for future patient flows.

London Integrated Centres - Current patients by current hospital treating them 2016/17



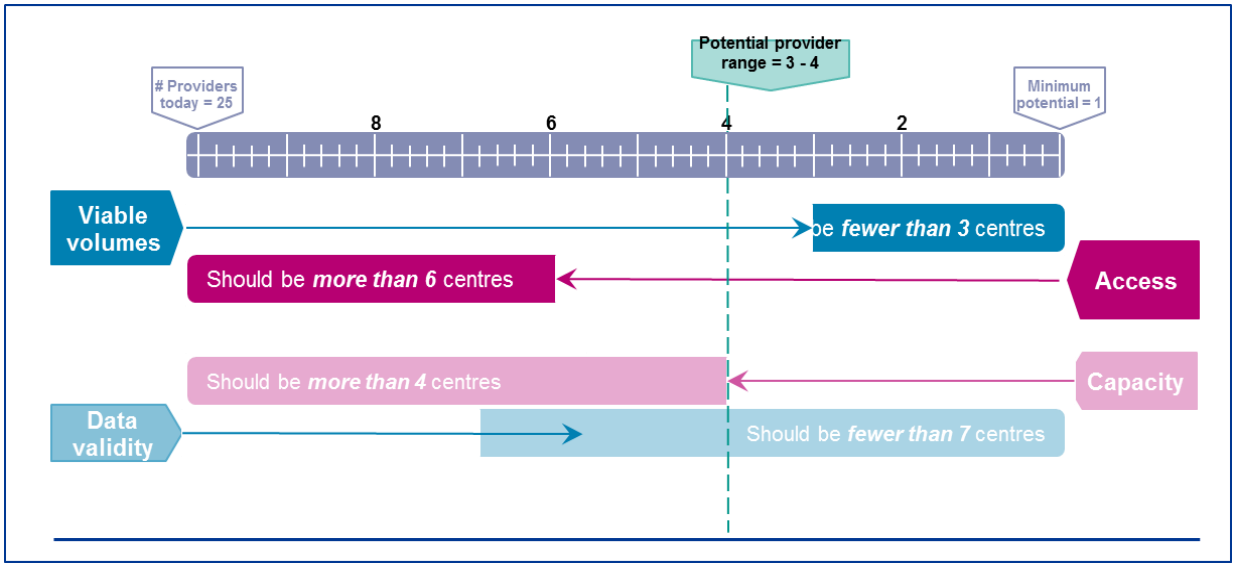
After taking into account viable volumes, capacity, and access a range of between 2 and 4 hospitals would be possible for current flows.

London - Patient flows by Year 5 treated within the Region they live in post implementation



After taking into account viable volumes, capacity, and access this suggested a model with 2 hospitals would be possible for future flows.

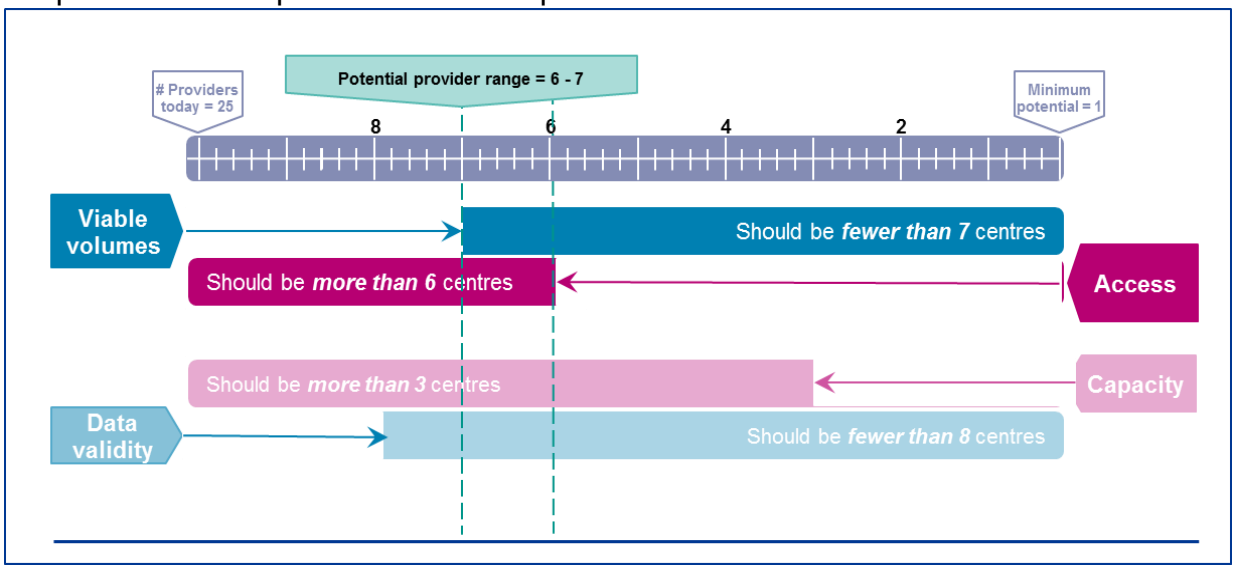
South – Integrated Centres Current patients by current hospital treating them 2016/17



After taking into account viable volumes, specialist teams, capacity, and access a range of between 3 and 4 hospitals would be possible for current patients flows.

South - Patient flows by Year 5 treated within the Region they live in post implementation

After taking into account viable volumes, capacity, and access a range of between 6 and 7 hospitals would be possible for future patient flows.

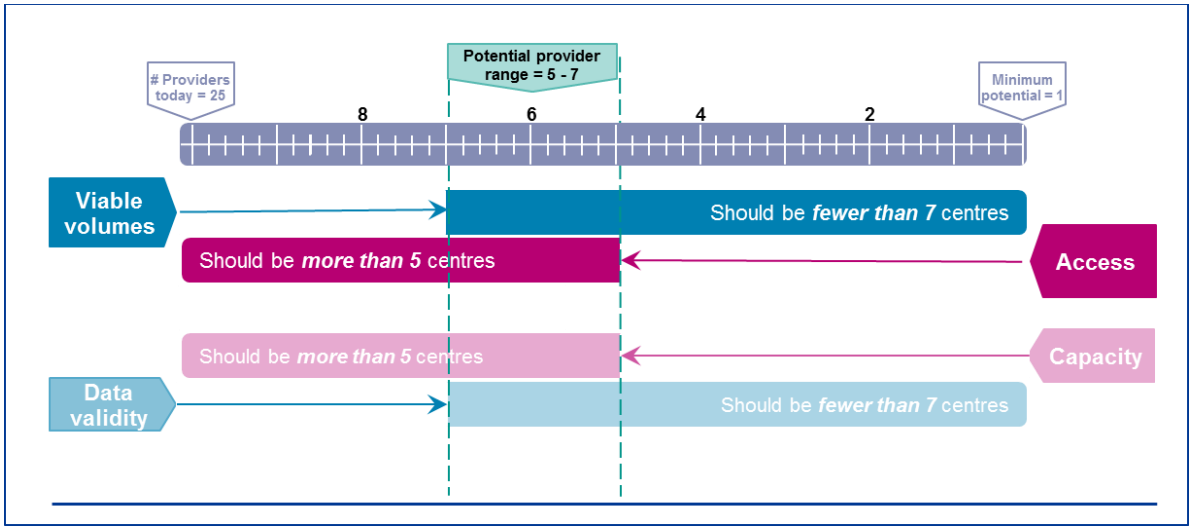


Outputs: Home Parenteral Nutrition Centres (HPN)

Range of provider numbers based upon:	Current provider populations	Transition of patients at year 5 by CCG post implementation
National	15 – 18	16 – 35
North	5 – 7	5 – 8
Midlands and East	5	5 – 7
London	4 – 6	4 – 7
South	3 – 4	6 – 7

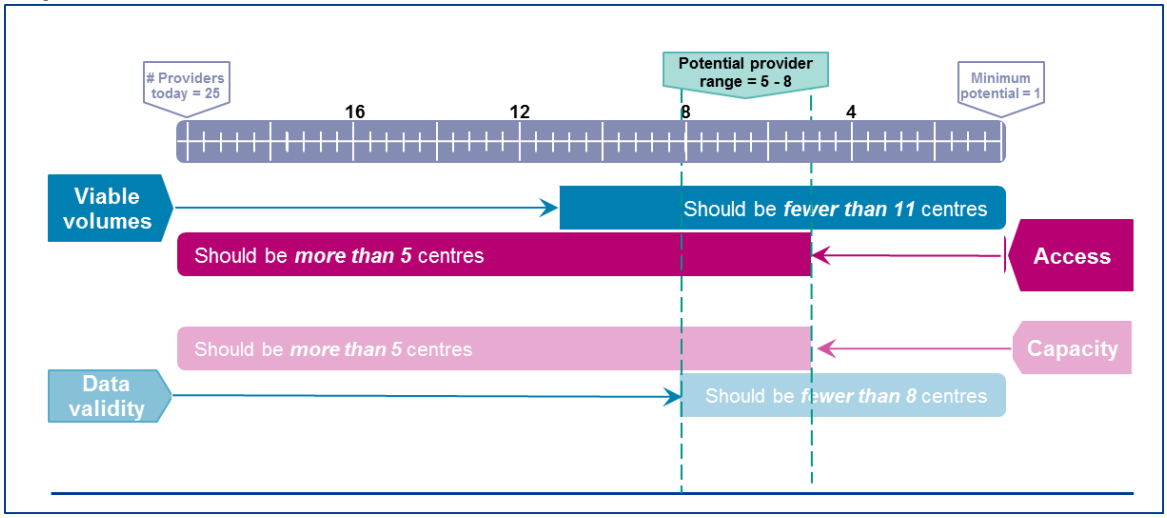
North: SIF HPN Centres

North Current patients by current HPN hospital treating them 2016/17



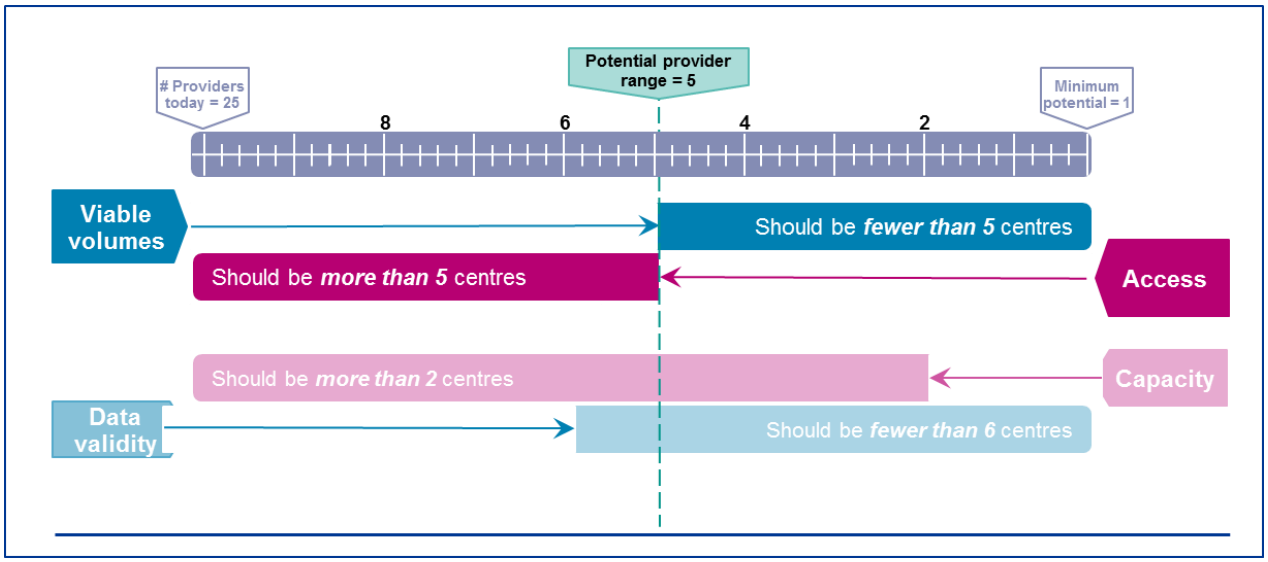
After taking into account viable volumes, capacity, and access a range of between 5 and 7 HPN hospitals would be possible for current patient flows.

North - HPN Patient flows by Year 5 treated within the Region they live in post implementation



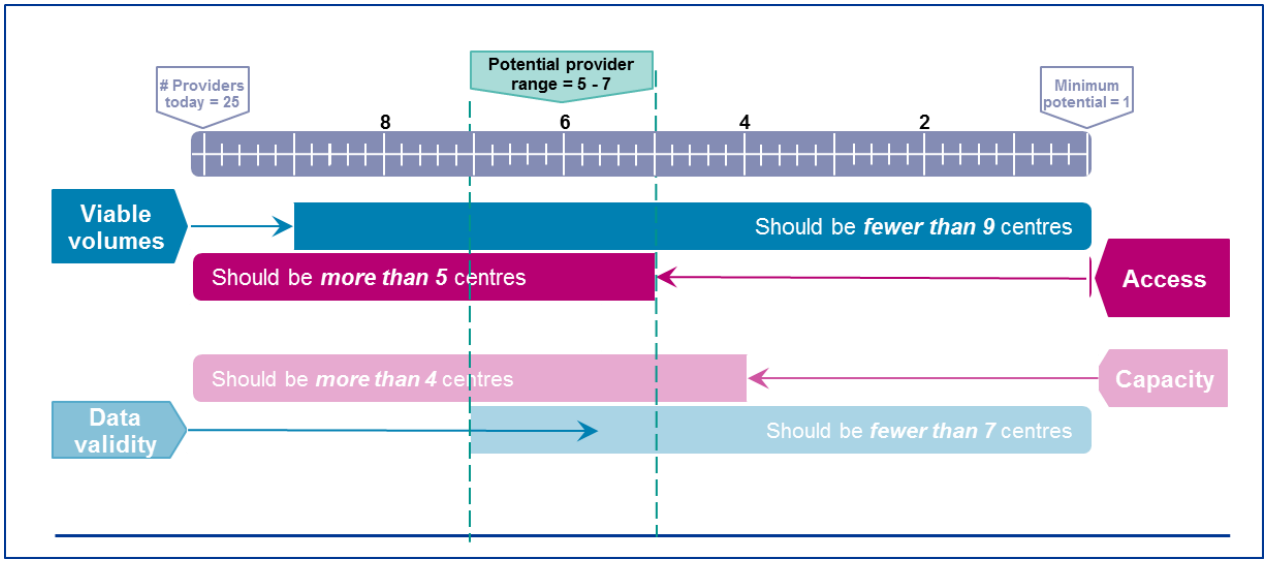
After taking into account viable volumes, capacity, and access a range of between 5 and 8 sites for HPN support would be possible for future patient flows.

Midlands and East Current patients by current HPN hospital treating them 2016/17



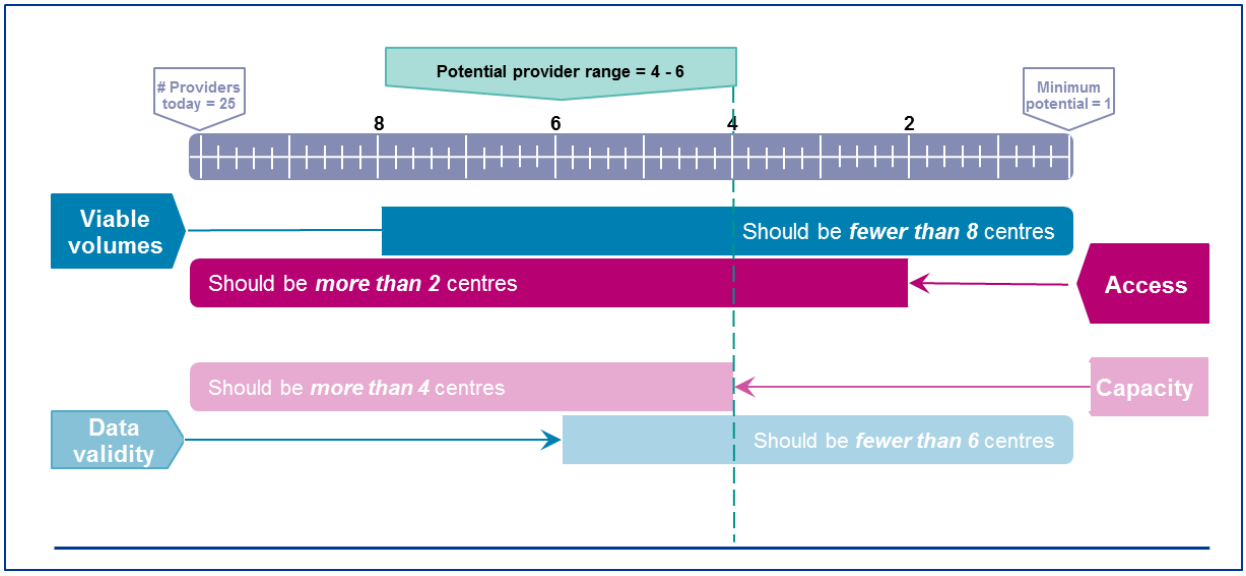
After taking into account viable volumes, capacity, and access a 5 HPN hospitals would be possible for current patient flows.

Midlands and East - HPN Patient flows by Year 5 treated within the Region they live in post implementation



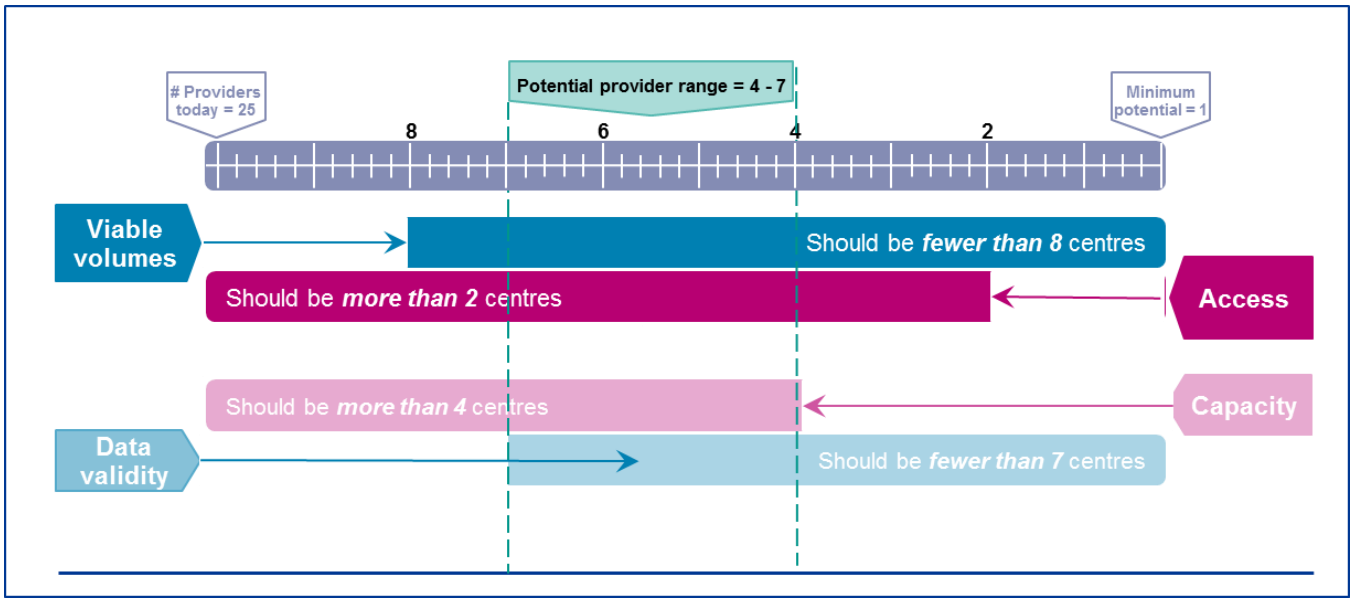
After taking into account viable volumes, capacity, and access a range of between 5 and 7 sites for HPN support would be possible for future patient flows.

London: Current patients by current HPN hospital treating them 2016/17



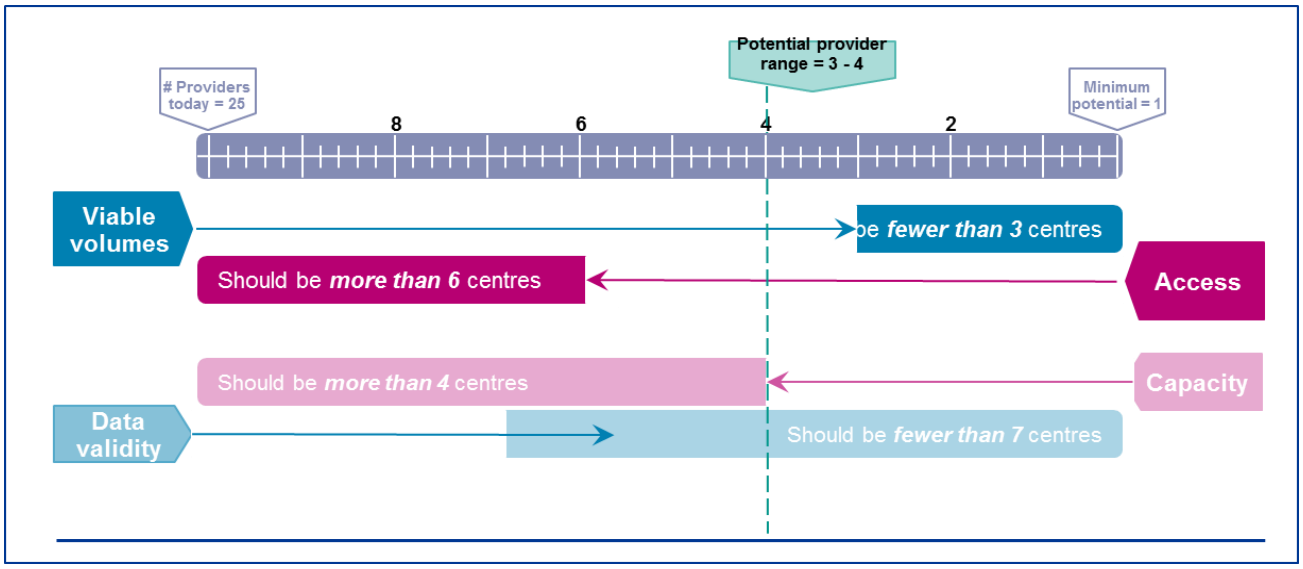
After taking into account viable volumes, capacity, and access a range of between 4 and 6 HPN hospitals would be possible for current patient flows.

London HPN Patient flows by Year 5 treated within the Region they live in post implementation



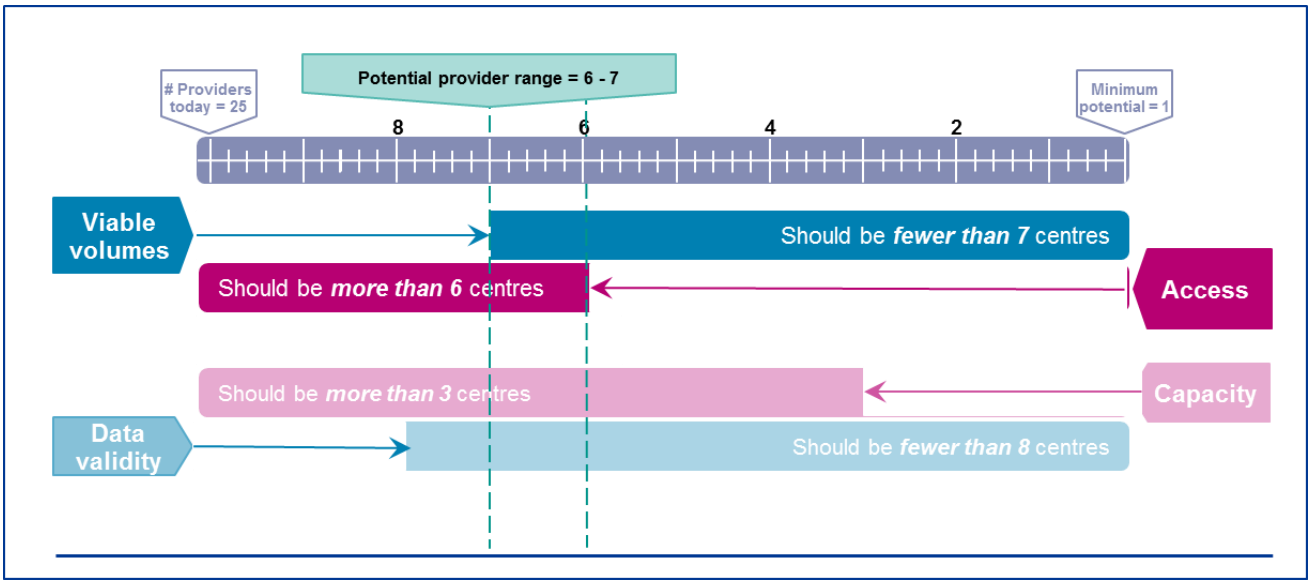
After taking into account viable volumes, capacity, and access a range of between 4 and 7 sites for HPN support would be possible for future patient flows.

South: Current patients by current HPN hospital treating them 2016/17



After taking into account viable volumes, capacity, and access a range of between 3 and 4 HPN hospitals would be possible for current patient flows.

South: HPN Patient flows by Year 5 treated within the Region they live in post implementation

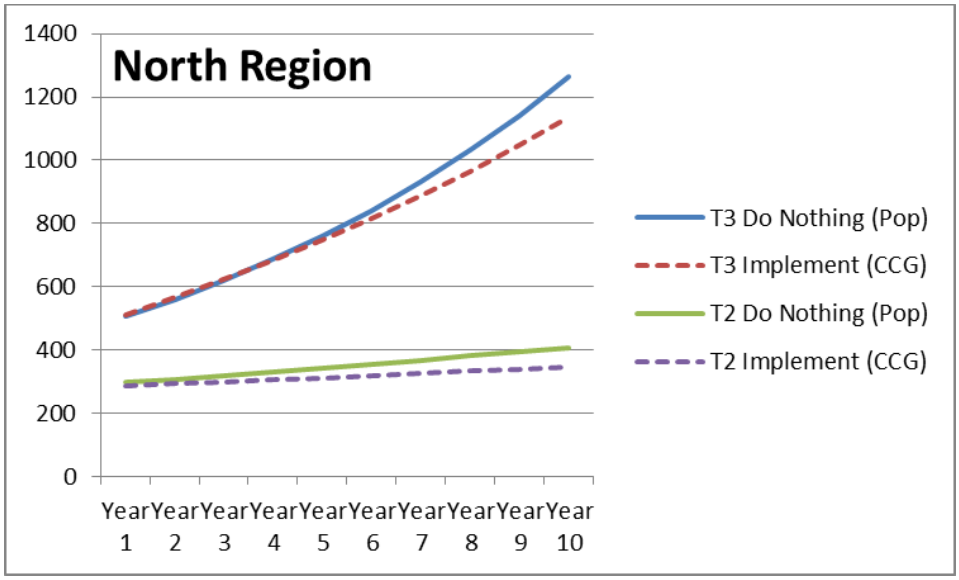


After taking into account viable volumes, capacity, and access a range of between 6 and 7 sites for HPN support would be possible for future patient flows.

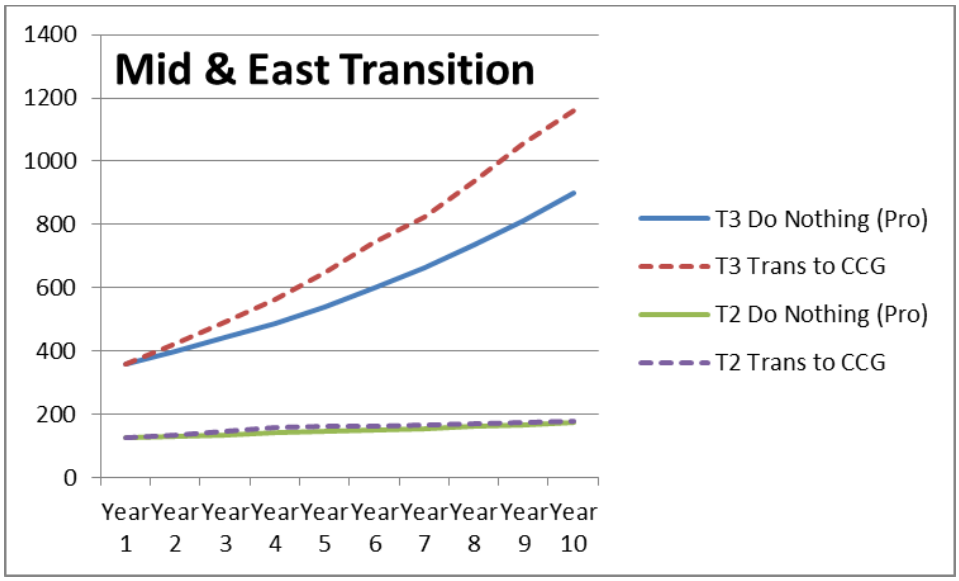
Annex 1.4: Demand assumptions

The graphs below look at the potential changes in patient flows created by more patients being treated at a service within the Region where they live. The graphs show for Type 2 (T2) and Type 3

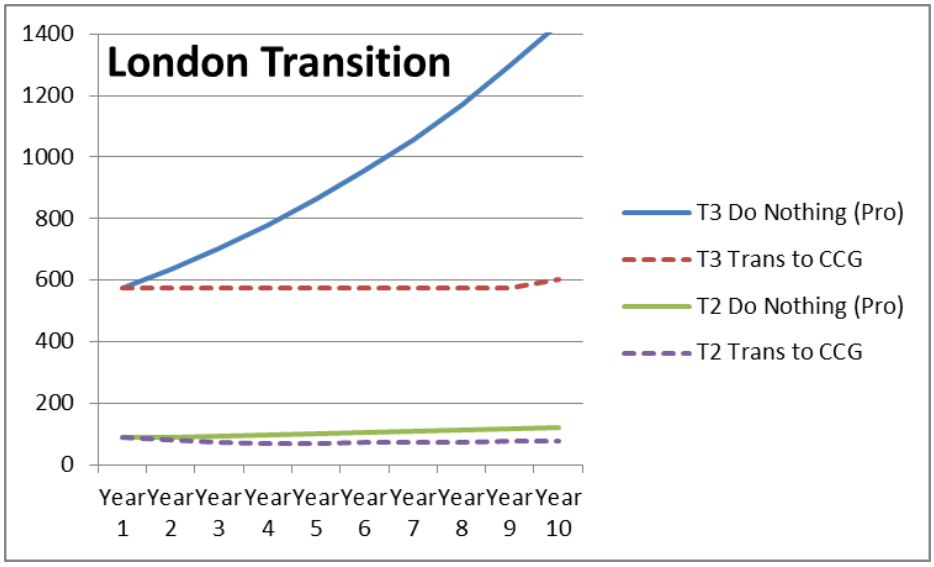
(T3) patients the difference between the current patients flows and if Option 2 is implemented.



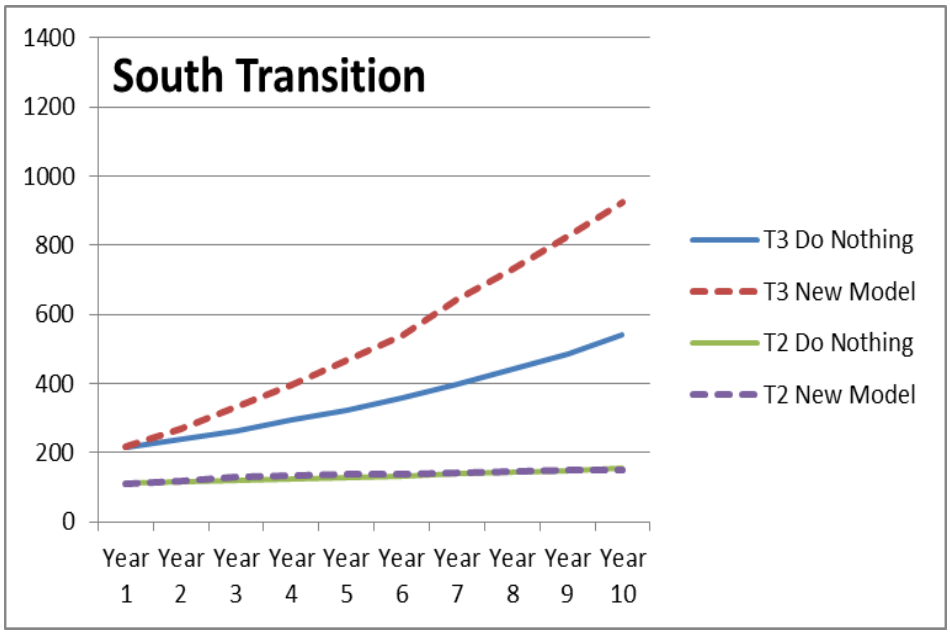
For the North Region the potential changes in patient flows are quite limited as most patients are already treated within the Region.



For the Midlands and East Region the potential changes in patient flows are greater because some patients are treated out of Region now but in future it is expected that more patients would be treated within the Region.



For London Region the potential changes in patient flows in the new model are quite limited as London patients are already treated within the Region but if no changes are made the number of long term patients who live outside the Region on HPN would increase significantly.



For the South Region the potential changes in patient flows are greater because some patients are treated out of Region now but in future it is expected that more patients would be treated within the South Region.