Kent and Medway Stroke Delivery Model

February 2017

Introduction and purpose of service delivery model template

- A number of services have been prioritised as for early consideration by the K&M hospital care working group. This pack forms one of a series service delivery model templates for the priority services.
- The aim of this pack is to consider the key issues the service is facing within the hospital context, its current in-hospital model of care and aspirational future model among other relevant context.
- The pack follows the structure of:
  - A summary slide outlining key information from each section; then
  - Each section, with a summary slide up front followed by evidence slides
- The pack has been created with expert input from across Kent & Medway, and has been developed by the K&M Hospital care workstream before being signed off by the Clinical Board.
- The Acute medical care template focuses on the model for acute medicine in the acute hospital with future medical models using the assumptions made by local care about preventing acute hospital admission and facilitating appropriate timely discharge.

The STP outlined the aspiration for Hospital Care model which prevents ill health, intervenes earlier and delivers excellent, integrated care closer to home

Care Transformation workstreams

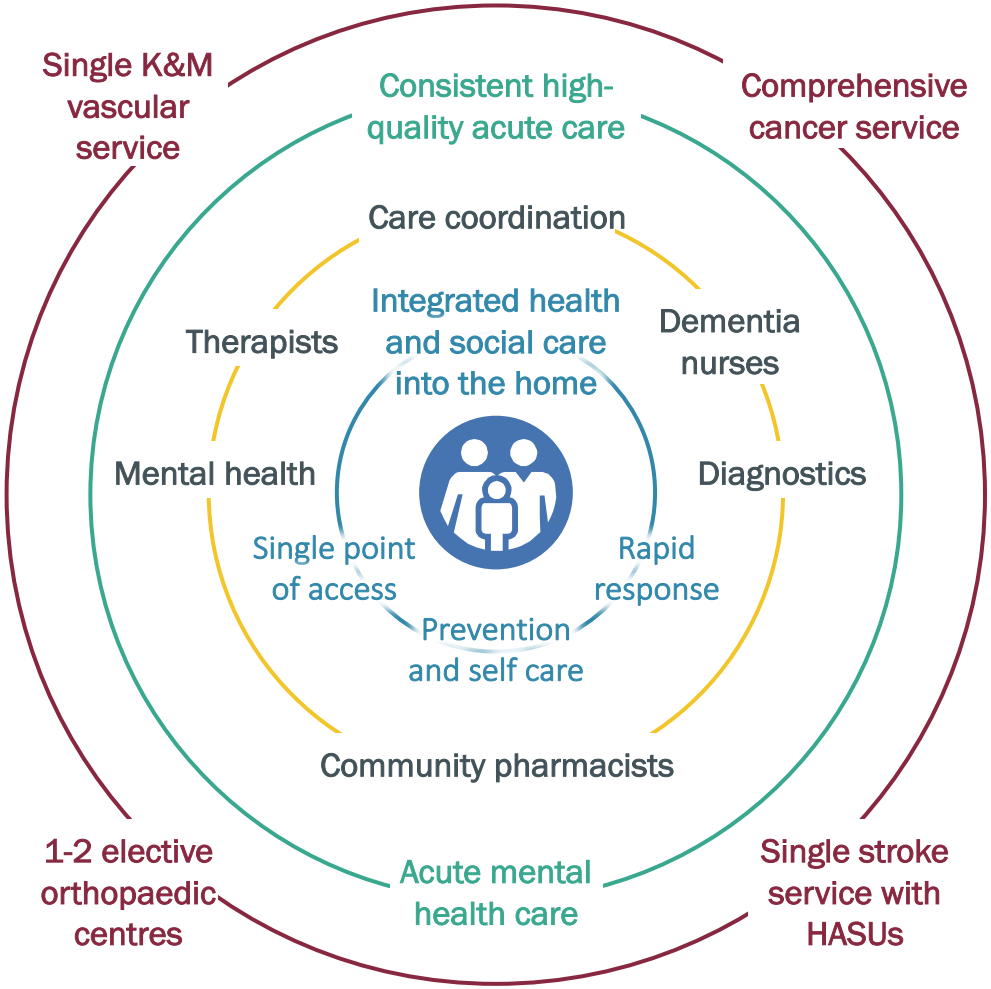
Prevention
Enlisting public services, employers and the public to support health and wellbeing

Local Care
A new model of care closer to home for integrated primary, acute, community, mental health and social care

Hospital Care
Optimal capacity and quality of specialised, general acute, community and mental health beds

Mental Health
Bringing parity of esteem, integrating physical and mental health services, and supporting people to live fuller lives

Kent and Medway Future Care Model



Source: K&M STP

The focus of this template will be on Hospital Care

Summary contents

1. **Who is the population being served?**
   - 2,487 patients (FY 15/16)
   - Services currently provided at all 7 acute hospitals
2. **What are the issues in the case for change which need to be addressed?**
   - Only half of all patients admitted within 4 hours and performance is below national average
   - All 7 hospitals only provide 5 day stroke consultant face to face cover; none provide 7 day consultant ward rounds, less than 50% of patients receive thrombolysis within 60 mins
   - Patient volumes are too small to deliver clinical sustainability/ Performance against SSNAP is variable and inconsistent
3. **What is the service delivery model today?**
   - 7 combined HASU/ASU stroke units across Kent & Medway
   - Patients receive their Hyper-acute, acute and acute rehabilitation in these units
   - Patients are then discharged without further rehab, discharged back to their home with a community rehabilitation package or to a new home such as a residential care home that is suitable for their needs/ Rehab pathways are variable across K&M
4. **What is the proposed service delivery model for the future?**
   - Consolidation onto fewer sites; 3 sites is the optimum when measured against the agreed critical criteria.
   - Deliver a combined HASU and ASU service on each of the 3 sites
   - Develop robust early supported discharge and rehabilitation services
5. **What are the co-dependencies and building blocks?**
   - A&E /Emergency Medicine
   - Acute and General Medicine
   - Elderly Medicine
   - Respiratory Medicine
   - Critical Care (adult)
   - General Anaesthetics
   - Acute Cardiology
   - X-ray and Diagnostic Ultrasound
   - CT Scan
   - Acute Mental Health Services
   - Therapy; SLT/OT and Physiotherapy
   - Physiotherapy
   - Urgent GI Endoscopy[1]
   - MRI Scan[1]
   - Acute Inpatient Rehabilitation[2]
6. **What are the minimum thresholds for staff in clinical standards?**
   - HASU requirements; 24/7 consultant availability with minimum 6 trained thrombolysis physicians on rota and consultant led ward round 7 days a week, 2.9 WTE Nurse (80:20 registered unregistered per bed ,Per 5 beds; 1 Physiotherapist, 0.68 Occupational Therapist, 0.34 S&L therapist, 0.20 Clinical Psychologist, 0.15 Dietician [3]
   - HASU Volume requirements; >500 and < 1500 confirmed stroke patients
7. **Engagement – to date and required**
   - Over the last 2 years EKHUFT has engaged with key stakeholders internally and externally through a series of EKHUFT and East Kent Strategy Board events.
   - West Kent have not carried out engagement to date

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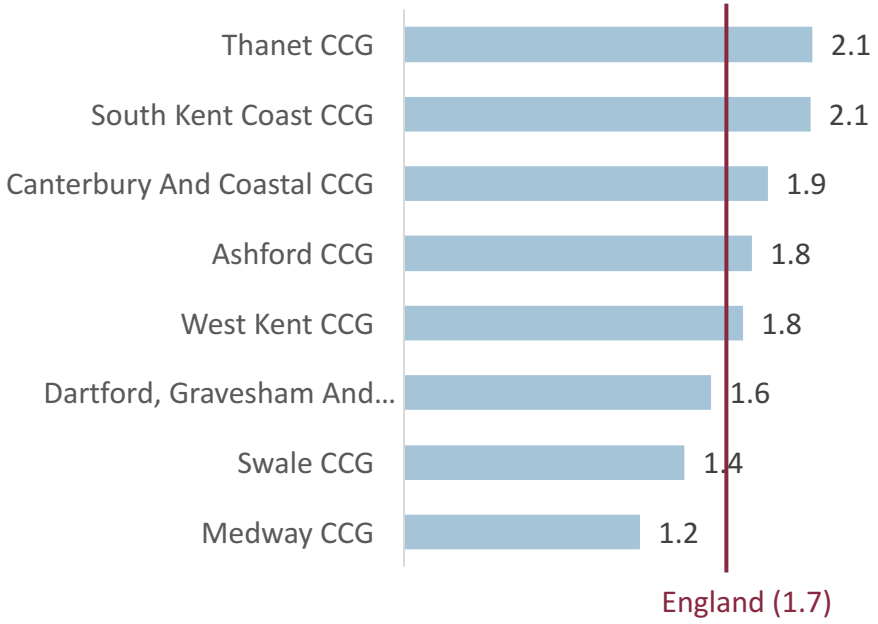
1. Who is the population being served?
2. What are the issues in the case for change which need to be addressed?
3. What is the service delivery model today?
4. What is the proposed service delivery model for the future?
5. What are the co-dependencies and building blocks?
6. What are the minimum thresholds for staff in clinical standards?
7. Engagement – to date and required

- 2,487 patients (FY 15/16)
- Services currently provided at all 7 acute hospitals

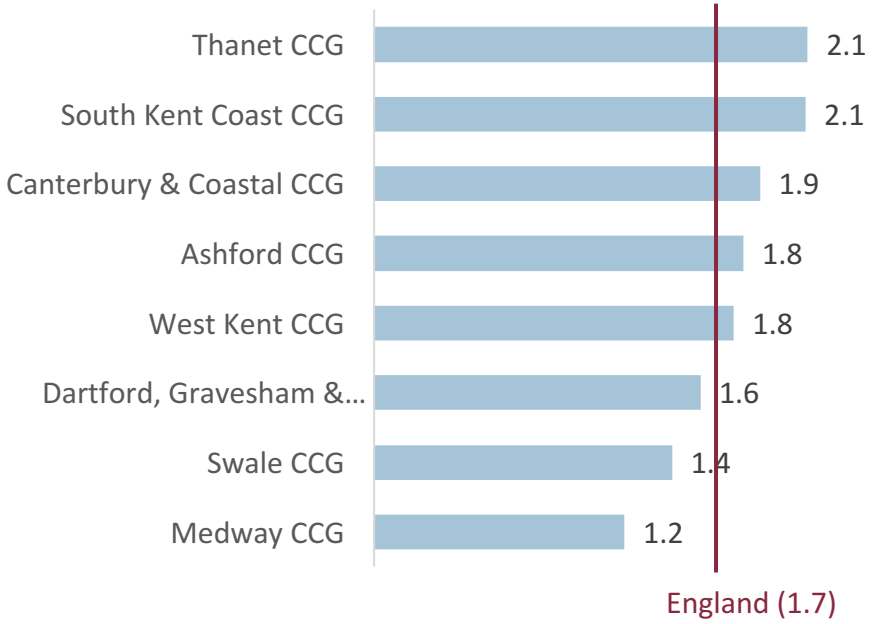
Background

- The total Kent and Medway population is 1.81 million
- On average, prevalence is 1.7% for stroke & 2% for Atrial fibrillation for the Kent & Medway population
- Prevalence varies across CCG and reflects population demographics
- "At risk" groups include:
  - patients with hypertension, atrial fibrillation and diabetes
  - black ethnic populations
  - elderly

Stroke prevalence, %

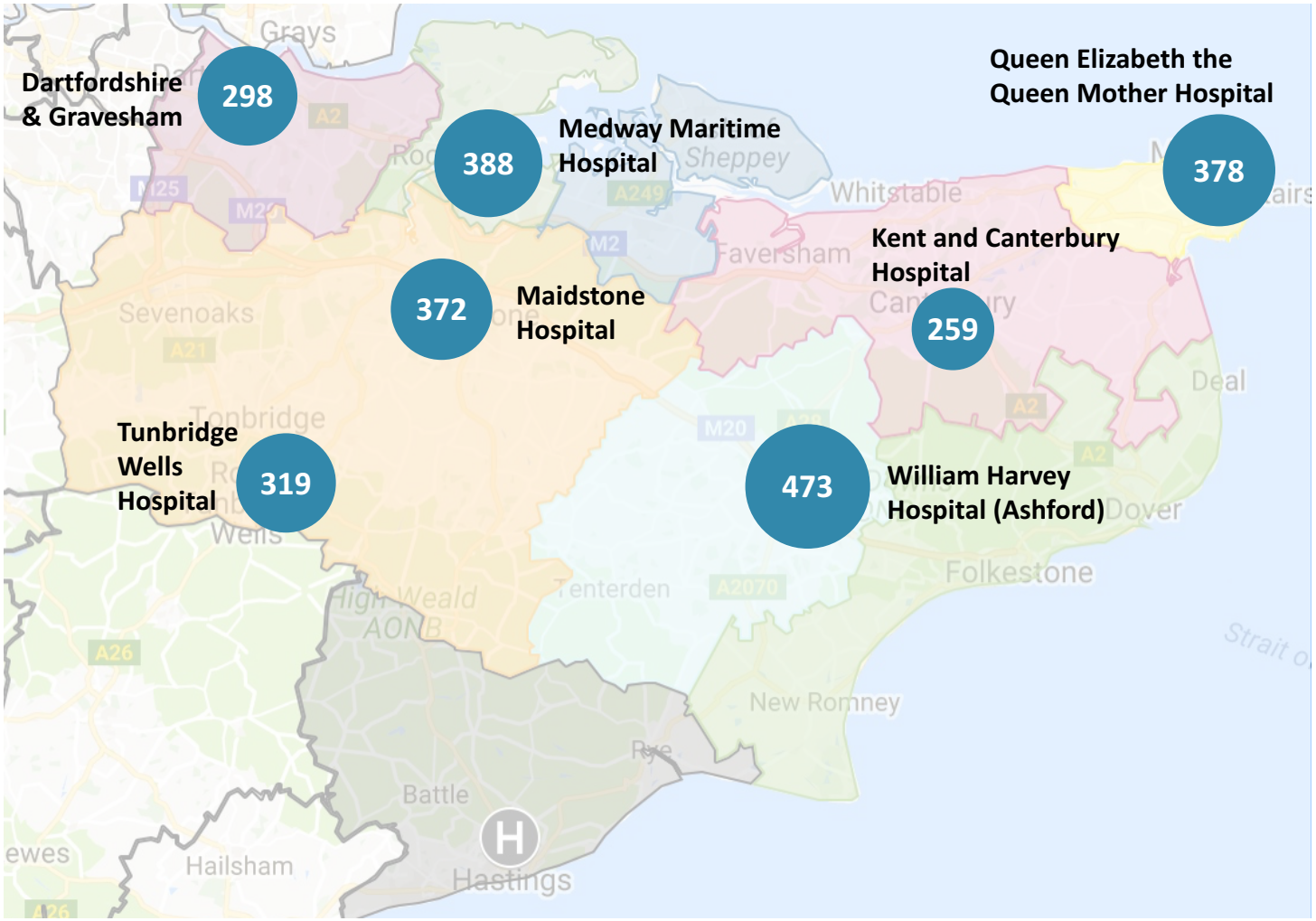


Atrial fibrillation prevalence, %



* SSNAP Apr 2015 – Mar 2016 ** CCG Stroke Profiles Public Health England 2014. **QOF 2015/16)**

Who is the population being served?



- At present, stroke is delivered at all 7 acute sites.
- Patients flow into K&M from east Sussex and South London

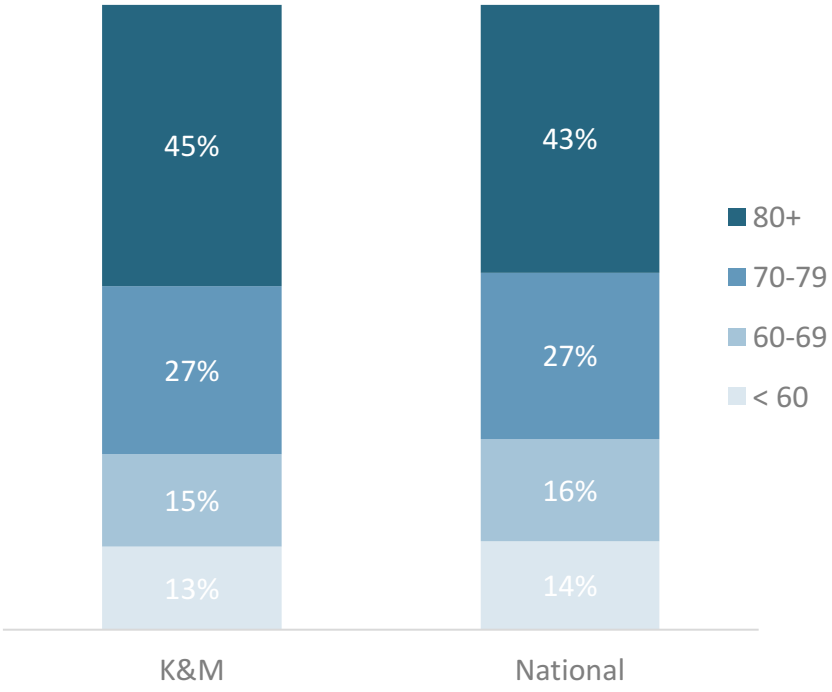
Notes
70 patients per year from South London (into DVH)
65 patients per year form East Sussex
72 hour cohort refers to the processes of care in the first 72 hours of stroke, beyond which patients enter into post-acute stroke care processes

Source: SSNAP clinical audit Apr 15– Mar 16

Stroke incidence

- There are approximately 2,500 confirmed stroke patients per annum treated in the 7 acute hospitals.*
- Public health analysis identifies that based on the current preventative measures and pattern of stroke incidence locally and nationally this figure will not significantly change over the next 10 years, including projected population growth across Kent and Medway.
- Incidence increases with age – although the overall profile is very similar to England

Stroke incidence by age bucket*, %



Stroke activity by site

Site	2012/13	2013/14	2014/15	YoY growth
Darent Valley Hospital	343[1]	324	337	4%
Medway Maritime Hospital	368	417	393	-6%
Maidstone Hospital	294	321	320	0%
Tunbridge Wells Hospital	375[2]	325	298	-8%
William Harvey Hospital	440	473	477	1%
Kent & Canterbury Hospital	292	366	380	4%
Queen Elizabeth the Queen Mother Hospital	319	346	354	2%
Total K&M	**2,431**	**2,572**	**2,559**	-1%

Notes: [1] 70 patients per year from Bexley, South London (into DVH)
[2] 65 patients per year form East Sussex

Source: *SSNAP clinical audit, Apr 2015 – Mar 2016

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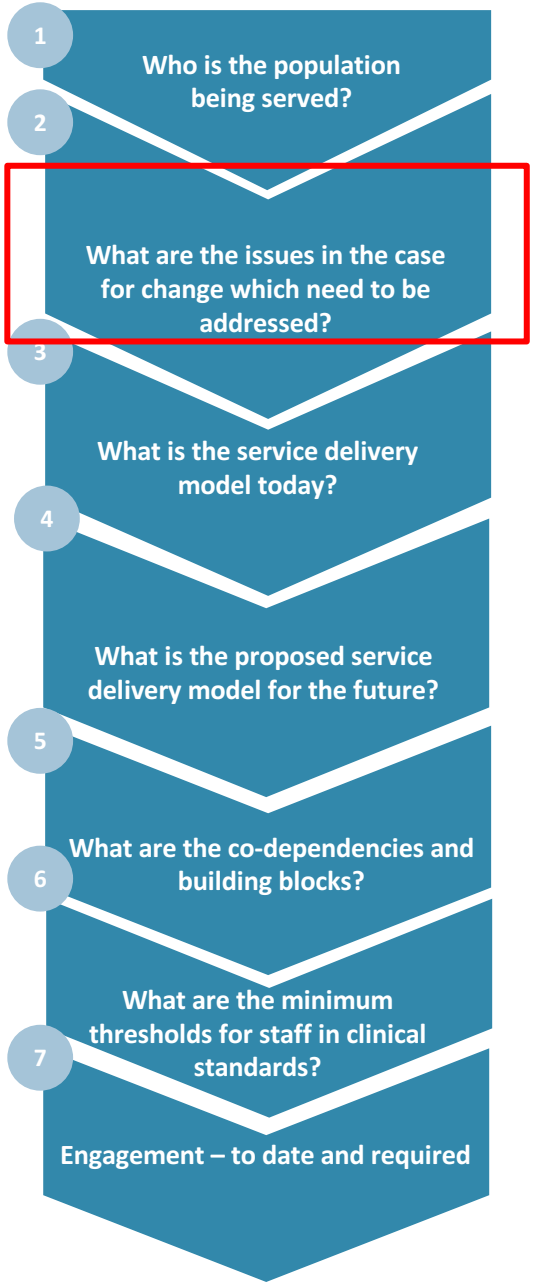

- Only half of all patients admitted within 4 hours and performance is below national average
- All 7 hospitals only provide 5 day stroke consultant face to face cover; none provide 7 day consultant ward rounds, less than 50% of patients receive thrombolysis within 60 mins
- Patient volumes are too small to deliver clinical sustainability/ Performance against SSNAP is variable and inconsistent

What are the issues in the case for change which need to be addressed?

1 **Delays in direct admission and limited availability of 7 day services**

- Generally < 50% of all patients are being admitted within 4 hours and performance is below national average
- Significant workforce gaps across the services therefore 7 day stroke consultant ward rounds not available across any of the hospitals currently
- 7 day therapy service not consistently available across all units

2 **Difficult to access to treatment within the recommended timeframes**

- In most hospitals, less than 50% of patients receive thrombolysis within 60 mins and are below the national average
- Fewer patients receive speech and language therapy communication assessment within 72hrs of clock start
- Very limited 7 day therapy assessments undertaken

3 **Patient volumes are too small to deliver clinical sustainability**

- Recommended patient volumes fall between 500 and 1,500 confirmed stroke admissions per year but patient volumes in each acute hospital are below the 500* patient threshold
- No hospital is achieving patient volumes recommended for clinical sustainability

Source: SSNAP clinical audit Apr 15– Nov 16, K&M Case for Change – Stroke * 2016 RCP standards

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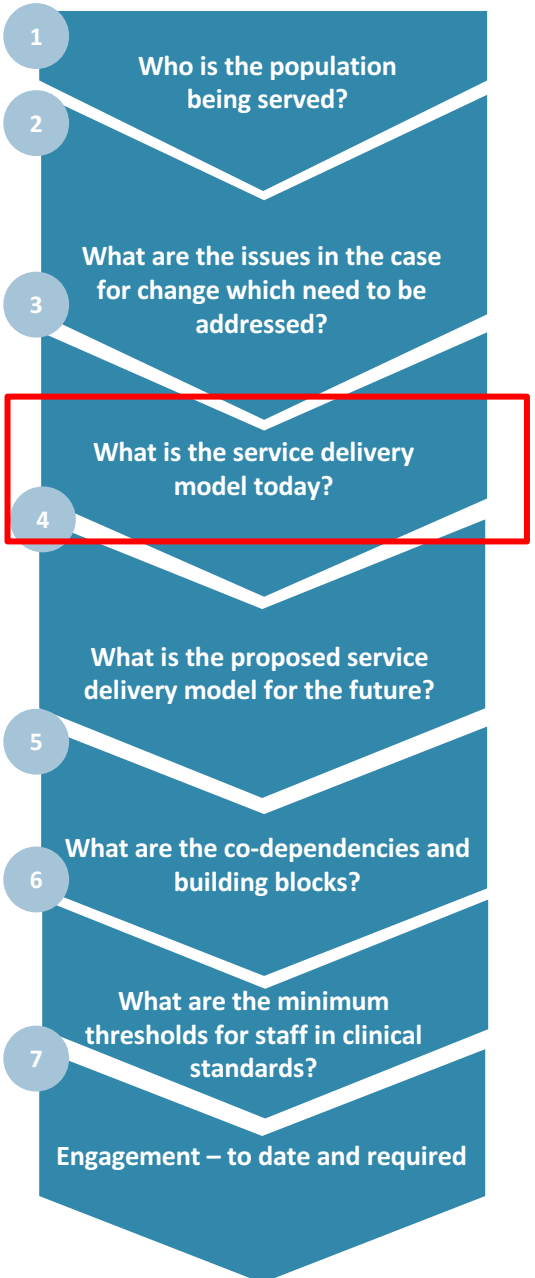

- 7 combined HASU/ASU stroke units across Kent & Medway
- Patients receive their Hyper-acute, acute and acute rehabilitation in these units
- Patients are then discharged without further rehab, discharged back to their home with a community rehabilitation package or to a new home such as a residential care home that is suitable for their needs/ Rehab pathways are variable across K&M

What is the current service position?

Below national average | Equivalent to national average | Above national average

Aims	National recommendation/Target	D&G	MFT	MH	TWH	WHH	KCH	QEQM	National
Rapid and accurate diagnosis	Imaging within one hour of admission	50%	50%	55%	56%	61%	59%	69%	48%
Direct admission	Patients admitted directly onto a specialist stroke unit within four hours	41%	43%	56%	41%	53%	51%	60%	58%
	Patients stay in the stroke unit for 90% of the inpatient episode	84%	79%	87%	67%	84%	88%	85%	84%
Immediate access to treatment	Thrombolysis within 60 mins	42%	16%	43%	59%	60%	38%	48%	59%
	Speech and language therapy communication assessment within 72 hours of clock start	22%	67%	35%	39%	24%	26%	37%	39%
Specialist centres with sufficient numbers of patients and expert staff	Assess patients by specialist stroke consultant and within 24 hours.	62%	55%	61%	73%	81%	86%	91%	79%
	Assess patients by stroke trained nurse and therapist within 24 hours.	91%	87%	91%	88%	87%	91%	89%	88%
Multidisciplinary teams	MDT assessment, to include specialist physicians, nurses , therapists. A wider group of specialist is increasingly advised including clinical psychology, dietetics.	Partial	Partial	Partial	Partial	N [1]	N [1]	N [1]	
24 hour access, 7 days a week	7 day stroke consultant ward rounds*	N	N	N	N				
	OOH access to consultant assessment for thrombolysis*	Y	Y	Y	Y	Y	Y	Y	
	7 day stroke trained nurse and therapist cover	Partial	Partial	N	N	N [3]	N [3]	N [3]	
Patient volumes that deliver clinical sustainability	> 500 and <1500 confirmed stroke admissions	N	N	N	N	N	N	N	
SSNAP performance Q1 2016 (Apr-Jun)	Target: A	D	D	B	D	C	D	C	

Notes: [1] Only available 5 days a week
[2] OOH rota is networked across 3 sites with the use of telemedicine; rota is fragile given combined contribution to HCOOP rota simultaneously
[3] Do not meet national guidelines

Source: K&M Case for Change stroke, South East Coast Clinical and Quality standards for stroke, SSNAP audit (April 2015-Mar 2016)

What is the current service model for stroke rehabilitation?

East Kent:

- Assessment for a patients rehabilitation needs and the start of their rehabilitation begins as soon as a patient arrives into the Stroke Unit (joint HASU/ASU) until they are discharged. This team is made up of physiotherapists, occupational therapists, speech therapists, and nursing and medical staff.
- The options for patients once discharged from the Stroke Units are:
  - Discharged home with no further requirement for rehabilitation
  - Discharged and referred into ESD (Early Supported Discharge / with beds at Westview in Tenterden and Broad Meadow in Folkestone)
  - Discharged and referred into the East Kent Community Stroke Team
  - Discharged and referred into specialist Neuro-Rehabiltation service at K&CH
  - Discharged and referred for further in-patient rehabilitation at a Community Hospital (To be confirmed)

DGT:

- Rehabilitation starts from day one, with a plan for treatment such as methods of feeding, communication and other aspects of care, drawn up by the rehabilitation team. This team is made up of physiotherapists, occupational therapists, speech therapists, and nursing and medical staff.
- The options for patients once discharged from the Stroke Units are:
  - Discharged home with no further requirement for rehabilitation
  - Discharged and referred into ESD (Early Supported Discharge)
  - Discharged and referred into the Gravesend community neuro-rehabilitation service
  - Transferred to the Sapphire Unit for inpatient rehabilitation at Gravesend Community Hospital

What is the current service model for stroke rehabilitation?

MTW:

- Assessment for a patients rehabilitation needs and the start of their rehabilitation begins as soon as a patient arrives into the Stroke Unit (Joint HASU/ASU)
- Patients continue to receive rehabilitation until they are discharged from the Stroke Unit.
- Both stroke units combine HASU/ASU and inpatient rehabilitation (ie all inpatient rehabilitation occurs within the Acute Trust).
- The options for patients once discharged from the Stroke Units are:
  - Discharged home/placement with no further requirement for rehabilitation
  - Discharged and referred into ESD (Early Supported Discharge) – West Kent only
  - Discharged and referred to community neurorehab team

MFT:

- **TBC**

What are the service delivery models: Evidence base

	Source/Publication	Date	Key Points
1	K&M Stroke Review Literature review by K&M Public Health teams	2015	• Hyperacute stroke units are clinically effective • Some evidence of cost effectiveness
2	National stroke Strategy	2007	Recovery significantly influenced by; • Seeing a stroke Consultant within 24 hours; • Having a brain scan within 24 hours of admission; • Being seen by a stroke trained nurse & one therapist within 72 hours of admission; • Being admitted to a dedicated stroke unit • A nutritional assessment & swallowing assessment within 72 hours; • Being given antiplatelet therapy within 72 hours; • Receiving adequate food and fluids for the first 72 hour.

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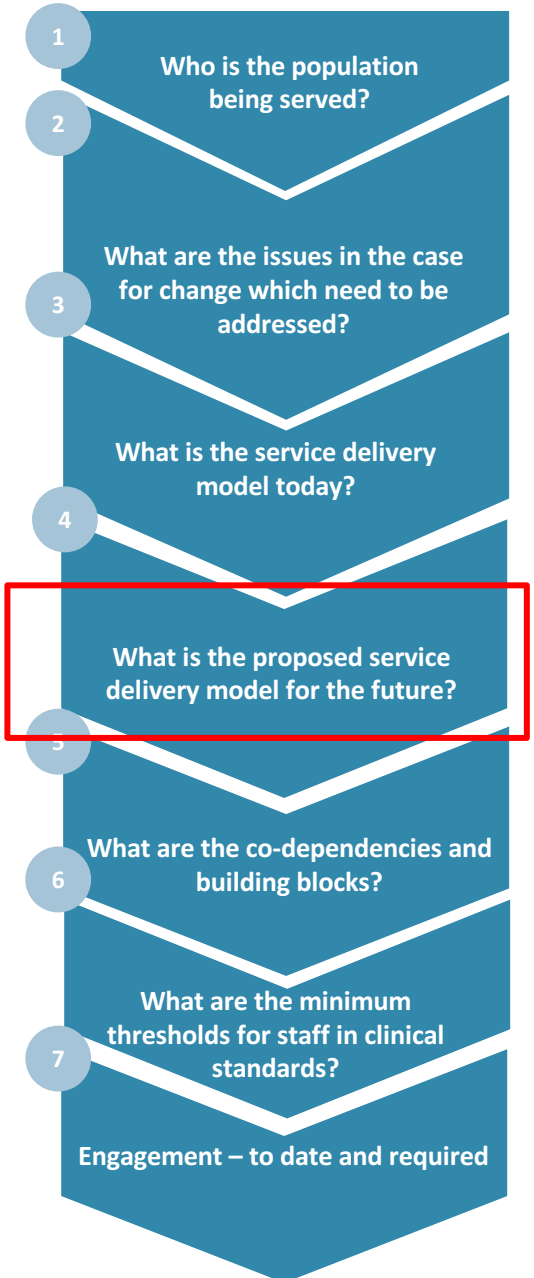

- Consolidation onto fewer sites; 3 sites is the optimum when measured against the agreed critical criteria.
- Deliver a combined HASU and ASU service on each of the 3 sites
- Develop robust early supported discharge and rehabilitation services

What is the proposed model for the future?

TODAY

- All seven units deliver acute Stroke Care
- The units operate combined HASU/ASU models although the specific beds are not always identifiable
- 7 day medical ward rounds only operate in TWH, not always consultant led (on a 1:3 rota)
- Consultant assessment is available in all units over the weekends via telemedicine rotas
- 7 day therapy only available in MFT
- No unit meets the recommended workforce across any profession

FUTURE

- 7 day specialist consultant led stroke service available (able to respond to twice daily ward rounds requirement Autumn 2017)
- Consolidate onto 3 sites; that meet the critical criteria inc travel times
- Combined HASU and ASU units
- Direct access from ambulance transfers to the service ? Stroke assessment unit
- Early Supported Discharge available for min 50% of pts
- Improved rehabilitation services available.
- Development of a centre able to deliver thrombectomy on one of the three sites to provide across K&M
- Co-located with critical co-dependencies that improve patient outcomes and support staff

Source: Kent & Medway Review of Stroke Services (2015 /2016).

What are the implications of not meeting the standards: Patient outcomes

Not delivering the standards does not provide the ability for **a step change** in outcomes.

It minimises the opportunity to potentially improve mortality, length of stay and functional ability.

There is no opportunity to reduce the nature and level of complications ie associated infections/complications such as pneumonia

No opportunity to address the clearly evidenced risks associated with low nursing levels on patient mortality

- London review showed a 17% reduction in 30 day mortality

Reduction in Length of stay

- 7 % reduction in patient length of stay (London Review)

- **Clinical senate advised that compliance with the standards delivers an improvement in;
  - 6 and 12 month modified Rankin scale outcomes (useful as it breaks down disability in to easily understood and captured outcomes).
  - The percentage of stroke patients returning home
  - Reducing the percentage of patients being discharged to a residential / nursing home;
  - Increasing the percentage of patients having their 6 and 12 monthly reviews
  - Increasing the percentage of patients returning to work
- Patients and carers outcomes relating to quality of life scores (although not currently being collected at a national level) such as Euro-QOL, SF-36, the Stroke Impact Scale, and the Stroke Carer Burden Scale

Source: Impact of centralising acute stroke services in English metropolitan areas on mortality and length of hospital stay: difference-in-differences analysis (*BMJ* 2014;349:g4757)

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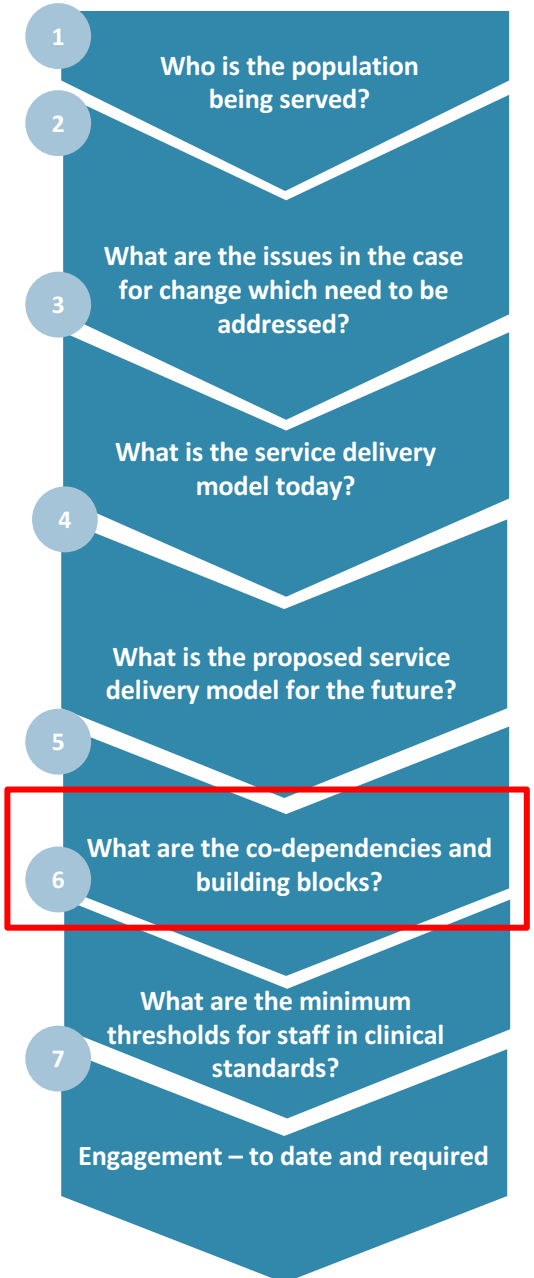

- A&E /Emergency Medicine
- Acute and General Medicine
- Elderly Medicine
- Respiratory Medicine
- Critical Care (adult)
- General Anaesthetics
- Acute Cardiology
- X-ray and Diagnostic Ultrasound
- CT Scan
- Acute Mental Health Services
- Therapy; SLT/OT and Physiotherapy
- Physiotherapy
- Urgent GI Endoscopy[1]
- MRI Scan[1]
- Acute Inpatient Rehabilitation[2]

What are the critical interdependencies?

Service should be co-located in the same hospital

Service should come to patient (patient transfer not appropriate), but could be provided by visiting/inreach from another site if not based in the same hospital

Ideally on same site but could alternatively be networked via robust emergency and elective referral and transfer protocols

Does not need to be on same site. Appropriate arrangements are in place to obtain specialist opinion or care

Notes: [1] Services marked as 'does not need to be on the same site' for both HASU and ASU have been excluded from this table

Source: The Clinical Co-Dependencies of Acute Hospital Services: Clinical co-dependecy grid, South East Coast

What are the other critical interdependencies and enablers?

Other dependencies

- Rehabilitation services including community beds, residential/nursing care homes.
- Early supported Discharge services
- Ambulance services
- Patient transport services
- Social Services

Enablers

- IT
- Communication
- Workforce
- Public transport

Local questions for consideration

Question	Comment
Speech and language	• View at STP workstream that this requires co-location – inreach is not adequate(this differs form the senate recommendations)
Does a HASU need to be co-located with a Trauma unit	• Suggestion from CEOs and AOs re co-location with existing trauma unit; STP workstream questioned this but did agree to being on a 24hr ED with full diagnostics and medical cover • Impact on trauma unit EDs is a concern • Clinical advice is that there is clear evidence of benefit and potential of harm • Pts, re delays in diagnosis/staff, need to move, communicate across sites/financial due to transfers of trauma pts/education/ambulance risk re choice of conveyance destination
Ability of a hospital to take on a HASU?ASU	• To be worked through in the detailed site options including application of bed numbers and staffing availability

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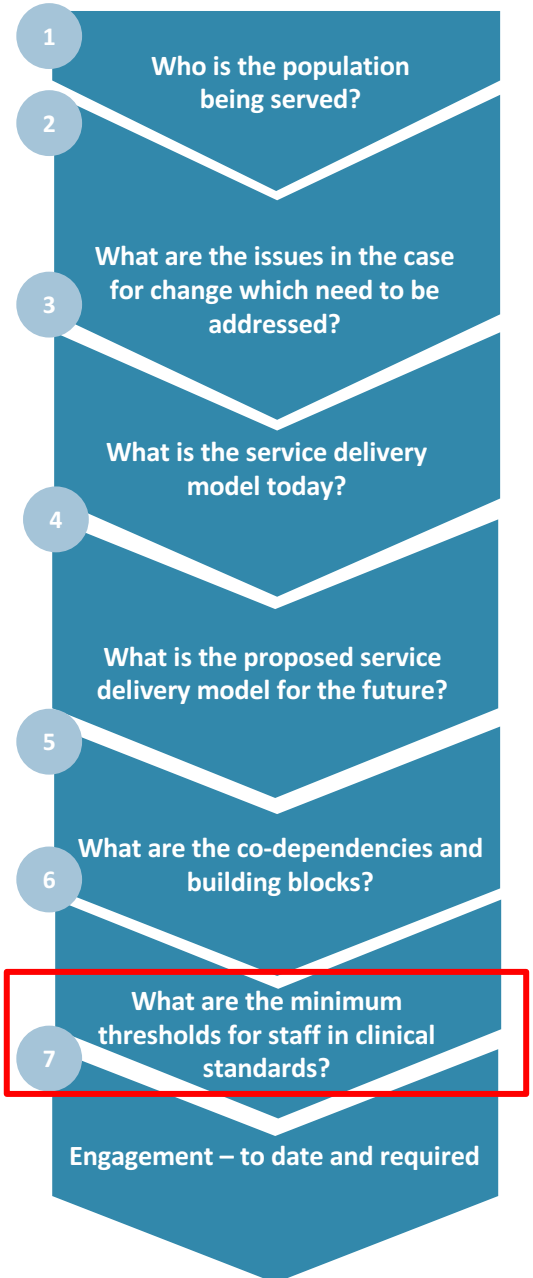
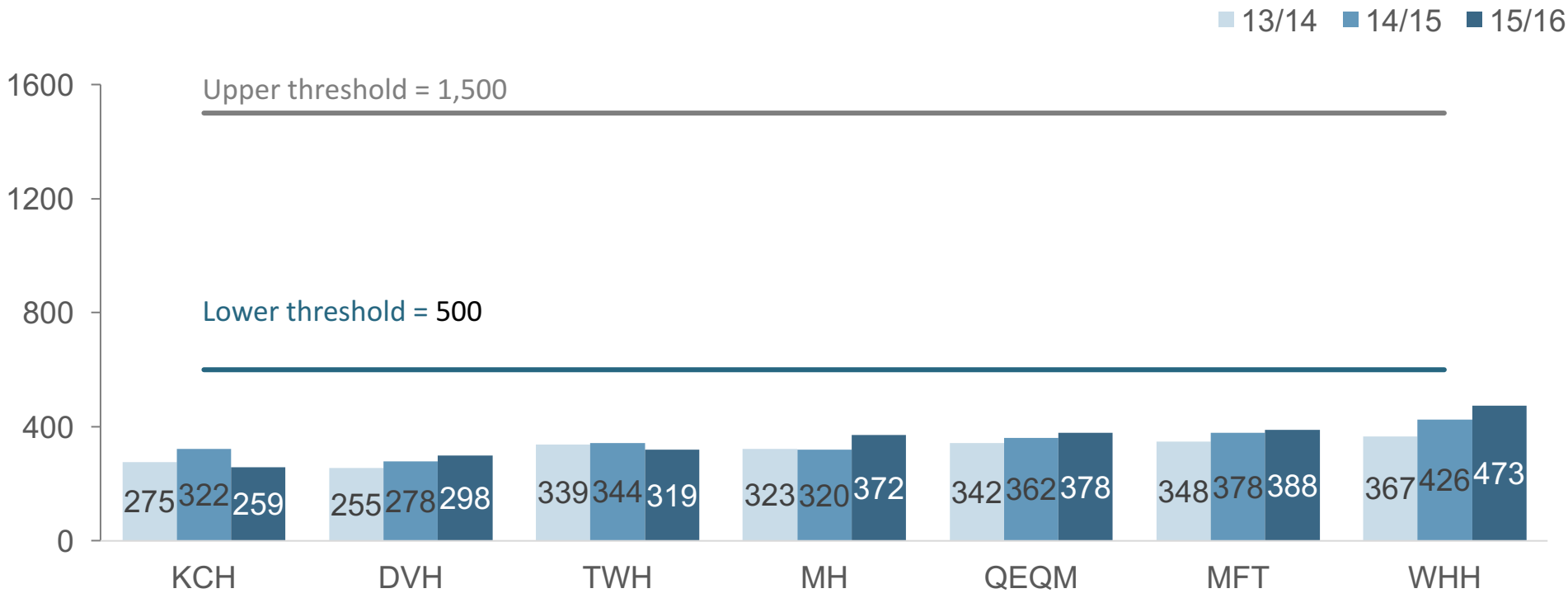


- HASU requirements; 24/7 consultant availability with minimum 6 trained thrombolysis physicians on rota and consultant led ward round 7 days a week, 2.9 WTE Nurse (80:20 registered unregistered per bed ,Per 5 beds; 1 Physiotherapist, 0.68 Occupational Therapist, 0.34 S&L therapist, 0.20 Clinical Psychologist, 0.15 Dietician [3]
- HASU Volume requirements; >500 and < 1500 confirmed stroke patients

What are the minimum thresholds for volume in clinical standards?



- At present, stroke is delivered at 7 acute sites.
- Volume thresholds suggest a requirement for 2-4 sites.
- Further work done suggests a need for 3 sites to meet all critical criteria.

Notes a65 patients per year form East Sussex
b70 patients per year from South London (into DVH)
72 hour cohort refers to the processes of care in the first 72 hours of stroke, beyond which patients enter into post-acute stroke care processes

Source: SSNAP clinical audit Apr 15– Mar 16, K&M Case for Change – Stroke, QOF 2014

What are the minimum thresholds for staff in clinical standards?

	Threshold/ Requirement	DVH 23	MH 26	TW 10	Medway 25	QEQM 24	K&C 24	WHH 24	Total gap Jun 2016*
1	Min 6 stroke consultant rota* May require more to manage a units volume of activty	x	x	x	x	x	x	x	29.5
2	2.9 nurses per bed (80/20)	x	x	x	x	x	x	x	65.18/24.37*
3	1.0 wte physio per 5 beds	x	x	x	x	x	x	x	8.75
4	0.68 per 5 beds Occupational therapist	x	x	x	x	x	x	x	11.49
5	0.34 per 5 beds SLT	x	x	x	x	x	x	x	9.89
6	0.15 Dietician								n/k
7	0.20 Clinical Psychologist								n/k

Notes: We don't have a complete data set for therapies or untrained nurses
Detail on dietician and clinical psychologist not collected
** just noted the total gap, this is iterative and staff move and are appointed, so would need to be looked at again in detail when geographic options are worked up in detail

Source: 'As Is/Future State' workforce assessment; updated June 2016

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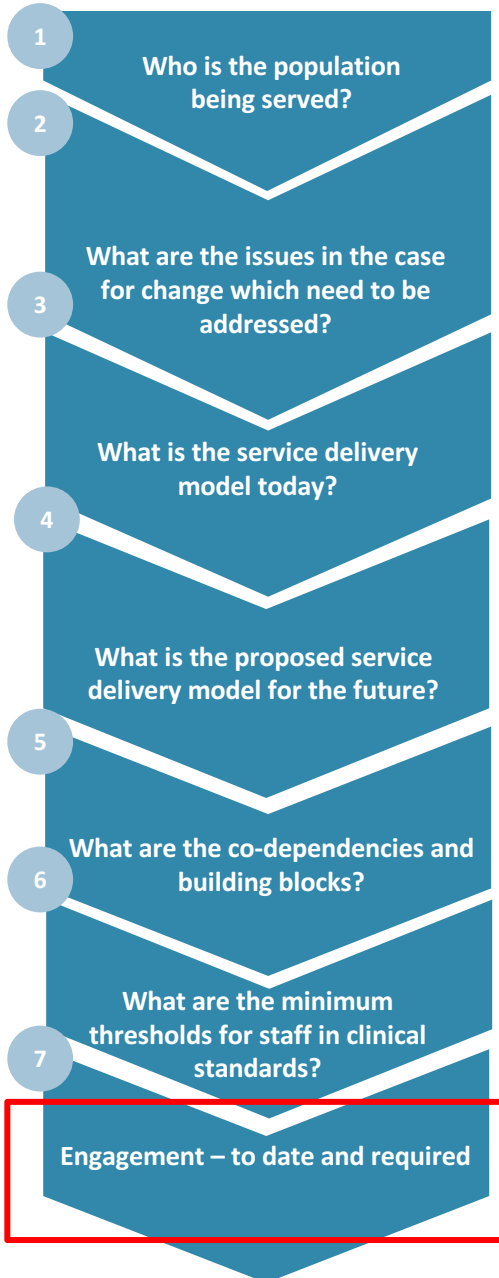

- Over the last 2 years EKHUFT has engaged with key stakeholders internally and externally through a series of EKHUFT and East Kent Strategy Board events.
- Extensive engagement events carried out in North Kent, West Kent and Medway over the last 6 months

Engagement

Over the last 2 years there has been a Kent & Medway review of stroke.

- There was a governance structure created with a Programme Board and Clinical Reference Group (CRG)
- Public and clinical engagement events took place throughout the process, with key engagement events have been tabled on the next slide.

Engagement events to date (January 2017) (Page 1 of 2)

DATE	EVENT	ATTENDEES	PURPOSE
June to Sept 2015	10 Listening Events across K&M Focus groups with the stroke asscition and Hard to Reach groups		To develop the Case for Change and inform decision making criteria
Nov and Dec 2015	3 Deliberative Events: "People's Panels" - 2 in Maidstone and 1 in Ashford	Members of the public	Pre-consultation engagement to work through review process, discuss priority indicators and test the emerging options
Nov 2015	K&M Review 1st Clinical Engagement Event: Presentation by Professor Tony Rudd, National Clinical Lead for Stroke	All staff connected with all 7 stroke units (Therapists, Consultants, Nursing staff, SALT etc)	Progress of the K&M Stroke Review, clinical models and service delivery options. To inform the options appriasal process
Sept to Oct 2016	4 Public Deliberative Listening Events held in conjunction with Health Watch and the Stroek Assocaiation – coordinated by the K&M Stroke Review Process - Sandwich; Ashford; Maidstone; Gillingham	People who have had a stroke, their carers and members of the public	To share the case for change, discuss the on-going review proces, the emerging findings and invite feedback and challenge
Feb to April 2016	3 Direct Engagement Events: 1 x Minority Ethnic Forum in Medway 2 x Asian population in Gravesham	Members of the public, targeted non English speaking communities	To share the case for change, discuss the on-going review process and invite feedback and challenge
April 15 to Sept 2015 March to Sept 16	Presented to CCG Clinical Forums	GPs CCG representatives	To bring together the attendees to discuss the way forward in achieving a stroke service that is clinically and financially sustainable
11.2.16	EK Strategy Board	EK Clinical Chairs, AO's, Provider CEOs, Healthwatch	To update and align to the EK strategy

Engagement events to date (January 2017) (Page 2 of 2)

DATE	EVENT	ATTENDEES	PURPOSE
July, Sept 15, Jan and March 2016	- K&M Commissioning Assembly	K&M CCG Clinical Chairs and AOs, KCC, Specialist Commissioning	To review the Case for Change and inform options appraisal and advise on modelling
April 2015 to Nov 2016	K&M Stroke Review Programme Board - Quarterly meeting - - Also presented 7 times to K&M Joint Health Overview & Scrutiny Committee (JHOSC) Sept 15 to Nov 2016 - Presented to individual HOSC/HASC April and July/Aug 15	Clinical and patient representatives including: Stroke Clinical Lead for Kent, Surrey & Sussex, NHS England, Clinical Experts, CCG representatives, Stroke Association, Health watch ,South East Coast Ambulance Service and Engagement Leads	Agree what actions need to be taken for the review to be successful
Oct 2015 to Nov 2016	K&M Review Clinical Reference Group (CRG) - Monthly meeting	Clinical and operational representatives from all acute hospitals and providers; links to Programme Board	Provides clinical scrutiny to the review process and actions undertaken
March 2016	K&M Programme Board Challenge Session	Clinical and patient representatives including: Stroke Clinical Lead for Kent, Surrey & Sussex, NHS England, Clinical Experts, CCG representatives, Stroke Association, South East Coast Ambulance Service and Engagement Leads JHOSC members	To review progress of the options appriasal and confirm areas of challenge, further detailed modelling and agree non viable options in relation to the criteria
Oct 2014 to June 2016 May 2015, Nov 15 and January 16 Early 2015 ?Jan to April	EKHUFT Organisation of Stroke Services Meetings - Quarterly development and strategy meetings - MTW Stroke Improvement Board - MTW public engagement events	Staff from all 3 stroke units in East Kent; South East Coast Ambulance; Kent Community Health Foundation Trust MTW Stroke leads and executive team Patients and members of the public	Develop the stroke service in east Kent and align to service reviews To advise and align the K&M Review with the MTW Stroke improvement programme To discuss and develop solutions to stroke performance across MTW
Oct 2016 Feb 2017	East Kent Clinical Engagement Stroke Service Away Day Events	Staff from the 3 Stroke Units in east Kent; along with K&M guests and speakers	To continue with strong staff engagement and involvement in the review process and outcomes